Floating Flanged Ball Valves

6400 Series
4400 Series
5400 Series
6500 Series
4500 Series

CE 0038

"Their Options
Are Our Standards"

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Contents

Product Range

Shell Material	Class	Series Number	Service Sector	Design Feature	Body Design	Port	Ends	Size (in.) 1/2	3/4	1	1 1/2	2	3	4	6	8	10	12
Carbon Steel & Stainless Steel	150	6400	Industrial	Packing	LP 2 pc	Full	Flanged	•	•	•	•	•	•	•	•	•	•	—
		6500	Oil & Gas	O-Ring	LP 2 pc	Full		—	—	•	•	•	•	•	•	—	—	—
		4400	Industrial	Packing	LP 2 pc	Regular		—	—	—	—	•	•	•	•	•	•	—
		4500	Oil & Gas	O-Ring	LP 2 pc	Regular		—	—	—	•	•	•	•	•	—	—	—
		5400	Industrial	Packing	LP/S Uni	Regular		—	•	•	•	•	•	•	S	S	S	S
	300	6400	Industrial	Packing	LP 2 pc	Full	Flanged	•	•	•	•	•	•	•	•	•	•	—
		6500	Oil & Gas	O-Ring	LP 2 pc	Full		—	—	•	•	•	•	•	•	—	—	—
		4400	Industrial	Packing	LP 2 pc	Regular		—	—	—	—	•	•	•	•	•	•	—
		4500	Oil & Gas	O-Ring	LP 2 pc	Regular		—	—	—	•	•	•	•	•	—	—	—
		5400	Industrial	Packing	LP/S Uni	Regular		—	•	•	•	•	•	•	•	S	S	S
	600	6400	Industrial	Packing	LP 2 pc	Full	Flanged	•	•	•	•	•	•	•	—	—	—	—
		6500	Oil & Gas	O-Ring	LP 2 pc	Full		—	—	•	•	•	•	•	—	—	—	—
		4400	Industrial	Packing	LP 2 pc	Regular		•	•	•	•	•	•	•	•	—	—	—
		4500	Oil & Gas	O-Ring	LP 2 pc	Regular		—	—	—	•	•	•	•	•	—	—	—

LP = Long Pattern Design
S = Short Pattern Design

Specifying Valve Figure Numbers

Example: S-6410-31-2236-FT-NLI ▪ This number represents a Carbon Steel, Stainless Steel Trim, ANSI Class 150, Full Port, Flanged End Floating Ball Valve, Fire Tested, TFM Seats and PTFE Seals for NACE MR0175 2002 Service and Lever Operated ISO design.

C	-	6	4	10	-	3	1	-	22	36	-	F	T	-	N	L	-	I	

Material Code	Port Config.	Valve Type	Pressure Class	Fire Tested	End Connect.	Body Material	Trim Material	Seat Material	Seal Material	NACE Option	Operator	Design	Modifier Code
C Carbon Steel **S** Stainless Steel	**4** Regular 2 pc Body **5** Regular Unibody **6** Full 2 pc Body	**4** Stem Packing Flanged Floating Type **5** O-Ring Stem Flanged Floating Type	**10** 150 Class **30** 300 Class **60** 600 Class	**3** Fire Tested	**1** RF **3** RTJ **4** Non-Standard	**22** WCB **28** LCC **36** CF8M	**00** Same as Body **36** 316SS **71** Monel® **73** Hastelloy®	**C** Carbon Filled TFMC **F** Virgin TFM **N** Nylon **P** Peek™ **Z** Metal Seats	**T** PTFE **Y** Viton® GF **E** EPDM **W*** Viton® B **H*** HNBR*	**N** NACE **S** Standard	**L** Lever **G** Gear Operator **B** Bare Stem **A** Actuator	**I** ISO 5211 Mounting Pad	

*ED resistant o-ring seals for 4500/6500 series.

Zy-Tech's Brand Family of Flanged Floating Ball Valve Products

Series 6500/4500

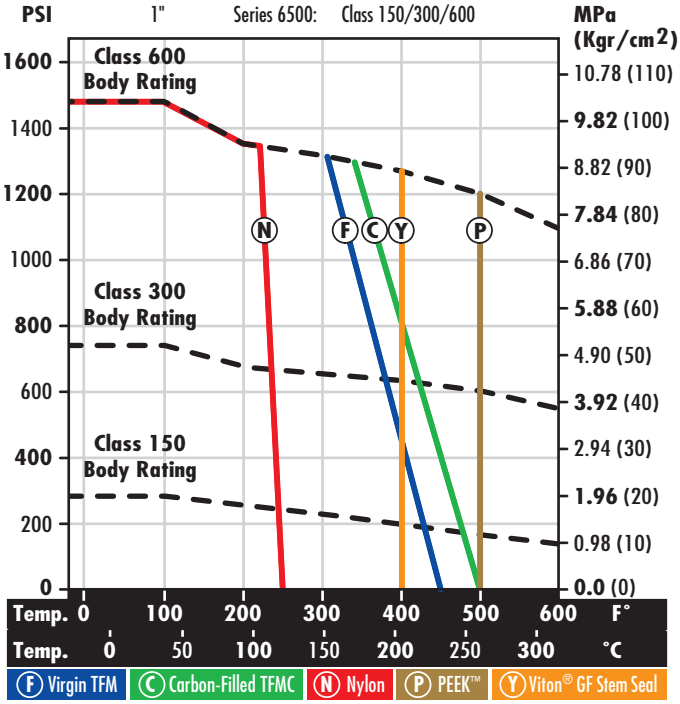
Series 6400/4400

Series 5400

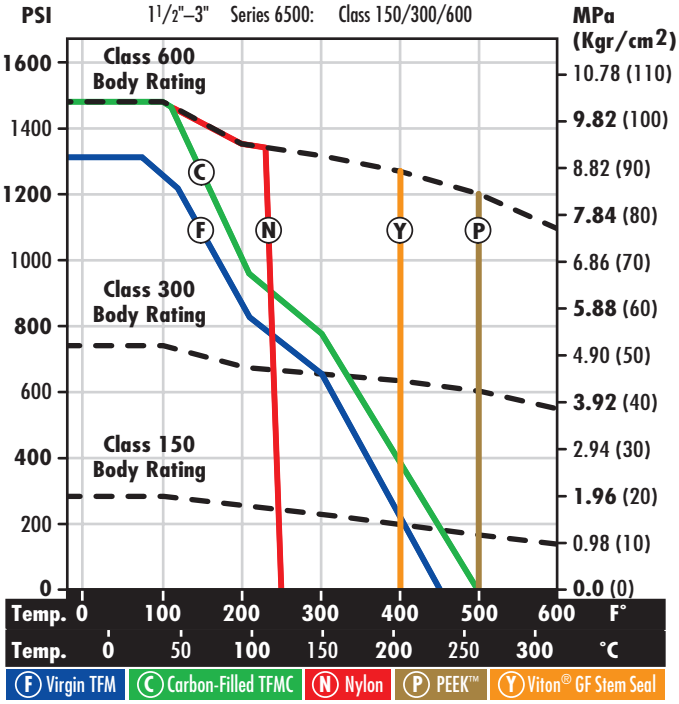
Pressure Temperature Ratings

The pressure temperature ratings for flanged floating ball valves are determined by the body material, seal material and the seat material rating. The charts below are indicative of the standard seat materials. For ratings of other materials, contact your customer service representative.

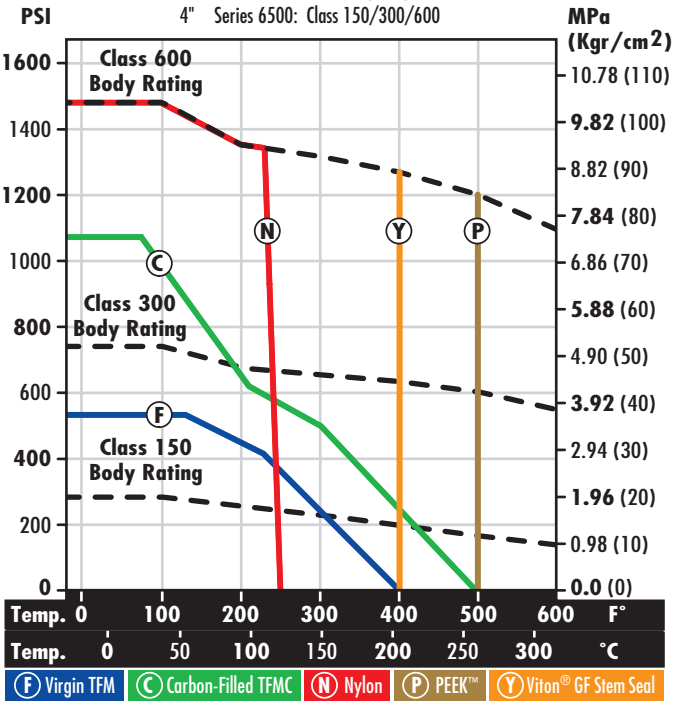
1/2"–1 1/2" Series 4400: Class 150/300/600
1 1/2" Series 4500: Class 150/300/600
3/4"–1 1/2" Series 5400: Class 150/300
1/2"–1" Series 6400: Class 150/300/600
1" Series 6500: Class 150/300/600



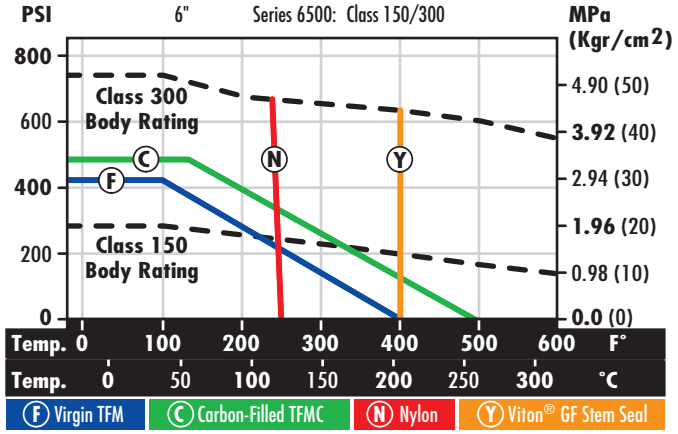
2"–4" Series 4400: Class 150/300/600
2"–4" Series 4500: Class 150/300/600
2"–4" Series 5400: Class 150/300
1 1/2"–3" Series 6400: Class 150/300/600
1 1/2"–3" Series 6500: Class 150/300/600



6" Series 4400: Class 150/300/600
6" Series 4500: Class 150/300/600
6" Series 5400: Class 150/300
4" Series 6400: Class 150/300/600
4" Series 6500: Class 150/300/600



8" & 10" Series 4400: Class 150/300
8"–12" Series 5400: Class 150/300
6"–10" Series 6400: Class 150/300
6" Series 6500: Class 150/300



Maximum Stem Break Torque At Various Pressures

Use the chart below to locate the curve number for the valve series, valve class and valve size. Locate the curve number on chart to the right. Find the valve design pressure on the horizontal axis and read up until you intersect the selected curve number. Read across horizontally to find the maximum break torque.
Example for a 2" Series 6400 Class 150 valve at 200 psi: Use curve #5 from the table below. The intersection of curve #5 and 200 psi results in 1205 in./lbs. maximum break torque.

Valve Curve Numbers

Series	Size (in.) 1/2	3/4	1	1 1/2	2	3	4	6	8	10	12
	Class 150										
4400					4	5	6	8	9	10	
4500				3	15	16	12	13			
5400		1	2	3	4	5	6	8	9	10	11
6400	1	2	3	4	5	6	8	9	10	11	
6500			3	15	16	12	13	14			
	Class 300										
4400					4	5	6	8	9	10	
4500			2	3	15	16	12	13			
5400		1	2	3	4	5	6	8	9	10	11
6400	1	2	3	4	5	6	8	9	10	11	
6500			3	15	16	12	13	14			
	Class 600										
4400		1	2	3	4	5	7	19			
4500				3	15	16	17	18			
6400	1	2	3	4	5	7	19				
6500			3	15	16	17	18				

Maximum Stem Break Torque at Maximum Operating Pressure (in.-lb.)

Based on TFM and TFMC Seat Testing

Series	Size (in.) 1/2	3/4	1	1 1/2	2	3	4	6	8	10	12
	285 M.O.P.										
4410	—	—	—	—	659	1210	1660	2270	5152	12,000	—
4510	—	—	—	284	569	1059	1530	1930	—	—	—
5410	—	170	228	284	659	1210	1660	2270	5152	12,000	29,250
6410	170	228	284	659	1210	1660	2270	5152	12,000	29,250	—
6510	—	—	284	569	1059	1530	1930	4598	—	—	—
	740 M.O.P.										
4430	—	—	—	—	732	1226	2395	3194	6991	13,000	—
4530	—	—	—	319	642	1075	2266	2854	—	—	—
5430	—	205	263	319	732	1226	2395	3194	6991	13,000	30,000
6430	205	263	319	732	1226	2395	3194	6991	13,000	30,000	—
6530	—	—	319	642	1075	2266	2854	6437	—	—	—
	1480 M.O.P.										
4460	—	262	320	376	849	1252	2395	4093	—	—	—
4560	—	—	—	376	759	1101	2155	3900	—	—	—
6460	262	320	376	849	1252	2395	4093	—	—	—	—
6560	—	—	376	759	1101	2155	3900	—	—	—	—

Notes:
1. Torque values are for new valves with TFM/TFMC and clean water service.
   - For Nylon seats, add an additional 25% minimum.
   - For PEEK™ seats, add an additional 120% minimum.
2. No additional safety factors have been added.
3. Stem torque service condition factors:
   - For powered actuators, it's recommended to add an additional 25% min.
   - For dirty service, add an additional 50% minimum.
   - For dry gas service, add 25% minimum.
4. To prevent stem side loading and eliminate potential stem galling, the following tolerances for mounting actuators are recommended:
   - Actuator mounting bracket flanges must be parallel within .015".
   - The maximum allowed run out on the stem coupling bores are .008".
   - 8", 10" and 12", Class 300, have a maximum operating pressure of 550 psig.

