



WILLIAMS VALVE

FLOATING AND TRUNNION MOUNTED BALL VALVES



*“Our goal is to produce
high quality valves,
fully traceable, at prices
competitive in the global
marketplace.”*

A MESSAGE FROM THE PRESIDENT

Founded in 1918, William E. Williams Valve Corporation has continuously produced high quality valves for industrial and commercial applications including: oil refining, chemical processing, power generation, mining, paper, pharmaceutical processes, as well as, commercial and military shipbuilding.

Product improvements exceeding the latest environmental standards are constantly being implemented. Recently, we initiated a totally contained bonnet gasket design, which, with our standard stem packing, exceeds most fugitive emission requirements.

Williams' valves are designed, manufactured and tested to meet and exceed all applicable specifications to which they are constructed. Our goal is to produce high quality valves, fully traceable, at prices competitive in the global marketplace deliveries to match the “just in time” requirements of today's business world. In order to accomplish this goal, we maintain large inventories of finished products to support our distribution network.

All products are completely traceable to chemical, physical and pressure test records. Additional non-destructive testing is offered when specified.

We have years of experience working on special requirements: electric, hydraulic or pneumatic automation, gear operators emergency shut-off valves, soft seats and discs, by-pass valve installations and extended bonnets.

We believe that William E. Williams has a record of quality equal to or better than any in the valve industry. We are a privately owned company whose accomplishments have been achieved by the dedication and commitment of our employees to provide a standard of excellence in all our products for you, our present and future customers.

This condensed catalog is intended to provide an overview of our products. Detailed drawings are available in several formats. We appreciate your business and want to be your primary valve source.

Sincerely,



Nick Sherman
President



WILLIAMS PROFILE

Rugged Reliable Valves since 1918

LOCATIONS:

- HEAD OFFICE: Long Island City, NY
- TEXAS BRANCH: Houston, TX
- CARBON STEEL GGC & BALL: Dafeng, China
- STAINLESS & ALLOY GGC: Busan, Korea
- DOMESTIC & NAVY PRODUCTS: LIC, NY

PRODUCT LINE:

- Cast & Forged Steel Gate, Globe, & Check Valves
- Forged Trunnion mounted Ball Valves
- Marine Valves for Commercial Vessels
- 100% made in the USA Valves for US Navy
- API-6D Pipeline Slab and Expanding Gate Valves
- Cast & Forged Stainless and Alloy Steel Valves for corrosive service
- Pressure seal bonneted valves for power and high-pressure applications
- Emergency Shutoff Valves for Tanks and Terminals
- Cryogenic service valves with extended bonnets

TABLE OF CONTENTS

Manufacturing Site 4

Product Line Overview 5

How to Order 6

Ball Valve Products 7

Ball Valve Body Assemblies 9

Ball Valve Body & Trim Materials 10

Ball Valve Design Features 11

Ball Valve Construction Details 12

Ball Valve Seat Designs 13

Williams Valve Seat Configurations 15

Technical Data 16

Trunnion Weights & Dimensions 18

Floating Ball Valves 24

Floater Weights & Dimensions 25



Manufacturing and testing at our Williams' New York Location



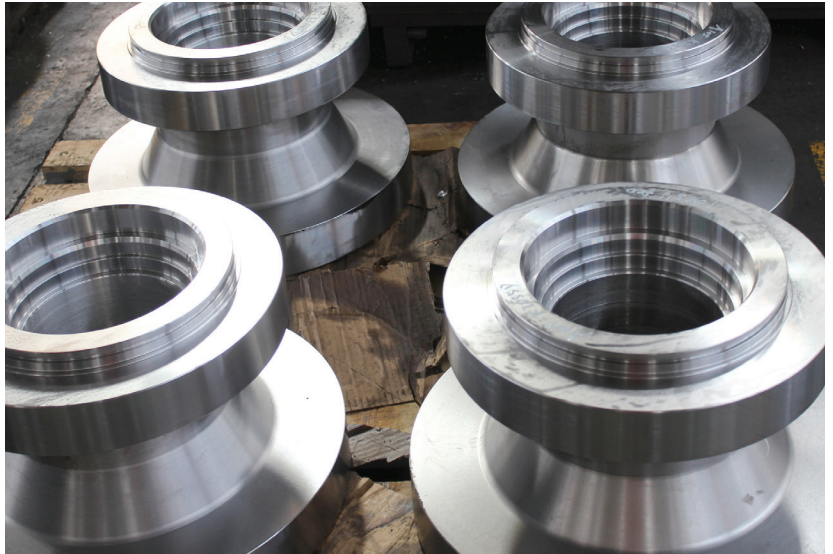
MANUFACTURING SITE



In House Forging Facility



CNC Machine Center Facility



CNC Lathe Facility



Painting Area



Parts Storage



Ball Valve Assembly



Lapping Machines



Actuated Trunnions



BW Trunnions



Packing Area

PRODUCT LINE OVERVIEW



TRUNNION MOUNTED BALL VALVES

FEATURES

Size Range/ ASME Class	150#	300#	600#	900#	1500#	2500#
1.5"						
2"						
3"						
4"						
6"						
8"						
10"						
12"						
14"						
16"						
18"						
20"						
24"						
28"						
32"						
36"						
40"						
42"						
46"						
48"						
56"						

DESIGN NOTE:

Post Trunnion - 2" RP – 8" RP
Plate Trunnion - 8" FP and Above

FLOATING BALL VALVES

FEATURES

Size Range/ ASME Class	150#	300#	600#	900#	1500#	2500#
1"						
2"						
3"						
4"						
6"						
8"						
10"						
12"						

PRODUCT RANGE

	FLOATING BALL VALVE Size Range : 1" to 12"
	TRUNNION BALL VALVE Size Range : 1.5" to 56"
	TOP ENTRY BALL VALVE Size Range : 2" to 56"
	WELDED BODY BALL VALVE Size Range : 2" to 56"
	CRYOGENIC BALL VALVE Size Range: 1" to 24"

WILLIAMS FIGURE NUMBERS

A	B	C	D	E	F	G	H	I
SIZE	BODY MATERIAL PREFIX	CLASS AND VALVE TYPE	ENDS	BODY MATERIAL	BALL / STEM MATERIAL	SEAT MATERIAL	SEAL MATERIAL	OPTIONS
U	Cast Unibody Floater	16 150# Reduced Port Ball	F RF Flanged	CAST FORGED	1 A 105+ENP/410	RT Reinforced Teflon	1 Viton GLT AED	NONE Lever
W	Cast (2pc Floater)	17 150# Full Port Ball	W Butt Weld	NONE A216 WCB A216 WCC	2 LF2+ENP/410	T Virgin Teflon	2 Viton A	GO Gear Operator
D	Cast (3pc Floater)	36 300# Reduced Port Ball	R Ring Joint	2 A352 LCB A352 LCC	3 A105+ENP/F6a	V Viton	3 FEPM	MO Motor Operated
T	Cast (2pc Trunnion)	37 300# Full Port Ball	S Socket Weld	3 A352 LC3 A350 LF3	4 F6+ENP/F6a	D Devlon	4 Viton B	BS Bare Stem
P	Cast (3pc Trunnion)	66 600# Reduced Port Ball	T Threaded	4 A351 CF8 A182 304	5 CF8/F304	DR Delrin	5 Viton GF	HO Hydraulic Operator
X	Cast (Fully Welded)	67 600# Full Port Ball	P Pup Ends	5 A217 C5 A182 F5	6 CF8M/316	N Nylon	6 HNBR	PO Pneumatic Operator
E	Cast (Top Entry)	96 900# Reduced Port Ball	TXS Thd x SW	6 A351 CF8M A182 316	7 F51	P Peek	7 FFKM/Kalrez	MP Mounting Pad
FW	Forged (2pc Floater)	97 900# Full Port Ball		7 A351 CF3 A182 304L	8 316L/F316L	PC PCTFE	8 Lipseal	OX Oxy Cleaned
FD	Forged (3pc Floater)	107 WOG 1000# Full Port Ball		8 A217 C12 A182 F9	9 F304L	PV Peek-Viton Delta	9 EPDM	EX Extended Body
FT	Forged (2pc Trunnion)	156 1500# Reduced Port Ball		9 A217 WC9 A182 F22	0 OTHER	MC Metal Seated-CCC	ZZ Other-To be specified	LRK Liquid Relief Kit
FP	Forged (3pc Trunnion)	157 1500# Full Port Ball		10 A351 CF3M A182 316L		MT Metal Seated-TCC		EB Extended Bonnet
FX	Forged (Fully Welded)	207 WOG 2000# Full Port Ball		11 A217 WC6 A182 F11		ZZ Other-To be specified		CRY Cryogenic
FE	Forged (Top Entry)	256 2500# Reduced Port Ball		12 A351 CF8C A182 347				TF Teflon Gasket
FU	Forged Unibody Floater	257 2500# Full Port Ball		13 A890 1A A182 F50				NONE DBB
		307 WOG 3000# Full Port Ball		14 A890 4A A182 F51				D1 DIB-1
		507 WOG 5000# Full Port Ball		15 ASTM B62 BRZ				D2 DIB-2
				0 OTHER				ZZ Other-To be specified

*All ball valves as a standard meet NACE MR0175. Client to specify otherwise.

BALL VALVE EXAMPLE

A	B	C	D	E	F	G	H	I
10"	T	17	F		6	RT	6	GO

10" 150# RF WCB Body Full Port Trunnion Ball Valve, 316 Ball, RT Seats with Gear Operator - 10" T17F-6RT GO

FLOATING BALL VALVE 2 PC BODY



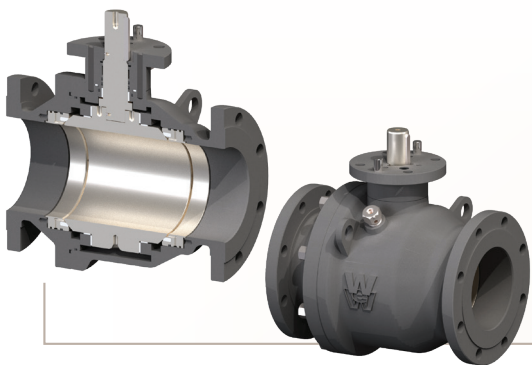
FEATURES

Size: 1"–12"
Class: ASME 150-300
Two Pieces Cast Steel Body
Floating Ball, Full & Reduced Bore
Anti-Static Device
Blow-out Proof Stem
Fire Safe Design
Low Emission

SPECIFICATIONS

Design: ASME B16.34/API 608
Face to Face: ASME B16.10
End Flange: ASME B16.5
BW End: ASME B16.25
Test: API 598
Fire Safe Test: API 607
NACE MR0175

CAST TRUNNION MOUNTED BALL VALVE



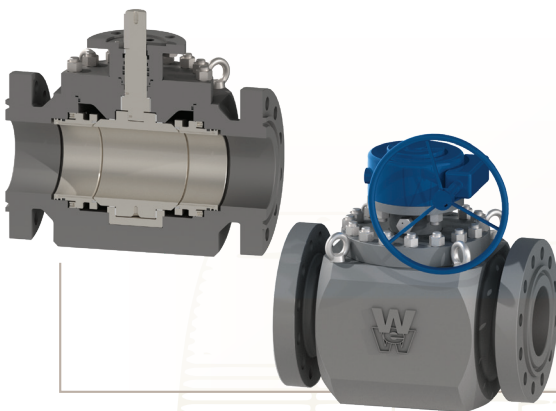
FEATURES

Size: 2"–24"
Class: ASME 150-300-600
Two Piece Cast Steel Body
Trunnion Mounted Ball
Full & Reduced Bore, Anti-Static Device
Blow-out Proof Stem
Fire Safe Design
Emergency Sealant Injector (6" & Larger)
Low Emission
DB & B

SPECIFICATIONS

Design: ASME B16.34/API 6D
Face to Face: API 6D
End Flange: ASME B16.5
BW End: ASME B16.25
Test: API 6D
Fire Safe Test: API 6FA
NACE MR0175
DIB Optional

TOP ENTRY BALL VALVES



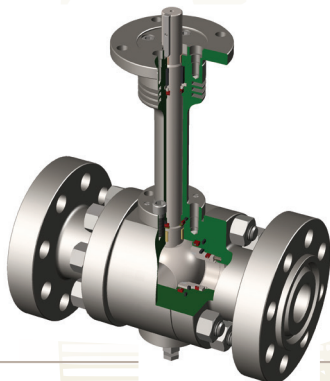
FEATURES

Size: 2"–48"
Class: ASME 150-300-600-900-1500-2500
1 Piece Forged Steel Body
Trunnion Mounted Ball, Full & Reduced Bore
Anti-Static Device
Blow-out Proof Stem
Double Block and Bleed
Fire Safe Design
Emergency Sealant Injector (6" & Larger)
Vent Valve (6" & Larger)
Lifting Lugs (8" & Larger)
Low Emission

SPECIFICATIONS

Design: ASME B16.34/API 6D
Face to Face: API 6D
End Flange: ASME B16.5
BW End: ASME B16.25
Test: API 6D
Fire Safe Test: API 6FA
NACE MR0175

