## Master Valve USA

## B Series Floating Ball Valve





Tough Ball Valve for Toughest Flow



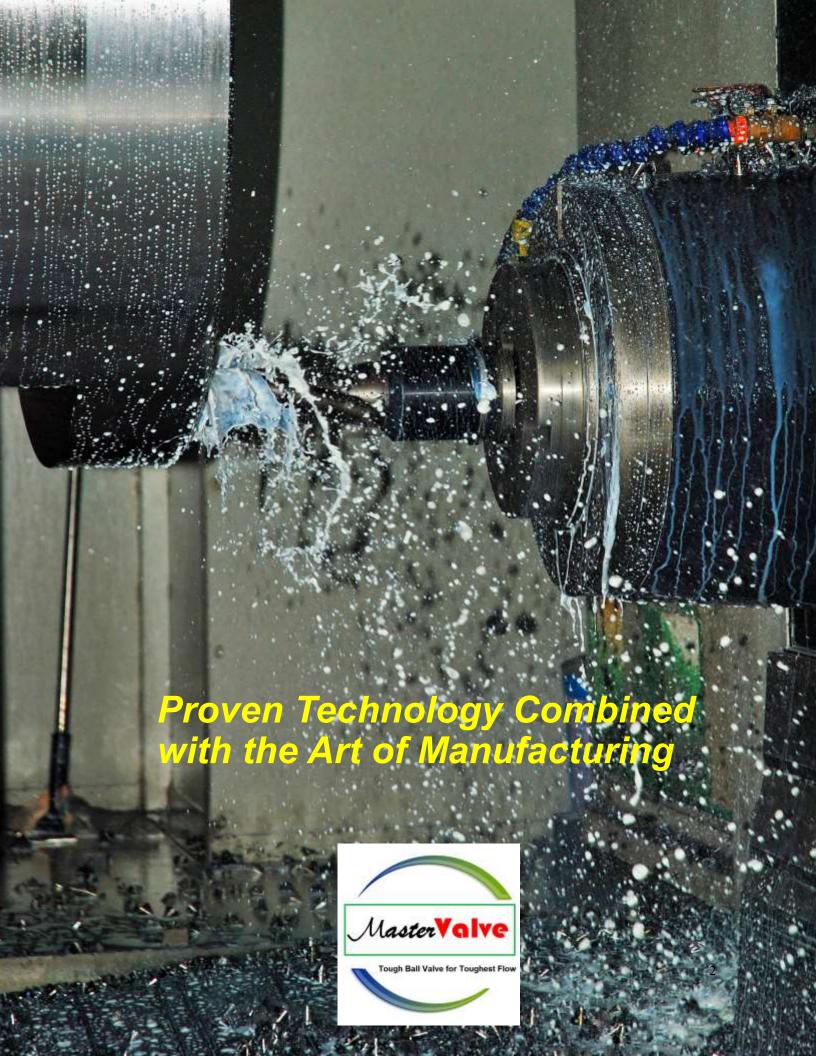








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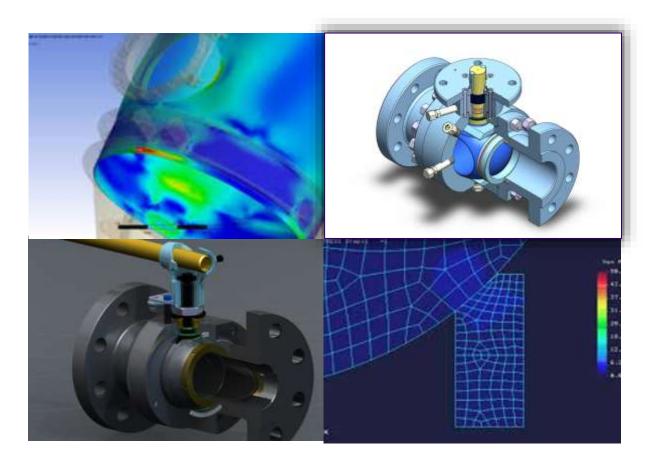
Zero Leakage Ball Valves for Chemical, Refining, Pipeline and Exploration Applications



# Innovative Engineering Design

Based on years of valve application experience and material breakthrough, Master Valve's innovative ball valve deliver following features to you and your customers:

- low stem torques, typically 20% lower than the norm, which drives your automation costs lower
- better performance in sealing and leak protection due to new materials used
- lighter weight resulting in better protection to your pipes and flanges



Tough Ball Valve for Toughest Flow

# Manufacturing Capabilities

MasterValve® has its own forging facility and heat treatment workshop. And we can strictly control forging process, welding process, heat treatment process, testing, painting, and quality control.









Tough Ball Valve for Toughest Flow

## Tough Ball Valve for Toughest Flow









All MasterValve® quality products are designed and tested to meet the standards of Qualifying Authorities around the world. Advanced engineering and Quality Management System assure that our valve products continue to exceed your expectations for performance.