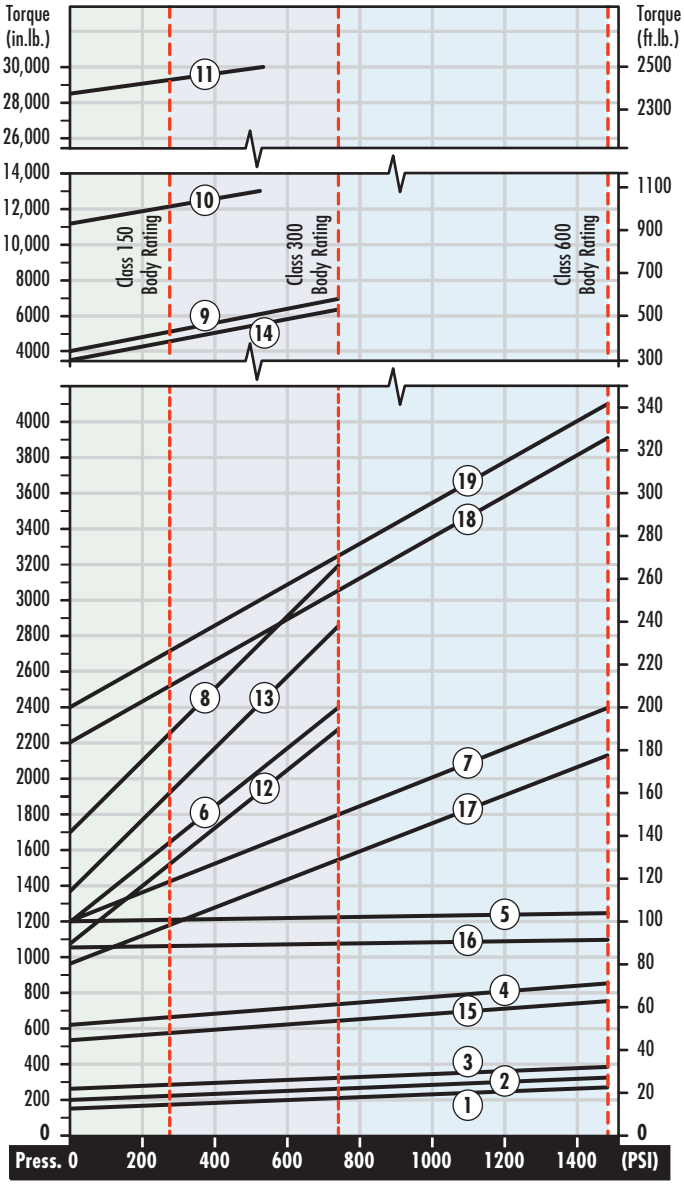


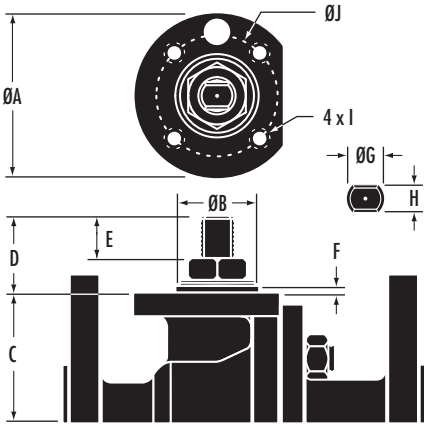
Chart is for TFM or TFMC Seats. For other seat material contact your PBV®-USA sales representative.

Approximate Valve Weights (lbs.)

Series	Size (in.) 1/2	3/4	1	1 1/2	2	3	4	6	8	10	12
	Class 150										
4410	—	—	—	—	19	35	76	140	210	390	—
4430	—	—	—	—	26	54	106	190	250	420	—
4460	—	11	11	22	33	70	140	269	—	—	—
5410	—	5	6	12	19	35	53	103	164	289	TBD
5430	—	7	12	20	24.4	51	82	179	285	415	TBD
6410	4	5	7	14	22	48	75	180	285	600	—
6430	6	9	12	21	29	65	105	235	313	TBD	—
6460	6	13.5	13.1	27	46	91	177	—	—	—	—

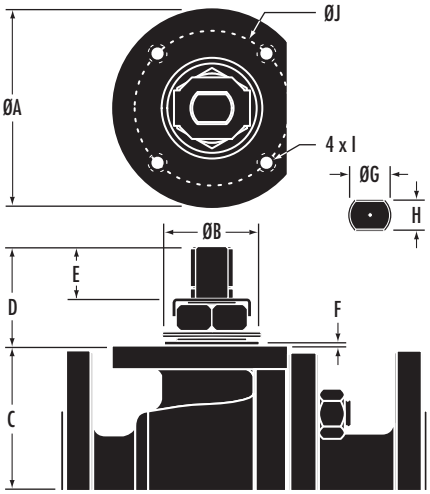
Series 4400, 5400 & 6400, 1/2"-11/2", Class 150, 300 & 600 (in.)

Valve Size	A	B	C	D	E	F	G +000/ -003	H +000/ -003	I	J	ISO 5211
Series 6400, Class 150/300, 1/2"-1"											
1/2	1.97	0.984	1.54	1.04	0.33	0.08	0.437	0.314	1/4-20 UNC	1.42	F03
3/4	1.97	0.984	1.64	1.04	0.33	0.08	0.437	0.314	1/4-20 UNC	1.42	F03
1	2.56	1.378	1.98	1.18	0.34	0.08	0.500	0.394	1/4-20 UNC	2.00	F05
Series 6400, Class 600, 1/2"-1"											
1/2	1.97	0.984	1.54	1.04	0.33	0.08	0.437	0.314	1/4-20 UNC	1.42	F03
3/4	1.97	0.984	1.65	1.04	0.33	0.08	0.437	0.314	1/4-20 UNC	1.42	F03
1	2.56	1.378	1.98	1.18	0.34	0.08	0.500	0.394	1/4-20 UNC	2.00	F05
Series 5400, Class 150/300, 3/4"-11/2"											
3/4	1.97	0.984	1.02	0.78	0.27	0.06	0.313	0.197	1/4-20 UNC	1.42	F03
1	2.20	0.984	1.26	0.90	0.31	0.08	0.375	0.236	1/4-20 UNC	1.65	F04
1 1/2	2.56	1.378	2.12	1.19	0.34	0.08	0.500	0.394	1/4-20 UNC	2.00	F05
Series 4400, Class 600, 3/4"-11/2"											
3/4	1.97	0.984	1.54	1.04	0.33	0.08	0.437	0.314	1/4-20 UNC	1.42	F03
1	1.97	0.984	1.65	1.04	0.33	0.08	0.437	0.314	1/4-20 UNC	1.42	F03
1 1/2	2.56	1.378	1.98	1.19	0.34	0.08	0.500	0.394	1/4-20 UNC	2.00	F05



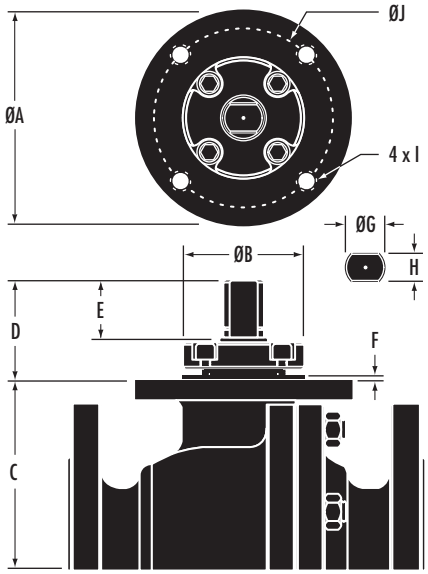
Series 4400, 5400 & 6400, 1 1/2"-4", Class 150, 300 & 600 (in.)

Valve Size	A	B	C	D	E	F	G +000/ -003	H +000/ -003	I	J	ISO 5211
Series 6400, Class 150/300, 1 1/2"-2"											
1 1/2	3.54	1.771	2.59	1.79	0.71	0.08	0.767	0.551	5/16-18 UNC	2.75	F07
2	3.54	1.771	3.48	2.19	1.07	0.08	0.906	0.669	5/16-18 UNC	2.75	F07
Series 6400, Class 600, 1 1/2"-2"											
1 1/2	3.54	1.771	2.59	1.79	0.71	0.08	0.767	0.551	5/16-18 UNC	2.75	F07
2	3.54	1.771	3.48	2.19	1.07	0.08	0.906	0.669	5/16-18 UNC	2.75	F07
Series 5400, Class 150/300, 2"-4"											
2	3.54	1.771	2.55	1.79	0.71	0.08	0.767	0.551	5/16-18 UNC	2.75	F07
3	3.54	1.771	3.69	2.15	1.06	0.08	0.906	0.669	5/16-18 UNC	2.75	F07
4	3.54	1.771	4.26	2.15	1.06	0.08	0.906	0.669	5/16-18 UNC	2.75	F07
Series 4400, Class 150/300, 2"-3"											
2	3.54	1.771	2.59	1.79	0.71	0.08	0.767	0.551	5/16-18 UNC	2.75	F07
3	3.54	1.771	3.48	2.19	1.06	0.08	0.906	0.669	5/16-18 UNC	2.75	F07
Series 4400, Class 600, 2"-3"											
2	3.54	1.771	2.59	1.79	0.71	0.08	0.767	0.551	5/16-18 UNC	2.75	F07
3	3.54	1.771	3.48	2.19	1.06	0.08	0.906	0.669	5/16-18 UNC	2.75	F07



Series 4400, 5400 & 6400, 3"-12", Class 150, 300 & 600 (in.)

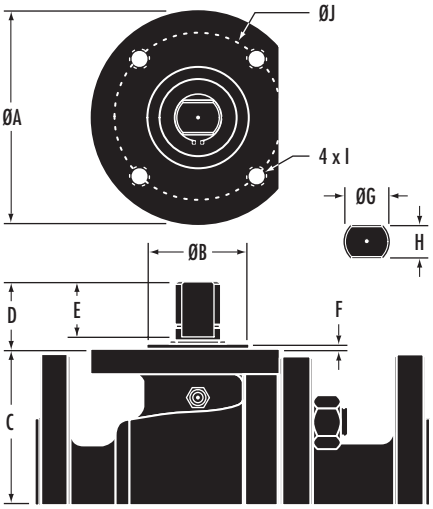
Valve Size	A	B	C	D	E	F	G +000/ -003	H +000/ -003	I	J	ISO 5211
Series 6400, Class 150/300, 3"-10"											
3	4.92	2.755	4.30	2.21	1.03	0.08	0.906	0.669	3/8-16 UNC	4.00	F10
4	5.90	3.346	5.31	2.52	1.10	0.08	1.279	0.905	1/2-13 UNC	4.95	F12
6	6.88	3.937	7.05	3.32	1.72	0.08	1.633	1.062	5/8-11 UNC	5.50	F14
8	8.26	4.724	9.09	3.88	2.00	0.08	1.870	1.259	3/4-10 UNC	6.50	F16
10	8.26	4.724	11.02	4.08	2.21	0.08	2.283	1.496	3/4-10 UNC	6.50	F16
Series 6400, Class 600, 3"-4"											
3	5.90	3.346	4.65	2.54	1.11	0.08	1.279	0.906	1/2-13 UNC	4.95	F12
4	5.90	3.937	5.83	3.43	1.73	0.08	1.633	1.062	1/2-13 UNC	4.95	F12
Series 5400, Class 150/300, 6"-12"											
6	5.90	3.346	5.83	2.52	1.10	0.08	1.279	0.905	1/2-13 UNC	4.95	F12
8	6.88	3.937	7.02	3.30	1.72	0.08	1.633	1.062	5/8-11 UNC	5.50	F14
10	8.26	4.724	8.51	3.88	2.00	0.08	1.870	1.259	3/4-10 UNC	6.50	F16
12	8.26	4.724	10.24	4.06	2.19	0.08	2.283	1.496	3/4-10 UNC	6.50	F16
Series 4400, Class 150/300, 4"-10"											
4	4.92	2.755	4.30	2.21	1.03	0.08	0.906	0.669	3/8-16 UNC	4.00	F10
6	5.90	3.346	5.31	2.52	1.10	0.08	1.279	0.905	1/2-13 UNC	4.95	F12
8	6.89	3.937	7.05	3.32	1.72	0.08	1.633	1.062	5/8-11 UNC	5.50	F14
10	8.26	4.724	9.09	3.88	2.00	0.08	1.870	1.259	3/4-10 UNC	6.50	F16
Series 4400, Class 600, 4"-6"											
4	5.90	3.346	4.65	2.54	1.11	0.08	1.279	0.906	1/2-13 UNC	4.95	F12
6	5.90	3.937	5.83	3.43	1.73	0.08	1.633	1.062	1/2-13 UNC	4.95	F12



Actuator Mounting Data, Series 4500 & 6500, Class 150, 300 & 600

Series 4500 & 6500, 1"-6", Class 150, 300 & 600 (in.)