CRYOGENIC SERVICE BALL VALVE



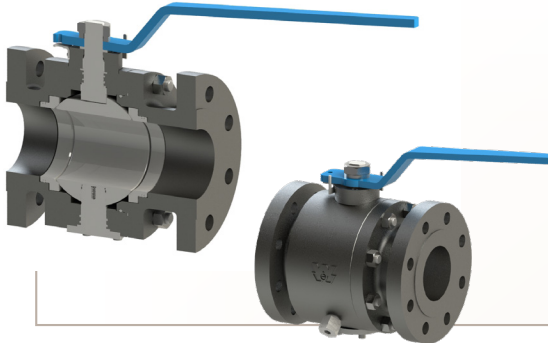
FEATURES

Size: 1/2"–24"
Class: ASME 150-300-600-900
Cryogenic Service to -196°C
Forged or Cast Steel Body
Floating & Trunnion Mounted Ball
Full & Reduced Bore
Extended Bonnet, Lip Seal
Cavity Pressure Relief
Anti-Static Device
Blow-out Proof Stem
Fire Safe Design

SPECIFICATIONS

Design: ASME B16.34/API 608/MSS SP-134
Face to Face: API 6D
End Flange: ASME B16.5
BW End: ASME B16.25
Test: API 6D
Fire Safe Test: API 6FA
NACE MR0175

TRUNNION MOUNTED BALL VALVE 2 PC BODY



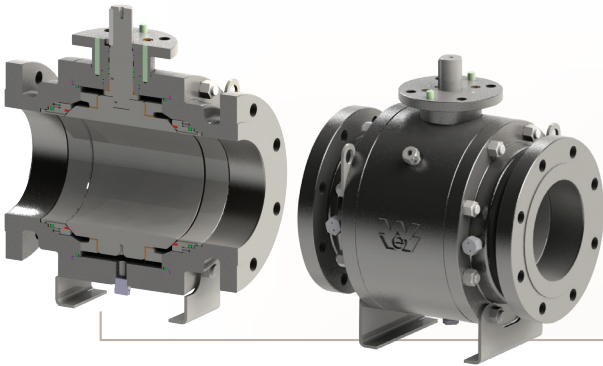
FEATURES

Size: 2"–4"
 Class: ASME 150-300-600
 Two Piece Forged Steel Body
 Trunnion Mounted Ball, Full & Reduced Bore
 Anti-Static Device
 Blow-out Proof Stem
 Fire Safe Design
 Centre Cavity Emergency sealant injection port
 Low Emission
 DB & B

SPECIFICATIONS

Design: ASME B16.34/API 6D
 Face to Face: API 6D
 End Flange: ASME B16.5
 BW End: ASME B16.25
 Test: API 6D
 Fire Safe Test: API 6FA
 NACE MR0175
 DIB Optional

TRUNNION MOUNTED BALL VALVE 3 PC BODY



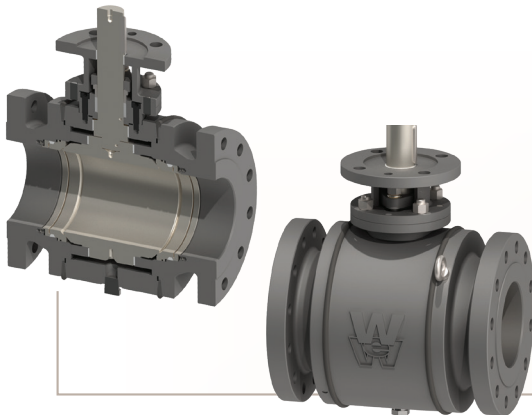
FEATURES

Size: 2"–56"
 Class: ASME 150-300-600-900-1500-2500
 Three Piece Forged Steel Body
 Trunnion Mounted Ball, Full & Reduced Bore
 Anti-Static Device
 Blow-out Proof Stem
 Fire Safe Design
 Emergency Sealant Injector (6" & Larger)
 Low Emission
 DB & B

SPECIFICATIONS

Design: ASME B16.34/API 6D
 Face to Face: API 6D
 End Flange: ASME B16.5
 BW End: ASME B16.25
 Test: API 6D
 Fire Safe Test: API 6FA
 NACE MR0175
 DIB Optional

WELDED BODY BALL VALVE



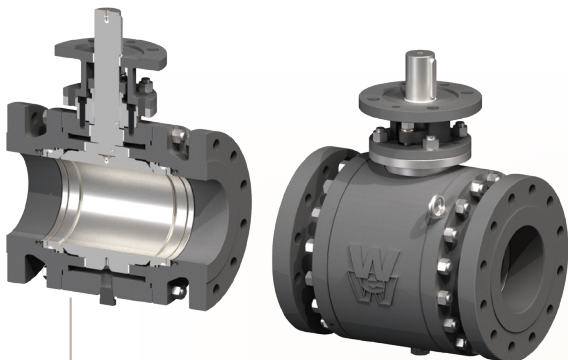
FEATURES

Size: 2"–48"
 Class: ASME 150-300-600-900-1500-2500
 Fully Welded Forged Steel Body
 Trunnion Mounted Ball, Full & Reduced Bore
 Anti-Static Device
 Blow-out Proof Stem
 Double Block and Bleed
 Fire Safe Design
 Emergency Sealant Injector (6" & Larger)
 Lifting Lugs (8" & Larger)
 Low Emission
 DB & B

SPECIFICATIONS

Design: ASME B16.34/API 6D
 Face to Face: API 6D
 End Flange: ASME B16.5
 BW End: ASME B16.25
 Fire Safe Test: API 6FA
 NACE MR0175
 DIB Optional

METAL SEATED BALL VALVE



FEATURES

Size: 2"–24"
 Class: ASME 150-300-600-900-1500-2500
 Three Piece Forged Steel Body
 Trunnion Mounted Ball
 Full & Reduced Bore
 Anti-Static Device
 Blow-out Proof Stem
 Fire Safe Design
 Low Emission
 DB & B

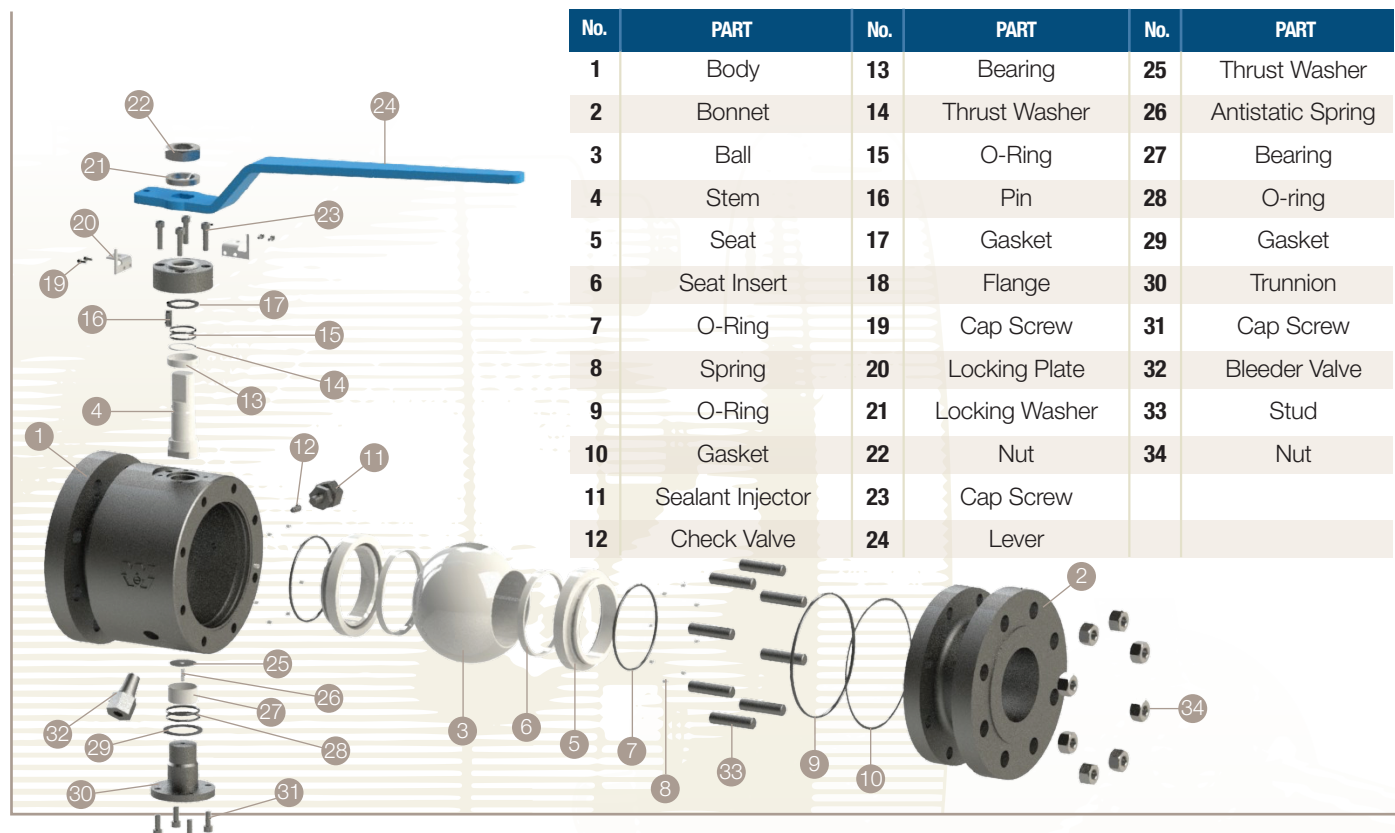
SPECIFICATIONS

Design: ASME B16.34/API 6D
 Face to Face: API 6D
 End Flange: ASME B16.5
 BW End: ASME B16.25
 Test: API 6D
 Fire Safe Test: API 607/API 6FA
 Design temperature: up to 204°C
 Higher temperature optional
 NACE MR0175

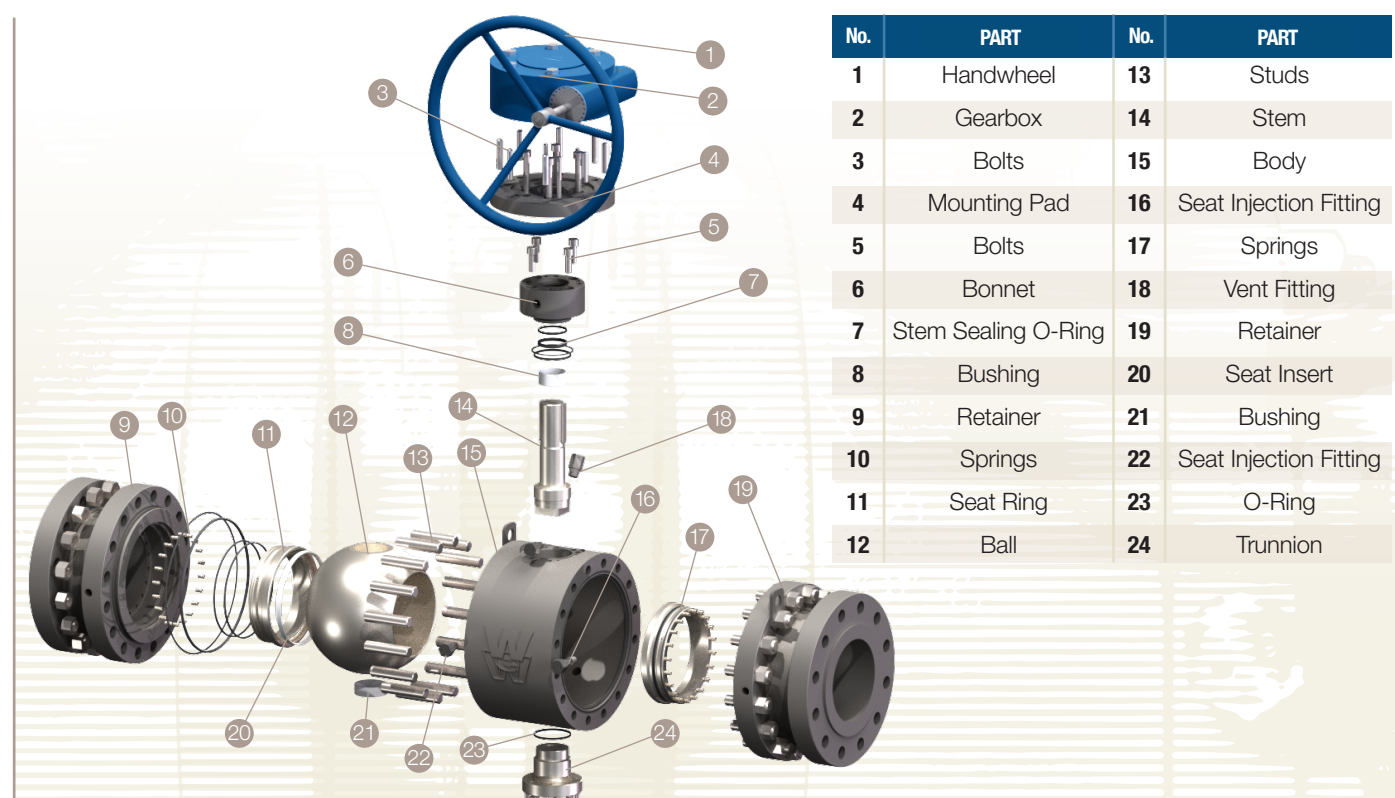
BALL VALVE BODY ASSEMBLIES



TRUNNION MOUNTED BALL VALVE 2 PC BODY



FORGED TRUNNION MOUNTED SIDE ENTRY BALL VALVE



MATERIAL SPECIFICATION

BODY AND TRIM MATERIAL

CARBON STEEL

ASTM A105N ASTM A216 WCB ASTM A216 WCC

LOW ALLOY STEEL

AISI 4140 ASTM A694 F65 ASTM A694 F52
 ASTM A694 F60 ASTM A350 LF3
 API 6A 60K (A694 F60 MOD)