# **Quality Control**





# Inventory for Short Lead-time

Inventory is a critical piece of our business model to make customers life easier. Master Valve and associated companies keep inventory from forging material, work-in-progress to finished valves. In today's environment, our customers need our inventory to cut their project delivery short and archive high Return On Investment (ROI).



Tough Ball Valve for Toughest Flow



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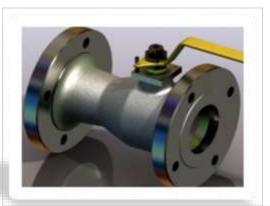
Due to upgrades in industry standards, material innovations, and Master Valve® constant commitment to product advancement, data presented in this brochure is subject to change. Please contact your Master Valve Sales person for updated and/or current drawings and material compliance. This information is available on our website at <a href="https://www.MasterValveUSA.com">www.MasterValveUSA.com</a>

Tough Ball Valve for Toughest Flow

#### **Applications of B Series Floating Ball Valves**

MasterValve<sup>®</sup> manufactures some of most dependable floating ball valves in the industry. MasterValve<sup>®</sup> offers B Series floating ball valves and is a complete solution for your flow control applications. Master-Valve<sup>®</sup> manufactures a complete range of floating ball valves in a size range of 0.5" to 12" in pressure ratings of up to class 2500.

**B** Series valves are designed, manufactured, and tested in accordance with respective API, ASME, and ANSI standards, for instance, ASME B16.34, API 6D, API-607, API 608, API 598, ASME B16.5, ASME B16.10, ASEM B16.25, MR-01-75, TA-Luft/ISO 15848 et al. In the standard designs, **B** series ball valves are specified for **transmission pipeline**, **pumping stations**, **compressor stations**, **gas processing plants**, **rejection units**, **offshore platforms**, **and chemical processing**.



B1 Series Valve
Unibody cast steel floating ball valve



**B2 Series Valve** 

2-Piece cast steel floating ball valve



**B3 Series Valve** 

2-Piece forged floating ball valve

#### **B** Series Design Standards and Design Features

#### **Design Standards**

#### American Petroleum Institute

- API 6D -- Specifications for pipeline valves
- API 598 -- Valve Inspection and Testing
- API 607--- Fire test for soft-seated ball valves
- API 608--- Metal Ball Valves-Flanged, Threaded and Welding End
- API 6FA ---Fire test for valves

#### American National Standard

- ASME/ANSI B16.10 --- Face-to-face and end-to-end dimensions on ferrous valves
- ASME/ANSI B16.5 --- Steel pipe flanges and flanged fittings
- ASME/ANSI B16.25 --- Buttwelding ends
- ASME/ANSI B16.34 --- Steel valves-flanged and butt weld end
- ASME/ANSI B31.1 --- Chemical plant and petroleum refinery piping

#### Manufacturers Standardization Society

- MSS SP-25 --- Standard marking system for valves
- MSS SP-55 --- Quality Standard for Steel Casting

#### National Association of Corrosion Engineers

 NACE MR-01-75 --- Sulfide stress cracking materials for oilfield equipment

#### **ISO Standards**

- ISO 15848-1 Industrial Valves Measurement, Test and Qualification procedures for fugitive emissions
- ISO 5211 Industrial valves Part-turn actuator attachment for actuator mounting pad

#### **Standard Features**

- Bi-directional shut-off with bubble-tight sealing capability
- Equalized cavity pressure
- Ball position indication and locking device
- Multiple seals for protection against external leakage
- Blowout proof stem design
- Live-loaded stem packing design
- Antistatic device
- ISO 5211 actuator mounting pad
- Metal-to-metal contact fire safe to API 607
- ISO 15848 compliance for fugitive emissions
- NACE compliance and fully comply with MR-0175
- Extended stem for buried service upon request
- Metal-seated design upon request
- Cryogenic service design (-196°C or -320°F) upon request

### **B** Series Design Features (cont')

Manufacturing range of **B** series is shown in the table below. Other sizes and special classes are also available against specific request.

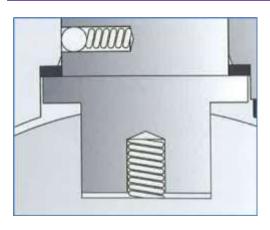
Size			ASME CLASS							
NPS	DN	150	300	600	900	1500	2500			
0.5	15	B1; B2; B3	B1; B2; B3	В3	В3	В3	B3			
0.75	20	B1; B2; B3	B1; B2; B3	В3	В3	В3	В3			
1	25	B1; B2; B3	B1; B2; B3	В3	В3	В3	В3			
1.5	40	B1; B2; B3	B1; B2; B3	В3	В3	В3				
2	50	B1; B2; B3	B1; B2; B3	В3	В3	В3				
2.5	65	B1; B2; B3	B1; B2; B3							
3	80	B1; B2; B3	B1; B2; B3	В3	В3					
4	100	B1; B2; B3	B1; B2; B3	В3						
5	125	B2	B2							
6	150	B1; B2; B3	B1; B2; B3	В3						
8	200	B2; B3	B2; B3							
10	250	B2; B3	B2; B3							

Note: Other sizes and special classes are also available against specific request.