Valve Size	A	B	C	D	E	F	G +000/ -003	H +000/ -003	I	J	ISO 5211
	Series 6500, Class 150/300, 1"-6"										
1	2.56	1.378	1.98	0.85	0.64	0.08	0.591	0.394	1/4-20 UNC	2.00	F05
1 1/2	3.54	1.771	2.59	1.10	0.71	0.08	0.767	0.551	5/16-18 UNC	2.75	F07
2	3.54	1.771	3.48	1.47	1.08	0.08	0.906	0.669	5/16-18 UNC	2.75	F07
3	4.92	2.755	4.30	1.50	1.08	0.08	0.906	0.669	3/8-16 UNC	4.00	F10
4	5.90	3.346	5.31	1.58	1.11	0.08	1.279	0.905	1/2-13 UNC	4.95	F12
6	6.88	3.937	7.05	2.24	1.70	0.08	1.633	1.062	5/8-11 UNC	5.50	F14
	Series 6500, Class 600, 1"-4"										
1	2.56	1.378	1.98	0.85	0.64	0.08	0.591	0.394	1/4-20 UNC	2.00	F05
1 1/2	3.54	1.693	2.59	1.10	0.71	0.08	0.767	0.551	5/16-18 UNC	2.75	F07
2	3.54	1.771	3.48	1.48	1.08	0.08	0.906	0.669	5/16-18 UNC	2.75	F07
3	5.90	3.346	4.65	1.59	1.11	0.08	1.279	0.906	1/2-13 UNC	4.95	F12
4	5.90	3.937	5.83	2.20	1.70	0.08	1.633	1.062	1/2-13 UNC	4.95	F12
	Series 4500, Class 150/300, 1 1/2"-6"										
1 1/2	2.56	1.378	1.94	0.85	0.64	0.08	0.591	0.394	1/4-20 UNC	2.00	F05
2	3.54	1.771	2.59	1.10	0.71	0.08	0.767	0.551	5/16-18 UNC	2.75	F07
3	3.54	1.771	3.48	1.47	1.08	0.08	0.906	0.669	5/16-18 UNC	2.75	F07
4	4.92	2.755	4.30	1.50	1.08	0.08	0.906	0.669	3/8-16 UNC	4.00	F10
6	5.90	3.346	5.31	1.58	1.11	0.08	1.279	0.905	1/2-13 UNC	4.95	F12
	Series 4500, Class 600, 1 1/2"-6"										
1 1/2	2.56	1.378	1.94	0.85	0.64	0.08	0.591	0.394	1/4-20 UNC	2.00	F05
2	3.54	1.771	2.60	1.07	0.71	0.08	0.768	0.551	5/16-18 UNC	2.75	F07
3	3.54	1.771	3.48	1.48	1.08	0.08	0.906	0.669	5/16-18 UNC	2.75	F07
4	5.90	3.346	4.65	1.59	1.11	0.08	1.279	0.906	1/2-13 UNC	4.95	F12
6	5.90	3.937	5.83	2.20	1.70	0.08	1.633	1.062	1/2-13 UNC	4.95	F12



Flow Coefficients (C_V) and Pressure Conversion Chart

Series	Size (in.)									
	1/2	3/4	1	1 1/2	2	3	4	6	8	10
4410, 4430, 4460, 4510, 4530, 4560	—	17	36	70	180	350	880	1550	3580	6675
5410 with insert downstream	9	15	28	108	158	337	489	973	1255	2110
5410 with insert upstream	8	14	27	106	153	317	449	899	1180	2005
5430 with insert downstream	11	18	33	130	190	404	580	1168	1580	2600
5430 with insert upstream	10	16	30	127	183	380	540	1070	1400	2370
6410, 6430, 6460, 6510, 6530, 6560	28	52	90	250	480	1200	2250	5400	9600	16,000

Flow Coefficients (C_V) Factor

Capacity factors for the Series 4400, 5400, 6400, 4500 and 6500 valves listed above are to be used as a reference for correct valve sizing. C_V equals the volume of water in gallons per minute that will flow through a given opening with a pressure drop of one psi.

Pressure Conversion

Directions: These formulas may be used to convert from one scale to another:

psi x .06894757 = bar — bar x 14.50377 = psi

psi x .07030697 = Kg/cm^2 — Kg/cm^2 x 14.22334 = psi

psi x 6894.757 = Pascal — Pascal x .0001450377 = psi

Certification of Quality and Design

Due to upgrades in industry standards, material innovations, constant commitment to product advancement, data presented in this brochure is subject to change.

All API 6D, ISO PED 97/23/EC and other licenses are maintained on a current basis.

API 6D *ISO 9001-2000*

CE 0038

NACE Compliance

The demand for valves to be resistant to sulfide stress cracking, and to perform in corrosive hydrocarbon environments, has become commonplace. Facilities handling H_2S bearing hydrocarbons have increased dramatically over recent years. Hydrogen sulfide concentration, total system pressure, application temperature, existence of elemental sulfur, and chloride content all have a bearing on appropriate material selection in this severe environment.

All floating ball valves, with standard trim, have been proven reliable, and fully comply with NACE MR0175 2002. In order to ensure compliance with NACE MR0175 2003, customers must provide application specific operating conditions.

In addition, floating ball valves, with standard trim, fully comply with NACE MR0103 2003 upon request.

Floating Ball Valves are designed to meet the following Industry Standards:

Item	Industry Standard	British Standard
Valve Shell Pressure - Temperature	ASME B16.34	BS 5351
Seat Pressure - Temperature	See PBV Pressure Temperature Ratings	See PBV Pressure Temperature Ratings
Shell Wall Thickness	ASME B16.34	BS 5351
Face-to-Face Dimensions	ASME B16.10	BS 2080 (optional)
End Flange Dimensions	ASME B16.5	BS 1560
Pressure Test	API 598 and API 6D	BS 6755 Part 1 (optional)
Firesafe Test	API 607 and API 6FA	BS 6755 Part 2 (optional)
Design Standard	API 608, API 6D, ASME B16.34	BS 5351
Attachment of Actuator	ISO 5211	
Quality Standard - Steel Castings	MSS-SP55	
Pressure Equipment Directive	97/23/EC	
Management System	ISO 9001-2000	

Standard Design Features for All Floating Ball Valves

Standard design features, product line range, material selection, and centrally located operations facility all combine to make the first choice for floating ball valves.

The inherent ball valve characteristics of quick quarter-turn operation, bi-directional shut-off capability, ease of automation, and low maintenance are enhanced with many additional features such as Series 300 Stainless Steel gland, heavy bolting meeting NACE MR0175 2002, 125-250 Ra flange finish and port diameters in conformance with API 608.

Body and Trim Material

Body materials are ASME material grades WCB, LCC and CF8M, with Stainless Steel trim; other body or trim materials, including Alloy 20, Monel and Hastelloy®, are available upon request. Seat and seal options include materials designed to stand up to severe environments and repeated cycling.

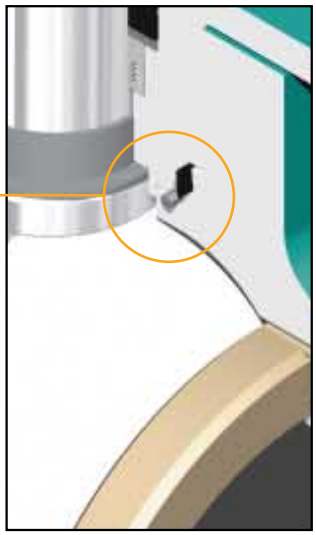
Whether your intended use is in the petrochemical, pharmaceutical or pulp and paper industry, floating ball valves are designed to provide you with a higher standard in service and value.

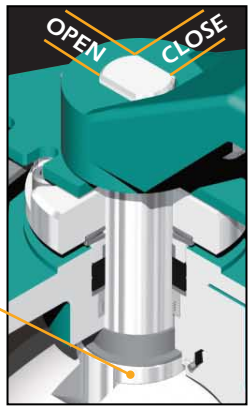
Quality Procedures

Every valve is tested and inspections are performed throughout the production process to insure that product quality meets standards. Quality holdpoints include receiving inspection to verify part conformance, pressure testing in conformance with API 6D or 598 to assure the integrity of the shell and seals, and final inspection to confirm that all marking, tagging and processing have been performed

Encapsulated Body Seals

With fully encapsulated body seals, there is no opportunity for seal movement or slippage, thereby improving sealing.





Ball Position Indicator And Blowout Proof Stem Features

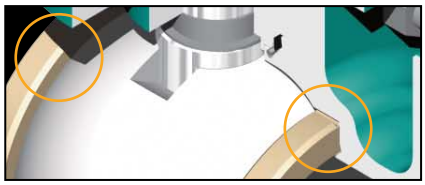
The stem is designed with a double flat shape at the top of the stem to indicate ball position.

blowout proof stem feature is accomplished by the use of a lower stem collar design.

Bubble-Tight Sealing

Bubble-tight sealing is achieved by the use of two rigid seats firmly secured in the valve body on either side of the ball.

Media flow is cut off on the down-stream side by upstream pressure pushing against the ball.

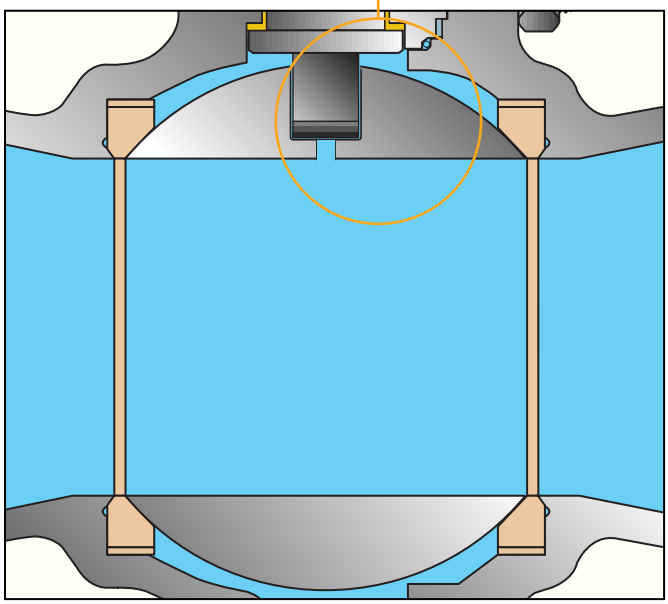


Bi-Directional Sealing

With the bi-directional sealing design, either end can be installed upstream without compromising the integrity of the bubble-tight seal.

Equalized Cavity Pressure

The pressure equalization hole at the top of the ball combined with the seat design are both engineered to maintain the pressure balance in the line and in the body cavity while the valve is in the open position.



Stem Packing Seal

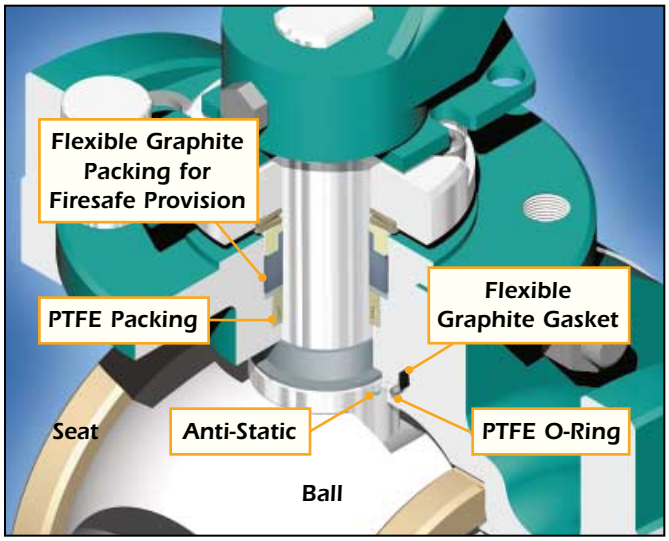


Figure 1. Before Fire

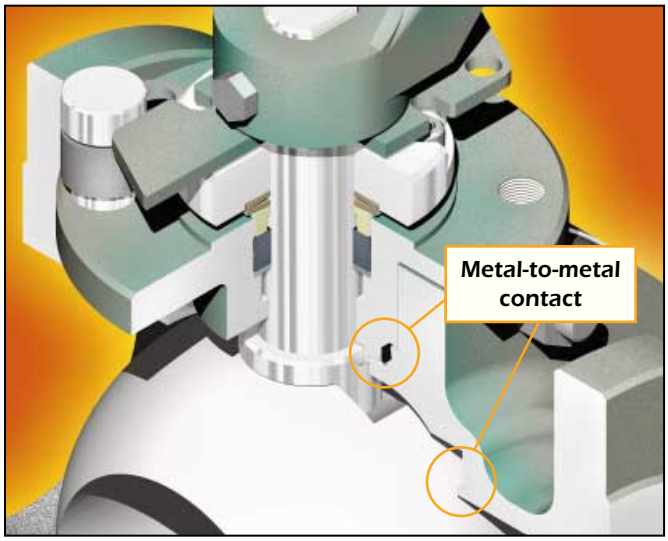


Figure 2. After Fire

Live Load And Double Packing Stem Seal Features

Belleville spring washers are used to achieve live loading and minimize the need to retighten packing.