AUSTENITIC STAINLESS STEEL

ASTM A182 F316 ASTM A182 F316L
 ASTM A182 F316LN-MOD. ASTM A182 F347
 ASTM A182 F44 (6% MO) ASTM A182 FXM-19
 (UNS 531254) (NITRONIC 50)
 ASTM A351 CF8M ASTM A351 CF3
 ASTM A351 CF3M

LOW TEMPERATURE CARBON STEEL

ASTM A350 LF2 ASTM A352 LCB ASTM A352 LCC

MARTENSITIC STAINLESS STEEL

ASTM A182 F6A ASTM A182 F6NM
 ASTM A217 CA15 ASTM A487 CA6NM

DUPLEX STAINLESS STEEL

ASTM A182 F51 - UNS S31803 (22%Cr DUPLEX)
 ASTM A182 F53 - UNS S32750 (25%Cr SUPER DUPLEX)
 ASTM A182 F55 - UNS S32760 (25%Cr SUPER DUPLEX)
 ASTM 995 4A-UNS 31803 (22%Cr DUPLEX)
 ASTM 995 5A-UNS 32750 (25%Cr SUPER DUPLEX)
 ASTM 995 6A-UNS 32760 (25%Cr SUPER DUPLEX)

NICKEL ALLOYS

Incoloy 825 - UNS N08825 Incoloy 925 - UNS N09925
 Inconel 625 - UNS N06625 Inconel 718 - UNS N07718
 Inconel X-750 - UNS N07750
 Monel 400-UNS N04400
 Monel K500

SEAT INSERT & MATERIAL OPERATING LIMITS

MATERIAL	TEMP °F		PRESSURE CLASS		SIZE	
	MIN.	MAX	SEAT INSERT	SEAL	SEAT INSERT	SEAL
Nylon 12	-45	250	2500	N/A	60"	N/A
Devlon	-50	350	2500	N/A	60"	N/A
Peek	-50	500	2500	N/A	36"	N/A
RPTFE (25% Glass Filled)	-100	450	600	N/A	24"	N/A
PCTFE	-320	300	2500	N/A	36"	N/A
HNBR	-50	300	600	2500	60"	60"
Viton A	-20	400	600	2500	60"	60"
Viton B	-20	400	600	2500	60"	60"
Viton GLT	-46	396	600	2500	60"	60"
Viton AED	-46	396	600	2500	60"	60"
Lip Seal	-320	480	N/A	2500	N/A	36"

PLATING/COATING

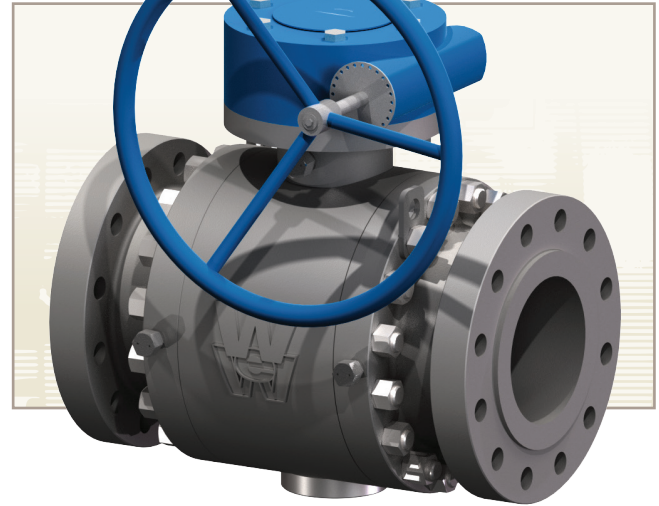
- Electroless Nickel Plating: 50 µ m, 75 µ m
- Tungsten Carbide Coating: 150 µ m
- Chrome Carbide Coating: 150 µ m
- Wet Parts Overlay: AISI 316, INCONEL 625



FP SERIES DESIGN FEATURES

STANDARD FEATURES

- 3 Piece bolted construction permits disassembly in the field for repairs
- Double-barrier stem seals
- Back-seated blowout proof stem
- Stem separated from the ball; no side load on the stem
- Synthetic O-ring seal for fire safe design
- Built-in sealant injection system for emergency seat & stem seal
- 3 Mil Nickel plating for trim parts (Ball, Seat Ring, Stem)
- Trunnion mounted ball for ease of operation at high pressure (Post and Plate designs)
- Integral stop in the adapter plate for a permanent reference to open and closed position
- Anti-static design
- Valve cavity pressure relief (SPE Seats)
- Double Block & Bleed capability
- RPTFE, DEVLON, PEEK standard Plastic seat inserts
- SIL 3 Rating
- Dual stem bearing
- 27 designs meeting fugitive emissions to ISO-158480-1 and ISO 15848-2

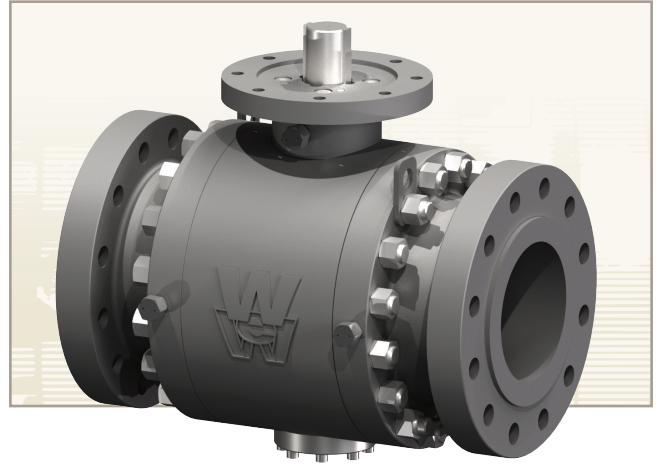


OPTIONS

- Plastic polymer O-ring or insert for primary seat sealing (Delta Ring)
- Metal-to-metal seat
- Explosive decompression-resistant seal
- DIB (Double Isolation & Bleed) design
- Duplex Stems
- LRK (Liquid Relief kits available for DIB configurations)
- Special material configurations are available upon request
- Acid Gas and High H₂S / CO₂ applications
- Cryogenic Service
- Stem Extensions
- Fully Welded Body
- Design and testing to CSA Z245.15

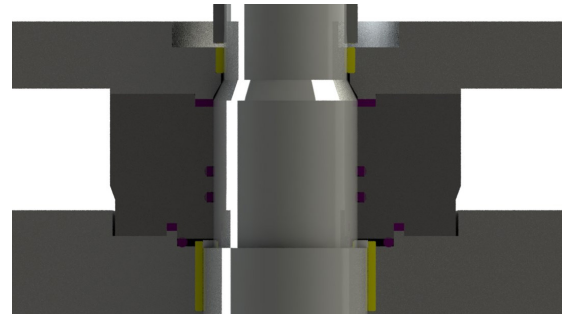
TRUNNION BODY CONSTRUCTION

The body is made of three forged parts and the bolted construction allows disassembly in the field for repairs. As a standard, our valves come with a 1/4" NPT drain plug and forged fittings for both stem and seat emergency sealing. Graphite rings are provided for compliance with API 6FA fire-safe standards. Williams manufactures trunnion ball valves using a full range of Carbon, Stainless and High Alloy materials. As a standard, our commodity valves are A350 LF2 and 3 mil ENP carbon steel trim. Material test reports are in accordance with EN10204 3.1.



STEM CONSTRUCTION

The stem function is to transmit torque and to absorb the line pressure thrust together with the trunnion. Williams design for CL150 through CL600 comes with a standard Dual Stem bearing system. Force is balanced from resultant forces on both bearings and creates less stress and lower operating torques.



EMERGENCY SEALANT INJECTION

As an excess of impurities in fluids may have a harmful effect on seat ring seals, Williams trunnion valves, 6" and above, are equipped for emergency sealant injection. This consists of special holes and grooves in the seat rings and valve body through which sealants are injected. Each body injection port is equipped with an inner check valve and a grease button head fitting.



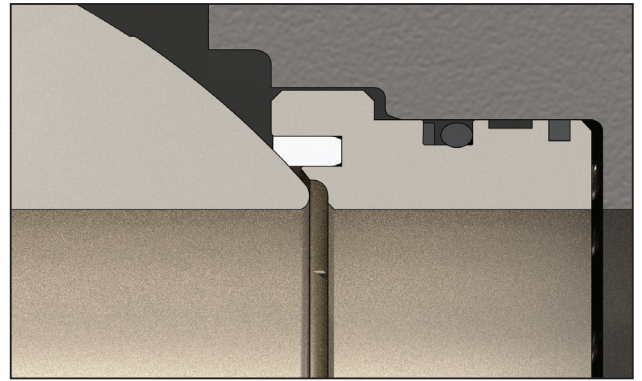


Using exact manufacturing processes and standards Williams Valve offers three standard seat designs for its clients.

Other designs are available upon request.

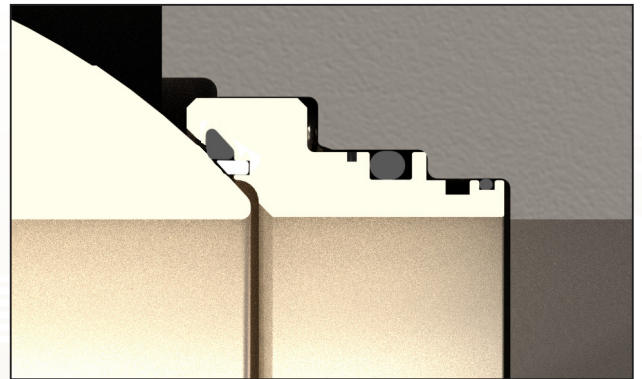
WEWSEAL-1

Williams standard seat design is suitable for a wide array of demanding applications and our seat inserts allow for a variety of materials with fast delivery. RPTFE seat inserts are standard for CL150 & CL300. Devlon seat inserts are standard for CL600 & above. PEEK seats are available on request for high pressure applications.



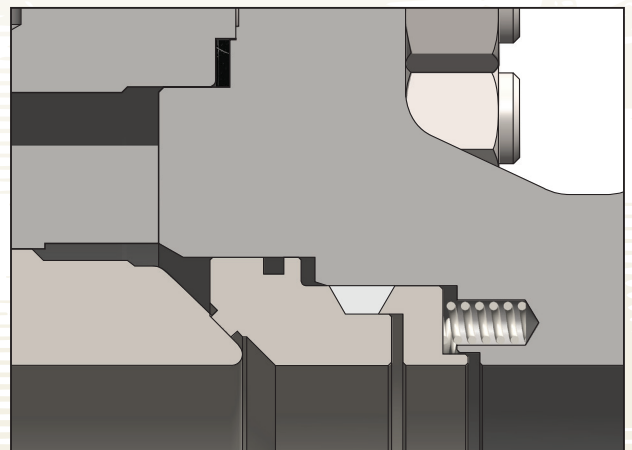
WEWSEAL-2

WEWSeal-2 seat designs are for applications that require redundant sealing when access to a valve is limited or start up conditions are known to have debris in the line. Lower torque and low pressure shut-off are often achieved utilizing this design while providing customers with zero leakage reliability at an affordable price.



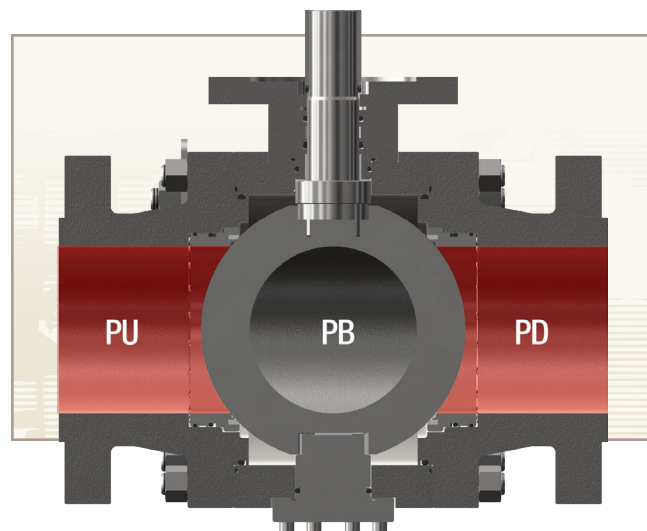
METAL-TO-METAL SEATS

There are several services that require metal to-metal seats. Williams Valve has extensive experience in the supply of valves for applications such as high temperature Emulsion, Steam, and in corrosive and /or erosive environments. Williams Valve manufactures metal-to-metal seats using various hard face material on the ball and seat face such as Tungsten Carbide Coating, and Chrome Carbide Coating.



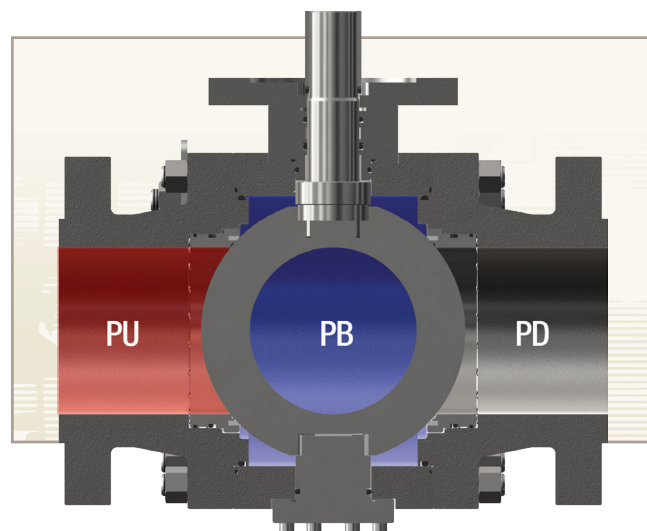
DOUBLE BLOCK AND BLEED (DBB)

Williams standard trunnion mounted ball valves are manufactured to facilitate block and bleed applications in the closed position. This illustration shows both the Upstream Pressure (P_u) and the downstream pressure (P_d) being held independently from the body pressure (P_b). The double block and bleed function makes it possible to flush the valve under pressure and verify that the seats are sealing properly.



