



INDUSTRIAL



PRODUCTS



PROUDLY
MADE IN THE
USA
SINCE 1928

*When you specify Apollo you can count on a
quality product, engineered and designed for
safety and outstanding performance.*

Industrial Products Technical Sheets

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A history of Quality, Service and Innovation

Now in its ninth decade, Conbraco Industries, Inc. is a leading manufacturer of flow control products for U.S. and international markets. The company's headquarters is based in Matthews, North Carolina with manufacturing plants and foundries located in Pageland and Conway, South Carolina.

Conbraco has a history of new product development and innovation that dates back to the company's inception in 1928. Today, the Conbraco line of products is marketed under the "Apollo Valves" brand and includes: ball valves, butterfly valves, backflow prevention devices, water pressure reducing valves, mixing valves, safety relief valves, water gauges, strainers, actuation and APOLLOXPRESS® products.

Conbraco's vertically integrated manufacturing ensures a consistency of production, testing, quality and availability. You can be assured that Conbraco flow control products will deliver long term reliability. All manufacturing facilities are ISO 9001:2008 certified.

The Conbraco line continues to expand with new products, designs and advanced materials to better serve the needs of our customers. Markets served include: chemical processing, pulp and paper, petroleum, residential and commercial plumbing and heating, OEM, irrigation, water works, and fire protection.



PAGELAND, SC
Bronze Foundry and Manufacturing Plant



PAGELAND, SC
Final Assembly and Distribution Center



CONWAY, SC
Steel Foundry and Manufacturing Plant



MATTHEWS, NC
Corporate Headquarters



Throughout this catalog, products that have a Lead Free* option will be identified with this logo.



* LEAD FREE: The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with CA AB1953, VT Act 193, MD HB372, LA HB471 and Federal Public Law 111-380. ANSI 3rd party approved and listed.

** Any imported products are clearly identified as "Apollo International™".

Conbraco Industries offers a wide range of Apollo® products for potable and non-potable applications. When the use of lead free valves is required by code, specification or legislation, it is the sole responsibility of our customers to ensure that only lead free Apollo® products are installed in systems intended for potable water service. Further information related to our product offering and the federal Reduction of Lead In Drinking Water Act is available at www.apollovalves.com/lead_free, or by contacting Conbraco Customer Service.

TECHNICAL SHEETS FOR INDUSTRIAL PRODUCTS

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Apollo Numbering System

Please use all digits when ordering.

00-000-00

MATERIAL OR STYLE

Apollo 2-Piece & Unibody Valves	
70	Bronze
71	Bronze with Pads
72	Carbon Steel, Hi Pressure
73	Carbon Steel
73A	A105 Carbon Steel
74	Nickel
75	Pad-Locking Bronze
76	CF8M Stainless Steel
76F	CF8M Stainless Steel, Full Port
77	Bronze Full Port
77C	Bronze Full Port Economy
78	Special Valves and Kits
79	Refrigerant Valves
7A	Chlorine Carbon Steel
7K	Bronze Full Port Drain
80	Bronze, UL Listed
81	Bronze, UL Listed Plain Ball
82	Bronze 3-Piece Full Port
89	Cast Carbon Steel w/ Pads
9A	Bronze, Heavy Patt., Unibody
90	Bronze, Unibody UL Listed
91	Bronze, Unibody
92	Cast Carbon Steel Unibody
93	Carbon Steel Unibody
95	Bronze & Stop Drain
96	CF8M Stainless Steel Unibody
399	Alloy-20 NPT
Apollo 3-Piece Valves	
83A	CS 3-Piece 1500 lb Full Port
83B	CS 3-Piece ASME Class 600 Full Port
86A	SS 3-Piece 1500 lb Full Port
86B	SS 3-Piece ASME Class 600 Full Port
86C	Alloy-20 3-Piece, ASME Class 600 Full Port
83R	CS 3-Piece, Full Port (2" & 3" only)
86R	CS 3-Piece, Full Port (2" & 3" only)
Apollo Flanged Valves	
87A	CF8M SS Flanged
87A	Alloy 20 Flanged
87B	CF8M SS Flanged Unibody
88A	Carbon Steel Flanged
88B	Carbon Steel Flanged Unibody

TYPE

Apollo 2-Piece & Unibody Valves	
1	NPT Female or Std Connection
2	Solder/Socket Weld
3	Union End x NPT (70-3) Double UNION END (73-3, 76-3)
4	Union End x Solder Socket Weld Double Union End (76-4)
5	Spring Return Handle
6	3-Way NPT
7	Full Port Refrigeration Valves
8	Male X Female NPT
9	3-WAY Solder / O-Ring Boss (70-9) SAE Straight Threads (72, 77)

Apollo 3 Piece Valves	
1	NPT Female
2	Solder/Socket Weld
3	Schedule 5 Butt Weld
4	Schedule 10 Butt Weld
5	Schedule 40 Butt Weld
6	Schedule 80 Butt Weld

Apollo Flanged Valves	
1	Class 150 Standard Port
2	Class 150 Full Port
3	(AAR Valves)
4	Class 150 Standard Port Alloy 20 (87A)
5	Class 150 Full Port Alloy 20 (87A)
6	Class 300 Full Port Alloy 20 (87A)
7	Class 300 Standard Port
8	Class 300 Standard Port Alloy 20 (87A)
9	Class 300 Full Port

VARIATIONS

0	Standard Configuration
3	Ni-Cu Ball & Stem
4	SS Ball & Stem
8	SS Stem
9*	Pinned Retainer
A	Alloy 20
H	Hastelloy® C Ball & Stem
N	Nickel

* Bronze Valves only

Apollo Numbering System

NOTE: Not all options and combinations available on all sizes and series.
Review the specific Technical Sheet to determine availability.

Modifying Suffixes

- The "01" suffix represents the standard configuration detailed in the Technical Literature.
- If an option is desired, replace the "01" suffix with the suffix of the option.
- If multiple options are desired, replace the "01" suffix with the desired suffixes in the order shown below.
Example: 87A-10A-1424MG

SIZE

1	1/4"
2	3/8"
3	1/2"
4	3/4"
5	1"
6	1.25"
7	1.5"
8	2"
9	2.5"
0	3"
A	4"
C	6"
E	8"
G	10"
H	12"

OPTIONS

-01-	Standard Configuration
-02-	Grounded Stem
-03-	Obsolete (1.25" Stem Extension)
-04-	2.25" Stem Extension
-05-	Plain Ball (No Chrome)
-07-	Tee Handle
-08-	90 Degree Reverse Stem
-10-	SS Lever & Nut
-11-	Therma-Seal
-12-	Stamped "157 SWP" & Bagged
-13-	Stamped "157 SWP"
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel (Round)
-16-	Chain Lever - Vertical
-17-	Rough Chrome Plated
-18-	Plain Yellow Grip
-19-	Lock Plate
-20-	Slot Vented Ball (Bi-Directional)
-21-	UHMWPE Trim (Non-PTFE)
-22-	Viton Union Seals
-23-	Tank Flange (2" 3-pc Only)
-24-	Graphite Packing
-26-	Chevron Packing, Vented, Assd Dry, Monel Trim (7A)
-27-	SS Latch Lock Lever & Nut
-29-	Graphite Packing & Seals
-30-	Cam-Lock & Grounded
-31-	7B Series w/ Boss not Drilled/Tapped
-32-	SS Tee Handle & Nut
-33-	76-300 Series w/ Pad Drilled/Tapped
-34-	Nylatron Seats (96 Series)
-35-	Virgin TFE Trim (PTFE)
-36-	SS Hi-Rise Round Handle, SS Nut
-38-	Peek Seats & Bearing (Graphite Pkg and Seals)
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut
-40-	CYL-LOC & Grounded
-41-	Auto Drain
-42-	Non-Vented Ball - No Hole in Slot (CS & SS)
-43-	CYL-LOC, Grnd B&S, 680 Loctite or 3 Tack Welds
-44-	Seal Weld 76-100 & 89-100
-45-	Less Lever & Nut (Bare Stem)
-46-	Latch-Lock Lever - Lock in Closed Position Only
-47-	SS Oval Latch-Lock Handle & Nut
-48-	SS Oval Handle (No Latch) & Nut
-49-	Assembled Dry
-50-	2.25" Locking Stem Extension
-51-	One Tack Weld
-52-	Two Tack Welds
-53-	Three Tack Welds
-54-	Four Tack Welds
-56-	Multifill Seats (MPTFE)
-57-	Oxygen Cleaned
-58-	Chain Lever - Horizontal
-59-	SS External Trim - 3-Piece and Flanged

-60-	Grounded Ball & Stem
-62-	Body Center Section
-63-	NPT X Solder/Socket Weld
-64-	250 psi SWP (Steam Working Pressure)
-65-	Multi Fill Seats & Graphite Packing
-66-	FNPT X Butt Weld
-67-	Cleaned for Industrial Gas - Carbon Steel Valves
-69-	Purge Ports (Drilled/Tapped at Bottom & Approx. 45 Degree from Top)
-70-	4" Extended Bonnet
-72-	RTFE Packing
-73-	TFE Packing - Spiral Wound Body Seals - TFE Fillers - Flanged BV
-75-	MPTFE Seats, PTFE Packing, RPTFE Gaskets
-76-	Live Loaded 87A/88A Series (Lever)
-77-	Live Loaded 87A/88A Series (Gear & Actuated)
-78-	Delrin Seats
-79-	Nylon Seats/Graphite Packing 72 Series
-80-	Dyneon TFM 1600 Seats, PTFE Chev. Pkg, RTFE Seal, PEEK Bearing
-81-	Graphite Packing with Braided End Rings (Flanged Valves)
-82-	Flat Face Flanges
-83-	SS Tee Handle & Nut (SS Version of -07) 77B Series
-84-	Reverse SS Lever & Nut (77B Series)
-85-	Short SS Tee Handle & Nut (Silicone brz retainer) (1/2" 77B Series)
-86-	Reverse Locking SS lever (77B Series) (Lckg version of -84)
-87-	Safety Latch (87A/88A Series)
-88-	Panel Mount - 60A Series
-89-	PFA Seats
-90-	Double Packed Extended Bonnet (Flange Valves)
-9P-	Double Packed Extended Bonnet with Port
-93-	Obsolete (-03 & Balancing Stop)
-94-	-04 & Balancing Stop
-97-	Grnd, Wheel Handle, Pinned or Tack Welded
-99-	For 7B Series - 99A Less Lever, w/ Site Tap - 99B Less Lever, No side Tap
-AR	Actuator Ready (MPTFE Seats, Live Loaded, Less Lever)
-BC-	Ball Check
-CH-	Cleaned for Chlorine - Vented Ball
-DP-	Dye Penetrate
-HC-	3/4" Hose Threaded Retainer w/ Brass Cap & Chain
-MG-	Gear Operated, Standard Hand Wheel
-MH-	Gear Operated, Standard Hand Wheel & Lockout Device
-MJ-	Gear Operated, Oversize Hand Wheel
-MK-	Gear Operated, Oversize Hand Wheel & Lockout Device
-MP-	Material Positive (PMI Testing)
-P01-	British Parallel Threads
-SR-	Spring Return Handle for 83A/B and 86A/B Series
-SV-	Safety Vent - 77-100/7K-100 Series (Auto Drain)
-SW-	Limit Switch Mounted
-T01-	British Taper Threads
-TH-	Tested, Hydrostatic
-TC-	Tested, Hydrostatic w/ Certification
-TD-	Tested, API-6D
-TR-	Tested Hydrostatic w/ Certification, and MTR
-TS-	Tested, Special, Customer Specified
-TW-	Tested, Hydrostatic w/ Witness & Certification

WARRANTY INFORMATION

Terms & Conditions

TERMS & CONDITIONS OF SALE

- Payment: 2% 10th prox. Net 30 days.
- All prices F.O.B. shipping point with freight allowed on shipments of 750 pounds and/or \$5,000 net minimum to all shipping points within the United States excluding Alaska and Hawaii. No freight allowed on Air Freight or Parcel Post shipments. Claims for shortages must be made within 10 days of receipt of material. Our responsibility ends when a delivery receipt is furnished us by the carrier.
- No invoice rendered For Less than \$50.00.
- No freight will be allowed on Air Freight, Air Express, Parcel Post or U.P.S. shipments.
- All Conbraco products may be combined to make sufficient weight for full freight allowance.
- Phone order quoted prices are subject to correction. Prices and designs are subject to change without notice.
- Orders for material of special design or specification are made to customer's order and are not subject to cancellation or return.
- All goods returned to us will not be accepted unless a full explanation has been made and our written authorized permission obtained in advance. All goods returned - if accepted - will be credited at invoice price, less 30% for service and rehandling charges, plus shipping expenses.
- We reserve the right to adjust orders to box quantities.



WARRANTY AND LIMITATIONS OF LIABILITY

Conbraco Industries, Inc. warrants, to its initial purchaser only, that its products which are delivered to this initial purchaser will be of the kind described in the order or price list and will be free of defects in workmanship or material for a period of FIVE years from the date of delivery to you, our initial purchaser. This warranty applies to Apollo brand product with "Made in the USA" markings only.

Should any failure to conform to this warranty appear within FIVE years after the date of the initial delivery to our initial purchaser, Conbraco will, upon written notification thereof and substantiation that the goods have been stored, installed, maintained and operated in accordance with Conbraco's recommendations and standard industry practice, correct such defects by suitable repair or replacement at Conbraco's own expense.

APOLLO INTERNATIONAL PRODUCTS: Conbraco Industries, Inc. warrants its International products, to its initial purchaser only, that its international products which are delivered to this initial purchaser will be of the kind described in the order or price list and will be free of defects in workmanship or material for a period of TWO years from the date of delivery to you, our initial purchaser.

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHER WARRANTY OF QUALITY, WHETHER EXPRESSED OR IMPLIED, EXCEPT THE WARRANTY OF TITLE AND AGAINST PATENT INFRINGEMENT. Correction of non-conformities, in the manner and for the period of time provided above, shall constitute fulfillment of all liabilities of Conbraco to our initial purchaser, with respect to the goods, whether based on contract, negligence, strict tort or otherwise. It is the intention of Conbraco Industries, Inc. that no warranty of any kind, whether expressed or implied shall pass through our initial purchaser to any other person or corporation.

LIMITATION OF LIABILITY: Conbraco Industries, inc. SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE FOR SPECIAL OR CONSEQUENTIAL DAMAGES SUCH AS, BUT NOT LIMITED TO, DAMAGES OR TO LOSS OF OTHER PROPERTY OR EQUIPMENT, LOSS OF PROFITS OR REVENUE, COST OF CAPITAL, COST OF PURCHASED OR REPLACEMENT GOODS, OR CLAIMS OF CUSTOMERS OF OUR INITIAL PURCHASER. THE REMEDIES OF OUR INITIAL PURCHASER, AND ALL OTHERS, SET FORTH HEREIN, ARE EXCLUSIVE, AND THE LIABILITY OF CONBRACO WITH RESPECT TO SAME SHALL NOT, EXCEPT AS EXPRESSLY PROVIDED HEREIN, EXCEED THE PRICE OF THE GOODS UPON WHICH SUCH LIABILITY IS BASED.

* It is the end user's responsibility to confirm that items intended for use satisfy local codes and standards.

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SECTION A – TWO PIECE BALL VALVES

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SECTION A – TWO PIECE BALL VALVES

Carbon Steel																
Series	3000	CWP (psig)		Size Range	1/4"	3/8"	1/2"	3/4"	1"	1.25"	1.5"	2"	2.5"	3"	4"	Design
72-1xx			Full Port	1/2" to 1.5"												Bar Stock
	3000			to 2"								○				Bar Stock
72-9xx			Full Port	1/4" to 1.5"												Bar Stock
	3000			to 2"								○				Bar Stock
73A-1xx-A		2000		1/4" to 1"												Forged
		1500		1.25" to 2"								○				Forged
89-1xx		2000		1/4" to 1"												Cast
		1500		1.25" to 2"								○				Cast
89-AR				1.25" to 2"								○				Cast
		2000		1/4" to 1"									○			Cast
89-AR		1500		1.25" to 2"								○				Cast
				2.5" to 3"									○			Cast
Stainless Steel																
Series		CWP (psig)		Size Range	1/4"	3/8"	1/2"	3/4"	1"	1.25"	1.5"	2"	2.5"	3"	4"	Design
76-1xx		2000		1/4" to 1"												Cast
		1500		1.25" to 2"												Cast
76K-1xx				2.5" to 3"										○		Cast
		1000														Cast
76-AR		2000		1/4" to 1"												Cast
		1500		1.25" to 2"												Cast
76K-AR				2.5" to 3"										○		Cast
		1000														Cast
76F-1xx-A				1/2" to 2"												Cast
		1000														Cast
76FK-1xx-A																Cast
																Cast
Alloy 20																
Series		CWP (psig)		Size Range	1/4"	3/8"	1/2"	3/4"	1"	1.25"	1.5"	2"	2.5"	3"	4"	Design
399-1xx Series		1500 to 2000		1/4" to 2"									○			Cast
Bronze																
Series		CWP (psig)		Size Range	1/4"	3/8"	1/2"	3/4"	1"	1.25"	1.5"	2"	2.5"	3"	4"	Design
70-1xx			600	1/4" to 4"												Cast
70LF-1xx			600	1/4" to 4"												Cast
70B-14x			600	1/4" to 2"												Lead-Free*
70-2xx			600	3/8" to 2"												Threaded Power Piping Bronze Ball Valve
70LF-2xx			600	3/8" to 2"												Solder Ends
70-800			600	1/4" to 1.5"												Solder Ends, Lead-Free*
71-1xx			600	3/4" to 3"												Male x Female Threaded
71-AR			600	3/4" to 3"												with Mounting Pad
77-1xx			600	1/4" to 2.5"												with ISO Mounting Pad (Actuator Ready, "AR")
77-2xx			600	3/4" to 2.5"												with Mounting Pad
77-900			600	1/4" to 2"												Solder Ends
77-AR			600	1/4" to 2"												SAE Straight Thread
77D-14X			600	1/2" to 2"												with ISO Mounting Pad (Actuator Ready, "AR")



Throughout this catalog, products that have a Lead Free* option will be identified with this logo.

* LEAD FREE: The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with CA AB1953, VT Act 193, MD HB372, LA HB471 and Federal Public Law 111-380. ANSI 3rd party approved and listed.

**Any imported products are clearly identified as "Apollo International".

70-100 SERIES

Bronze Ball Valve

Female NPT Thread, 600 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam. (See referenced P/T charts)
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.

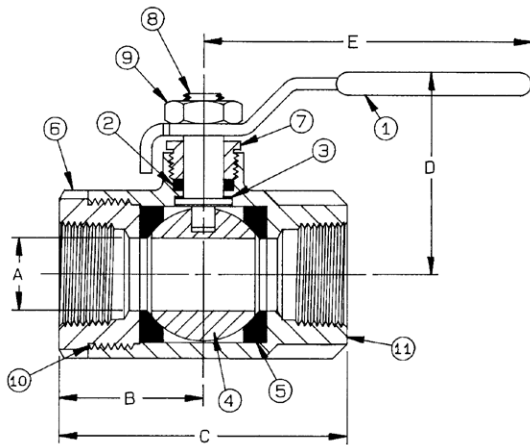


FEATURES

- Two-piece body
- Reinforced seats
- Blow-out-proof stem design
- Adjustable packing gland

VARIATIONS AVAILABLE:

- 70-140 Series (316 SS Ball & Stem)
70-190 Series (Locked Retainer)



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Stem packing	MPTFE
3	Stem bearing	RPTFE
4	Ball	B16, chrome plated
5	Seat (2)	RPTFE (1/4" to 3"); TFM (4")
6	Retainer	B16 (1/4" to 1") B584-C84400 (1.25" to 4")
7	Gland nut	B16
8	Stem	B16
9	Lever nut	Steel, zinc plated
10	Body seal	PTFE (1.25" to 4")
11	Body	B584-C84400

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
70-101-01	1/4"	0.37	1.03	2.06	1.75	3.87	0.60
70-102-01	3/8"	0.37	1.03	2.06	1.75	3.87	0.56
70-103-01	1/2"	0.50	1.12	2.25	1.75	3.87	0.63
70-104-01	3/4"	0.68	1.50	3.00	2.12	4.87	1.39
70-105-01	1"	0.87	1.68	3.37	2.25	4.87	1.72
70-106-01	1.25"	1.00	2.00	4.00	2.62	5.50	3.26
70-107-01	1.5"	1.25	2.18	4.37	3.06	8.00	4.61
70-108-01	2"	1.50	2.34	4.68	3.25	8.00	6.06
70-109-01A	2.5"	2.00	3.12	6.25	3.72	8.00	17.25
70-100-01	3"	2.50	3.37	6.75	4.12	8.00	18.60
70-10A-01	4"	3.12	3.69	7.37	5.25	9.94	25.50

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 3"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 3"
-02-	Stem Grounded	1/4" to 4"
-04-	2.25" CS Stem Extension	1/4" to 3"
-05-	Plain Ball	1/4" to 3"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 3"
-10-	SS Lever & Nut	1/4" to 3"
-11-	Therma-Seal™ Insulating Tee Handle	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 4"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-17-	Rough Chrome Plated - Bronze Valves	1/4" to 3"
-21	UHMWPE Trim (Non-PTFE)	1/4" to 3"
-24-	Graphite Packing	1/4" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 3"
-36-	SS Hi-Rise Round Handle, SS Nut	1/4" to 2"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-41-	Automatic Drain (Bronze Valves Only)	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 3"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 4"
-50-	2.25" CS Locking Stem Extension	1/4" to 3"
-56-	Multifill Seats & Packing	1/4" to 3"
-57-	Oxygen Cleaned	1/4" to 4"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 3"
-63-	NPT x Solder/Socket Weld	3/8" to 4"
-64-	250# Steam Trim	1/4" to 3"
-92-	Balancing Stop	1/4" to 3"
-94-	2.25" Stem Extension, Balancing Stop	1/4" to 3"
-HC-	Hose Cap & Chain	1/2" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4



70LF-100 SERIES

Lead Free* Bronze Ball Valve

Female NPT Thread, 600 CWP (psig). 150 psig SWP. (See referenced P/T charts)
 Vacuum Service to 29 inches Hg.
 MSS SP-110 compliant.
 CRN: OC10908.5C

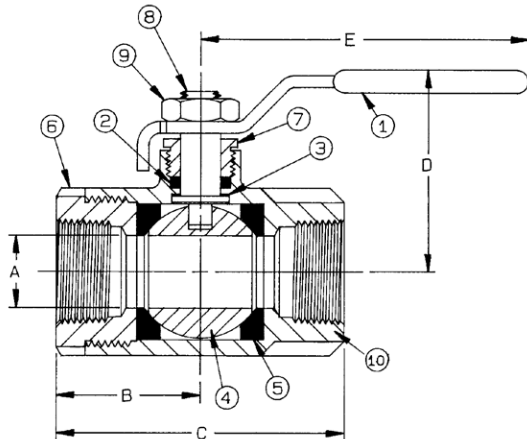


FEATURES

- Lead-Free* brass and bronze materials
- NSF/ANSI 61 (2010) Section 8, Annex F & G
- Easily identifiable blue tag
- RPTFE seats and stuffing box ring
- Designed, manufactured, and 100% factory tested in the USA
- NSF-372, Drinking Water System Components - Lead Content

VARIATIONS AVAILABLE:

70LF-140 Series (316 SS Ball & Stem)



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" CS Stem Extension	1/4" to 3"
-07-	Steel Tee Handle	1/4" to 2"
-10-	SS Lever & Nut	1/4" to 4"
-11-	Therma-Seal™ Insulating Tee Handle	1/4" to 2"
-27-	SS Latch-Lock Lever & Nut	1/2" to 4"
-32-	SS Tee Handle & Nut	1/2" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	1/2" to 2"
-92-	Balancing Stop	1/4" to 3"
-94-	2.25" Stem Extension, Balancing Stop	1/4" to 3"
-HC-	Hose Cap & Drain	1/2" to 1"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	RPTFE
3 Stem bearing	RPTFE
4 Ball	C27451 Lead-Free* Brass, Chrome Plated
5 Seat (2)	RPTFE
6 Retainer	C27451 Lead-Free* Brass (1/4"-1") C89836 Lead-Free* Bronze (1.25"-4")
7 Gland Nut	B16 Brass
8 Stem	C27451 Lead-Free* Brass
9 Lever Nut	Steel, Zinc Plated
10 Body	C89836 Lead-Free* Bronze

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
70LF-101-01	1/4"	0.37	1.03	2.06	1.75	3.87	0.60
70LF-102-01	3/8"	0.37	1.03	2.06	1.75	3.87	0.56
70LF-103-01	1/2"	0.50	1.12	2.25	1.75	3.87	0.63
70LF-104-01	3/4"	0.68	1.50	3.00	2.12	4.87	1.39
70LF-105-01	1"	0.87	1.68	3.37	2.25	4.87	1.72
70LF-106-01	1.25"	1.00	2.00	4.00	2.62	5.50	3.26
70LF-107-01	1.5"	1.25	2.18	4.37	3.06	8.00	4.61
70LF-108-01	2"	1.50	2.34	4.68	3.25	8.00	6.06
70LF-109-01	2.5"	2.00	3.12	6.25	3.72	8.00	13.96
70LF-100-01	3"	2.50	3.37	6.75	4.12	8.00	18.60
70LF-10A-01	4"	3.12	3.68	7.37	5.25	10.00	25.50



* LEAD FREE: The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with CA AB1953, VT Act 193, MD HB372, LA HB471 and Federal Public Law 111-380. ANSI 3rd party approved and listed.

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

70B-140 SERIES

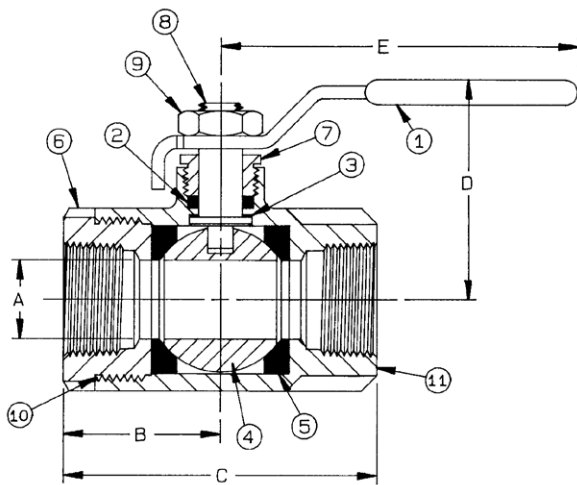
Bronze Ball Valve – ASME B31.1 Materials

Female NPT Thread, 600 CWP (psig), Cold Non-Shock. 250 psig Saturated Steam. (See referenced P/T charts)
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Two-piece body
- MPTFE seats & packing
- 85-5-5 Body & retainer
- Slot vented ball
- Stainless steel ball & stem
- Blow-out-proof stem design
- Adjustable packing gland



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	A276-316
5 Seat (2)	MPTFE
6 Retainer	B505-C83600 (1/4" to 1") B62-C83600 (1.25" to 2")
7 Gland Nut	B16
8 Stem	A276-316
9 Lever Nut	Steel, zinc plated
10 Body seal	PTFE (1.25" to 4")
11 Body	B62-C83600

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-05-	Plain Ball	1/4" to 2"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 2"
-10-	SS Lever & Nut	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-36-	SS Hi-Rise Round Handle, SS Nut	1/4" to 2"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 2"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 1"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 2"
-50-	2.25" CS Locking Stem Extension	1/4" to 2"
-58-	Chain Lever - Horizontal	3/4" to 2"

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
70B-141-64	1/4"	0.37	1.03	2.06	1.75	3.87	0.60
70B-142-64	3/8"	0.37	1.03	2.06	1.75	3.87	0.56
70B-143-64	1/2"	0.50	1.12	2.25	1.75	3.87	0.63
70B-144-64	3/4"	0.68	1.50	3.00	2.12	4.87	1.39
70B-145-64	1"	0.87	1.68	3.37	2.25	4.87	1.72
70B-146-64	1.25"	1.00	2.00	4.00	2.62	5.50	3.26
70B-147-64	1.5"	1.25	2.18	4.37	3.06	8.00	4.61
70B-148-64	2"	1.50	2.34	4.68	3.25	8.00	6.06

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

70-200 SERIES

Solder End Bronze Ball Valve

Solder End, 600 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam. (See referenced P/T charts)
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.

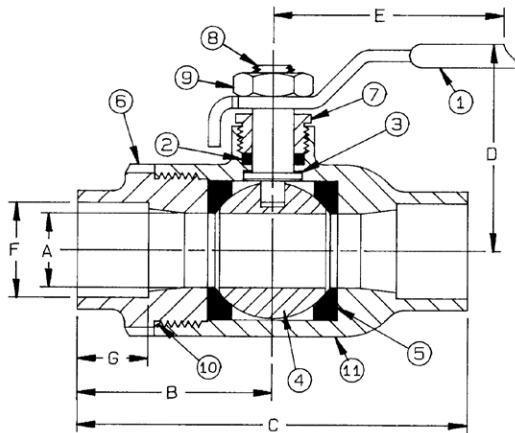


FEATURES

- Two-piece body
- Blow-out-proof stem design
- Reinforced seats
- Adjustable packing gland

VARIATIONS AVAILABLE:

70-240 Series (316 SS Ball & Stem)



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	B16, chrome plated
5 Seat (2)	RPTFE (3/8" to 3"); TFM (4")
6 Retainer	B16 (3/8" to 1") B584-C84400 (1.25" to 4")
7 Gland nut	B16
8 Stem	B16
9 Lever nut	Steel, zinc plated
10 Body seal (1.25" to 4")	PTFE
11 Body	B584-C84400

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	3/8" to 4"
-04-	2.25" CS Stem Extension	3/8" to 3"
-05-	Plain Ball	3/8" to 3"
-07-	Steel Tee Handle	3/8" to 2"
-08-	90° Reversed Stem	3/8" to 3"
-10-	SS Lever & Nut	3/8" to 3"
-11-	Therma-Seal™ Insulating Tee Handle	3/8" to 2"
-14-	Side Vented Ball (Uni-Directional)	3/8" to 4"
-15-	Wheel Handle, Steel	3/8" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-24-	Graphite Packing	3/8" to 3"
-27-	SS Latch-Lock Lever & Nut	3/8" to 3"
-32-	SS Tee Handle & Nut	3/8" to 2"
-35-	PTFE Trim	3/8" to 3"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	3/8" to 2"
-45-	Less Lever & Nut	3/8" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	3/8" to 3"
-47-	SS Oval Latch-Lock Handle & Nut	3/8" to 2"
-48-	SS Oval Handle (No Latch) & Nut	3/8" to 2"
-49-	Assembled Dry	3/8" to 4"
-50-	2.25" CS Locking Stem Extension	3/8" to 3"
-56-	Multifill Seats & Packing	3/8" to 3"
-57-	Oxygen Cleaned	3/8" to 4"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	3/8" to 3"
-63-	NPT x Solder/Socket Weld	3/8" to 4"
-92-	Balancing Stop	3/8" to 3"
-94	2.25" Stem Extension, Balancing Stop	3/8" to 3"
-HC-	Hose Cap & Drain	1/2" to 1"

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	WT.
70-202-01	3/8"	0.37	1.28	2.56	1.75	3.87	.505	0.37	0.63
70-203-01	1/2"	0.50	1.43	2.87	1.75	3.87	.630	0.50	0.71
70-204-01	3/4"	0.68	1.93	3.87	2.12	4.87	.880	0.75	1.44
70-205-01	1"	0.87	2.25	4.50	2.25	4.87	1.130	0.90	1.91
70-206-01	1.25"	1.00	2.31	4.62	2.62	5.50	1.380	0.96	2.95
70-207-01	1.5"	1.25	2.62	5.25	3.06	8.00	1.630	1.09	3.99
70-208-01	2"	1.50	3.18	6.37	3.25	8.00	2.130	1.34	5.71
70-209-01A	2.5"	2.00	3.74	7.51	3.72	8.00	2.630	1.48	15.53
70-200-01	3"	2.50	4.12	8.25	4.12	8.00	3.130	1.67	16.74
70-20A-01	4"	3.12	5.65	10.26	5.22	9.94	4.130	2.16	27.93

The 70-200 is designed to be soft soldered into lines without disassembly. This allows a tested valve to be installed without disturbing the seats and seals in any way. Soldering temperature not to exceed 500°F.

**FOR PRESSURE/TEMPERATURE RATINGS,
REFER TO PAGE M-10, GRAPH NO. 4**

70LF-200 SERIES

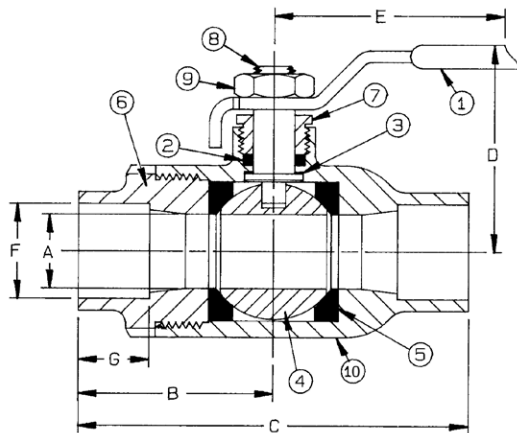
Lead Free* Solder End Bronze Ball Valve

Solder End, 600 CWP (psig). 150 psig SWP. (See referenced P/T charts)
 Vacuum Service to 29 inches Hg.
 MSS SP-110 compliant.
 CRN: OC10908.5C



FEATURES

- Lead-Free* brass and bronze materials
- RPTFE seats and stuffing box ring
- NSF/ANSI 61 (2010) Section 8, Annex F & G
- Designed, manufactured, and 100% factory tested in the USA
- Easily identifiable blue tag
- NSF-372, Drinking Water System Components - Lead Content



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" CS Stem Extension	3/8" to 3"
-07-	Steel Tee Handle	3/8" to 2"
-10-	SS Lever & Nut	3/8" to 3"
-11-	Therma-Seal™ Insulating Tee Handle	3/8" to 2"
-27-	SS Latch-Lock Lever & Nut	3/8" to 4"
-32-	SS Tee Handle & Nut	3/8" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	3/8" to 2"
-48-	SS Oval Handle (No Latch) & Nut	3/8" to 2"
-92-	Balancing Stop	3/8" to 3"
-94-	2.25" Stem Extension, Balancing Stop	3/8" to 3"
-HC-	Hose Cap & Drain	1/2" to 1"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	RPTFE
3 Stem bearing	RPTFE
4 Ball	C27451 Lead-Free* Brass, Chrome Plated
5 Seat (2)	RPTFE (3/8" to 3"); TFM (4")
6 Retainer	C27451 Lead-Free* Brass (3/8"-1") C89836 Lead-Free* Bronze (1.25"-4")
7 Gland Nut	B16 brass
8 Stem	C27451 Lead-Free* Brass
9 Lever Nut	Steel, Zinc Plated
10 Body	C89836 Lead-Free* Bronze

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	WT.
70LF-202-01	3/8"	0.37	1.28	2.56	1.75	3.87	0.51	0.37	0.63
70LF-203-01	1/2"	0.50	1.43	2.87	1.75	3.87	0.63	0.50	0.71
70LF-204-01	3/4"	0.68	1.93	3.87	2.12	4.87	0.88	0.75	1.44
70LF-205-01	1"	0.87	2.25	4.50	2.25	4.87	1.13	0.90	1.91
70LF-206-01	1.25"	1.00	2.31	4.62	2.62	5.50	1.38	0.96	2.95
70LF-207-01	1.5"	1.25	2.62	5.25	3.06	8.00	1.63	1.09	3.99
70LF-208-01	2"	1.50	3.18	6.37	3.25	8.00	2.13	1.34	5.71
70LF-209-01	2.5"	2.00	3.74	7.51	3.72	8.00	2.63	1.48	15.53
70LF-200-01	3"	2.50	4.12	8.25	4.12	8.00	3.13	1.67	16.74
70LF-20A-01	4"	3.13	5.65	10.26	5.22	9.94	4.13	2.16	27.93



* LEAD FREE: The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with CA AB1953, VT Act 193, MD HB372, LA HB471 and Federal Public Law 111-380. ANSI 3rd party approved and listed.

**FOR PRESSURE/TEMPERATURE RATINGS,
REFER TO PAGE M-10, GRAPH NO. 4**



70-800 SERIES

Male x Female Bronze Ball Valve

Male x Female NPT Thread, 600 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam. (See referenced P/T chart)
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.

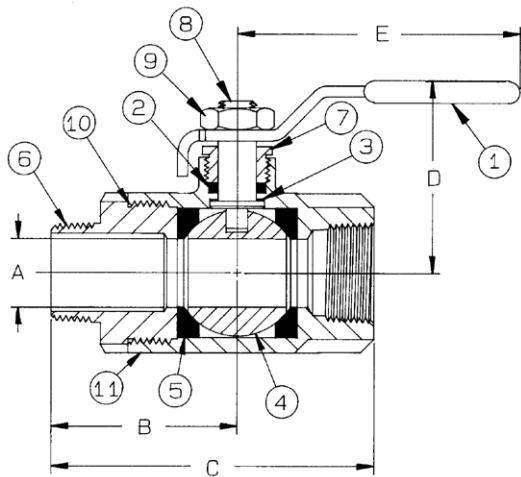


FEATURES

- Two-piece body
- Reinforced seats
- Male x female threaded end connections
- Blow-out-proof stem design
- Adjustable packing gland

VARIATIONS AVAILABLE:

70-840 Series (316 SS Ball & Stem)



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Stem packing	MPTFE
3	Stem bearing	RPTFE
4	Ball	B16, chrome plated
5	Seat (2)	RPTFE
6	Retainer	B16
7	Gland nut	B16
8	Stem	B16
9	Lever nut	Steel, zinc plated
10	Body seal (1.25" to 1.5")	PTFE
11	Body	B584-C84400

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
70-801-01	1/4"	0.37	1.40	2.43	1.75	3.87	0.63
70-802-01	3/8"	0.37	1.46	2.50	1.75	3.87	0.60
70-803-01	1/2"	0.50	1.68	2.81	1.81	3.87	0.72
70-804-01	3/4"	0.68	2.00	3.50	2.12	4.87	1.42
70-805-01	1"	0.87	2.31	4.00	2.25	4.87	1.93
70-806-01	1.25"	1.00	2.31	4.31	2.62	5.50	3.19
70-807-01	1.5"	1.25	3.00	5.18	3.06	8.00	4.60

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	1/4" to 1.5"
-04-	2.25" CS Stem Extension	1/4" to 1.5"
-05-	Plain Ball	1/4" to 1.5"
-07-	Steel Tee Handle	1/4" to 1.5"
-08-	90° Reversed Stem	1/4" to 1.5"
-10-	SS Lever & Nut	1/4" to 1.5"
-11-	Therma-Seal™ Insulating Handle	1/4" to 1.5"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 1.5"
-15-	Wheel Handle, Steel	1/4" to 1.5"
-16-	Chain Lever - Vertical	3/4" to 1.5"
-21-	UHMWPE Trim (Non-PTFE)	1/4" to 1.5"
-24-	Graphite Packing	1/4" to 1.5"
-27-	SS Latch-Lock Lever & Nut	1/4" to 1.5"
-30-	Cam-Lock and Grounded	1/4" to 1.5"
-32-	SS Tee Handle & Nut	1/4" to 1.5"
-35-	PTFE Trim	1/4" to 1.5"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 1.5"
-40-	Cyl-Loc and Grounded	1/4" to 1.5"
-41-	Automatic Drain (Bronze Valves Only)	1/4" to 1.5"
-45-	Less Lever & Nut	1/4" to 1.5"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 1.5"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 1.5"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 1.5"
-49-	Assembled Dry	1/4" to 1.5"
-50-	2.25" CS Locking Stem Extension	1/4" to 1.5"
-56-	Multifill Seats & Packing	1/4" to 1.5"
-57-	Oxygen Cleaned	1/4" to 1.5"
-58-	Chain Lever - Horizontal	3/4" to 1.5"
-60-	Static Grounded Ball & Stem	1/4" to 1.5"
-64-	250# Steam Trim	1/4" to 1.5"
-92-	Balancing Stop	1/4" to 1.5"
-94	2.25" Stem Extension, Balancing Stop	1/4" to 1.5"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

71-100 SERIES

Bronze Ball Valve With Mounting Pad

Female NPT Thread, 600 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam. (See referenced P/T chart)
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.

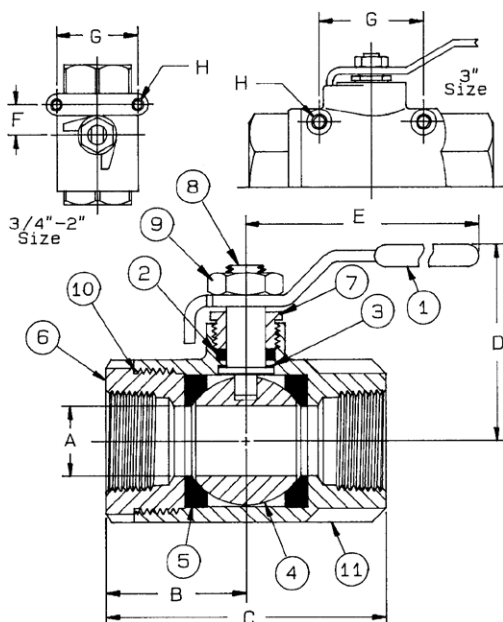


FEATURES

- Two-piece body
- Reinforced seats
- Mounting pad for easy actuator mounting
- Blow-out-proof stem design
- Adjustable packing gland

VARIATIONS AVAILABLE:

- 71-140 Series (316 SS Ball & Stem)
71-190 Series (Locked Retainer)



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	B16, chrome plated
5 Seat (2)	RPTFE
6 Retainer	B16 (3/4" to 1") B584-C84400 (1.25" to 3")
7 Gland nut	B16
8 Stem	B16
9 Lever nut	Steel, zinc plated
10 Body seal (1.25" to 3")	PTFE
11 Body	B584-C84400

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	3/4" to 3"
-T -01-	BSPT (Tapered) Thread Connection	3/4" to 3"
-02-	Stem Grounded	3/4" to 3"
-04-	2.25" CS Stem Extension	3/4" to 3"
-05-	Plain Ball	3/4" to 3"
-07-	Steel Tee Handle	3/4" to 2"
-08-	90° Reversed Stem	3/4" to 3"
-10-	SS Lever & Nut	3/4" to 3"
-11-	Therma-Seal™ Insulating Tee Handle	3/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	3/4" to 3"
-15-	Wheel Handle, Steel	3/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-21-	UHMWPE Trim (Non-PTFE)	3/4" to 3"
-24-	Graphite Packing	3/4" to 3"
-27-	SS Latch-Lock Lever & Nut	3/4" to 3"
-30-	Cam-Lock and Grounded	3/4" to 2"
-32-	SS Tee Handle & Nut	3/4" to 2"
-35-	PTFE Trim	3/4" to 3"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	3/4" to 2"
-40-	Cyl-Loc and Grounded	3/4" to 2"
-41-	Automatic Drain (Bronze Valves Only)	3/4" to 2"
-45-	Less Lever & Nut	3/4" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	3/4" to 3"
-47-	SS Oval Latch-Lock Handle & Nut	3/4" to 1"
-48-	SS Oval Handle (No Latch) & Nut	3/4" to 2"
-49-	Assembled Dry	3/4" to 3"
-50-	2.25" CS Locking Stem Extension	3/4" to 3"
-56-	Multifill Seats & Packing	3/4" to 3"
-57-	Oxygen Cleaned	3/4" to 3"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	3/4" to 3"
-64-	250# Steam Trim	3/4" to 3"
-92-	Balancing Stop	3/4" to 3"
-94	2.25" Stem Extension, Balancing Stop	3/4" to 3"

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	WT.
71-104-01	3/4"	0.68	1.50	3.00	2.12	4.87	0.87	1.37	10-24 NC	1.63
71-105-01	1"	0.87	1.68	3.37	2.25	4.87	0.87	1.37	10-24 NC	1.86
71-106-01	1.25"	1.00	2.00	4.00	2.62	5.50	0.93	1.50	1/4-20 NC	3.39
71-107-01	1.5"	1.25	2.18	4.37	2.87	8.00	0.93	1.50	1/4-20 NC	4.68
71-108-01	2"	1.50	2.34	4.68	3.06	8.00	0.93	1.50	1/4-20 NC	5.72
71-100-01	3"	2.50	3.37	6.75	4.12	8.00	N/A	2.75	1/4-20 NC	18.60

FOR PRESSURE/TEMPERATURE RATINGS,
REFER TO PAGE M-10, GRAPH NO. 4



71-AR SERIES

Bronze Std. Port Ball Valve with Actuator Ready ISO Mounting Pad

Female NPT Thread, 600 CWP (psig), Cold Non-Shock. (See referenced P/T chart)
 250 psig Saturated Steam.
 Vacuum Service to 29 inches Hg.
 MSS SP-110 compliant.



FEATURES

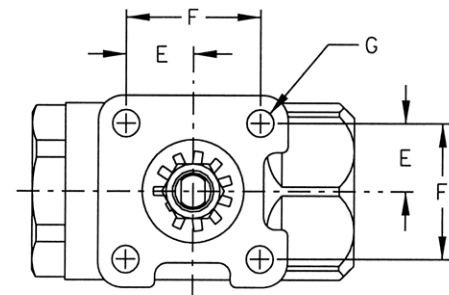
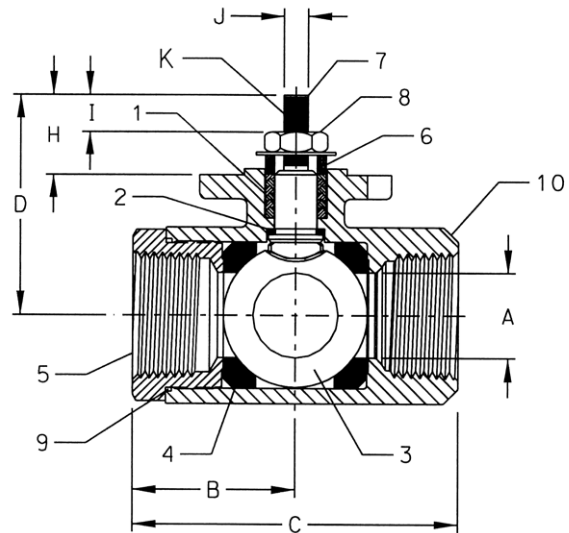
- Multi-piece packing set
- ISO 5211 mounting pad
- Stainless ball & stem
- Blow-out-proof stem design
- Adjustable packing gland
- Live loaded packing

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-14-	Vented Ball	3/4" to 3"
-24-	Graphite Packing	3/4" to 2"
-27-	Latch Lock Handle	3/4" to 3"
-35-	PTFE Seats	3/4" to 3"
-57-	Oxygen Cleaned	3/4" to 3"

STANDARD MATERIAL LIST

PART	PART	MATERIAL
1	Stem packing	MPTFE
2	Stem bearing	PEEK/PTFE
3	Ball	316 SS
4	Seat (2)	MPTFE
5	Retainer	B16 (3/4" to 1") B584-C84400 (1.25" to 3")
6	Gland	B16
7	Stem	316 SS
8	Jam nut	SS
9	Body seal	PTFE (1.25" to 3")
10	Body	B584-C84400



PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K (THRDS) UNF	WT.
71-AR4-64	3/4"	0.68	1.50	3.00	2.16	0.70	1.39	0.28	0.84	0.28	.247/.249	3/8-24	1.38
71-AR5-64	1"	0.87	1.68	3.37	2.28	0.70	1.39	0.28	0.84	0.28	.247/.249	3/8-24	1.76
71-AR6-64	1.25"	1.00	1.98	3.97	3.16	0.98	1.95	0.34	1.16	0.26	.370/.372	5/8-18	3.51
71-AR7-64	1.5"	1.25	2.18	4.34	3.16	0.98	1.95	0.34	1.16	0.38	.370/.372	5/8-18	4.40
71-AR8-64	2"	1.50	2.34	4.68	3.37	0.98	1.95	0.34	1.16	0.38	.370/.372	5/8-18	5.89
71-AR9-64	2.5"	2.00	3.12	6.25	3.85	0.98	1.95	0.34	1.16	0.41	.370/.372	5/8-18	14.12
71-AR0-64	3"	2.50	3.37	6.75	4.18	0.98	1.95	0.34	1.16	0.55	.370/.372	5/8-18	18.55

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

72-100 SERIES

Carbon Steel High Pressure Ball Valve

Female NPT Thread, 3000 CWP (psig), Cold Non-Shock Body rating. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



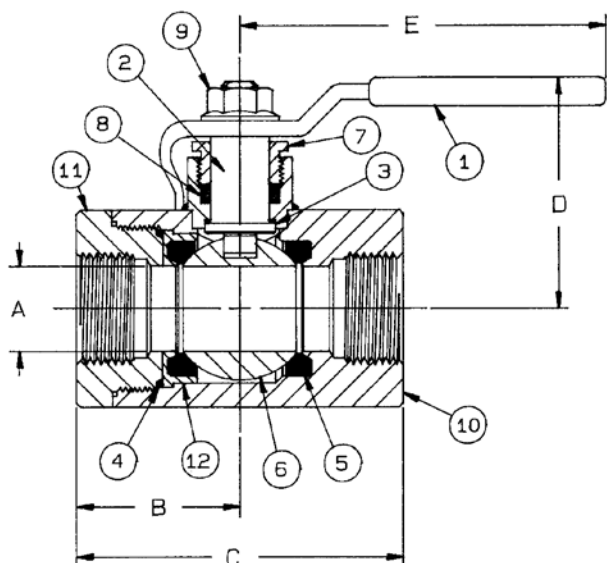
FEATURES

- Barstock design
- Reinforced seats
- Fire safe design when ordered with graphite packing
- Zinc phosphate corrosion protection
- Adjustable packing gland
- Full port, except 2"

- Blow-out-proof stem design
- Heavy duty lever

VARIATIONS AVAILABLE:

72-140 Series (316 SS Ball & Stem)



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	1/2" to 2"
-04-	2.25" CS Stem Extension	1" to 1.5"
-07-	Steel Tee Handle	1/2" to 1.5"
-08-	90° Reversed Stem	1/2" to 2"
-10-	SS Lever & Nut	1/2" to 1.5"
-14-	Side Vented Ball (Uni-Directional)	1/2" to 2"
-15-	Wheel Handle, Steel	1/2" to 1"
-19-	Lock Plate	1/2" to 2"
-21-	UHMWPE Trim (Non-PTFE)	1/2" to 2"
-24-	Graphite Packing	1/2" to 2"
-45-	Less Lever & Nut	1/2" to 2"
-56-	Multifill Seats & Packing	1/2" to 2"
-60-	Static Grounded Ball & Stem	1/2" to 2"
-64-	250# Steam Trim	1/2" to 2"
-78-	Delrin Seats, Graphite Packing	1/2" to 2"
-79-	Nylon Seats, Graphite Packing	1/2" to 2"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem	A108-CS chrome plated
3 Stem bearing	RPTFE
4 Retainer seal	RPTFE
5 Seat (2)	RPTFE
6 Ball	A108-CS chrome plated
7 Gland nut	A108-CS
8 Stem packing	MPTFE
9 Lever nut	Steel, zinc plated
10 Body	A108-CS
11 Retainer	A108-CS
12 Seat holder	A108-CS

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
72-103-01	1/2"	0.62	1.46	2.87	2.50	5.62	1.98
72-104-01	3/4"	0.81	1.87	3.80	2.62	5.62	3.09
72-105-01	1"	1.00	2.12	4.15	3.12	6.62	4.87
72-106-01	1.25"	1.25	2.32	4.65	3.43	8.00	7.67
72-107-01	1.5"	1.50	2.64	5.23	3.56	8.00	10.50
72-108-01	2"	1.75	3.00	5.84	4.18	9.00	15.26

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-15, GRAPH NO. 15



72-900 SERIES

Carbon Steel SAE Straight Thread Ball Valve

Female NPT Thread, 3000 CWP (psig), Cold Non-Shock Body Rating (See P/T Chart referenced below for seat rating).
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Barstock design
- Reinforced seats
- Fire safe design when ordered with graphite packing
- Zinc Phosphate corrosion protection
- Adjustable packing gland
- Full port, except 2"

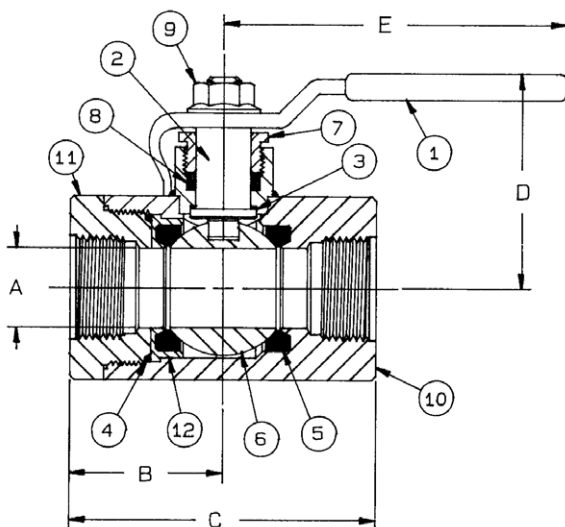
- Blow-out-proof stem design
- Heavy duty lever
- SAE J512/J514 Straight Thread O-Ring Boss

VARIATIONS AVAILABLE:

72-940 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	1/4" to 2"
-04-	2.25" CS Stem Extension	1" to 1.5"
-07-	Steel Tee Handle	1/4" to 1.5"
-08-	90° Reversed Stem	1/4" to 2"
-10-	SS Lever & Nut	1/4" to 1.5"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 1"
-19-	Lock Plate	1/4" to 2"
-21-	UHMWPE Trim (Non-PTFE)	1/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 2"
-56-	Multifill Seats & Packing	1/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 2"
-64-	250# Steam Trim	1/4" to 2"
-78-	Delrin Seats, Graphite Packing	1/4" to 2"
-79-	Nylon Seats, Graphite Packing	1/4" to 2"



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem	A108-CS chrome plated
3 Stem bearing	RPTFE
4 Retainer seal	RPTFE
5 Seat (2)	RPTFE
6 Ball	A108-CS chrome plated
7 Gland nut	A108-CS
8 Stem packing	MPTFE
9 Lever nut	Steel, zinc plated
10 Body	A108-CS
11 Retainer	A108-CS
12 Seat holder	A108-CS

PRODUCT NUMBER	SIZE	THREAD	A	B	C	D	E	WT.
72-901-01	1/4"	7/16"-20	0.39	1.46	2.84	2.50	5.62	2.09
72-902-01	3/8"	9/16"-18	0.51	1.46	2.84	2.50	5.62	2.06
72-903-01	1/2"	3/4"-16	0.62	1.46	2.84	2.50	5.62	2.56
72-904-01	3/4"	1-1/16"-12	0.81	1.87	3.71	2.62	5.62	3.07
72-905-01	1"	1-5/16"-12	1.00	2.12	4.15	3.12	6.62	4.91
72-906-01	1.25"	1-5/8"-12	1.25	2.32	4.65	3.43	8.00	7.73
72-907-01	1.5"	1-7/8"-12	1.50	2.64	5.23	3.56	8.00	10.21
72-908-01	2"	2.5"-12	1.75	3.00	5.84	4.18	9.00	14.88

FOR PRESSURE/TEMPERATURE RATINGS,
REFER TO PAGE M-15, GRAPH NO. 15

73A-100 SERIES

Carbon Steel Ball Valve

Female NPT Thread, 1/4" to 1" 2000 CWP (psig), 1.25" to 2" 1500 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam. (See referenced P/T chart)
 Vacuum Service to 29 inches Hg.
 MSS SP-110 compliant.
 AAR Approved #E999032



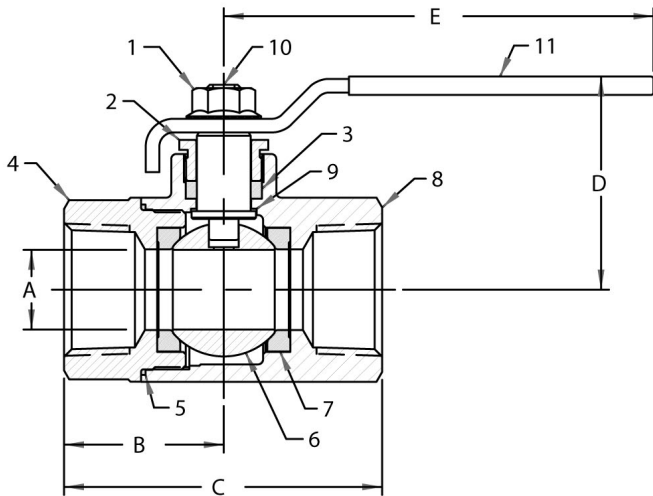
FEATURES

- Forged construction
- Raised handle stops
- Blow-out-proof stem design

- Adjustable packing gland
- Zinc phosphate corrosion protection
- Fire tested API 607, 6th edition (Requires "24" suffix)

VARIATIONS AVAILABLE:

- 73A-140 Series (316 SS Ball & Stem. NACE compliant)



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever nut	Steel, zinc plated
2 Gland nut	A108-CS
3 Stem packing	MPTFE
4 Retainer	A216-WCB
5 Body seal	RPTFE (1/2" to 2")
6 Ball	ASTM A108, Carbon Steel, chrome plated or ASTM A276, Type 316 Stainless Steel
7 Seat (2)	RPTFE
8 Body	A105
9 Stem bearing	RPTFE
10 Stem	ASTM A108, Carbon Steel or ASTM A276, Type 316 Stainless Steel
11 Lever/grip	Steel, zinc plated, with vinyl