Primary PTFE Chevron stem seal and secondary firesafe flexible graphite stem steal are standard for all ball valves which provide low break torque, excellent emission control and good chemical and thermal resistance.

Anti-Static Device

Internal parts that are insulated from the valve body by non-conductive seat and seal materials may build up a static electric charge. To ensure electrical continuity between the stem and the ball and body, includes anti-static devices as an integral part of all floating ball valves.

O-Ring Stem Seal

A fitting is provided on the valve for injection of corrosion inhibiting grease into the stem seal cavity, which prevents water intrusion and subsequent corrosion.

Packing adjustments are not required with the o-ring stem seal. The o-ring stem seal provides low break torque and excellent emission control. Viton® GF seals are standard and will provide broad chemical resistance from -15°F to 400°F.

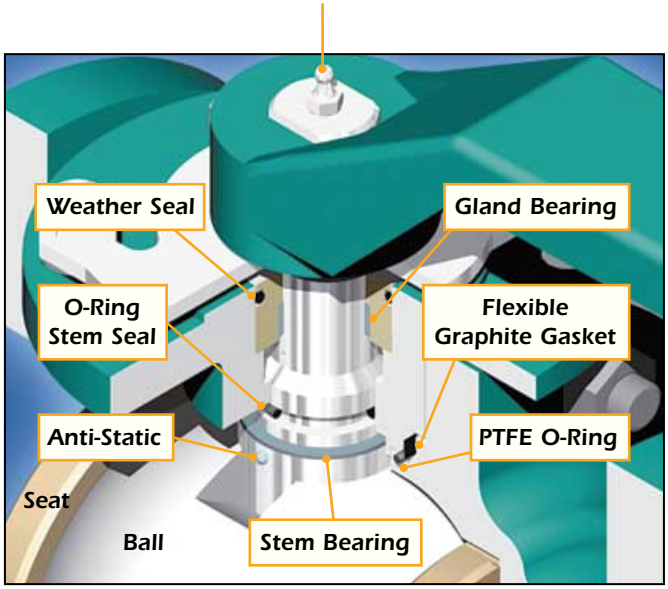


Figure 3. Before Fire

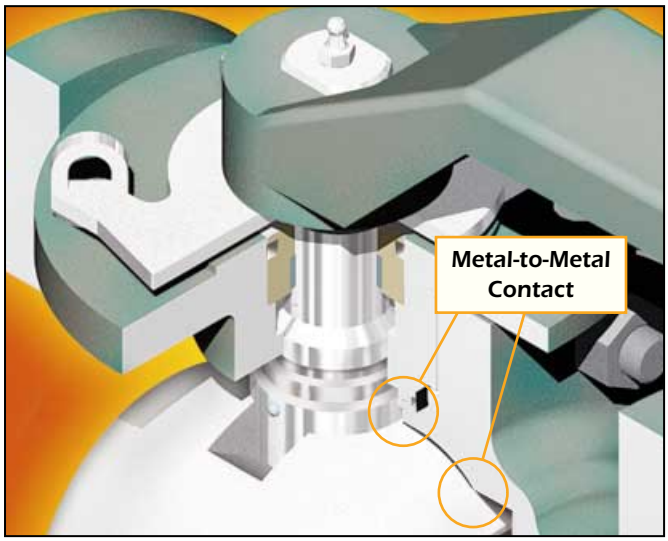
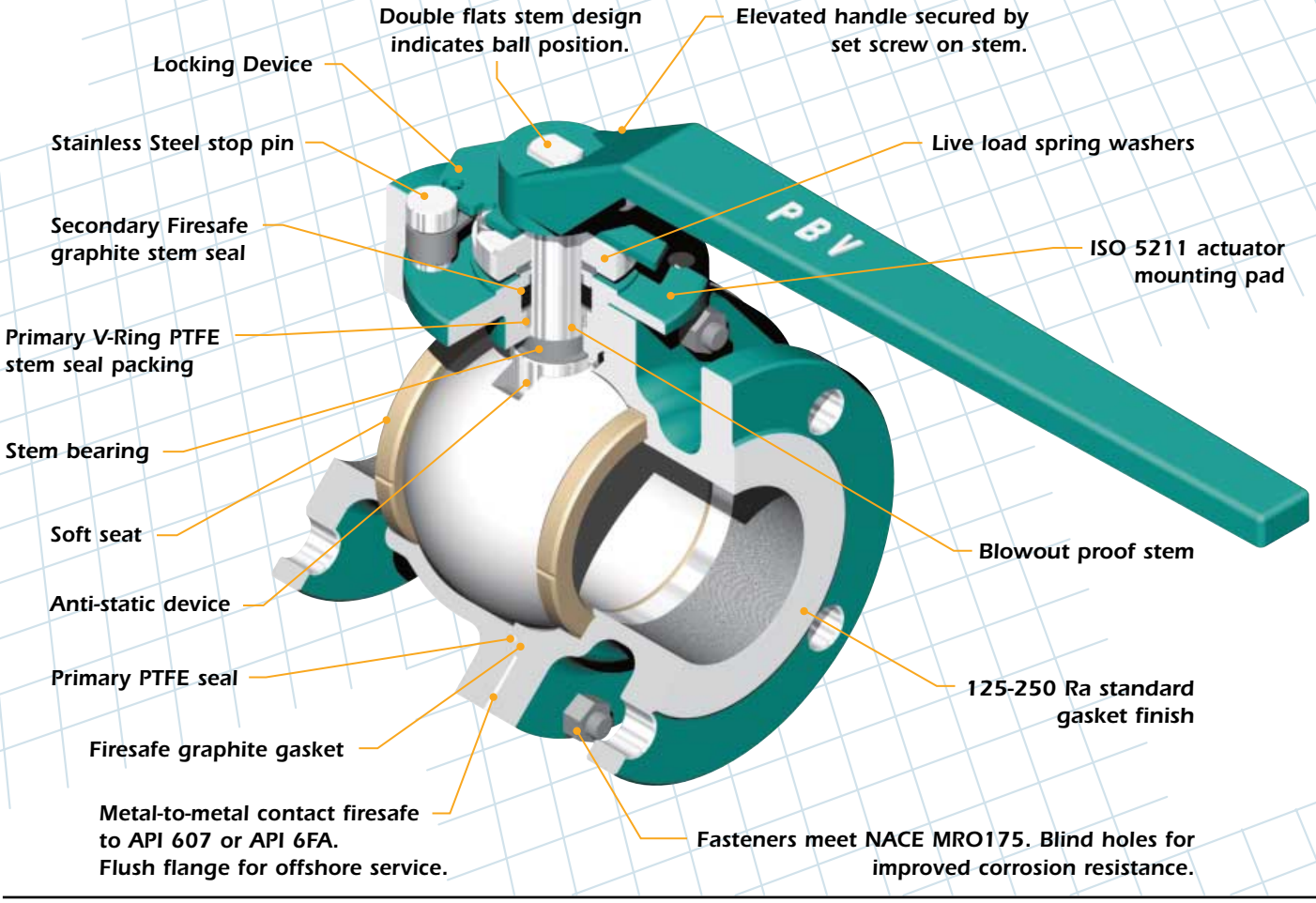


Figure 4. After Fire

Standard Features

This is an illustrated cross section of a typical full port, 2 pc body, floating ball valve exhibiting standard design features. The actual design of a particular valve may be slightly different from this illustration depending on its size and pressure class.

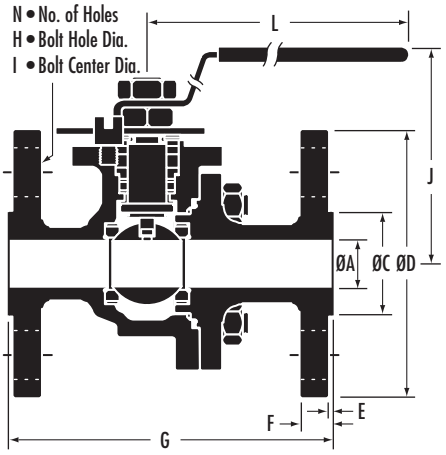


Dimensional Data (in.)

Test Pressure	Shell (hydrostatic)	Seat (air)
Class 150	450 psi	80 psi
Class 300	1125 psi	80 psi
Class 600	2250 psi	80 psi

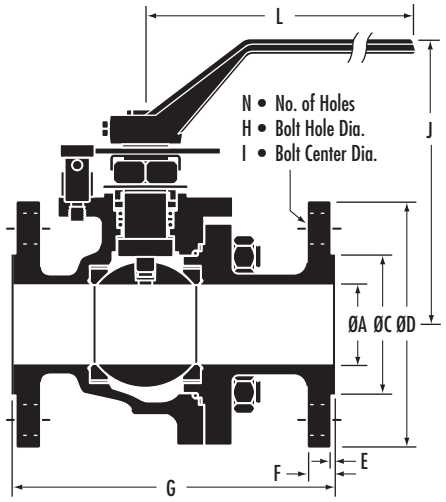
Series 6400, 1/2"-1", Class 150, 300 & 600 (in.)

Valve Size	A	C	D	E	F	G	NxøH	I	J	L
	Class 150, 1/2"-1"									
1/2	0.49	1.38	3.50	0.06	0.44	4.25	4xø.62	2.38	4.38	5.12
3/4	0.71	1.69	3.88	0.06	0.44	4.62	4xø.62	2.75	4.53	5.12
1	0.97	2.00	4.25	0.06	0.44	5.00	4xø.62	3.12	5.63	6.32
	Class 300, 1/2"-1"									
1/2	0.49	1.38	3.75	0.06	0.56	5.50	4xø.62	2.62	4.38	5.12
3/4	0.71	1.69	4.62	0.06	0.62	6.00	4xø.75	3.25	4.53	5.12
1	0.97	2.00	4.88	0.06	0.69	6.50	4xø.75	3.50	5.63	6.32
	Class 600, 1/2"-1"									
1/2	0.49	1.38	3.75	0.25	0.82	6.50	4xø.62	2.62	4.38	5.12
3/4	0.71	1.69	4.62	0.25	0.87	7.50	4xø.75	3.25	4.53	5.12
1	0.97	2.00	4.88	0.25	0.95	8.50	4xø.75	3.50	5.63	6.32



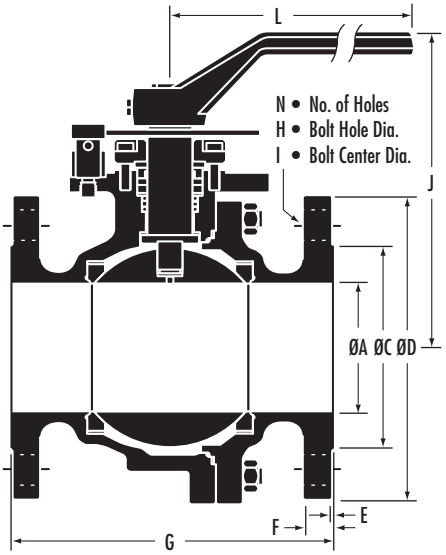
Series 6400, 1 1/2"-2", Class 150, 300 & 600 (in.)

Valve Size	A	C	D	E	F	G	NxøH	I	J	L
	Class 150, 1 1/2"-2"									
1 1/2	1.50	2.88	5.00	0.06	0.56	6.50	4xø.62	3.88	5.81	9.00
2	2.00	3.62	6.00	0.06	0.62	7.00	4xø.75	4.75	6.95	16.50
	Class 300, 1 1/2"-2"									
1 1/2	1.50	2.88	6.12	0.06	0.81	7.50	4xø.88	4.50	5.81	9.00
2	2.00	3.62	6.50	0.06	0.88	8.50	4xø.75	5.00	6.95	16.50
	Class 600, 1 1/2"-2"									
1 1/2	1.50	2.88	6.12	0.25	1.13	9.50	4xø.88	4.50	5.81	9.00
2	2.00	3.62	6.50	0.25	1.28	11.50	4xø.75	5.00	6.95	16.50



Series 6400, 3"-10", Class 150, 300 & 600 (in.)