DOUBLE ISOLATION AND BLEED (DIB)

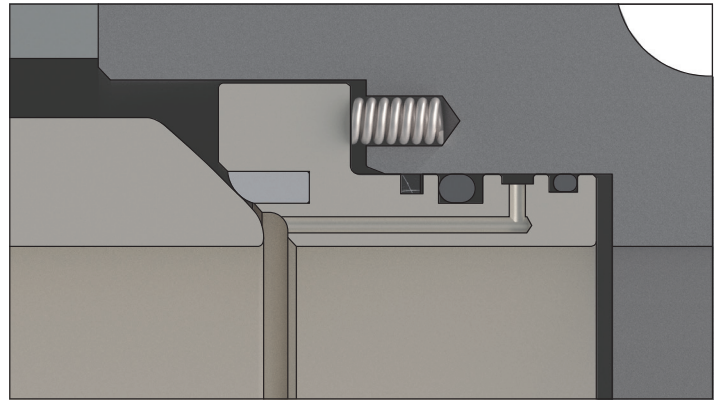
Williams Valve manufactures a single valve with two seating surfaces, each of which, in the closed position, provides a seal against pressure from a single source, with a means of venting/bleeding the cavity between the seating surfaces. Williams provides DIB valves in both DIB-1 (Two bidirectional seats) and DIB-2 (one bidirectional and one unidirectional seat) configurations.





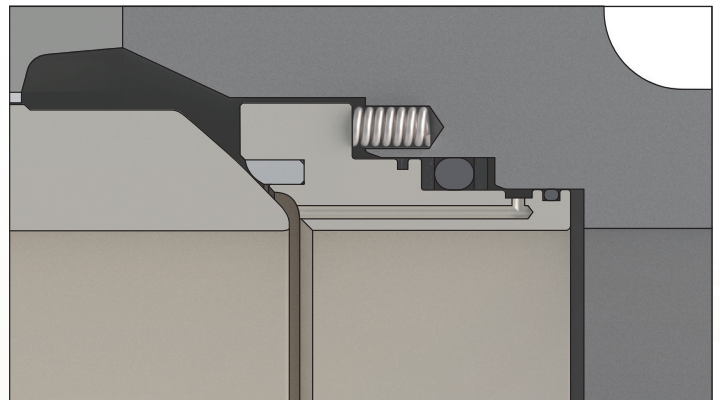
SINGLE PISTON EFFECT SEAT (SPE)

Self-relieving ball seating the fluid is shutoff solely by the upstream seat rings. As each seat ring is of single-directional type, each seat ring is pushed towards the ball only if the pressure in the body cavity is lower than the line pressure (single-directional seat ring type). Any overpressure of the fluid trapped in the body cavity overcoming the mechanical load of the springs pushes the seat ring away from the ball and excess pressure is automatically relieved back into the line.



DOUBLE PISTON EFFECT SEAT (DPE)

Double isolation ball sealing (standard design). As each seat ring is of bidirectional type, the displacement of the body-side O-ring pushes each seat ring ever towards the ball, regardless of the fluid pressure distribution through the valve. This redundant sealing system forms a double barrier against the fluid, ensuring valve shutoff by the downstream seat ring if the one upstream fails. A pressure relief valve is fitted to the vent connection of the body cavity when any thermal expansion of the fluid trapped between the seat rings may cause a dangerous overpressure.

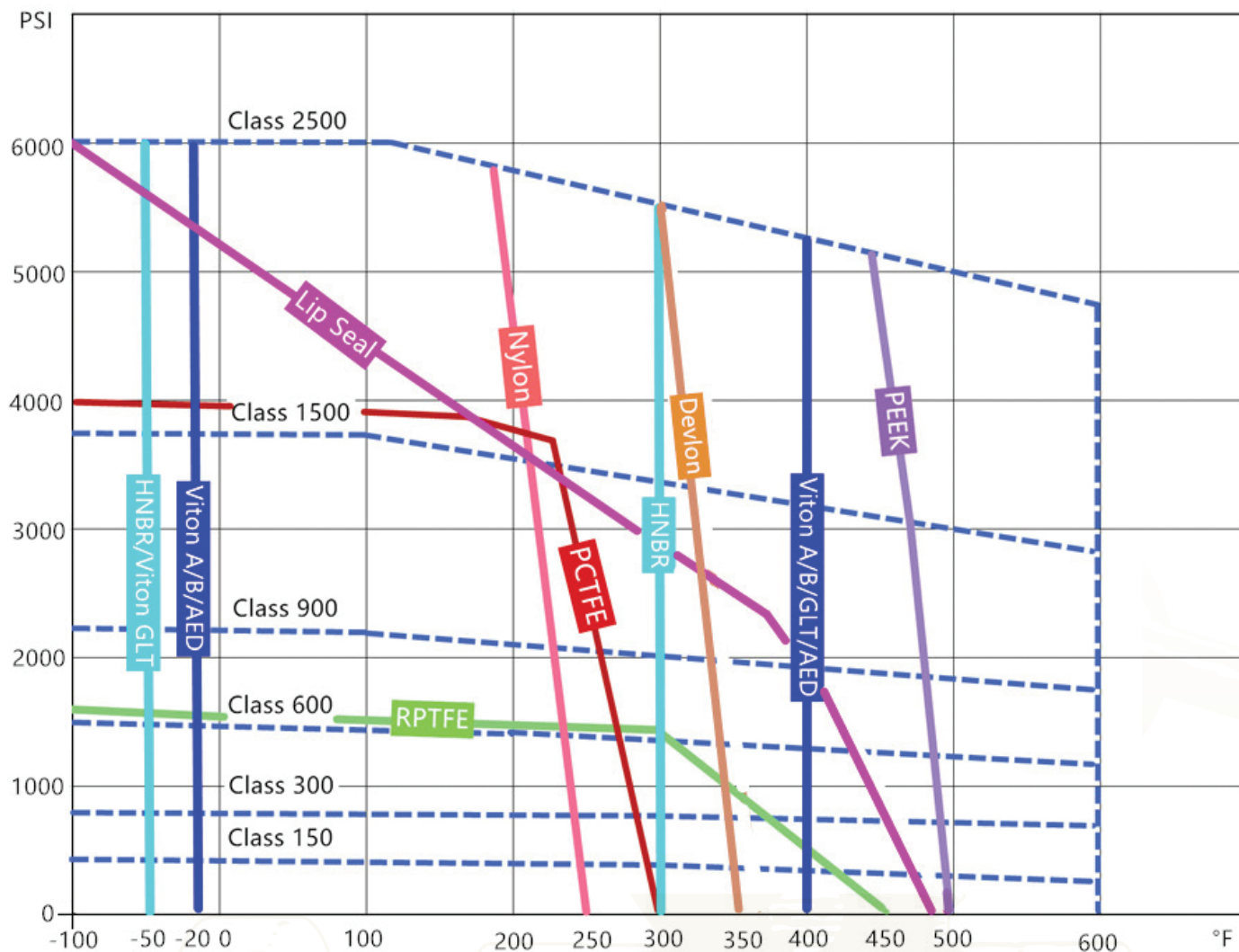


CV VALUES - TRUNNION

BORE (INCHES)	CLASSES					
	150#	300#	600#	900#	1500#	2500#
2" x 1 1/2"	78	68	60	55	55	51
2"	433	393	358	312	312	299
3" x 2"	207	193	172	165	165	155
3"	1323	1112	989	965	913	842
4" x 3"	433	393	358	312	312	299
4"	2497	2309	1862	1790	1610	1500
6" x 4"	1100	1020	890	965	913	842
6"	5268	5235	4384	4190	3890	3420
8" x 6"	2097	1985	1660	1790	1610	1500
8"	10320	10120	8650	8080	7710	7140
10" x 8"	4560	4120	3910	4190	3890	3420
10"	18330	16650	14120	13850	13040	11480
12" x 10"	8010	7850	7250	7880	7510	6940
12"	26700	25900	22500	21200	19550	17500
14" x 10"	8010	7850	7250	7880	7510	
14"	31860	31050	28280	26700	24150	—
16" x 12"	15330	14650	12120	11850	11040	
16"	42870	40020	36240	34980	—	—
18" x 14"	19700	18900	15500	16200	15980	
18"	56310	53970	50830			
20" x 16"	25860	25050	22280			
20"	73650	69990	63870			
22" x 18"	35870	33020	29240			
22"	91700	88600	81500			
24" x 20"	49310	46970	43830			
24"	113000	109200	98600			
26" x 22"	63650	59990	53870			
26"	131000	125500	116400			
28" x 24"	76700	73600	66500			
28"	152800	147000	137000			
30" x 26"	91300	90920	78600			
30"	180700	174000	160100			



SEAT PRESSURE TEMPERATURE CHART

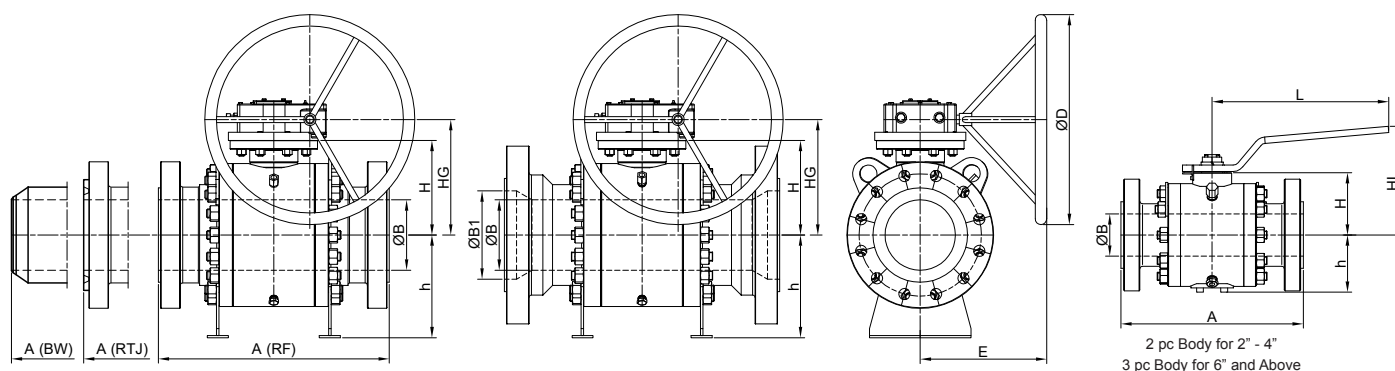


* For 3" and above CL600 Floating & Trunnion Ball Valves, using RPTFE seats may result in a de-rating of the max pressure.