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
73A-101-01A	1/4"	0.37	1.02	2.30	1.72	3.85	0.58
73A-102-01A	3/8"	0.37	1.08	2.37	1.72	3.85	0.54
73A-103-01A	1/2"	0.50	1.18	2.31	1.78	3.85	0.63
73A-104-01A	3/4"	0.68	1.57	3.07	2.07	4.75	1.27
73A-105-01A	1"	0.87	1.73	3.40	2.18	4.75	2.20
73A-106-01	1.25"	1.00	1.98	3.97	2.72	5.50	3.74
73A-107-01	1.5"	1.25	2.14	4.32	3.12	7.75	5.30
73A-108-01	2"	1.50	2.73	5.44	3.27	7.75	8.03

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01	BSPP (Parallel) Thread Conn.	1/4" to 2"
-T -01	BSPT (Tapered) Thread Conn.	1/4" to 2"
-02-	Stem Grounded	1/4" to 2"
-04-	2.25" CS Stem Extension	1/4" to 2"
-07-	Steel Tee Handle	1/4" to 1.5"
-08-	90° Reversed Stem	1/4" to 2"
-10-	SS Lever & Nut	1/4" to 2"
-14-	Vented ball	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 1.5"
-16-	Chain Lever - Vertical	1/4" to 2"
-21-	UHMWPE Trim (non TFE)	1/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2"
-30-	Cam-Lock & Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 2"
-39-	SS Hi-Rise Locking Round Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc & Grounded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-50-	2.25" CS Locking Stem Extension	1/4" to 2"
-52-	Two Tack Welds	1/4" to 2"
-56-	Multi-fill Seats	1/4" to 2"
-58-	Chain Lever - Horizontal	1/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 2"
-64-	250# Steam Trim	1/4" to 2"
-67-	Cleaned for Industrial Gas - CS Valves	1/4" to 2"

**FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-14, GRAPH NO. 13
 (1/4" TO 1") REFER TO PAGE M-13, GRAPH NO. 11 (1.25" TO 2")**

76-100 SERIES

Stainless Steel Ball Valve with Mounting Pad 1/4" - 1"

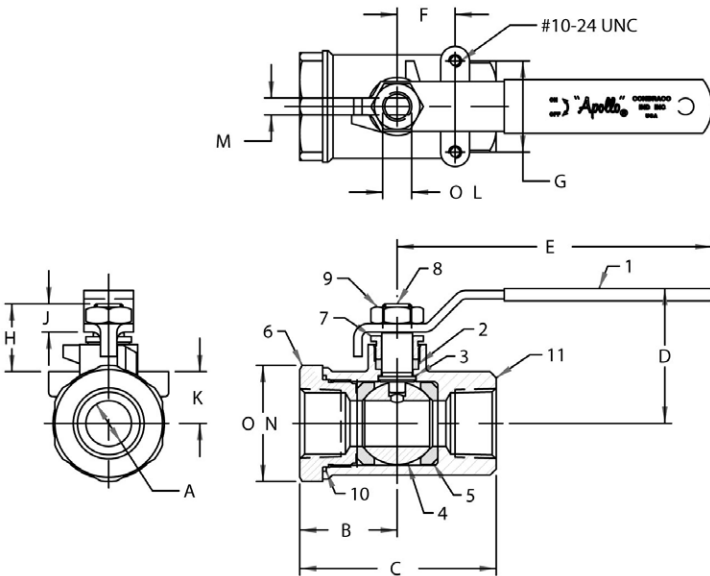
Female NPT Thread, 2000 CWP (psig). Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Investment cast components
- Reinforced seats
- Mounting pad for easy actuator mounting
- Blow-out-proof stem design
- Adjustable packing gland
- Stainless Steel lever and nut

- Fire tested API 607, 6th edition (Requires "24" suffix)
- Meets NACE MR0175 (2000) & MR0103 (2012)
- CSA/CAN 3.16-M88 (2009) (Requires "01" suffix)
- NSF/ANSI 61 (2010) Section 8, Annex F & G
- NSF-372, Drinking Water System Components - Lead Content



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	304 SS w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	A276-316 Stainless Steel
5 Seat (2)	RPTFE
6 Retainer	A351-CF8M Stainless Steel
7 Gland nut	A276-316 Stainless Steel
8 Stem	A276-316 Stainless Steel
9 Lever nut	18-8 Stainless Steel
10 Body seal	PTFE
11 Body	A351-CF8M Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 3"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 3"
-02-	Stem Grounded	1/4" to 3"
-04-	2.25" CS Stem Extension	1/4" to 3"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 3"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-19-	Lock Plate	1/4" to 2"
-21-	UHMWPE Trim (Non-PTFE)	1/4" to 3"
-24-	Graphite Packing	1/4" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 3"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-44-	Seal Welded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 3"
-47-	SS Latch Lock Oval Handle	1/4" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 3"
-50-	2.25" CS Locking Stem Extension	1/4" to 3"
-57-	Oxygen Cleaned	1/4" to 3"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 3"
-64-	250# Steam Trim	1/4" to 3"

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
76-101-01A	1/4"	0.37	1.02	2.05	1.71	3.85	0.50	1.12	0.88	0.34	0.53	0.375	0.234	1.16	0.58
76-102-01A	3/8"	0.37	1.02	2.05	1.71	3.85	0.50	1.12	0.88	0.34	0.53	0.375	0.234	1.16	0.55
76-103-01A	1/2"	0.50	1.12	2.23	1.79	3.85	0.50	1.12	0.90	0.34	0.59	0.375	0.234	1.38	0.63
76-104-01A	3/4"	0.68	1.47	2.96	2.03	4.75	0.87	1.37	1.02	0.42	0.78	0.437	0.256	1.75	1.30
76-105-01A	1"	0.87	1.67	3.34	2.16	4.75	0.87	1.37	1.02	0.42	0.91	0.437	0.256	1.94	1.60

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-14, GRAPH NO. 14

76-100 SERIES

Stainless Steel Ball Valve with Mounting Pad 1.25" - 2"

Female NPT Thread, 1500 CWP (psig). Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



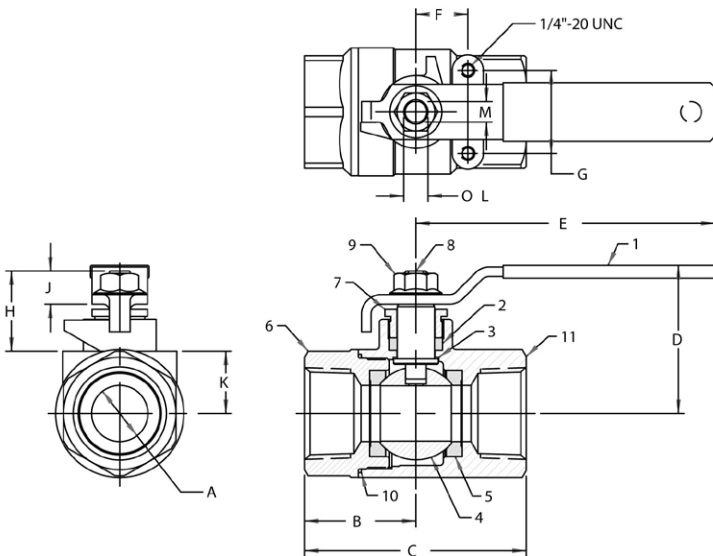
FEATURES

- Investment cast components
- Reinforced seats
- Mounting pad for easy actuator mounting
- Blow-out-proof stem design
- Adjustable packing gland
- Stainless Steel lever and nut

- Fire tested API 607, 6th edition (Requires "24" suffix)
- Meets NACE MR0175 (2000) & MR0103 (2012)
- CSA/CAN 3.16-M88 (2009) (Requires "01" suffix)
- NSF/ANSI 61 (2010) Section 8, Annex F & G
- NSF-372, Drinking Water System Components - Lead Content

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 3"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 3"
-02-	Stem Grounded	1/4" to 3"
-04-	2.25" CS Stem Extension	1/4" to 3"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 3"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-19-	Lock Plate	1/4" to 2"
-21-	UHMWPE Trim (Non-PTFE)	1/4" to 3"
-24-	Graphite Packing	1/4" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 3"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-44-	Seal Welded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 3"
-47-	SS Latch Lock Oval Handle	1/4" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 3"
-50-	2.25" CS Locking Stem Extension	1/4" to 3"
-57-	Oxygen Cleaned	1/4" to 3"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 3"
-64-	250# Steam Trim	1/4" to 3"



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	304 SS w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	A276-316 Stainless Steel
5 Seat (2)	RPTFE
6 Retainer	A351-CF8M Stainless Steel
7 Gland nut	A276-316 Stainless Steel
8 Stem	A276-316 Stainless Steel
9 Lever nut	18-8 Stainless Steel
10 Body seal	PTFE
11 Body	A351-CF8M Stainless Steel

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WT.
76-106-01	1.25"	1.00	2.00	4.00	2.68	5.40	0.94	1.50	1.50	0.60	1.12	0.625	0.377	3.10
76-107-01	1.5"	1.25	2.17	4.34	3.25	7.75	0.94	1.50	1.50	0.60	1.28	0.625	0.377	4.20
76-108-01	2"	1.50	2.69	5.43	3.24	7.75	0.94	1.50	1.46	0.60	1.50	0.625	0.377	6.10

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-13, GRAPH NO. 12



76-100 SERIES

Stainless Steel Ball Valve 2.5" - 3"

Female NPT Thread, 1000 CWP (psig). Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



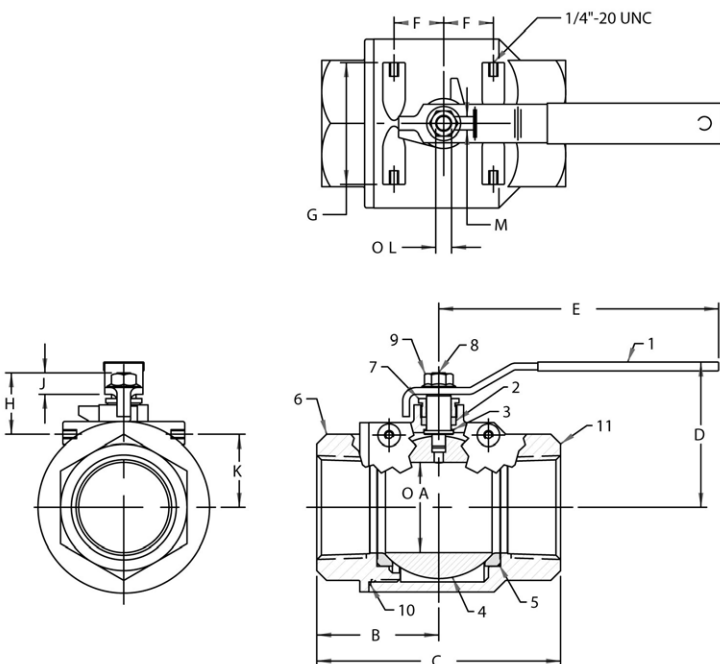
FEATURES

- Investment cast components
- Reinforced seats
- Mounting pad for easy actuator mounting
- Blow-out-proof stem design
- Adjustable packing gland
- Stainless Steel lever and nut

- Fire tested API 607, 6th edition (Requires "24" suffix)
- Meets NACE MR0175 (2000) & MR0103 (2012)
- CSA/CAN 3.16-M88 (2009) (Requires "01" suffix)
- NSF/ANSI 61 (2010) Section 8, Annex F & G
- NSF-372, Drinking Water System Components - Lead Content

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	1/4" to 3"
-04-	2.25" CS Stem Extension	1/4" to 3"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 3"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-19-	Lock Plate	1/4" to 2"
-21-	UHMWPE Trim (Non-PTFE)	1/4" to 3"
-24-	Graphite Packing	1/4" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 3"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-44-	Seal Welded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 3"
-47-	SS Latch Lock Oval Handle	1/4" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 3"
-50-	2.25" CS Locking Stem Extension	1/4" to 3"
-57-	Oxygen Cleaned	1/4" to 3"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 3"
-64-	250# Steam Trim	1/4" to 3"



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	304 SS w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	A276-316 Stainless Steel
5 Seat (2)	RPTFE
6 Retainer	A351-CF8M Stainless Steel
7 Gland nut	A276-316 Stainless Steel
8 Stem	A276-316 Stainless Steel
9 Lever nut	18-8 Stainless Steel
10 Body seal	PTFE
11 Body	A351-CF8M Stainless Steel

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 8

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WT.
76-109-01	2.5"	2.50	3.38	6.75	4.03	7.75	1.38	3.37	1.71	0.60	2.00	0.625	0.377	15.60
76-100-01	3"	2.50	3.38	6.75	4.03	7.75	1.38	3.37	1.71	0.60	2.00	0.625	0.377	16.50

76-AR SERIES

Stainless Steel Std. Port Ball Valve with Actuator Ready ISO Mounting Pad

Female NPT Thread, 1/4"-1" 2000 CWP (psig), 1.25"-2" 1500 CWP (psig), 2.5"-3" 1000 CWP (psig). Cold Non-Shock.
250 psig Saturated Steam. (See referenced P/T chart)
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

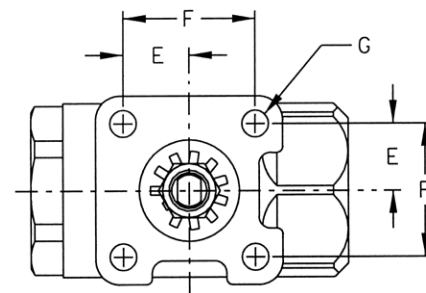
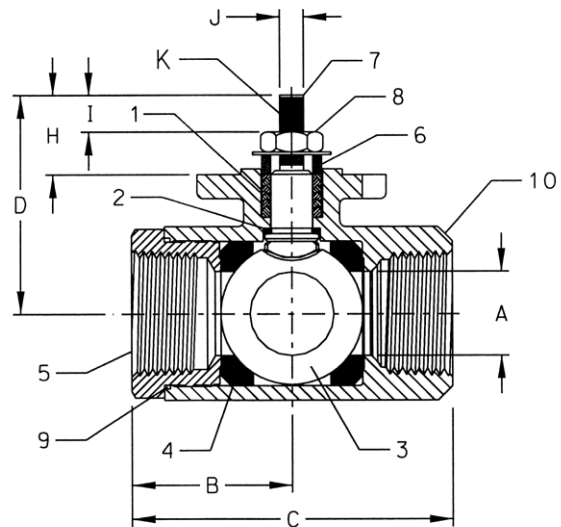
- Multi-piece packing set
- ISO 5211 mounting pad
- Blow-out-proof stem design
- Adjustable packing gland
- Live loaded packing

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-14-	Vented Ball	1/4" to 3"
-24-	Graphite Packing	1/4" to 3"
-27-	Latch Lock Handle	1/4" to 2"
-35-	PTFE Seats	1/4" to 3"
-57-	Oxygen Cleaned	1/4" to 3"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Stem packing	MPTFE
2 Stem bearing	PEEK/PTFE
3 Ball	316 SS
4 Seat (2)	MPTFE
5 Retainer	A276-316 (1/4" to 1") A351-CF8M (1.25" to 3")
6 Gland	A276-316
7 Stem	A276-316
8 Jam nut	SS
9 Body seal	PTFE (1.25" to 3")
10 Body	A351-CF8M



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-14, GRAPH NO. 14
(1/4" TO 1") REFER TO PAGE M-13, GRAPH NO. 12 (1.25" TO 2")
REFER TO PAGE M-12, GRAPH NO. 8 (2.5" TO 3")

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K (THRDS) UNF	WT.
76-AR1-64	1/4"	0.37	1.02	2.04	1.40	0.59	1.17	0.28	0.61	0.25	.247/.249	3/8-24	0.52
76-AR2-64	3/8"	0.37	1.02	2.04	1.40	0.59	1.17	0.28	0.61	0.25	.247/.249	3/8-24	0.48
76-AR3-64	1/2"	0.50	1.12	2.23	1.54	0.59	1.17	0.28	0.61	0.22	.247/.249	3/8-24	0.58
76-AR4-64	3/4"	0.68	1.47	2.96	2.16	0.70	1.39	0.28	0.84	0.33	.247/.249	3/8-24	1.26
76-AR5-64	1"	0.87	1.66	3.34	2.28	0.70	1.39	0.28	0.84	0.32	.247/.249	3/8-24	1.62
76-AR6-64	1.25"	1.00	2.00	4.00	2.98	0.98	1.95	0.34	1.21	0.43	.370/.372	5/8-18	3.22
76-AR7-64	1.5"	1.25	2.18	4.34	3.16	0.98	1.95	0.34	1.16	0.38	.370/.372	5/8-18	4.06
76-AR8-64	2"	1.50	2.75	5.43	3.37	0.98	1.95	0.34	1.16	0.47	.370/.372	5/8-18	6.18
76-AR9-64	2.5"	2.00	3.12	6.25	3.85	0.98	1.95	0.34	1.16	0.41	.370/.372	5/8-18	12.96
76-AR0-64	3"	2.50	3.37	6.75	4.18	0.98	1.95	0.34	1.16	0.55	.370/.372	5/8-18	17.06

76F-100-A SERIES

Stainless Steel Full Port Ball Valve

Female NPT Thread, 1/4"-3" 1000 CWP (psig), Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.

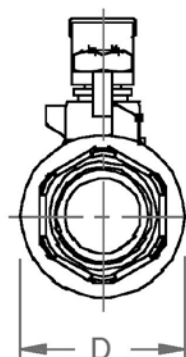
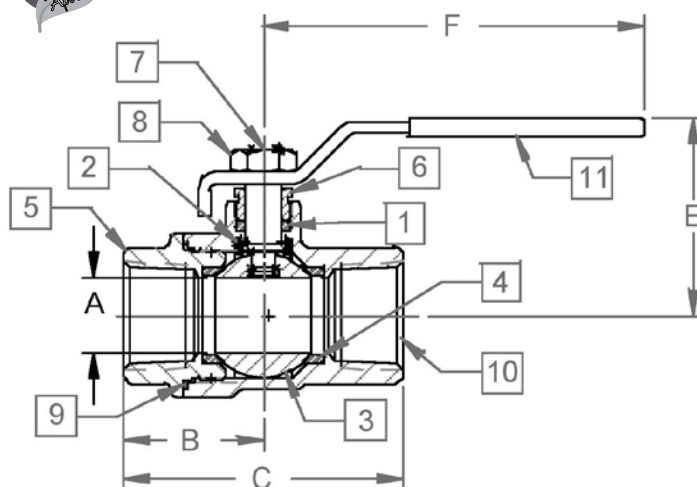


FEATURES

- Investment cast components
- Reinforced seats
- Blow-out-proof stem design
- Adjustable packing gland
- Stainless Steel lever and nut
- Fire tested API 607, 6th edition (Requires "24" suffix)
- Meets NACE MR0175 (2000) & MR0103 (2012)
- CSA/CAN 3.16-M88 (2009) (Requires "01" suffix)
- NSF/ANSI 61 (2010) Section 8, Annex F & G
- NSF-372, Drinking Water System Components - Lead Content

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/2" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/2" to 3"
-02-	Stem Grounded	1/2" to 3"
-04-	2.25" Stem Extension	1/2" to 2"
-08-	90° Reversed Stem	1/2" to 2"
-11-	Therma-Seal™ Insulating Tee Handle	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	3/8" to 3"
-24-	Graphite Packing	1/2" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2"
-30-	Cam-Lock and Grounded	1/2" to 2"
-32-	SS Tee Handle & Nut	1/2" to 2"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/2" to 2"
-40-	Cyl-Loc and Grounded	1/2" to 2"
-44-	Seal Welded	1/4" to 3"
-45-	Less Lever & Nut	1/2" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/2" to 2"
-47-	SS Latch Lock Oval Handle	1/2" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 3"
-56-	Multifill Seats & Packing	1/2" to 3"
-60-	Static Grounded Ball & Stem	1/2" to 3"



STANDARD MATERIAL LIST

PART	MATERIAL
1 Stem packing	MPTFE
2 Stem bearing	RPTFE
3 Ball	A276-316 Stainless Steel
4 Seat (2)	RPTFE
5 Retainer	A351-CF8M Stainless Steel
6 Gland	A276-316 Stainless Steel
7 Stem	A276-316 Stainless Steel
8 Lever nut	304 Stainless Steel
9 Body Seal	RPTFE (1/2" to 2")
10 Body	A351-CF8M
11 Lever and grip	SS w/vinyl

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	WT.
76F-101-01	1/4"	0.37	0.95	1.91	1.12	1.60	3.85	0.47
76F-102-01	3/8"	0.37	0.95	1.91	1.12	1.60	3.85	0.44
76F-103-01A	1/2"	0.50	1.21	2.35	1.27	1.73	3.85	0.57
76F-104-01A	3/4"	0.81	1.39	2.77	1.62	1.96	3.85	0.91
76F-105-01A	1"	1.00	1.67	3.34	2.00	2.27	4.75	1.38
76F-106-01A	1.25"	1.25	1.96	3.92	2.73	3.21	7.77	4.17
76F-107-01A	1.5"	1.50	2.05	4.10	2.92	3.31	7.77	4.69
76F-108-01A	2"	2.00	2.37	4.74	3.75	3.69	7.77	6.90
76F-100-01A	3"	3.00	3.70	7.40	5.68	5.23	10.00	22.40

* LEAD FREE: The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with CA AB1953, VT Act 193, MD HB372, LA HB471 and Federal Public Law 111-380. ANSI 3rd party approved and listed.

**FOR PRESSURE/TEMPERATURE RATINGS,
REFER TO PAGE M-12, GRAPH NO. 8**

76FJ-100-A SERIES

Duplex Stainless Steel Full Port Ball Valve

Female NPT Thread, 1/2"-3" 1000 CWP (psig), Cold Non-Shock, (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Investment cast components
- Reinforced seats
- Two-piece body
- Blow-out-proof stem design
- API 607 Type Design (Requires "24" suffix)
- NSF/ANSI 61 (2010) Section 8, Annex F & G
- Adjustable packing gland
- SS lever and nut
- NSF-372, Drinking Water System Components - Lead Content

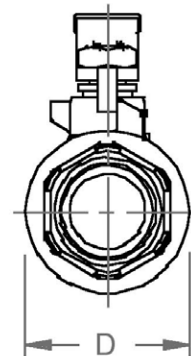
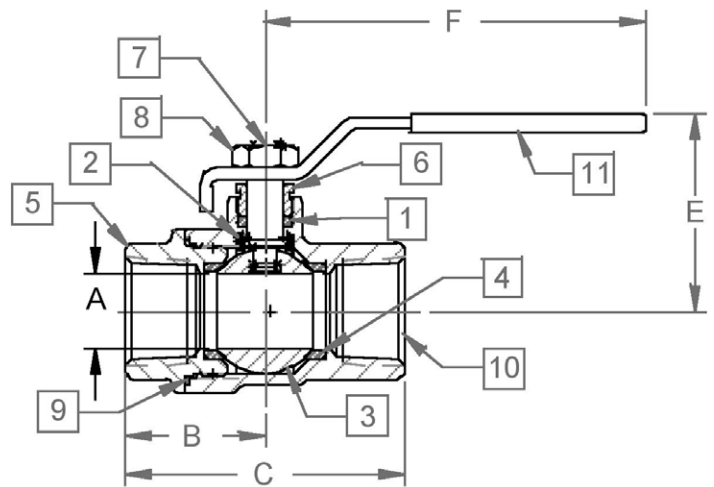
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/2" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/2" to 3"
-02-	Stem Grounded	1/2" to 3"
-04-	2.25" Stem Extension	1/2" to 2"
-08-	90° Reversed Stem	1/2" to 2"
-11-	Therma-Seal™ Insulating Tee Handle	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/2" to 3"
-24-	Graphite Packing	1/2" to 3"
-27-	SS Latch-Lock Lever & Nut	1/2" to 3"
-30-	Cam-Lock and Grounded	1/2" to 2"
-32-	SS Tee Handle & Nut	1/2" to 2"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/2" to 2"
-40-	Cyl-Loc and Grounded	1/2" to 2"
-44-	Seal Welded	1/4" to 3"
-45-	Less Lever & Nut	1/2" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/2" to 2"
-47-	SS Latch Lock Oval Handle	1/2" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/2" to 2"
-49-	Assembled Dry	1/2" to 3"
-56-	Multifill Seats & Packing	1/2" to 3"
-60-	Static Grounded Ball & Stem	1/2" to 3"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Stem packing	MPTFE
2 Stem bearing	RPTFE
3 Ball	ASTM A276/A479 Alloy 2205
4 Seat (2)	RPTFE
5 Retainer	ASTM A995 4A
6 Gland	A276-316 SS
7 Stem	ASTM A276/A479 Alloy 2205
8 Lever nut	304 SS
9 Body Seal	RPTFE (1/2" to 2")
10 Body	ASTM A995 4A
11 Lever and grip	SS w/vinyl

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	WT.
76FJ-101-01	1/4"	0.37	0.95	1.91	1.12	1.60	3.85	0.47
76FJ-102-01	3/8"	0.37	0.95	1.91	1.12	1.60	3.85	0.44
76FJ-103-01A	1/2"	0.50	1.21	2.35	1.27	1.73	3.85	0.57
76FJ-104-01A	3/4"	0.81	1.39	2.77	1.62	1.96	3.85	0.91
76FJ-105-01A	1"	1.00	1.67	3.34	2.00	2.27	4.75	1.38
76FJ-106-01A	1.25"	1.25	1.96	3.92	2.73	3.21	7.77	4.17
76FJ-107-01A	1.5"	1.50	2.05	4.10	2.92	3.31	7.77	4.69
76FJ-108-01A	2"	2.00	2.37	4.74	3.75	3.69	7.77	6.90
76FJ-100-01A	3"	3.00	3.70	7.40	5.68	5.23	10.00	22.40



* LEAD FREE: The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with CA AB1953, VT Act 193, MD HB372, LA HB471 and Federal Public Law 111-380. ANSI 3rd party approved and listed.

**FOR PRESSURE/TEMPERATURE RATINGS,
REFER TO PAGE M-12, GRAPH NO. 8**

76FK-100-A SERIES

Super Duplex Stainless Steel Full Port Ball Valve

Female NPT Thread, 1/2"-3" 1000 CWP (psig), Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Investment cast components
- Reinforced seats
- Two-piece body
- Blow-out-proof stem design
- API 607 Type Design (Requires "24" suffix)
- NSF/ANSI 61 (2010) Section 8, Annex F & G
- Adjustable packing gland
- SS lever and nut
- NSF-372, Drinking Water System Components - Lead Content

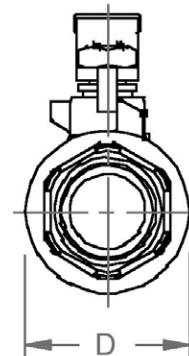
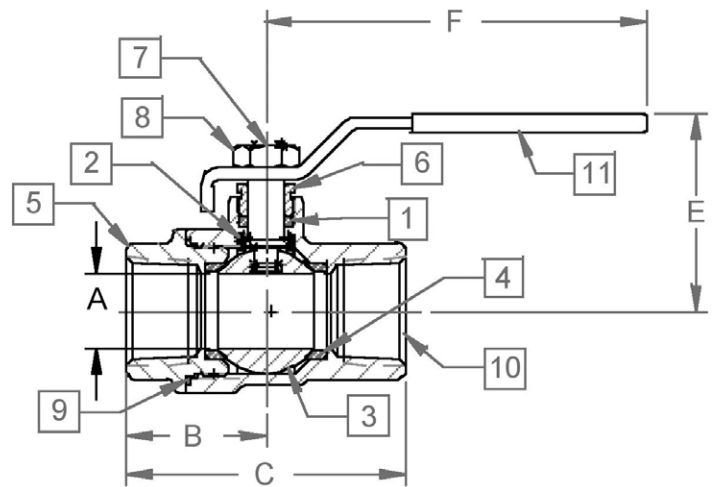
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/2" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/2" to 3"
-02-	Stem Grounded	1/2" to 3"
-04-	2.25" Stem Extension	1/2" to 2"
-08-	90° Reversed Stem	1/2" to 2"
-11-	Therma-Seal™ Insulating Tee Handle	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/2" to 3"
-24-	Graphite Packing	1/2" to 3"
-27-	SS Latch-Lock Lever & Nut	1/2" to 3"
-30-	Cam-Lock and Grounded	1/2" to 2"
-32-	SS Tee Handle & Nut	1/2" to 2"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/2" to 2"
-40-	Cyl-Loc and Grounded	1/2" to 2"
-44-	Seal Welded	1/4" to 3"
-45-	Less Lever & Nut	1/2" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/2" to 2"
-47-	SS Latch Lock Oval Handle	1/2" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/2" to 2"
-49-	Assembled Dry	1/2" to 3"
-56-	Multifill Seats & Packing	1/2" to 3"
-60-	Static Grounded Ball & Stem	1/2" to 3"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Stem packing	MPTFE
2 Stem bearing	RPTFE
3 Ball	ASTM A276/A479 Alloy 2507
4 Seat (2)	RPTFE
5 Retainer	ASTM A995 6A
6 Gland	A276-316 SS
7 Stem	ASTM A276/A479 Alloy 2507
8 Lever nut	304 SS
9 Body Seal	RPTFE (1/2" to 2")
10 Body	ASTM A995 6A
11 Lever and grip	SS w/vinyl

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	WT.
76FK-101-01	1/4"	0.37	0.95	1.91	1.12	1.60	3.85	0.47
76FK-102-01	3/8"	0.37	0.95	1.91	1.12	1.60	3.85	0.44
76FK-103-01A	1/2"	0.50	1.21	2.35	1.27	1.73	3.85	0.57
76FK-104-01A	3/4"	0.81	1.39	2.77	1.62	1.96	3.85	0.91
76FK-105-01A	1"	1.00	1.67	3.34	2.00	2.27	4.75	1.38
76FK-106-01A	1.25"	1.25	1.96	3.92	2.73	3.21	7.77	4.17
76FK-107-01A	1.5"	1.50	2.05	4.10	2.92	3.31	7.77	4.69
76FK-108-01A	2"	2.00	2.37	4.74	3.75	3.69	7.77	6.90
76FK-100-01A	3"	3.00	3.70	7.40	5.68	5.23	10.00	22.40



* LEAD FREE: The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with CA AB1953, VT Act 193, MD HB372, LA HB471 and Federal Public Law 111-380. ANSI 3rd party approved and listed.

**FOR PRESSURE/TEMPERATURE RATINGS,
REFER TO PAGE M-12, GRAPH NO. 8**

76J-100 SERIES

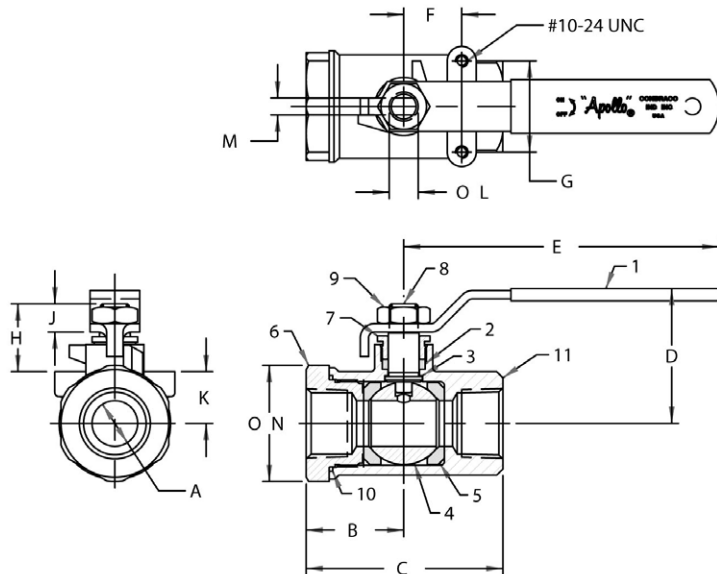
Duplex Stainless Steel Ball Valve with Mounting Pad 1/4" - 1"

Female NPT Thread, 2000 CWP (psig). Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Investment cast components
- Reinforced seats
- Mounting pad for easy actuator mounting
- Blow-out-proof stem design
- NSF-372, Drinking Water System Components - Lead Content
- Adjustable packing gland
- SS lever and nut
- API 607 Type Design (Requires "24" suffix)
- NSF/ANSI 61 (2010) Section 8, Annex F & G



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	304 SS w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	ASTM A276/A479 Alloy 2205
5 Seat (2)	RPTFE
6 Retainer	ASTM A995 4A
7 Gland nut	A276-316
8 Stem	ASTM A276/A479 Alloy 2205
9 Lever nut	18-8 SS
10 Body seal	PTFE
11 Body	ASTM A995 4A

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 3"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 3"
-02-	Stem Grounded	1/4" to 3"
-04-	2.25" CS Stem Extension	1/4" to 3"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 3"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-19-	Lock Plate	1/4" to 2"
-21-	UHMWPE Trim (Non-PTFE)	1/4" to 3"
-24-	Graphite Packing	1/4" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 3"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-44-	Seal Welded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 3"
-47-	SS Latch Lock Oval Handle	1/4" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 3"
-50-	2.25" CS Locking Stem Extension	1/4" to 3"
-57-	Oxygen Cleaned	1/4" to 3"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 3"
-64-	250# Steam Trim	1/4" to 3"

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
76J-101-01A	1/4"	0.37	1.02	2.05	1.71	3.85	0.50	1.12	0.88	0.34	0.53	0.375	0.234	1.16	0.58
76J-102-01A	3/8"	0.37	1.02	2.05	1.71	3.85	0.50	1.12	0.88	0.34	0.53	0.375	0.234	1.16	0.55
76J-103-01A	1/2"	0.50	1.12	2.23	1.79	3.85	0.50	1.12	0.90	0.34	0.59	0.375	0.234	1.38	0.63
76J-104-01A	3/4"	0.68	1.47	2.96	2.03	4.75	0.87	1.37	1.02	0.42	0.78	0.437	0.256	1.75	1.30
76J-105-01A	1"	0.87	1.67	3.34	2.16	4.75	0.87	1.37	1.02	0.42	0.91	0.437	0.256	1.94	1.60

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-14, GRAPH NO. 14



76J-100 SERIES

Duplex Stainless Steel Ball Valve with Mounting Pad 1.25" - 2"

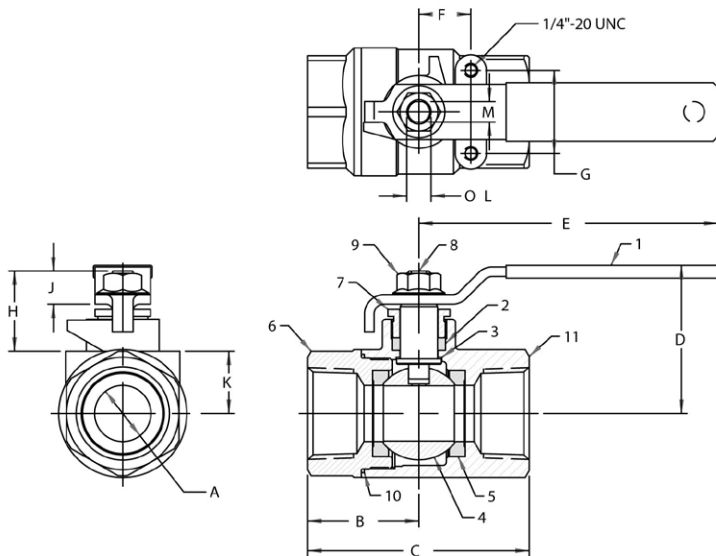
Female NPT Thread, 1500 CWP (psig). Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Investment cast components
- Reinforced seats
- Mounting pad for easy actuator mounting
- Blow-out-proof stem design
- NSF/ANSI 61 (2010) Section 8, Annex F & G

- NSF-372, Drinking Water System Components - Lead Content
- Adjustable packing gland
- SS lever and nut
- API 607 Type Design (Requires "24" suffix)



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	304 SS w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	ASTM A276/A479 Alloy 2205
5 Seat (2)	RPTFE
6 Retainer	ASTM A995 4A
7 Gland nut	A276-316 SS
8 Stem	ASTM A276/A479 Alloy 2205
9 Lever nut	18-8 SS
10 Body seal	PTFE
11 Body	ASTM A995 4A

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 3"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 3"
-02-	Stem Grounded	1/4" to 3"
-04-	2.25" CS Stem Extension	1/4" to 3"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 3"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-19-	Lock Plate	1/4" to 2"
-21-	UHMWPE Trim (Non-PTFE)	1/4" to 3"
-24-	Graphite Packing	1/4" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 3"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-44-	Seal Welded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 3"
-47-	SS Latch Lock Oval Handle	1/4" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 3"
-50-	2.25" CS Locking Stem Extension	1/4" to 3"
-57-	Oxygen Cleaned	1/4" to 3"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 3"
-64-	250# Steam Trim	1/4" to 3"

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WT.
76J-106-01	1.25"	1.00	2.00	4.00	2.68	5.40	0.94	1.50	1.50	0.60	1.12	0.625	0.377	3.10
76J-107-01	1.5"	1.25	2.17	4.34	3.25	7.75	0.94	1.50	1.50	0.60	1.28	0.625	0.377	4.20
76J-108-01	2"	1.50	2.69	5.43	3.24	7.75	0.94	1.50	1.46	0.60	1.50	0.625	0.377	6.10

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-13, GRAPH NO. 12

76J-100 SERIES

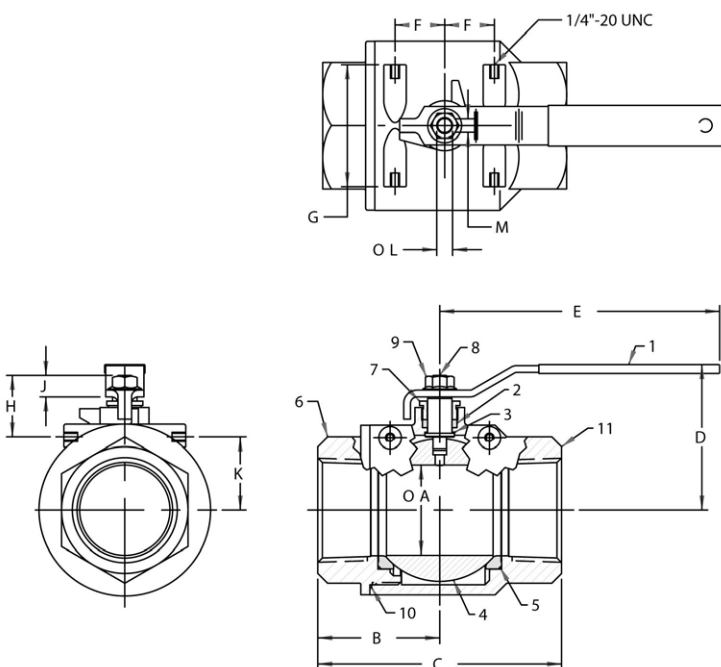
Duplex Stainless Steel Ball Valve 2.5" - 3"

Female NPT Thread, 1000 CWP (psig). Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Investment cast components
- Reinforced seats
- Mounting pad for easy actuator mounting
- Blow-out-proof stem design
- NSF/ANSI 61 (2010) Section 8, Annex F & G
- NSF-372, Drinking Water System Components - Lead Content
- Adjustable packing gland
- SS lever and nut
- API 607 Type Design (Requires "24" suffix)



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	1/4" to 3"
-04-	2.25" CS Stem Extension	1/4" to 3"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 3"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-19-	Lock Plate	1/4" to 2"
-21-	UHMWPE Trim (Non-PTFE)	1/4" to 3"
-24-	Graphite Packing	1/4" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 3"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-44-	Seal Welded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 3"
-47-	SS Latch Lock Oval Handle	1/4" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 3"
-50-	2.25" CS Locking Stem Extension	1/4" to 3"
-57-	Oxygen Cleaned	1/4" to 3"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 3"
-64-	250# Steam Trim	1/4" to 3"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	304 SS w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	ASTM A276/A479 Alloy 2205
5 Seat (2)	RPTFE
6 Retainer	ASTM A995 4A
7 Gland nut	ASTM A276-316 SS
8 Stem	ASTM A276/A479 Alloy 2205
9 Lever nut	18-8 SS
10 Body seal	PTFE
11 Body	ASTM A995 4A

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WT.
76J-109-01	2.5"	2.50	3.38	6.75	4.03	7.75	1.38	3.37	1.71	0.60	2.00	0.625	0.377	15.60
76J-100-01	3"	2.50	3.38	6.75	4.03	7.75	1.38	3.37	1.71	0.60	2.00	0.625	0.377	16.50

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 8



76J-AR SERIES

Duplex Stainless Steel Std. Port Ball Valve with Actuator Ready ISO Mounting Pad

Female NPT Thread, 1/4"-1" 2000 CWP (psig), 1.25"-2" 1500 CWP (psig), 2.5"-3" 1000 CWP (psig). Cold Non-Shock.
250 psig Saturated Steam. (See referenced P/T chart)
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

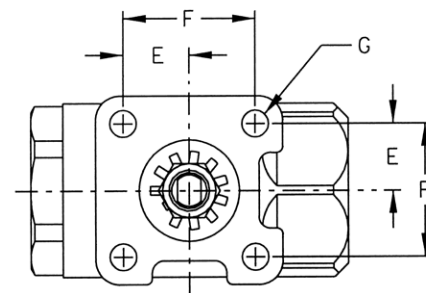
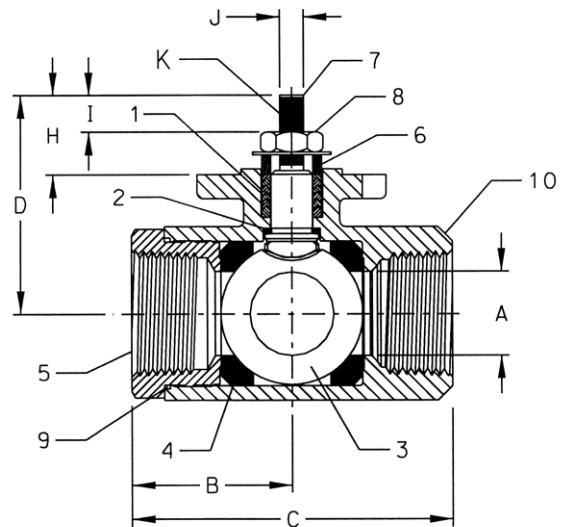
- Multi-piece packing set
- ISO 5211 mounting pad
- Blow-out-proof stem design
- Adjustable packing gland
- Live loaded packing

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-14-	Vented Ball	1/4" to 3"
-24-	Graphite Packing	1/4" to 3"
-27-	Latch Lock Handle	1/4" to 2"
-35-	PTFE Seats	1/4" to 3"
-57-	Oxygen Cleaned	1/4" to 3"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Stem packing	MPTFE
2 Stem bearing	PEEK/PTFE
3 Ball	ASTM A276/A479 Alloy 2205
4 Seat (2)	MPTFE
5 Retainer	ASTM A276/A479 Alloy 2205 (1/4" to 1") ASTM A995 4A (1.25" to 3")
6 Gland	ASTM A276-316
7 Stem	ASTM A276/A479 Alloy 2205
8 Jam nut	SS
9 Body seal	PTFE (1.25" to 3")
10 Body	ASTM A995 4A



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-14, GRAPH NO. 14
(1/4" TO 1") REFER TO PAGE M-13, GRAPH NO. 12 (1.25" TO 2")
REFER TO PAGE M-12, GRAPH NO. 8 (2.5" TO 3")

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K (THRDS) UNF	WT.
76J-AR1-64	1/4"	0.37	1.02	2.04	1.40	0.59	1.17	0.28	0.61	0.25	.247/.249	3/8-24	0.52
76J-AR2-64	3/8"	0.37	1.02	2.04	1.40	0.59	1.17	0.28	0.61	0.25	.247/.249	3/8-24	0.48
76J-AR3-64	1/2"	0.50	1.12	2.23	1.54	0.59	1.17	0.28	0.61	0.22	.247/.249	3/8-24	0.58
76J-AR4-64	3/4"	0.68	1.47	2.96	2.16	0.70	1.39	0.28	0.84	0.33	.247/.249	3/8-24	1.26
76J-AR5-64	1"	0.87	1.66	3.34	2.28	0.70	1.39	0.28	0.84	0.32	.247/.249	3/8-24	1.62
76J-AR6-64	1.25"	1.00	2.00	4.00	2.98	0.98	1.95	0.34	1.21	0.43	.370/.372	5/8-18	3.22
76J-AR7-64	1.5"	1.25	2.18	4.34	3.16	0.98	1.95	0.34	1.16	0.38	.370/.372	5/8-18	4.06
76J-AR8-64	2"	1.50	2.75	5.43	3.37	0.98	1.95	0.34	1.16	0.47	.370/.372	5/8-18	6.18
76J-AR9-64	2.5"	2.00	3.12	6.25	3.85	0.98	1.95	0.34	1.16	0.41	.370/.372	5/8-18	12.96
76J-AR0-64	3"	2.50	3.37	6.75	4.18	0.98	1.95	0.34	1.16	0.55	.370/.372	5/8-18	17.06

76K-100 SERIES

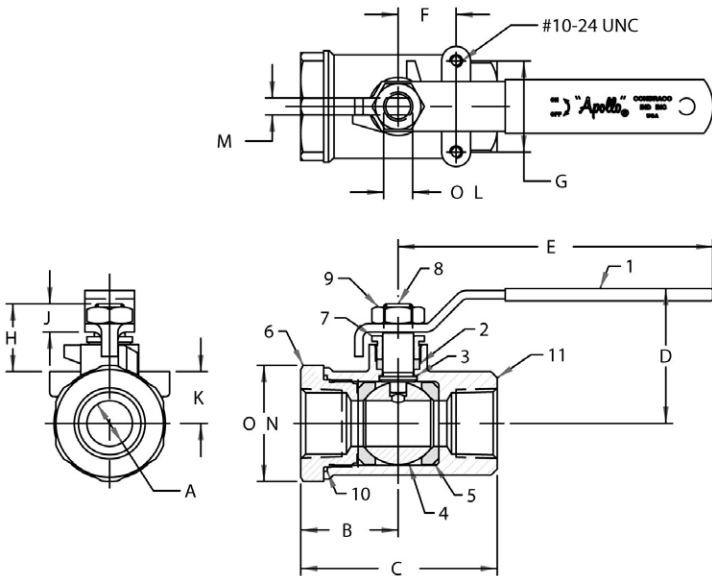
Super Duplex Stainless Steel Ball Valve with Mounting Pad 1/4" - 1"

Female NPT Thread, 2000 CWP (psig). Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Investment cast components
- Reinforced seats
- Mounting pad for easy actuator mounting
- Blow-out-proof stem design
- NSF-372, Drinking Water System Components - Lead Content
- Adjustable packing gland
- SS lever and nut
- API 607 Type Design (Requires "24" suffix)
- NSF/ANSI 61 (2010) Section 8, Annex F & G



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	304 SS w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	ASTM A276/A479 Alloy 2507
5 Seat (2)	RPTFE
6 Retainer	ASTM A995 6A
7 Gland nut	A276-316
8 Stem	ASTM A276/A479 Alloy 2507
9 Lever nut	18-8 SS
10 Body seal	PTFE
11 Body	ASTM A995 6A

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 3"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 3"
-02-	Stem Grounded	1/4" to 3"
-04-	2.25" CS Stem Extension	1/4" to 3"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 3"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-19-	Lock Plate	1/4" to 2"
-21-	UHMWPE Trim (Non-PTFE)	1/4" to 3"
-24-	Graphite Packing	1/4" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 3"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-44-	Seal Welded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 3"
-47-	SS Latch Lock Oval Handle	1/4" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 3"
-50-	2.25" CS Locking Stem Extension	1/4" to 3"
-57-	Oxygen Cleaned	1/4" to 3"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 3"
-64-	250# Steam Trim	1/4" to 3"

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
76K-101-01A	1/4"	0.37	1.02	2.05	1.71	3.85	0.50	1.12	0.88	0.34	0.53	0.375	0.234	1.16	0.58
76K-102-01A	3/8"	0.37	1.02	2.05	1.71	3.85	0.50	1.12	0.88	0.34	0.53	0.375	0.234	1.16	0.55
76K-103-01A	1/2"	0.50	1.12	2.23	1.79	3.85	0.50	1.12	0.90	0.34	0.59	0.375	0.234	1.38	0.63
76K-104-01A	3/4"	0.68	1.47	2.96	2.03	4.75	0.87	1.37	1.02	0.42	0.78	0.437	0.256	1.75	1.30
76K-105-01A	1"	0.87	1.67	3.34	2.16	4.75	0.87	1.37	1.02	0.42	0.91	0.437	0.256	1.94	1.60

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-14, GRAPH NO. 14



76K-100 SERIES

Super Duplex Stainless Steel Ball Valve with Mounting Pad 1.25" - 2"

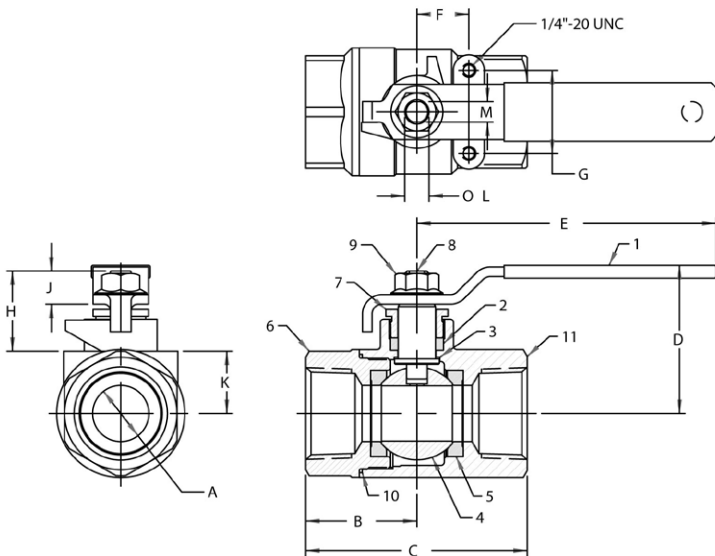
Female NPT Thread, 1500 CWP (psig). Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Investment cast components
- Reinforced seats
- Mounting pad for easy actuator mounting
- Blow-out-proof stem design
- NSF/ANSI 61 (2010) Section 8, Annex F & G

- NSF-372, Drinking Water System Components - Lead Content
- Adjustable packing gland
- SS lever and nut
- API 607 Type Design (Requires "24" suffix)



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	304 SS w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	ASTM A276/A479 Alloy 2507
5 Seat (2)	RPTFE
6 Retainer	ASTM A995 6A
7 Gland nut	A276-316 SS
8 Stem	ASTM A276/A479 Alloy 2507
9 Lever nut	18-8 SS
10 Body seal	PTFE
11 Body	ASTM A995 6A

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 3"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 3"
-02-	Stem Grounded	1/4" to 3"
-04-	2.25" CS Stem Extension	1/4" to 3"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 3"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-19-	Lock Plate	1/4" to 2"
-21-	UHMWPE Trim (Non-PTFE)	1/4" to 3"
-24-	Graphite Packing	1/4" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 3"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-44-	Seal Welded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 3"
-47-	SS Latch Lock Oval Handle	1/4" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 3"
-50-	2.25" CS Locking Stem Extension	1/4" to 3"
-57-	Oxygen Cleaned	1/4" to 3"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 3"
-64-	250# Steam Trim	1/4" to 3"

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WT.
76K-106-01	1.25"	1.00	2.00	4.00	2.68	5.40	0.94	1.50	1.50	0.60	1.12	0.625	0.377	3.10
76K-107-01	1.5"	1.25	2.17	4.34	3.25	7.75	0.94	1.50	1.50	0.60	1.28	0.625	0.377	4.20
76K-108-01	2"	1.50	2.69	5.43	3.24	7.75	0.94	1.50	1.46	0.60	1.50	0.625	0.377	6.10

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-13, GRAPH NO. 12

76K-100 SERIES

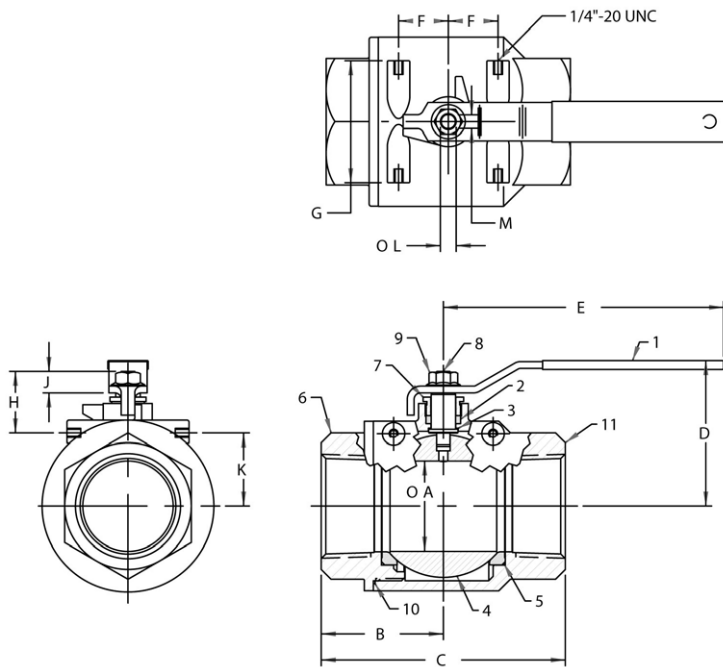
Super Duplex Stainless Steel Ball Valve with Mounting Pad 2.5" - 3"

Female NPT Thread, 1000 CWP (psig). Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Investment cast components
- Reinforced seats
- Mounting pad for easy actuator mounting
- Blow-out-proof stem design
- NSF/ANSI 61 (2010) Section 8, Annex F & G
- NSF-372, Drinking Water System Components - Lead Content
- Adjustable packing gland
- SS lever and nut
- API 607 Type Design (Requires "24" suffix)



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	1/4" to 3"
-04-	2.25" CS Stem Extension	1/4" to 3"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 3"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-19-	Lock Plate	1/4" to 2"
-21-	UHMWPE Trim (Non-PTFE)	1/4" to 3"
-24-	Graphite Packing	1/4" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 3"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-44-	Seal Welded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 3"
-47-	SS Latch Lock Oval Handle	1/4" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 3"
-50-	2.25" CS Locking Stem Extension	1/4" to 3"
-57-	Oxygen Cleaned	1/4" to 3"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 3"
-64-	250# Steam Trim	1/4" to 3"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	304 SS w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	ASTM A276/A479 Alloy 2507
5 Seat (2)	RPTFE
6 Retainer	ASTM A995 6A
7 Gland nut	A276-316 SS
8 Stem	ASTM A276/A479 Alloy 2507
9 Lever nut	18-8 SS
10 Body seal	PTFE
11 Body	ASTM A995 6A

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WT.
76K-109-01	2.5"	2.50	3.38	6.75	4.03	7.75	1.38	3.37	1.71	0.60	2.00	0.625	0.377	15.60
76K-100-01	3"	2.50	3.38	6.75	4.03	7.75	1.38	3.37	1.71	0.60	2.00	0.625	0.377	16.50

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 8



76K-AR SERIES

Super Duplex Stainless Steel Std. Port Ball Valve with Actuator Ready ISO Mounting Pad

Female NPT Thread, 1/4"-1" 2000 CWP (psig), 1.25"-2" 1500 CWP (psig), 2.5"-3" 1000 CWP (psig). Cold Non-Shock.
250 psig Saturated Steam. (See referenced P/T chart)
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

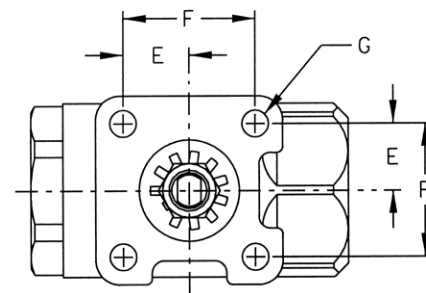
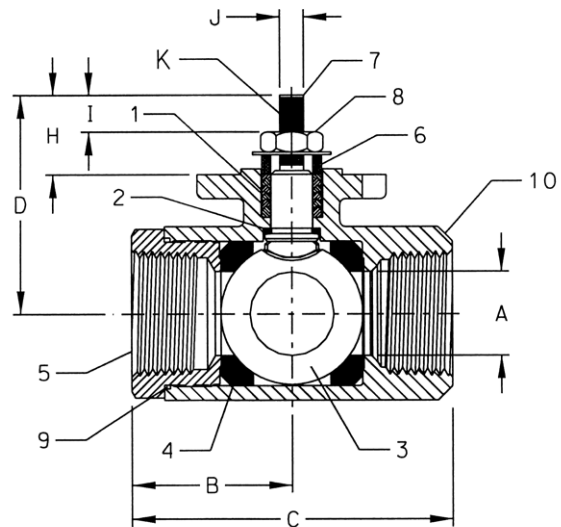
- Multi-piece packing set
- ISO 5211 mounting pad
- Blow-out-proof stem design
- Adjustable packing gland
- Live loaded packing

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-14-	Vented Ball	1/4" to 3"
-24-	Graphite Packing	1/4" to 3"
-27-	Latch Lock Handle	1/4" to 2"
-35-	PTFE Seats	1/4" to 3"
-57-	Oxygen Cleaned	1/4" to 3"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Stem packing	MPTFE
2 Stem bearing	PEEK/PTFE
3 Ball	ASTM A276/A479 Alloy 2507
4 Seat (2)	MPTFE
5 Retainer	ASTM A276/A479 Alloy 2507 (1/4" to 1") ASTM A995 6A (1.25" to 3")
6 Gland	A276-316
7 Stem	ASTM A276/A479 Alloy 2507
8 Jam nut	SS
9 Body seal	PTFE (1.25" to 3")
10 Body	ASTM A995 6A



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-14, GRAPH NO. 14
(1/4" TO 1") REFER TO PAGE M-13, GRAPH NO. 12 (1.25" TO 2")
REFER TO PAGE M-12, GRAPH NO. 8 (2.5" TO 3")

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K (THRDS) UNF	WT.
76K-AR1-64	1/4"	0.37	1.02	2.04	1.40	0.59	1.17	0.28	0.61	0.25	.247/.249	3/8-24	0.52
76K-AR2-64	3/8"	0.37	1.02	2.04	1.40	0.59	1.17	0.28	0.61	0.25	.247/.249	3/8-24	0.48
76K-AR3-64	1/2"	0.50	1.12	2.23	1.54	0.59	1.17	0.28	0.61	0.22	.247/.249	3/8-24	0.58
76K-AR4-64	3/4"	0.68	1.47	2.96	2.16	0.70	1.39	0.28	0.84	0.33	.247/.249	3/8-24	1.26
76K-AR5-64	1"	0.87	1.66	3.34	2.28	0.70	1.39	0.28	0.84	0.32	.247/.249	3/8-24	1.62
76K-AR6-64	1.25"	1.00	2.00	4.00	2.98	0.98	1.95	0.34	1.21	0.43	.370/.372	5/8-18	3.22
76K-AR7-64	1.5"	1.25	2.18	4.34	3.16	0.98	1.95	0.34	1.16	0.38	.370/.372	5/8-18	4.06
76K-AR8-64	2"	1.50	2.75	5.43	3.37	0.98	1.95	0.34	1.16	0.47	.370/.372	5/8-18	6.18
76K-AR9-64	2.5"	2.00	3.12	6.25	3.85	0.98	1.95	0.34	1.16	0.41	.370/.372	5/8-18	12.96
76K-AR0-64	3"	2.50	3.37	6.75	4.18	0.98	1.95	0.34	1.16	0.55	.370/.372	5/8-18	17.06

77-100 SERIES

Bronze Full Port Ball Valve

Female NPT Thread, 600 CWP (psig), Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.