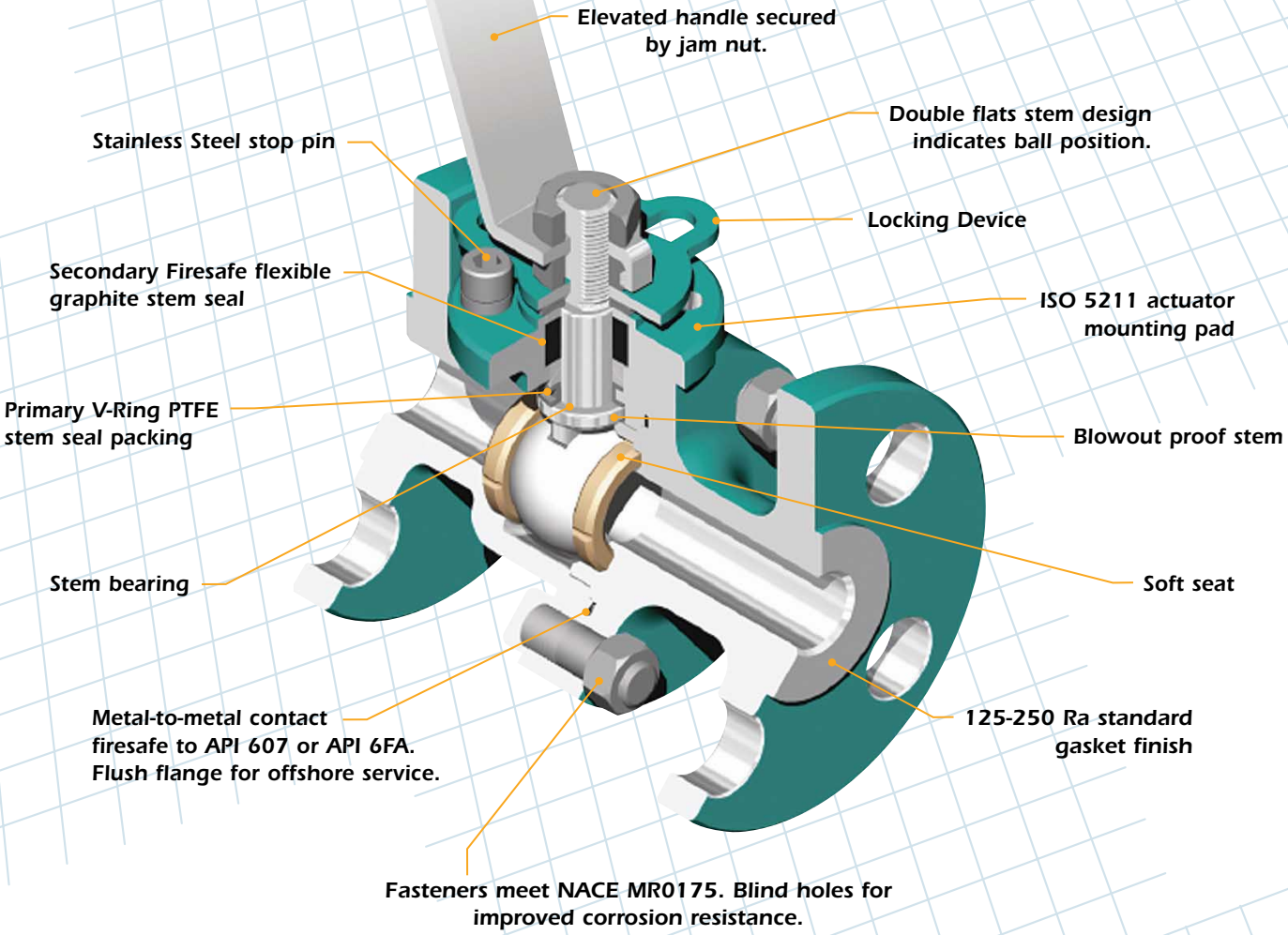
Valve Size	A	C	D	E	F	G	NxøH	I	J	L
	Class 150, 3"-10"									
3	3.00	5.00	7.50	0.06	0.75	8.00	4xø.75	6.00	7.80	16.50
4	4.00	6.19	9.00	0.06	0.94	9.00	8xø.75	7.50	8.71	19.70
6	6.00	8.50	11.00	0.06	1.00	15.50	8xø.88	9.50	11.69	43.00
8	8.00	10.62	13.50	0.06	1.12	18.00	8xø.88	11.75	14.60	58.00
10	10.00	12.75	16.00	0.06	1.19	21.00	12xø1.00	14.25	—	—
	Class 300, 3"-10"									
3	3.00	5.00	8.25	0.06	1.12	11.12	8xø.88	6.62	7.80	16.50
4	4.00	6.19	10.00	0.06	1.25	12.00	8xø.88	7.88	8.71	19.70
6	6.00	8.50	12.50	0.06	1.44	15.88	12xø.88	10.62	11.69	43.00
8	8.00	10.62	15.00	0.06	1.62	19.75	12xø1.00	13.00	14.60	58.00
10	10.00	12.75	17.50	0.06	1.88	22.38	16xø1.12	15.25	—	—
	Class 600, 3"-4"									
3	3.00	5.00	8.25	0.25	1.50	14.00	8xø.88	6.62	8.06	19.70
4	4.00	6.19	10.75	0.25	1.75	17.00	8xø1.00	8.50	10.60	43.00



Note: 6"-10" Optional gear operation.

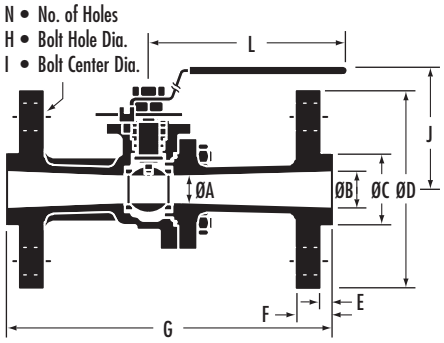
Series 4400 Regular Port, 2 pc Body Stem Packing Ball Valves

This is an illustrated cross section of a typical full port, 2 pc body, floating ball valve exhibiting standard design features. The actual design of a particular valve may be slightly different from this illustration depending on its size and pressure class.



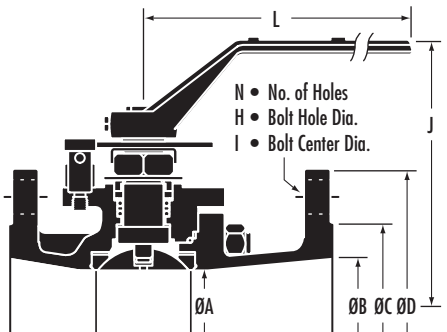
Dimensional Data (in.)

Test Pressure	Shell (hydrostatic)	Seat (air)
Class 150	450 psi	80 psi
Class 300	1125 psi	80 psi
Class 600	2250 psi	80 psi



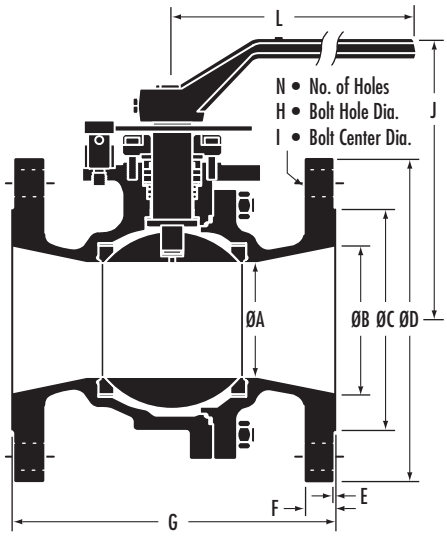
Series 4400, 3/4"-1 1/2", Class 600 (in.)

Valve Size	A	B	C	D	E	F	G	NxøH	I	J	L
	Class 600, 3/4"-1 1/2"										
3/4	0.50	0.78	1.69	4.62	0.25	0.87	7.50	4xø.75	3.25	5.00	5.12
1	0.72	0.98	2.00	4.88	0.25	0.94	8.50	4xø.75	3.50	5.12	5.12
1 1/2	0.97	1.57	2.88	6.12	0.25	1.13	9.50	4xø.88	4.50	5.65	6.32



Series 4400, 2"-3", Class 150, 300 & 600 (in.)

Valve Size	A	B	C	D	E	F	G	NxøH	I	J	L
	Class 150, 2"-3"										
2	1.50	2.00	3.62	6.00	0.06	0.62	7.00	4xø.75	4.75	5.81	9.00
3	2.00	3.00	5.00	7.50	0.06	0.75	8.00	4xø.75	6.00	6.95	16.50
	Class 300, 2"-3"										
2	1.50	2.00	3.62	6.50	0.06	0.88	8.50	8xø.75	5.00	5.81	9.00
3	2.00	3.00	5.00	8.25	0.06	1.12	11.12	8xø.88	6.62	6.95	16.50
	Class 600, 2"-3"										
2	1.50	2.00	3.62	6.50	0.25	1.28	11.50	8xø.75	5.00	5.81	9.00
3	2.00	3.00	5.00	8.25	0.25	1.50	14.00	8xø.88	6.62	6.95	16.50



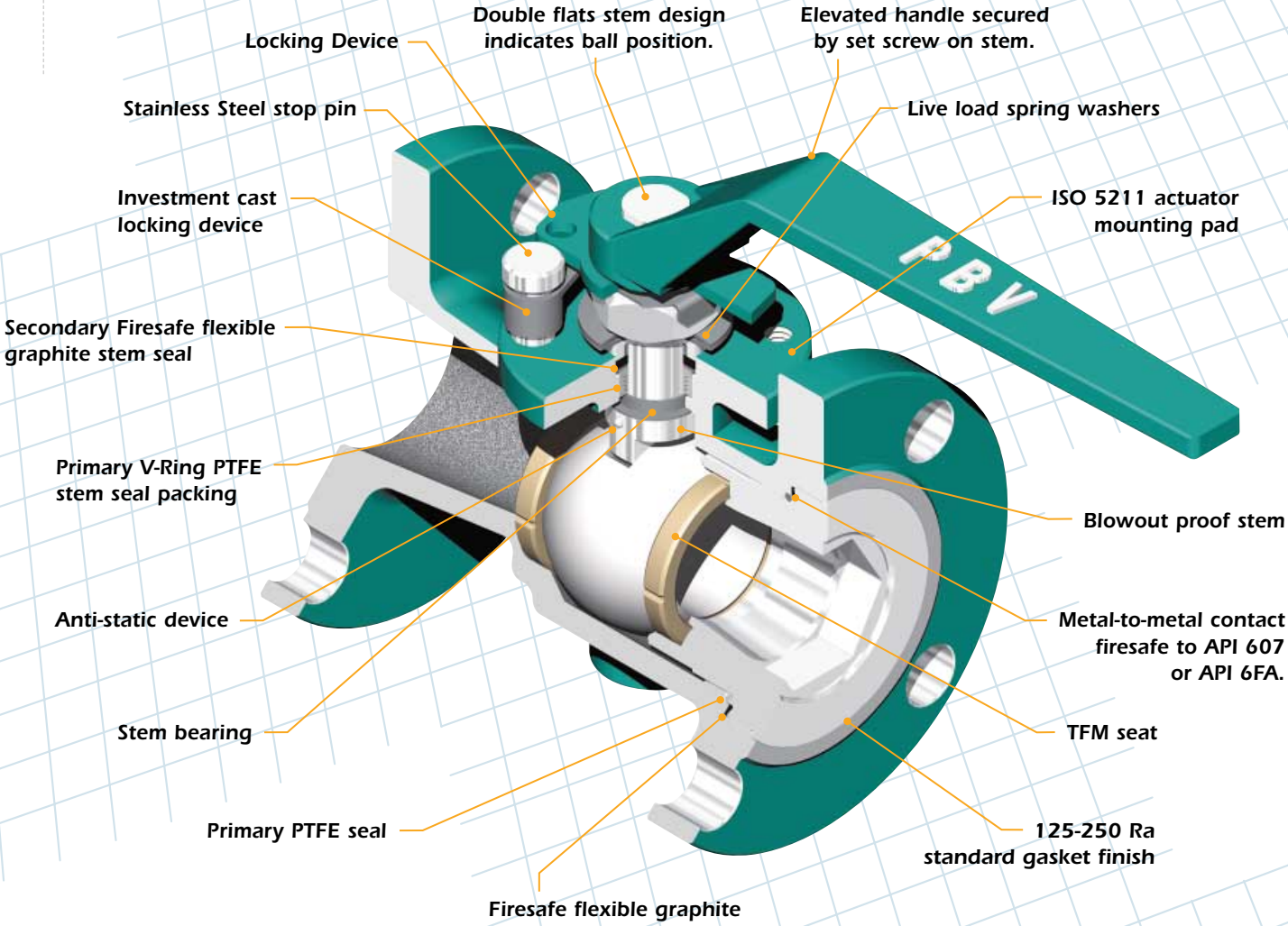
Series 4400, 4"-10", Class 150, 300 & 600 (in.)