** Information is for reference only. For specific valve PT ratings, please verify with Williams Valve.

WILLIAMS VALVE

FP16 - REDUCED PORT
FP17 - FULL PORT



ASME CLASS 150														
UNIT	SIZE	A-BW	A-RF	A-RTJ	B	B1	H	h	HL	L	HG	D	E	WEIGHT LBS/KG
Inch	1 1/2"	7.48	6.50	7.01	1.50		3.58	3.19	5.71	6.30				28.7
mm		190	165	178	38		91	81	145	160				13
Inch	2" x 1 1/2"	8.50	7.01	7.52	1.50	1.93	3.58	3.19	5.71	6.30				35.3
mm		216	178	191	38	49	91	81	145	160				16
Inch	2"	8.50	7.01	7.52	1.93		4.00	3.60	6.50	7.952755906				44.1
mm		216	178	191	49		102	92	165	202				20
Inch	3" x 2"	11.14	7.99	8.50	1.93	2.91	4.00	3.60	6.50	7.95				61.7
mm		283	203	216	49	74	102	92	165	202				28
Inch	3"	11.14	7.99	8.50	2.91		4.80	4.41	7.60	10.24				77.2
mm		283	203	216	74		122	112	193	260				35
Inch	4" x 3"	12.01	9.02	9.52	2.91	3.94	4.80	4.41	7.60	10.24				99.2
mm		305	229	242	74	100	122	112	193	260				45
Inch	4"	12.01	9.02	9.52	3.94		5.59	5.20	9.45	12.36				123.5
mm		305	229	242	100		142	132	240	314				56
Inch	6" x 4"	17.99	15.51	16.02	3.94	5.91	5.59	5.20	9.45	12.36				198.4
mm		457	394	407	100	150	142	132	240	314				90
Inch	6"	17.99	15.51	16.02	5.91		7.44	8.11	12.28	23.62				306.4
mm		457	394	407	150		189	206	312	600				139
Inch	8" x 6"	20.51	17.99	18.50	5.91	7.91	9.45	8.46	12.28	23.62				463.0
mm		521	457	470	150	201	240	215	312	600				210
Inch	8"	20.51	17.99	18.50	7.91		14.65	10.55			16.65	14.17	9.88	583.1
mm		521	457	470	201		372	268			423	360	251	264.5
Inch	10" x 8"	22.01	20.98	21.50	7.91	9.92	10.41	10.55			16.65	14.17	9.88	639.3
mm		559	533	546	201	252	265	268			423	360	251	290
Inch	10"	22.01	20.98	21.50	9.92		12.13	12.17			14.65	19.69	10.98	996.5
mm		559	533	546	252		308	309			372	500	279	452
Inch	12" x 10"	25.00	24.02	24.53	9.92	11.93	12.13	12.17			14.65	19.69	10.98	1069.2
mm		635	610	623	252	303	308	309			372	500	279	485
Inch	12"	25.00	24.02	24.53	11.93		13.46	12.11			15.98	19.69	10.98	1360.3
mm		635	610	623	303		342	308			406	500	279	617
Inch	14" x 10"	30.00	27.01	27.52	9.92	13.15	12.13	12.17			14.65	19.69	10.98	1168.4
mm		762	686	699	252	334	308	309			372	500	279	530
Inch	14"	30.00	27.01	27.52	13.15		14.35	13.90			16.87	19.69	10.98	1763.7
mm		762	686	699	334		365	353			428.5	500	279	800
Inch	16" x 12"	32.99	30.00	30.51	11.93	15.16	13.46	11.34			15.98	19.69	10.98	1653.5
mm		838	762	775	303	385	342	288			406	500	279	750
Inch	16"	32.99	30.00	30.51	15.16		15.96	16.10			18.48	23.62	12.17	2522.1
mm		838	762	775	385		406	409			469.5	600	309	1144
Inch	18" x 14"	35.98	34.02	34.53	13.15	17.17	14.35	12.72			16.87	19.69	10.98	2094.4
mm		914	864	877	334	436	365	323			428.5	500	279	950
Inch	18"	35.98	34.02	34.53	17.17		17.64	18.15			20.16	23.62	15.04	3346.6
mm		914	864	877	436		448	461			512	600	382	1518
Inch	20" x 16"	39.02	35.98	36.50	15.16	19.17	15.96	15.31			18.48	23.62	12.17	3196.7
mm		991	914	927	385	487	406	389			469.5	600	309	1450
Inch	20"	39.02	35.98	36.50	19.17		19.47	18.11			22.26	23.62	16.77	4493.0
mm		991	914	927	487		495	460			565.5	600	426	2038
Inch	24" x 20"	45.00	42.01	42.52	19.17	23.19	19.47	18.11			22.26	23.62	16.77	5732.0
mm		1143	1067	1080	487	589	495	460			565.5	600	426	2600
Inch	24"	45.00	42.01	42.52	23.19		22.52	23.39			25.71	23.62	19.37	7581.7
mm		1143	1067	1080	589		572	594			653	600	492	3439

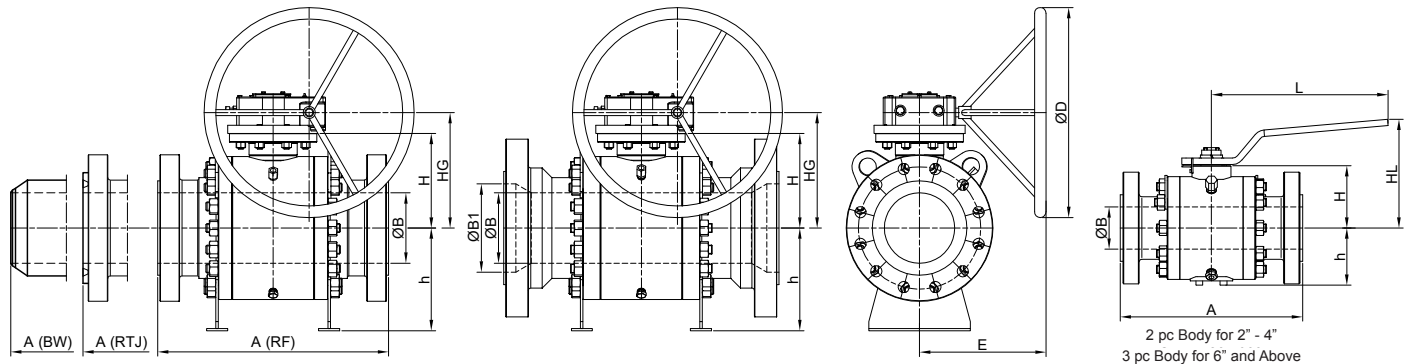
TRUNNION WEIGHTS & DIMENSIONS



BALL VALVE API-6D CLASS 150 - 600

FP36 - REDUCED PORT

FP37 - FULL PORT



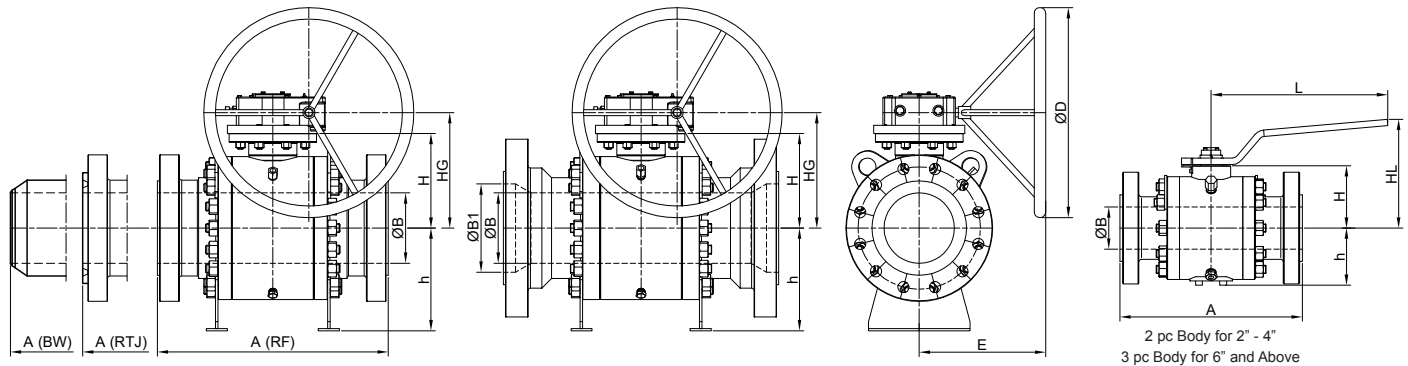
ASME CLASS 300

UNIT	SIZE	A-BW	A-RF	A-RTJ	B	B1	H	h	HL	L	HG	D	E	WEIGHT LBS/KG
Inch	1 1/2"	7.48	7.48	7.99	1.50		3.58	3.19	5.71	6.30				35.3
mm		190	190	203	38		91	81	145	160				16
Inch	2" x 1 1/2"	8.50	8.50	9.13	1.50	1.93	3.58	3.19	5.71	6.30				41.9
mm		216	216	232	38	49	91	81	145	160				19
Inch	2"	8.50	8.50	9.13	1.93		4.00	3.60	6.50	7.95				52.9
mm		216	216	232	49		101.5	91.5	165	202				24
Inch	3" x 2"	11.14	11.14	11.77	1.93	2.91	4.00	3.60	6.50	7.95				79.4
mm		283	283	299	49	74	101.5	91.5	165	202				36
Inch	3"	11.14	11.14	11.77	2.91		4.80	4.41	7.60	10.24				101.4
mm		283	283	299	74		122	112	193	260				46
Inch	4" x 3"	12.01	12.01	12.64	2.91	3.94	4.80	4.41	7.60	10.24				127.9
mm		305	305	321	74	100	122	112	193	260				58
Inch	4"	12.01	12.01	12.64	3.94		5.55	5.20	10.16	20.47				163.1
mm		305	305	321	100		141	132	258	520				74
Inch	6" x 4"	17.99	15.87	16.50	3.94	5.91	5.55	5.20	10.16	20.47				231.5
mm		457	403	419	100	150	141	132	258	520				105
Inch	6"	17.99	15.87	16.50	5.91		7.44	8.11	12.83	28.39				354.9
mm		457	403	419	150		189	206	326	721				161
Inch	8" x 6"	20.51	19.76	20.39	5.91	7.91	8.66	10.16	12.83	28.39				432.1
mm		521	502	518	150	201	220	258	326	721				196
Inch	8"	20.51	19.76	20.39	7.91		10.41	10.55			12.7	18.11	9.88	652.6
mm		521	502	518	201		264.5	268			322.5	460	251	296
Inch	10" x 8"	22.01	22.36	22.99	7.91	9.92	10.41	10.55			12.7	18.11	9.88	755.1
mm		559	568	584	201	252	264.5	268			322.5	460	251	342.5
Inch	10"	22.01	22.36	22.99	9.92		12.13	12.17			14.65	19.69	10.98	1075.9
mm		559	568	584	252		308	309			372	500	279	488
Inch	12" x 10"	25.00	25.51	26.14	9.92	11.93	12.13	12.17			14.65	19.69	10.98	1205.9
mm		635	648	664	252	303	308	309			372	500	279	547
Inch	12"	25.00	25.51	26.14	11.93		13.90	13.21			16.42	23.62	15.04	1655.7
mm		635	648	664	303		353	335.5			417	600	382	751
Inch	14" x 10"	30.00	30.00	30.63	9.92	13.15	12.13	12.17			14.65	19.69	10.98	1455.1
mm		762	762	778	252	334	308	309			372	500	279	660
Inch	14"	30.00	30.00	30.63	13.15		14.78	15.22			17.3	23.62	15.04	2259.7
mm		762	762	778	334		375.5	386.5			439.5	600	382	1025
Inch	16" x 12"	32.99	32.99	33.62	11.93	15.16	13.90	13.19			16.42	23.62	15.04	2006.2
mm		838	838	854	303	385	353	335			417	600	382	910
Inch	16"	32.99	32.99	33.62	15.16		16.61	17.56			19.8	23.62	19.37	3302.5
mm		838	838	854	385		422	446			503	600	492	1498
Inch	18" x 14"	35.98	35.98	36.61	13.15	17.17	14.78	15.22			17.3	23.62	15.04	2667.6
mm		914	914	930	334	436	375.5	386.5			439.5	600	382	1210
Inch	18"	35.98	35.98	36.61	17.17		18.46	19.69			21.65	23.62	19.37	4303.4
mm		914	914	930	436		469	500			550	600	492	1952
Inch	20" x 16"	39.02	39.02	39.76	15.16	19.17	16.61	17.56			19.8	23.62	19.37	4078.6
mm		991	991	1010	385	487	422	446			503	600	492	1850
Inch	20"	39.02	39.02	39.76	19.17		20.20	19.02			23.39	23.62	19.37	5489.5
mm		991	991	1010	487		513	483			594	600	492	2490
Inch	22" x 18"	42.99	42.99	43.86	17.17	21.18	18.46	18.50			21.65	23.62	19.37	4746.6
mm		1092	1092	1114	436	538	469	470			550	600	492	2153
Inch	24" x 20"	45.00	45.00	45.87	19.17	23.19	20.20	19.02			23.39	23.62	19.37	6724.1
mm		1143	1143	1165	487	589	513	483			594	600	492	3050
Inch	24"	45.00	45.00	45.87	23.19		24.06	25.55			29.02	23.62	21.3	9374.1
mm		1143	1143	1165	589		611	649			737	600	541	4252