**Handle Stop Pin for Tight Shutoff** 



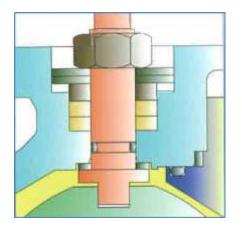
Anti-static & Blowout Proof Stem



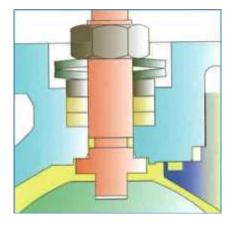
Tough Ball Valve for Toughest Flow

#### **B** Series Design Features (cont')

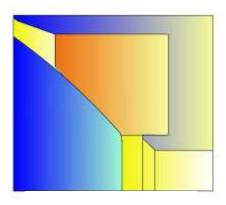
#### Fire Safe Design



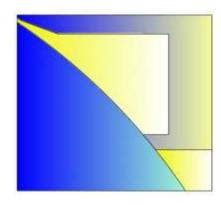
**Stem Seal Before Fire** 



**Stem Seal After Fire** 



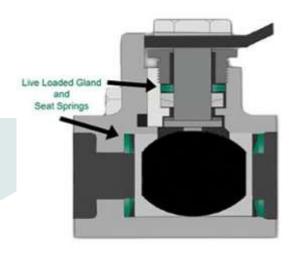
**Seat Before Fire** 



**Seat After Fire** 

#### **Live-loaded Stem Packing**

For frequently cycled valves, high temperature and thermal cycling valves, critical application valves, safety or difficult located valves, and history of packing leak valve, MasterValve standard features offer live loading on the stem packing and seals through Belleville spring washers. This assures positive and tight sealing in high cycle severe applications.



#### **B** Series Features on Request

#### Metal-to-Metal Seat

MasterValve® has extensive experience in the supply of valves for severe application such as high temperature and in corrosive and/or erosive environments. MasterValve achieves the metal-to-metal seating technology through the use of various hard face material on ball and seat face.



#### **Welding Overlay Technology**

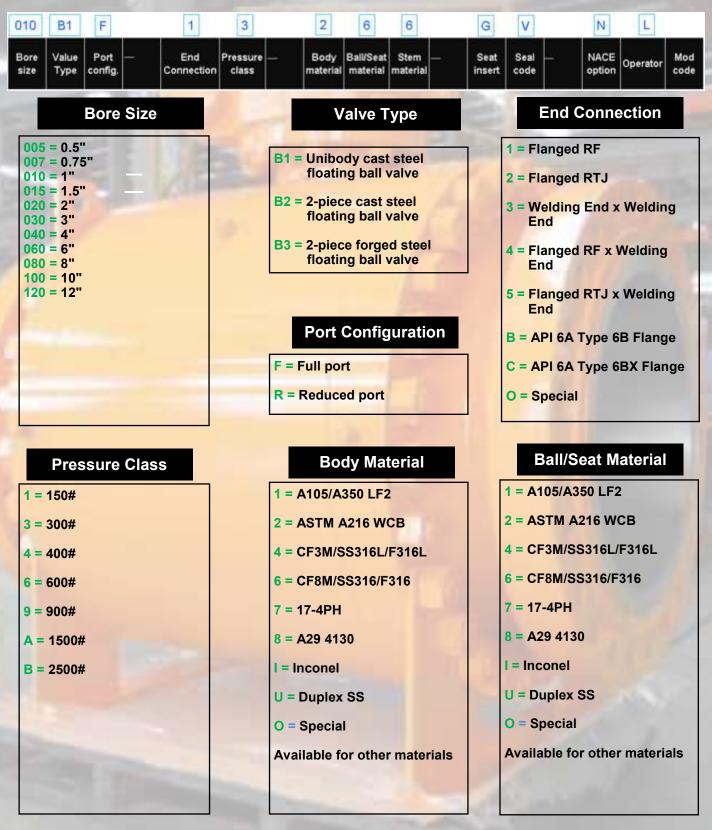
This technology is cost effective for ball valves in highly corrosive or erosive services. The life of a valve can be a solid corrosion resistant alloy valve by the application of a weld overlay to valve internal surfaces. Sealing areas and other critical parts of the valve can be weld overlayed. More frequently used materials are AISI 316L and Alloy 625.