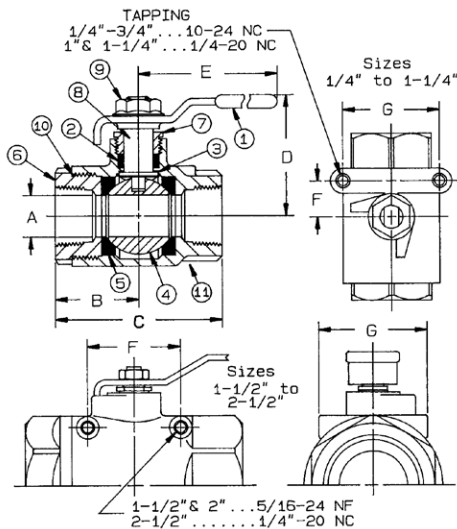


FEATURES

- Two-piece body
- Reinforced seats
- Mounting pad for easy actuator mounting
- Blow-out-proof stem design
- Adjustable packing gland
- Full port for full flow & min. pressure drop

VARIATIONS AVAILABLE

77-140 Series (316 SS Ball & Stem)
77-190 Series (Locked Retainer)



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	B16, chrome plated
5 Seat (2)	RPTFE
6 Retainer	B16 (1/4" to 1") B584-C84400 (1.25" to 2.5")
7 Gland nut	B16
8 Stem	B16
9 Lever nut	Steel, zinc plated
10 Body seal	PTFE (1.25" to 2.5")
11 Body	B584-C84400

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	WT.
77-101-01	1/4"	0.43	1.09	2.18	1.77	3.87	0.50	1.12	0.79
77-102-01	3/8"	0.50	1.09	2.18	1.77	3.87	0.50	1.12	0.75
77-103-01	1/2"	0.50	1.09	2.18	1.77	3.87	0.50	1.12	0.69
77-104-01	3/4"	0.81	1.56	3.12	2.17	4.87	0.87	1.37	1.83
77-105-01	1"	1.00	1.81	3.62	2.68	5.50	0.93	1.50	3.32
77-106-01	1.25"	1.25	2.12	4.25	2.90	5.50	0.93	1.50	5.05
77-107-01	1.5"	1.50	2.37	4.75	3.10	8.00	2.08	3.06	6.71
77-108-01	2"	2.00	2.65	5.37	3.50	8.00	2.41	3.52	11.75
77-109-01	2.5"	2.50	3.25	6.50	4.06	8.00	2.75	3.37	17.25

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2.5"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2.5"
-02-	Stem Grounded	1/4" to 2.5"
-04-	2.25" CS Stem Extension	1/4" to 2.5"
-05-	Plain Ball	1/4" to 2.5"
-07-	Steel Tee Handle	1/4" to 1.25"
-08-	90° Reversed Stem	1/4" to 2.5"
-10-	SS Lever & Nut	1/4" to 2.5"
-11-	Therma-Seal™ Insulating Tee Handle	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2.5"
-15-	Wheel Handle, Steel	1/4" to 1.25"
-16-	Chain Lever - Vertical	3/4" to 2.5"
-17-	Rough Chrome Plated - Bronze Valves	1/4" to 2.5"
-18-	Plain Yellow Grip	1/4" to 2.5"
-20-	Slot Vented Ball	1/4" to 2.5"
-21-	UHMWPE Trim (Non-PTFE)	1/4" to 2.5"
-24-	Graphite Packing	1/4" to 2.5"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2.5"
-28-	Mounting Pad Not Drilled & Tapped	1/4" to 2.5"
-30-	Cam-Lock and Grounded	1/4" to 1.25"
-32-	SS Tee Handle & Nut	1/4" to 1.25"
-35-	PTFE Trim	1/4" to 2.5"
-36-	SS High-Rise Round Handle & Nut	1/4" to 1.25"
-40-	Cyl-Loc and Grounded	1/4" to 1.25"
-45-	Less Lever & Nut	1/4" to 2.5"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 2.5"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 3/4"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 2.5"
-50-	2.25" CS Locking Stem Extension	1/4" to 2.5"
-56-	Multifill Seats & Packing	1/4" to 2.5"
-57-	Oxygen Cleaned	1/4" to 2.5"
-58-	Chain Lever - Horizontal	3/4" to 2.5"
-60-	Static Grounded Ball & Stem	1/4" to 2.5"
-63-	NPT x Solder/Socket Weld	1/4" to 2.5"
-64-	250# Steam Trim	1/4" to 2.5"
-92-	Balancing Stop	1/4" to 2.5"
-94-	2.25" Stem Extension, Balancing Stop	1/4" to 2.5"
-SV-	Safety Vent (H-12)	1/4" to 2"

FOR PRESSURE/TEMPERATURE RATINGS,
REFER TO PAGE M-10, GRAPH NO. 4

77-200 SERIES

Bronze Full Port Solder End Ball Valve

Solder End, 600 CWP (psig), Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.

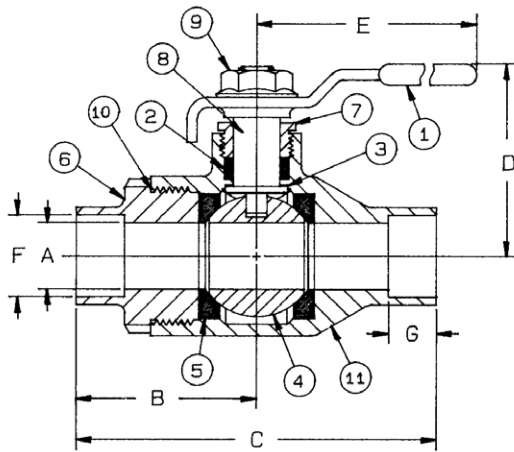


FEATURES

- Two-piece body
- Reinforced seats
- Full port for full flow & min. pressure drop
- Blow-out-proof stem design
- Adjustable packing gland

VARIATIONS AVAILABLE:

77-240 Series (316 SS Ball & Stem)



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	B16 chrome plated
5 Seat (2)	RPTFE
6 Retainer	B16 (3/4" to 1") B584-C84400 (1.25" to 2.5")
7 Gland nut	B16
8 Stem	B16
9 Lever nut	Steel, zinc plated
10 Body seal (1.25" to 2.5")	PTFE
11 Body	B584-C84400

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	3/4" to 2.5"
-04-	2.25" CS Stem Extension	3/4" to 2.5"
-05-	Plain Ball	3/4" to 2.5"
-07-	Steel Tee Handle	3/4" to 1.25"
-08-	90° Reversed Stem	3/4" to 2.5"
-10-	SS Lever & Nut	3/4" to 2.5"
-11-	Therma-Seal™ Insulating Tee Handle	3/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	3/4" to 2.5"
-15-	Wheel Handle, Steel	3/4" to 1.25"
-16-	Chain Lever - Vertical	3/4" to 2.5"
-17-	Rough Chrome Plated - Bronze Valves	3/4" to 2.5"
-20-	Slot Vented Ball	3/4" to 2.5"
-24-	Graphite Packing	3/4" to 2.5"
-27-	SS Latch-Lock Lever & Nut	3/4" to 2.5"
-30-	Cam-Lock and Grounded	3/4" to 1.25"
-32-	SS Tee Handle & Nut	3/4" to 1.25"
-35-	PTFE Trim	3/4" to 2.5"
-40-	Cyl-Loc and Grounded	3/4" to 1.25"
-45-	Less Lever & Nut	3/4" to 2.5"
-46-	Latch Lock Lever - Lock in Closed Position Only	3/4" to 2.5"
-47-	SS Oval Latch-Lock Handle & Nut	3/4" Only
-48-	SS Oval Handle (No Latch) & Nut	3/4" to 2.5"
-49-	Assembled Dry	3/4" to 2.5"
-50-	2.25" CS Locking Stem Extension	3/4" to 2.5"
-56-	Multifill Seats & Packing	3/4" to 2.5"
-57-	Oxygen Cleaned	3/4" to 2.5"
-58-	Chain Lever - Horizontal	3/4" to 2.5"
-60-	Static Grounded Ball & Stem	3/4" to 2.5"
-63-	NPT x Solder/Socket Weld	3/4" to 2.5"
-92-	Balancing Stop	3/4" to 2.5"
-94-	2.25" Stem Extension, Balancing Stop	3/4" to 2.5"

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	WT.
77-204-01	3/4"	0.81	2.28	4.28	2.12	4.87	.878	0.75	1.65
77-205-01	1"	1.00	2.72	4.64	2.62	5.50	1.129	0.90	2.99
77-206-01	1.25"	1.25	2.60	5.15	2.87	5.50	1.378	0.96	4.55
77-207-01	1.5"	1.50	3.00	6.00	3.34	8.00	1.629	1.09	6.04
77-208-01	2"	2.00	3.62	7.24	3.71	8.00	2.129	1.34	10.58
77-209-01	2.5"	2.50	3.93	7.87	4.12	8.00	2.630	1.48	15.53

The 70-200 is designed to be soft soldered into lines without disassembly. This allows a tested valve to be installed without disturbing the seats and seals in any way. Soldering temperature not to exceed 500°F.

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

77-900 SERIES

Bronze Full Port SAE Straight Thread Ball Valve

Straight Threads, 600 CWP (psig), Cold Non-Shock. (See referenced P/T chart)
 150 psig Saturated Steam.
 Vacuum Service to 29 inches Hg.
 MSS SP-110 compliant.

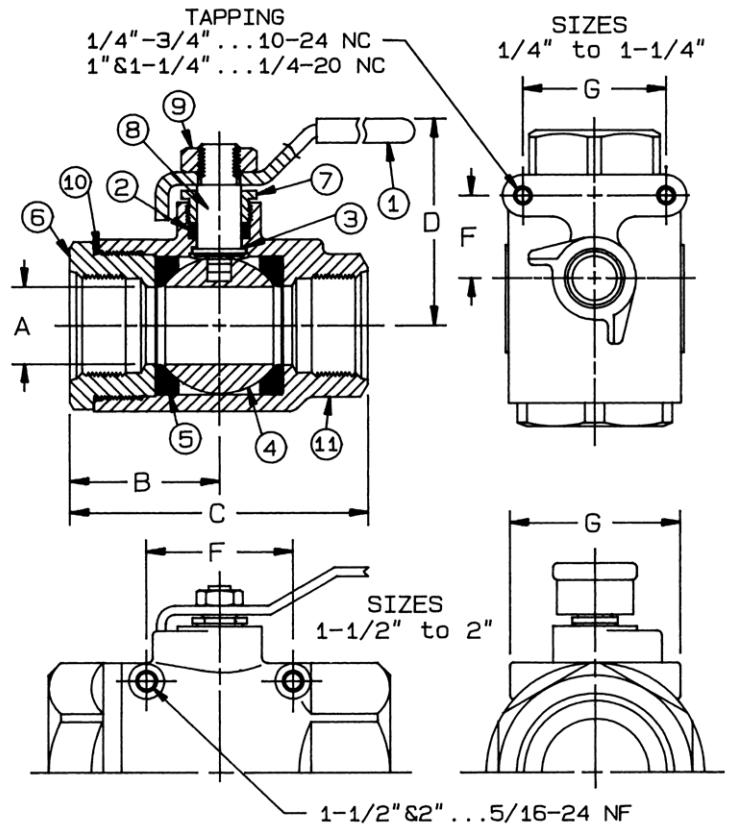


FEATURES

- Two-piece body
- Reinforced seats
- Mounting pad for easy actuator mounting
- Straight thread w/O-Ring boss connection
- Blow-out-proof stem design
- Adjustable packing gland
- Full port for full flow
- SAE J512/J514 Straight Thread O-Ring Boss

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02	Stem Grounded	1/4" to 2"
-04	2.25" CS Stem Extension	1/4" to 2"
-07	Steel Tee Handle	1/4" to 2"
-08	90° Reversed Stem	1/4" to 2"
-10	SS Lever & Nut	1/4" to 2"
-15	Wheel Handle, Steel	1/4" to 2"
-17	Rough Chrome Plated - Bronze Valves	1/4" to 2"
-24	Graphite Packing	1/4" to 2"
-27	SS Latch-Lock Lever & Nut	1/4" to 2"
-30	Cam-Lock and Grounded	1/4" to 2"
-32	SS Tee Handle & Nut	1/4" to 2"
-35	PTFE Trim	1/4" to 2"
-46	Latch Lock Lever - Lock in Closed Position Only	1/4" to 2"
-48	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-50	2.25" CS Locking Stem Extension	1/4" to 2"



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	Brass, chrome plated
5 Seat (2)	RPTFE
6 Retainer	B16 (1/4" to 1") B584-C84400 (1.25" to 2")
7 Gland nut	B16
8 Stem	B16
9 Lever nut	Steel, zinc plated
10 Body seal	PTFE (1.25" to 2")
11 Body	B584-C84400

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

PRODUCT NUMBER	NOM. TUBE OD	SIZE	A	B	C	D	E	F	G	WT.
77-901-01	1/4"	7/16"-20	0.43	1.12	2.25	1.81	3.87	0.50	1.12	0.79
77-902-01	3/8"	9/16"-18	0.50	1.12	2.25	1.81	3.87	0.50	1.12	0.75
77-903-01	1/2"	3/4"-16	0.50	1.12	2.25	1.81	3.87	0.50	1.12	0.69
77-904-01	3/4"	1-1/16"-12	0.81	1.56	3.12	2.12	4.87	0.87	1.37	1.83
77-905-01	1"	1-5/16"-12	1.00	1.81	3.62	2.62	5.50	0.93	1.50	3.32
77-906-01	1.25"	1-5/8"-12	1.25	2.12	4.25	2.87	5.50	0.93	1.50	5.05
77-907-01	1.5"	1-7/8"-12	1.50	2.37	4.75	3.34	8.00	2.09	3.06	6.71
77-908-01	2"	2.5"-12	2.00	2.65	5.37	3.71	8.00	2.41	3.52	11.75

77-AR SERIES

Bronze Full Port Ball Valve with Actuator Ready ISO Mounting Pad

Female NPT Thread, 600 CWP (psig), Cold Non-Shock. (See referenced P/T chart).
250 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

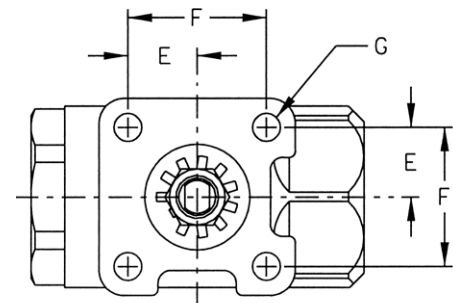
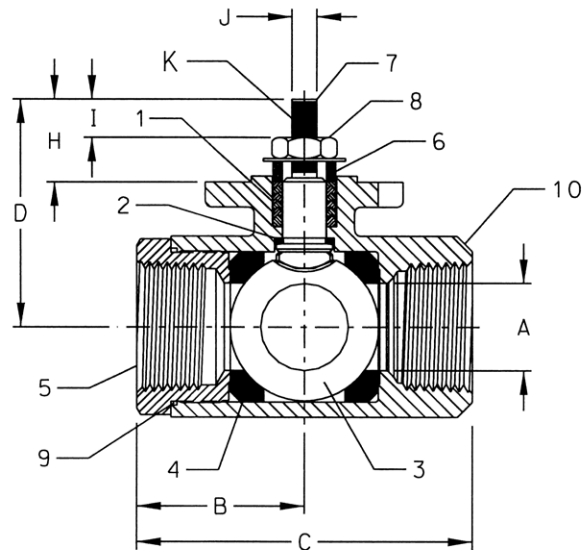
- Multi-piece packing set
- ISO 5211 mounting pad
- Stainless ball & stem
- Blow-out-proof stem design
- Adjustable packing gland
- Live loaded packing

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-14-	Vented Ball	1/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-27-	Latch Lock Handle	1/4" to 2"
-35-	PTFE Seats	1/4" to 2"
-57-	Oxygen Cleaned	1/4" to 2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Stem packing	MPTFE
2	Stem bearing	PEEK/PTFE
3	Ball	316 SS
4	Seat (2)	MPTFE
5	Retainer	B16 (1/4" to 1") B584-C84400 (1.25" to 2")
6	Gland	B16
7	Stem	A276-316
8	Jam nut	SS
9	Body seal	PTFE (1.25" to 2")
10	Body	B584-C84400
11	Belleville washer(s)	Stainless Steel



PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K (THRDS) UNF	WT.
77-AR1-64	1/4"	0.37	1.02	2.18	1.40	0.61	1.17	0.28	0.61	0.23	.247/.249	3/8-24	0.60
77-AR2-64	3/8"	0.37	1.02	2.18	1.40	0.61	1.17	0.28	0.61	0.23	.247/.249	3/8-24	0.57
77-AR3-64	1/2"	0.50	1.12	2.20	1.54	0.61	1.17	0.28	0.61	0.21	.247/.249	3/8-24	0.62
77-AR4-64	3/4"	0.86	1.68	3.12	2.28	0.70	1.39	0.28	0.84	0.31	.247/.249	3/8-24	1.76
77-AR5-64	1"	1.00	1.81	3.62	2.87	0.98	1.95	0.34	1.06	0.40	.370/.372	5/8-18	3.44
77-AR7-64	1.5"	1.50	2.37	4.75	3.37	0.98	1.95	0.34	1.16	0.37	.370/.372	5/8-18	6.25
77-AR8-64	2"	2.00	2.69	5.38	3.86	0.98	1.95	0.34	1.16	0.37	.370/.372	5/8-18	11.72

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

77D-14X-01E SERIES

Bronze Full Port Direct Mount Ball Valve With Actuator Ready ISO Mounting Pad

Female NPT Thread, 600 psig CWP, Cold Non-Shock
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.

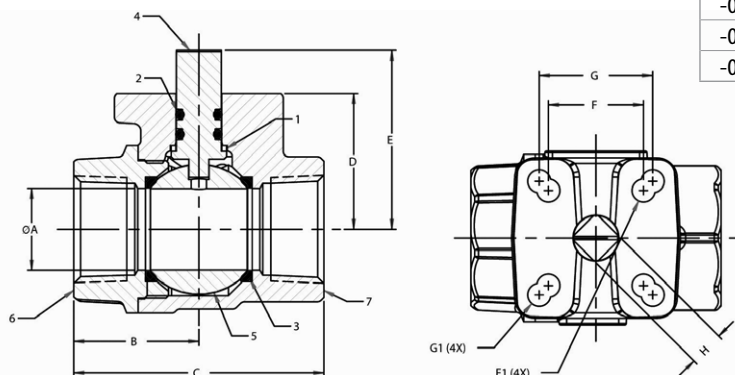


FEATURES

- Blow-out-proof stem design
- Stainless steel ball & stem
- MPTFE seats & bearing
- Dual o-ring stem seal
- Full port for full flow & min. pressure drop
- Direct actuator mounting per ISO 5211

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	MATERIAL	SIZES	TEMP RANGE	STEAM (MAX)
-01E (STD)	EPDM o-ring	1/2" to 2"	-20° to 400°F	150 WSP @ 366°F
-01N	Nitrile o-ring	1/2" to 2"	-20° to 250°F	15 WSP @ 250°F
-01V	Viton o-ring	1/2" to 2"	-20° to 400°F	50 WSP @ 297°F



STANDARD MATERIAL LIST

PART	MATERIAL
1 Stem bearing	MPTFE
2 O-ring (2)	EPDM
3 Seat (2)	MPTFE
4 Stem	A276-316
5 Ball	A276-316/A351-CF8M
6 Retainer	B16 (1/2"-1") B584 C84400 (1.5"-2")
7 Body	B584 C84400

PRODUCT NUMBER	SIZE	A	B	C	D	E	(SQUARE) F	ØF1	(SQUARE) G	ØG1	(DIN SQ) H
77D-143-01E	1/2"	0.50	1.15	2.25	1.00	1.37	0.997	0.224	1.167	0.281	0.275
77D-144-01E	3/4"	0.75	1.33	2.65	1.38	1.79	1.167	0.281	1.392	0.281	0.275
77D-145-01E	1"	1.00	1.54	3.07	1.67	2.20	1.167	0.281	1.392	0.281	0.430
77D-146-01E	1.25"	1.25	2.05	4.09	2.22	2.97	-	-	1.949	0.344	0.551
77D-147-01E	1.5"	1.50	2.12	4.23	2.31	3.05	N/A	N/A	1.949	0.344	0.551
77D-148-01E	2"	2.00	2.43	4.85	2.68	3.43	N/A	N/A	1.949	0.344	0.551

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

89-100 SERIES

Carbon Steel Ball Valve 1/4" - 1"

Female NPT Thread, 2000 CWP (psig). Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.

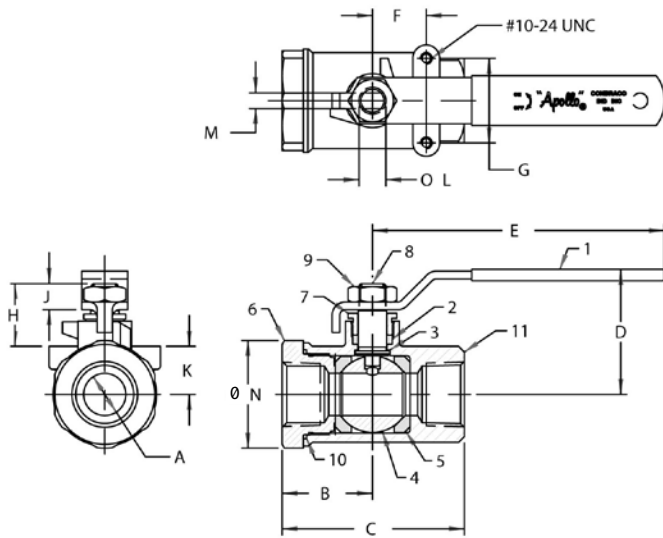


FEATURES

- Investment cast components
- Reinforced seats
- Mounting pad for easy actuator mounting
- Blow-out-proof stem design
- Adjustable packing gland
- Zinc phosphate corrosion protection
- Fire tested API 607, 6th edition (Requires "24" suffix)
- CSA/CAN 3.16-M88 (2009) (Requires "01" suffix)

VARIATIONS AVAILABLE:

89-140 Series (316 SS Ball & Stem)



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	A108-CS chrome plated
5 Seat (2)	RPTFE
6 Retainer	A216-WCB Carbon Steel
7 Gland nut	A108 Carbon Steel
8 Stem	A108 Carbon Steel
9 Lever nut	Steel, zinc plated
10 Body seal	PTFE
11 Body	A216-WCB Carbon Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-02-	Stem Grounded	1/4" to 3"
-04-	2.25" CS Stem Extension	1/4" to 3"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 3"
-10-	SS Lever & Nut	1/4" to 3"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 3"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-18-	Plain Yellow Grip	1/4" to 3"
-19-	Lock Plate	1/4" to 2"
-24-	Graphite Packing	1/4" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 3"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 3"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 1"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 3"
-50-	2.25" CS Locking Stem Extension	1/4" to 3"
-56-	Multifill Seats & Packing	1/4" to 3"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 3"
-64-	250# Steam Trim	1/4" to 3"
-67-	Cleaned for Industrial Gases	1/4" to 3"

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
89-101-01A	1/4"	0.37	1.02	2.05	1.71	3.85	0.50	1.12	0.88	0.34	0.53	0.375	0.234	1.16	0.58
89-102-01A	3/8"	0.37	1.02	2.05	1.71	3.85	0.50	1.12	0.88	0.34	0.53	0.375	0.234	1.16	0.55
89-103-01A	1/2"	0.50	1.12	2.23	1.79	3.85	0.50	1.12	0.90	0.34	0.59	0.375	0.234	1.38	0.63
89-104-01A	3/4"	0.68	1.47	2.96	2.03	4.75	0.87	1.37	1.02	0.42	0.78	0.437	0.256	1.75	1.30
89-105-01A	1"	0.87	1.67	3.34	2.16	4.75	0.87	1.37	1.02	0.42	0.91	0.437	0.256	1.94	1.60

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-14, GRAPH NO. 13

89-100 SERIES

Carbon Steel Ball Valve 1.25" - 2"

Female NPT Thread, 1500 CWP (psig). Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.

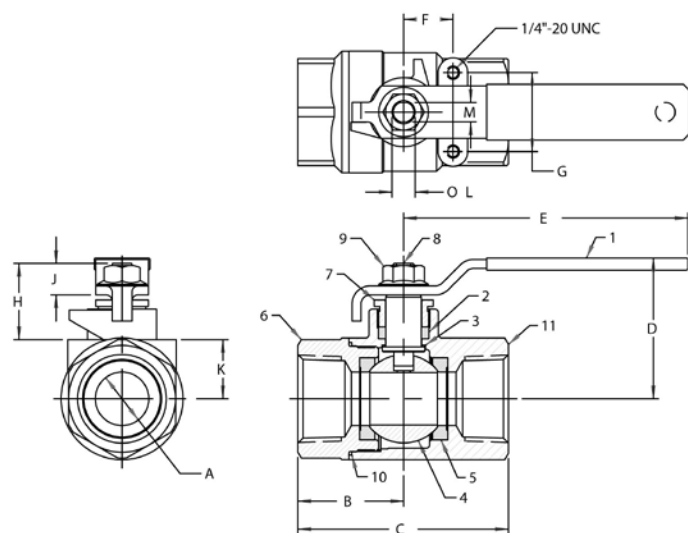


FEATURES

- Investment cast components
- Reinforced seats
- Mounting pad for easy actuator mounting
- Blow-out-proof stem design
- Adjustable packing gland
- Zinc phosphate corrosion protection
- Fire tested API 607, 6th edition (Requires "24" suffix)
- CSA/CAN 3.16-M88 (2009) (Requires "01" suffix)

VARIATIONS AVAILABLE:

89-140 Series (316 SS Ball & Stem)



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Stem packing	MPTFE
3	Stem bearing	RPTFE
4	Ball	A108-CS chrome plated
5	Seat (2)	RPTFE
6	Retainer	A216-WCB Carbon Steel
7	Gland nut	A108 Carbon Steel
8	Stem	A108 Carbon Steel
9	Lever nut	Steel, zinc plated
10	Body seal	PTFE
11	Body	A216-WCB Carbon Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-02-	Stem Grounded	1/4" to 3"
-04-	2.25" CS Stem Extension	1/4" to 3"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 3"
-10-	SS Lever & Nut	1/4" to 3"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 3"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-18-	Plain Yellow Grip	1/4" to 3"
-19-	Lock Plate	1/4" to 2"
-24-	Graphite Packing	1/4" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 3"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 3"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 1"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 3"
-50-	2.25" CS Locking Stem Extension	1/4" to 3"
-56-	Multifill Seats & Packing	1/4" to 3"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 3"
-64-	250# Steam Trim	1/4" to 3"
-67-	Cleaned for Industrial Gases	1/4" to 3"

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WT.
89-106-01	1.25"	1.00	2.00	4.00	2.68	5.40	0.94	1.50	1.50	0.60	1.12	0.625	0.377	3.10
89-107-01	1.5"	1.25	2.17	4.34	3.06	7.75	0.94	1.50	1.50	0.60	1.28	0.625	0.377	4.20
89-108-01	2"	1.50	2.69	5.43	3.26	7.75	0.94	1.50	1.46	0.60	1.50	0.625	0.377	6.10

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-13, GRAPH NO. 11

89-100 SERIES

Carbon Steel Ball Valve 2.5" - 3"

Female NPT Thread, 1000 CWP (psig). Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

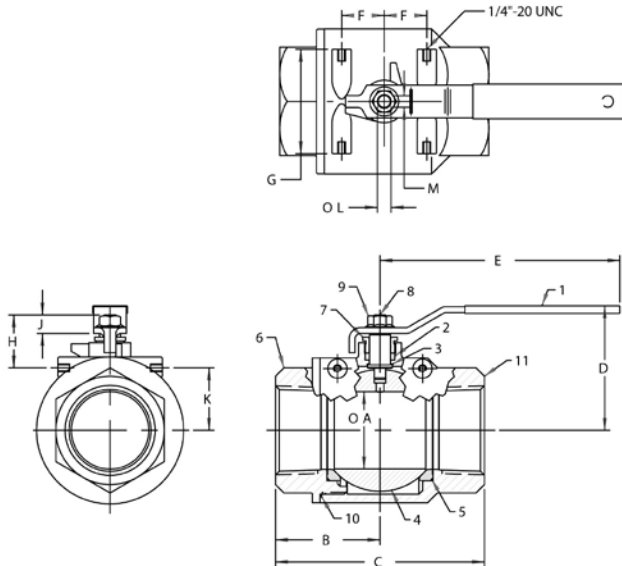
- Investment cast components
- Reinforced seats
- Mounting pad for easy actuator mounting
- Blow-out-proof stem design
- Adjustable packing gland
- Zinc phosphate corrosion protection
- Fire tested API 607, 6th edition (Requires "24" suffix)
- CSA/CAN 3.16-M88 (2009) (Requires "01" suffix)

VARIATIONS AVAILABLE:

89-140 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-02-	Stem Grounded	1/4" to 3"
-04-	2.25" CS Stem Extension	1/4" to 3"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 3"
-10-	SS Lever & Nut	1/4" to 3"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 3"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-18-	Plain Yellow Grip	1/4" to 3"
-19-	Lock Plate	1/4" to 2"
-24-	Graphite Packing	1/4" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 3"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 3"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 1"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 3"
-50-	2.25" CS Locking Stem Extension	1/4" to 3"
-56-	Multifill Seats & Packing	1/4" to 3"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 3"
-64-	250# Steam Trim	1/4" to 3"
-67-	Cleaned for Industrial Gases	1/4" to 3"



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	A108-CS chrome plated
5 Seat (2)	RPTFE
6 Retainer	A216-WCB Carbon Steel
7 Gland nut	A108 Carbon Steel
8 Stem	A108 Carbon Steel
9 Lever nut	Steel, zinc plated
10 Body seal	PTFE
11 Body	A216-WCB Carbon Steel

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WT.
89-109-01	2.5"	2.50	3.38	6.75	4.03	7.75	1.38	3.37	1.71	0.60	2.00	0.625	0.377	15.60
89-100-01	3"	2.50	3.38	6.75	4.03	7.75	1.38	3.37	1.71	0.60	2.00	0.625	0.377	16.50

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 7

89-AR SERIES

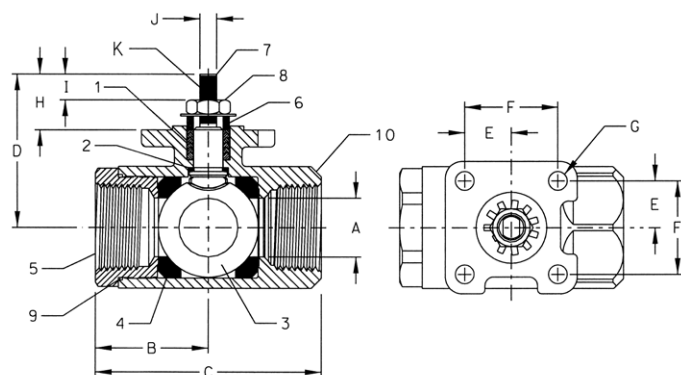
Carbon Steel Std. Port Ball Valve with Actuator Ready ISO Mounting Pad

Female NPT Thread, 1/4"-1" 2000 CWP (psig), 1.25"-2" 1500 CWP (psig), 2.5"-3" 1000 CWP (psig). Cold Non-Shock.
250 psig Saturated Steam. (See referenced P/T chart)
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Multi-piece packing set
- Blow-out-proof stem design
- ISO 5211 mounting pad
- Adjustable packing gland
- Stainless ball & stem
- Live loaded packing



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-14-	Side Vented Ball (Uni-Directional)	1/4" to 3"
-24-	Graphite Packing	1/4" to 3"
-27-	Latch Lock Handle	1/4" to 2"
-35-	PTFE Seats	1/4" to 3"
-65-	Multifill Seats/Graphite Packing	1/4" to 3"
-67-	Cleaned for Industrial Gases - CS Valves	1/4" to 3"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Stem packing	MPTFE
2 Stem bearing	PEEK/PTFE
3 Ball	316 SS
4 Seat (2)	MPTFE
5 Retainer	A108-CS (1/4" to 3")
6 Gland	A276-316
7 Stem	A276-316
8 Jam nut	SS
9 Body seal	PTFE (1.25" to 3")
10 Body	A216-WCB
11 Bellville washer(s)	Stainless Steel

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K (THRDS) UNF	WT.
89-AR1-64	1/4"	0.37	1.02	2.04	1.40	0.59	1.17	0.28	0.61	0.25	.247/.249	3/8-24	0.52
89-AR2-64	3/8"	0.37	1.02	2.04	1.40	0.59	1.17	0.28	0.61	0.25	.247/.249	3/8-24	0.49
89-AR3-64	1/2"	0.50	1.12	2.23	1.54	0.59	1.17	0.28	0.61	0.22	.247/.249	3/8-24	0.58
89-AR4-64	3/4"	0.68	1.47	2.96	2.16	0.70	1.39	0.28	0.84	0.33	.247/.249	3/8-24	1.26
89-AR5-64	1"	0.87	1.66	3.34	2.28	0.70	1.39	0.28	0.84	0.32	.247/.249	3/8-24	1.62
89-AR6-64	1.25"	1.00	2.00	4.00	2.98	0.98	1.95	0.34	1.16	0.43	.370/.372	5/8-18	3.22
89-AR7-64	1.5"	1.25	2.18	4.34	3.16	0.98	1.95	0.34	1.16	0.38	.370/.372	5/8-18	4.06
89-AR8-64	2"	1.50	2.75	5.43	3.37	0.98	1.95	0.34	1.16	0.47	.370/.372	5/8-18	6.18
89-AR9-64	2.5"	2.00	3.12	6.25	3.85	0.98	1.95	0.34	1.16	0.41	.370/.372	5/8-18	13.06
89-AR0-64	3"	2.50	3.37	6.75	4.18	0.98	1.95	0.34	1.16	0.55	.370/.372	5/8-18	17.06

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-14 GRAPH NO. 13
(1/4" TO 1") REFER TO PAGE M-13, GRAPH NO. 11 (1.25" TO 2")
REFER TO PAGE M-12, GRAPH NO. 7 (2.5" TO 3")



399-100 SERIES

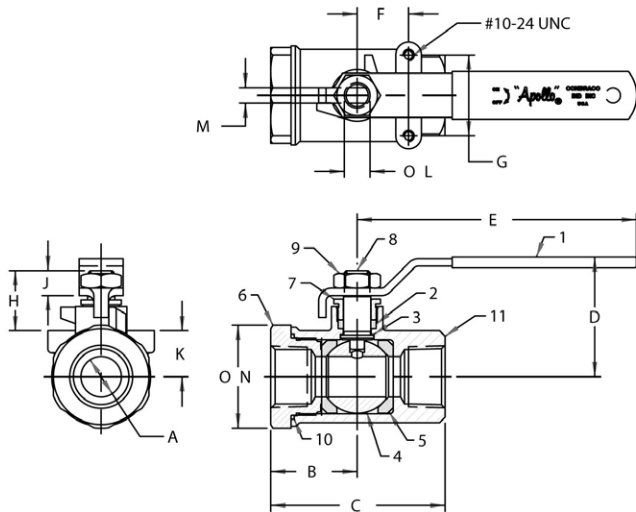
Alloy-20 Ball Valve 1/4" - 1"

Female NPT Thread, 2000 CWP (psig). Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.



FEATURES

- Investment cast components
- Reinforced seats
- Mounting pad for easy actuator mounting
- API 607 Type Design (Requires "24" suffix)
- Blow-out-proof stem design
- Adjustable packing gland
- Meets NACE MR0175 (2000) & MR0103 (2003)



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	304 SS w/vinyl
2	Stem packing	MPTFE
3	Stem bearing	RPTFE
4	Ball	B463-20CB-3
5	Seat (2)	RPTFE
6	Retainer	A351-CN7M
7	Gland nut	316 SS
8	Stem	B473-N08020
9	Lever nut	304 SS
10	Body seal	PTFE
11	Body	A351-CN7M

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-02-	Stem Grounded	1/4" to 2"
-04-	2.25" CS Stem Extension	1/4" to 2"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-18-	Plain Yellow Grip	1/4" to 2"
-19-	Lock Plate	1/4" to 2"
-21-	UHMWPE Trim (Non-PTFE)	1/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2"
-28-	Mounting Pad Not Drilled & Tapped	1/4" to 2"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 2"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 1"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 2"
-50-	2.25" CS Locking Stem Extension	1/4" to 2"
-56-	Multifill Seats & Packing	1/4" to 2"
-57-	Oxygen Cleaned	1/4" to 2"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 2"
-64-	250# Steam Trim	1/4" to 2"

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
399-101-01A	1/4"	0.37	1.02	2.05	1.71	3.85	0.50	1.12	0.88	0.34	0.53	0.375	0.234	1.16	0.58
399-102-01A	3/8"	0.37	1.02	2.05	1.71	3.85	0.50	1.12	0.88	0.34	0.53	0.375	0.234	1.16	0.55
399-103-01A	1/2"	0.50	1.12	2.23	1.79	3.85	0.50	1.12	0.90	0.34	0.59	0.375	0.234	1.38	0.63
399-104-01A	3/4"	0.75	1.47	2.96	2.03	4.75	0.87	1.37	1.02	0.42	0.78	0.437	0.256	1.75	1.30
399-105-01A	1"	1.00	1.67	3.34	2.16	4.75	0.87	1.37	1.02	0.42	0.91	0.437	0.256	1.94	1.60

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-17, GRAPH NO. 20

399-100 SERIES

Alloy-20 Ball Valve 1.25" - 2"

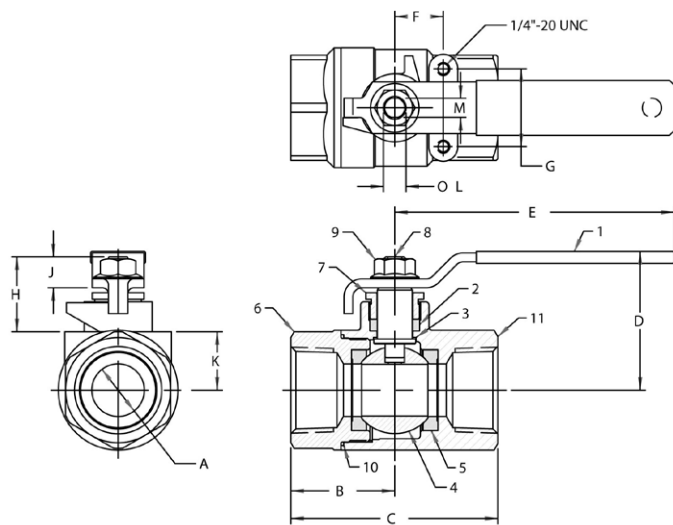
Female NPT Thread, 1500 CWP (psig). Cold Non-Shock. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.



FEATURES

- Investment cast components
- Reinforced seats
- Mounting pad for easy actuator mounting
- API 607 Type Design (Requires "24" suffix)

- Blow-out-proof stem design
- Adjustable packing gland
- Meets NACE MR0175 (2000) & MR0103 (2003)



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	304 SS w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	B463-20CB-3
5 Seat (2)	RPTFE
6 Retainer	A351-CN7M
7 Gland nut	316 SS
8 Stem	B473-N08020
9 Lever nut	304 SS
10 Body seal	PTFE
11 Body	A351-CN7M

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-02-	Stem Grounded	1/4" to 2"
-04-	2.25" CS Stem Extension	1/4" to 2"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-18-	Plain Yellow Grip	1/4" to 2"
-19-	Lock Plate	1/4" to 2"
-21-	UHMWPE Trim (Non-PTFE)	1/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2"
-28-	Mounting Pad Not Drilled & Tapped	1/4" to 2"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 2"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 1"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 2"
-50-	2.25" CS Locking Stem Extension	1/4" to 2"
-56-	Multifill Seats & Packing	1/4" to 2"
-57-	Oxygen Cleaned	1/4" to 2"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 2"
-64-	250# Steam Trim	1/4" to 2"

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WT.
399-106-01	1.25"	1.00	2.00	4.00	2.68	5.40	0.94	1.50	1.50	0.60	1.12	0.625	0.377	3.10
399-107-01	1.5"	1.25	2.17	4.34	3.08	7.75	0.94	1.50	1.50	0.60	1.28	0.625	0.377	4.20
399-108-01	2"	1.50	2.69	5.43	3.26	7.75	0.94	1.50	1.46	0.60	1.50	0.625	0.377	6.10

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-17, GRAPH NO. 19

SECTION A – TWO PIECE BALL VALVES



Throughout this catalog, products that have a Lead Free* option will be identified with this logo.

* LEAD FREE: The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with CA AB1953, VT Act 193, MD HB372, LA HB471 and Federal Public Law 111-380. ANSI 3rd party approved and listed.

**Any imported products are clearly identified as "Apollo International".

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(continued on next page)

SECTION B – THREE PIECE BALL VALVES

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Throughout this catalog, products that have a Lead Free* option will be identified with this logo.

* LEAD FREE: The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with CA AB1953, VT Act 193, MD HB372, LA HB471 and Federal Public Law 111-380. ANSI 3rd party approved and listed.

**Any imported products are clearly identified as "Apollo International".

82-100/82A-140 SERIES

Bronze 3-Piece Full Port Ball Valve

Female NPT Thread, 82-100 & 82-140: 600 CWP (psig), 150 SWP (psig). 82A-140: 400 CWP (psig), 150 SWP (psig).
 Vacuum Service to 29 inches Hg.
 MSS SP-110 compliant.
 CRN: OC10908.5C



FEATURES

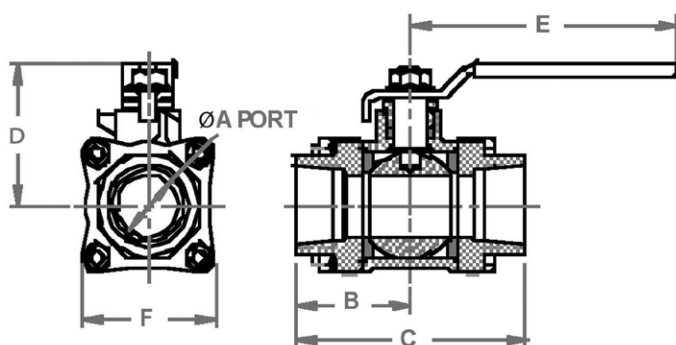
- Adjustable packing gland
- Blow-out-proof stem design
- Reinforced seats
- Inline repairable
- Full port ball configuration

VARIATIONS AVAILABLE:

82-100 Series Standard
 82-140 Series 316 SS Ball & Stem
 82A-140 Series 3" & 4" Only (No Options Available)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 4"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 4"
-02-	Static Grounded	1/4" to 4"
-04-	2.25" Stem Extension	1/4" to 2"
-05-	Plain Ball	1/4" to 4"
-07-	Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 4"
-10-	SS Lever & Nut	1/4" to 4"
-11-	Therma-Seal™ Insulating Tee Handle	1/4" to 2"
-14-	Vented Ball	1/4" to 4"
-15-	Round Handle	1/4" to 2"
-16-	Vertical Chain Lever	1/2" to 2"
-18-	Plain Yellow Grip	1/4" to 2"
-19-	Lock plate	1/4" to 2"
-20-	Slot Vented Ball	1/4" to 4"
-21-	UHMWPE Seats	1/4" to 4"
-23-	Tank Flange (2" only)	2" ONLY
-24-	Graphite Stem Packing	1/4" to 4"
-27-	Latch Lock Lever	1/2" to 2.5"
-30-	CamLock Handle	1/4" to 1.25"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 4"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 1.25"
-40-	Cyl-Loc & Grounded	1/4" to 1/2"
-45-	Less Lever & Nut	1/4" to 4"
-46-	Latch-Lock Lever - Lock in Closed Position Only	1/2" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 3/4"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 4"
-50-	2.25" CS Locking Stem Extension	1/4" to 2"
-56-	Multifill Seats	1/4" - 4"
-57-	Oxygen Cleaned	1/4" to 4"
-58-	Chain Lever - Horizontal	1/2" to 2"
-59-	SS External Trim	1/4" to 4"
-60-	Grounded Ball & Stem	1/4" to 4"
-63-	NPT x Solder	3/8" to 4"
-92-	Balancing Stop	1/4" to 2"



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE (Chevron style PTFE 82A 3" & 4")
3 Stem bearing	RPTFE
4 Ball	ASTM B16 (Brass), chrome plated (1/4"-2.5") ASTM 276-316 SS (3"-4")
5 Seat (2)	RPTFE
6 End cap (2)	B16 (1/4" to 3/8"), B584-C84400 (1/2"-4")
7 Gland nut	B16 (Brass)
8 Stem	ASTM B16 (Brass), ASTM 276-316 SS (1/2"-4")
9 Lever nut	Steel, zinc plated
10 Body bolt	Steel, zinc plated
11 Hex nut	Steel, zinc plated
12 Body	ASTM B584-C84400 (Bronze)

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	WT.
82-101-01	1/4"	0.43	1.28	2.56	1.81	3.87	1.60	1.02
82-102-01	3/8"	0.50	1.28	2.56	1.81	3.87	1.60	1.04
82-103-01	1/2"	0.62	1.40	2.81	1.93	4.87	1.78	1.55
82-104-01	3/4"	0.81	1.71	3.43	2.18	4.87	1.98	2.27
82-105-01	1"	1.00	1.93	3.87	2.62	5.50	2.22	3.28
82-106-01	1.25"	1.25	2.37	4.75	2.87	5.50	2.70	5.62
82-107-01	1.5"	1.50	2.62	5.25	3.37	8.00	3.03	8.07
82-108-01	2"	2.00	3.01	6.03	3.68	8.00	3.87	14.42
82-109-01	2.5"	2.50	3.62	7.25	5.14	9.75	5.05	26.61
82A-140-01	3"	3.00	4.18	8.37	8.10	19.13	5.82	43.00
82A-14A-01	4"	4.00	5.43	10.86	8.88	19.13	7.77	106.00

FOR PRESSURE/TEMPERATURE RATINGS,
 REFER TO PAGE M-10, GRAPH NO. 4



82LF-100/82ALF-140 SERIES

Lead Free* Bronze 3-Piece Full Port Ball Valve

Female NPT Thread, 82LF-100 & 82LF-140: 600 CWP (psig), 150 SWP (psig). 82ALF-140: 400 CWP (psig), 150 SWP (psig).
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.
CRN: OC10908.5C



FEATURES

- Adjustable packing gland
- Blow-out-proof stem design
- Reinforced seats
- Easily identifiable blue tag
- Inline repairable
- Full port ball configuration
- Lead Free* brass & bronze materials

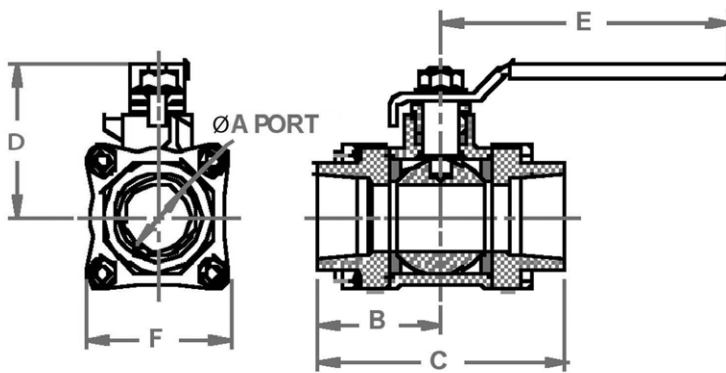
- Design manufactured and 100% tested in the USA

VARIATIONS AVAILABLE:

82LF-100 Series	Standard
82LF-140 Series	316 SS Ball & Stem
82ALF-140 Series	3" & 4" Only (No Options Available)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/4" to 2"
-07-	Tee Handle	1/4" to 2"
-10-	SS Lever & Nut	1/4" to 4"
-11-	Therma-Seal™ Insulating Tee Handle	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-27-	Latch Lock Lever	1/2" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 1.25"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 3/4"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-50-	2.25" CS Locking Stem Extension	1/4" to 2"
-59-	SS External Trim - 3-pc. Valves	1/4" to 4"
-63-	NPT x Solder	3/8" to 4"



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE (Chevron style PTFE 82A 3" & 4")
3 Stem bearing	RPTFE
4 Ball	C27451 Lead Free*, chrome plated (1/4"-2.5") ASTM A276-316 SS (3"-4")
5 Seat (2)	RPTFE
6 End cap (2)	C27451 (1/4" to 3/8"), C89836 (1/2"-4")
7 Gland nut	B16 (Brass)
8 Stem	C27451 Lead Free* brass, ASTM 276-316 SS (3"-4")
9 Lever nut	Steel, zinc plated
10 Body bolt	Steel, zinc plated
11 Hex nut	Steel, zinc plated
12 Body	C89836 Lead Free* bronze

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	WT.
82LF-101-01	1/4"	0.43	1.28	2.56	1.81	3.87	1.60	1.02
82LF-102-01	3/8"	0.50	1.28	2.56	1.81	3.87	1.60	1.04
82LF-103-01	1/2"	0.62	1.40	2.81	1.93	4.87	1.78	1.55
82LF-104-01	3/4"	0.81	1.71	3.43	2.18	4.87	1.98	2.27
82LF-105-01	1"	1.00	1.93	3.87	2.62	5.50	2.22	3.28
82LF-106-01	1.25"	1.25	2.37	4.75	2.87	5.50	2.70	5.62
82LF-107-01	1.5"	1.50	2.62	5.25	3.37	8.00	3.03	8.07
82LF-108-01	2"	2.00	3.01	6.03	3.68	8.00	3.87	14.42
82LF-109-01	2.5"	2.50	3.62	7.25	5.14	9.75	5.05	26.61
82ALF-140-01	3"	3.00	4.18	8.37	8.10	19.13	5.82	43.00
82ALF-14A-01	4"	4.00	5.43	10.86	8.88	19.13	7.77	106.00



* LEAD FREE: The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with CA AB1953, VT Act 193, MD HB372, LA HB471 and Federal Public Law 111-380. ANSI 3rd party approved and listed.

**FOR PRESSURE/TEMPERATURE RATINGS,
REFER TO PAGE M-10, GRAPH NO. 4**

82-200/82A-240 SERIES

Bronze 3-Piece Full Port Ball Valve

Solder End, 82-200 & 82-240: 600 CWP (psig), 150 SWP (psig). 82A-240: 400 CWP (psig), 150 SWP (psig).
 Vacuum Service to 29 inches Hg.
 MSS SP-110 compliant.
 CRN: OC10908.5C

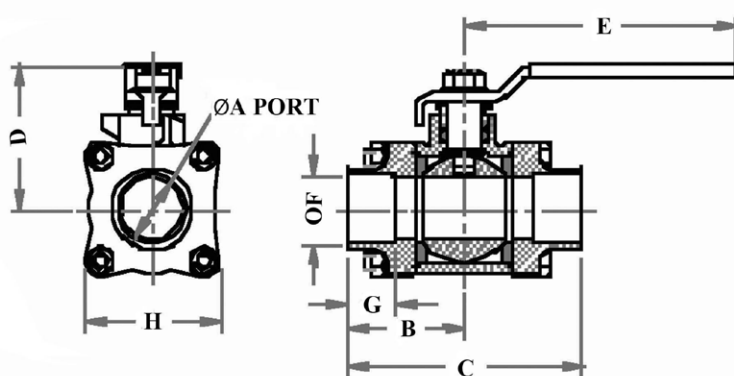


FEATURES

- Adjustable packing gland
- Blow-out-proof stem design
- Reinforced seats
- Inline repairable
- Full port ball configuration

VARIATIONS AVAILABLE:

82-200 Series Standard
 82-240 Series 316 SS Ball & Stem
 82A-240 Series 3" & 4" Only (No Options Available)



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Stem packing	MPTFE (Chevron style PTFE 82A 3" & 4")
3	Stem bearing	RPTFE
4	Ball	ASTM B16 (Brass), chrome plated (1/4" - 2.5") ASTM 276-316 SS (3" - 4")
5	Seat (2)	RPTFE
6	End cap (2)	B16 (1/4" to 3/8"), B584-C84400 (1/2" - 4")
7	Gland nut	B16 (Brass)
8	Stem	ASTM B16 (Brass), ASTM 276-316 SS (3" - 4")
9	Lever nut	Steel, zinc plated
10	Body bolt	Steel, zinc plated
11	Hex nut	Steel, zinc plated
12	Body	ASTM B584-C84400 (Bronze)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Static Grounded	3/8" to 4"
-04-	2.25" Stem Extension	3/8" to 2"
-05-	Plain Ball	3/8" to 4"
-07-	Tee Handle	3/8" to 2"
-08-	90° Reversed Stem	3/8" to 4"
-10-	SS Lever & Nut	3/8" to 4"
-11-	Therma-Seal™ Insulating Tee Handle	1/4" to 2"
-14-	Vented Ball	3/8" to 4"
-15-	Round Handle	3/8" to 2"
-16-	Vertical Chain Lever	1/2" to 2"
-18-	Plain Yellow Grip	3/8" to 2"
-19-	Lock plate	3/8" to 2"
-20-	Slot Vented Ball	3/8" to 4"
-21-	UHMWPE Seats	3/8" to 4"
-23-	Tank Flange	2" ONLY
-24-	Graphite Stem Packing	3/8" to 4"
-27-	Latch Lock Lever	1/2" to 2"
-30-	CamLock Handle	3/8" to 1.25"
-32-	SS Tee Handle & Nut	3/8" to 2"
-35-	PTFE Trim	3/8" to 4"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	3/8" to 1.25"
-40-	Cyl-Loc & Grounded	3/8" to 1/2"
-45-	Less Lever & Nut	3/8" to 4"
-46-	Latch-Lock Lever - Lock in Closed Position Only	1/2" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	3/8" to 3/4"
-48-	SS Oval Handle (No Latch) & Nut	3/8" to 2"
-49-	Assembled Dry	3/8" to 4"
-50-	2.25" CS Locking Stem Extension	3/8" to 2"
-56-	Multifill Seats	3/8" - 4"
-57-	Oxygen Cleaned	3/8" to 4"
-58-	Chain Lever - Horizontal	3/8" to 2"
-59-	SS External Trim - 3-pc. Valves	3/8" to 4"
-60-	Grounded Ball & Stem	3/8" to 4"
-92-	Balancing Stop	3/8" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	WT.
82-202-01	3/8"	0.44	1.28	2.56	1.81	3.87	0.50	0.38	1.60	1.04
82-203-01	1/2"	0.56	1.40	2.81	1.93	4.87	0.63	0.50	1.78	1.55
82-204-01	3/4"	0.83	1.71	3.43	2.18	4.87	0.88	0.75	1.98	2.27
82-205-01	1"	1.00	1.93	3.87	2.62	5.50	1.13	0.90	2.22	3.28
82-206-01	1.25"	1.25	2.37	4.75	2.87	5.50	1.38	0.97	2.70	5.62
82-207-01	1.5"	1.50	2.62	5.25	3.37	8.00	1.63	1.09	3.03	8.07
82-208-01	2"	2.00	3.01	6.03	3.68	8.00	2.13	1.34	3.87	14.42
82-209-01	2.5"	2.50	3.62	7.25	5.14	9.75	2.63	1.47	5.05	26.61
82A-240-01	3"	3.00	4.18	8.37	8.10	19.13	3.13	1.66	5.82	43.00
82A-24A-01	4"	4.00	5.43	10.86	8.88	19.13	4.13	2.16	7.77	106.00



82LF-200/82ALF-240 SERIES

 **Lead Free* Bronze 3-Piece Full Port Ball Valve**

Solder End, 82LF-200 & 82LF-240: 600 CWP (psig). 150 SWP (psig). 82ALF-240: 400 CWP (psig). 150 SWP (psig).
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.
CRN: OC10908.5C



FEATURES

- Adjustable packing gland
- Blow-out-proof stem design
- Reinforced seats
- Easily identifiable blue tag
- Inline repairable
- Full port ball configuration
- Lead Free* brass & bronze materials

- Designed, manufactured and 100% tested

VARIATIONS AVAILABLE:

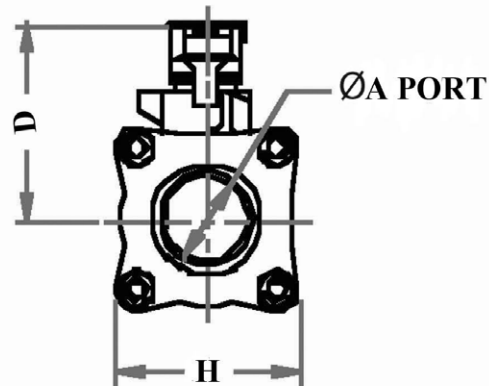
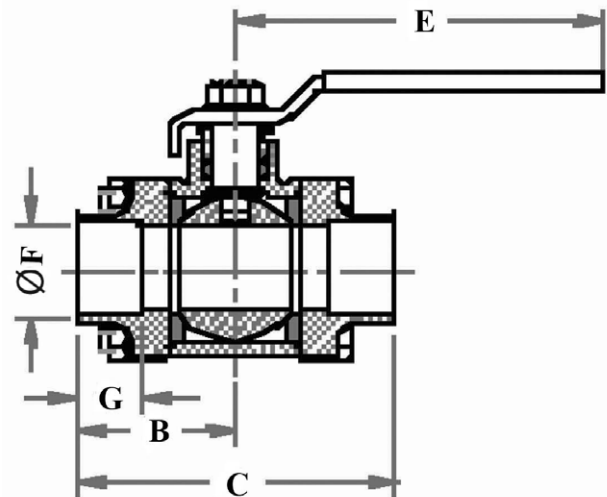
82LF-200 Series	Standard
82LF-240 Series	316 SS Ball & Stem
82ALF-240 Series	3" & 4" Only (No Options Available)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04	2.25" Stem Extension	3/8" to 2"
-07	Tee Handle	3/8" to 2"
-10	SS Lever & Nut	3/8" to 4"
-11	Therma-Seal™ Insulating Tee Handle	1/4" to 2"
-15	Round Handle	3/8" to 2"
-27	Latch Lock Lever	1/2" to 2"
-32	SS Tee Handle & Nut	3/8" to 2"
-39	SS Hi-Rise Locking Wheel Handle, SS Nut	3/8" to 1.25"
-47	SS Oval Latch-Lock Handle & Nut	3/8" to 3/4"
-48	SS Oval Handle (No Latch) & Nut	3/8" to 2"
-50	2.25" CS Locking Stem Extension	3/8" to 2"
-57	Oxygen Cleaned	3/8" to 4"
-59	SS External Trim - 3-pc. Valves	3/8" to 4"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE (Chevron style PTFE 82A 3" & 4")
3 Stem bearing	RPTFE
4 Ball	C27451 Lead Free* (Brass), chrome plated (1/4"-2.5") ASTM 276-316 SS (3"-4")
5 Seat (2)	RPTFE
6 End cap (2)	C27451 (1/4" to 3/8"), C89836 (1/2"-4")
7 Gland nut	B16 (Brass)
8 Stem	C27451 Lead Free* (Brass), ASTM 276-316 SS (3"-4")
9 Lever nut	Steel, zinc plated
10 Body bolt	Steel, zinc plated
11 Hex nut	Steel, zinc plated
12 Body	C89836 Lead Free* (Bronze)



PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	WT.
82LF-202-01	3/8"	0.44	1.28	2.56	1.81	3.87	0.50	0.38	1.60	1.04
82LF-203-01	1/2"	0.56	1.40	2.81	1.93	4.87	0.63	0.50	1.78	1.55
82LF-204-01	3/4"	0.83	1.71	3.43	2.18	4.87	0.88	0.75	1.98	2.27
82LF-205-01	1"	1.00	1.93	3.87	2.62	5.50	1.13	0.90	2.22	3.28
82LF-206-01	1.25"	1.25	2.37	4.75	2.87	5.50	1.38	0.97	2.70	5.62
82LF-207-01	1.5"	1.50	2.62	5.25	3.37	8.00	1.63	1.09	3.03	8.07
82LF-208-01	2"	2.00	3.01	6.03	3.68	8.00	2.13	1.34	3.87	14.42
82LF-209-01	2.5"	2.50	3.62	7.25	5.14	9.75	2.63	1.47	5.05	26.61
82ALF-240-01	3"	3.00	4.18	8.37	8.10	19.13	3.13	1.66	5.82	43.00
82ALF-24A-01	4"	4.00	5.43	10.86	8.88	19.13	4.13	2.16	7.77	106.00



* LEAD FREE: The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with CA AB1953, VT Act 193, MD HB372, LA HB471 and Federal Public Law 111-380. ANSI 3rd party approved and listed.