BALL VALVE API-6D CLASS 150 - 600

FP66 - REDUCED PORT

FP67 - FULL PORT



ASME CLASS 600

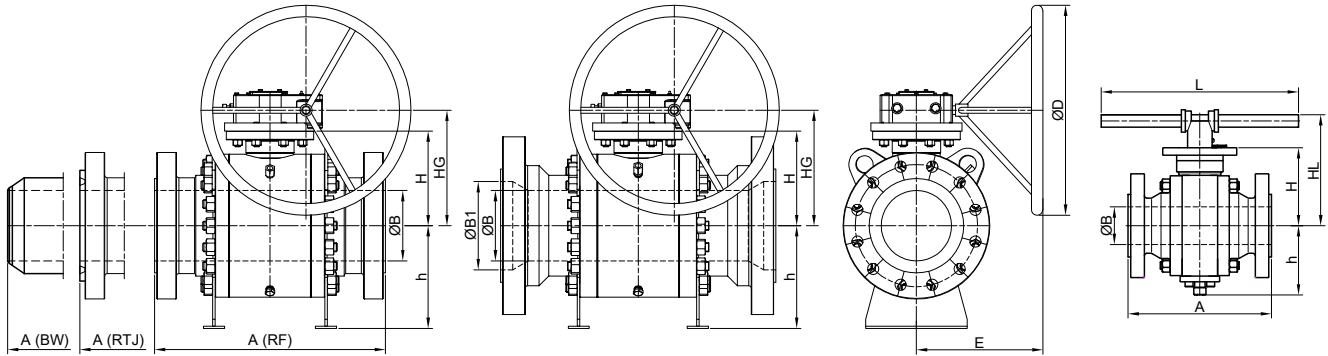
UNIT	SIZE	A-BW	A-RF	A-RTJ	B	B1	H	h	HL	L	HG	D	E	WEIGHT LBS/KG
Inch	1 1/2"	9.49	9.49	9.49	1.50		3.70	3.27	6.20	7.99				50.7
mm		241	241	241	38		94	83	157.5	203				23
Inch	2" x 1 1/2"	11.50	11.50	11.61	1.50	1.93	3.70	3.27	6.20	7.99				59.5
mm		292	292	295	38	49	94	83	157.5	203				27
Inch	2"	11.50	11.50	11.61	1.93		4.06	3.62	6.85	10.24				70.5
mm		292	292	295	49		103	92	174	260				32
Inch	3" x 2"	14.02	14.02	14.13	1.93	2.91	4.06	3.62	6.85	10.24				97.0
mm		356	356	359	49	74	103	92	174	260				44
Inch	3"	14.02	14.02	14.13	2.91		4.80	4.37	9.37	20.47				132.3
mm		356	356	359	74		122	111	238	520				60
Inch	4" x 3"	17.01	17.01	17.13	2.91	3.94	4.80	4.37	9.37	20.47				176.4
mm		432	432	435	74	100	122	111	238	520				80
Inch	4"	17.01	17.01	17.13	3.94		7.50	6.48	11.22	28.35				246.9
mm		432	432	435	100		190.5	164.5	285	720				112
Inch	6" x 4"	22.01	22.01	22.13	3.94	5.91	7.19	7.70	11.22	28.35				330.7
mm		559	559	562	100	150	182.5	195.5	285	720				150
Inch	6"	22.01	22.01	22.13	5.91		7.91	8.46			9.37	9.84	7.32	562.2
mm		559	559	562	150		201	215			238	250	186	255
Inch	8" x 6"	25.98	25.98	26.14	5.91	7.91	8.66	10.16			9.37	9.84	7.32	617.3
mm		660	660	664	150	201	220	258			238	250	186	280
Inch	8"	25.98	25.98	26.14	7.91		10.65	11.56			13.17	23.62	12.17	1005.3
mm		660	660	664	201		270.5	293.5			334.5	600	309	456
Inch	10" x 8"	30.98	30.98	31.10	7.91	9.92	10.65	11.56			13.17	23.62	12.17	1177.3
mm		787	787	790	201	252	270.5	293.5			334.5	600	309	534
Inch	10"	30.98	30.98	31.10	9.92		12.44	12.28			14.96	23.62	15.04	1649.1
mm		787	787	790	252		316	312			380	600	382	748
Inch	12" x 10"	32.99	32.99	33.11	9.92	11.93	12.44	12.28			14.96	23.62	15.04	1702.0
mm		838	838	841	252	303	316	312			380	600	382	772
Inch	12"	32.99	32.99	33.11	11.93		14.45	14.33			17.24	23.62	16.77	2330.3
mm		838	838	841	303		367	364			438	600	426	1057
Inch	14" x 10"	35.00	35.00	35.12	9.92	13.15	12.44	12.28			14.96	23.62	15.04	2425.1
mm		889	889	892	252	334	316	312			380	600	382	1100
Inch	14"	35.00	35.00	35.12	13.15		15.51	15.87			18.58	23.62	17.17	2978.4
mm		889	889	892	334		394	403			472	600	436	1351
Inch	16" x 12"	39.02	39.02	39.13	11.93	15.16	14.45	14.33			17.24	23.62	16.77	3306.9
mm		991	991	994	303	385	367	364			438	600	426	1500
Inch	16"	39.02	39.02	39.13	15.16		18.82	18.13			22.01	23.62	19.37	4360.7
mm		991	991	994	385		478	460.5			559	600	492	1978
Inch	18" x 14"	42.99	42.99	43.11	13.15	17.17	15.51	15.87			18.58	23.62	17.17	4850.2
mm		1092	1092	1095	334	436	394	403			472	600	436	2200
Inch	18"	42.99	42.99	43.11	17.17		20.28	19.63			25.24	23.62	21.3	6155.3
mm		1092	1092	1095	436		515	498.5			641	600	541	2792
Inch	20" x 16"	47.01	47.01	47.24	15.16	19.17	17.32	17.64			22.01	23.62	19.37	5511.6
mm		1194	1194	1200	385	487	440	448			559	600	492	2500
Inch	20"	47.01	47.01	47.24	19.17		20.89	22.03			25.85	23.62	21.3	7548.6
mm		1194	1194	1200	487		530.5	559.5			656.5	600	541	3424
Inch	22" x 18"	50.98	50.98	51.38	17.17	21.18	19.43	18.84			25.24	23.62	21.3	6556.5
mm		1295	1295	1305	436	538	493.5	478.5			641	600	541	2974
Inch	24" x 20"	55.00	55.00	55.39	19.17	23.19	20.89	19.67			25.85	23.62	21.3	8708.3
mm		1397	1397	1407	487	589	530.5	499.5			656.5	600	541	3950
Inch	24"	55.00	55.00	55.39	23.19		24.90	26.93			29.94	27.56	21.89	13035.9
mm		1397	1397	1407	589		632.5	684			760.5	700	556	5913

TRUNNION WEIGHTS & DIMENSIONS



BALL VALVE API-6D CLASS 900 - 2500

FP96 - REDUCED PORT
FP97 - FULL PORT



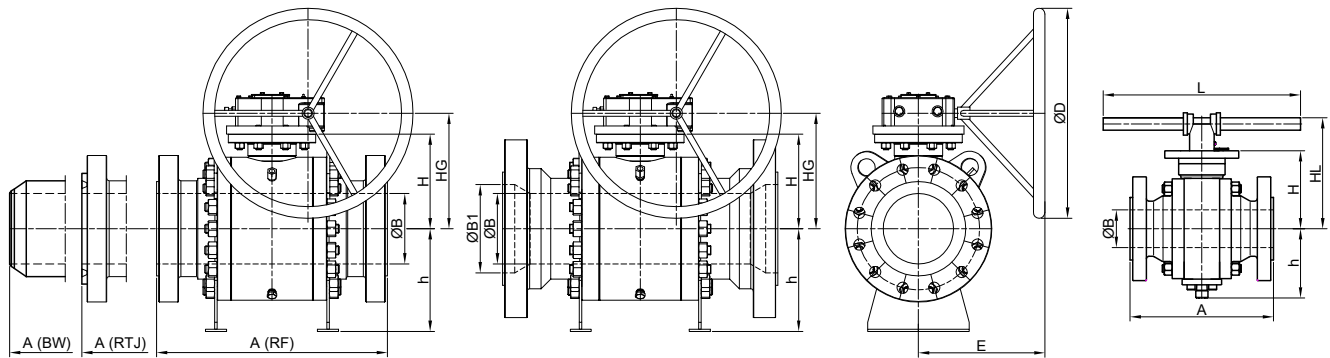
ASME CLASS 900

UNIT	SIZE	A-BW	A-RF	A-RTJ	B	B1	H	h	HL	L	HG	D	E	WEIGHT LBS/KG
Inch	1 1/2"	12.00	12.00	12.00	1.50		4.33	5.79	7.36	24.00				68
mm		305	305	305	38		110	147	187	610				31
Inch	2" x 1 1/2"	14.49	14.49	14.61	1.50	2.00	4.33	5.79	7.36	24.00				95
mm		368	368	371	38	51	110	147	187	610				43
Inch	2"	14.49	14.49	14.61	2.00		4.41	6.06	7.63	29.00				130
mm		368	368	371	51		112	154	184	736				59
Inch	3" x 2"	15.00	15.00	15.12	2.00	3.00	4.41	6.06	7.63	29.00				143
mm		381	381	384	51	74	112	154	184	736				65
Inch	3"	15.00	15.00	15.12	3.00		5.59	7.17	9.34	30.00				187
mm		381	381	384	74		142	182	237	762				85
Inch	4" x 3"	18.00	18.00	18.11	3.00	3.94	5.59	7.17	9.34	30.00				240
mm		457	457	460	74	100	142	182	237	762				109
Inch	4"	18.00	18.00	18.11	3.94		6.69	8.07	10.24	36.00	10.24	16.00	10.00	390
mm		457	457	460	100		170	205	260	914	260	406	254	177
Inch	6" x 4"	24.02	24.02	24.13	3.94	6.00	6.69	8.07	10.24	36.00	10.24	16.00	10.00	489
mm		610	610	613	100	150	170	205	260	914	260	406	254	222
Inch	6"	24.00	24.00	24.12	6.00		9.65	9.45			12.01	16.00	8.75	720
mm		610	610	613	150		245	240			305	406	292	327
Inch	8" x 6"	29.00	29.00	29.12	6.00	7.92	9.65	9.45			12.01	16.00	8.75	968
mm		737	737	740	150	201	245	240			305	406	292	440
Inch	8"	29.00	29.00	29.12	7.92		13.58	15.08			18.62	20.00	16.50	1276
mm		737	737	740	201		300	383			473	508	419	580
Inch	10" x 8"	33.00	33.00	33.12	7.92	10.00	13.58	15.08			18.62	20.20	16.50	1518
mm		838	838	841	201	252	300	383			473	508	419	690
Inch	10"	33.00	33.00	33.12	10.00		14.80	13.78			17.52	20.00	16.50	2110
mm		838	838	841	252		345	350			445	508	419	957
Inch	12" x 10"	38.00	38.00	38.12	10.00	11.97	14.80	13.78			17.52	20.00	16.50	2541
mm		965	965	968	252	303	345	350			445	508	419	1155
Inch	12"	38.00	38.00	38.12	11.97		18.11	14.80			19.52	24.00	16.50	2930
mm		965	965	968	303		376	376			496	610	419	1329
Inch	14" x 10"	40.50	40.50	40.88	10.00	13.15	14.80	13.78			17.52	20.00	16.50	2728
mm		1029	1029	1038	252	334	345	350			445	508	419	1240
Inch	14" x 12"	40.50	40.50	40.88	11.97	13.15	18.11	14.80			19.52	24.00	16.50	3597
mm		1029	1029	1038	303	334	376	376			496	610	419	1635
Inch	14"	40.50	40.50	40.88	13.15		18.31	16.46			21.18	24.00	16.50	3610
mm		1029	1029	1038	334		460	418			538	610	419	1637
Inch	16" x 12"	44.50	44.50	44.88	11.97	15.16	18.11	14.80			19.52	24.00	16.50	3806
mm		1130	1130	1140	303	385	376	376			496	610	419	1730
Inch	16" x 14"	44.50	44.50	44.88	13.15	15.16	18.31	16.46			21.18	24.00	16.50	3740
mm		1130	1130	1140	334	385	460	418			538	610	419	1700
Inch	16"	44.50	44.50	44.88	15.16		20.87	18.62			24.33	28.00	16.50	4360
mm		1130	1130	1140	385		465	473			618	711	419	1978
Inch	18" x 14"	48.00	48.00	48.50	13.15	17.17	18.31	16.46			21.18	24.00	16.50	5368
mm		1219	1219	1232	334	436	460	418			538	610	419	2440
Inch	18"	48.00	48.00	48.50	17.17		20.28	19.13			24.84	28.00	16.50	6100
mm		1219	1219	1232	436		530	486			631	711	419	2767
Inch	20" x 16"	52.00	52.00	52.50	15.16	19.25	18.31	16.46			24.33	28.00	16.50	6325
mm		1321	1321	1334	385	487	460	418			618	711	419	2875
Inch	20"	52.00	52.00	52.50	19.25		25.59	21.85			27.56	30.00	22.00	8240
mm		1321	1321	1334	487		650	555			700	762	559	3738
Inch	24" x 20"	61.00	61.00	61.75	19.25	23.19	25.59	21.85			27.56	30.00	22.00	11880
mm		1549	1549	1568	487	589	650	555			700	762	559	5400
Inch	24"	61.00	61.00	61.75	23.19		27.52	24.37			34.02	32.00	22.00	12250
mm		1549	1549	1568	589		699	619			864	812	559	5557