Welding is performed in accordance with ASME BPV Section 9



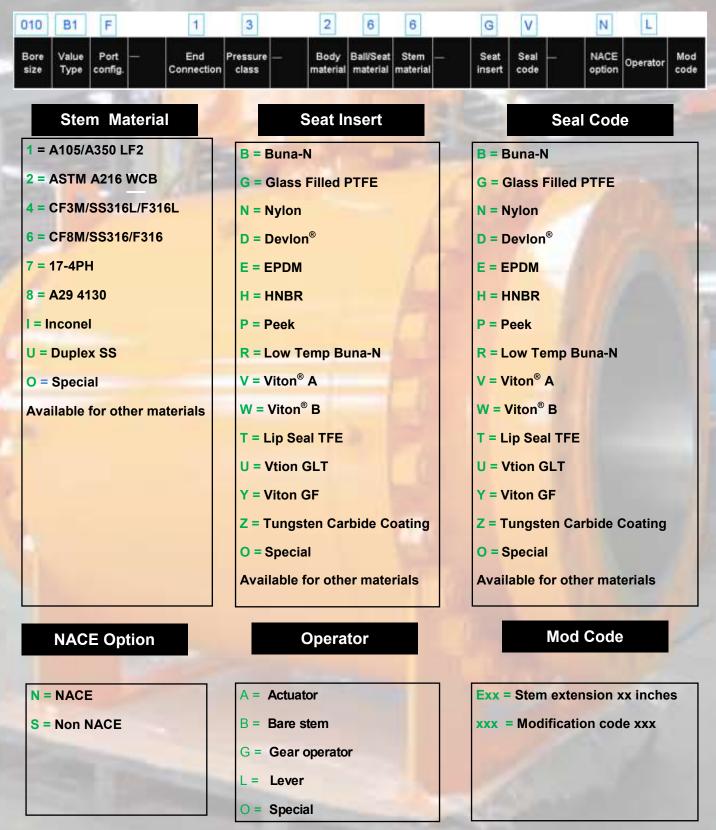
#### **How to Order**

Example: 010B1F-13-266-GV-NL. This feature number represents a 1" B1 Series (Unibody cast steel) Floating Ball Valve, Full Port, Raised Face, ANSI Class 300, WCB Body, 316SS ball and seat, 316SS stem, PTFE seats, Viton A seals, per NACE MR0175 Service with Lever Operator.



#### **How to Order**

Example: 010B1F-13-266-GV-NL. This feature number represents a 1" B1 Series (Unibody cast steel) Floating Ball Valve, Full Port, Raised Face, ANSI Class 300, WCB Body, 316SS ball and seat, 316SS stem, PTFE seats, Viton A seals, per NACE MR0175 Service with Lever Operator.



#### **How to Order**

Example: **080B2R-11-867-PB-NG**. This feature number represents a 8" B2 Series (2-Piece cast steel) Floating Ball Valve, Reduced Port, Raised Face, ANSI Class 150, ASTM A352 LCC body, 316SS ball and seat, 17-4PH stem, Peek seats, Buna-N seals, Fire Tested, for NACE MR0175 Service with gear operator.

Example: 100B3F-13-167-DW-NB. This feature number represents a 10" B3 Series (2-Piece Forged) Floating Ball Valve, Full Port, Raised Face, ANSI Class 300, A105/LF2 Body, 316SS ball and seat, 17-4P stem, Devlon seats, Viton B seals, Fire Tested for NACE MR0175 Service and bear stem.

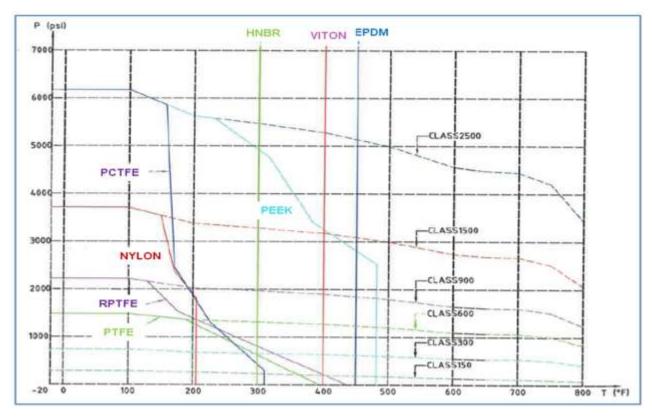
#### **B Series Material Options**

B series floating ball valves offer a full range of material option. The material options of our commodity valves are shown in the Table below. Material test reports in accordance with EN10204.3 are available on each serialized valve. In addition, all B series floating ball valves, with standard trim, have been proven reliable, and fully comply with NACE MR0175, customers must provide application specific operating conditions. Inclusive to above, Materials type selected may vary depending on design requirements.