**FOR PRESSURE/TEMPERATURE RATINGS,
REFER TO PAGE M-10, GRAPH NO. 4**

83A-140 SERIES

3-Piece Full Port Carbon Steel 1500 CWP NPT Ball Valve

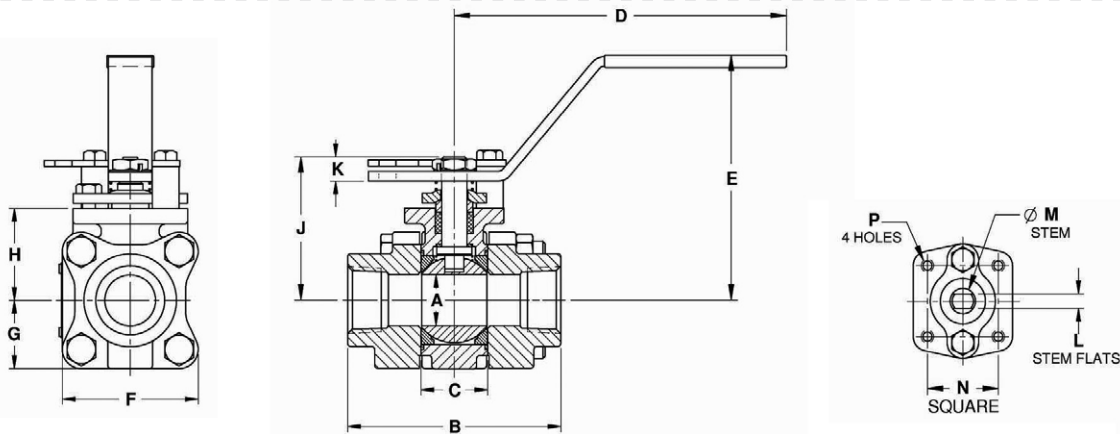
Standard Compliance - **Valve Design:** MSS SP-110, NACE MR0175 (2000) & MR0103 (2012)

End Connections: NPT per ASME B1.20.1 **Valve Marking:** MSS SP-25 **Production Testing:** MSS SP-110



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled RPTFE gaskets
- Anti-blowout one piece bottom entry stem
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- 150 psig saturated steam



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216-WCB
2 End Caps	ASTM A216-WCB
3 Ball	ASTM A276-316SS
4 Stem	ASTM A276-316SS
5 Seat	Multi-Seal
6 Packing	PTFE
7 Stem Bearing	PEEK/PTFE
8 Body Gasket	RPTFE
9 Body Bolts	18-8 Stainless Steel
10 Body Nuts	18-8 Stainless Steel
11 Stop Bolts	18-8 Stainless Steel
12 Gland Bolts	18-8 Stainless Steel
13 Handle Nut/Screw	300 Series Stainless Steel
14 Packing Gland	ASTM A276-316SS
15 Gland Plate	300 Series Stainless Steel
16 Lever Handle	300 Series Stainless Steel
17 Lock Plate	300 Series Stainless Steel
18 Stops	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T- 01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-60-	Static Grounding	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-63-	NPT x Socketweld	1/4" to 2"
-67-	Cleaned for Industrial Gases	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet with Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-19, GRAPH NO. 23

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83A-141-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83A-142-01	3/8"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83A-143-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83A-144-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83A-145-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83A-146-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83A-147-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83A-148-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



83A-240 SERIES

3-Piece Full Port Carbon Steel 1500 CWP Socket-Weld Ball Valve

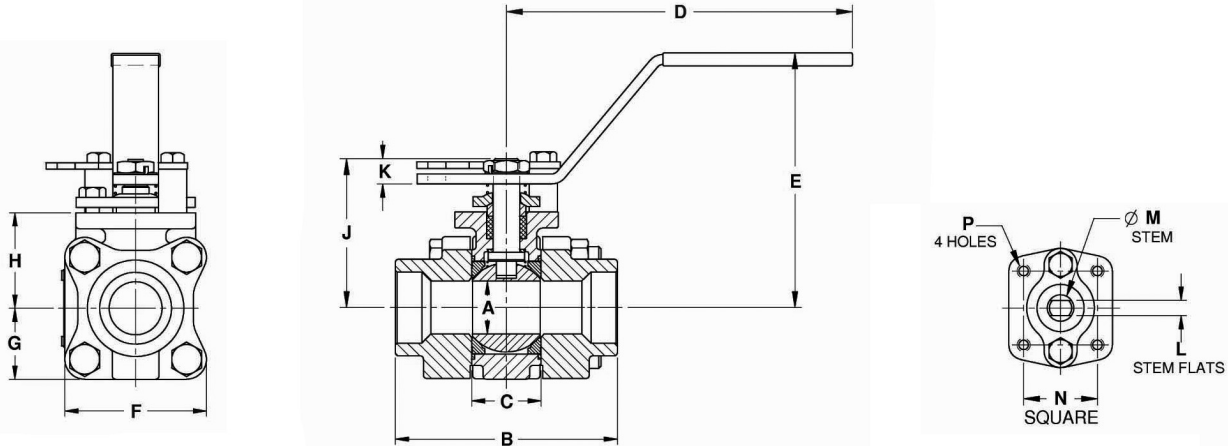
Standard Compliance - **Valve Design:** MSS SP-110, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Socket-weld per ASME B16.11 **Valve Marking:** MSS SP-25 **Production Testing:** MSS SP-110



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled RPTFE gaskets
- Anti-blowout one piece bottom entry stem
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- 150 psig saturated steam



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216-WCB
2 End Caps	ASTM A216-WCB
3 Ball	ASTM A276-316SS
4 Stem	ASTM A276-316SS
5 Seat	Multi-Seal
6 Packing	PTFE
7 Stem Bearing	PEEK/PTFE
8 Body Gasket	RPTFE
9 Body Bolts	18-8 Stainless Steel
10 Body Nuts	18-8 Stainless Steel
11 Stop Bolts	18-8 Stainless Steel
12 Gland Bolts	18-8 Stainless Steel
13 Handle Nut/Screw	300 Series Stainless Steel
14 Packing Gland	ASTM A276-316SS
15 Gland Plate	300 Series Stainless Steel
16 Lever Handle	300 Series Stainless Steel
17 Lock Plate	300 Series Stainless Steel
18 Stops	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-60-	Static Grounding	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-67-	Cleaned for Industrial Gases	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet with Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-19, GRAPH NO. 23

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83A-241-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83A-242-01	3/8"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83A-243-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83A-244-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83A-245-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83A-246-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83A-247-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83A-248-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

83A-340 SERIES

3-Piece Full Port Carbon Steel 1500 CWP Schedule 5 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** MSS SP-110, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** MSS SP-25 **Production Testing:** MSS SP-110



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled RPTFE gaskets
- Anti-blowout one piece bottom entry stem
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

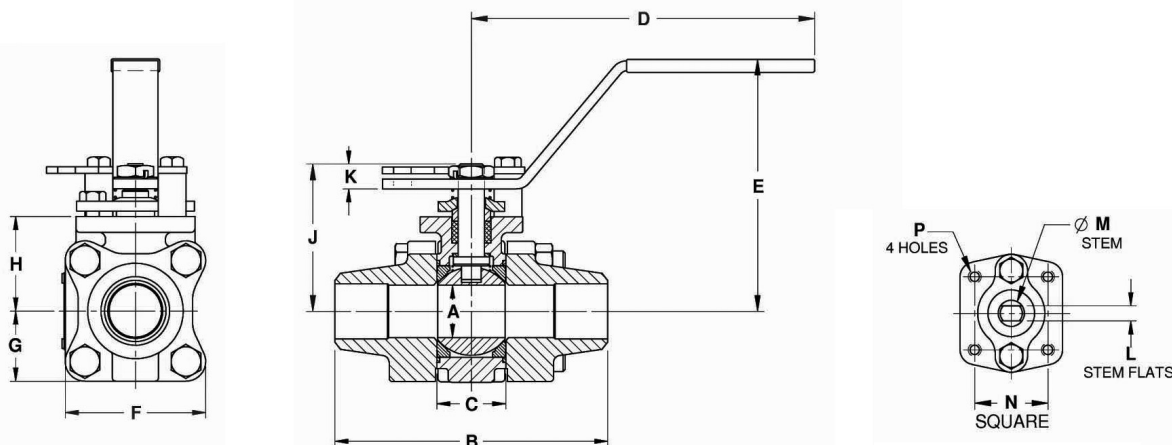
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- 150 psig saturated steam

VARIATIONS AVAILABLE:

83A-440 - Schedule 10 Butt-weld

83A-540 - Schedule 40 Butt-weld

83A-640 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216-WCB
2 End Caps	ASTM A216-WCB
3 Ball	ASTM A276-316SS
4 Stem	ASTM A276-316SS
5 Seat	Multi-Seal
6 Packing	PTFE
7 Stem Bearing	PEEK/PTFE
8 Body Gasket	RPTFE
9 Body Bolts	18-8 Stainless Steel
10 Body Nuts	18-8 Stainless Steel
11 Stop Bolts	18-8 Stainless Steel
12 Gland Bolts	18-8 Stainless Steel
13 Handle Nut/Screw	300 Series Stainless Steel
14 Packing Gland	ASTM A276-316SS
15 Gland Plate	300 Series Stainless Steel
16 Lever Handle	300 Series Stainless Steel
17 Lock Plate	300 Series Stainless Steel
18 Stops	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-60-	Static Grounding	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	NPT x Buttweld	1/2" to 2"
-67-	Cleaned for Industrial Gases	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-19, GRAPH NO. 23

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83A-343-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83A-344-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83A-345-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83A-346-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83A-347-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83A-348-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



83A-440 SERIES

3-Piece Full Port Carbon Steel 1500 CWP Schedule 10 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** MSS SP-110, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** MSS SP-25 **Production Testing:** MSS SP-110



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled RPTFE gaskets
- Anti-blowout one piece bottom entry stem
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

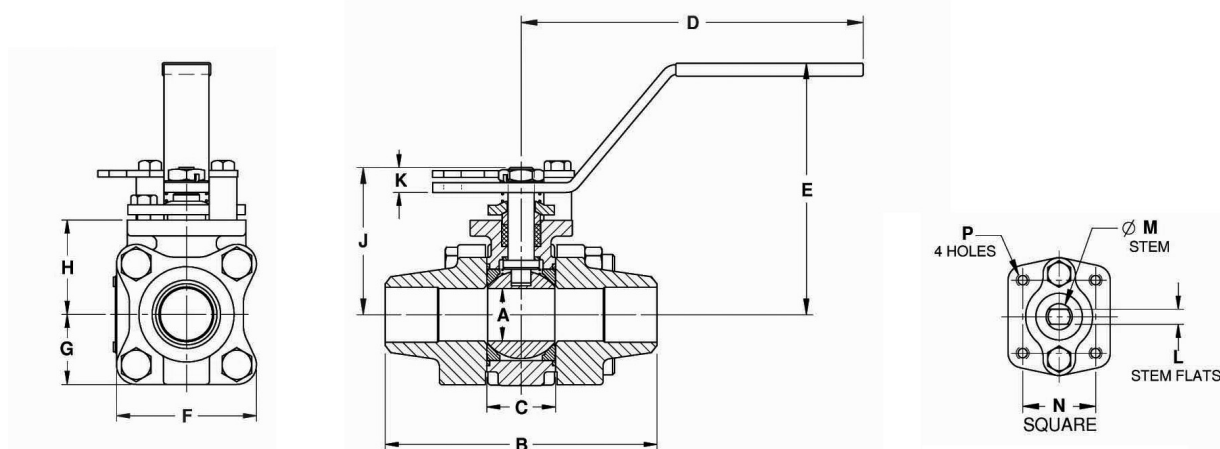
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- 150 psig saturated steam

VARIATIONS AVAILABLE:

83A-340 - Schedule 5 Butt-weld

83A-540 - Schedule 40 Butt-weld

83A-640 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216-WCB
2	End Caps	ASTM A216-WCB
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	RPTFE
9	Body Bolts	18-8 Stainless Steel
10	Body Nuts	18-8 Stainless Steel
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	18-8 Stainless Steel
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-60-	Static Grounding	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-67-	Cleaned for Industrial Gases	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-19, GRAPH NO. 23

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83A-443-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83A-444-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83A-445-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83A-446-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83A-447-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83A-448-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

83A-540 SERIES

3-Piece Full Port Carbon Steel 1500 CWP Schedule 40 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** MSS SP-110, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** MSS SP-25 **Production Testing:** MSS SP-110



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled RPTFE gaskets
- Anti-blowout one piece bottom entry stem
- 150 psig saturated steam
- Two-position locking

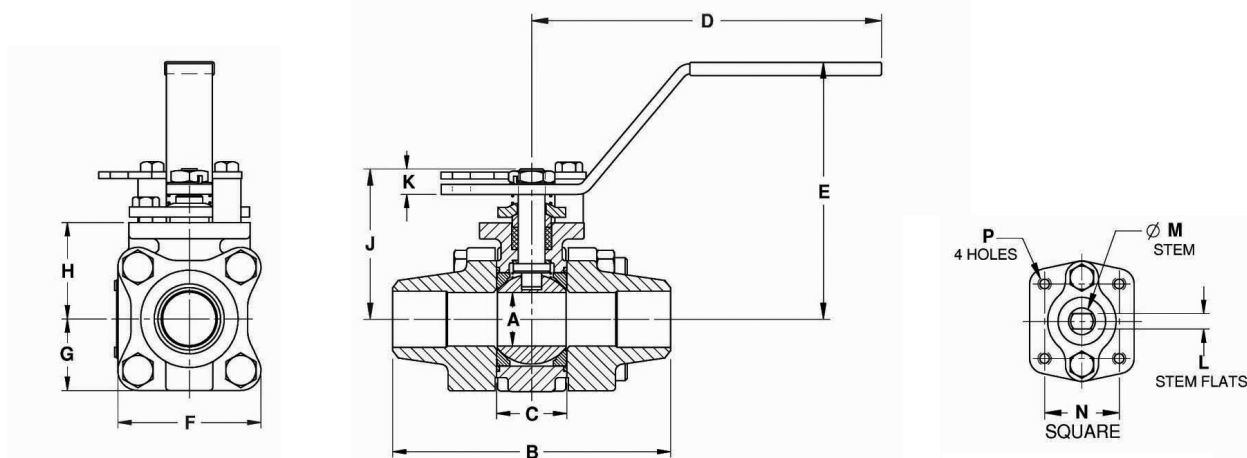
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.

VARIATIONS AVAILABLE:

83A-340 - Schedule 5 Butt-weld

83A-440 - Schedule 10 Butt-weld

83A-640 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216-WCB
2	End Caps	ASTM A216-WCB
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	RPTFE
9	Body Bolts	18-8 Stainless Steel
10	Body Nuts	18-8 Stainless Steel
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	18-8 Stainless Steel
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-60-	Static Grounding	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-67-	Cleaned for Industrial Gases	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-19, GRAPH NO. 23

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83A-543-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83A-544-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83A-545-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83A-546-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83A-547-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83A-548-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



83A-640 SERIES

3-Piece Full Port Carbon Steel 1500 CWP Schedule 80 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** MSS SP-110, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** MSS SP-25 **Production Testing:** MSS SP-110



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled RPTFE gaskets
- Anti-blowout one piece bottom entry stem
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

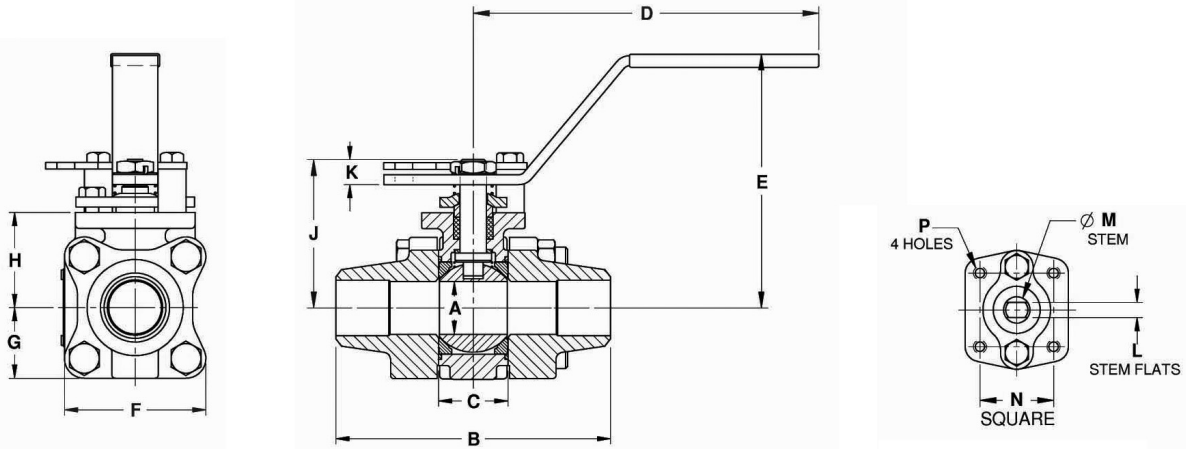
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- 150 psig saturated steam

VARIATIONS AVAILABLE:

83A-340 - Schedule 5 Butt-weld

83A-440 - Schedule 10 Butt-weld

83A-540 - Schedule 40 Butt-weld



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216-WCB
2 End Caps	ASTM A216-WCB
3 Ball	ASTM A276-316SS
4 Stem	ASTM A276-316SS
5 Seat	Multi-Seal
6 Packing	PTFE
7 Stem Bearing	PEEK/PTFE
8 Body Gasket	RPTFE
9 Body Bolts	18-8 Stainless Steel
10 Body Nuts	18-8 Stainless Steel
11 Stop Bolts	18-8 Stainless Steel
12 Gland Bolts	18-8 Stainless Steel
13 Handle Nut/Screw	300 Series Stainless Steel
14 Packing Gland	ASTM A276-316SS
15 Gland Plate	300 Series Stainless Steel
16 Lever Handle	300 Series Stainless Steel
17 Lock Plate	300 Series Stainless Steel
18 Stops	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-60-	Static Grounding	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-67-	Cleaned for Industrial Gases	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-19, GRAPH NO. 23

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83A-643-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83A-644-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83A-645-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83A-646-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83A-647-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83A-648-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

83B-140 SERIES

3-Piece Full Port Carbon Steel Class 600 NPT Ball Valve

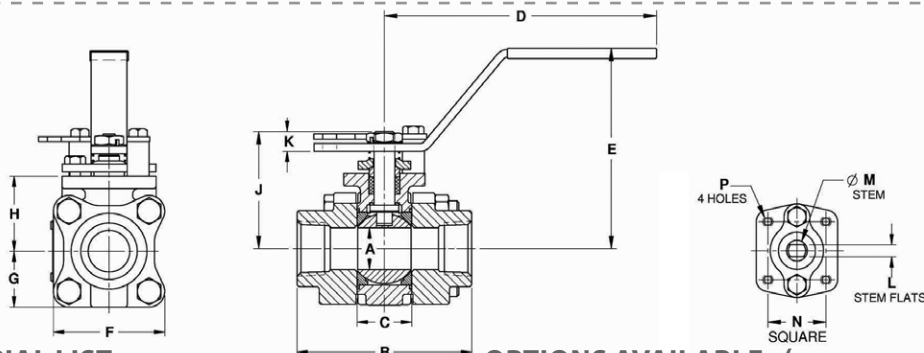
Standard Compliance - **Valve Design:** ASME B16.34 Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: NPT per ASME B1.20.1 **Valve Marking:** MSS SP-25 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Two-position locking
- Full port
- Adjustable multi-piece PTFE "V" style packing
- Stainless steel trim & hardware
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Vacuum service to 29 in of Hg.
- Anti-blowout one piece bottom entry stem
- CE mark, 1.25" and larger
- Statically grounded ball, stem, & body
- 250 psig saturated steam



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216-WCB
2	End Caps	ASTM A216-WCB
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/4" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/4" to 2"
-38-	PEEK Seats, Graphite Stem Packing & Gaskets	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-63-	NPT x Socketweld	1/4" to 2"
-67-	Cleaned for Industrial Gases	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet with Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"
-UL-	UL Listed	1/4" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 25

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83B-141-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83B-142-01	3/8"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83B-143-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83B-144-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83B-145-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83B-146-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83B-147-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83B-148-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



83B-240 SERIES

3-Piece Full Port Carbon Steel Class 600 Socket-Weld Ball Valve

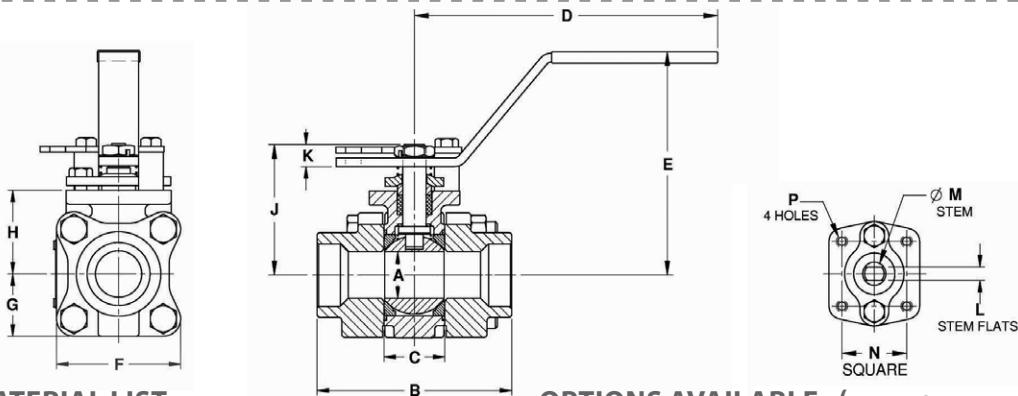
Standard Compliance - Valve Design: ASME B16.34 Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Socket-weld per ASME B16.11 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216-WCB
2	End Caps	ASTM A216-WCB
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/4" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/4" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-67-	Cleaned for Industrial Gases	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet with Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"
-UL-	UL Listed	1/4" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 25

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83B-241-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83B-242-01	3/8"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83B-243-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83B-244-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83B-245-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83B-246-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83B-247-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83B-248-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

83B-340 SERIES

3-Piece Full Port Carbon Steel Class 600 Schedule 5 Butt-Weld Ball Valve

Standard Compliance - Valve Design: ASME B16.34 Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

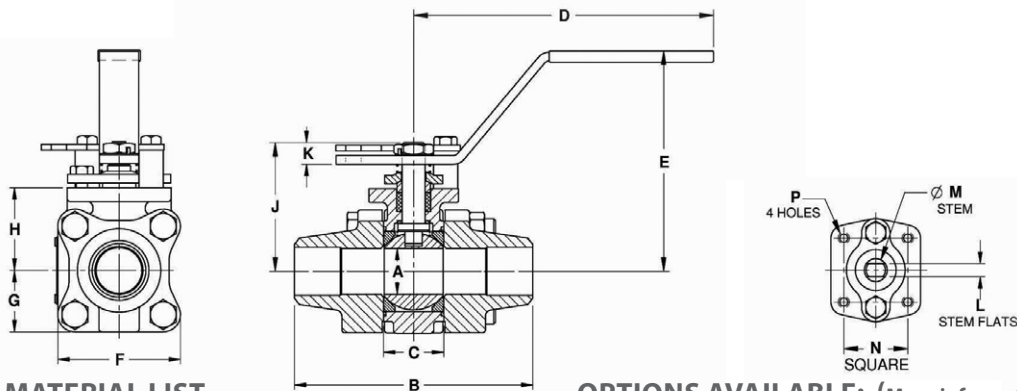
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

83B-440 - Schedule 10 Butt-weld

83B-540 - Schedule 40 Butt-weld

83B-640 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216-WCB
2	End Caps	ASTM A216-WCB
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/2" to 2"
-38-	PEEK Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-67-	Cleaned for Industrial Gases	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-19, GRAPH NO. 23

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83B-343-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83B-344-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83B-345-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83B-346-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83B-347-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83B-348-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



83B-440 SERIES

3-Piece Full Port Carbon Steel Class 600 Schedule 10 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** ASME B16.34 Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Two-position locking
- Full port
- Adjustable multi-piece PTFE "V" style packing
- Stainless steel trim & hardware
- Fully machined ISO 5211 mounting
- Swing-out center section
- Cast bosses on the center-section and end caps for bleed & drain ports
- Pressure balanced solid ball

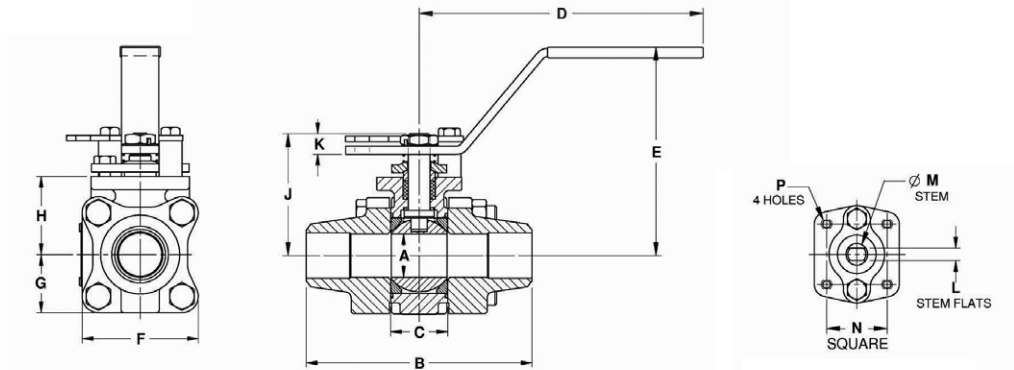
- Compression controlled spiral wound gaskets
- Vacuum service to 29 in of Hg.
- Anti-blowout one piece bottom entry stem
- CE mark, 1.25" and larger
- Statically grounded ball, stem, & body
- 250 psig saturated steam

VARIATIONS AVAILABLE:

83B-340 - Schedule 5 Butt-weld

83B-540 - Schedule 40 Butt-weld

83B-640 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216-WCB
2	End Caps	ASTM A216-WCB
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/2" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-67-	Cleaned for Industrial Gases	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 25

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83B-443-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83B-444-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83B-445-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83B-446-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83B-447-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83B-448-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

83B-540 SERIES

3-Piece Full Port Carbon Steel Class 600 Schedule 40 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** ASME B16.34 Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

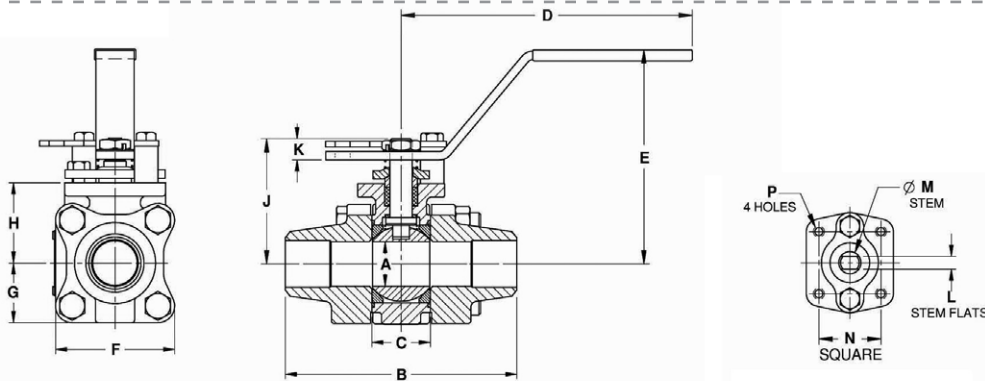
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

83B-340 - Schedule 5 Butt-weld

83B-440 - Schedule 10 Butt-weld

83B-640 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216-WCB
2	End Caps	ASTM A216-WCB
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/2" to 2"
-38-	PEEK Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-67-	Cleaned for Industrial Gases	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet w/Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-19, GRAPH NO. 23

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83B-543-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83B-544-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83B-545-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83B-546-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83B-547-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83B-548-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



83B-640 SERIES

3-Piece Full Port Carbon Steel Class 600 Schedule 80 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** ASME B16.34 Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

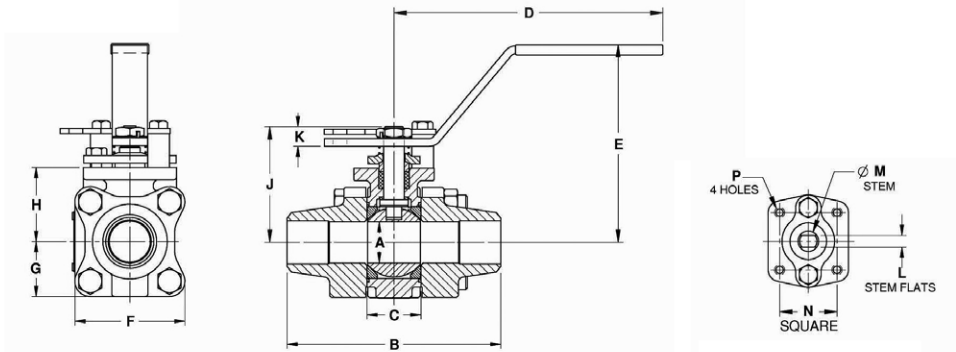
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

83B-340 - Schedule 5 Butt-weld

83B-440 - Schedule 10 Butt-weld

83B-540 - Schedule 40 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216-WCB
2	End Caps	ASTM A216-WCB
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/2" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-67-	Cleaned for Industrial Gases	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet w/Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 25

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83B-643-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83B-644-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83B-645-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83B-646-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83B-647-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83B-648-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

83L-140 SERIES

3-Piece Full Port Low Temperature Carbon Steel Class 600 NPT Ball Valve

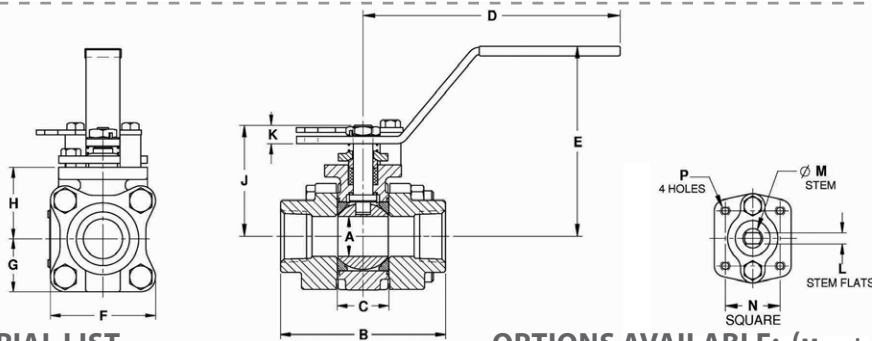
Standard Compliance - **Valve Design:** ASME B16.34 Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: NPT per ASME B1.20.1 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Rated to -50°F (-46°C)
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A352-LCC
2 End Caps	ASTM A352-LCC
3 Ball	ASTM A276-316SS
4 Stem	ASTM A276-316SS
5 Seat	Multi-Seal
6 Packing	PTFE
7 Stem Bearing	PEEK/PTFE
8 Body Gasket	PTFE Spiral Wound
9 Body Bolts	ASTM A193-Gr.B8M3
10 Body Nuts	ASTM A194-Gr.8
11 Stop Bolts	18-8 Stainless Steel
12 Gland Bolts	ASTM A193-Gr.B8
13 Handle Nut/Screw	300 Series Stainless Steel
14 Packing Gland	ASTM A276-316SS
15 Gland Plate	300 Series Stainless Steel
16 Lever Handle	300 Series Stainless Steel
17 Lock Plate	300 Series Stainless Steel
18 Stops	300 Series Stainless Steel
19 Int. Grnd. Spring	300 Series Stainless Steel
20 Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/4" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/4" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-63-	NPT x Socketweld	1/4" to 2"
-67-	Cleaned for Industrial Gases	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet w/Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"
-UL-	UL Listed	1/4" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-24, GRAPH NO. 33

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83L-141-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83L-142-01	3/8"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83L-143-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83L-144-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83L-145-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83L-146-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83L-147-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83L-148-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



83L-240 SERIES

3-Piece Full Port Low Temperature Port Carbon Steel Class 600 Socket-Weld Ball Valve

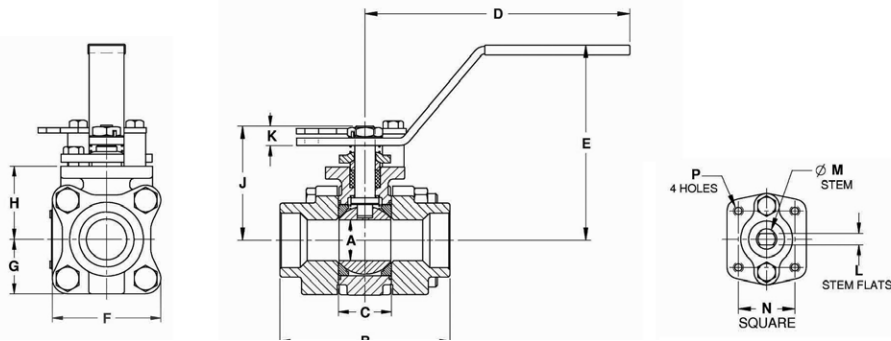
Standard Compliance - **Valve Design:** ASME B16.34 Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Socket-weld per ASME B16.11 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Rated to -50°F (-46°C)
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A352-LCC
2	End Caps	ASTM A352-LCC
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/4" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/4" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-67-	Cleaned for Industrial Gases	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet with Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"
-UL-	UL Listed	1/4" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-24, GRAPH NO. 33

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83L-241-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83L-242-01	3/8"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83L-243-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83L-244-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83L-245-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83L-246-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83L-247-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83L-248-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

83L-340 SERIES

3-Piece Full Port Low Temperature Carbon Steel Class 600 Schedule 5 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** ASME B16.34 Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

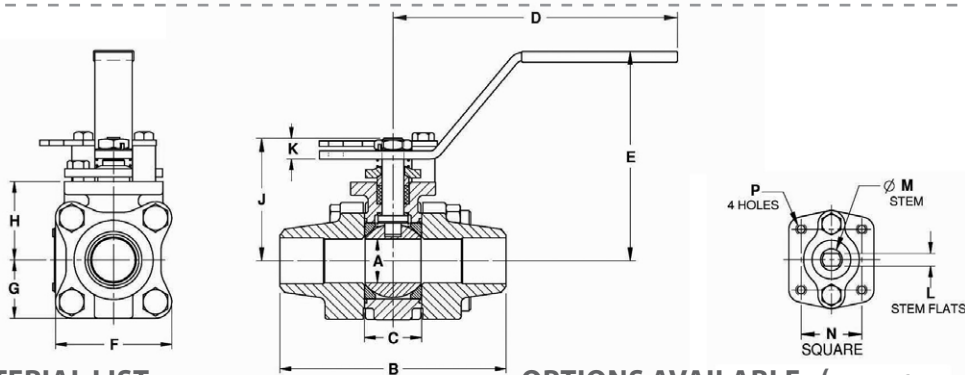
- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Rated to -50°F (-46°C)
- 250 psig saturated steam
- CE mark, 1.25" and larger
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.

VARIATIONS AVAILABLE:

83L-440 - Schedule 10 Butt-weld

83L-540 - Schedule 40 Butt-weld

83L-640 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A352-LCC
2	End Caps	ASTM A352-LCC
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/2" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-67-	Cleaned for Industrial Gases	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-24, GRAPH NO. 33

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83L-343-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83L-344-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83L-345-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83L-346-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83L-347-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83L-348-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



83L-440 SERIES

3-Piece Full Port Low Temperature Carbon Steel Class 600 Schedule 10 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** ASME B16.34 Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Rated to -50°F (-46°C)
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

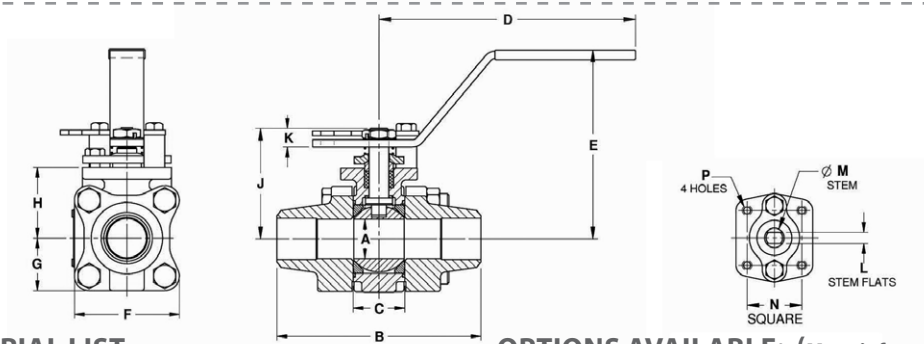
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

83L-340 - Schedule 5 Butt-weld

83L-540 - Schedule 40 Butt-weld

83L-640 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A352-LCC
2	End Caps	ASTM A352-LCC
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/2" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Butt-weld	1/2" to 2"
-67-	Cleaned for Industrial Gases	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-24, GRAPH NO. 33

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83L-443-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83L-444-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83L-445-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83L-446-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83L-447-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83L-448-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

83L-540 SERIES

3-Piece Full Port Low Temperature Carbon Steel Class 600 Schedule 40 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** ASME B16.34 Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Rated to -50°F (-46°C)
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

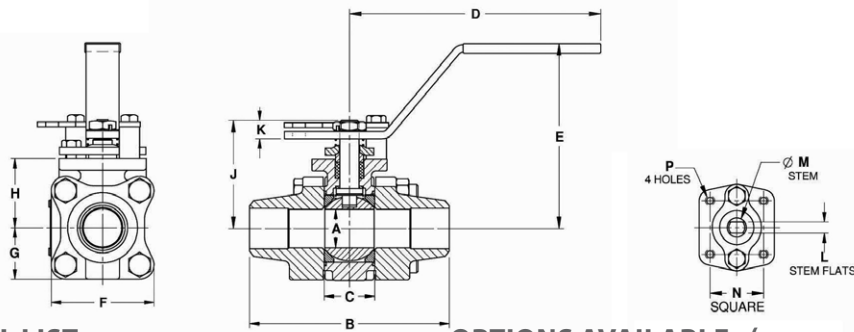
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

83L-340 - Schedule 5 Butt-weld

83L-440 - Schedule 10 Butt-weld

83L-640 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A352-LCC
2	End Caps	ASTM A352-LCC
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/2" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-67-	Cleaned for Industrial Gases	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-24, GRAPH NO. 33

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83L-543-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83L-544-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83L-545-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83L-546-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83L-547-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83L-548-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



83L-640 SERIES

3-Piece Full Port Low Temperature Carbon Steel Class 600 Schedule 80 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** ASME B16.34 Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Rated to -50°F (-46°C)
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

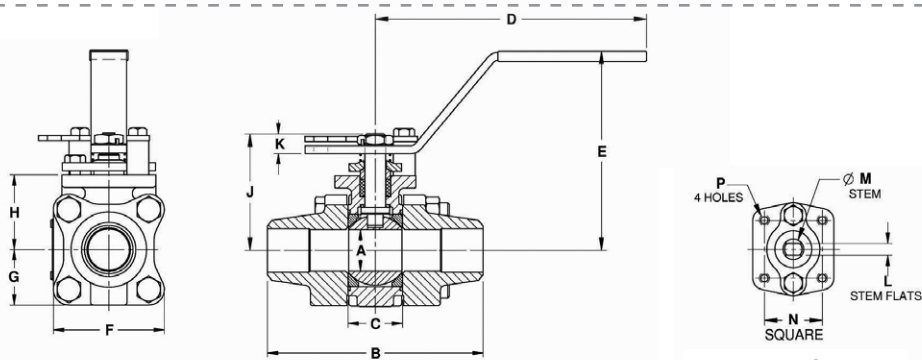
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

83L-340 - Schedule 5 Butt-weld

83L-440 - Schedule 10 Butt-weld

83L-540 - Schedule 40 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A352-LCC
2	End Caps	ASTM A352-LCC
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/2" to 2"
-38-	PEEK Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-67-	Cleaned for Industrial Gases	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet w/Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-24, GRAPH NO. 33

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
83L-643-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
83L-644-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
83L-645-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
83L-646-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
83L-647-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
83L-648-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86A-100 SERIES

3-Piece Full Port Stainless Steel 1500 CWP NPT Ball Valve

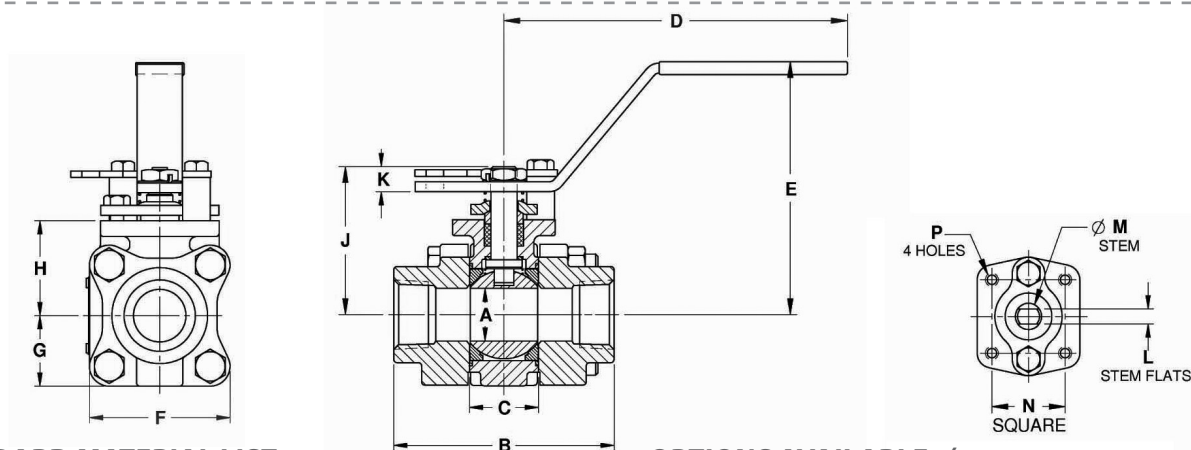
Standard Compliance - **Valve Design:** MSS SP-110, NACE MR0175 (2000) & MR0103 (2012)

End Connections: NPT per ASME B1.20.1 **Valve Marking:** MSS SP-25 **Production Testing:** MSS SP-110



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled RPTFE gaskets
- Anti-blowout one piece bottom entry stem
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- 150 psig saturated steam



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	End Caps	ASTM A351-CF3M
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	RPTFE
9	Body Bolts	18-8 Stainless Steel
10	Body Nuts	18-8 Stainless Steel
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	18-8 Stainless Steel
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-57-	Cleaned for Oxygen Service	1/4" to 2"
-60-	Static Grounding	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-63-	NPT x Socketweld	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet with Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-19, GRAPH NO. 24

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86A-101-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86A-102-01	3/8"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86A-103-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86A-104-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86A-105-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86A-106-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86A-107-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86A-108-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



86A-200 SERIES

3-Piece Full Port Stainless Steel 1500 CWP Socket-Weld Ball Valve

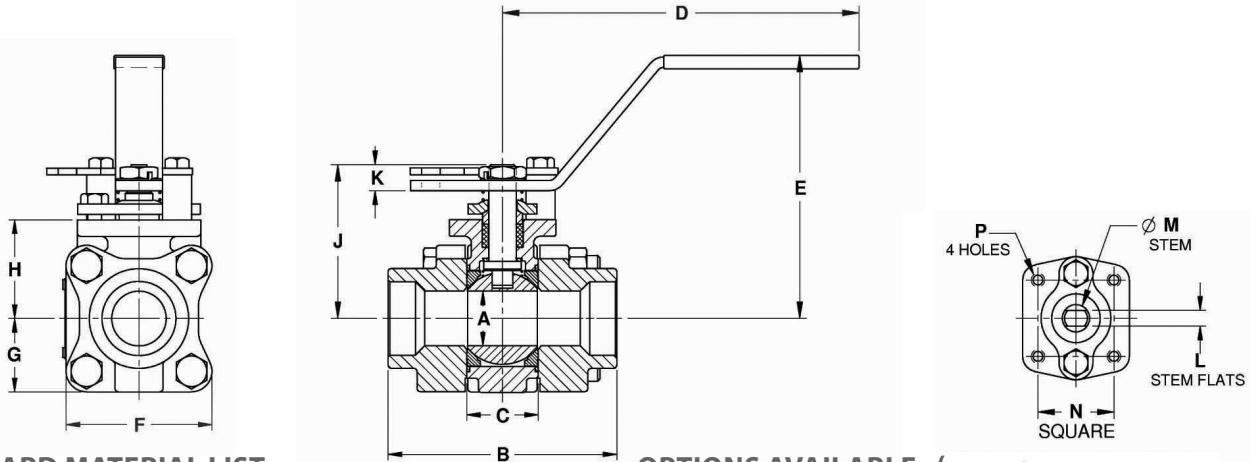
Standard Compliance - **Valve Design:** MSS SP-110, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Socket-weld per ASME B16.11 **Valve Marking:** MSS SP-25 **Production Testing:** MSS SP-110



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled RPTFE gaskets
- Anti-blowout one piece bottom entry stem
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- 150 psig saturated steam



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	End Caps	ASTM A351-CF3M
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	RPTFE
9	Body Bolts	18-8 Stainless Steel
10	Body Nuts	18-8 Stainless Steel
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	18-8 Stainless Steel
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-57-	Cleaned for Oxygen Service	1/4" to 2"
-60-	Static Grounding	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet with Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-19, GRAPH NO. 24

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86A-201-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86A-202-01	3/8"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86A-203-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86A-204-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86A-205-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86A-206-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86A-207-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86A-208-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86A-300 SERIES

3-Piece Full Port Stainless Steel 1500 CWP Schedule 5 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** MSS SP-110, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** MSS SP-25 **Production Testing:** MSS SP-110

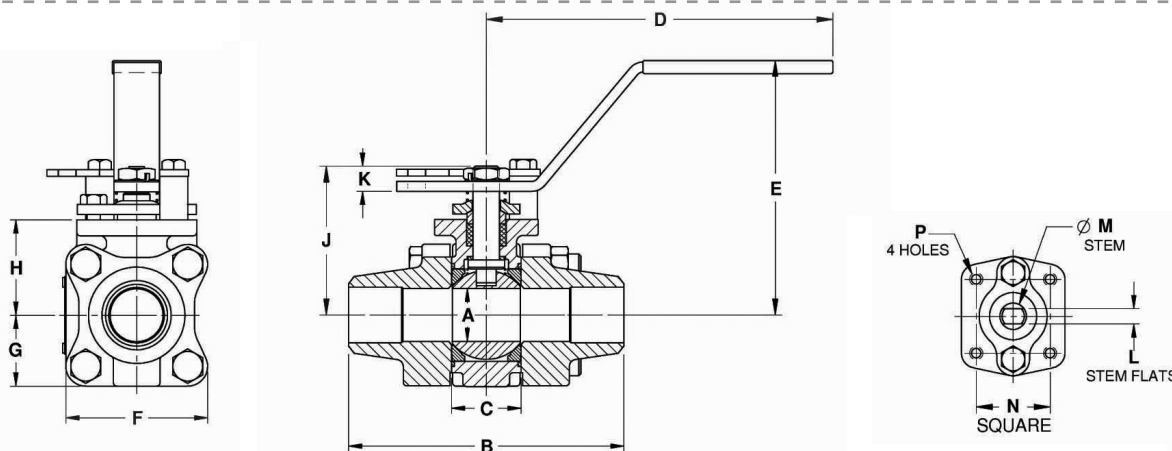


FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled RPTFE gaskets
- Anti-blowout one piece bottom entry stem
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- 150 psig saturated steam

VARIATIONS AVAILABLE:

86A-400 - Schedule 10 Butt-weld
86A-500 - Schedule 40 Butt-weld
86A-600 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	End Caps	ASTM A351-CF3M
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	RPTFE
9	Body Bolts	18-8 Stainless Steel
10	Body Nuts	18-8 Stainless Steel
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	18-8 Stainless Steel
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-60-	Static Grounding	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-19, GRAPH NO. 24

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86A-303-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86A-304-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86A-305-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86A-306-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86A-307-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86A-308-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



86A-400 SERIES

3-Piece Full Port Stainless Steel 1500 CWP Schedule 10 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** MSS SP-110, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** MSS SP-25 **Production Testing:** MSS SP-110



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

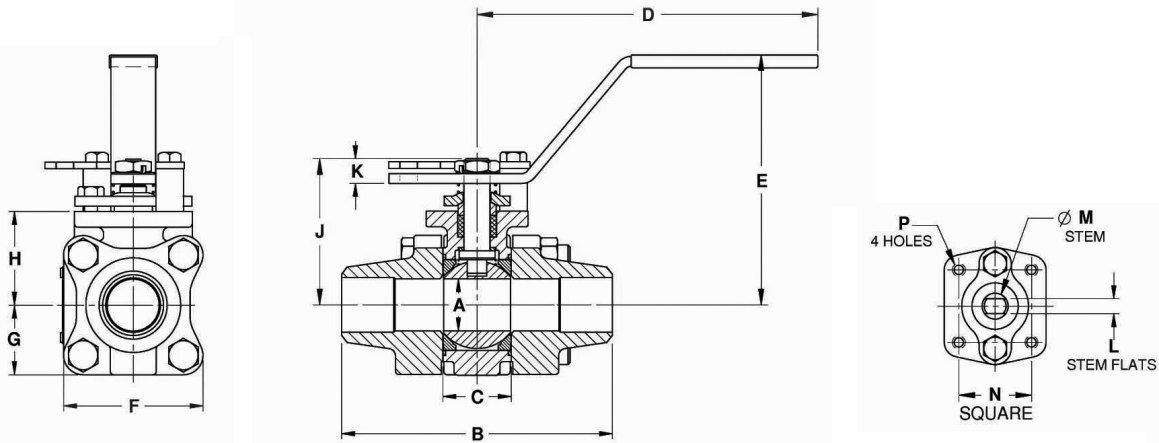
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- 150 psig saturated steam

VARIATIONS AVAILABLE:

86A-300 - Schedule 5 Butt-weld

86A-500 - Schedule 40 Butt-weld

86A-600 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	End Caps	ASTM A351-CF3M
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	RPTFE
9	Body Bolts	18-8 Stainless Steel
10	Body Nuts	18-8 Stainless Steel
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	18-8 Stainless Steel
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-60-	Static Grounding	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-19, GRAPH NO. 24

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86A-403-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86A-404-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86A-405-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86A-406-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86A-407-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86A-408-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86A-500 SERIES

3-Piece Full Port Stainless Steel 1500 CWP Schedule 40 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** MSS SP-110, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** MSS SP-25 **Production Testing:** MSS SP-110



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled RPTFE gaskets
- Anti-blowout one piece bottom entry stem
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

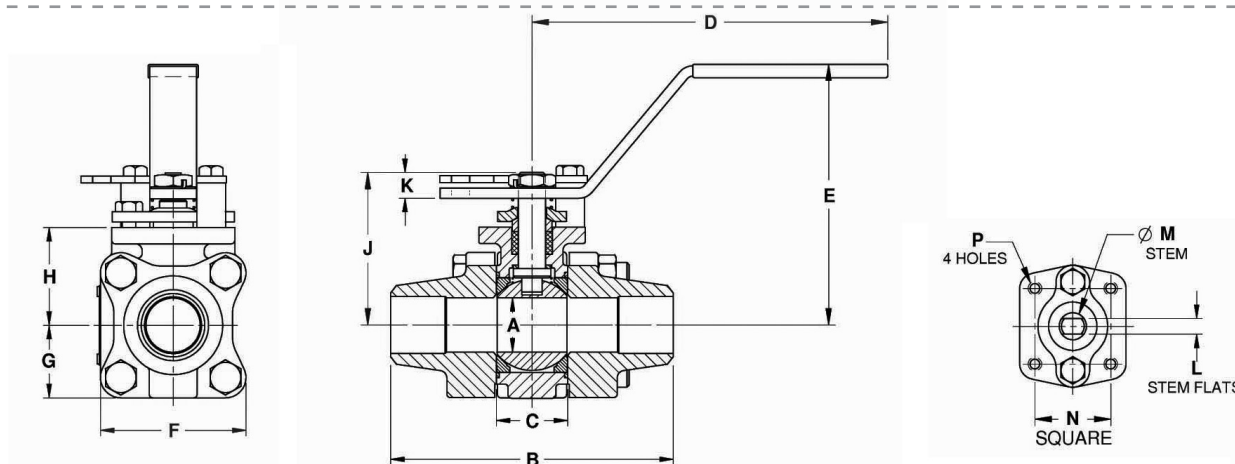
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- 150 psig saturated steam

VARIATIONS AVAILABLE:

86A-300 - Schedule 5 Butt-weld

86A-400 - Schedule 10 Butt-weld

86A-600 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	End Caps	ASTM A351-CF3M
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	RPTFE
9	Body Bolts	18-8 Stainless Steel
10	Body Nuts	18-8 Stainless Steel
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	18-8 Stainless Steel
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-49-	No Lubrication. Assembled Dry	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-60-	Static Grounding	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-19, GRAPH NO. 24

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86A-503-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86A-504-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86A-505-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86A-506-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86A-507-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86A-508-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