Valve Size	A	B	C	D	E	F	G	NxøH	I	J	L
	Class 150, 4"-10"										
4	3.00	4.00	6.19	9.00	0.06	0.94	9.00	8xø.75	7.50	7.80	16.50
6	4.00	6.00	8.50	11.00	0.06	1.00	15.50	8xø.88	9.50	8.71	19.70
8	6.00	8.00	10.62	13.50	0.06	1.12	18.00	8xø.88	11.75	11.70	43.00
10	8.00	10.00	12.75	16.00	0.06	1.19	21.00	12xø1.00	14.25	14.60	58.00
	Class 300, 4"-10"										
4	3.00	4.00	6.19	10.00	0.06	1.25	12.00	8xø.88	7.88	7.80	16.50
6	4.00	6.00	8.50	12.50	0.06	1.44	15.88	12xø.88	10.62	8.71	19.70
8	6.00	8.00	10.62	15.00	0.06	1.62	19.75	12xø1.00	13.00	11.70	43.00
10	8.00	10.00	12.75	17.50	0.06	1.88	22.38	16xø1.12	15.25	14.60	58.00
	Class 600, 4"-6"										
4	3.00	4.00	6.19	10.75	0.25	1.75	17.00	8xø1.00	8.50	8.06	19.70
6	4.00	6.00	8.50	14.00	0.25	2.14	22.00	12xø1.12	11.50	10.60	43.00

Note: 6"-10" Optional gear operation.

Series 5400 Regular Port, Unibody Stem Packing Ball Valve

This is an illustrated cross section of a typical regular port, unibody, floating ball valve exhibiting standard design features. The actual design of a particular valve may be slightly different from this illustration depending on its size and pressure class.



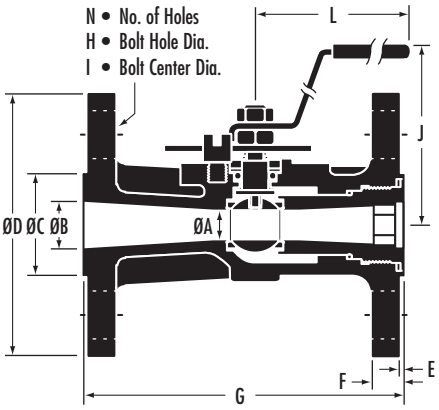
Typical offshore installation.

Dimensional Data (in.)

Test Pressure	Shell (hydrostatic)	Seat (air)
Class 150	450 psi	80 psi
Class 300	1125 psi	80 psi

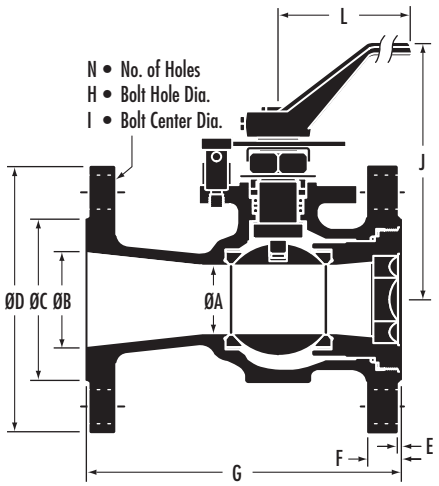
Series 5400, 3/4"-1 1/2", Class 150 & 300 (in.)

Valve Size	A	B	C	D	E	F	G	NxøH	I	J	L
	Class 150, 3/4"-1 1/2"										
3/4	0.49	0.79	1.69	3.88	0.06	0.44	4.62	4xø.62	2.75	4.25	5.50
1	0.71	0.98	2.00	4.25	0.06	0.44	5.00	4xø.62	3.12	4.68	6.30
1 1/2	1.18	1.50	2.88	5.00	0.06	0.57	6.50	4xø.62	3.88	5.80	6.30
	Class 300, 3/4"-1 1/2"										
3/4	0.49	0.79	1.69	4.62	0.06	0.62	6.00	4xø.75	3.25	4.25	5.50
1	0.71	0.98	2.00	4.88	0.06	0.69	6.50	4xø.75	3.50	4.68	6.30
1 1/2	1.18	1.50	2.88	6.12	0.06	0.81	7.50	4xø.88	4.50	5.80	6.30



Series 5400, 2"-4", Class 150 & 300 (in.)

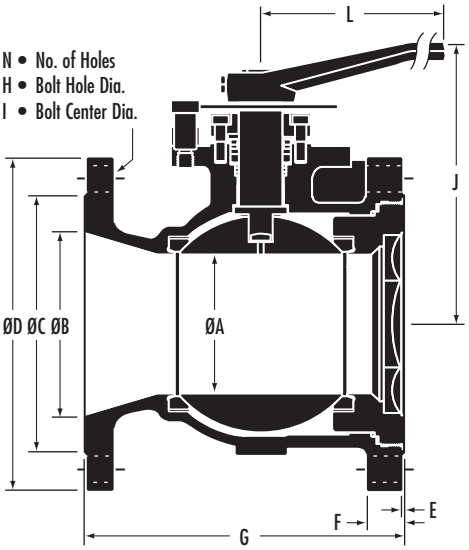
Valve Size	A	B	C	D	E	F	G	NxøH	I	J	L
	Class 150, 2"-4"										
2	1.50	2.00	3.62	6.00	0.06	0.68	7.00	4xø.75	4.75	5.74	9.00
3	2.28	3.00	5.00	7.50	0.06	0.81	8.00	4xø.75	6.00	7.13	16.50
4	3.00	4.00	6.19	9.00	0.06	1.00	9.00	8xø.75	7.50	7.69	16.50
	Class 300, 2"-4"										
2	1.50	2.00	3.62	6.50	0.06	0.88	8.50	8xø.75	5.00	5.74	9.00
3	2.28	3.00	5.00	8.25	0.06	1.12	11.12	8xø.88	6.62	7.13	16.50
4	3.00	4.00	6.19	10.00	0.06	1.25	12.00	8xø.88	7.88	7.69	16.50



Series 5400, 6"-12", Class 150 & 300 (in.)

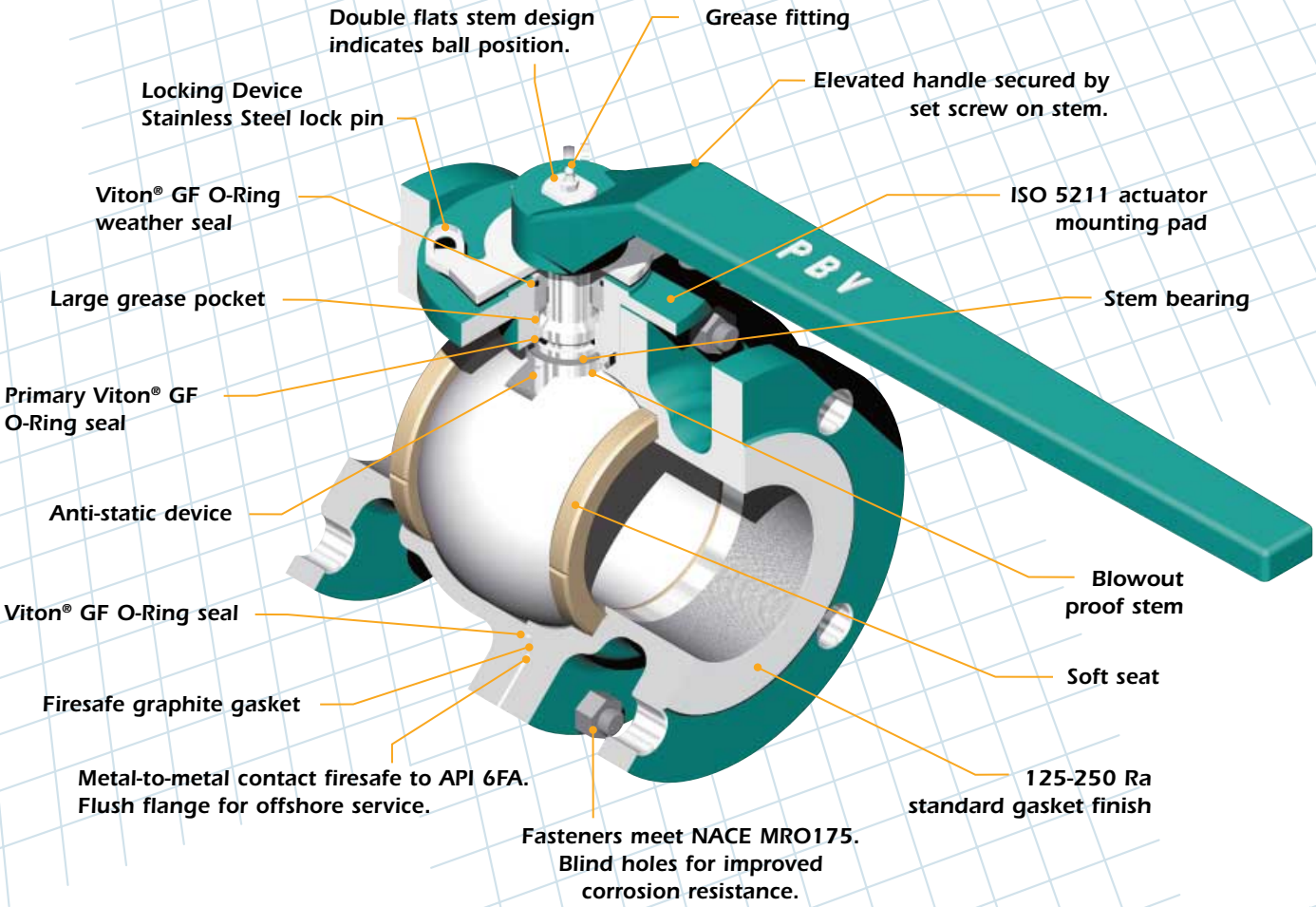
Valve Size	A	B	C	D	E	F	G	NxøH	I	J	L
	Class 150, 6"-12"										
6	4.49	6.00	8.50	11.00	0.06	1.00	10.50	8xø.88	9.50	9.22	19.70
8	6.00	8.00	10.62	13.50	0.06	1.12	11.50	8xø.88	11.75	11.65	43.00
10	7.32	10.00	12.75	16.00	0.06	1.19	13.00	12xø1.00	14.25	14.00	58.00
12	8.94	12.00	15.00	19.00	0.06	1.25	14.00	12xø1.00	17.00	21.22	—
	Class 300, 6"-12"										
6	4.49	6.00	8.50	12.50	0.06	1.44	15.88	12xø.88	10.62	10.30	43.00
8	6.00	8.00	10.62	15.00	0.06	1.62	16.50	12xø1.00	13.00	11.65	43.00
10	7.32	10.00	12.75	17.50	0.06	1.88	18.00	16xø1.12	15.25	14.00	58.00
12	8.94	12.00	15.00	20.50	0.06	2.00	19.75	16xø1.25	17.75	—	—

Note: 8"-12" Optional gear operation.



Series 4500 Regular & 6500 Full Port, 2 pc O-Ring Stem Ball Valves ▪ API 6D

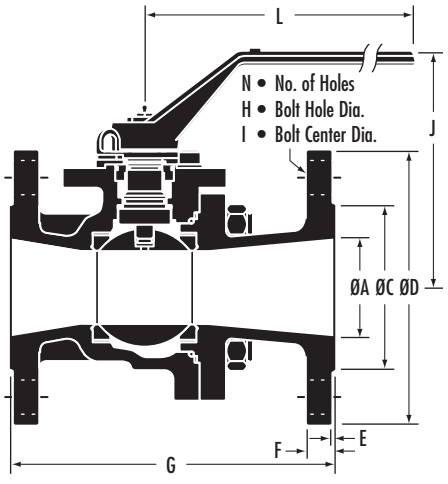
This is an illustrated cross section of a typical full port, 2 pc body, floating ball valve exhibiting standard design features. The actual design of a particular valve may be slightly different from this illustration depending on its size and pressure class.



Series 4500 Dimensional Data, Class 150, 300 & 600

Series 4500, 1 1/2"-6", Class 150, 300 & 600 (in.)

Valve Size	A	B	C	D	E	F	G	NxøH	I	J	L
	Class 150, 1 1/2"-6"										
1 1/2	0.97	1.50	2.88	5.00	0.06	0.56	6.50	4xø.62	3.88	4.34	7.50
2	1.50	2.00	3.62	6.00	0.06	0.62	7.00	4xø.75	4.75	5.10	9.00
3	2.00	3.00	5.00	7.50	0.06	0.75	8.00	4xø.75	6.00	6.22	16.50
4	3.00	4.00	6.19	9.00	0.06	0.94	9.00	8xø.75	7.50	7.10	16.50
6	4.00	6.00	8.50	11.00	0.06	1.00	15.50	8xø.88	9.50	7.75	19.70
	Class 300, 1 1/2"-6"										
1 1/2	0.97	1.50	2.88	6.12	0.06	0.81	7.50	4xø.88	4.50	4.34	7.50
2	1.50	2.00	3.62	6.50	0.06	0.88	8.50	8xø.75	5.00	5.00	9.00
3	2.00	3.00	5.00	8.25	0.06	1.12	11.12	8xø.88	6.62	6.83	16.50
4	3.00	4.00	6.19	10.00	0.06	1.25	12.00	8xø.88	7.88	7.10	16.50
6	4.00	6.00	8.50	12.50	0.06	1.44	15.88	12xø.88	10.62	7.75	19.70
	Class 600, 1 1/2"-6"										
1 1/2	0.97	1.50	2.88	6.12	0.25	1.13	9.50	4xø.88	4.50	4.34	9.00
2	1.50	2.00	3.62	6.50	0.25	1.28	11.50	8xø.75	5.00	5.00	9.00
3	2.00	3.00	5.00	8.25	0.25	1.50	14.00	8xø.88	6.62	6.23	16.50
4	3.00	4.00	6.19	10.75	0.25	1.75	17.00	8xø1.00	8.50	7.11	19.70
6	4.00	6.00	8.50	14.00	0.25	2.14	22.00	12xø1.12	11.50	8.30	43.00

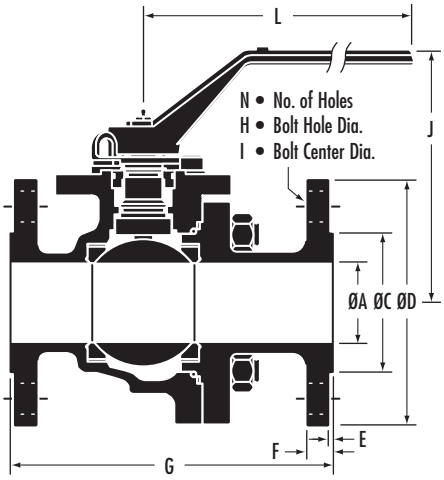


Dimensional Data (in.)