BALL VALVE API-6D CLASS 900 - 2500

FP156 - REDUCED PORT

FP157 - FULL PORT



ASME CLASS 1500

UNIT	SIZE	A-BW	A-RF	A-RTJ	B	B1	H	h	HL	L	HG	D	E	WEIGHT LBS/KG
Inch	1 1/2"	12.00	12.00	12.00	1.50		4.33	5.79	7.36	24.00				68
mm		305	305	305	38		110	147	187	610				31
Inch	2" x 1 1/2"	14.49	14.49	14.61	1.50	2.00	4.33	5.79	7.36	24.00				95
mm		368	368	371	38	51	110	147	187	610				43
Inch	2"	14.49	14.49	14.61	2.00		4.41	6.06	7.63	29.00				130
mm		368	368	371	51		112	154	194	736				59
Inch	3" x 2"	18.50	18.50	18.62	2.00	3.00	4.41	6.06	7.63	29.00				168
mm		470	470	473	51	74	112	154	194	736				76
Inch	3"	18.50	18.50	18.62	3.00		6.38	7.87	10.04	37.00				240
mm		470	470	473	74		162	200	255	946				109
Inch	4" x 3"	21.50	21.50	21.61	3.00	3.94	6.38	7.87	10.04	37.00				311
mm		546	546	549	74	100	162	200	255	946				141
Inch	4"	21.50	21.50	21.61	3.94		7.48	8.50	10.67	43.00	10.67	16.00	10.00	399
mm		546	546	549	100		190	216	271	1092	271	406	254	181
Inch	6" x 4"	27.76	27.76	27.99	3.94	6.00	7.48	8.50	10.67	43.00	10.67	16.00	10.00	628
mm		705	705	711	100	150	190	216	271	1092	271	406	254	285
Inch	6"	27.76	27.76	27.99	6.00		12.64	10.98			14.72	24.00	13.80	1056
mm		705	705	711	150		321	279			524	610	350	480
Inch	8" x 6"	32.76	32.76	33.15	6.00	7.92	12.64	10.98			14.72	24.00	13.80	1245
mm		832	832	842	150	201	321	279			524	610	350	566
Inch	8"	32.76	32.76	33.15	7.92		12.68	13.23			17.01	28.00	16.50	1804
mm		832	832	842	201		322	336			617	711	419	820
Inch	10" x 8"	39.02	39.02	39.41	7.92	10.00	12.68	13.23			17.01	28.00	16.50	2248
mm		991	991	1001	201	252	322	336			617	711	419	1022
Inch	10"	39.02	39.02	39.41	10.00		16.54	15.39			19.92	28.00	16.50	3300
mm		991	991	1001	252		420	391			506	711	419	1500
Inch	12" x 10"	44.49	44.49	45.11	10.00	11.97	16.54	15.39			19.92	28.00	16.50	3872
mm		1130	1130	1146	252	303	420	391			506	711	419	1760
Inch	12"	44.49	44.49	45.11	11.97		16.54	16.77			22.48	28.00	16.50	4950
mm		1130	1130	1146	303		420	426			571	711	419	2250
Inch	14" x 10"	49.49	49.49	50.24	10.00	13.15	16.54	15.39			19.92	28.00	16.50	4719
mm		1257	1257	1276	252	334	420	391			506	711	419	2145
Inch	14" x 12"	49.49	49.49	50.24	11.97	13.15	16.54	16.77			22.48	28.00	16.50	5500
mm		1257	1257	1276	303	334	420	426			571	711	419	2500
Inch	14"	49.49	49.49	50.24	13.15		20.27	19.25			25.16	30.00	22.00	6270
mm		1257	1257	1276	334		515	489			639	762	559	2850
Inch	16" x 12"	54.49	54.49	55.35	11.97	15.16	16.54	16.77			22.48	28.00	16.50	6160
mm		1384	1384	1406	303	385	420	426			571	711	419	2800
Inch	16" x 14"	54.49	54.49	55.35	13.15	15.16	20.27	19.25			25.16	30.00	22.00	7139
mm		1384	1384	1406	334	385	515	489			639	762	559	3245
Inch	16"	54.49	54.49	55.35	15.16		20.35	19.57			25.48	30.00	22.00	8954
mm		1384	1384	1406	385		517	497			647	762	559	4070
Inch	18" x 14"	60.51	60.51	61.38	13.15	17.17	20.27	19.25			25.16	30.00	22.00	10934
mm		1537	1537	1559	334	436	515	489			639	762	559	4970
Inch	18"	60.51	60.51	61.38	17.17		27.55	23.27			31.14	32.00	22.00	13629
mm		1537	1537	1559	436		700	591			791	812	559	6195
Inch	20" x 16"	65.51	65.51	66.38	15.16	19.25	20.35	19.57			25.48	30.00	22.00	11297
mm		1664	1664	1686	385	487	517	497			647	762	559	5135
Inch	20"	65.51	65.51	66.38	19.25		27.55	28.50			38.15	32.00	25.00	19965
mm		1664	1664	1686	487		759	724			969	812	635	9075
Inch	24" x 20"	TBD	TBD	77.64	19.25	23.19	27.55	28.50			38.15	32.00	25.00	23925.0
mm		TBD	TBD	1972.00	487.00	589.00	759.00	724.00			969.00	812.00	635.00	10875.0
Inch	24"	TBD	TBD	77.64	23.19		35.04	32.01			41.66	32.00	25.00	31416.0
mm		TBD	TBD	1972.00	589.00		890.00	813.00			1058.00	812.00	635.00	14280.0

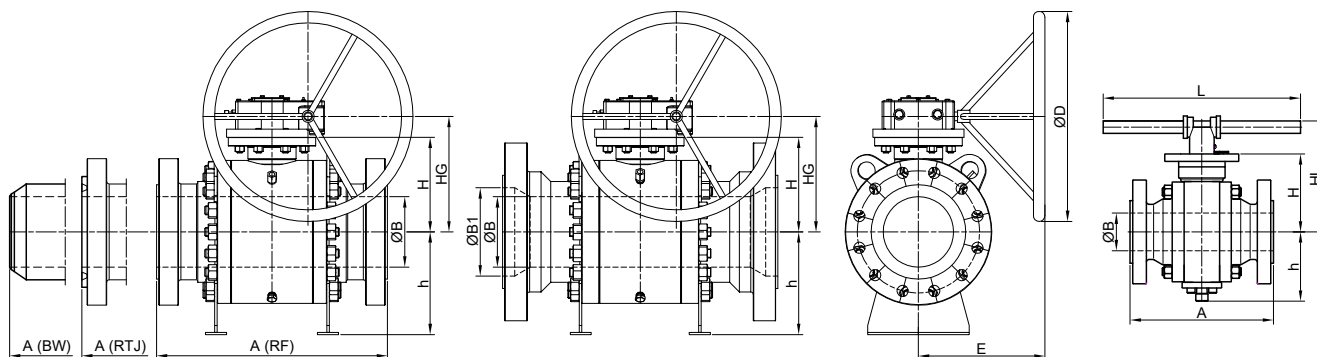
TRUNNION WEIGHTS & DIMENSIONS



BALL VALVE API-6D CLASS 900 - 2500

FP256 - REDUCED PORT

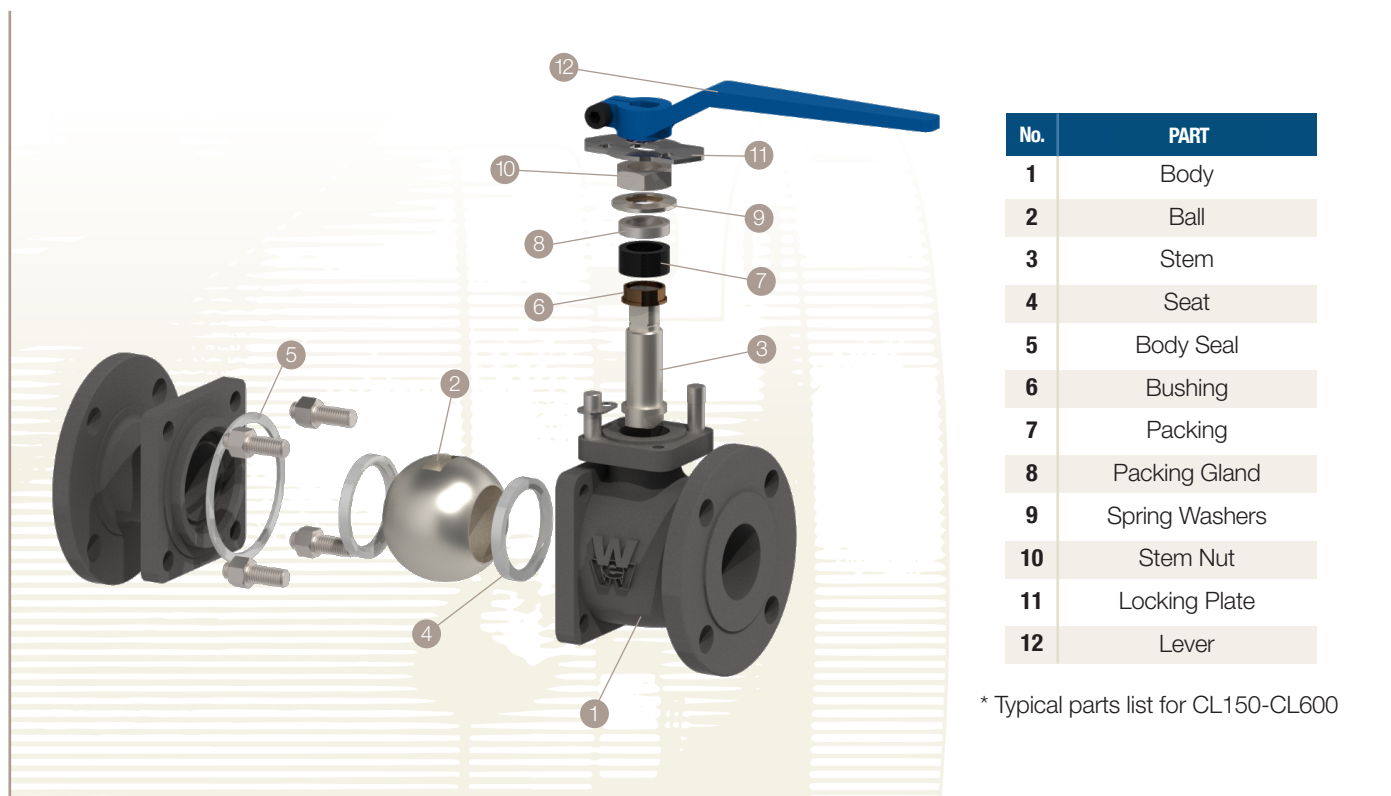
FP257 - FULL PORT



ASME CLASS 2500

UNIT	SIZE	A-BW	A-RF	A-RTJ	B	B1	H	h	HL	L	HG	D	E	WEIGHT LBS/KG
Inch	1 1/2"	14.49	14.49	14.61	1.50		4.72	6.26	7.83	29.00				130
mm		368	368	371	38		120	159	245	736				59
Inch	2" x 1 1/2"	17.76	17.76	17.87	1.50	2.00	4.72	6.26	7.83	29.00				143
mm		451	451	454	38	51	120	159	245	736				65
Inch	2"	17.76	17.76	17.87	2.00		5.12	6.54	8.71	35.50	8.71	16.00	9.02	194
mm		451	451	454	51		130	166	221	902	221	406	229	88
Inch	3" x 2"	22.76	22.76	22.99	2.00	3.00	5.12	6.54	8.71	35.50	8.71	16.00	9.02	341
mm		578	578	584	51	74	130	166	221	902	221	406	229	155
Inch	3"	22.76	22.76	22.99	3.00		7.01	8.39	10.79	45.50	10.79	16.00	10.24	411
mm		578	578	584	74		178	213	273	1156	273	406	260	187
Inch	4" x 3"	26.50	26.50	26.89	3.00	3.94	7.01	8.39	10.79	45.50	10.79	16.00	10.24	581
mm		673	673	683	74	100	178	213	273	1156	273	406	260	264
Inch	4"	26.50	26.50	26.89	3.94		10.08	11.10			14.25	20.00	12.00	836
mm		673	673	683	100		256	282			362	508	305	380
Inch	6" x 4"	35.98	35.98	36.50	3.94	6.00	10.08	11.10			14.25	20.00	12.00	1122
mm		914	914	927	100	150	190	216			271	508	305	510

CAST FLOATING SIDE ENTRY BALL VALVE



FLOATING BALL VALVE DESIGN FEATURES

STANDARD FEATURES

- Two-piece cast body
- Blow-out proof stem
- Adjustable Graphite packing
- ISO 5211 Mounting pad
- With Anti-static device
- Integral Locking Device

OPTIONS

- Cryogenic extensions
- Actuation
- CSA Z245.15 Testing
- Die Forged bodies available upon request

SPECIFICATIONS

- Design: API-608, ASME B16.34
- Firesafe Design: API-607
- Face to Face: ASME B16.10
- End Flange: ASME B16.5
- NACE Compliant: MR0175 Latest Edition
- Test & Inspection: API-598

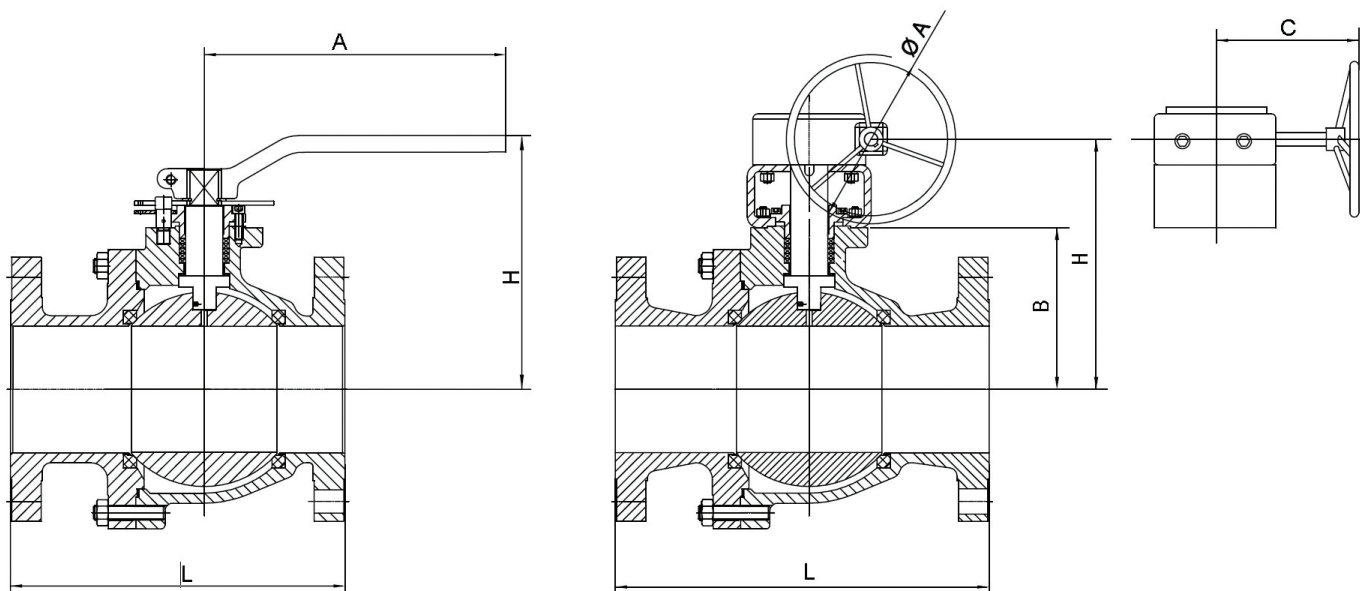
CV VALUE - FLOATERS				
BORE (INCHES)	150#	300#	600#	1500#
1"	95	95	218	55
2" x 1.5"	218	218	400	140
2"	420	420	610	320
2.5"	690	690	200	
3" x 2"	200	200	1000	
3"	1200	1050	600	
4" x 3"	600	600	1850	
4"	2200	2100	790	
6" x 4"	800	800	4600	
6"	5150	5100	2150	
8" x 6"	2150	2150	9000	
8"	9500	9400	4300	
10" x 8"	4300	4300	14700	
10"	15000	15000	7550	
12" x 10"	7550	7550	22500	
12"	23000	23000		