86A-600 SERIES

3-Piece Full Port Stainless Steel 1500 CWP Schedule 80 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** MSS SP-110, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** MSS SP-25 **Production Testing:** MSS SP-110



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled RPTFE gaskets
- Anti-blowout one piece bottom entry stem
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

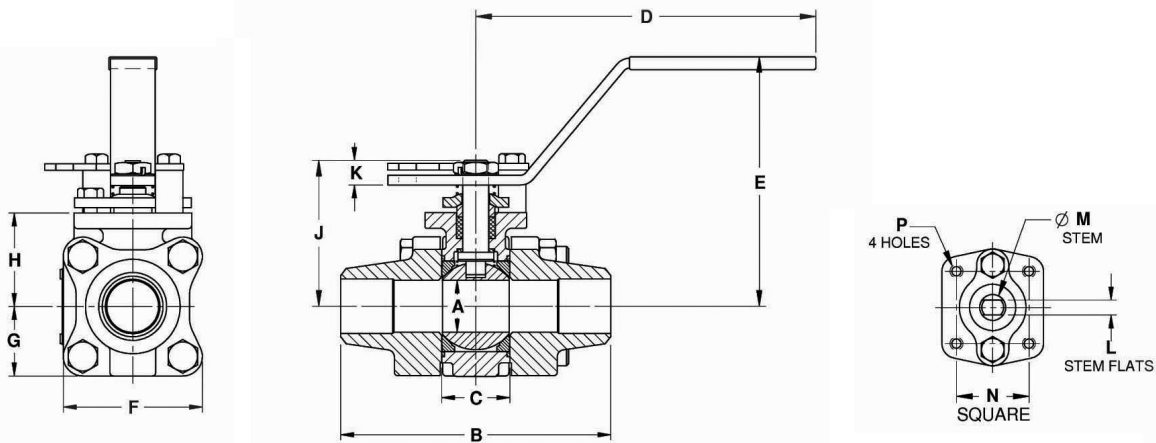
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- 150 psig saturated steam

VARIATIONS AVAILABLE:

86A-300 - Schedule 5 Butt-weld

86A-400 - Schedule 10 Butt-weld

86A-500 - Schedule 40 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	End Caps	ASTM A351-CF3M
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	RPTFE
9	Body Bolts	18-8 Stainless Steel
10	Body Nuts	18-8 Stainless Steel
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	18-8 Stainless Steel
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-60-	Static Grounding	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-19, GRAPH NO. 24

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86A-603-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86A-604-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86A-605-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86A-606-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86A-607-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86A-608-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86B-100 SERIES

3-Piece Full Port Stainless Steel Class 600 NPT Ball Valve

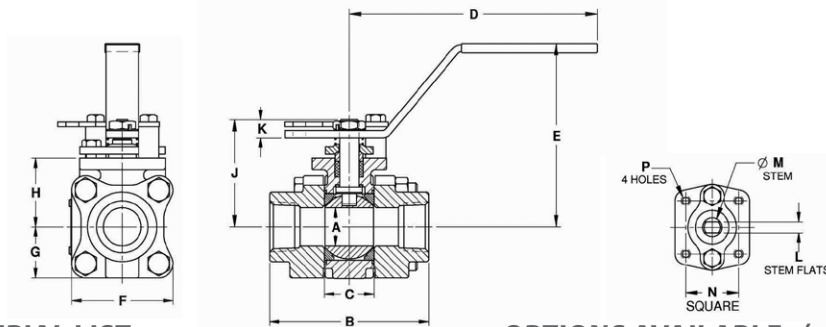
Standard Compliance - Valve Design: ASME B16.34, Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: NPT per ASME B1.20.1 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351-CF8M
2 End Caps	ASTM A351-CF3M
3 Ball	ASTM A276-316SS
4 Stem	ASTM A276-316SS
5 Seat	Multi-Seal
6 Packing	PTFE
7 Stem Bearing	PEEK/PTFE
8 Body Gasket	PTFE Spiral Wound
9 Body Bolts	ASTM A193-Gr.B8M3
10 Body Nuts	ASTM A194-Gr.8
11 Stop Bolts	18-8 Stainless Steel
12 Gland Bolts	ASTM A193-Gr.B8
13 Handle Nut/Screw	300 Series Stainless Steel
14 Packing Gland	ASTM A276-316SS
15 Gland Plate	300 Series Stainless Steel
16 Lever Handle	300 Series Stainless Steel
17 Lock Plate	300 Series Stainless Steel
18 Stops	300 Series Stainless Steel
19 Int. Grnd. Spring	300 Series Stainless Steel
20 Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/4" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/4" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-57-	Cleaned for Oxygen Service	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-63-	NPT x Socketweld	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet with Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"
-UL-	UL Listed	1/4" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86B-101-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86B-102-01	3/8	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86B-103-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86B-104-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86B-105-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86B-106-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86B-107-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86B-108-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



86B-200 SERIES

3-Piece Full Port Stainless Steel Class 600 Socket-Weld Ball Valve

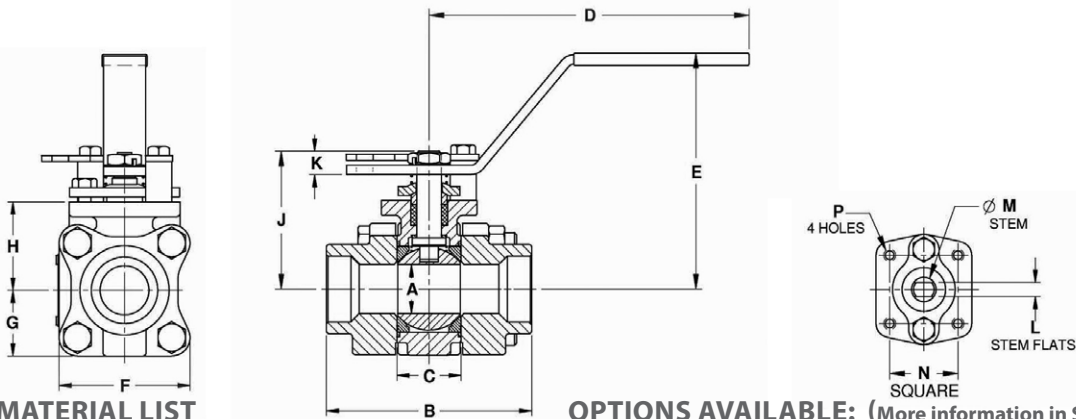
Standard Compliance - Valve Design: ASME B16.34, Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Socket-weld per ASME B16.11 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	End Caps	ASTM A351-CF3M
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/4" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/4" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-57-	Cleaned for Oxygen Service	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet with Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"
-UL-	UL Listed	1/4" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86B-201-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86B-202-01	3/8"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86B-203-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86B-204-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86B-205-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86B-206-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86B-207-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86B-208-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86B-300 SERIES

3-Piece Full Port Stainless Steel Class 600 Schedule 5 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** ASME B16.34, Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

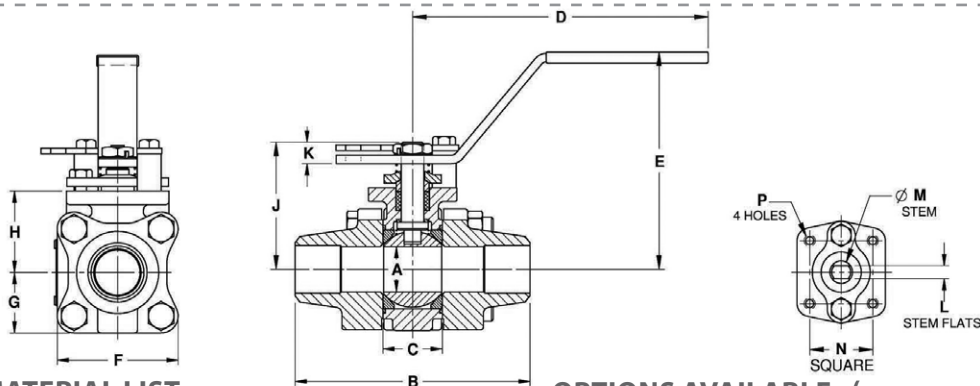
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86B-400 - Schedule 10 Butt-weld

86B-500 - Schedule 40 Butt-weld

86B-600 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	End Caps	ASTM A351-CF3M
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/2" to 2"
-38-	PEEK Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86B-303-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86B-304-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86B-305-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86B-306-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86B-307-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86B-308-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



86B-400 SERIES

3-Piece Full Port Stainless Steel Class 600 Schedule 10 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** ASME B16.34, Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

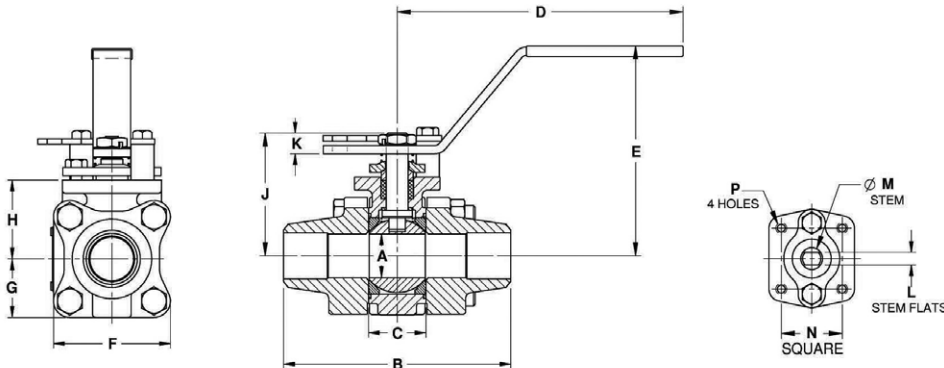
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86B-300 - Schedule 5 Butt-weld

86B-500 - Schedule 40 Butt-weld

86B-600 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	End Caps	ASTM A351-CF3M
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/2" to 2"
-38-	PEEK Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86B-403-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86B-404-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86B-405-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86B-406-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86B-407-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86B-408-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86B-500 SERIES

3-Piece Full Port Stainless Steel Class 600 Schedule 40 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** ASME B16.34, Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34

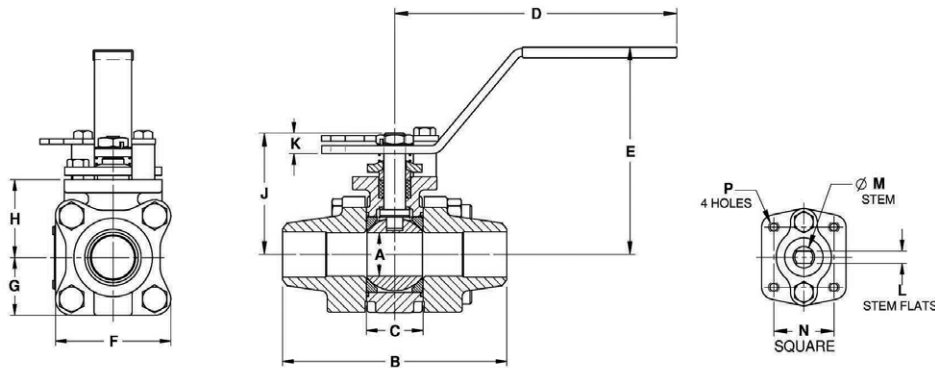


FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86B-300 - Schedule 5 Butt-weld
86B-400 - Schedule 10 Butt-weld
86B-600 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	End Caps	ASTM A351-CF3M
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/2" to 2"
-38-	PEEK Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86B-503-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86B-504-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86B-505-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86B-506-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86B-507-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86B-508-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



86B-600 SERIES

3-Piece Full Port Stainless Steel Class 600 Schedule 80 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** ASME B16.34, Class 600, NACE MR0175 (2000) & MR0103 (2012)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

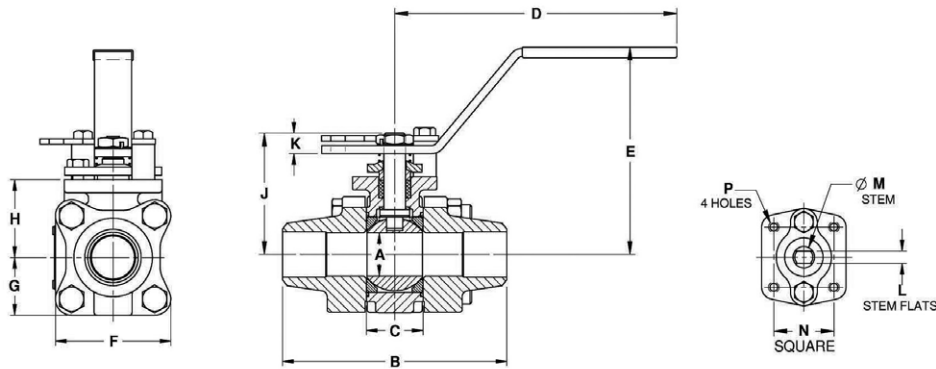
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86B-300 - Schedule 5 Butt-weld

86B-400 - Schedule 10 Butt-weld

86B-500 - Schedule 40 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	End Caps	ASTM A351-CF3M
3	Ball	ASTM A276-316SS
4	Stem	ASTM A276-316SS
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607, 5th ed., ISO 10497-5)	1/2" to 2"
-38-	PEEK Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86B-603-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86B-604-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86B-605-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86B-606-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86B-607-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86B-608-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86C-100 SERIES

3-Piece Full Port Alloy 20 Class 600 NPT Ball Valve

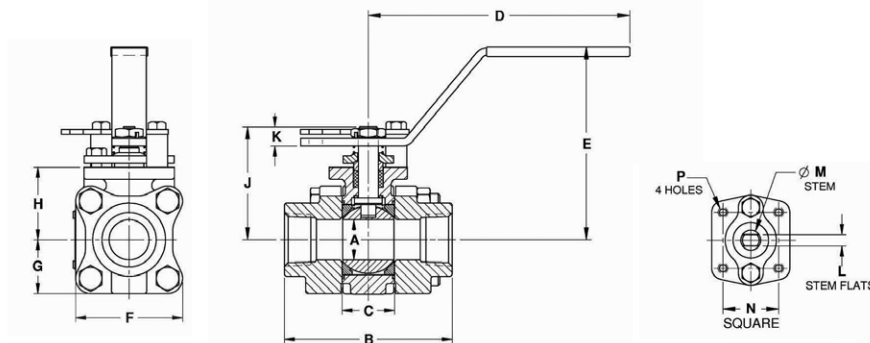
Standard Compliance - Valve Design: ASME B16.34, Class 600, NACE MR0175 (2000) & MR0103 (2003)

End Connections: NPT per ASME B1.20.1 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CN7M
2	End Caps	ASTM A351-CN7M
3	Ball	ASTM B473 (UNS N08020) or ASTM-CN7M
4	Stem	ASTM B473 (UNS N08020)
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/4" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/4" to 2"
-38-	PEEK Seats, Graphite Stem Packing & Gaskets	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-57-	Cleaned for Oxygen Service	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-63-	NPT x Socketweld	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet w/Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-21, GRAPH NO. 27

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86C-101-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86C-102-01	3/8"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86C-103-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86C-104-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86C-105-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86C-106-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86C-107-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86C-108-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86C-200 SERIES

3-Piece Full Port Alloy 20 Class 600 Socket-Weld Ball Valve

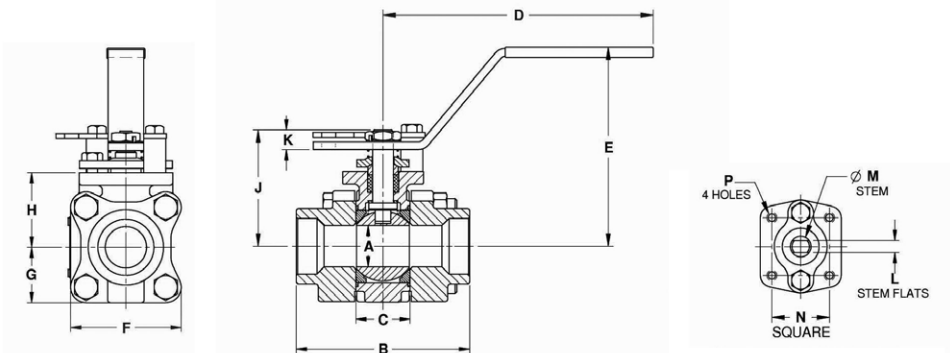
Standard Compliance - Valve Design: ASME B16.34, Class 600, NACE MR0175 (2000) & MR0103 (2003)

End Connections: Socket-weld per ASME B16.11 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CN7M
2	End Caps	ASTM A351-CN7M
3	Ball	ASTM B473 (UNS N08020) or ASTM-CN7M
4	Stem	ASTM B473 (UNS N08020)
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/4" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/4" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-57-	Cleaned for Oxygen Service	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet with Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-21, GRAPH NO. 27

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86C-201-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86C-202-01	3/8"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86C-203-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86C-204-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86C-205-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86C-206-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86C-207-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86C-208-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86C-300 SERIES

3-Piece Full Port Alloy 20 Class 600 Schedule 5 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** ASME B16.34, Class 600, NACE MR0175 (2000) & MR0103 (2003)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

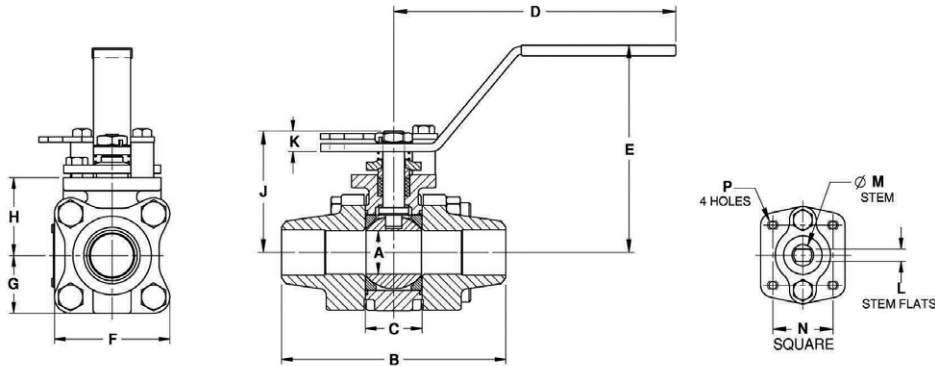
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86C-400 - Schedule 10 Butt-weld

86C-500 - Schedule 40 Butt-weld

86C-600 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351-CN7M
2 End Caps	ASTM A351-CN7M
3 Ball	ASTM (UNS N08020) or ASTM-CN7M
4 Stem	ASTM B473 (UNS N08020)
5 Seat	Multi-Seal
6 Packing	PTFE
7 Stem Bearing	PEEK/PTFE
8 Body Gasket	PTFE Spiral Wound
9 Body Bolts	ASTM A193-Gr.B8M3
10 Body Nuts	ASTM A194-Gr.8
11 Stop Bolts	18-8 Stainless Steel
12 Gland Bolts	ASTM A193-Gr.B8
13 Handle Nut/Screw	300 Series Stainless Steel
14 Packing Gland	ASTM A276-316SS
15 Gland Plate	300 Series Stainless Steel
16 Lever Handle	300 Series Stainless Steel
17 Lock Plate	300 Series Stainless Steel
18 Stops	300 Series Stainless Steel
19 Int. Grnd. Spring	300 Series Stainless Steel
20 Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/2" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-21, GRAPH NO. 27

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86C-303-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86C-304-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86C-305-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86C-306-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86C-307-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86C-308-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



86C-400 SERIES

3-Piece Full Port Alloy 20 Class 600 Schedule 10 Butt-Weld Ball Valve

Standard Compliance - Valve Design: ASME B16.34, Class 600, NACE MR0175 (2000) & MR0103 (2003)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

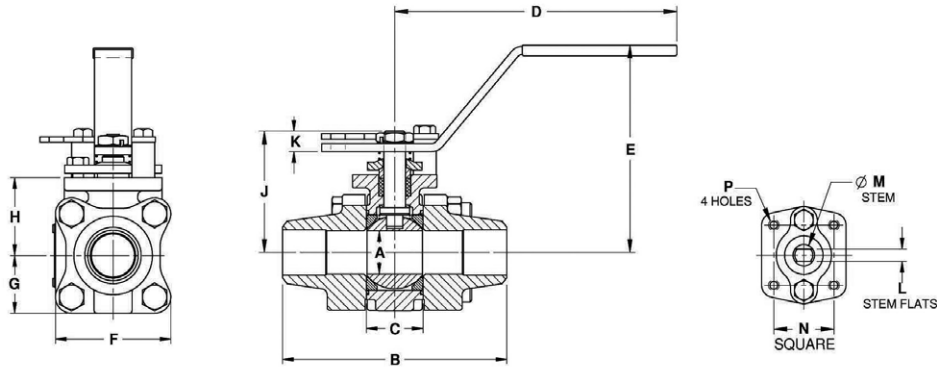
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86C-300 - Schedule 5 Butt-weld

86C-500 - Schedule 40 Butt-weld

86C-600 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CN7M
2	End Caps	ASTM A351-CN7M
3	Ball	ASTM (UNS N08020) or ASTM-CN7M
4	Stem	ASTM B473 (UNS N08020)
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/2" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-21, GRAPH NO. 27

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86C-403-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86C-404-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86C-405-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86C-406-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86C-407-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86C-408-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86C-500 SERIES

3-Piece Full Port Alloy 20 Class 600 Schedule 40 Butt-Weld Ball Valve

Standard Compliance - Valve Design: ASME B16.34, Class 600, NACE MR0175 (2000) & MR0103 (2003)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

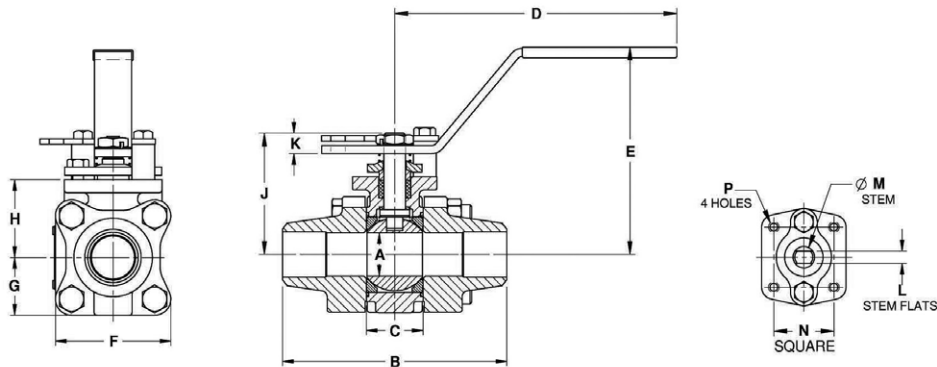
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86C-300 - Schedule 5 Butt-weld

86C-400 - Schedule 10 Butt-weld

86C-600 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CN7M
2	End Caps	ASTM A351-CN7M
3	Ball	ASTM (UNS N08020) or ASTM-CN7M
4	Stem	ASTM B473 (UNS N08020)
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/2" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-21, GRAPH NO. 27

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86C-503-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86C-504-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86C-505-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86C-506-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86C-507-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86C-508-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



86C-600 SERIES

3-Piece Full Port Alloy 20 Class 600 Schedule 80 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** ASME B16.34, Class 600, NACE MR0175 (2000) & MR0103 (2003)

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

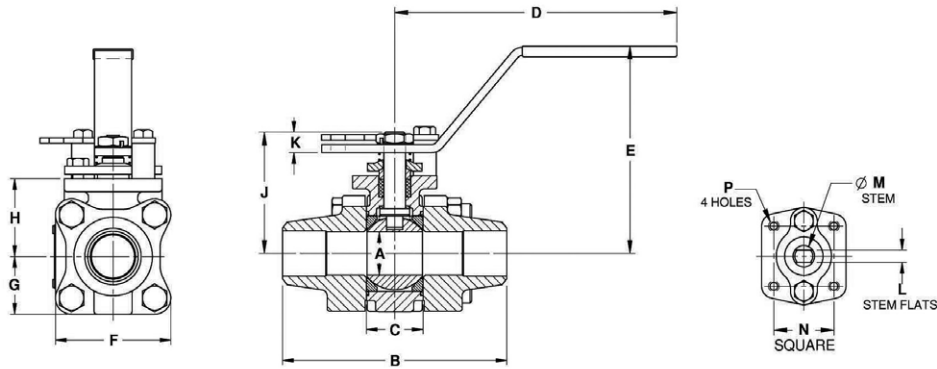
- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86C-300 - Schedule 5 Butt-weld

86C-400 - Schedule 10 Butt-weld

86C-500 - Schedule 40 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CN7M
2	End Caps	ASTM A351-CN7M
3	Ball	ASTM (UNS N08020) or ASTM-CN7M
4	Stem	ASTM B473 (UNS N08020)
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/2" to 2"
-38-	PEEK Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-21, GRAPH NO. 27

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86C-603-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86C-604-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86C-605-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86C-606-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86C-607-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86C-608-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86D-100 SERIES

3-Piece Full Port Hastelloy® C Class 600 NPT Ball Valve

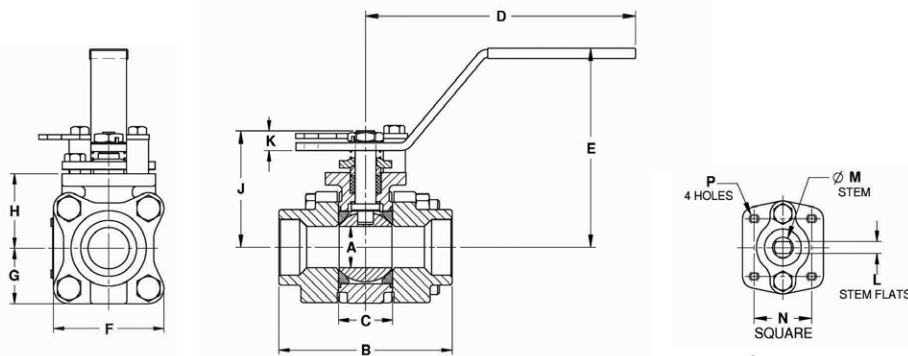
Standard Compliance - **Valve Design:** ASME B16.34, Class 600, NACE MR0175 (2000) & MR0103 (2003)

End Connections: NPT per ASME B1.20.1 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- 250 psig saturated steam



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A494-CW12MW
2	End Caps	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE/HC Spiral Wound
9	Body Bolts	ASTM A193-Gr. B8M3
10	Body Nuts	ASTM A194-Gr. 8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr. B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Grnd. Springs	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" Stem Extension
-14-	Vented Ball
-15-	Round Handle
-21-	UHMWPE Seats w/Graphite Seals
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)
-49-	No Lubrication. Assembled Dry.
-57-	Cleaned for Oxygen Service
-63-	NPT x Socketweld
-69-	Drilled & Tapped Purge & Drains
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever Operated)
-77-	Live Loaded (Actuated)

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-21, GRAPH NO. 28

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86D-101-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.000	10-24	2.3
86D-102-01	3/8"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.000	10-24	2.3
86D-103-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.000	10-24	2.3
86D-104-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86D-105-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86D-106-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86D-107-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86D-108-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	27.6



86D-200 SERIES

3-Piece Full Port Hastelloy® C Class 600 Socket-Weld Ball Valve

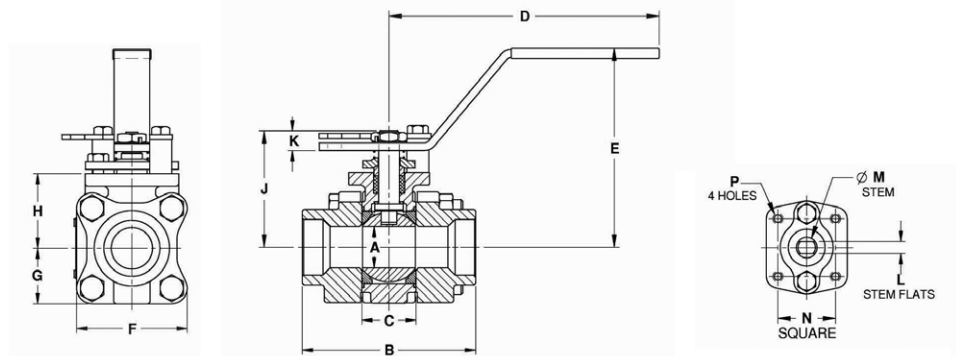
Standard Compliance - **Valve Design:** ASME B16.34, Class 600, NACE MR0175 (2000) & MR0103 (2003)

End Connections: Socket-weld per ASME B16.11 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking handle
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A494-CW12MW
2	End Caps	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE/HC Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	ASTM B574-C276
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/4" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/4" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-57-	Cleaned for Oxygen Service	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet with Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-21, GRAPH NO. 28

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86D-201-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86D-202-01	3/8"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86D-203-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86D-204-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86D-205-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86D-206-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86D-207-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86D-208-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	27.6

86J-100 SERIES

3-Piece Full Port Duplex Stainless Steel Class 600 NPT Ball Valve

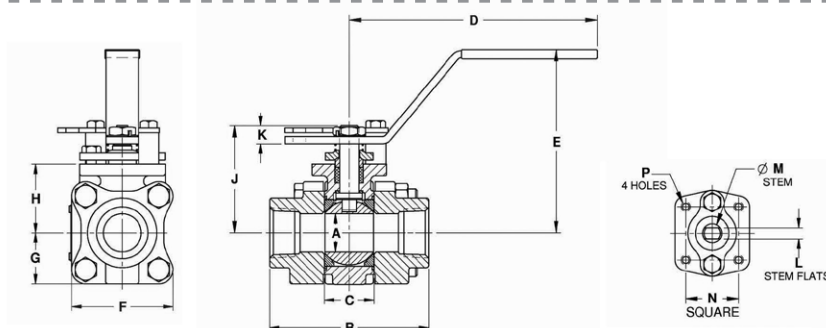
Standard Compliance - **Valve Design:** ASME B16.34, Class 600

End Connections: NPT per ASME B1.20.1 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A995 4A
2 End Caps	ASTM A995 4A
3 Ball	ASTM A276/A479 Alloy 2205
4 Stem	ASTM A276/A479 Alloy 2205
5 Seat	Multi-Seal
6 Packing	PTFE
7 Stem Bearing	PEEK/PTFE
8 Body Gasket	Inconel/Graphite
9 Body Bolts	ASTM A193-Gr.B8M3
10 Body Nuts	ASTM A194-Gr.8
11 Stop Bolts	18-8 Stainless Steel
12 Gland Bolts	ASTM A193-Gr.B8
13 Handle Nut/Screw	300 Series Stainless Steel
14 Packing Gland	ASTM A276-316SS
15 Gland Plate	300 Series Stainless Steel
16 Lever Handle	300 Series Stainless Steel
17 Lock Plate	300 Series Stainless Steel
18 Stops	300 Series Stainless Steel
19 Int. Grnd. Spring	300 Series Stainless Steel
20 Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/4" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/4" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-57-	Cleaned for Oxygen Service	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-63-	NPT x Socketweld	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet with Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"
-UL-	UL Listed	1/4" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86J-101-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86J-102-01	3/8	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86J-103-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86J-104-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86J-105-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86J-106-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86J-107-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86J-108-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



86J-200 SERIES

3-Piece Full Port Duplex Stainless Steel Class 600 Socket-Weld Ball Valve

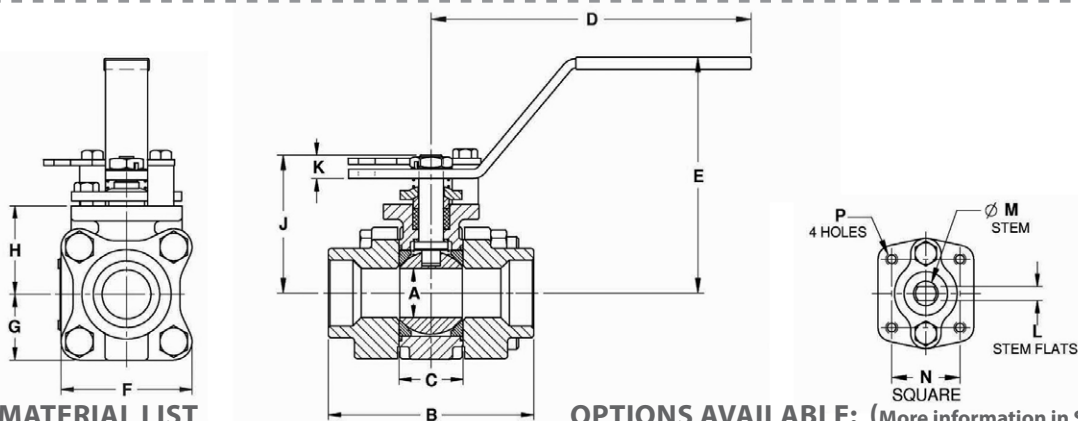
Standard Compliance - **Valve Design:** ASME B16.34, Class 600

End Connections: Socket-weld per ASME B16.11 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam (with "-24" option)



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	End Caps	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205
4	Stem	ASTM A276/A479 Alloy 2205
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	Inconel/Graphite
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle (also with two position locking)	1/4" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/4" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/4" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-57-	Cleaned for Oxygen Service	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet with Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86J-201-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86J-202-01	3/8"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86J-203-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86J-204-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86J-205-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86J-206-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86J-207-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86J-208-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86J-300 SERIES

3-Piece Full Port Duplex Stainless Steel Class 600 Schedule 5 Butt-Weld Ball Valve

Standard Compliance - Valve Design: ASME B16.34, Class 600

End Connections: Butt-weld per ASME B16.25 Valve Marking: ASME B16.34 Production Testing: ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

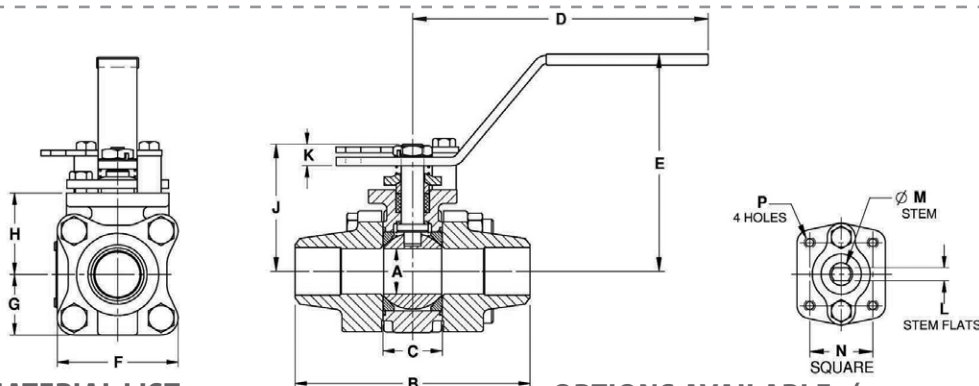
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86B-400 - Schedule 10 Butt-weld

86B-500 - Schedule 40 Butt-weld

86B-600 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	End Caps	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205
4	Stem	ASTM A276/A479 Alloy 2205
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/2" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86J-303-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86J-304-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86J-305-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86J-306-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86J-307-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86J-308-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



86J-400 SERIES

3-Piece Full Port Duplex Stainless Steel Class 600 Schedule 10 Butt-Weld Ball Valve

Standard Compliance - Valve Design: ASME B16.34, Class 600

End Connections: Butt-weld per ASME B16.25 Valve Marking: ASME B16.34 Production Testing: ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

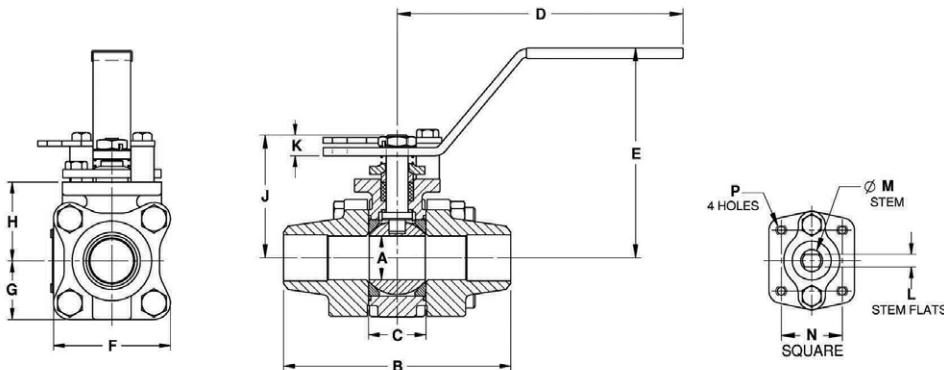
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86B-300 - Schedule 5 Butt-weld

86B-500 - Schedule 40 Butt-weld

86B-600 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	End Caps	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205
4	Stem	ASTM A276/A479 Alloy 2205
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	Inconel/Graphite
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/2" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86J-403-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86J-404-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86J-405-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86J-406-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86J-407-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86J-408-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86J-500 SERIES

3-Piece Full Port Duplex Stainless Steel Class 600 Schedule 40 Butt-Weld Ball Valve

Standard Compliance - Valve Design: ASME B16.34, Class 600

End Connections: Butt-weld per ASME B16.25 Valve Marking: ASME B16.34 Production Testing: ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

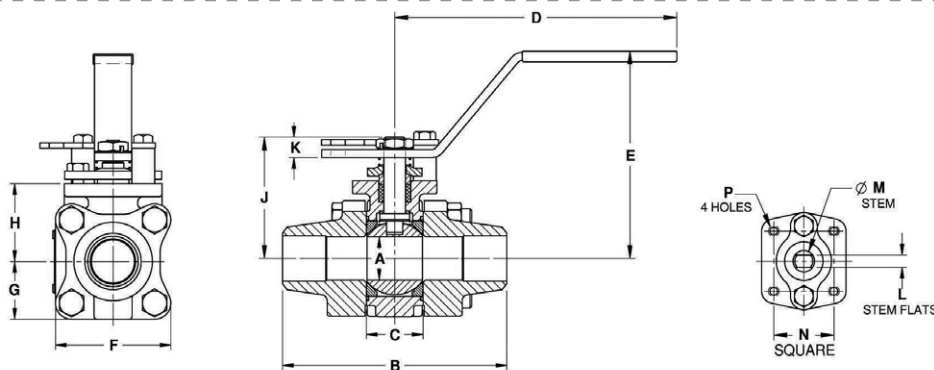
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86B-300 - Schedule 5 Butt-weld

86B-400 - Schedule 10 Butt-weld

86B-600 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	End Caps	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205
4	Stem	ASTM A276/A479 Alloy 2205
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/2" to 2"
-38-	PEEK Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86J-503-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86J-504-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86J-505-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86J-506-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86J-507-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86J-508-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



86J-600 SERIES

3-Piece Full Port Duplex Stainless Steel Class 600 Schedule 80 Butt-Weld Ball Valve

Standard Compliance - Valve Design: ASME B16.34, Class 600

End Connections: Butt-weld per ASME B16.25 Valve Marking: ASME B16.34 Production Testing: ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

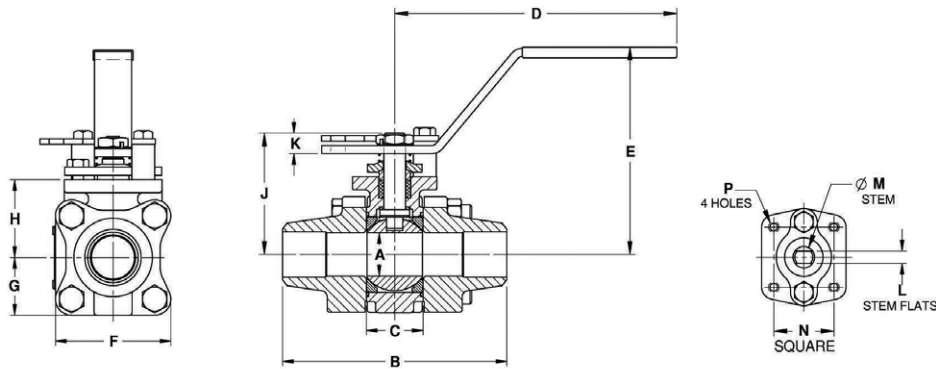
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86B-300 - Schedule 5 Butt-weld

86B-400 - Schedule 10 Butt-weld

86B-500 - Schedule 40 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	End Caps	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205
4	Stem	ASTM A276/A479 Alloy 2205
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/2" to 2"
-38-	PEEK Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86J-603-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86J-604-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86J-605-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86J-606-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86J-607-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86J-608-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86K-100 SERIES

3-Piece Full Port Super Duplex Stainless Steel Class 600 NPT Ball Valve

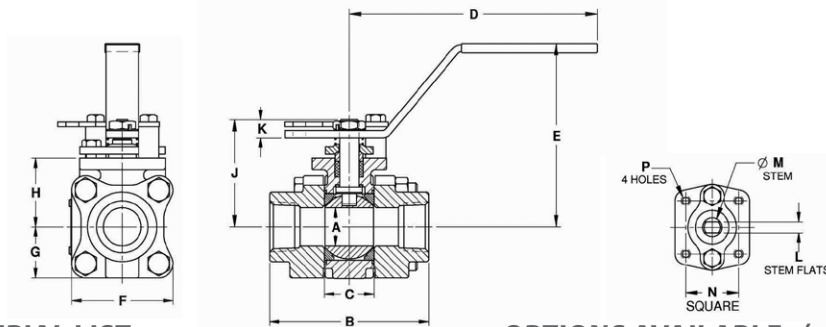
Standard Compliance - Valve Design: ASME B16.34, Class 600

End Connections: NPT per ASME B1.20.1 Valve Marking: ASME B16.34 Production Testing: ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A995 6A
2 End Caps	ASTM A995 6A
3 Ball	ASTM A276/A479 Alloy 2507
4 Stem	ASTM A276/A479 Alloy 2507
5 Seat	Multi-Seal
6 Packing	PTFE
7 Stem Bearing	PEEK/PTFE
8 Body Gasket	PTFE Spiral Wound
9 Body Bolts	ASTM A193-Gr.B8M3
10 Body Nuts	ASTM A194-Gr.8
11 Stop Bolts	18-8 Stainless Steel
12 Gland Bolts	ASTM A193-Gr.B8
13 Handle Nut/Screw	300 Series Stainless Steel
14 Packing Gland	ASTM A276-316SS
15 Gland Plate	300 Series Stainless Steel
16 Lever Handle	300 Series Stainless Steel
17 Lock Plate	300 Series Stainless Steel
18 Stops	300 Series Stainless Steel
19 Int. Grnd. Spring	300 Series Stainless Steel
20 Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/4" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/4" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-57-	Cleaned for Oxygen Service	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-63-	NPT x Socketweld	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet with Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"
-UL-	UL Listed	1/4" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86K-101-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86K-102-01	3/8	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86K-103-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86K-104-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86K-105-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86K-106-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86K-107-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86K-108-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



86K-200 SERIES

3-Piece Full Port Super Duplex Stainless Steel Class 600 Socket-Weld Ball Valve

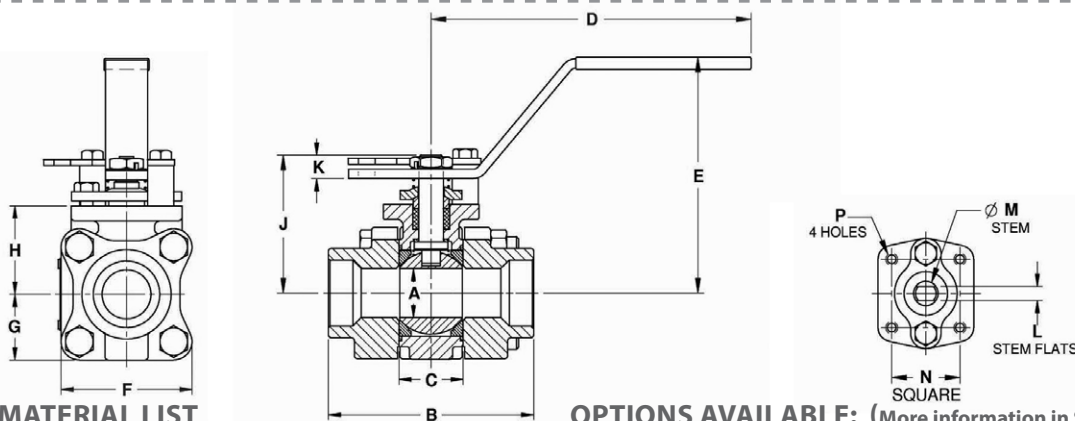
Standard Compliance - Valve Design: ASME B16.34, Class 600

End Connections: Socket-weld per ASME B16.11 Valve Marking: ASME B16.34 Production Testing: ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	End Caps	ASTM A995 6A
3	Ball	ASTM A276/A479 Alloy 2507
4	Stem	ASTM A276/A479 Alloy 2507
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/4" to 2"
-14-	Vented Ball	1/4" to 2"
-15-	Round Handle	1/4" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/4" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/4" to 2"
-38-	Peek Seats, Graphite Stem Packing & Gaskets	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 2"
-57-	Cleaned for Oxygen Service	1/4" to 2"
-62-	Center Section Only	1/4" to 2"
-69-	Drilled & Tapped Purge & Drains	1/4" to 2"
-70-	4" Extended Bonnet	1/4" to 2"
-76-	Live Loaded (Lever Operated)	1/4" to 2"
-77-	Live Loaded (Actuated)	1/4" to 2"
-90-	4" Extended Bonnet with Double Packing	1/4" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/4" to 1"
-UL-	UL Listed	1/4" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86K-201-01	1/4"	0.37	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86K-202-01	3/8"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86K-203-01	1/2"	0.50	2.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86K-204-01	3/4"	0.75	3.68	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86K-205-01	1"	1.00	4.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86K-206-01	1.25"	1.50	4.50	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86K-207-01	1.5"	1.50	4.98	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86K-208-01	2"	2.00	5.86	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86K-300 SERIES

3-Piece Full Port Super Duplex Stainless Steel Class 600 Schedule 5 Butt-Weld Ball Valve

Standard Compliance - Valve Design: ASME B16.34, Class 600

End Connections: Butt-weld per ASME B16.25 Valve Marking: ASME B16.34 Production Testing: ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

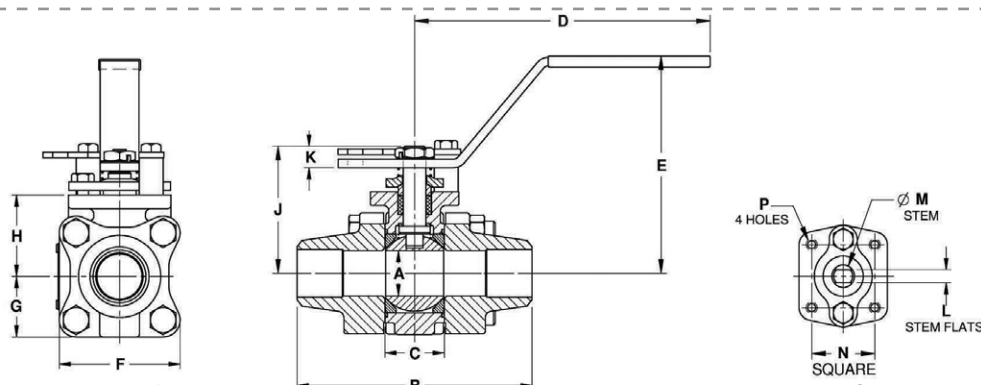
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86B-400 - Schedule 10 Butt-weld

86B-500 - Schedule 40 Butt-weld

86B-600 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	End Caps	ASTM A995 6A
3	Ball	ASTM A276/A479 Alloy 2507
4	Stem	ASTM A276/A479 Alloy 2507
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/2" to 2"
-38-	PEEK Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86K-303-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86K-304-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86K-305-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86K-306-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86K-307-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86K-308-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



86K-400 SERIES

3-Piece Full Port Super Duplex Stainless Steel Class 600 Schedule 10 Butt-Weld Ball Valve

Standard Compliance - Valve Design: ASME B16.34, Class 600

End Connections: Butt-weld per ASME B16.25 Valve Marking: ASME B16.34 Production Testing: ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

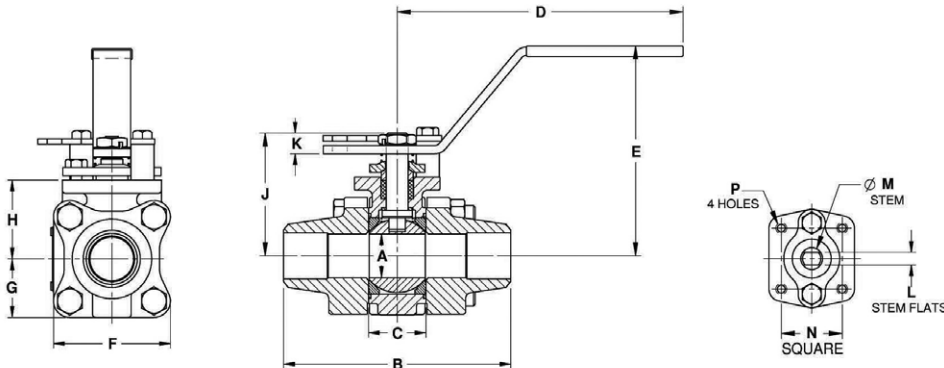
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86B-300 - Schedule 5 Butt-weld

86B-500 - Schedule 40 Butt-weld

86B-600 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	End Caps	ASTM A995 6A
3	Ball	ASTM A276/A479 Alloy 2507
4	Stem	ASTM A276/A479 Alloy 2507
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/2" to 2"
-38-	PEEK Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86K-403-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86K-404-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86K-405-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86K-406-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86K-407-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86K-408-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

86K-500 SERIES

3-Piece Full Port Super Duplex Stainless Steel Class 600 Schedule 40 Butt-Weld Ball Valve

Standard Compliance - Valve Design: ASME B16.34, Class 600

End Connections: Butt-weld per ASME B16.25 Valve Marking: ASME B16.34 Production Testing: ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

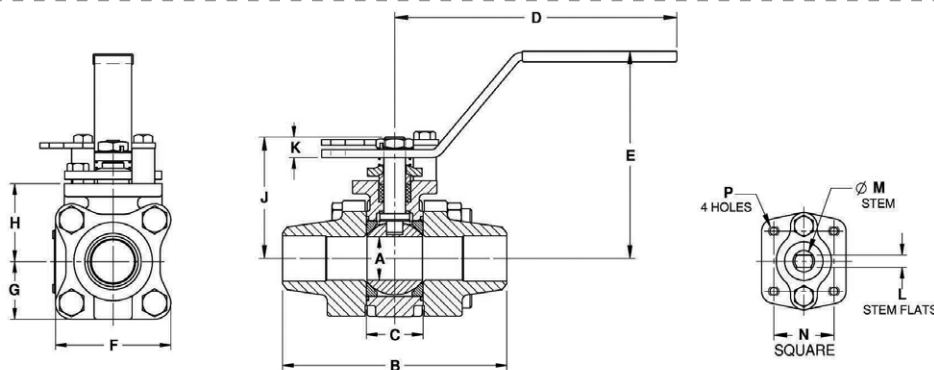
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86B-300 - Schedule 5 Butt-weld

86B-400 - Schedule 10 Butt-weld

86B-600 - Schedule 80 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	End Caps	ASTM A995 6A
3	Ball	ASTM A276/A479 Alloy 2507
4	Stem	ASTM A276/A479 Alloy 2507
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04	2.25" Stem Extension	1/2" to 2"
-14	Vented Ball	1/2" to 2"
-15	Round Handle	1/2" to 2"
-21	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/2" to 2"
-38	PEEK Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49	No Lubrication. Assembled Dry.	1/2" to 2"
-57	Cleaned for Oxygen Service	1/2" to 2"
-62	Center Section Only	1/2" to 2"
-66	FNPT x Buttweld	1/2" to 2"
-69	Drilled & Tapped Purge & Drains	1/2" to 2"
-70	4" Extended Bonnet	1/2" to 2"
-76	Live Loaded (Lever Operated)	1/2" to 2"
-77	Live Loaded (Actuated)	1/2" to 2"
-90	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR	Spring Return Handle	1/2" to 1"
-UL	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86K-503-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86K-504-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86K-505-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86K-506-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86K-507-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86K-508-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4



86K-600 SERIES

3-Piece Full Port Super Duplex Stainless Steel Class 600 Schedule 80 Butt-Weld Ball Valve

Standard Compliance - **Valve Design:** ASME B16.34, Class 600

End Connections: Butt-weld per ASME B16.25 **Valve Marking:** ASME B16.34 **Production Testing:** ASME B16.34



FEATURES

- 3-Piece construction w/ enclosed fasteners
- Full port
- Stainless steel trim & hardware
- Swing-out center section
- Pressure balanced solid ball
- Compression controlled spiral wound gaskets
- Anti-blowout one piece bottom entry stem
- Statically grounded ball, stem, & body
- Two-position locking
- Adjustable multi-piece PTFE "V" style packing

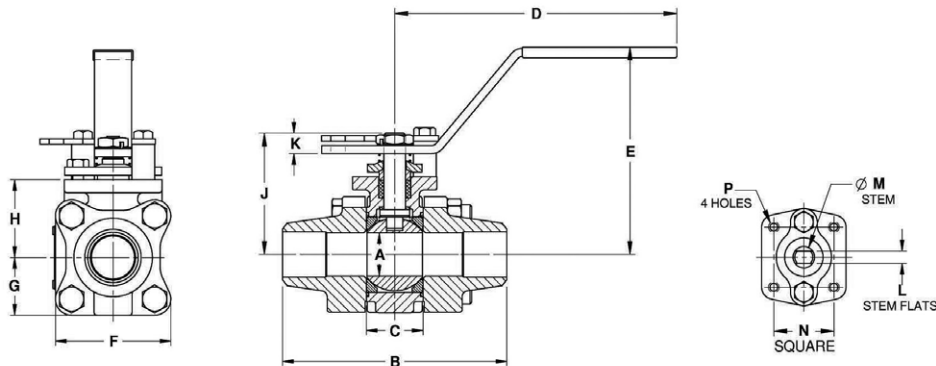
- Fully machined ISO 5211 mounting
- Cast bosses on the center-section and end caps for bleed & drain ports
- Vacuum service to 29 in of Hg.
- CE mark, 1.25" and larger
- 250 psig saturated steam

VARIATIONS AVAILABLE:

86B-300 - Schedule 5 Butt-weld

86B-400 - Schedule 10 Butt-weld

86B-500 - Schedule 40 Butt-weld



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	End Caps	ASTM A995 6A
3	Ball	ASTM A276/A479 Alloy 2507
4	Stem	ASTM A276/A479 Alloy 2507
5	Seat	Multi-Seal
6	Packing	PTFE
7	Stem Bearing	PEEK/PTFE
8	Body Gasket	PTFE Spiral Wound
9	Body Bolts	ASTM A193-Gr.B8M3
10	Body Nuts	ASTM A194-Gr.8
11	Stop Bolts	18-8 Stainless Steel
12	Gland Bolts	ASTM A193-Gr.B8
13	Handle Nut/Screw	300 Series Stainless Steel
14	Packing Gland	ASTM A276-316SS
15	Gland Plate	300 Series Stainless Steel
16	Lever Handle	300 Series Stainless Steel
17	Lock Plate	300 Series Stainless Steel
18	Stops	300 Series Stainless Steel
19	Int. Grnd. Spring	300 Series Stainless Steel
20	Ext. Grnd. Spring	300 Series Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-04-	2.25" Stem Extension	1/2" to 2"
-14-	Vented Ball	1/2" to 2"
-15-	Round Handle	1/2" to 2"
-21-	UHMWPE Seats w/Graphite Seals	1/2" to 2"
-24-	Fire Safe - Graphite Packing & Gaskets (API 607 Type Design)	1/2" to 2"
-38-	PEEK Seats, Graphite Stem Packing & Gaskets	1/2" to 2"
-49-	No Lubrication. Assembled Dry.	1/2" to 2"
-57-	Cleaned for Oxygen Service	1/2" to 2"
-62-	Center Section Only	1/2" to 2"
-66-	FNPT x Buttweld	1/2" to 2"
-69-	Drilled & Tapped Purge & Drains	1/2" to 2"
-70-	4" Extended Bonnet	1/2" to 2"
-76-	Live Loaded (Lever Operated)	1/2" to 2"
-77-	Live Loaded (Actuated)	1/2" to 2"
-90-	4" Extended Bonnet with Double Packing	1/2" to 2"
-9P-	4" Extended Bonnet with Double Packing & Port	1/4" to 2"
-SR-	Spring Return Handle	1/2" to 1"
-UL-	UL Listed	1/2" to 2"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-20, GRAPH NO. 26

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT.
86K-603-01	1/2"	0.50	3.80	0.89	5.12	3.02	2.02	1.01	1.39	1.97	0.23	0.245	0.375	1.00	10-24	2.3
86K-604-01	3/4"	0.75	4.66	1.10	5.53	3.40	2.40	1.20	1.65	2.35	0.24	0.312	0.500	1.392	1/4-20	4.0
86K-605-01	1"	1.00	5.19	1.31	6.53	4.80	2.67	1.34	1.80	2.80	0.48	0.287	0.500	1.392	1/4-20	5.7
86K-606-01	1.25"	1.50	5.48	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.2
86K-607-01	1.5"	1.50	5.96	1.97	6.65	4.70	3.84	1.92	2.49	3.89	0.72	0.412	0.625	1.949	5/16-18	14.4
86K-608-01	2"	2.00	6.84	2.56	8.40	5.47	4.56	2.46	3.17	4.74	0.80	0.477	0.750	1.949	5/16-18	24.4

83R-140 SERIES

Carbon Steel 3-Piece Full Port Ball Valve With Actuator Ready ISO Mounting Pad 1.5" & 2"

Full Port Threaded, 800 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.
Meets NACE MR0175 (2000) & MR0103 (2012)