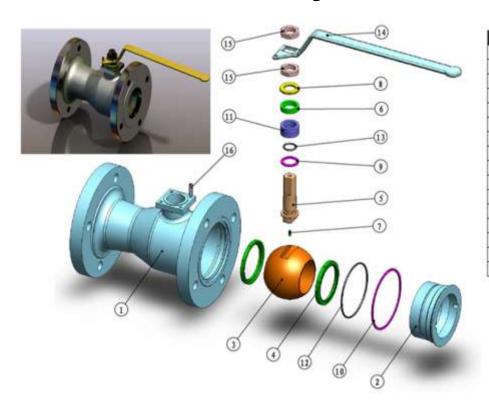
Part	Material Options				
Body & Closure	WCB, LCC, 316SS, A105/LF2				
Ball & Seat 316SS / A105/A350 LF2 with ENP / Duplex SS					
Stem	ASTM A29 Grade 4130 with ENP / 316 SS / A564 Type 630				
Seat insert	Glass filled PTFE / Peek / Devlon / Nylon				
Seal	Vtion® / Nitril / Buna / HNBR / EPDM / Viton GLT				
Studs / Cap Screws A193 B7M / A320 L7M / A193 B8M					
Nut	A 194 2HM / A194 7M / A194 8M				

Note: Materials not listed above can be offered on request

#### **B** Series Pressure Temperature Ratings



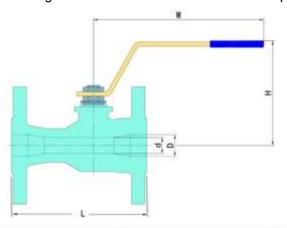
## **B1** Series Standard Design General Assembly



No.	Description
1	Body
2	Insert
3	Ball
4	Seat
5	Stem
6	Gland
7	Anti-static spring
8	Belleville spring
9	Stem bearing
10	Body gasket
11	Stem packing
12	Body 0-Ring
13	Stem O-Ring
14	Handle
15	Stem nut
16	Gland bolt

### **B1** Floating Ball Valves' Dimensional Data

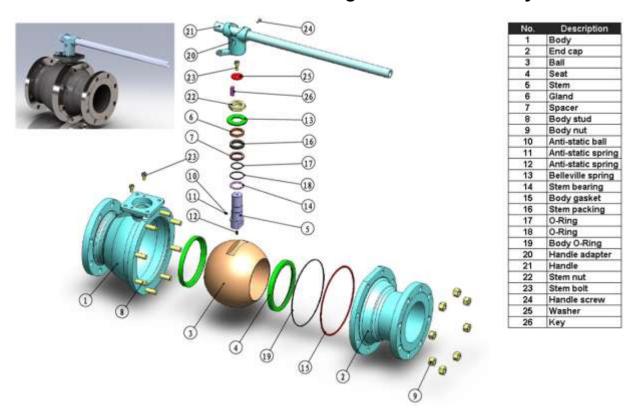
The chart and table below depict B1 Series floating ball valves' dimensional data (in inches). Some dimensional data may vary according to the latest design. Please contact Master Valve® Salesperson for Top Works data.



Class 150							
Size (in)	d	D	L (RF)	Н	W	Weight lbf (kg)	
0.75"	0.59	0.75	4.61	3.54	6.30	14 (6.1)	
1"	0.75	0.98	5.00	3.74	6.30	15 (6.7)	
1.5"	1.26	1.50	6.50	4.37	7.09	18 (8)	
2"	1.50	2.01	7.01	5.16	9.45	29 (13)	
3"	2.32	2.99	7.99	5.83	17.72	56 (25)	
4"	2.99	4.02	9.02	6.89	17.72	88 (40)	
6"	4.02	5.98	10.51	7.87	27.56	172 (78)	

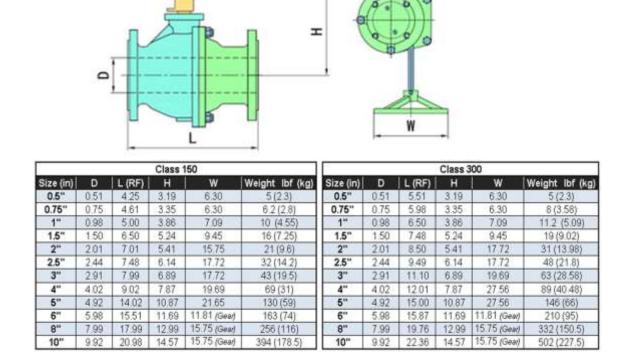
Class 300							
Size (in)	d	D	L (RF)	Н	W	Weight lbf (kg)	
0.75"	0.59	0.75	5.98	3.54	6.30	14 (6.1)	
1"	0.75	0.98	6.50	3.74	6.30	15 (6.7)	
1.5"	1.26	1.50	7.48	4.37	7.09	18 (8)	
2"	1.50	2.01	8.50	5.16	9.45	29 (13)	
3"	2.32	2.99	11.10	5.83	17.72	56 (25)	
4"	2.99	4.02	12.01	6.89	19.69	88 (40)	
6"	4.02	5.98	15.87	7.87	27.56	172 (78)	