FLOATER WEIGHTS & DIMENSIONS



DIMENSIONAL DATA FOR TWO-PIECE CAST STEEL FLOATING BALL VALVES

1" ~ 12" - CL150 ~ CL1500



ASME CLASS 150							
W16 - REDUCED PORT W17 - FULL PORT							
SIZE	UNIT	L-RF	H	A	B	C	WEIGHT LBS/KG
1"	Inch	5.00	4.3	7.1			11
	mm	127	110	180			5
2" x 1 1/2"	Inch	7.00	5.6	9.9			22
	mm	178	142	250			10
2"	Inch	7.00	6.4	9.9			24
	mm	178	163	250			11
3" x 2"	Inch	8.00	7.1	15.7			37
	mm	203	180	400			17
3"	Inch	8.00	7.3	15.7			48
	mm	203	185	400			22
4" x 3"	Inch	9.00	7.3	15.7			63
	mm	229	185	400			28
4"	Inch	9.00	9.1	22.8			89
	mm	229	231	580			40
* 6" x 4"	Inch	10.5	9.1	22.8			176
	mm	267	231	580			79
6"	Inch	15.5	13.66	18.11	7.68	9.02	181
	mm	394	347	460	195	229	82
* 8" x 6"	Inch	11.5	13.66	18.11	7.68	9.02	312
	mm	292	347	460	195	229	140
8"	Inch	18.00	14.9	23.62	9.33	14.17	440
	mm	457	379	600	237	360	198
* 10" x 8"	Inch	13.00	14.9	23.62	9.33	14.17	595
	mm	330	379	600	237	360	270
10"	Inch	21.00	16.89	23.62	10.91	14.17	715
	mm	533	429	600	277	360	322
* 12" x 10"	Inch	14.02	16.89	23.62	10.91	14.17	903
	mm	356	429	600	277	360	410
12"	Inch	24.00	18.98	23.62	12.99	15.83	1140
	mm	610	482	600	330	402	513

ASME CLASS 300							
W36 - REDUCED PORT W37 - FULL PORT							
SIZE	UNIT	L-RF	H	A	B	C	WEIGHT LBS/KG
1"	Inch	6.5	4.3	7.1			12
	mm	165	110	180			5.5
2" x 1 1/2"	Inch	8.50	5.6	9.9			22
	mm	216	142	250			9.9
2"	Inch	8.50	6.4	9.9			30
	mm	216	163	250			14
3" x 2"	Inch	11.1	7.1	15.7			37
	mm	282	180	400			17
3"	Inch	11.1	7.3	15.7			73
	mm	282	185	400			33
4" x 3"	Inch	12.00	7.3	15.7			99
	mm	305	185	400			45
4"	Inch	12.00	9.1	26.77			116
	mm	305	231	680			52
6" x 4"	Inch	15.88	9.1	26.77			176
	mm	403	231	680			79
6"	Inch	15.88	13.66	18.11	7.68	9.02	270
	mm	403	347	460	195	229	122
* 8" x 6"	Inch	16.5	13.66	18.11	7.68	9.02	385
	mm	419	347	460	195	229	175
8"	Inch	19.75	14.9	23.62	9.33	14.17	478
	mm	502	379	600	237	360	215
* 10" x 8"	Inch	17.99	14.9	23.62	9.33	14.17	837
	mm	457	379	600	237	360	380
10"	Inch	22.38	16.85	23.62	10.91	15.83	897
	mm	568	428	600	277	402	403
* 12" x 10"	Inch	19.76	16.85	23.62	10.91	15.83	1300
	mm	502	429	600	277	402	590
12"	Inch	25.5	22.17	23.62	12.99	20.47	1424
	mm	648	563	600	330	520	646

* The face to face are offered as ASME B16. 10 short pattern.

DIMENSIONAL DATA FOR TWO-PIECE CAST STEEL FLOATING BALL VALVES

1" ~ 12" - CL150 ~ CL1500

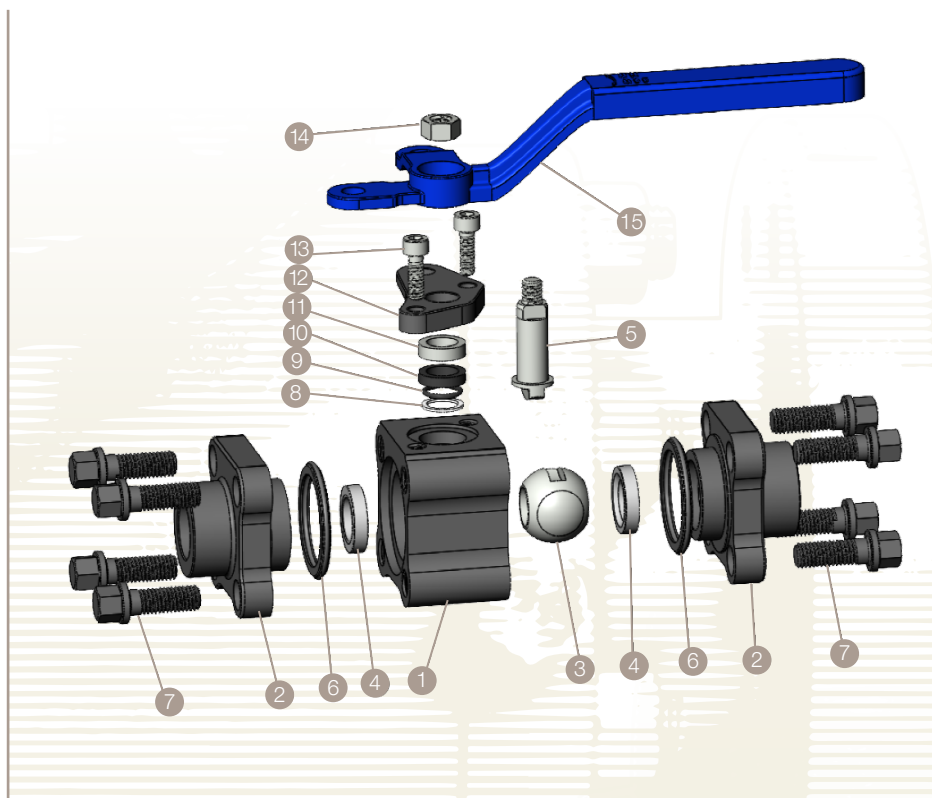
ASME CLASS 600							W66 - REDUCED PORT W67 - FULL PORT
SIZE	UNIT	L-RF	H	A	B	C	WEIGHT LBS/KG
1"	Inch	8.5	4.3	9.25			13
	mm	216	110	235			5.9
2" x 1 1/2"	Inch	11.5	5.6	15.7			38.5
	mm	292	142	400			17.3
2"	Inch	11.5	6.4	15.7			41.9
	mm	292	163	400			19
3" x 2"	Inch	14	6.4	15.7			62
	mm	356	163	400			27.9
3"	Inch	14	7.3	27.6			83.8
	mm	356	185	700			38
4" x 3"	Inch	17	7.3	27.6			138
	mm	432	185	700			62.1
4"	Inch	17	8.5	39.4			154
	mm	432	216	1000			70
6" x 4"	Inch	22	8.5	39.4			270
	mm	559	216	1000			121.5

ASME CLASS 1500							W156 - REDUCED PORT W157 - FULL PORT
SIZE	UNIT	L-RF	H	A	B	C	WEIGHT LBS/KG
1"	Inch	10	4.3	9.3			35
	mm	254	109	235			16
2" x 1 1/2"	Inch	14.49	5.6	23.6			99
	mm	368	142	600			45
2"	Inch	14.49	6.4	27.6			121
	mm	368	163	700			55

THREE-PIECE FORGED FLOATER BALL VALVES



FORGED FLOATING THREE-PIECE BALL VALVE



No.	PART
1	Body
2	Bonnet
3	Ball
4	Seat Ring
5	Stem
6	Gasket
7	Bolt
8	Washer
9	O-ring
10	Packing
11	Gland
12	Gland Flange
13	Screw
14	Locking Nut
15	Handle

FORGED FLOATING THREE-PIECE BALL VALVE FEATURES

CONSTRUCTION

- Forged Body and End Closures
- ASME B16.34 Wall Thickness
- Three-Piece Threaded Body Design
- Full Port and Regular Port
- Blow Out Proof Stem
- Anti-Static device
- Integral Locking Device
- In-line Weldable
- Bidirectional sealing

SPECIFICATIONS

- Design: API-608, ASME B16.34
- Test & Inspection: API-598
- Firesafe Design: API-607
- NACE Compliant: MR0175
- ASME B16.34
- MSS-SP25
- API-608
- ASME B1.20.1
- ASME B16.11

FUGITIVE EMISSIONS:

- API-622 Graphite Packing

ASTM BODY MATERIALS:

- A105N
- LF2 CL. 2
- F316SS

TRIMS:

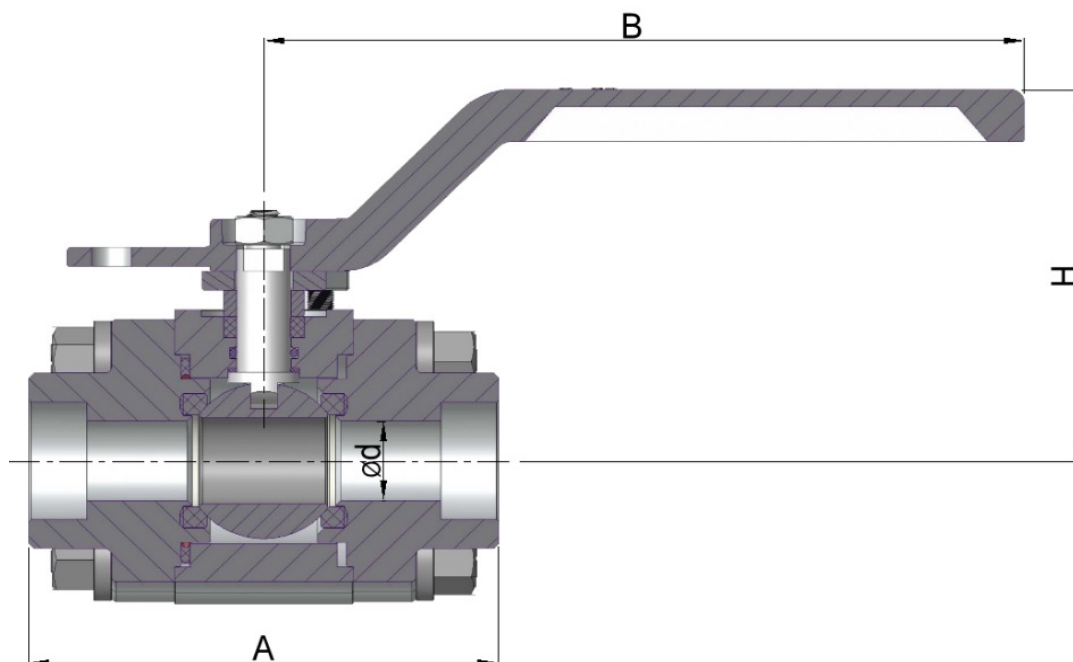
- 1/2" to 1" - 316SS Ball
- 316SS Stem
- Delrin Seats
- Viton GLT O-rings 1.50" to 2" - 316SS Ball
- 316SS Stem
- PEEK Seats
- Viton GLT O-rings

THREE-PIECE FORGED FLOATER WEIGHT AND DIMENSIONS

WILLIAMS VALVE

DIMENSIONAL DATA FOR FORGED FLOATING THREE-PIECE BALL VALVE

1/4" ~ 2" - CL800 ~ CL1500



CLASS 800 (API-608) ~ CLASS 1500 (ASME B16.34)			BALL VALVE FULL PORT (FB)/REDUCE PORT (RB)							
SIZE (NPS)	FB/RB	UNIT	1/4	3/8	1/2	3/4	1	1 1/4 (ROUND BAR)	1 1/2	2
Face to Face	A(SW,NPT)	mm	95	95	95	105	120	127	152	178
		in	3.74	3.74	3.74	4.13	4.72	5	5.98	7.01
Lever Length	B	mm	170	170	170	170	170	170	250	250
		in	6.69	6.69	6.69	6.69	6.69	6.69	9.84	9.84
Height	H	mm	81	81	81	85	95	100	130	140
		in	3.19	3.19	3.19	3.35	3.74	3.94	5.12	5.51
Flow Port Diameter	d(FB)	mm	6	9.5	14	18.5	24.5	31	38	49.5
		in	0.24	0.37	0.55	0.73	0.96	1.22	1.5	1.95
	d(RB)	mm			11	14	20	26	32.5	39
		in			0.43	0.55	0.79	1.02	1.28	1.54
Weight	SW,NPT(FB)	kg	2.1	2	1.9	2.4	4.1	4.8	9.2	15.1
		lb	4.62	4.4	4.18	5.28	9.02	10.56	20.24	33.22
	SW,NPT(RB)	kg			2	3	5.1	6.3	11.2	19.1
		lb			4.4	6.6	11.22	13.86	24.64	42.02



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