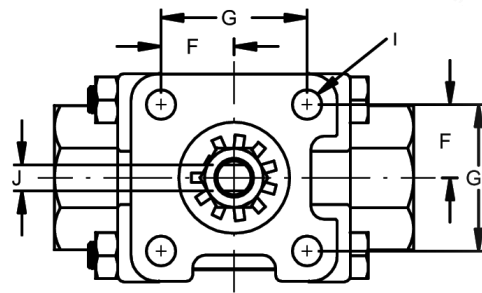
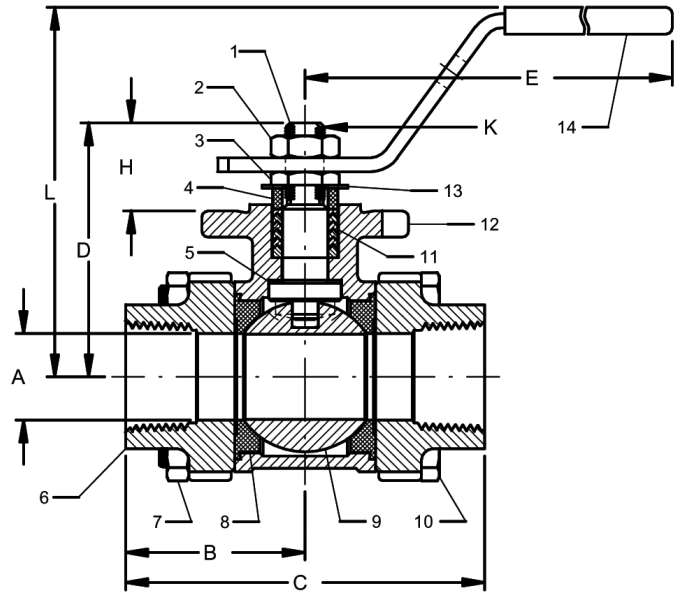


FEATURES

- Multi-piece packing set
- ISO 5211 mounting pad
- Blow-out-proof stem design
- In-line repairable
- Adjustable packing gland
- Investment cast components
- Reinforced seats and seals
- Full port configuration

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-P -01-	BSPP (Parallel) Thread Connection
-T -01-	BSPT (Tapered) Thread Connection
-02-	Static Grounded
-04-	2.25" Stem Extension
-08-	90° Reversed Stem
-10-	SS Lever & Nut
-14-	Vented Ball
-18-	Plain Yellow Grip
-21-	UHMWPE Seats (Non-PTFE)
-24-	Graphite Stem Packing (not fire safe)
-27-	Latch Lock Lever
-35-	PTFE Trim
-36-	SS Round Handle
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut
-56-	Multifill Seats & Graphite Packing
-59-	SS External Trim - 3-pc. Valves
-60-	Grounded Ball & Stem
-63-	NPT x Socket Weld
-66-	NPT x Buttweld
-AR-	Less Handle & Stop-Add Belleville Washers
-WB-	With Lever & Belleville Washers



STANDARD MATERIAL LIST

PART	MATERIAL
1 Stem	A276-316
2 Jam nut	Steel, zinc plate
3 Low profile nut	316 SS
4 Gland	A276-316
5 Stem bearing	RPTFE
6 End cap (2)	A216-WCB
7 Hex nut (4)	Stl-gr. 8-zinc plt
8 Seat (2)	RPTFE
9 Ball	316 SS
10 Body bolt (4)	Stl-gr. 8-zinc plt
11 Stem packing	MPTFE
12 Body	ASTM A216-WCB
13 Lock tab washer	304 SS
14 Lever and grip	Stl-zinc plt-w/vinyl

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 7

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K (THRDS.) UNF	L
83R-147-01	1.5"	1.50	2.59	5.18	3.49	8.06	.98	1.95	1.16	0.34	.370/.372	5/8-18	4.35
83R-148-01	2"	2.00	3.01	6.03	3.95	8.06	.98	1.95	1.16	0.34	.370/.372	5/8-18	4.85



83R-140 SERIES

Carbon Steel 3-Piece Full Port Ball Valve With Actuator Ready ISO Mounting Pad 3"

Full Port Threaded, 800 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.
Meets NACE MR0175 (2000) & MR0103 (2012)



FEATURES

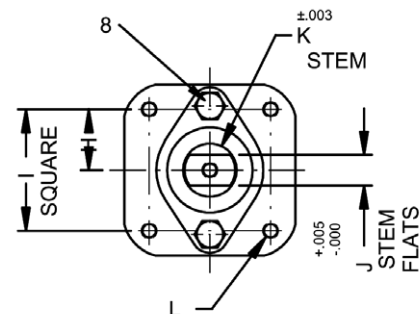
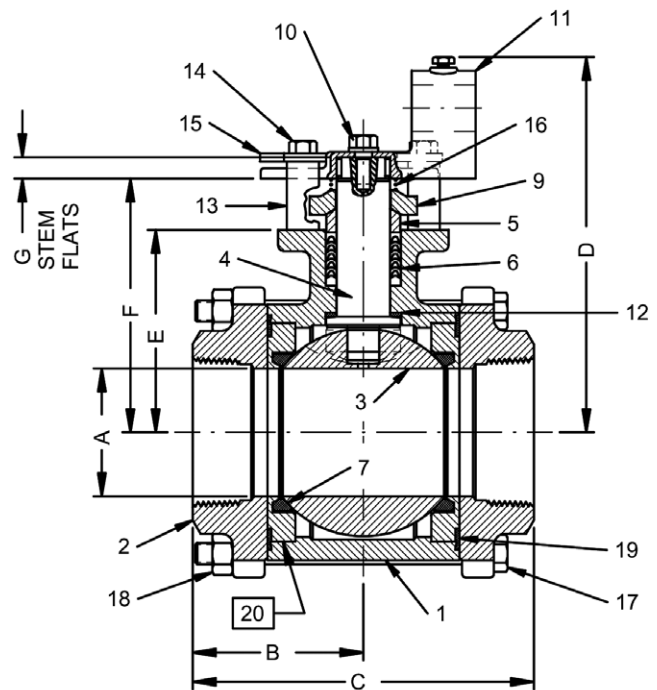
- Multi-piece packing set
- ISO 5211 mounting pad
- Blow-out-proof stem design
- In-line repairable
- Adjustable packing gland
- Investment cast components
- Reinforced seats and seals
- Full port configuration

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Static Grounded	3"
-14-	Vented Ball	3"
-24-	Graphite Stem Packing (not fire safe)	3"
-35-	PTFE Trim	3"
-49-	Assembled Dry	3"
-57-	Cleaned For Gaseous Oxygen	3"
-60-	Grounded Ball & Stem	3"
-63-	NPT x Socket Weld	3"
-70-	4" Extended Bonnet	3"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216-WCB
2 End Caps	ASTM A216-WCB
3 Ball	316 SS
4 Stem	A276-316
5 Packing Gland	Carbon Steel
6 Stem Seal	MPTFE
7 Seats (2)	RPTFE
8 Gland Screws (2)	Stainless Steel
9 Gland Plate	Stainless Steel
10 Adapter Screw	Stainless Steel
11 Handle Adapter	Stainless Steel
12 Stem Bearing	RPTFE
13 Stops (2)	Stainless Steel
14 Stop Screws (2)	Stainless Steel
15 Lock Plate	Stainless Steel
16 Grounding Spring	Stainless Steel
17 Body Bolts (6)	Stainless Steel
18 Heavy Hex Nuts (6)	Stainless Steel
19 Body Seals (2)	RPTFE
20 Seat Holders (2)	Carbon Steel
21 Pipe Handle	(not shown)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 7

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K	L (THRDS.) UNF
83R-140-01	3"	3.00	4.00	8.00	8.80	4.75	5.94	0.50	1.420	2.840	0.725	1.250	3.28

83R-240 SERIES

Carbon Steel 3-Piece Full Port Socket Weld Ball Valve With Actuator Ready ISO Mounting Pad 1.5" & 2"

Socket Weld, 800 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.
Meets NACE MR0175 (2000) & MR0103 (2012)

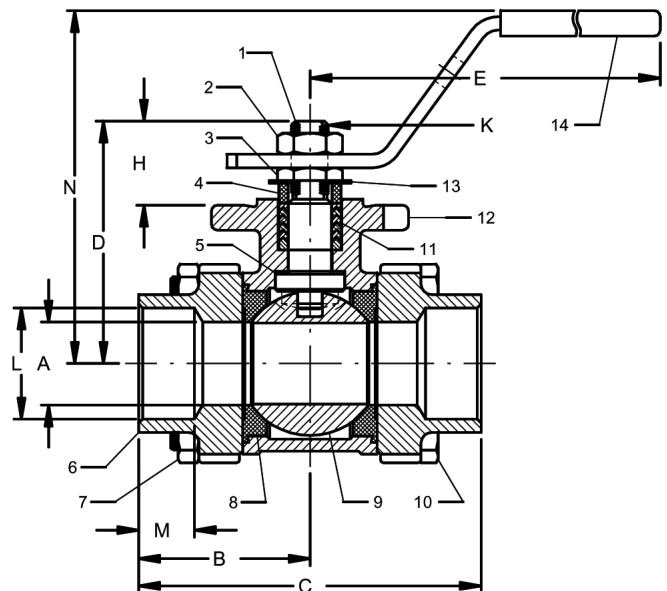


FEATURES

- Multi-piece packing set
- ISO 5211 mounting pad
- Blow-out-proof stem design
- In-line repairable
- Adjustable packing gland
- Investment cast components
- Reinforced seats and seals
- Full port configuration

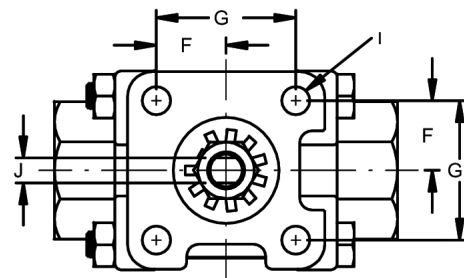
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-02-	Static Grounded
-04-	2.25" Stem Extension
-08-	90° Reversed Stem
-10-	SS Lever & Nut
-14-	Vented Ball (see page J-4)
-18-	Plain Yellow Grip
-21-	UHMWPE Seats (Non-PTFE)
-24-	Graphite Stem Packing (not fire safe)
-27-	Latch Lock Lever
-35-	PTFE Trim
-36-	SS Round Handle
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut
-59-	SS External Trim - 3-pc. Valves
-60-	Grounded Ball & Stem
-AR-	Less Handle & Stop-Add Belleville Washers
-WB-	With Lever & Belleville Washers



STANDARD MATERIAL LIST

PART	MATERIAL
1 Stem	A276-316
2 Jam nut	Steel, zinc plate
3 Low profile nut	316 SS
4 Gland	A276-316
5 Stem bearing	RPTFE
6 End cap (2)	A216-WCB
7 Hex nut (4)	Stl-gr. 8-zinc plt
8 Seat (2)	RPTFE
9 Ball	316 SS
10 Body bolt (4)	Stl-gr. 8-zinc plt
11 Stem packing	MPTFE
12 Body	ASTM A216-WCB
13 Lock tab washer	304 SS
14 Lever and grip	Stl-zinc plt-w/vinyl



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 7

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K (THRDS.)UNF	L	M	N
83R-247-01	1.5"	1.50	2.59	5.18	3.49	8.06	0.98	1.95	1.16	0.34	.370/.372	5/8-18	1.915	0.87	4.38
83R-248-01	2"	2.00	3.01	6.03	3.95	8.06	0.98	1.95	1.16	0.34	.370/.372	5/8-18	2.405	1.05	4.85

83R-240 SERIES

Carbon Steel 3-Piece Full Port Socket Weld Ball Valve With Actuator Ready ISO Mounting Pad 3"

Socket Weld, 800 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.
Meets NACE MR0175 (2000) & MR0103 (2012)



FEATURES

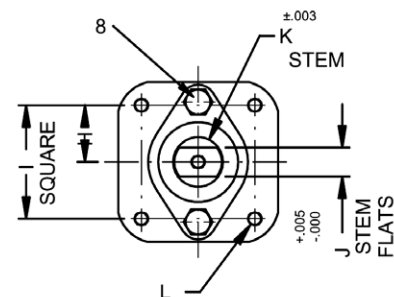
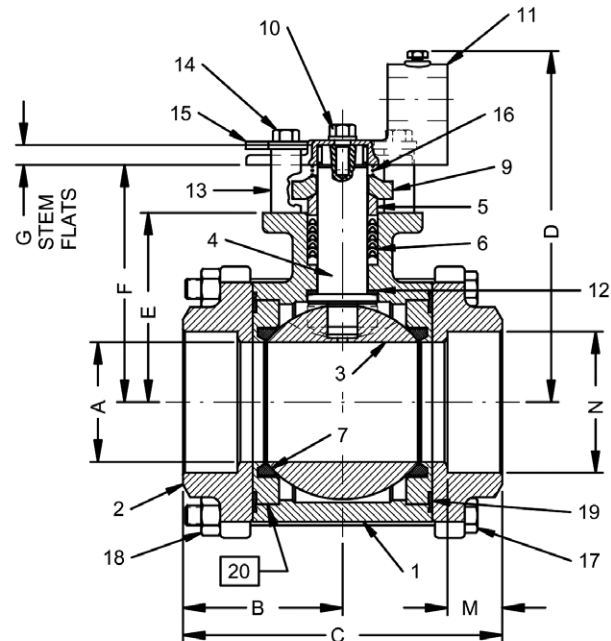
- Multi-piece packing set
- ISO 5211 mounting pad
- Blow-out-proof stem design
- In-line repairable
- Adjustable packing gland
- Investment cast components
- Reinforced seats and seals
- Full port configuration

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Static Grounded	3"
-14-	Vented Ball	3"
-24-	Graphite Stem Packing (not fire safe)	3"
-35-	PTFE Trim	3"
-49-	Assembled Dry	3"
-57-	Cleaned For Gaseous Oxygen	3"
-60-	Grounded Ball & Stem	3"
-70-	4" Extended Bonnet	3"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216-WCB
2 End Caps	ASTM A216-WCB
3 Ball	316 SS
4 Stem	A276-316
5 Packing Gland	Carbon Steel
6 Stem Seal	MPTFE
7 Seats (2)	RPTFE
8 Gland Screws (2)	Stainless Steel
9 Gland Plate	Stainless Steel
10 Adapter Screw	Stainless Steel
11 Handle Adapter	Stainless Steel
12 Stem Bearing	RPTFE
13 Stops (2)	Stainless Steel
14 Stop Screws (2)	Stainless Steel
15 Lock Plate	Stainless Steel
16 Grounding Spring	Stainless Steel
17 Body Bolts (6)	Stainless Steel
18 Heavy Hex Nuts (6)	Stainless Steel
19 Body Seals (2)	RPTFE
20 Seat Holders (2)	Carbon Steel
21 Pipe Handle	(not shown)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 7

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K	L (THRDS.) UNF	M	N
83R-240-01	3"	3.00	4.00	8.00	8.80	4.75	5.94	0.50	1.420	2.840	0.725	1.250	3/8-16	1.37	3.54

83R-740 SERIES

Carbon Steel 3-Piece Full Port Butt-Weld Ball Valve With Actuator Ready ISO Mounting Pad 1.5" & 2"

Schedule 40 Butt-Weld Ends, 800 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-72; Ball Valves with Flanged or Butt-Weld Ends for General Service.
Meets NACE MR0175 (2000) & MR0103 (2012)

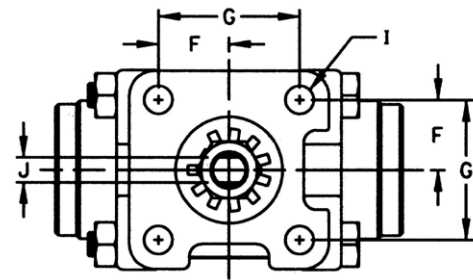
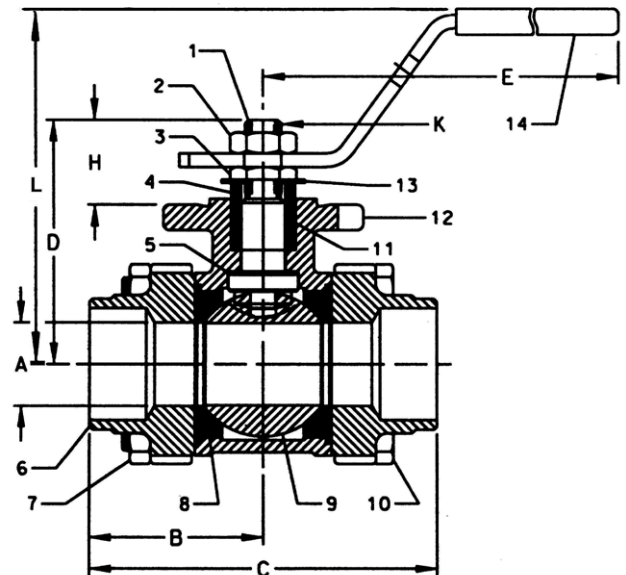


FEATURES

- Multi-piece packing set
- ISO 5211 mounting pad
- Blow-out-proof stem design
- In-line repairable
- Adjustable packing gland
- Investment cast components
- Reinforced seats and seals
- Full port configuration

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-02-	Static Grounded
-04-	2.25" Stem Extension
-08-	90° Reversed Stem
-10-	SS Lever & Nut
-14-	Vented Ball
-18-	Plain Yellow Grip
-21-	UHMWPE Seats (Non-PTFE)
-24-	Graphite Stem Packing (not fire safe)
-27-	Latch Lock Lever
-35-	PTFE Trim
-36-	SS Round Handle
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut
-59-	SS External Trim - 3-pc. Valves
-60-	Grounded Ball & Stem
-AR-	Less Handle & Stop-Add Belleville Washers
-WB-	With Lever & Belleville Washers



STANDARD MATERIAL LIST

PART	MATERIAL
1 Stem	A276-316
2 Jam nut	Steel, zinc plated
3 Low profile nut	316 SS
4 Gland	A276-316
5 Stem bearing	RPTFE
6 End cap (2)	A216-WCB
7 Hex nut (4)	Stl-gr. 8-zinc plated
8 Seat (2)	RPTFE
9 Ball	316 SS
10 Body bolt (4)	Stl-gr. 8-zinc plated
11 Stem packing	MPTFE
12 Body	ASTM A216-WCB
13 Lock tab washer	304 SS
14 Lever and grip	Stl-zinc plated-w/vinyl

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 7

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K (THRDS.)UNF	L
83R-747-01	1.5"	1.50	2.59	5.18	3.49	8.06	0.98	1.95	1.16	0.34	.370/.372	5/8-18	4.35
83R-748-01	2"	2.00	3.01	6.03	3.95	8.06	0.98	1.95	1.16	0.34	.370/.372	5/8-18	4.85

86R-100 SERIES

Stainless Steel 3-Piece Full Port Ball Valve With Actuator Ready ISO Mounting Pad 1.5" & 2"

Full Port Threaded, 800 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.
Meets NACE MR0175 (2000) & MR0103 (2012)

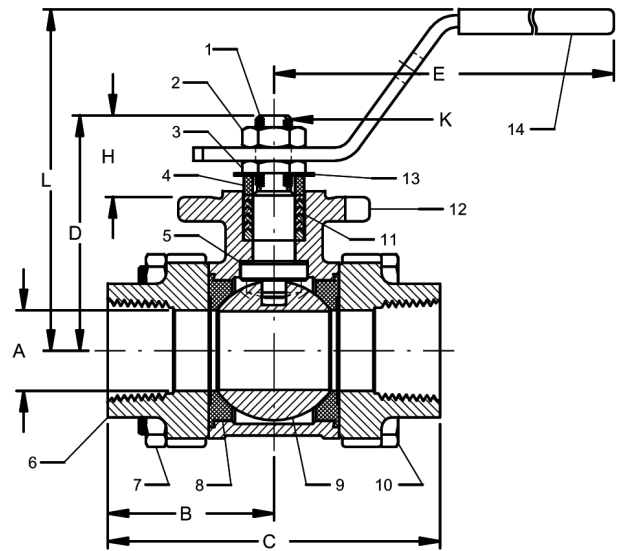


FEATURES

- Multi-piece packing set
- ISO 5211 mounting pad
- Blow-out-proof stem design
- In-line repairable
- Adjustable packing gland
- Investment cast components
- Reinforced seats and seals
- Full port configuration

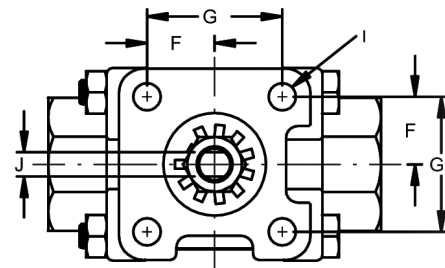
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-P -01-	BSPP (Parallel) Thread Connection
-T -01-	BSPT (Tapered) Thread Connection
-02-	Static Grounded
-04-	2.25" Stem Extension
-08-	90° Reversed Stem
-14-	Vented Ball
-18-	Plain Yellow Grip
-21-	UHMWPE Seats (Non-PTFE)
-24-	Graphite Stem Packing (not fire safe)
-27-	Latch Lock Lever
-35-	PTFE Trim
-36-	SS Round Handle
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut
-49-	Assembled Dry
-57-	Oxygen Cleaned
-60-	Grounded Ball & Stem
-63-	Threaded x Socket Weld
-AR-	Less Handle & Stop-Add Belleville Washers
-WB-	With Lever & Belleville Washers



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Stem	A276-316
2	Jam nut	SS
3	Low profile nut	316 SS
4	Gland	A276-316
5	Stem bearing	RPTFE
6	End cap (2)	ASTM A351-CF3M
7	Hex nut (4)	18-8 SS
8	Seat (2)	RPTFE
9	Ball	316 SS
10	Body bolt (4)	18-8 SS
11	Stem packing	MPTFE
12	Body	ASTM A351-CF8M
13	Lock tab washer	304 SS
14	Lever and grip	304 SS w/vinyl



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 8

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K (THRDS.)UNF	L
86R-107-01	1.5"	1.50	2.59	5.18	3.49	8.00	0.98	1.95	1.16	0.34	.370/.372	5/8-18	4.35
86R-108-01	2"	2.00	3.01	6.03	3.95	8.06	0.98	1.95	1.16	0.34	.370/.372	5/8-18	4.85

86R-100 SERIES

Stainless Steel 3-Piece Full Port Ball Valve With Actuator Ready ISO Mounting Pad 3"

Full Port Threaded, 800 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.
Meets NACE MR0175 (2000) & MR0103 (2012)



FEATURES

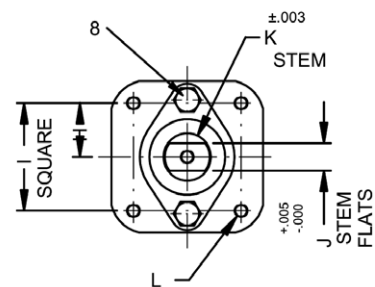
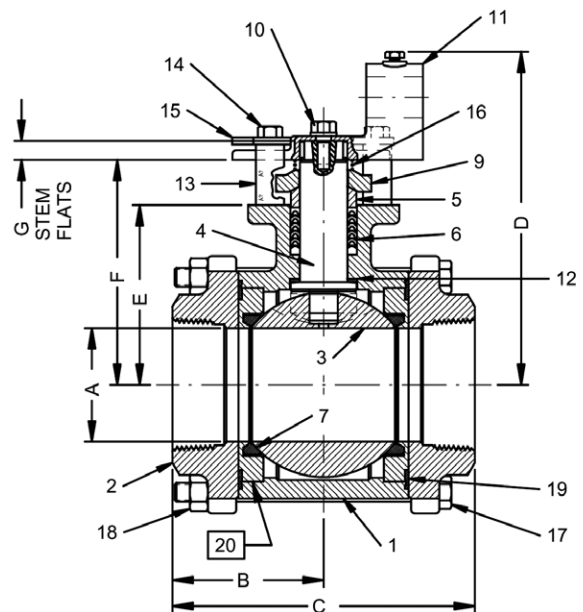
- Multi-piece packing set
- ISO 5211 mounting pad
- Blow-out-proof stem design
- In-line repairable
- Adjustable packing gland
- Investment cast components
- Reinforced seats and seals
- Full port configuration

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Static Grounded	3"
-14-	Vented Ball	3"
-24-	Graphite Stem Packing (not fire safe)	3"
-35-	PTFE Trim	3"
-49-	Assembled Dry	3"
-57-	Oxygen Cleaned	3"
-60-	Grounded Ball & Stem	3"
-63-	Threaded x Socket Weld	3"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351-CF8M
2 End Caps (2)	ASTM A351-CF8M
3 Ball	316 SS
4 Stem	A276-316
5 Packing Gland	316 SS
6 Stem Seal	MPTFE
7 Seats (2)	RPTFE
8 Gland Screws (2)	Stainless Steel
9 Gland Plate	Stainless Steel
10 Adapter Screw	Stainless Steel
11 Handle Adapter	Stainless Steel
12 Stem Bearing	RPTFE
13 Stops (2)	Stainless Steel
14 Stop Screws (2)	Stainless Steel
15 Lock Plate	Stainless Steel
16 Grounding Spring	Stainless Steel
17 Body Bolts (6)	Stainless Steel
18 Heavy Hex Nuts (6)	Stainless Steel
19 Body Seals (2)	RPTFE
20 Seat Holders (2)	Stainless Steel
21 Pipe Handle	(not shown)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 8

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K	L (THRDS.)UNF
86R-100-01	3"	3.00	4.00	8.00	8.80	4.75	5.94	0.50	1.420	2.840	0.725	1.250	3/8-16

86R-200 SERIES

Stainless Steel 3-Piece Full Port Socket Weld Valve Ball Valve With Actuator Ready ISO Mounting Pad 1.5" & 2"

Socket Weld, 800 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.
Meets NACE MR0175 (2000) & MR0103 (2012)

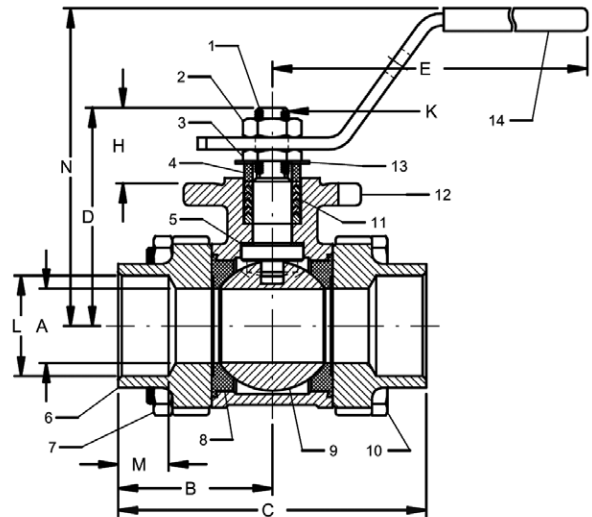


FEATURES

- Multi-piece packing set
- ISO 5211 mounting pad
- Blow-out-proof stem design
- In-line repairable
- Adjustable packing gland
- Investment cast components
- Reinforced seats and seals
- Full port configuration

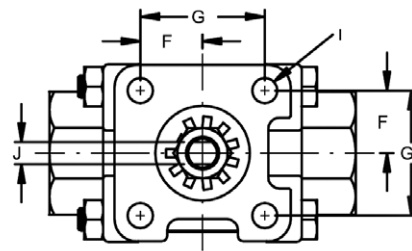
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-02-	Static Grounded
-04-	2.25" Stem Extension
-08-	90° Reversed Stem
-14-	Vented Ball
-18-	Plain Yellow Grip
-21-	UHMWPE Seats (Non-PTFE)
-24-	Graphite Stem Packing (not fire safe)
-27-	Latch Lock Lever
-35-	PTFE Trim
-36-	SS Round Handle
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut
-49-	Assembled Dry
-56-	Multi-fill Seats
-57-	Oxygen Cleaned
-60-	Grounded Ball & Stem
-AR-	Less Handle & Stop-Add Belleville Washers
-WB-	With Lever & Belleville Washers



STANDARD MATERIAL LIST

PART	MATERIAL
1 Stem	A276-316
2 Jam nut	SS
3 Low profile nut	316 SS
4 Gland	A276-316
5 Stem bearing	RPTFE
6 End cap (2)	ASTM A351-CF3M
7 Hex nut (4)	18-8 SS
8 Seat (2)	RPTFE
9 Ball	316 SS
10 Body bolt (4)	18-8 SS
11 Stem packing	MPTFE
12 Body	ASTM A351-CF8M
13 Lock tab washer	304 SS
14 Lever and grip	304 SS w/vinyl



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 8

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K (THRDS.) UNF	L	M	N
86R-207-01	1.5"	1.50	2.59	5.18	3.49	8.06	0.98	1.95	1.16	0.34	.370/.372	5/8-18	1.915	0.87	4.38
86R-208-01	2"	2.00	3.01	6.03	3.95	8.06	0.98	1.95	1.16	0.34	.370/.372	5/8-18	2.405	1.05	4.85

Stainless Steel 3-Piece Full Port Socket Weld Valve Ball Valve With Actuator Ready ISO Mounting Pad 3"

Socket Weld, 800 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.
Meets NACE MR0175 (2000) & MR0103 (2012)



FEATURES

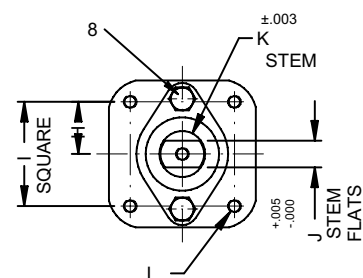
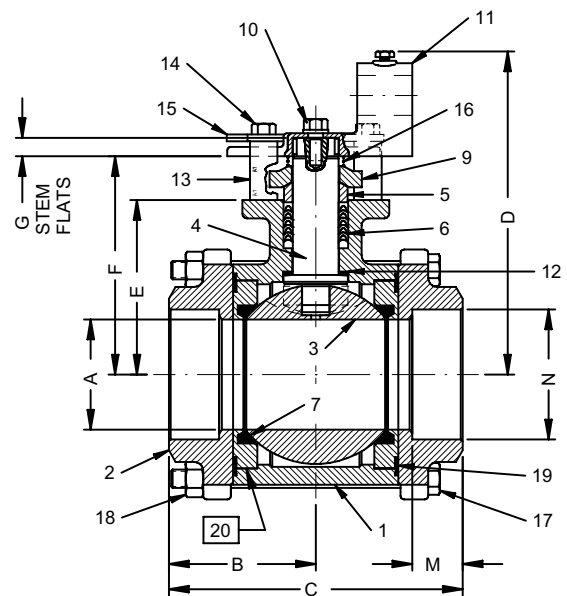
- Multi-piece packing set
- ISO 5211 mounting pad
- Blow-out-proof stem design
- In-line repairable
- Adjustable packing gland
- Investment cast components
- Reinforced seats and seals
- Full port configuration

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Static Grounded	3"
-14-	Vented Ball	3"
-24-	Graphite Stem Packing (not fire safe)	3"
-35-	PTFE Trim	3"
-49-	Assembled Dry	3"
-57-	Oxygen Cleaned	3"
-60-	Grounded Ball & Stem	3"
-70-	4" Extended Bonnet	3"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	End Caps (2)	ASTM A351-CF8M
3	Ball	316 SS
4	Stem	A276-316
5	Packing Gland	316 SS
6	Stem Seal	MPTFE
7	Seats (2)	RPTFE
8	Gland Screws (2)	Stainless Steel
9	Gland Plate	Stainless Steel
10	Adapter Screw	Stainless Steel
11	Handle Adapter	Stainless Steel
12	Stem Bearing	RPTFE
13	Stops (2)	Stainless Steel
14	Stop Screws (2)	Stainless Steel
15	Lock Plate	Stainless Steel
16	Grounding Spring	Stainless Steel
17	Body Bolts (6)	Stainless Steel
18	Heavy Hex Nuts (6)	Stainless Steel
19	Body Seals (2)	RPTFE
20	Seat Holders (2)	Stainless Steel
21	Pipe Handle	(not shown)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 8

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K	L (THRDS.)	JUNF	M	N
86R-200-01	3"	3.00	4.00	8.00	8.80	4.75	5.94	0.50	1.420	2.840	0.725	1.250	3/8-16		1.37	3.54

86R-700 SERIES

Stainless Steel 3-Piece Full Port Butt-Weld Ball Valve With Actuator Ready ISO Mounting Pad 1.5" & 2"

Schedule 10 Butt-Weld Ends, 800 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam.

Vacuum Service to 29 inches Hg.

MSS SP-72 compliant.

Meets NACE MR0175 (2000) & MR0103 (2012)

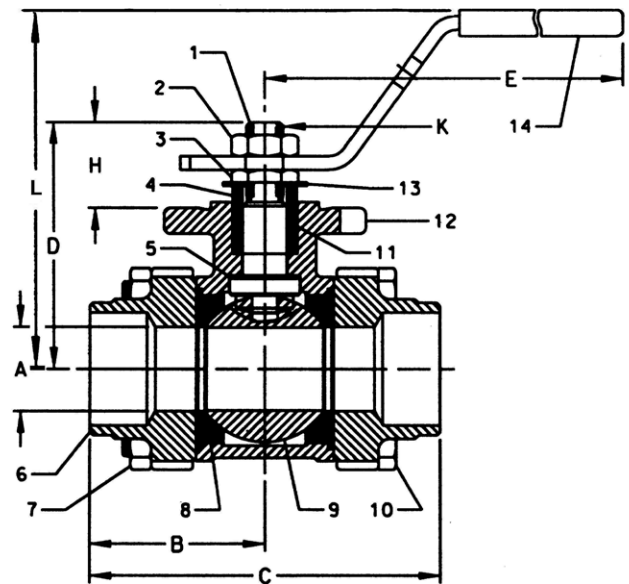


FEATURES

- Multi-piece packing set
- ISO 5211 mounting pad
- Blow-out-proof stem design
- In-line repairable
- Adjustable packing gland
- Investment cast components
- Reinforced seats and seals
- Full port configuration

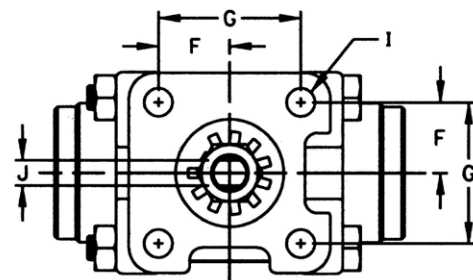
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-02-	Static Grounded
-04-	2.25" Stem Extension
-08-	90° Reversed Stem
-14-	Vented Ball
-18-	Plain Yellow Grip
-21-	UHMWPE Seats (Non-PTFE)
-24-	Graphite Stem Packing (not fire safe)
-27-	Latch Lock Lever
-35-	PTFE Trim
-36-	SS Round Handle
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut
-49-	Assembled Dry
-57-	Oxygen Cleaned
-60-	Grounded Ball & Stem
-AR-	Less Handle & Stop-Add Belleville Washers
-WB-	With Lever & Belleville Washers



STANDARD MATERIAL LIST

PART	MATERIAL
1 Stem	A276-316
2 Jam nut	Stainless Steel
3 Low profile nut	316 SS
4 Gland	A276-316
5 Stem bearing	RPTFE
6 End cap (2)	ASTM A351-CF3M
7 Hex nut (4)	18-8 SS
8 Seat (2)	RPTFE
9 Ball	316 SS
10 Body bolt (4)	18-8 SS
11 Stem packing	MPTFE
12 Body	ASTM A351-CF8M
13 Lock tab washer	304 SS
14 Lever and grip	304 SS w/vinyl



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 8

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K (THRDS.) UNF	L
86R-707-01	1.5"	1.50	2.59	5.18	3.49	8.06	0.98	1.95	1.16	0.34	.370/.372	5/8-18	4.38
86R-708-01	2"	2.00	3.01	6.03	3.95	8.06	0.98	1.95	1.16	0.34	.370/.372	5/8-18	4.85

SECTION C – UNIBODY BALL VALVES

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<u>CARBON STEEL</u>		
92-100 Series	Threaded Carbon Steel	C-5
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<u>STAINLESS STEEL</u>		
96-100 Series	Threaded Stainless Steel	C-7
<u>DUPLEX STAINLESS STEEL</u>		
96J-100 Series	Threaded Stainless Steel	C-8
<u>SUPER DUPLEX STAINLESS STEEL</u>		
96K-100 Series	Threaded Stainless Steel	C-9

SECTION C – UNIBODY BALL VALVES

9A-100 SERIES

Bronze Uni-Body Heavy Pattern Ball Valve

Female NPT Thread, 600 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
MSS SP-110 compliant.

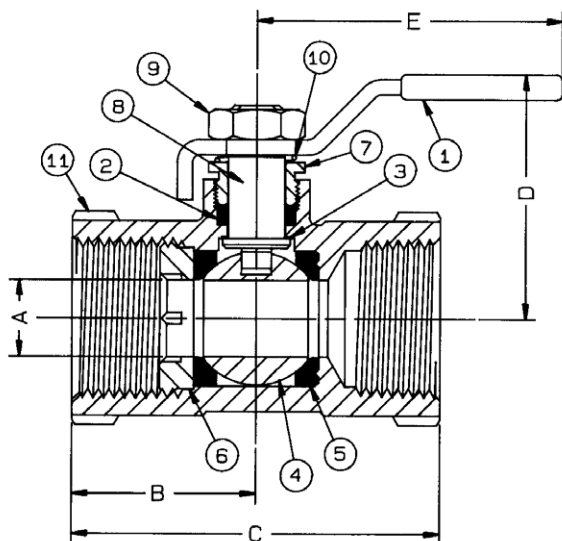


FEATURES

- Static grounding devices
- Blow-out-proof stem design
- Reinforced seats and seals
- Adjustable packing gland
- One piece bronze body
- Compact

VARIATIONS AVAILABLE:

9A-140 Series (316 SS Ball & Stem)



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	B16, chrome plated
5 Seat (2)	RPTFE
6 Retainer	B16
7 Gland nut	B16
8 Stem	B16
9 Lever nut (Screw 1/4" to 1/2")	Steel, zinc plated
10 Ground spring	SS
11 Body	B584-C84400

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-04-	2.25" CS Stem Extension	1/4" to 2"
-05-	Plain Ball	1/4" to 2"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	3/4" to 2"
-10-	SS Lever & Nut	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	1" to 2"
-17-	Rough Chrome Plated - Bronze Valves	1/4" to 2"
-20-	Slot Vented Ball (Bi-Directional) - Bronze Valves	1/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2"
-30-	Cam-Lock Handle & Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-40-	Cyl-Loc & Grounded	3/4" to 2"
-45-	Less Lever & Nut	1/4" to 2"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/2" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 2"
-48-	SS Oval Handle	1/4" to 2"
-49-	Assembled Dry	1/4" to 2"
-50-	2.25" CS Locking Stem Extension	3/4" to 2"
-57-	Oxygen Cleaned	1/4" to 2"
-58-	Chain Lever - Horizontal	1" to 2"
-60-	Grounded Ball & Stem	3/4" to 2"

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
9A-101-01	1/4"	0.37	1.34	2.59	1.64	3.87	0.73
9A-102-01	3/8"	0.37	1.34	2.59	1.64	3.87	0.73
9A-103-01	1/2"	0.37	1.34	2.59	1.64	3.87	0.73
9A-104-01	3/4"	0.50	1.44	2.84	1.78	3.87	1.10
9A-105-01	1"	0.63	1.72	3.28	2.02	4.78	1.73
9A-106-01	1.25"	0.82	1.94	3.84	2.27	4.78	2.92
9A-107-01	1.5"	1.00	2.06	4.00	2.70	5.43	3.96
9A-108-01	2"	1.25	2.29	4.56	2.92	5.43	5.97

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

90-100 SERIES

Bronze Uni-Body Ball Valve

Female NPT Thread, 400 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
MSS SP-110 compliant.

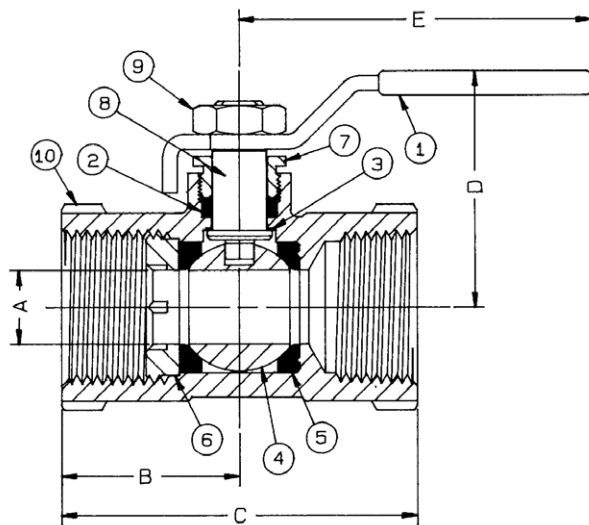


FEATURES

- UL Listed at 400 psig for fuel, inert gas and flammable liquids
- Valves with tee handles UL listed
- Reinforced seats and seals
- Blow-out-proof stem design
- Adjustable packing gland
- One piece bronze body
- Compact

UL LISTINGS

- Guide YRPV: Gas shutoff valve for use with natural and manufactured gases.
- Guide YQNZ: Compressed gas shutoff valve for use with air, inert gases, hydrogen, oxygen and common refrigerants except ammonia.
- Guide YRBX: Flammable liquid shutoff valve.



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-05-	Plain Ball	1/2" to 2"
-07-	Steel Tee Handle	1/2" to 2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Stem packing	RPTFE
3	Stem bearing	RPTFE
4	Ball	B16, chrome plated
5	Seat (2)	RPTFE
6	Retainer	B16
7	Gland nut	B16
8	Stem	B16
9	Lever nut (Screw 1/2")	Steel, zinc plated
10	Body	B584-C84400

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
90-103-01	1/2"	0.38	1.14	2.15	1.64	3.87	0.53
90-104-01	3/4"	0.50	1.36	2.61	1.78	3.87	0.82
90-105-01	1"	0.63	1.50	2.90	2.14	4.78	1.25
90-106-01	1.25"	0.81	1.79	3.50	2.31	4.78	1.98
90-107-01	1.5"	1.00	1.96	3.79	2.87	5.43	2.99
90-108-01	2"	1.25	2.29	4.42	3.09	5.43	4.64

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 3

92-100 SERIES

Carbon Steel Uni-Body Ball Valve

Female NPT Thread, 1/4" to 1" 2000 CWP (psig), 1.25" to 2" 1500 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Fire tested API 607, 6th edition (Requires "24" suffix)
- Investment cast body
- Reinforced seats and seals
- Blow-out-proof stem design
- Nitride corrosion protection
- Adjustable packing gland

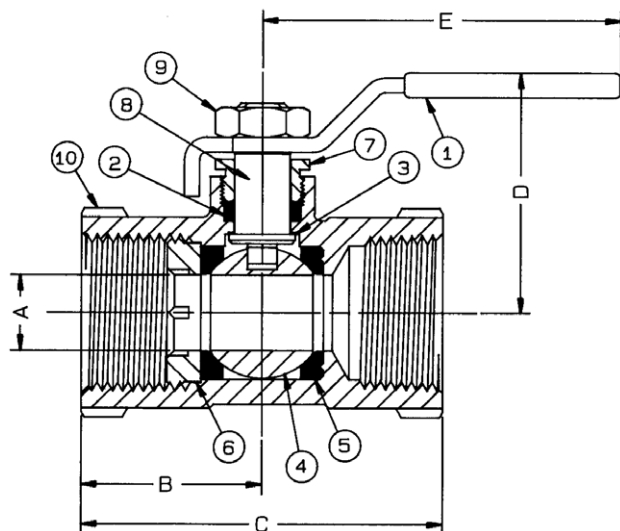
- Meets NACE MR0175 (2000) & MR0103 (2012) with SS trim
- Compact

VARIATIONS AVAILABLE:

92-140 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-02-	Static Grounded	1/4" to 2"
-04-	2.25" CS Stem Extension	1/4" to 2"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	3/4" to 2"
-10-	SS Lever & Nut	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	1" to 2"
-24-	Graphite Packing	1/4" to 2"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2"
-30-	Cam-Lock Handle & Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-40-	Cyl-Loc & Grounded	3/4" to 2"
-45-	Less Lever & Nut	1/4" to 2"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/2" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 2"
-48-	SS Oval Handle	1/4" to 2"
-50-	2.25" CS Locking Stem Extension	3/4" to 2"
-58-	Chain Lever - Horizontal	1" to 2"
-60-	Grounded Ball & Stem	3/4" to 2"
-65-	Multifill Seats & Graphite Packing	1/4" to 2"



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	A108-CS, chrome plated
5 Seat (2)	RPTFE
6 Retainer	A108-CS
7 Gland nut	A108-CS
8 Stem	A108-CS
9 Lever nut (Screw 1/4" to 1/2")	Steel, zinc plated
10 Body	A216-WCB

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
92-101-01	1/4"	0.38	1.14	2.21	1.64	3.87	0.49
92-102-01	3/8"	0.38	1.14	2.21	1.64	3.87	0.49
92-103-01	1/2"	0.38	1.14	2.21	1.64	3.87	0.49
92-104-01	3/4"	0.50	1.34	2.70	1.78	3.87	0.76
92-105-01	1"	0.63	1.51	3.03	2.00	4.78	1.21
92-106-01	1.25"	0.81	1.79	3.62	2.18	4.78	1.95
92-107-01	1.5"	1.00	1.95	4.00	2.69	5.43	2.92
92-108-01	2"	1.25	2.28	4.73	2.91	5.43	4.73

FOR PRESSURE/TEMPERATURE RATINGS,
REFER TO PAGE M-14, GRAPH NO. 14 (1/4" TO 1")
REFER TO PAGE M-13, GRAPH NO. 12 (1.25" TO 2")

93-100 SERIES

Carbon Steel Uni-Body Ball Valve

Female NPT Thread, 1/4" to 1" 2000 CWP (psig), 1.25" to 2" 1500 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
MSS SP-110 compliant.



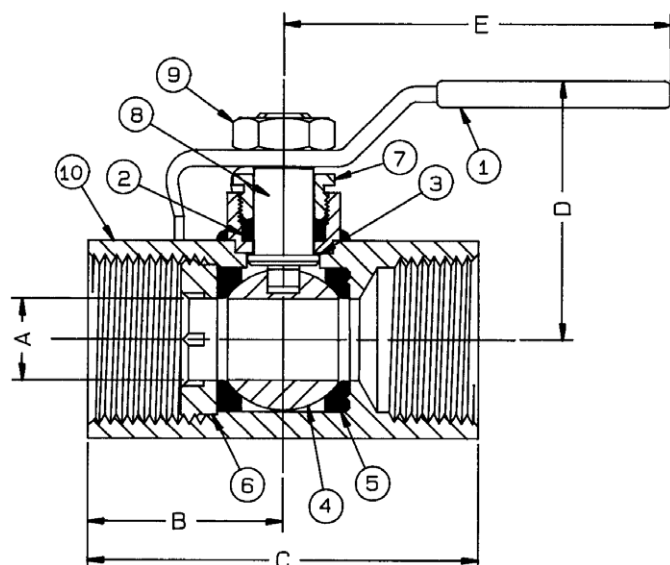
FEATURES

- Fire tested API 607, 6th edition (Requires "24" suffix)
- Uni-body barstock steel design
- Reinforced seats and seals
- Blow-out-proof stem design
- Adjustable packing gland

- Compact
- Nitride corrosion protection

VARIATIONS AVAILABLE:

93-140 Series (316 SS Ball & Stem)



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-02-	Static Grounded	1/4" to 2"
-04-	2.25" CS Stem Extension	1/4" to 2"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	3/4" to 2"
-10-	SS Lever & Nut	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 1.5"
-19-	Lock Plate (Suggest "92")	1/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 2"
-60-	Grounded Ball & Stem	3/4" to 2"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	A108-CS chrome plated
5 Seat (2)	RPTFE
6 Retainer	A108-CS
7 Gland nut	A108-CS
8 Stem	A108-CS zinc plated
9 Lever nut (Screw 1/4" to 1/2")	Steel, zinc plated
10 Body	A108-CS

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
93-101-01	1/4"	0.38	1.14	2.18	1.63	3.68	0.56
93-102-01	3/8"	0.38	1.14	2.18	1.63	3.68	0.56
93-103-01	1/2"	0.38	1.14	2.18	1.63	3.68	0.56
93-104-01	3/4"	0.50	1.35	2.66	1.75	3.68	0.79
93-105-01	1"	0.63	1.51	3.03	1.93	4.68	1.27
93-106-01	1.25"	0.81	1.79	3.62	2.09	4.68	2.26
93-107-01	1.5"	1.00	1.96	4.00	2.71	5.50	3.57
93-108-01	2"	1.25	2.08	4.71	2.92	5.50	5.94

FOR PRESSURE/TEMPERATURE RATINGS,
REFER TO PAGE M-14, GRAPH NO. 14 (1/4" TO 1")
REFER TO PAGE M-13, GRAPH NO. 12 (1.25" TO 2")

96-100 SERIES

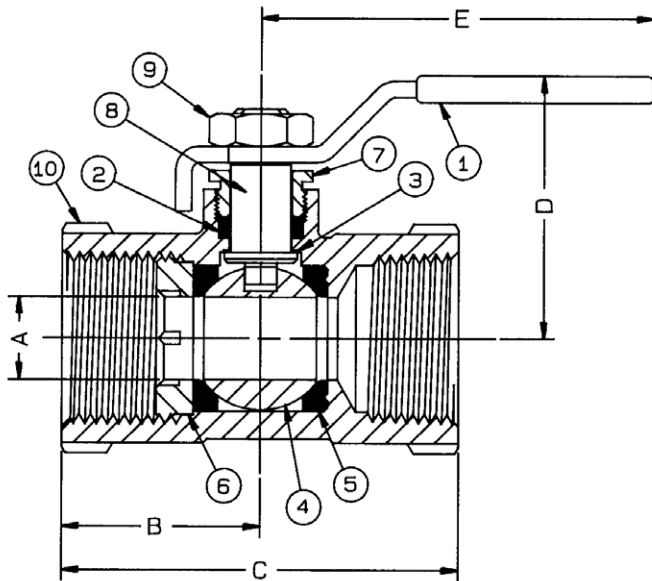
Stainless Steel Uni-Body Ball Valve

Female NPT Thread, 1/4" to 1" 2000 CWP (psig), 1.25" to 2" 1500 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Fire tested API 607, 6th edition (Requires "24" suffix)
- Investment cast body
- Reinforced seats and seals
- Blow-out-proof stem design
- Adjustable packing gland
- Meets NACE MR0175 (2000) & MR0103 (2012)
- Compact



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	1/4" to 2"
-04-	2.25" CS Stem Extension	1/4" to 2"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	3/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	1" to 2"
-24-	Graphite Packing	1/4" to 2"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2"
-30-	Cam-Lock Handle & Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-40-	Cyl-Loc & Grounded	3/4" to 2"
-45-	Less Lever & Nut	1/4" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 2"
-57-	Oxygen Cleaned	1/4" to 2"
-58-	Chain Lever - Horizontal	1" to 2"
-60-	Grounded Ball & Stem	3/4" to 2"

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STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	304 SS w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	A276-316
5 Seat (2)	RPTFE
6 Retainer	A276-316
7 Gland nut	A276-316
8 Stem	A276-316
9 Lever nut (Screw 1/4" to 1/2")	18-8 SS
10 Body	A351-CF8M

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
96-101-01	1/4"	0.38	1.14	2.21	1.64	3.87	0.49
96-102-01	3/8"	0.38	1.14	2.21	1.64	3.87	0.49
96-103-01	1/2"	0.38	1.14	2.21	1.64	3.87	0.49
96-104-01	3/4"	0.50	1.33	2.70	1.78	3.87	0.76
96-105-01	1"	0.63	1.51	3.03	2.00	4.78	1.21
96-106-01	1.25"	0.81	1.79	3.62	2.18	4.78	1.95
96-107-01	1.5"	1.00	1.95	4.00	2.66	5.43	2.92
96-108-01	2"	1.25	2.28	4.73	2.87	5.43	4.73

**FOR PRESSURE/TEMPERATURE RATINGS,
REFER TO PAGE M-14, GRAPH NO. 14 (1/4" TO 1")
REFER TO PAGE M-13, GRAPH NO. 12 (1.25" TO 2")**

96J-100 SERIES

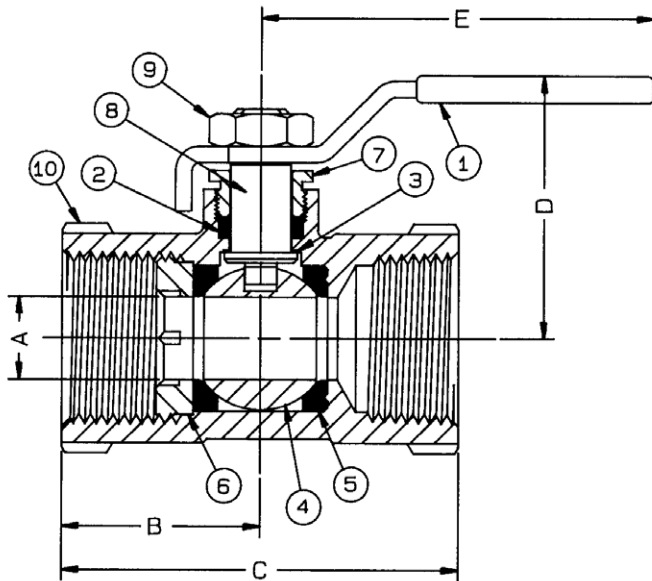
Duplex Stainless Steel Uni-Body Ball Valve

Female NPT Threaded, 1/4" to 1" 2000 CWP (psig), 1.25" to 2" 1500 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- API 607 Type Design (Requires "24" suffix)
- Investment cast body
- Reinforced seats and seals
- Blow-out-proof stem design
- Adjustable packing gland
- Compact



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	1/4" to 2"
-04-	2.25" CS Stem Extension	1/4" to 2"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	3/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	1" to 2"
-24-	Graphite Packing	1/4" to 2"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2"
-30-	Cam-Lock Handle & Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-40-	Cyl-Loc & Grounded	3/4" to 2"
-45-	Less Lever & Nut	1/4" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 2"
-57-	Oxygen Cleaned	1/4" to 2"
-58-	Chain Lever - Horizontal	1" to 2"
-60-	Grounded Ball & Stem	3/4" to 2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	304 SS w/vinyl
2	Stem packing	MPTFE
3	Stem bearing	RPTFE
4	Ball	ASTM A276/A479 Alloy 2205
5	Seat (2)	RPTFE
6	Retainer	ASTM A995 4A
7	Gland nut	A276-316
8	Stem	ASTM A276/A479 Alloy 2205
9	Lever nut (Screw 1/4" to 1/2")	18-8 SS
10	Body	ASTM A995 4A

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
96J-101-01	1/4"	0.38	1.14	2.21	1.64	3.87	0.49
96J-102-01	3/8"	0.38	1.14	2.21	1.64	3.87	0.49
96J-103-01	1/2"	0.38	1.14	2.21	1.64	3.87	0.49
96J-104-01	3/4"	0.50	1.33	2.70	1.78	3.87	0.76
96J-105-01	1"	0.63	1.51	3.03	2.00	4.78	1.21
96J-106-01	1.25"	0.81	1.79	3.62	2.18	4.78	1.95
96J-107-01	1.5"	1.00	1.95	4.00	2.66	5.43	2.92
96J-108-01	2"	1.25	2.28	4.73	2.87	5.43	4.73

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 3

96K-100 SERIES

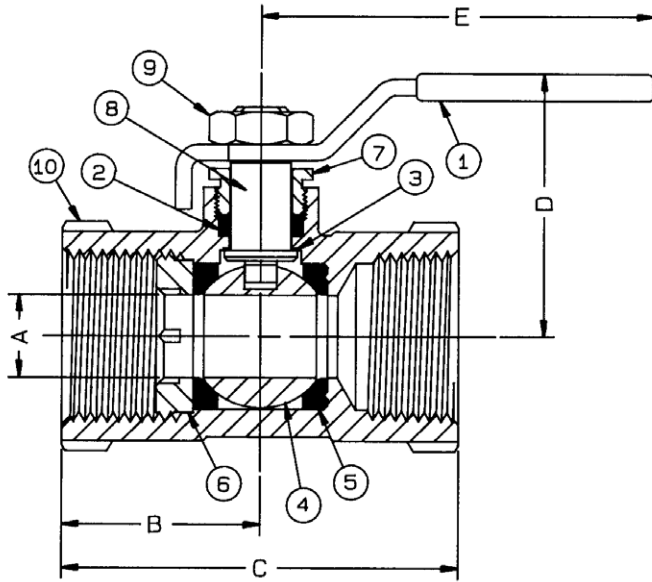
Super Duplex Stainless Steel Uni-Body Ball Valve

Female NPT Threaded, 1/4" to 1" 2000 CWP (psig), 1.25" to 2" 1500 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- API 607 Type Design (Requires "24" suffix)
- Investment cast body
- Reinforced seats and seals
- Blow-out-proof stem design
- Adjustable packing gland
- Compact



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	1/4" to 2"
-04-	2.25" CS Stem Extension	1/4" to 2"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	3/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	1" to 2"
-24-	Graphite Packing	1/4" to 2"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2"
-30-	Cam-Lock Handle & Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-40-	Cyl-Loc & Grounded	3/4" to 2"
-45-	Less Lever & Nut	1/4" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 2"
-57-	Oxygen Cleaned	1/4" to 2"
-58-	Chain Lever - Horizontal	1" to 2"
-60-	Grounded Ball & Stem	3/4" to 2"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	304 SS w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	ASTM A276/A479 Alloy 2507
5 Seat (2)	RPTFE
6 Retainer	ASTM A276/A479 Alloy 2507
7 Gland nut	A276-316
8 Stem	ASTM A276/A479 Alloy 2507
9 Lever nut (Screw 1/4" to 1/2")	18-8 SS
10 Body	ASTM A995 6A

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
96K-101-01	1/4"	0.38	1.14	2.21	1.64	3.87	0.49
96K-102-01	3/8"	0.38	1.14	2.21	1.64	3.87	0.49
96K-103-01	1/2"	0.38	1.14	2.21	1.64	3.87	0.49
96K-104-01	3/4"	0.50	1.33	2.70	1.78	3.87	0.76
96K-105-01	1"	0.63	1.51	3.03	2.00	4.78	1.21
96K-106-01	1.25"	0.81	1.79	3.62	2.18	4.78	1.95
96K-107-01	1.5"	1.00	1.95	4.00	2.66	5.43	2.92
96K-108-01	2"	1.25	2.28	4.73	2.87	5.43	4.73

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FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 3

SECTION C – UNIBODY BALL VALVES

SECTION D – ASME FLANGED BALL VALVES

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(continued on next page)

SECTION D – ASME FLANGED BALL VALVES

SERIES	DESCRIPTION	PAGE
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88L-F40 Series	ASME Class 600 Flanged Full Port Low Temp Carbon Steel	D-105-109
STAINLESS STEEL		
87A-F00 Series	ASME Class 600 Flanged Full Port Stainless Steel	D-95-99

ASME FLANGED BALL VALVES

Features and Benefits

87A, 87A-F, 87B, 88A, 88A-F, 88B, 88L, & 88L-F Series



STANDARDS COMPLIANCE:

Except where specifically noted all valves within this family of products complies with the requirements of this listed standard.