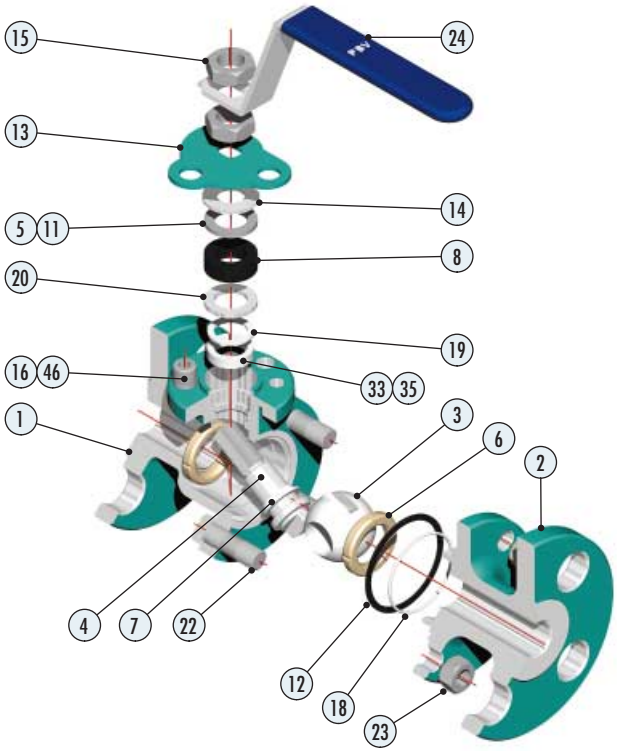
Test Pressure	Shell (hydrostatic)	Seat (air)	Seat (hydrostatic)
Class 150	450 psi	80 psi	320 psi
Class 300	1125 psi	80 psi	825 psi
Class 600	2250 psi	80 psi	1650 psi

Series 6500, 1"- 6", Class 150, 300 & 600 (in.)

Valve Size	A	C	D	E	F	G	NxøH	I	J	L
Class 150, 1"-6"										
1	0.97	2.00	4.25	0.06	0.44	5.00	4xø.62	3.12	4.34	7.50
1 1/2	1.50	2.88	5.00	0.06	0.56	6.50	4xø.62	3.88	5.00	9.00
2	2.00	3.62	6.00	0.06	0.62	7.00	4xø.75	4.75	6.23	16.50
3	3.00	5.00	7.50	0.06	0.75	8.00	4xø.75	6.00	7.10	16.50
4	4.00	6.19	9.00	0.06	0.94	9.00	8xø.75	7.50	7.75	19.70
6	6.00	8.50	11.00	0.06	1.00	15.50	8xø.88	9.50	9.56	43.00
Class 300, 1"-6"										
1	0.97	2.00	4.88	0.06	0.69	6.50	4xø.75	3.50	4.34	7.50
1 1/2	1.50	2.88	6.12	0.06	0.81	7.50	4xø.88	4.50	5.00	9.00
2	2.00	3.62	6.50	0.06	0.88	8.50	8xø.75	5.00	6.23	16.50
3	3.00	5.00	8.25	0.06	1.12	11.12	8xø.88	6.62	7.10	16.50
4	4.00	6.19	10.00	0.06	1.25	12.00	8xø.88	7.88	7.75	19.70
6	6.00	8.50	12.50	0.06	1.44	15.88	12xø.88	10.62	9.56	43.00
Class 600, 1"-4"										
1	0.97	2.00	4.88	0.25	0.95	8.50	4xø.75	3.50	4.34	7.50
1 1/2	1.50	2.88	6.12	0.25	1.13	9.50	4xø.88	4.50	5.00	9.00
2	2.00	3.62	6.50	0.25	1.28	11.50	8xø.75	5.00	6.23	16.50
3	3.00	5.00	8.25	0.25	1.50	14.00	8xø.88	6.62	7.11	19.70
4	4.00	6.19	10.75	0.25	1.75	17.00	8xø1.00	8.50	8.30	43.00



Parts and Materials for Stem Packing Design Valves

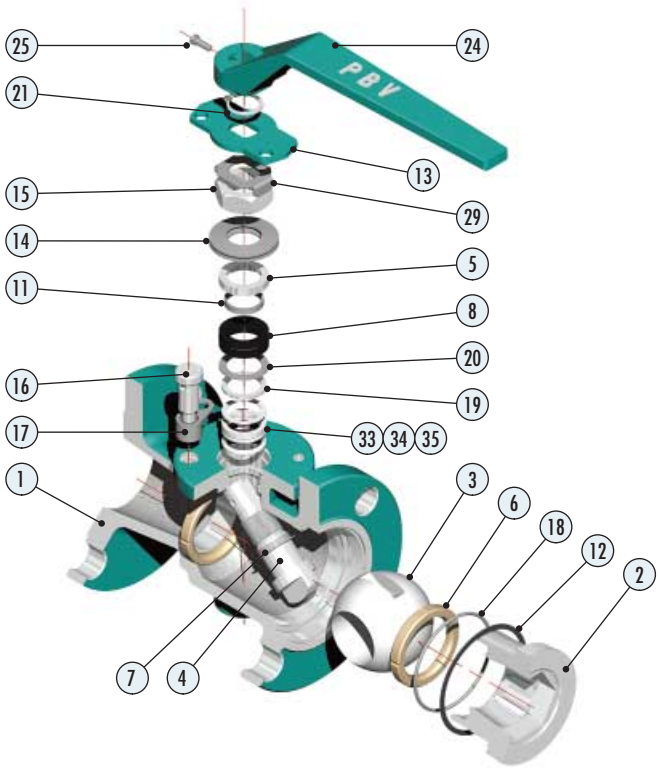


Series 6400, 1/2"-1", Class 150, 300 & 600
Series 4400, 3/4"-1 1/2", Class 600
Series 5400, 3/4"-1 1/2", Class 150, 300 & 600

Standard Material Configuration

Item No.	Description	Material		
1	Body	WCB	LCC	CF8M
2	Cap/Insert*	WCB	LCC	CF8M
3	Ball	ASTM A351 CF8M		
4	Stem	17-4 PH		
5	Gland	Stainless Steel		
6	Ball Seat	TFM/TFMC		
7	Stem Bearing	G/F PTFE		
8	Secondary Packing	Flexible Graphite		
11	Gland Bearing	PTFE		
12	Body Gasket	Graphite		
13	Stop Plate/Lock Device	Stainless Steel		
14	Spring Washer	Stainless Steel		
15	Jam Nut	Stainless Steel		
16	Stop	17-4 PH		
18	Body O-Ring	Virgin PTFE		
19	Primary Packing Washer	Stainless Steel		
20	Secondary Packing Washer	Stainless Steel		
22	Stud	B7M	L7M	B8
23	Nut	2HM	L7	8
24	Handle	Stainless Steel		
26	ID Tag (not shown)	Stainless Steel		
27	ID Drive Screw (not shown)	Stainless Steel		
33	Primary Packing (Top)	Virgin PTFE		
35	Primary Packing (Bottom)	Virgin PTFE		
46	Lock Washer	Stainless Steel		

*Series 5400 not shown.

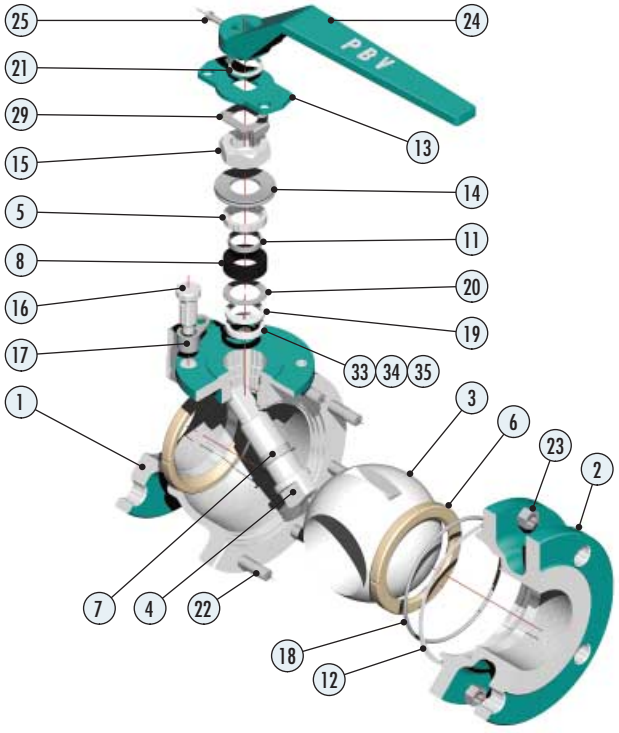


Series 5400, 2"-4", Class 150 & 300

Standard Material Configuration

Item No.	Description	Material		
1	Body	WCB	LCC	CF8M
2	Insert	WCB	LCC	CF8M
3	Ball	ASTM A351 CF8M		
4	Stem	ASTM A276 316		
5	Gland	Stainless Steel		
6	Ball Seat	TFM		
7	Stem Bearing	G/F PTFE		
8	Secondary Packing	Flexible Graphite		
11	Gland Bearing	G/F PTFE		
12	Body Gasket	Graphite		
13	Stop Plate/Lock Device	Stainless Steel		
14	Spring Washer	Stainless Steel		
15	Jam Nut	Stainless Steel		
16	Stop	17-4 PH		
17	Lock Plate	Stainless Steel		
18	Body O-Ring	Virgin PTFE		
19	Primary Packing Washer	G/F PTFE		
20	Secondary Packing Washer	Stainless Steel		
21	Snap Ring	Stainless Steel		
24	Handle	Ductile Iron		
25	Handle Screw	Carbon Steel		
26	ID Tag (not shown)	Stainless Steel		
27	ID Drive Screw (not shown)	Stainless Steel		
29	Nut Lock Plate	Stainless Steel		
33	Primary Packing (Top)	Virgin PTFE		
34	Primary Packing (Middle)	Virgin PTFE		
35	Primary Packing (Bottom)	Virgin PTFE		

Parts and Materials for Stem Packing Design Valves

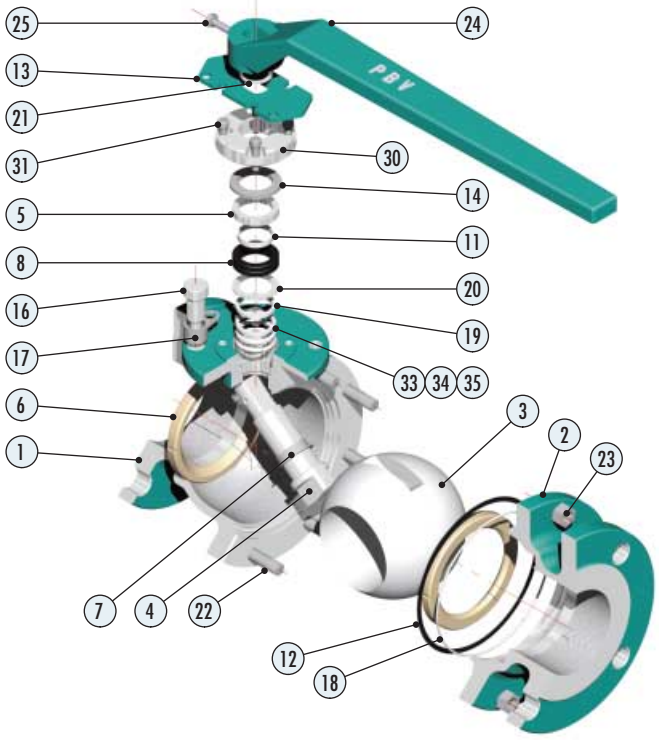


Series 6400, 1 1/2-2", Class 150, 300 & 600
Series 4400, 2"-3", Class 150, 300 & 600

Standard Material Configuration

Item No.	Description	Material		
1	Body	WCB	LCC	CF8M
2	Cap	WCB	LCC	CF8M
3	Ball	ASTM A351 CF8M		
4	Stem	ASTM A276 316		
5	Gland	Stainless Steel		
6	Ball Seat	TFM/TFMC		
7	Stem Bearing	G/F PTFE		
8	Secondary Packing	Flexible Graphite		
11	Gland Bearing	G/F PTFE		
12	Body Gasket	Graphite		
13	Stop Plate/Lock Device	Stainless Steel		
14	Spring Washer	Stainless Steel		
15	Jam Nut	Stainless Steel		
16	Stop	AISI 304	17-4 PH	
17	Lock Plate	Stainless Steel		
18	Body O-Ring	Virgin PTFE		
19	Primary Packing Washer	G/F PTFE		
20	Secondary Packing Washer	Stainless Steel		
21	Snap Ring	Stainless Steel		
22	Stud	B7M	L7M	B8
23	Nut	2HM	L7	8
24	Handle	Ductile Iron		
25	Handle Screw	Carbon Steel		
26	ID Tag (not shown)	Stainless Steel		
27	ID Drive Screw (not shown)	Stainless Steel		
29	Nut Lock Plate	Stainless Steel		
33	Primary Packing (Top)	Virgin PTFE		
34	Primary Packing (Middle)	Virgin PTFE		
35	Primary Packing (Bottom)	Virgin PTFE		

Note: 1. Gear is optional.