#### **B2** Series Standard Design General Assembly

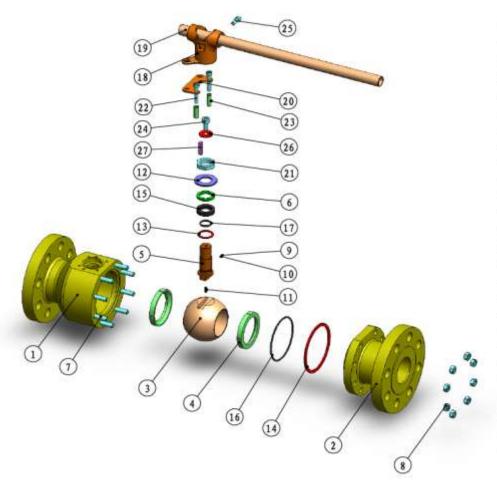


### **B2** Floating Ball Valves' Dimensional Data

The chart and table below depict B2 Series floating ball valves' dimensional data (in inches). Some dimensional data may vary according to the latest design. Please contact Master Valve<sup>®</sup> Salesperson for Top Works data



## **B3** Series Standard Design General Assembly

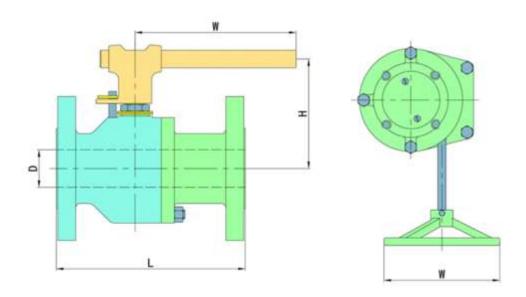


No.	Description					
1	Body					
2	End cap					
3	Ball					
4	Seat					
5	Stem					
6	Gland					
7	Body stud					
8	Body nut					
9	Anti-static ball					
10	Anti-static spring					
11	Anti-static spring					
12	Belleville spring					
13	Stem bearing					
14	Body gasket					
15	Stem packing					
16	Body O-Ring					
17	0-Ring					
18	Handle adapter					
19	Handle					
20	Stop plate/Lock device					
21	Stem nut					
22	Stem bolt					
23	Support pin					
24	Stem screw					
25	Handle screw					
26	Washer					
27	Key					



## **B3** Floating Ball Valves' Dimensional Data

The chart and table below depict B3 Series floating ball valves' dimensional data (in inches). Some dimensional data may vary according to the latest design. Please contact Master Valve® Salesperson for Top Works data.



Class 150							
Size (in)	D	L (RF)	н	W	Weight lbf (kg)		
0.5"	0.51	4.25	3.19	6.30	6.4 (2.9)		
0.75"	0.75	4.61	3.74	6.30	8.4 (3.8)		
1"	0.98	5.00	4.33	7.09	12 (5.4)		
1.5"	1.50	6.50	4.96	9.45	19 (8.5)		
2"	2.01	7.01	5.12	15.75	25 (11.3)		
2.5"	2.52	7.48	5.51	17.72	41 (18.5)		
3"	2.99	7.99	6.50	17.72	51 (23)		
4"	4.02	9.02	7.28	19.69	87 (39.5)		
6"	5.98	15.51	9.84	11.81 (Gear)	201 (91)		
8"	7.99	17.99	14.88	15.75 (Gear)	310 (140.5)		
10"	10.00	20.98	16.06	15.75 (Gear)	512 (232)		

Class 300								
Size (in)	D	L (RF)	н	W	Weight lbf (kg)			
0.5"	0.51	5.51	3.19	6.30	7.1 (3.2)			
0.75"	0.75	5.98	3.74	6.30	8.8 (4)			
1"	0.98	6.50	4.33	7.09	14.3 (6.5)			
1.5"	1.50	7.48	4.96	9.45	28.7 (13)			
2"	2.01	8.50	5.12	17.72	42 (19)			
2.5"	2.52	9.49	5.51	17.72	62.8 (28.5)			
3"	2.99	11.10	6.50	19.69	87.3 (39.6)			
4"	4.02	12.01	7.28	27.56	132 (60)			
6"	5.98	15.87	9.84	11.81 (Gear)	288 (130.5)			
8"	7.99	19.76	14.88	15.75 (Gear)	432 (196)			
10"	10.00	22.36	16.06	15.75 (Gear)	653 (296)			

Class 600								
Size (in)	D	L (RF)	н	W	Weight lbf (kg)			
0.5"	0.51	6.50	3.39	6.30	7.7 (3.47)			
0.75"	0.75	7.48	3.54	6.30	13 (5.88)			
1"	0.98	8.50	4.33	9.45	16.4 (7.43)			
1.5"	1.50	9.49	5.00	9.45	29 (13.21)			
2"	2.01	11.50	5.12	17.72	64 (49.97)			
3"	2.99	14.02	7.05	21.65	106 (19.5)			
4"	4.02	17.01	7.48	27.56	188 (85.5)			