ASME B16.5	"Pipe Flanges and Flanged Fittings"
ASME B16.10	"Face to Face Dimensions of Valves"
ASME B16.34	"Valves - Flanged, Threaded, and Welding End"
ASME B16.33	"Manual Operated Metallic Gas Valves for Use in Gas Piping Systems up to 125 psig"
ASME B16.38	"Large Metallic Valves for Gas Distribution (Manually Operated NPS 2.5" to 12", 125 psig)"
ASME B31.1	"Power Piping"
ASME B31.3	"Chemical Plant and Petroleum Refinery Piping"
ASME B31.8	"Gas Transmission and Distribution Piping Systems"
API 607	"Fire Test - Soft Seated Quarter Turn Valves" (-24 Option Required). See specific tech sheet for 5th or 6th edition.
API 608	"Ball Valves - Flanged, Threaded, and Welding End"
MSS SP-25	"Standard Marking System for Valves"
MSS SP-61	"Pressure Testing of Steel Valves"
MSS SP-72	"Ball Valves with Flanged or Buttweld Ends"
UL 125	"Valves for Anhydrous Ammonia and LP-Gas (Other than Safety Relief)"
NSF/ANSI 61 (2010)	Section 8, Annex F & G
NSF-372	Drinking Water System Components - Lead Content

STANDARD FEATURES:

Except where specifically noted all valves within this family of products include all listed features as standard.

- Two Position Locking Device (Valves 6" Full Port, 8" Standard Port and smaller)
- Chevron Style Adjustable Stem Seals
- ISO 5211 Mounting Pad Bolt Pattern
- Slot Vented Ball for Thermal Expansion
- Rated up to 150 psig Saturated Steam
 - ASME Class 150, 300, & 600 Valves
- Rated up to 250 psig Saturated Steam
 - ASME Class 300 Valves Require the -65 Option
 - ASME Class 600 Valves Require the -24-80 Options or -38 Option
- Anti-static Grounded Ball and Stem
- Blow-out Proof Stem Design
- Cast Boss for Bleed / Drain Port
- Vacuum Service to 29 inches of Hg
- NACE MR0175 (2000) Compliance on all 87A/87B and 88A/88B Valves
- NACE MR0103 (2003) Compliance on all 87A/87B and 88A/88B Valves

PRODUCT APPROVALS:

CSA	(Reference: ASME B16.33 & B16.38) ASME Class 150 & 300 only
UL	(Reference: Control Number 195H) ASME Class 150 & 300 only
UL (YSDT)	LP-Gas Shut-Off Valves
UL (MHKZ)	Manual Valves
UL (YRBX)	Flammable Liquid Shut-Off Valves
UL (YRPV)	Gas Shut-Off Valves
UL (YQNZ)	Compressed Gas Shut-Off Valves
UL (YQAR)	Anhydrous Ammonia Shut-Off Valves



ASME FLANGED BALL VALVES

87A, 87B, 88A, 88B, & 88L Series



VARIATIONS AVAILABLE:

REFERENCE DATA:				ALLOY SERIES FLANGED BALL VALVES				
SIZE	PORT	ANSI CLASS	DIMENSIONAL DATA PAGE	STAINLESS STEEL	ALLOY 20	* HASTELLOY	* NICKEL	* NI-CU
1.5" & 2"	Standard	150	D-1	87A-10X	87A-40X	87H-1HX	87N-1NX	87M-13X
2.5" & 3"	Standard	150	D-2	87A-10X	87A-40X	87H-1HX	87N-1NX	N/A
4", 6" & 8"	Standard	150	D-3	87A-10X	87A-40X	87H-1HX	87N-1NX	N/A
10"	Standard	150	D-4	87A-10X	87A-40X	87H-1HX	87N-1NX	N/A
1/2", 3/4" & 1"	Full	150	D-5	87A-20X	87A-50X	87H-2HX	87N-2NX	87M-23X
1.5", 2" & 2.5"	Full	150	D-6	87A-20X	87A-50X	87H-2HX	87N-2NX	87M-23X
3", 4", & 6"	Full	150	D-7	87A-20X	87A-50X	87H-2HX	87N-2NX	N/A
8", 10" & 12"	Full	150	D-8	87A-20X	87A-50X	87H-2HX	87N-2NX	N/A
1.5" & 2"	Standard	300	D-9	87A-70X	87A-80X	87H-7HX	87N-7NX	N/A
2.5" & 3"	Standard	300	D-10	87A-70X	87A-80X	87H-7HX	87N-7NX	N/A
4", 6" & 8"	Standard	300	D-11	87A-70X	87A-80X	87H-7HX	87N-7NX	N/A
10"	Standard	300	D-12	87A-70X	87A-80X	87H-7HX	87N-7NX	N/A
1/2", 3/4" & 1"	Full	300	D-13	87A-90X	87A-60X	87H-9HX	87N-9NX	87M-93X
1.5", 2" & 2.5"	Full	300	D-14	87A-90X	87A-60X	87H-9HX	87N-9NX	87M-93X
3", 4", & 6"	Full	300	D-15	87A-90X	87A-60X	87H-9HX	87N-9NX	N/A
8", 10" & 12"	Full	300	D-16	87A-90X	87A-60X	87H-9HX	87N-9NX	N/A

* Minimum Quantities May Apply

ALLOY MATERIAL OF CONSTRUCTION FOR PRESSURE CONTAINING / RETAINING COMPONENTS:

ALLOY	STAINLESS STEEL	ALLOY 20	HASTELLOY*	NICKEL*	NI-CU ALLOY*
Valve Series	87A-100/200,	87A-400/500,	87H-1H0/2H0,	87N-1N0/2N0,	87M-130/230,
	87A-700/900	87A-600/800	87H-7H0/9H0	87N-7N0/9N0	87M-730/930
Body	A351-CF8M	A351-CN7M	A494-CW12MW	A494-CZ100	A494-M35-1
Retainer	A351-CF8M or	A351-CN7M or	A494-CW12MW	A494-CZ100 or	A494-M35-1 or
	A276-316	B473-N08020	or B574-C276	B160-200	B164-K400
Ball	A351-CF8M or	A351-CN7M or	A494-CW12MW	A494-CZ100 or	A494-M35-1 or
	A276-316	B473-N08020	or B574-C276	B160-200	B164-K400
Stem	A276-316	B473-N08020	B574-C276	B160-200	B164-K400
Fasteners	A193-B8M,	A193-B8M,	A193-B8M,	A193-B8M,	A193-B8M,
	A194-Gr8	A194-Gr8	A194-Gr8	A194-Gr8	A194-Gr8

* Minimum Quantities May Apply

87A-100 SERIES

Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 1.5" through 2"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

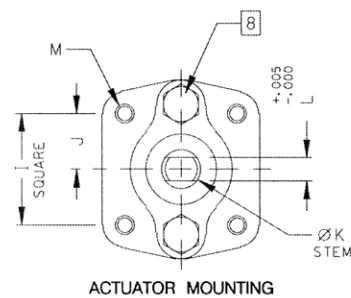
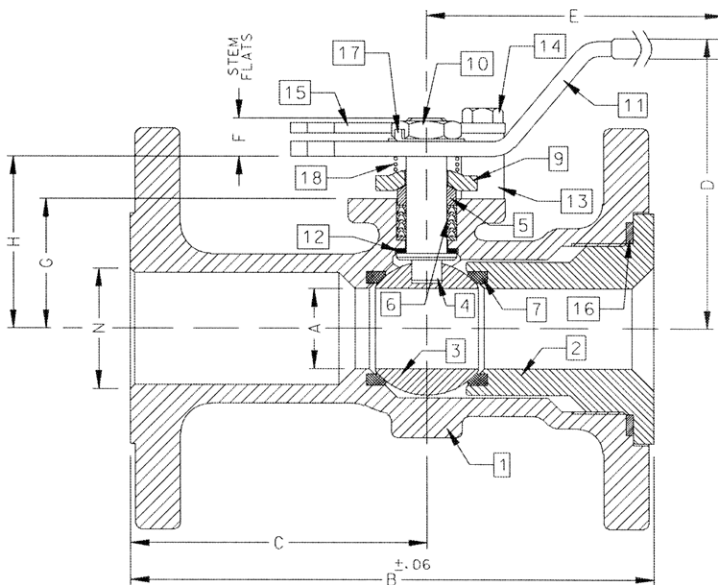
PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A276 Type 316
3 Ball	ASTM A276 Type 316
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	302 or 304 SS
10 Stem Nut	316 SS
11 Lever	302 or 304 SS with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	18-8 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Lockwasher	302 or 304 SS
18 Grounding Spring	SS

VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel (1.5" to 2" only)
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-107-01	1.5"	1.25	6.50	3.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	9
87A-108-01	2"	1.50	7.00	3.69	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	18

87A-100 SERIES

Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 2.5" through 3"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.

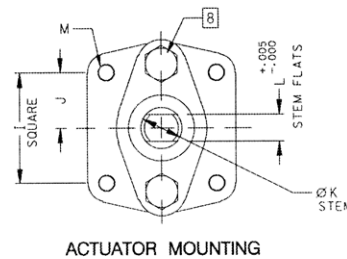
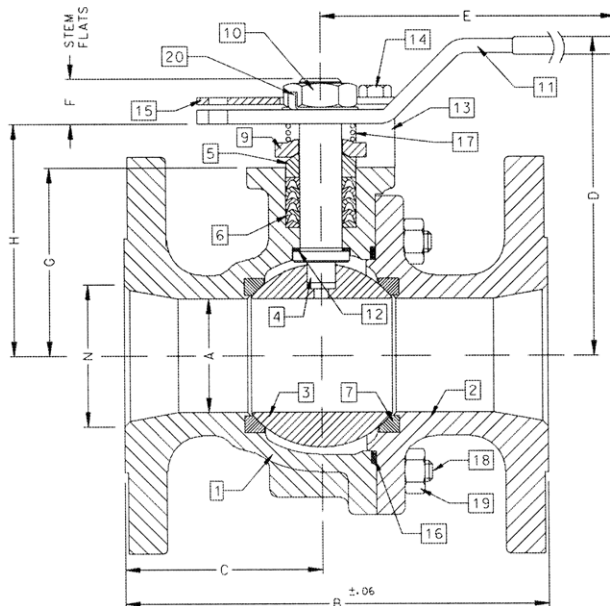


STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A351 CF8M
3 Ball	ASTM A276 Type 316 or A351 CF8M
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Nut	18-8 SS
11 Lever	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded 87A/88A Series (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-109-01	2.5"	2.00	7.50	3.50	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	27
87A-100-01	3"	2.50	8.00	3.51	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	34

87A-100 SERIES

Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 4" through 8"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.

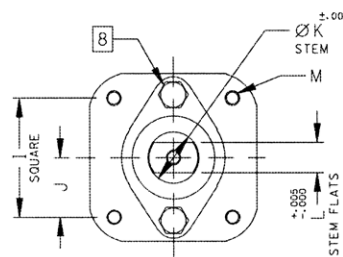
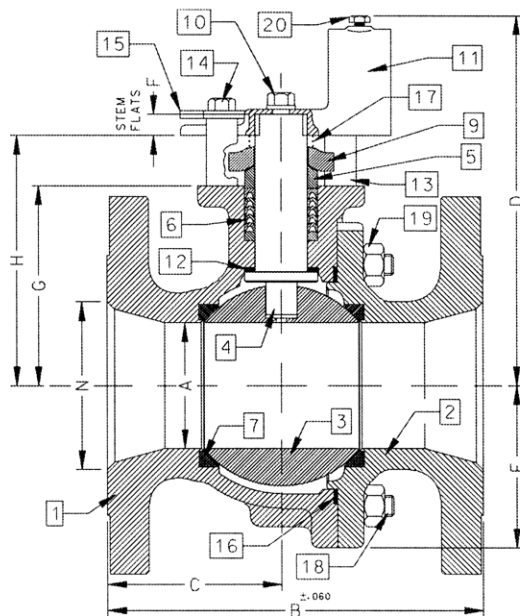


STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A351 CF8M
3 Ball	ASTM A276 Type 316 or A351 CF8M
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Handle Adapter	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS
21 Pipe Handle	Galvanized Steel (not Shown)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-10A-01	4"	3.00	9.00	4.18	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	73
87A-10C-01	6"	4.00	10.50	4.69	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	117
87A-10E-01	8"	6.00	18.00	9.00	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	310



87A-100 SERIES

Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 10"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

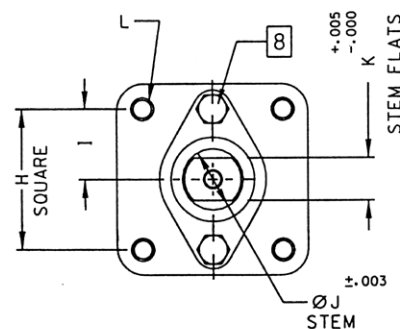
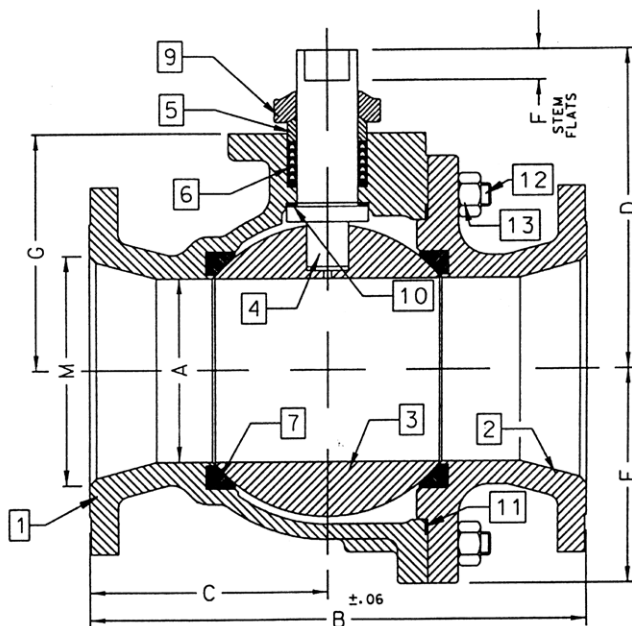
PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A351 CF8M
3 Ball	ASTM A276 Type 316 or A351 CF8M
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B8M
13 Body Joint Nut	ASTM A194 Grade 8

VARIATIONS AVAILABLE:

87H - Hastelloy
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded 87A/88A Series (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-10G-01	10"	8.00	21.00	10.37	12.83	9.18	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00	526

87A-200 SERIES

Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 1/2" through 1"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A276 Type 316
3	Ball	ASTM A276 Type 316
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/ Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lockwasher	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A276 Type 316
3	Ball	ASTM A276 Type 316
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS

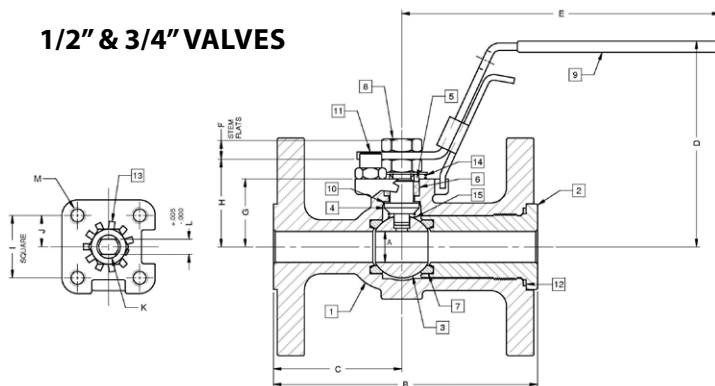
VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel
87N - Nickel

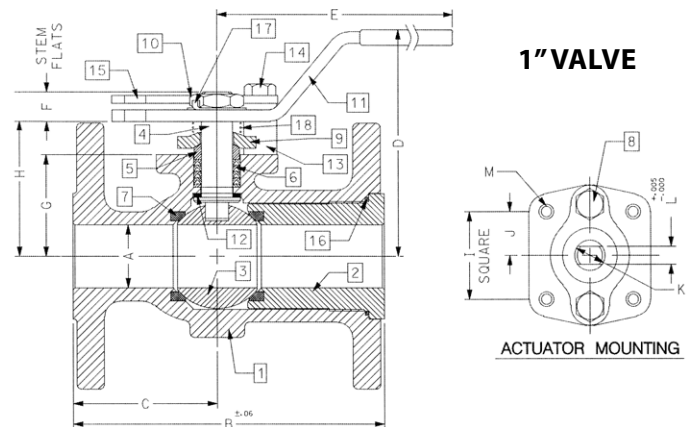
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)

1/2" & 3/4" VALVES



1" VALVE



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-203-01	1/2"	0.50	4.25	2.06	3.31	5.11	0.30	1.09	1.41	1.00	0.500	0.375	0.245	10-24	5
87A-204-01	3/4"	0.75	4.62	2.18	3.89	5.53	0.36	1.65	1.99	1.392	0.696	0.500	0.287	1/4-20	6
87A-205-01	1"	1.00	5.00	2.32	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	7



87A-200 SERIES

Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

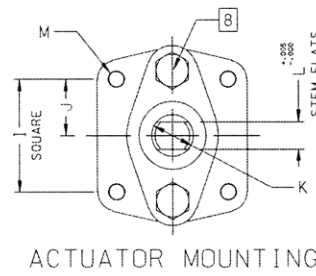
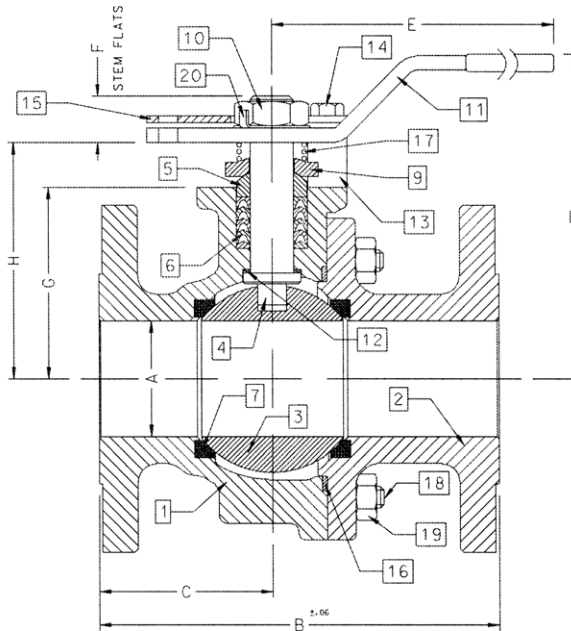
PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A351 CF8M
3 Ball	ASTM A276 Type 316 or A351 CF8M
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Lever	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS

VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension (up to 2")
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-MG-	Gear Operator with Standard Handwheel
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-207-01	1.5"	1.50	6.50	3.00	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	14
87A-208-01	2"	2.00	7.00	3.04	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	25
87A-209-01	2.5"	2.50	7.50	3.34	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	30

87A-200 SERIES

Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 3" through 6"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A351 CF8M
3 Ball	ASTM A276 Type 316 or A351 CF8M
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Handle Adapter	316 with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Pipe Handle	Galvanized Steel (not shown)

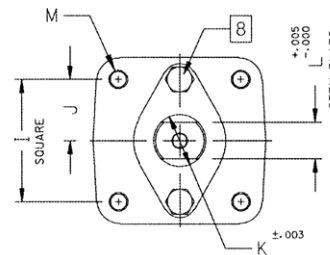
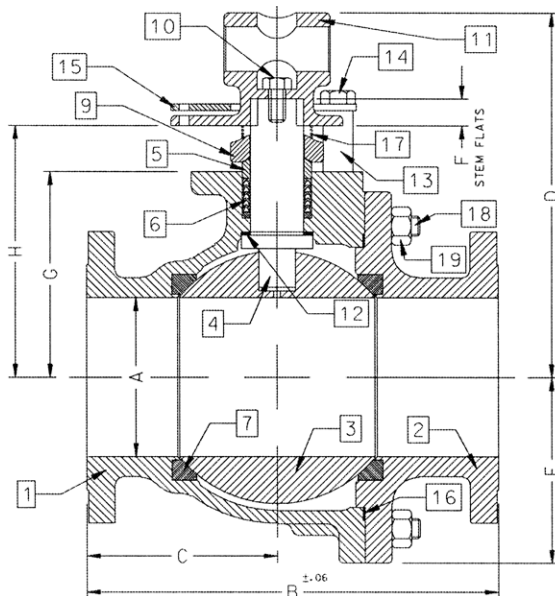
VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-200-01	3"	3.00	8.00	3.68	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	60
87A-20A-01	4"	4.00	9.00	3.94	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	91
87A-20C-01	6"	6.00	15.50	7.19	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	248

87A-200 SERIES

Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 8" through 12"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

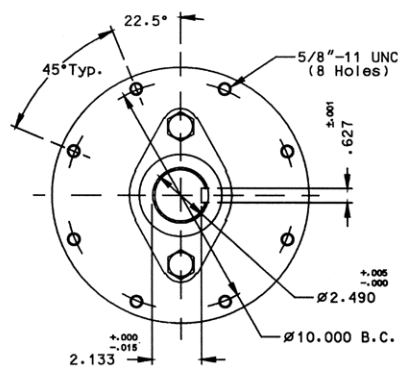
PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A351 CF8M
3 Ball	ASTM A276 Type 316 or A351 CF8M
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B8M
13 Body Joint Nut	ASTM A194 Grade 8

VARIATIONS AVAILABLE:

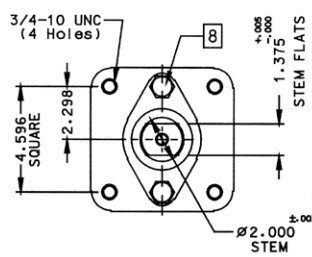
87H - Hastelloy
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

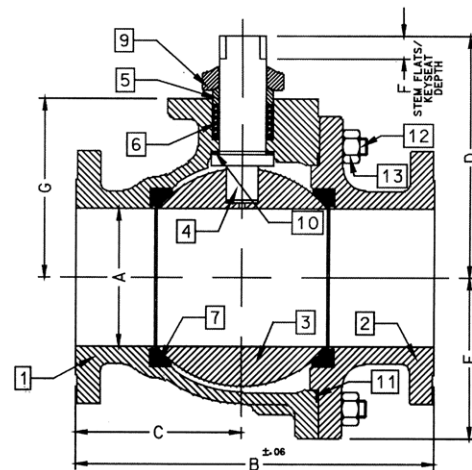
(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port (8" Only)
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING: 10" & 12"



ACTUATOR MOUNTING: 8"



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G
87A-20E-01	8"	8.00	18.00	8.88	12.83	9.18	1.00	10.22
87A-20G-01	10"	10.00	21.00	10.26	18.57	11.33	2.31	12.80
87A-20H-01	12"	12.00	24.00	12.09	20.31	13.40	2.31	14.92

87A-700 SERIES

Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 1.5" through 2"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

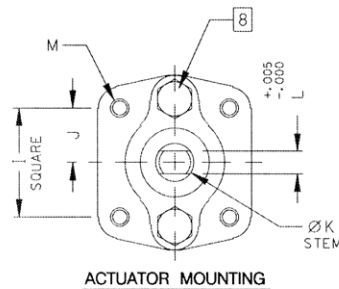
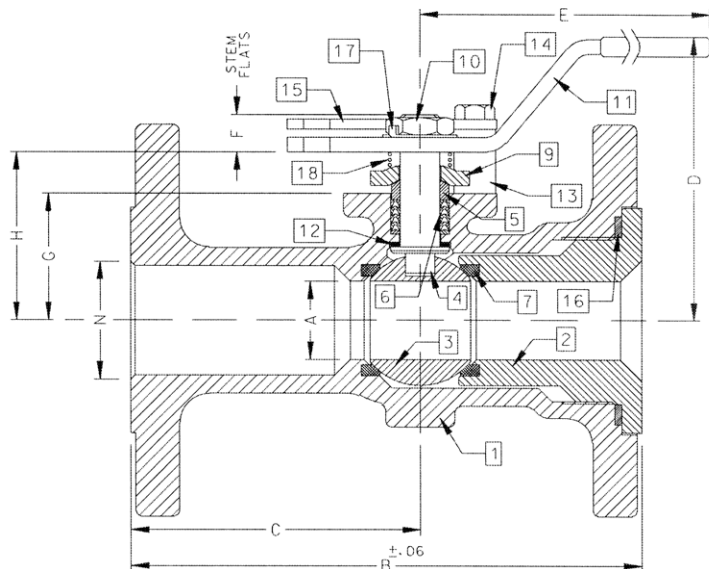
PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A276 Type 316
3 Ball	ASTM A276 Type 316
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	302 & 304 SS
10 Stem Nut	316 SS
11 Lever	302 & 304 SS with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	18-8 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Lockwasher	302 or 304 SS
18 Grounding Spring	SS

VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14 -	Side Vented Ball (See Page J-2)
-15-	Wheel Handle, Steel
-21 -	UHMWPE Seats
-24 -	Fire Safe (Graphite Packing and Seal)
-35 -	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-707-01A	1.5"	1.25	7.50	4.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	15.7
87A-708-01	2"	1.50	8.50	5.19	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	24.0



87A-700 SERIES

Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 2.5" through 3"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

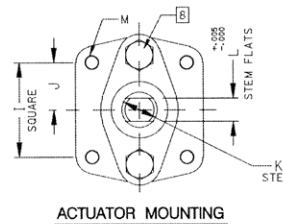
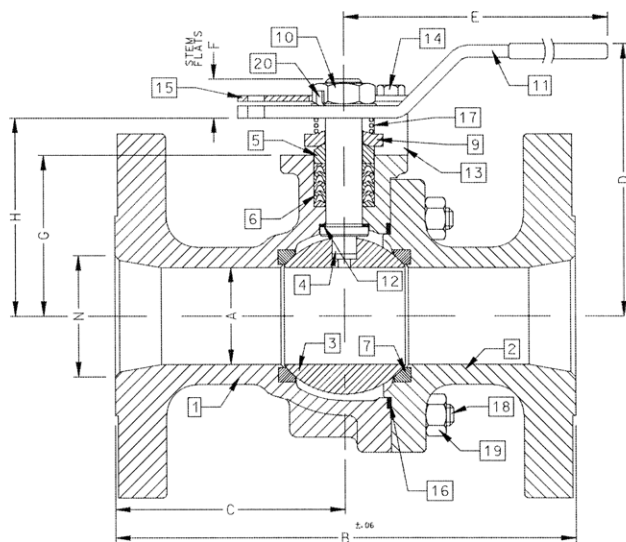
PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A351 CF8M
3 Ball	ASTM A276 Type 316 or A351 CF8M
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Nut	18-8 SS
11 Lever	316 with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS

VARIATIONS AVAILABLE:

87H - Hastelloy
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-709-01	2.5"	2.00	9.50	4.75	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	39
87A-700-01	3"	2.50	11.12	5.56	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	55

87A-700 SERIES

Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 4" through 8"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A276 Type 316
3 Ball	ASTM A276 Type 316 or A351 CF8M
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Handle Adapter	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Adapter Screw	18-8 SS
21 Pipe Handle	Galvanized Steel (not shown)

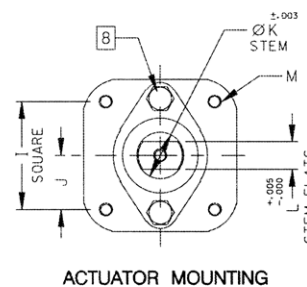
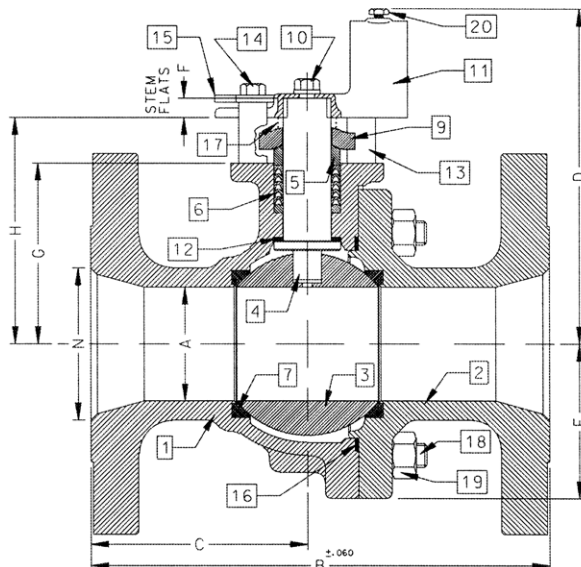
VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-70A-01	4"	3.00	12.00	5.68	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	95
87A-70C-01	6"	4.00	15.88	7.38	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	187
87A-70E-01	8"	6.00	19.75	9.00	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	400



87A-700 SERIES

Stainless Steel ASME Class 300 Flanged Standard Port Ball Valve - 10"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

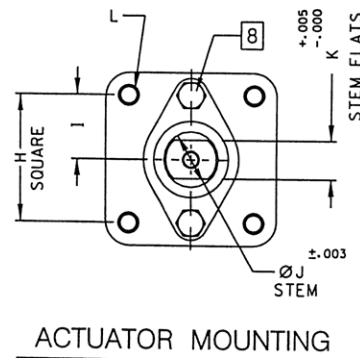
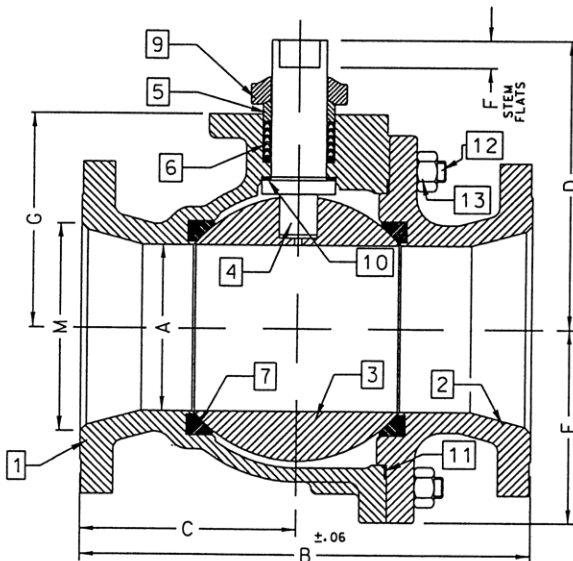
PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A351 CF8M
3 Ball	ASTM A276 Type 316 or A351 CF8M
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B8M
13 Body Joint Nut	ASTM A194 Grade 8

VARIATIONS AVAILABLE:

87H - Hastelloy
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration (Less Gear Operator)
-14-	Side Vented Ball (See Page J2)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded 87A/88A Series (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
87A-70G-01	10"	8.00	22.38	10.69	12.83	9.56	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00

87A-900 SERIES

Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 1/2" through 1"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A276 Type 316
3	Ball	ASTM A276 Type 316
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/ Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lockwasher	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A276 Type 316
3	Ball	ASTM A276 Type 316
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS

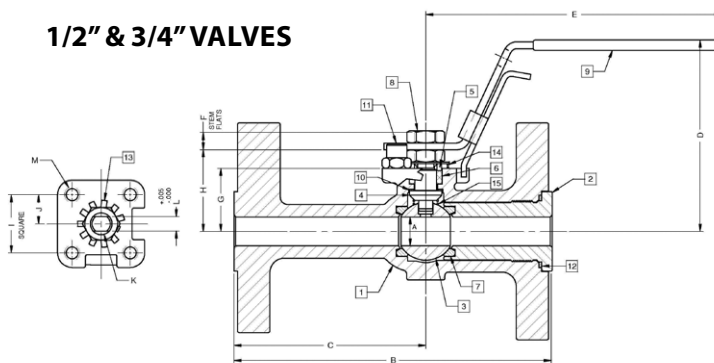
VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel
87N - Nickel

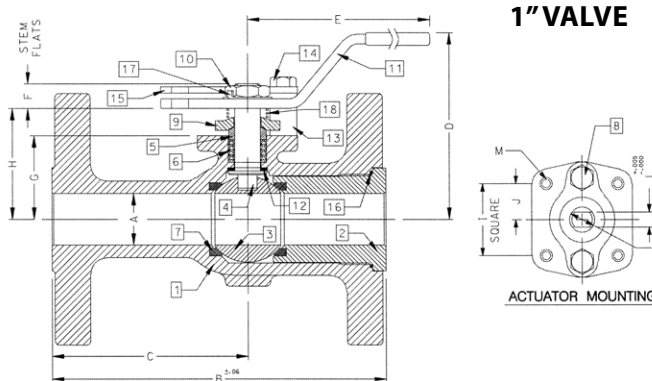
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)

1/2" & 3/4" VALVES



1" VALVE



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-903-01	1/2"	0.50	5.50	3.31	3.31	5.11	0.30	1.09	1.38	1.000	0.500	0.375	0.245	10-24	6
87A-904-01	3/4"	0.75	6.00	3.56	3.89	5.53	0.36	1.65	1.99	1.392	0.696	0.500	0.287	1/4-20	9
87A-905-01	1"	1.00	6.50	3.82	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	11



87A-900 SERIES

Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

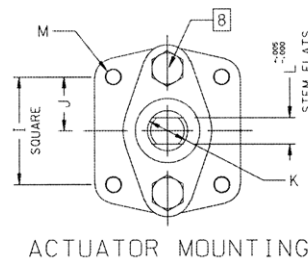
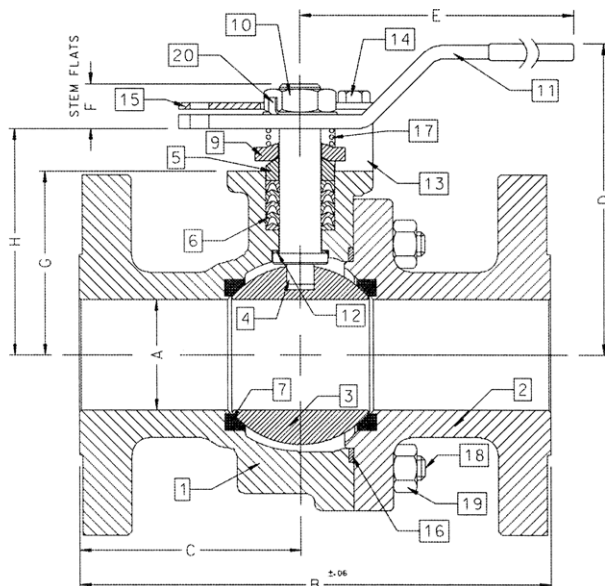
PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A351 CF8M
3 Ball	ASTM A276 Type 316 or A351 CF8M
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Nut	18-8 SS
11 Lever	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS

VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension (up to 2")
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-907-01	1.5"	1.50	7.50	3.50	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	21
87A-908-01	2"	2.00	8.50	4.00	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	37
87A-909-01	2.5"	2.50	9.50	4.44	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	57

87A-900 SERIES

Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 3" through 6"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A351 CF8M
3 Ball	ASTM A276 Type 316 or A351 CF8M
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Handle Adapter	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Pipe Handle	Galvanized Steel (not shown)

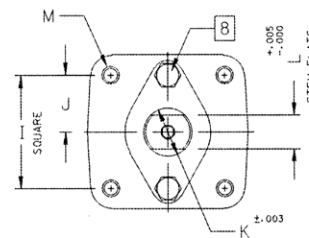
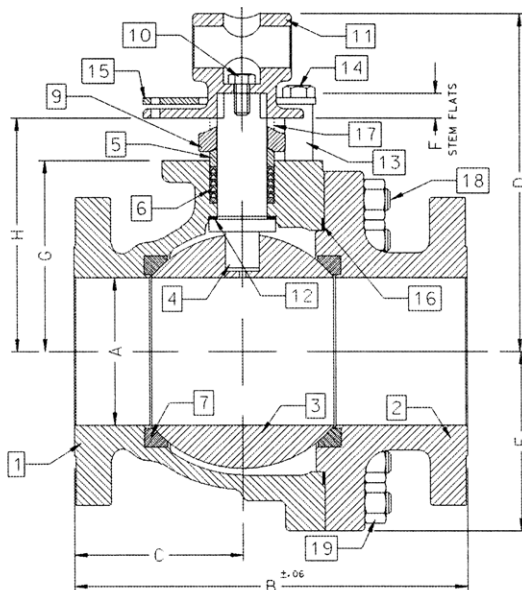
VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-900-01	3"	3.00	11.12	5.24	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	78
87A-90A-01	4"	4.00	12.00	5.44	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	133
87A-90C-01	6"	6.00	15.88	6.82	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	329

87A-900 SERIES

Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 8" through 12"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A351 CF8M
3 Ball	ASTM A276 Type 316 or A351 CF8M
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B8M
13 Body Joint Nut	ASTM A194 Grade 8

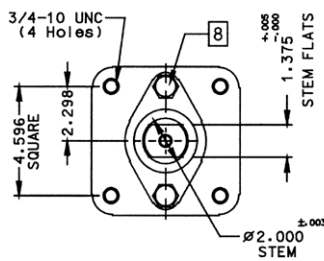
VARIATIONS AVAILABLE:

87H - Hastelloy

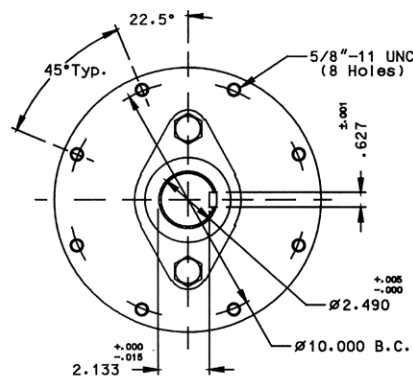
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

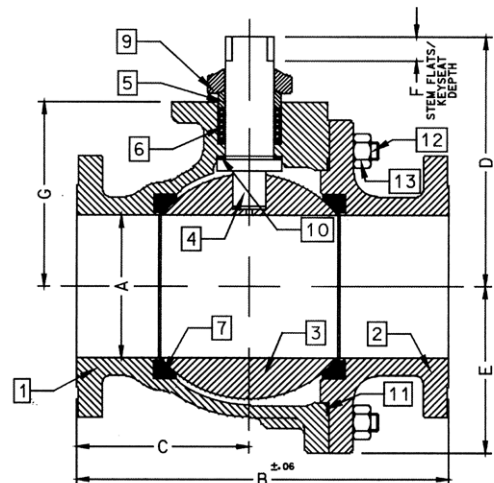
(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING: 8"



ACTUATOR MOUNTING: 10" & 12"



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G
87A-90E-01	8"	8.00	19.75	9.38	12.83	9.56	1.00	10.22
87A-90G-01	10"	10.00	22.38	10.95	18.57	11.33	2.31	12.80
87A-90H-01	12"	12.00	25.50	12.84	20.31	13.40	2.31	14.92

87B-100 SERIES

Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 3"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.

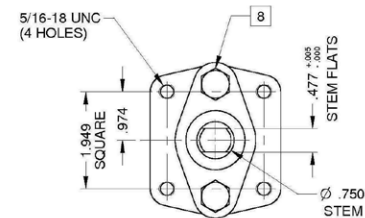
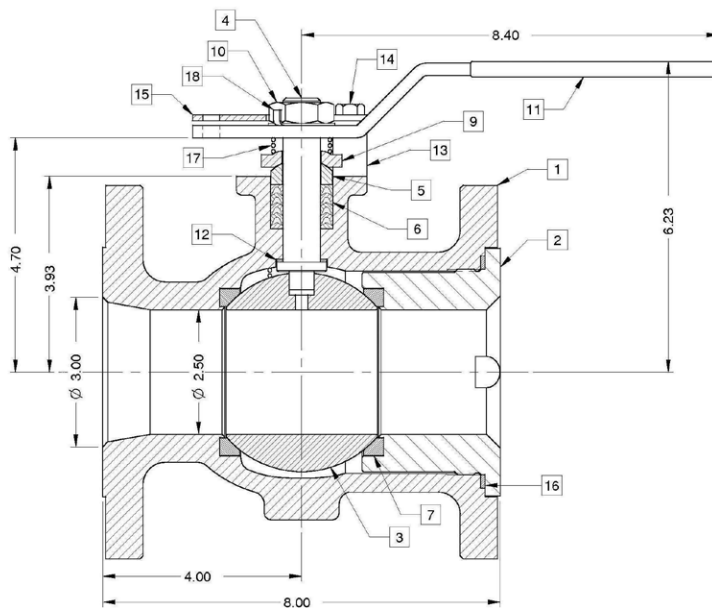


STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A276 Type 316
3 Ball	ASTM A276 Type 316 or A351 CF8M
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Nut	18-8 SS
11 Lever	316 SS with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Lockwasher	302 or 304 SS

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

87B-100 SERIES

Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 4" - 10" Short Pattern

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.

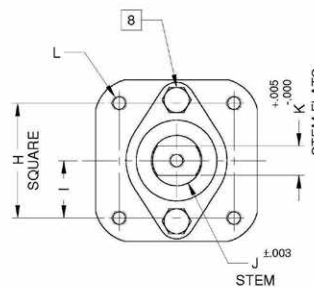
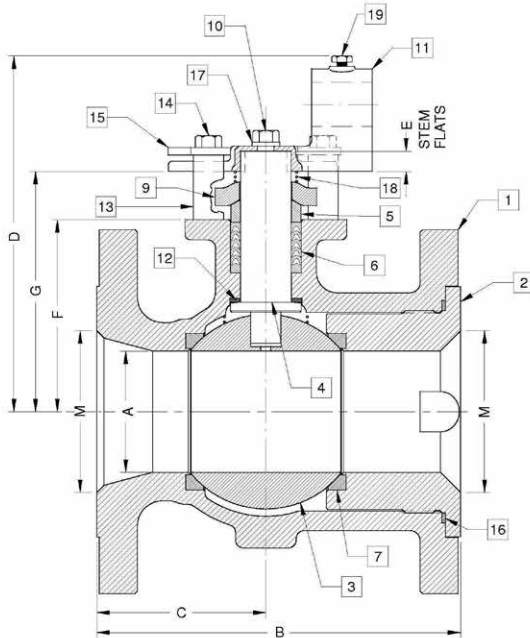


STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351 CF8M
2 Retainer	ASTM A276 Type 316
3 Ball	ASTM A276 Type 316 or A351 CF8M
4 Stem	ASTM A276 Type 316
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Handle Adapter	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Lockwasher	302 or 304 SS
18 Grounding Spring	SS
19 Adapter Screw	18-8 SS

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuated)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87B-10A-01	4"	3.00	9.00	4.18	8.80	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	72
87B-10C-01	6"	4.00	10.50	5.25	9.99	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	110
87B-10E-01	8"	6.00	11.50	5.75	13.61	1.00	7.63	9.36	4.596	2.298	2.000	1.375	3/4-10	8.00	210
87B-10G-01	10"	8.00	13.00	6.50	N/A	1.00	9.50	11.23	4.596	2.298	2.000	1.375	3/4-10	10.0	350

87J-100 SERIES

Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 1.5" through 2"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

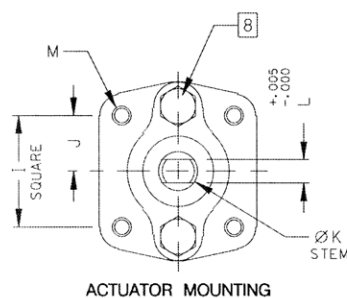
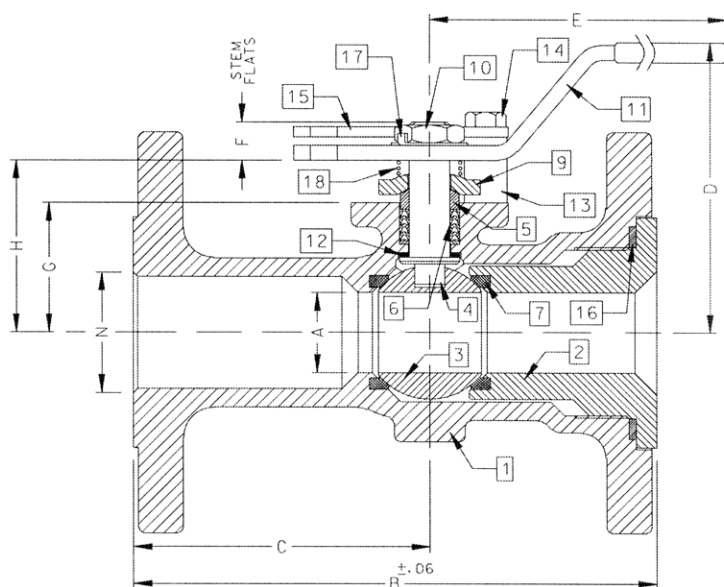
PART	MATERIAL
1 Body	ASTM A995 4A
2 Retainer	ASTM A276/A479 Alloy 2205
3 Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4 Stem	ASTM A276/A479 Alloy 2205
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	302 or 304 SS
10 Stem Nut	ASTM A194 Grade 8
11 Lever	302 or 304 SS with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	18-8 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Lockwasher	302 or 304 SS
18 Grounding Spring	SS, ASTM A313

VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel (1.5" to 2" only)
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87J-107-01	1.5"	1.25	6.50	3.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	9
87J-108-01	2"	1.50	7.00	3.69	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	18

87J-100 SERIES

Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 2.5" through 3"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.

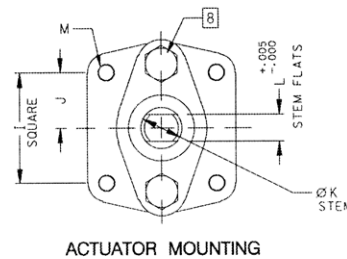
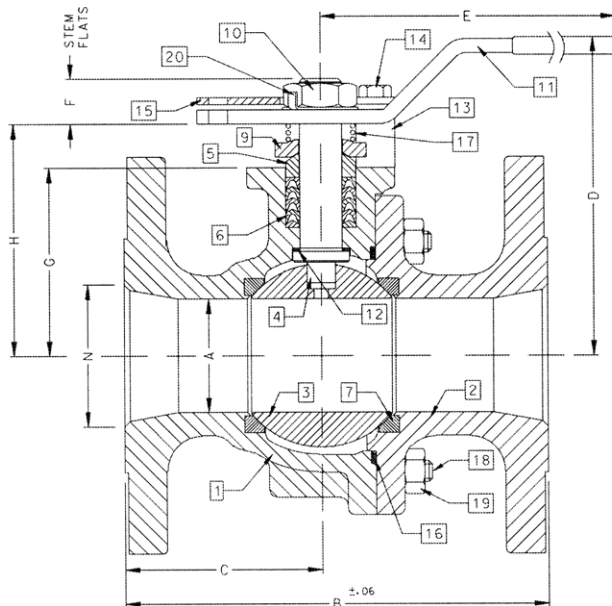


STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A995 4A
2 Retainer	ASTM A995 4A
3 Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4 Stem	ASTM A276/A479 Alloy 2205
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Nut	ASTM A194 Grade 8 SS
11 Lever	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS, ASTM A313
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded 87A/88A Series (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87J-109-01	2.5"	2.00	7.50	3.50	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	27
87J-100-01	3"	2.50	8.00	3.51	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	34

87J-100 SERIES

Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 4" through 8"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.

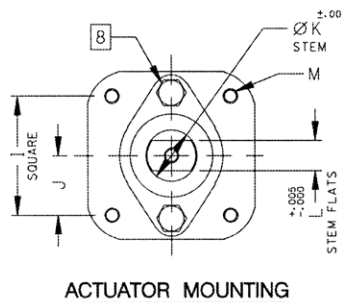
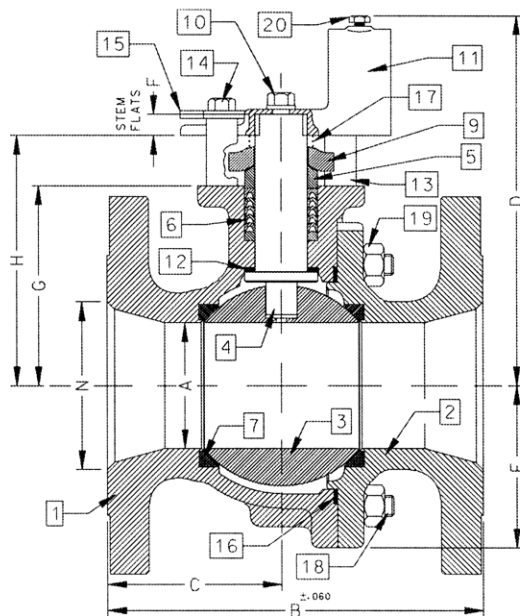


STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A995 4A
2 Retainer	ASTM A995 4A
3 Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4 Stem	ASTM A276/A479 Alloy 2205
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Handle Adapter	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS, ASTM 313
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS
21 Pipe Handle	Galvanized Steel (not Shown)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87J-10A-01	4"	3.00	9.00	4.18	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	73
87J-10C-01	6"	4.00	10.50	4.69	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	117
87J-10E-01	8"	6.00	18.00	9.00	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	310



87J-100 SERIES

Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 10"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

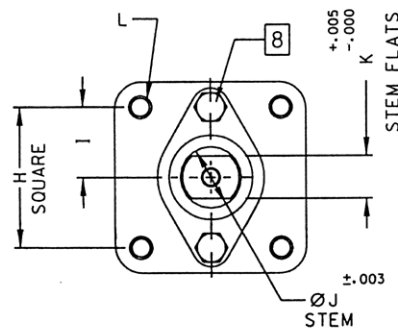
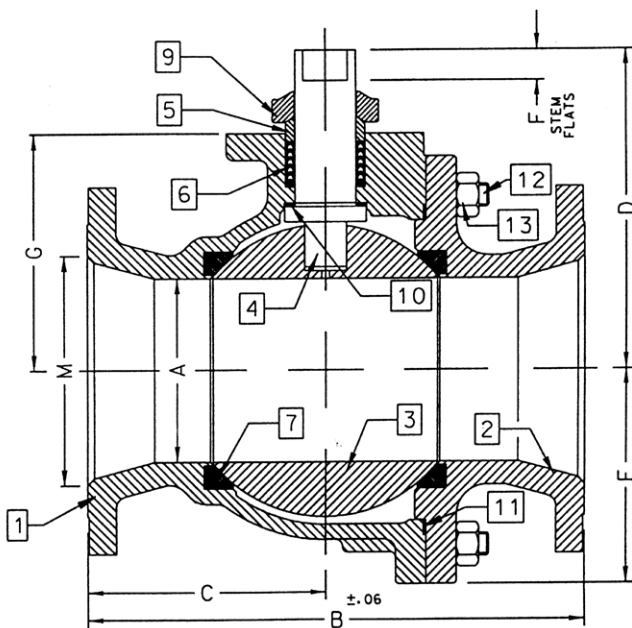
PART	MATERIAL
1 Body	ASTM A995 4A
2 Retainer	ASTM A995 4A
3 Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4 Stem	ASTM A276/A479 Alloy 2205
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B8M
13 Body Joint Nut	ASTM A194 Grade 8

VARIATIONS AVAILABLE:

87H - Hastelloy
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded 87A/88A Series (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87J-10G-01	10"	8.00	21.00	10.37	12.83	9.18	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00	526

87J-200 SERIES

Duplex Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 1/2" through 1"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A276/A479 Alloy 2205
3	Ball	ASTM A276/A479 Alloy 2205
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/ Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lockwasher	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A276/A479 Alloy 2205
3	Ball	ASTM A276/A479 Alloy 2205
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS

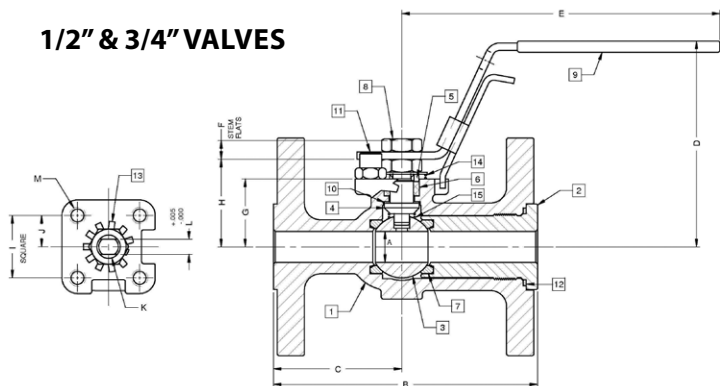
VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel
87N - Nickel

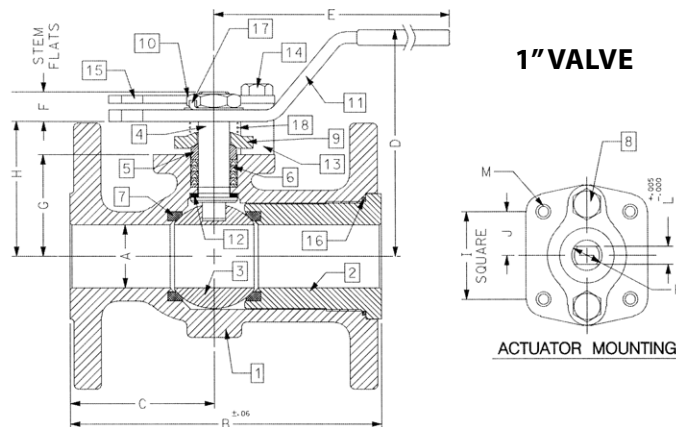
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D

1/2" & 3/4" VALVES



1" VALVE



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87J-203-01	1/2"	0.50	4.25	2.06	3.31	5.11	0.30	1.09	1.41	1.00	0.500	0.375	0.245	10-24	5
87J-204-01	3/4"	0.75	4.62	2.18	3.89	5.53	0.36	1.65	1.99	1.392	0.696	0.500	0.287	1/4-20	6
87J-205-01	1"	1.00	5.00	2.32	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	7

87J-200 SERIES

Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

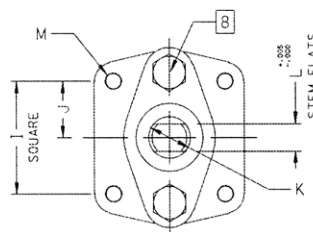
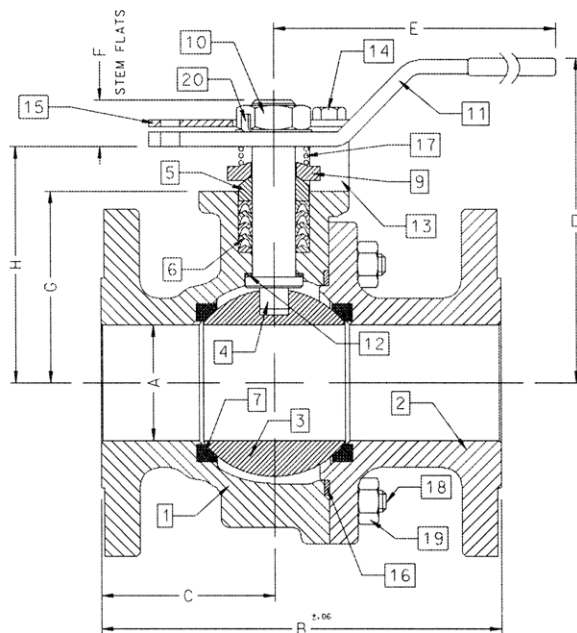
PART	MATERIAL
1 Body	ASTM A995 4A
2 Retainer	ASTM A995 4A
3 Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4 Stem	ASTM A276/A479 Alloy 2205
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Lever	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS

VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension (up to 2")
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-MG-	Gear Operator with Standard Handwheel
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87J-207-01	1.5"	1.50	6.50	3.00	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	14
87J-208-01	2"	2.00	7.00	3.04	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	25
87J-209-01	2.5"	2.50	7.50	3.34	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	30

87J-200 SERIES

Duplex Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 3" through 6"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A995 4A
2 Retainer	ASTM A995 4A
3 Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4 Stem	ASTM A276/A479 Alloy 2205
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Handle Adapter	316 with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Pipe Handle	Galvanized Steel (not shown)