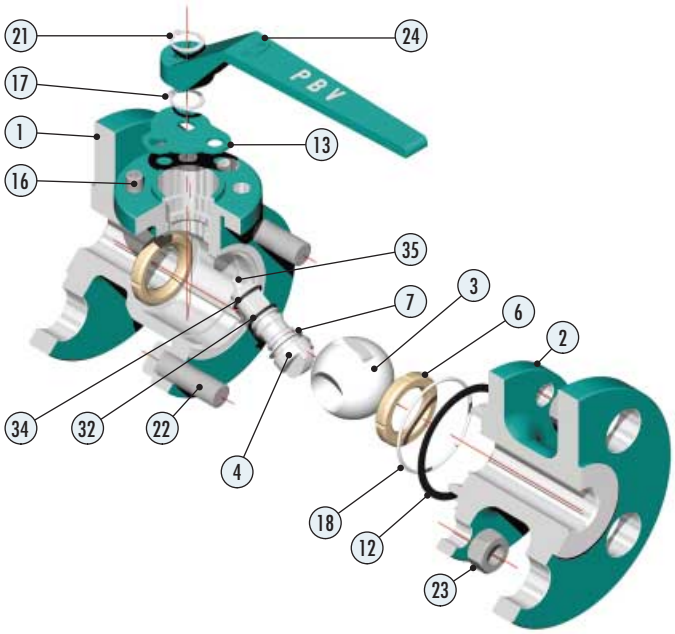
Series 6400, 3"-10", Class 150 & 300, 3"- 4", Class 600
Series 4400, 4"-10", Class 150 & 300, 4"-6", Class 600
Series 5400, 6"-12", Class 150 & 300

Standard Material Configuration

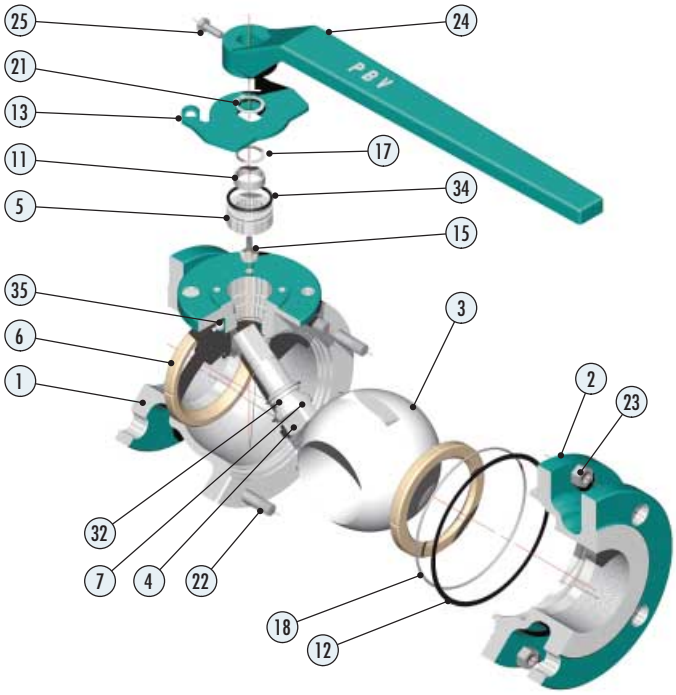
Item No.	Description	Material		
1	Body (Note 3)	WCB	LCC	CF8M
2	Cap/Insert (Note 3)	WCB	LCC	CF8M
3	Ball	ASTM A351 CF8M		
4	Stem	ASTM A276 316		
5	Gland	Stainless Steel		
6	Ball Seat	TFM/TFMC		
7	Stem Bearing	G/F PTFE		
8	Secondary Packing	Flexible Graphite		
11	Gland Bearing	G/F PTFE		
12	Body Gasket	Graphite		
13	Stop Plate/Lock Device	Stainless Steel		
14	Spring Washer	Stainless Steel		
16	Stop	17-4 PH		
17	Lock Plate	Stainless Steel		
18	Body O-Ring	Virgin PTFE		
19	Primary Packing Washer	G/F PTFE		
20	Secondary Packing Washer	Stainless Steel		
21	Snap Ring	Stainless Steel		
22	Stud	B7M	L7M	B8
23	Nut	2HM	L7	8
24	Handle	Ductile Iron		
25	Handle Screw	Carbon Steel		
26	ID Tag (not shown)	Stainless Steel		
27	ID Drive Screw (not shown)	Stainless Steel		
30	Gland Plate	Stainless Steel		
31	Socket Head Screw	Stainless Steel		
33	Primary Packing (Top)	Virgin PTFE		
34	Primary Packing (Middle)	Virgin PTFE		
35	Primary Packing (Bottom)	Virgin PTFE		

Note: 1. 8" & 10" use bar type handle.
2. Gear is optional.
3. Series 5400 body and insert design same as 2"-4" illustration on page 15.

Parts and Materials for Stem O-Ring Design Valves



Series 6500, 1", Class 150 & 300



Series 6500, 1 1/2"- 6", Class 150 & 300, 1 1/2"- 4", Class 600
Series 4500, 1 1/2"-6", Class 150, 300 & 600

Standard Material Configuration For Oil & Gas Service - API 6D

Item No.	Description	Material		
1	Body	WCB	LCC	CF8M
2	Cap	WCB	LCC	CF8M
3	Ball	ASTM A351 CF8M		
4	Stem	ASTM A276 316 (SS)		
6	Ball Seat	TFMC		
7	Stem Bearing	G/F PTFE		
12	Body Gasket	Graphite		
13	Stop Plate/Lock Device	Stainless Steel		
16	Stop	Stainless Steel		
17	Snap Ring	Stainless Steel		
18	Body O-Ring	Viton® GF		
21	Snap Ring	Stainless Steel		
22	Stud	B7M	L7M	B8
23	Nut	2HM	7M	8
24	Handle	Ductile Iron		
26	ID Tag (not shown)	Stainless Steel		
27	ID Drive Screw (not shown)	Stainless Steel		
32	Primary O-Ring, Stem	Viton® GF		
34	Weather Seal	Viton® GF		
35	Grease Fitting	Stainless Steel		

Standard Material Configuration For Oil & Gas Service - API 6D

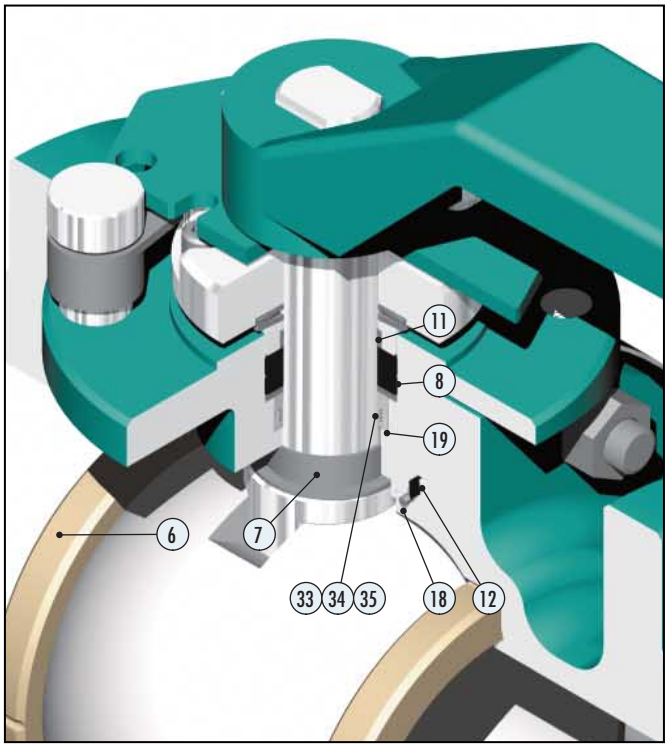
Item No.	Description	Material		
1	Body	WCB	LCC	CF8M
2	Cap	WCB	LCC	CF8M
3	Ball	ASTM A351 CF8M		
4	Stem	ASTM A276 316		
5	Gland	Stainless Steel		
6	Ball Seat	TFM/TFMC (Note 3)		
7	Stem Bearing	G/F PTFE		
11	Gland Bearing	G/F PTFE		
12	Body Gasket	Graphite		
13	Stop Plate/Lock Device	Stainless Steel		
15	Lock Pin	Stainless Steel		
16	Stop (not shown)	Stainless Steel		
17	Snap Ring	Stainless Steel		
18	Body O-Ring	Viton® GF		
19	Lock Washer (not shown)	Stainless Steel		
21	Snap Ring	Stainless Steel		
22	Stud	B7M	L7M	B8
23	Nut	2HM	7M	8
24	Handle	Ductile Iron		
25	Handle Screw	Carbon Steel		
26	ID Tag (not shown)	Stainless Steel		
27	ID Drive Screw (not shown)	Stainless Steel		
32	Primary O-Ring, Stem	Viton® GF		
34	Weather Seal	Viton® GF		
35	Grease Fitting	Stainless Steel		

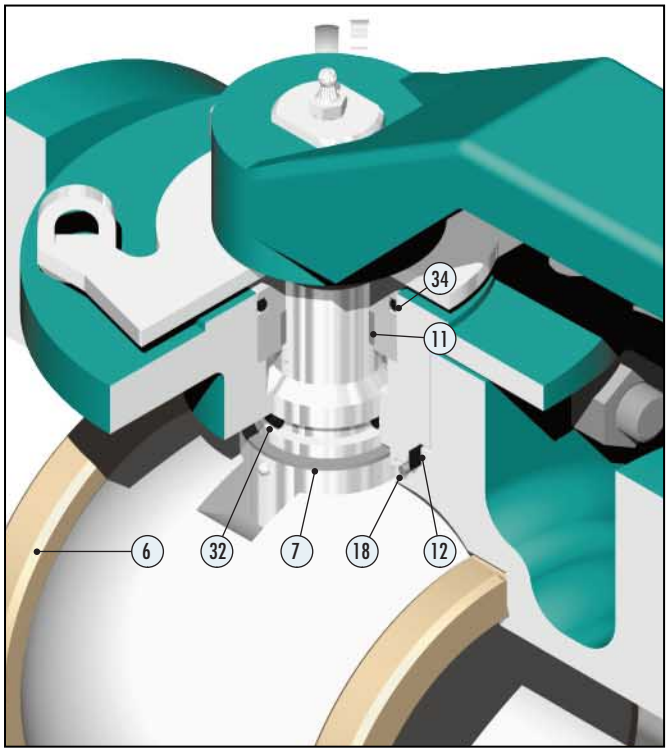
Note: 1. 8" & 10" use bar type handle.
2. Gear is optional.
3. Nylon: Series 6500, 3" & 4", Class 600, Series 4500, 4" & 6", Class 600

The time spent in shutting down a line to perform repairs can never be recovered. That is why at , we strive to make a high quality product with features designed to prolong valve life and minimize maintenance and repairs. However, at some point maintenance of your floating ball valve product may be required.

Maintenance can extend the longevity of your initial investment. To assist your maintenance engineer, step-by-step instructions are provided with all repair kits. These Installation, Maintenance and Operating Instructions describe the process from the most basic adjustments to the total replacement of seats and seals. Repair kits are available from stock and contain the parts shown below.

If complete valve disassembly becomes necessary, the threaded insert on the Series 5400 valves can be removed to provide access to the inner workings of the valve. The bolted body design of Series 4400/4500 and 6400/6500 valves is easily dismantled without the need of special tooling.





Stem Packing Design Repair Kit List

Item No.	Quantity	Description
6	2	Seat
7	1	Stem Bearing
8	Note	Secondary Graphite Seal
11	1	Gland Bearing
12	1	Body Gasket
18	1	Body O-Ring
19	1	Primary Packing Washer
33	1	Primary Packing (Top)
34	Note	Primary Packing (Middle)
35	1	Primary Packing (Bottom)

Note: Quantity depends on valve size and pressure class.

Stem O-Ring Design Repair Kit List

Item No.	Quantity	Description
6	2	Seat
7	1	Stem Bearing
11	1	Gland Bearing
12	1	Body Gasket
18	1	Body O-Ring
32	1	Primary Stem O-Ring Seal
34	1	Outer Weather O-Ring Seal