Class 900							
Size (in)	D	L (RF)	н	W	Weight lbf (kg)		
0.5"	0.51	8.50	3.39	6.30	12 (5.45)		
0.75"	0.75	9.02	3.74	7.09	17.5 (7.96)		
1"	0.98	10.00	4.33	9.45	23.2 (10.52)		
1.5"	1.50	12.01	5.12	15,75	45 (20.5)		
2"	2.01	14.49	5.91	19.69	56 (25.5)		
3"	2.99	15.00	7.87	27.56	107 (48.5)		

Class 1500							
Size (in)	D	L (RF)	H	W	Weight lbf (kg)		
0.5"	0.51	8.50	3.39	6.30	12.7 (5.78)		
0.75"	0.75	9.02	3.74	7.09	17.6 (7.98)		
1"	0.98	10.00	4.53	9.45	24 (10.88)		
1.5"	1.50	12.01	5.12	15.75	45.3 (20.57)		
2"	2.01	14.49	5.91	19.69	68 (30.84)		

Class 2500					
Size (in)	D	L (RF)	н	W	Weight lbf (kg)
0.5"	0.51	10.39	3.74	6.30	17.4 (7.9)
0.75"	0.75	10.75	4.53	7.09	26.5 (12)
1"	0.98	12 13	4.72	9.45	35 (15.9)

#### MasterValve® General Terms and Conditions of Sale

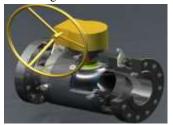
By acceptance of the goods described herein, the Purchaser expressly acknowledges and agrees as follows:

- 1. Warranty: The warranty described below applies only to new or unused goods or goods reconditioned by MasterValve® (Seller). The Seller specifically disclaims any warranty for used goods or goods sold as is. For a period of one (1) year after date of purchase of any of the goods described herein, Seller warrants such goods shall remain free from failure due to defects in workmanship and materials incorporated therein by or for Seller provided such failure shall not have been caused or contributed to by improper usage, service or application, improper installation or maintenance, repairs, alterations, or modifications effected by or for the user, misuse, negligence or accident. In the event of failure for which Seller has assumed warranty obligations hereunder, and provided written notification of such failure shall be immediately given to Seller, it agrees to repair, or at its option, to replace the goods sold at its sold expense. Apart from the warranty and undertaking above set forth, or unless otherwise specifically consented to in writing by Seller, Seller assumes no obligation or liability for losses, expense or damages, direct or consequential, suffered or incurred as a result of any failure of, or defect in, the goods described herein, including but not limited to, such costs, expenses or damages as may result of any failure of, or defect in, the goods described herein, including but not limited to, such costs, expenses or damages as may result from the necessity to remove, replace, restore or transport the goods from any location or service in which they may be used, regardless of the cause of such failure or defect. This warranty extends only to the original Purchaser of the goods and is the only warranty made by Seller in connection therewith. There are no other warranties, express or implied, of any kind given with respect to the goods, their merchantability, fitness for any particular purpose or usage, or otherwise, nor is any person authorized to extend on behalf of Seller any form of warranty other than that above set forth. The goods described herein are not sold or distributed by Seller for personal, family or household purposes, nor are they normally suited for use as such.
- 2. Prices: Prices and other terms of sale where set forth in current price sheets are subject to change without notice. Stenographic or clerical errors are subject to correction.
- 3. Acceptance of Orders and Special Orders: All orders are subject to acceptance by Seller at its home office, Stafford, Texas, only. No assignment of the Purchaser's rights may be made without the written consent of the Seller. Orders for special materials are subject to cancellation only upon agreement to make payment for the work performed, material used, and a reasonable profit.
- 4. Terms, Payment and Partial Shipment: All accounts are payable net 30 days of invoice date. One percent (1%) per month interest charged on accounts after 30 days, or twelve percent (12%) annually. All accounts are payable in United States dollars, free of exchange, collection, or any other charges. If in the sole discretion of Seller, the financial condition of the Purchaser at any time so requires, Seller retains the right to require full or partial payment in advance, to set spending limits for credit accounts or to require other adequate assurances of financial responsibility. Seller reserves the right to make partial shipments from time to time and render invoices therefore, which shall be due and payable as provided in said invoices.
- 5. Freight Charges: Unless otherwise specifically noted, standard shipping charges (calculated by product weight, not including packaging) shall be added or be in addition to the price quoted and Purchaser agrees to pay the same to Seller.
- **6. Taxes:** Unless otherwise specifically noted, the amount of any sales, use, occupancy, excise tax, or other tax, of any nature, federal, state, or local, for which Seller is legally liable, either initially or through failure of payment by Purchaser, shall be added or be in addition to the price quoted and Purchaser agrees to pay the same to Seller.
- 7. Unavoidable Conditions: Seller shall not be liable for failure to deliver or delays in delivery occasioned by causes beyond its control, including, without limitation, strikes, lockouts, fires, embargoes, war or other outbreaks of hostilities, acts of God, inability to obtain shipping space, machinery, breakdowns, delays of carriers or suppliers, and governmental acts or regulations.
- 8. Returns and Cancellations: No product may be returned without Seller's prior written consent. All goods returned are subject to a handling charge plus freight in both directions, restocking fees and charges for any required reconditioning, unless otherwise specified in writing by Seller. Overages, shortages and incorrect material claims must be made in writing within ten (10) days of receipt of goods. Cancellation of orders once placed with and accepted by Seller may be made only with its written consent.
- **9. No Waiver:** Seller's failure to insist upon any of the terms, covenants, or conditions listed herein or to exercise any right hereunder shall not be construed as a waiver or relinquishment of the future performances of any such term, covenant or condition, or the future exercise of such right or a waiver or relinquishment or waiver of any other term, covenant or condition or the exercise of any other rights hereunder.
- 10. Drawings, Data and Confidential Information: The weights, dimensions, capacities, prices, performance ratings and other data included in catalogues, prospectuses, circulars, advertisements, illustrated matter and price lists constitute a guide. These data shall not be binding except to the extent that they are by reference expressly included in the purchase order. Any drawings or technical documents intended for use in the manufacture of machinery, equipment, plants, parts, or other material and any ancillary services associated therewith (Material), or a part thereof, and submitted to the Purchaser prior or subsequent to the formation of the purchase order, remain the exclusive property of the Seller. They shall not, without the Seller's consent, be utilized by the Purchaser or copied, reproduced, transmitted or communicated to an unauthorized third party, provided, however, that the said plans and documents shall be the property of the Purchaser if it is expressly so agreed in writing. Any drawings or technical documents intended for use in the construction of the Material or of part thereof and submitted to the Seller by the Purchaser prior or subsequent to the formation of the purchase order remain the exclusive property of the Purchaser. They shall not, without Purchaser's consent in writing, be utilized by the Seller or copied, reproduced, transmitted or communicated to an unauthorized third party.
- 11. Governing Law: This contract shall be governed by, construed and enforced in accordance with the laws of the State of Texas.
- 12. Totality of Agreement, Special Provisions, Modifications: This instrument constitutes the entire agreement of the parties with respect to all matters and things herein mentioned. Purchaser warrants, represents and agrees that it has inspected the goods and otherwise made inquiry and review, upon its own behalf, concerning the nature, characteristics and quality of the materials and workmanship incorporated therein at or prior to delivery, that it is fully contented and satisfied therewith and has independently determined that the goods are in all respects fit and usable for all purposes for which they are intended to be employed by Purchaser. It is expressly acknowledged and agreed by and between the parties that neither party has, nor is now, relying upon any collateral, prior or contemporaneous agreement, written or oral, assurance or assurances, representation or warranty, of any kind or nature as to or respecting the condition or capabilities of the goods and the other matters and things, rights and responsibilities herein fixed and described. No modification, waiver or discharge of any term or provision of this instrument shall be implied by law, nor shall any alteration, modification or acquittance of any such term or provision be effective for any purpose unless in writing signed by or upon behalf of the party charged therewith.
- (1) Returns are accepted within 180 days of shipment. Restocking charges for returned standard materials is 15%. Cancellation of orders for standard materials prior to shipment may incur a 10% minimum cancellation charge. Cancellation of non-standard material may incur up to 100% cancellation charge depending on stage of work in progress. All material returned to MasterValve® must be accompanied by a prior written Returned Goods Authorization (RGA) form and freight must be prepaid. All material is subject to inspection and final disposition by MasterValve® quality department. A clean up and or re-certification charge may apply to any returned materials. Special items, buyouts, and modified products are non-returnable. (2) All products are subject to prior sales. (3) All sales are subject to MasterValve® standard Terms & Conditions.
- 13. Export Regulations: MasterValve® products can only be exported in accordance with U.S. Export Administration Regulations and other U.S. legal requirements. Diversion contrary to U.S. law is prohibited.

## Master Valve USA Product Offering



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O Series Trunnion Mounted Ball Valve

**Applications:** upstream, midstream and downstream. Mid pressure to high pressure, pipeline and API 6D.



B Series Floating Ball Valve

Applications: petrochemical, refinery and chemical industries. Low to mid pressure; live-loaded stem seal for low emission environment.



API 6A Ball Valves

**Applications:** upstream high pressure; wellhead; subsea exploration; FPSO.

## Tough Ball Valve for Toughest Flow