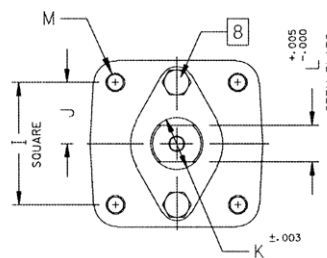
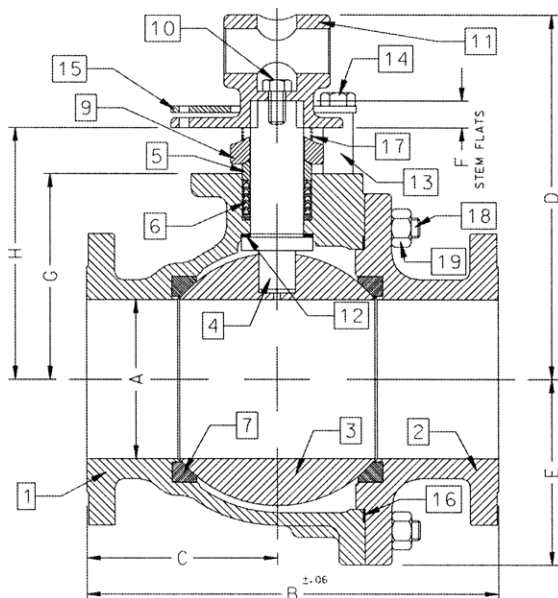
VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87J-200-01	3"	3.00	8.00	3.68	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	60
87J-20A-01	4"	4.00	9.00	3.94	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	91
87J-20C-01	6"	6.00	15.50	7.19	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	248

87J-200 SERIES

Duplex Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 8" through 12"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A995 4A
2 Retainer	ASTM A995 4A
3 Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4 Stem	ASTM A276/A479 Alloy 2205
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B8M
13 Body Joint Nut	ASTM A194 Grade 8

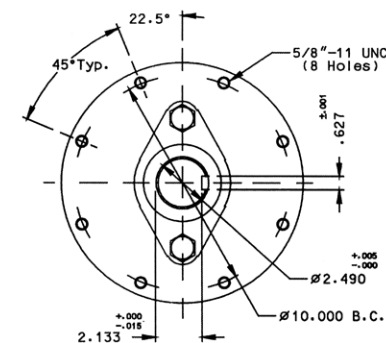
VARIATIONS AVAILABLE:

87H - Hastelloy

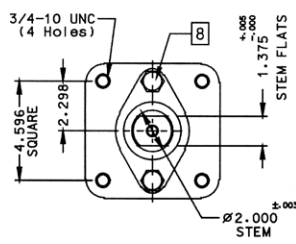
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

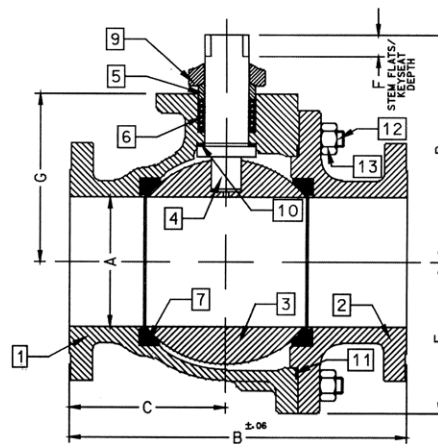
(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port (8" Only)
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING: 10" & 12"



ACTUATOR MOUNTING: 8"



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G
87J-20E-01	8"	8.00	18.00	8.88	12.83	9.18	1.00	10.22
87J-20G-01	10"	10.00	21.00	10.26	18.57	11.33	2.31	12.80
87J-20H-01	12"	12.00	24.00	12.09	20.31	13.40	2.31	14.92

87J-700 SERIES

Duplex Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 1.5" through 2"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

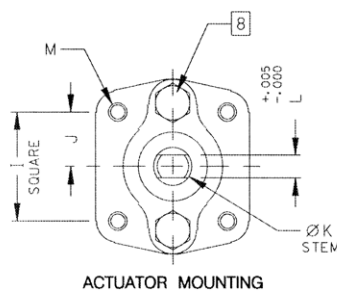
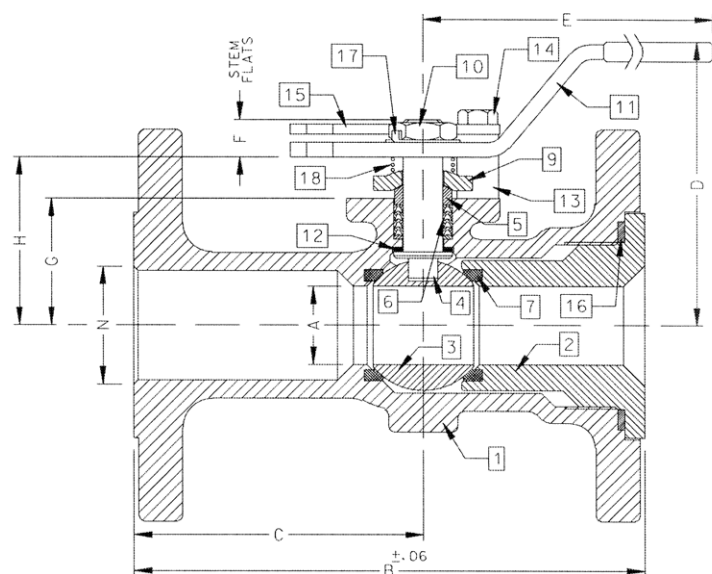
PART	MATERIAL
1 Body	ASTM A995 4A
2 Retainer	ASTM A995 4A
3 Ball	ASTM A276/A479 Alloy 2205
4 Stem	ASTM A276/A479 Alloy 2205
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	302 & 304 SS
10 Stem Nut	ASTM A194 Grade 8
11 Lever	302 & 304 SS with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	18-8 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Lockwasher	302 or 304 SS
18 Grounding Spring	SS, ASTM A313

VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14 -	Side Vented Ball (See Page J-2)
-15-	Wheel Handle, Steel
-21 -	UHMWPE Seats
-24 -	Fire Safe (Graphite Packing and Seal)
-35 -	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87J-707-01A	1.5"	1.25	7.50	4.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	15.7
87J-708-01	2"	1.50	8.50	5.19	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	24.0



87J-700 SERIES

Duplex Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 2.5" through 3"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A995 4A
2 Retainer	ASTM A995 4A
3 Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4 Stem	ASTM A276/A479 Alloy 2205
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Nut	ASTM A194 Grade 8 SS
11 Lever	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS, ASTM A313
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS

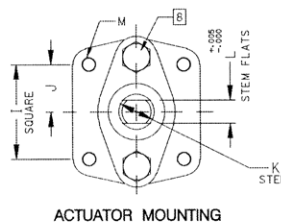
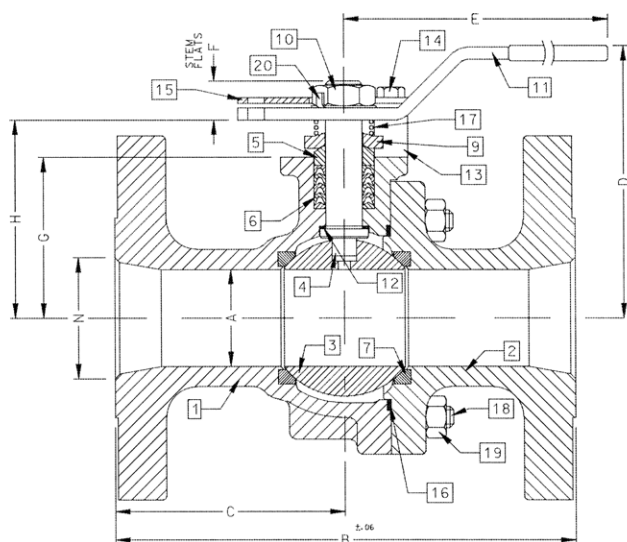
VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87J-709-01	2.5"	2.00	9.50	4.75	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	39
87J-700-01	3"	2.50	11.12	5.56	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	55

87J-700 SERIES

Duplex Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 4" through 8"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A995 4A
2 Retainer	ASTM A995 4A
3 Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4 Stem	ASTM A276/A479 Alloy 2205
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Handle Adapter	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS, ASTM 313
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Adapter Screw	302 or 304 SS
21 Pipe Handle	Galvanized Steel (not Shown)

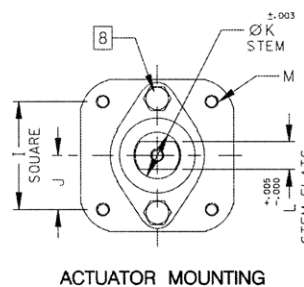
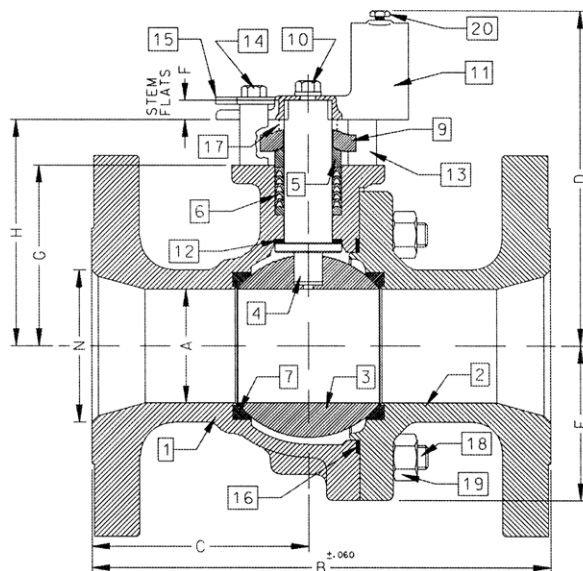
VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87J-70A-01	4"	3.00	12.00	5.68	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	95
87J-70C-01	6"	4.00	15.88	7.38	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	187
87J-70E-01	8"	6.00	19.75	9.00	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	400



87J-700 SERIES

Duplex Stainless Steel ASME Class 300 Flanged Standard Port Ball Valve - 10"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

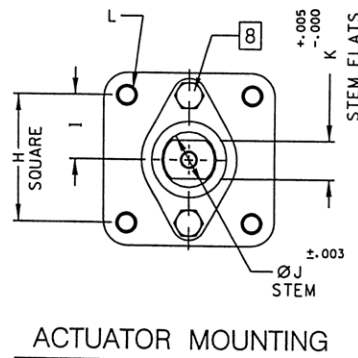
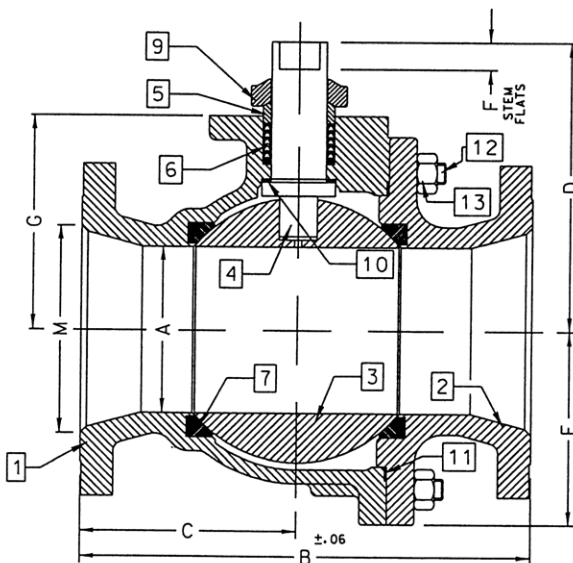
PART	MATERIAL
1 Body	ASTM A995 4A
2 Retainer	ASTM A995 4A
3 Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4 Stem	ASTM A276/A479 Alloy 2205
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B8M
13 Body Joint Nut	ASTM A194 Grade 8

VARIATIONS AVAILABLE:

87H - Hastelloy
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration (Less Gear Operator)
-14-	Side Vented Ball (See Page J2)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded 87A/88A Series (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
87J-70G-01	10"	8.00	22.38	10.69	12.83	9.56	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00

87J-900 SERIES

Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 1/2" through 1"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A276/A479 Alloy 2205
3	Ball	ASTM A276/A479 Alloy 2205
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/ Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lockwasher	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A276/A479 Alloy 2205
3	Ball	ASTM A276/A479 Alloy 2205
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS, ASTM A313

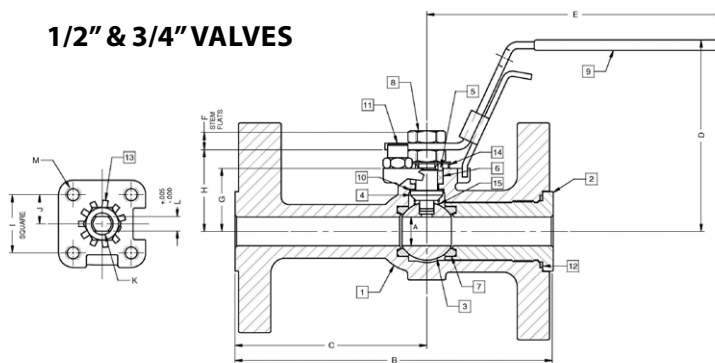
VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel
87N - Nickel

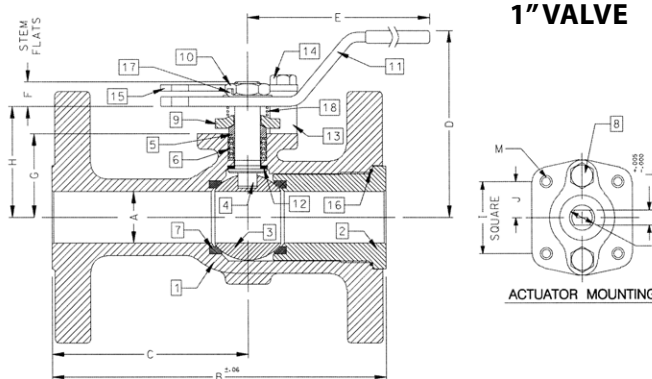
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D

1/2" & 3/4" VALVES



1" VALVE



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87J-903-01	1/2"	0.50	5.50	3.31	3.31	5.11	0.30	1.09	1.38	1.000	0.500	0.375	0.245	10-24	6
87J-904-01	3/4"	0.75	6.00	3.56	3.89	5.53	0.36	1.65	1.99	1.392	0.696	0.500	0.287	1/4-20	9
87J-905-01	1"	1.00	6.50	3.82	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	11



87J-900 SERIES

Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

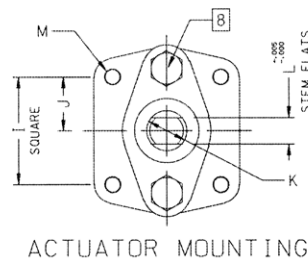
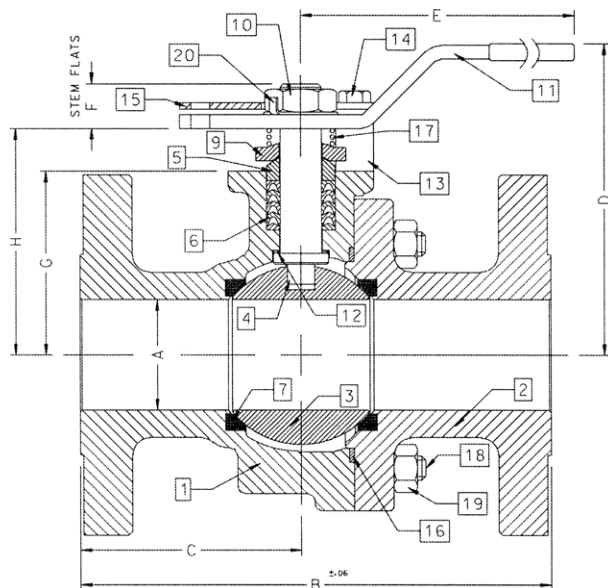
PART	MATERIAL
1 Body	ASTM A995 4A
2 Retainer	ASTM A995 4A
3 Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4 Stem	ASTM A276/A479 Alloy 2205
5 Packing Gland	ASTM A276/A479 Alloy 2205
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Nut	18-8 SS
11 Lever	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS, ASTM A313
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS

VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension (up to 2")
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87J-907-01	1.5"	1.50	7.50	3.50	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	21
87J-908-01	2"	2.00	8.50	4.00	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	37
87J-909-01	2.5"	2.50	9.50	4.44	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	57

87J-900 SERIES

Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 3" through 6"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

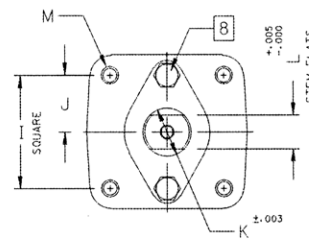
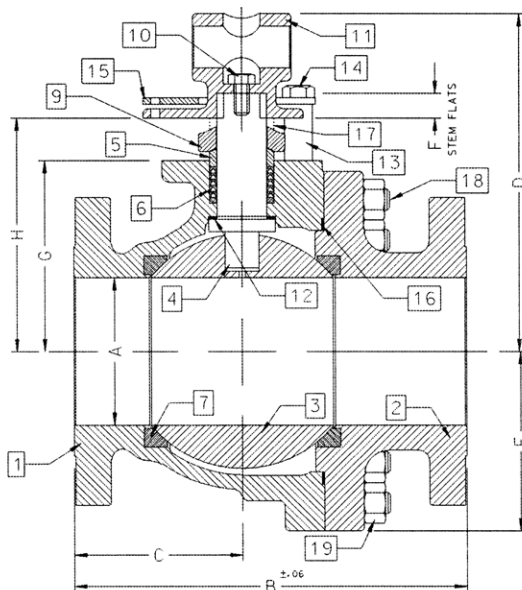
	PART	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276/A479 Alloy 2205
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Adapter Screw	18-8 SS
11	Handle Adapter	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS, ASTM A313
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Pipe Handle	Galvanized Steel (not shown)

VARIATIONS AVAILABLE:

87H - Hastelloy
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87J-900-01	3"	3.00	11.12	5.24	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	78
87J-90A-01	4"	4.00	12.00	5.44	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	133
87J-90C-01	6"	6.00	15.88	6.82	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	329

87J-900 SERIES

Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 8" through 12"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A995 4A
2 Retainer	ASTM A995 4A
3 Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4 Stem	ASTM A276/A479 Alloy 2205
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B8M
13 Body Joint Nut	ASTM A194 Grade 8

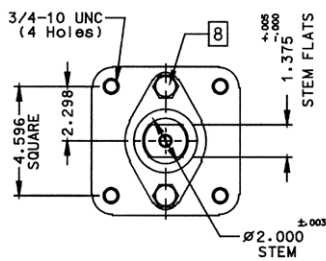
VARIATIONS AVAILABLE:

87H - Hastelloy

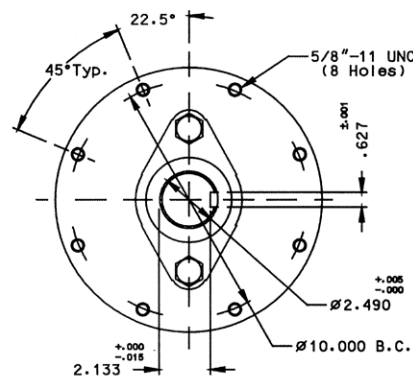
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

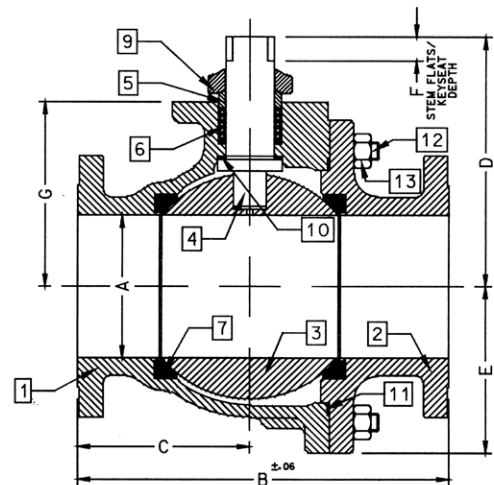
(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING: 8"



ACTUATOR MOUNTING: 10" & 12"



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G
87J-90E-01	8"	8.00	19.75	9.38	12.83	9.56	1.00	10.22
87J-90G-01	10"	10.00	22.38	10.95	18.57	11.33	2.31	12.80
87J-90H-01	12"	12.00	25.50	12.84	20.31	13.40	2.31	14.92

87K-100 SERIES

Super Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 1.5" through 2"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

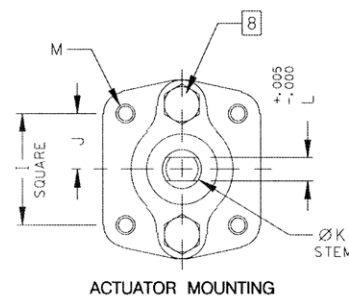
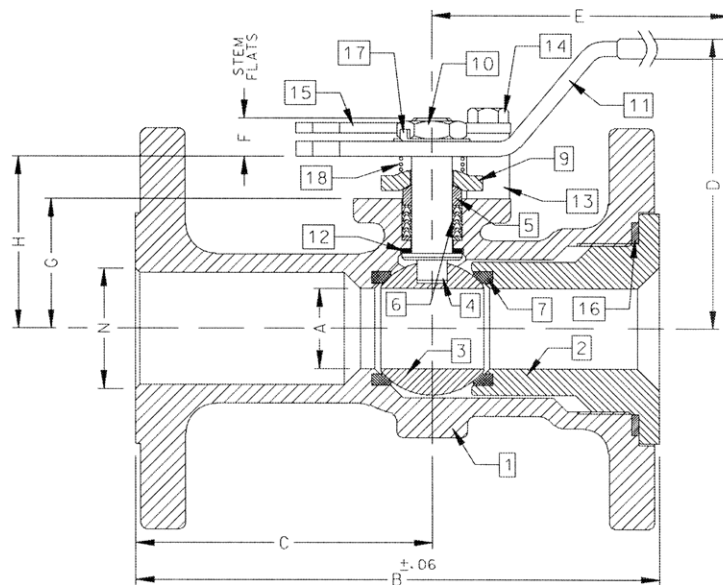
PART	MATERIAL
1 Body	ASTM A995 6A
2 Retainer	ASTM A276/A479 Alloy 2507
3 Ball	ASTM A276/A479 Alloy 2507
4 Stem	ASTM A276/A479 Alloy 2507
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	302 or 304 SS
10 Stem Nut	316 SS
11 Lever	302 or 304 SS with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	18-8 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Lockwasher	302 or 304 SS
18 Grounding Spring	SS

VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel (1.5" to 2" only)
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87K-107-01	1.5"	1.25	6.50	3.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	9
87K-108-01	2"	1.50	7.00	3.69	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	18

87K-100 SERIES

Super Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 2.5" through 3"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.

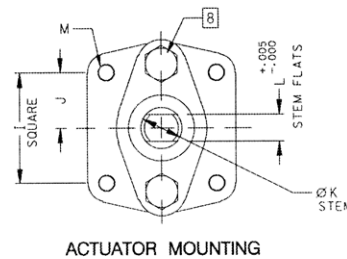
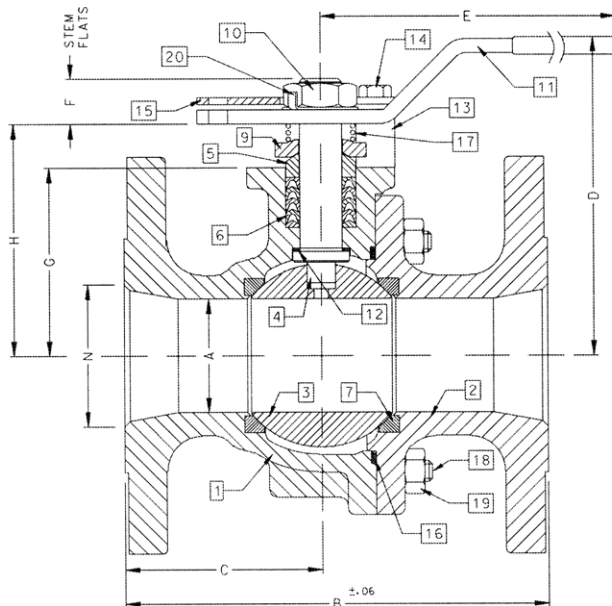


STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A995 6A
2 Retainer	ASTM A995 6A
3 Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4 Stem	ASTM A276/A479 Alloy 2507
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Nut	18-8 SS
11 Lever	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded 87A/88A Series (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87K-109-01	2.5"	2.00	7.50	3.50	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	27
87K-100-01	3"	2.50	8.00	3.51	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	34

87K-100 SERIES

Super Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 4" through 8"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.

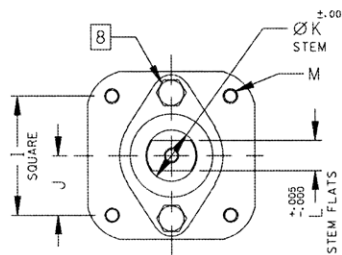
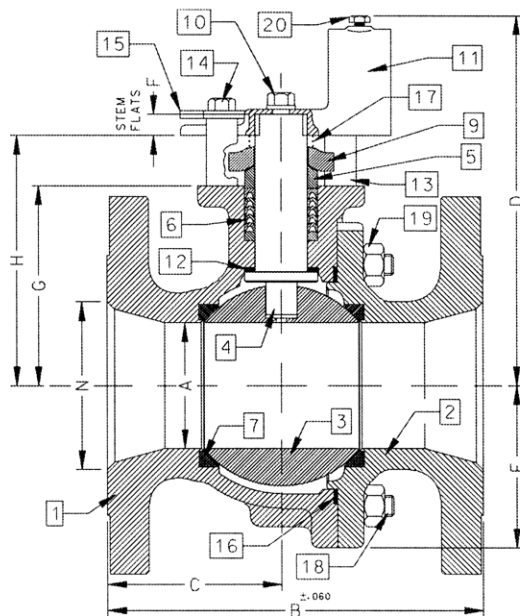


STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A995 6A
2 Retainer	ASTM A995 6A
3 Ball	ASTM A995 6A or A276/A479 Alloy 2507
4 Stem	ASTM A276/A479 Alloy 2507
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Handle Adapter	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS
21 Pipe Handle	Galvanized Steel (not Shown)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87K-10A-01	4"	3.00	9.00	4.18	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	73
87K-10C-01	6"	4.00	10.50	4.69	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	117
87K-10E-01	8"	6.00	18.00	9.00	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	310



87K-100 SERIES

Super Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 10"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

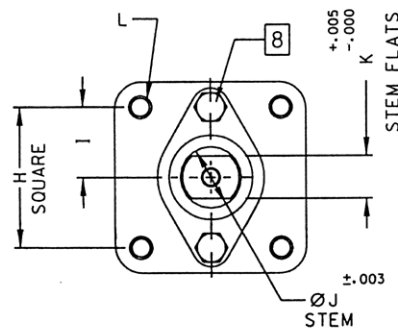
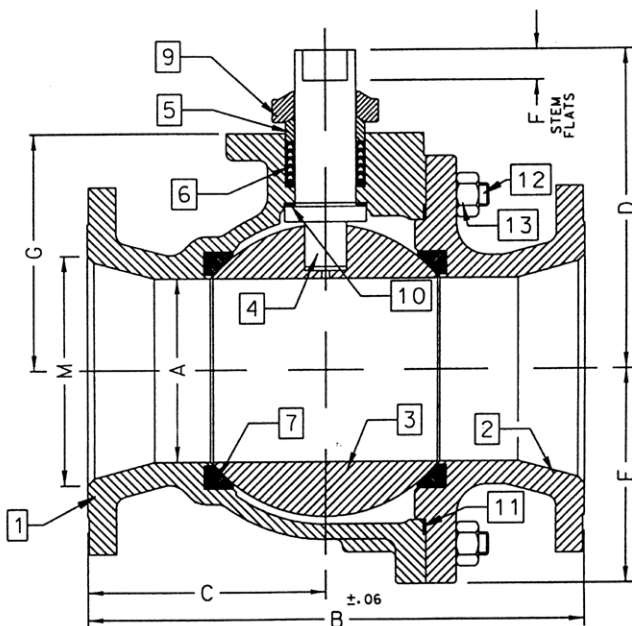
PART	MATERIAL
1 Body	ASTM A995 6A
2 Retainer	ASTM A995 6A
3 Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4 Stem	ASTM A276 A995 6A
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B8M
13 Body Joint Nut	ASTM A194 Grade 8

VARIATIONS AVAILABLE:

87H - Hastelloy
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded 87A/88A Series (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87K-10G-01	10"	8.00	21.00	10.37	12.83	9.18	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00	526

87K-200 SERIES

Super Duplex Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 1/2" through 1"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A276/A479 Alloy 2507
3	Ball	ASTM A276/A479 Alloy 2507
4	Stem	ASTM A276/ A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/ Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lockwasher	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A276 /A479 Alloy 2507
3	Ball	ASTM A276 /A479 Alloy 2507
4	Stem	ASTM A276 /A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS, ASTM A313

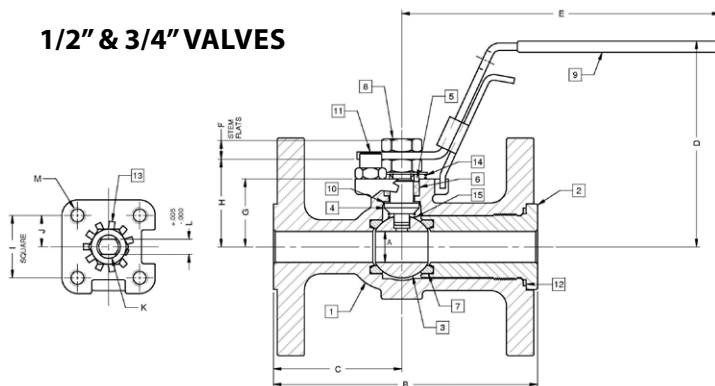
VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel
87N - Nickel

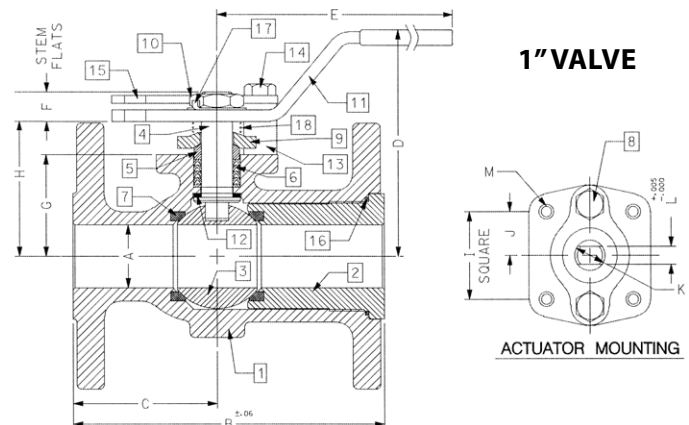
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D

1/2" & 3/4" VALVES



1" VALVE



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87K-203-01	1/2"	0.50	4.25	2.06	3.31	5.11	0.30	1.09	1.41	1.00	0.500	0.375	0.245	10-24	5
87K-204-01	3/4"	0.75	4.62	2.18	3.89	5.53	0.36	1.65	1.99	1.392	0.696	0.500	0.287	1/4-20	6
87K-205-01	1"	1.00	5.00	2.32	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	7



87K-200 SERIES

Super Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

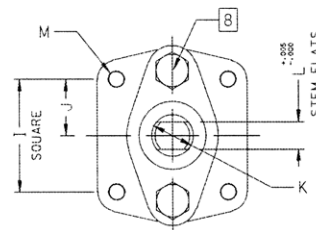
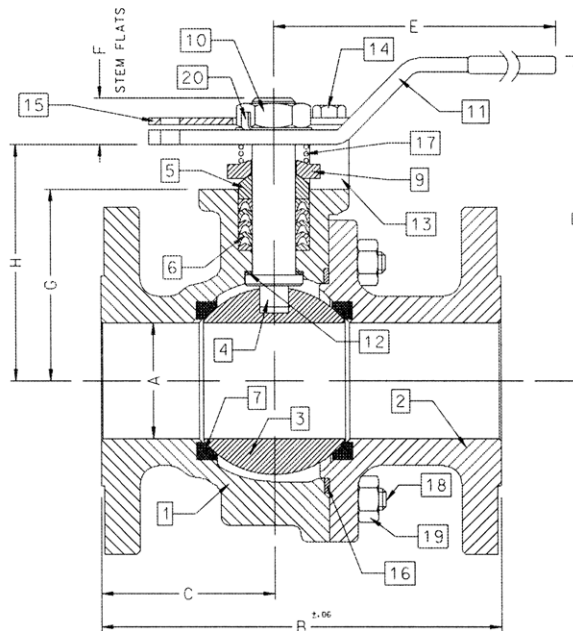
PART	MATERIAL
1 Body	ASTM A995 6A
2 Retainer	ASTM A995 6A
3 Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4 Stem	ASTM A276/ A479 Alloy 2507
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Lever	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS

VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension (up to 2")
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-MG-	Gear Operator with Standard Handwheel
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87K-207-01	1.5"	1.50	6.50	3.00	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	14
87K-208-01	2"	2.00	7.00	3.04	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	25
87K-209-01	2.5"	2.50	7.50	3.34	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	30

87K-200 SERIES

Super Duplex Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 3" through 6"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A995 6A
2 Retainer	ASTM A995 6A
3 Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4 Stem	ASTM A276/A479 Alloy 2507
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Handle Adapter	316 with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Pipe Handle	Galvanized Steel (not shown)

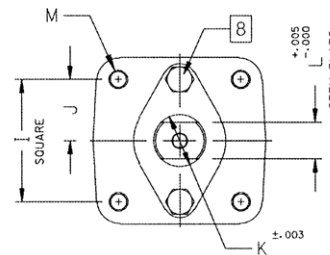
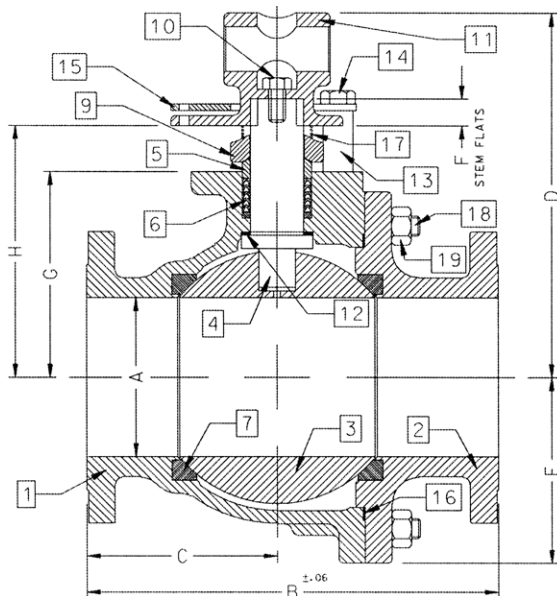
VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87K-200-01	3"	3.00	8.00	3.68	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	60
87K-20A-01	4"	4.00	9.00	3.94	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	91
87K-20C-01	6"	6.00	15.50	7.19	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	248

87K-200 SERIES

Super Duplex Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 8" through 12"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

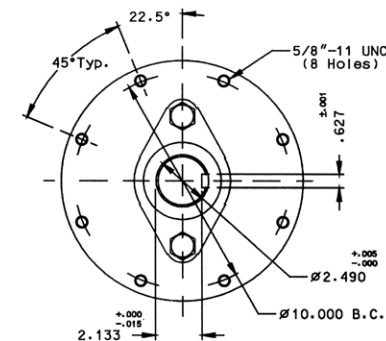
PART	MATERIAL
1 Body	ASTM A995 6A
2 Retainer	ASTM A995 6A
3 Ball	ASTM A276/A479 Alloy or A995 6A
4 Stem	ASTM A276/A479 Alloy 2507
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B8M
13 Body Joint Nut	ASTM A194 Grade 8

VARIATIONS AVAILABLE:

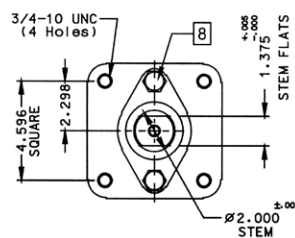
87H - Hastelloy
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

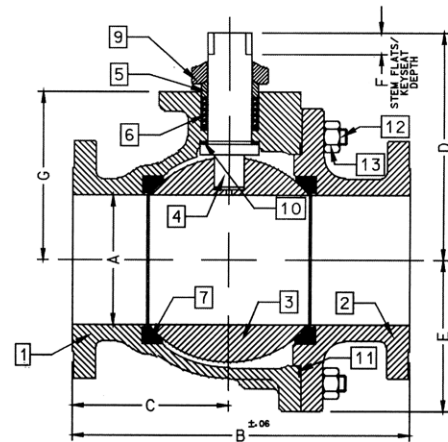
(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port (8" Only)
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING: 10" & 12"



ACTUATOR MOUNTING: 8"



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G
87K-20E-01	8"	8.00	18.00	8.88	12.83	9.18	1.00	10.22
87K-20G-01	10"	10.00	21.00	10.26	18.57	11.33	2.31	12.80
87K-20H-01	12"	12.00	24.00	12.09	20.31	13.40	2.31	14.92

87K-700 SERIES

Super Duplex Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 1.5" through 2"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

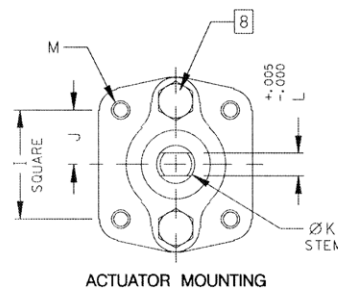
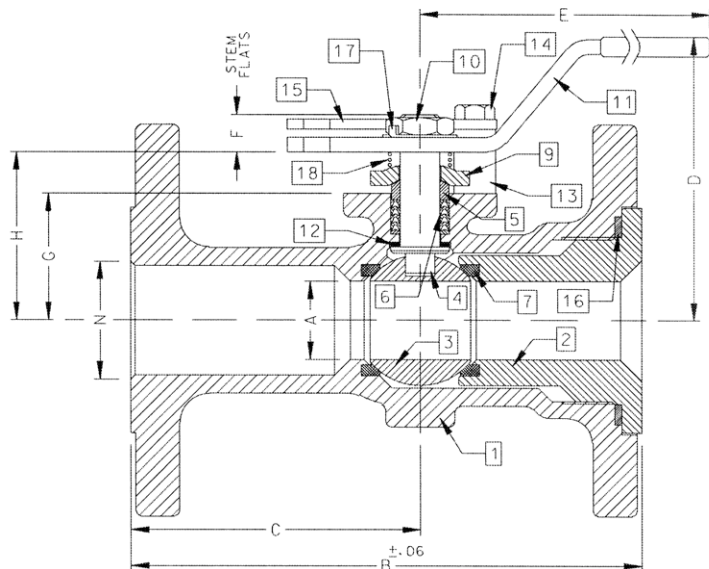
PART	MATERIAL
1 Body	ASTM A995 6A
2 Retainer	ASTM A276/A479 Alloy 2507
3 Ball	ASTM A276/A479 Alloy 2507
4 Stem	ASTM A276/A479 Alloy 2507
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	302 & 304 SS
10 Stem Nut	316 SS
11 Lever	302 & 304 SS with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	18-8 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Lockwasher	302 or 304 SS
18 Grounding Spring	SS

VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14 -	Side Vented Ball (See Page J-2)
-15-	Wheel Handle, Steel
-21 -	UHMWPE Seats
-24 -	Fire Safe (Graphite Packing and Seal)
-35 -	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87K-707-01A	1.5"	1.25	7.50	4.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	15.7
87K-708-01	2"	1.50	8.50	5.19	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	24.0



87K-700 SERIES

Super Duplex Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 2.5" through 3"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

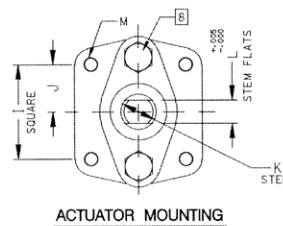
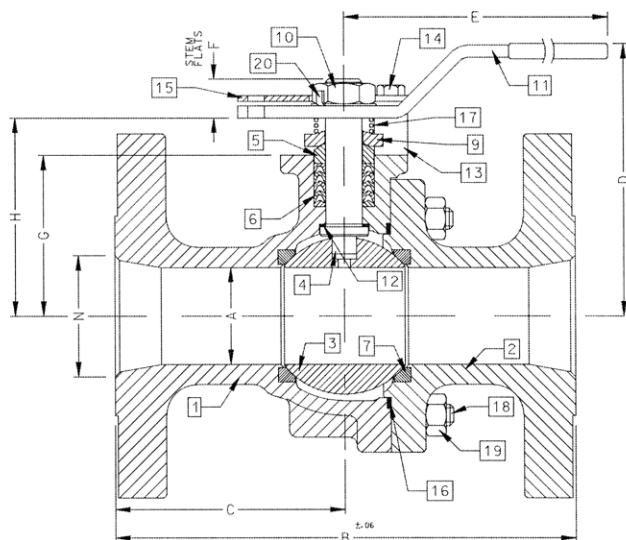
PART	MATERIAL
1 Body	ASTM A995 6A
2 Retainer	ASTM A995 6A
3 Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4 Stem	ASTM A276/A479 Alloy 2507
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Nut	18-8 SS
11 Lever	316 with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS

VARIATIONS AVAILABLE:

87H - Hastelloy
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87K-709-01	2.5"	2.00	9.50	4.75	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	39
87K-700-01	3"	2.50	11.12	5.56	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	55

87K-700 SERIES

Super Duplex Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 4" through 8"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

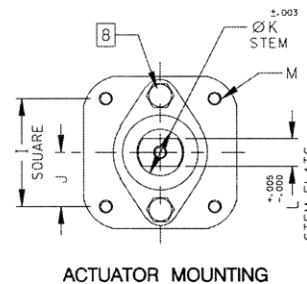
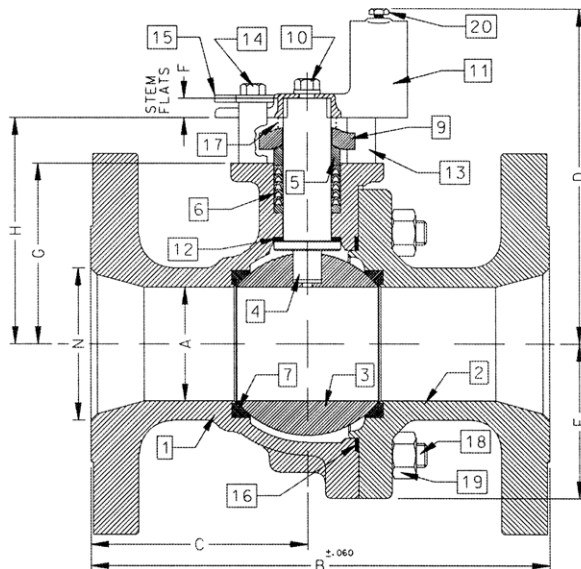
PART	MATERIAL
1 Body	ASTM A995 6A
2 Retainer	ASTM A276/A479 Alloy 2507
3 Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4 Stem	ASTM A276/A479 Alloy 2507
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Handle Adapter	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Adapter Screw	18-8 SS
21 Pipe Handle	Galvanized Steel (not shown)

VARIATIONS AVAILABLE:

87H - Hastelloy
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87K-70A-01	4"	3.00	12.00	5.68	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	95
87K-70C-01	6"	4.00	15.88	7.38	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	187
87K-70E-01	8"	6.00	19.75	9.00	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	400



87K-700 SERIES

Super Duplex Stainless Steel ASME Class 300 Flanged Standard Port Ball Valve - 10"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

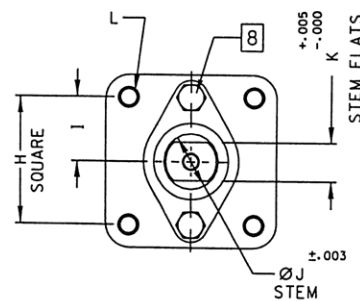
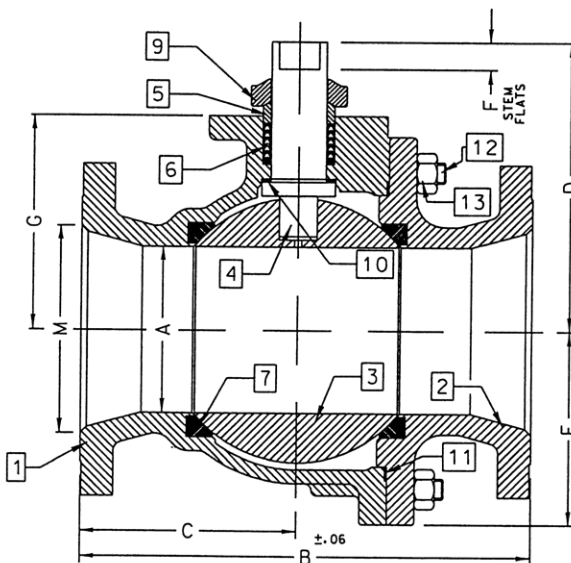
PART	MATERIAL
1 Body	ASTM A995 6A
2 Retainer	ASTM A995 6A
3 Ball	ASTM A276/A479 Alloy 2507
4 Stem	ASTM A276/A479 Alloy 2507
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B8M
13 Body Joint Nut	ASTM A194 Grade 8

VARIATIONS AVAILABLE:

87H - Hastelloy
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration (Less Gear Operator)
-14-	Side Vented Ball (See Page J2)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded 87A/88A Series (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
87K-70G-01	10"	8.00	22.38	10.69	12.83	9.56	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00

87K-900 SERIES

Super Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 1/2" through 1"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A276/A479 Alloy 2507
3	Ball	ASTM A276/A479 Alloy 2507
4	Stem	ASTM A276/A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/ Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lockwasher	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A276 Type 316
3	Ball	ASTM A276 Type 316
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS

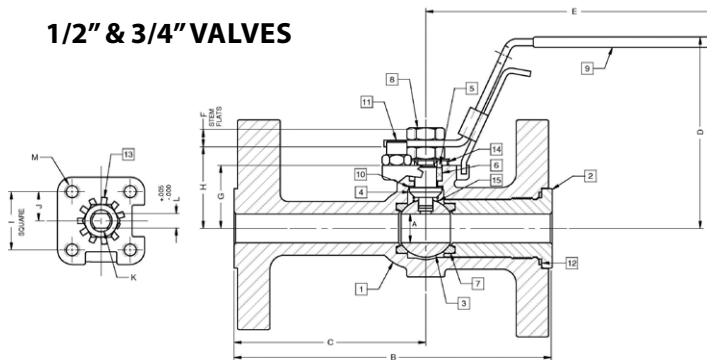
VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel
87N - Nickel

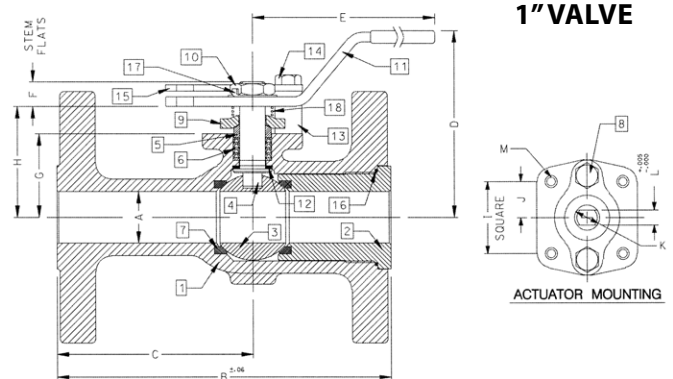
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D

1/2" & 3/4" VALVES



1" VALVE



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87K-903-01	1/2"	0.50	5.50	3.31	3.31	5.11	0.30	1.09	1.38	1.000	0.500	0.375	0.245	10-24	6
87K-904-01	3/4"	0.75	6.00	3.56	3.89	5.53	0.36	1.65	1.99	1.392	0.696	0.500	0.287	1/4-20	9
87K-905-01	1"	1.00	6.50	3.82	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	11



87K-900 SERIES

Super Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

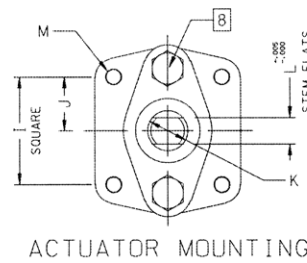
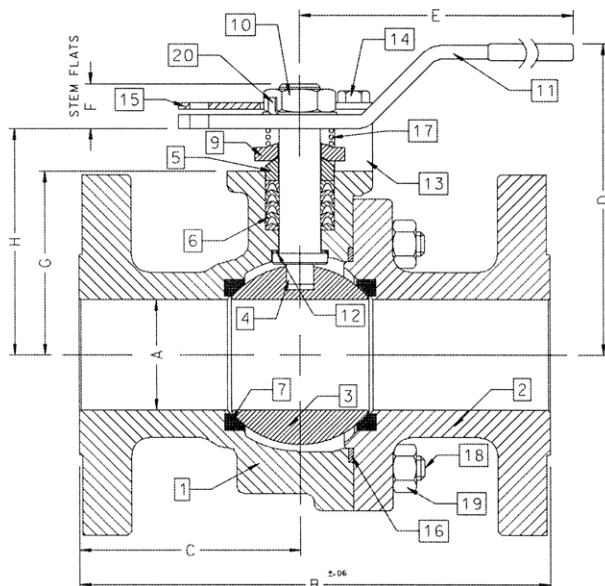
PART	MATERIAL
1 Body	ASTM A995 6A
2 Retainer	ASTM A995 6A
3 Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4 Stem	ASTM A276/A479 Alloy 2507
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Nut	18-8 SS
11 Lever	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS

VARIATIONS AVAILABLE:

87H - Hastelloy
87M - Monel
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension (up to 2")
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87K-907-01	1.5"	1.50	7.50	3.50	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	21
87K-908-01	2"	2.00	8.50	4.00	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	37
87K-909-01	2.5"	2.50	9.50	4.44	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	57

87K-900 SERIES

Super Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 3" through 6"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A995 6A
2 Retainer	ASTM A995 6A
3 Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4 Stem	ASTM A276/A479 Alloy 2507
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Handle Adapter	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Pipe Handle	Galvanized Steel (not shown)

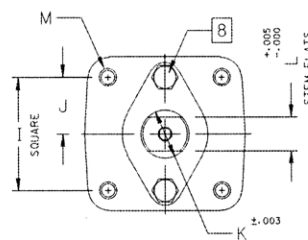
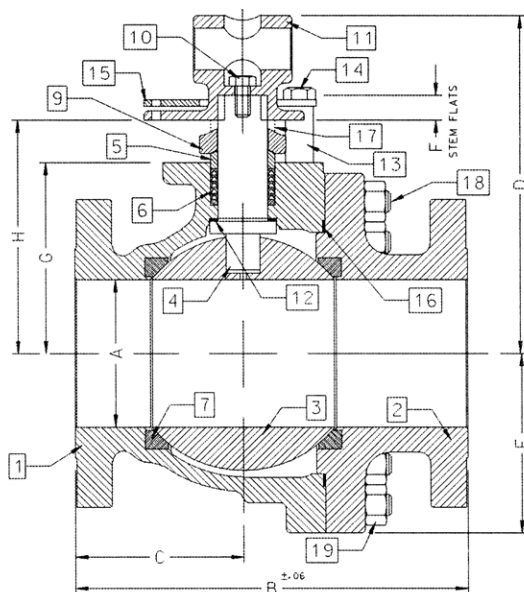
VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87K-900-01	3"	3.00	11.12	5.24	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	78
87K-90A-01	4"	4.00	12.00	5.44	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	133
87K-90C-01	6"	6.00	15.88	6.82	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	329

87K-900 SERIES

Super Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 8" through 12"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A995 6A
2 Retainer	ASTM A995 6A
3 Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4 Stem	ASTM A276/A479 Alloy 2507
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B8M
13 Body Joint Nut	ASTM A194 Grade 8

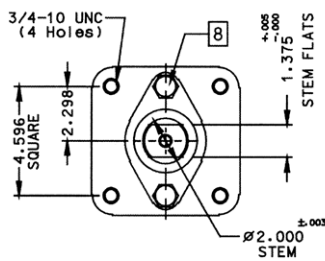
VARIATIONS AVAILABLE:

87H - Hastelloy

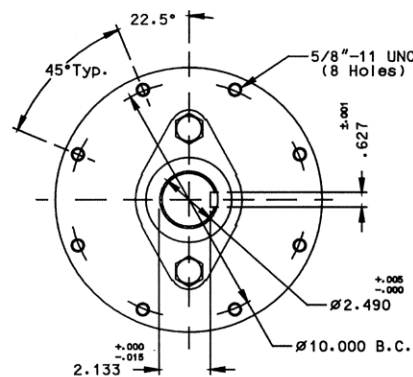
87N - Nickel

OPTIONS AVAILABLE: (More information in Section J)

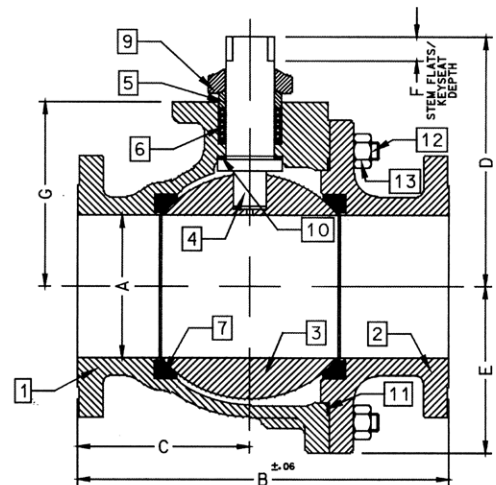
(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING: 8"



ACTUATOR MOUNTING: 10" & 12"



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G
87K-90E-01	8"	8.00	19.75	9.38	12.83	9.56	1.00	10.22
87K-90G-01	10"	10.00	22.38	10.95	18.57	11.33	2.31	12.80
87K-90H-01	12"	12.00	25.50	12.84	20.31	13.40	2.31	14.92

88A-100 SERIES

Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 1.5" through 2"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216 WCB
2 Retainer	ASTM A108 Type 1215
3 Ball	ASTM A108 Type 1215 Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	302 or 304 SS
10 Stem Nut	316 SS
11 Lever	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Lockwasher	302 or 304 SS
18 Grounding Spring	SS

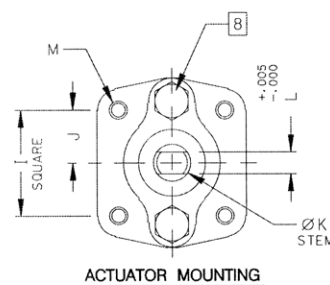
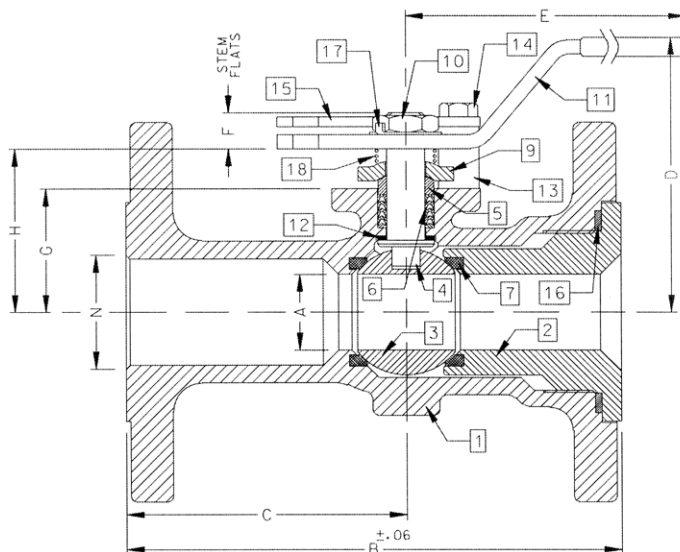
VARIATIONS AVAILABLE:

88A-140 Series (316 SS Ball & Stem)

88A-130 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-10-	SS Lever and Nut
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88A-107-01A	1.5"	1.25	6.50	3.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	9
88A-108-01	2"	1.50	7.00	3.69	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	18



88A-100 SERIES

Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 2.5" through 3"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216 WCB
2 Retainer	ASTM A216 WCB
3 Ball	ASTM A108 Type 1215 or ASTM A216 WCB Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	302 or 304 SS
10 Stem Nut	ASTM A194 Grade 8
11 Lever	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Lockwasher	302 or 304 SS

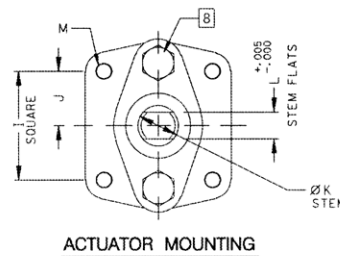
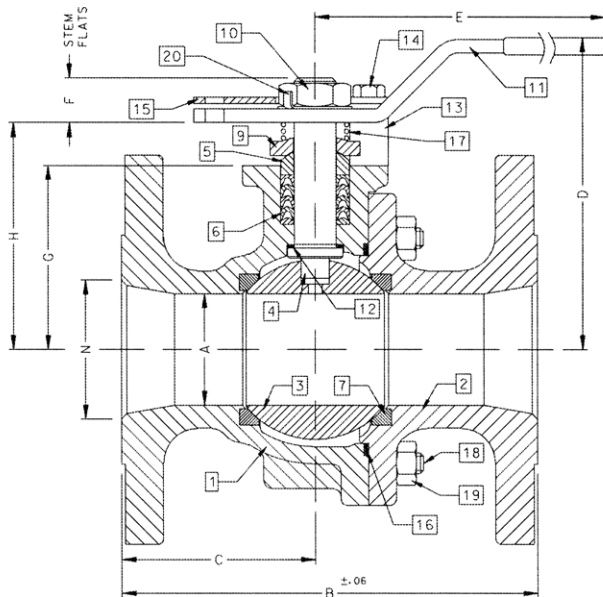
VARIATIONS AVAILABLE:

88A-140 Series (316 SS Ball & Stem)

88A-130 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-10-	SS Lever and Nut
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88A-109-01	2.5"	2.00	7.50	3.50	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	27
88A-100-01	3"	2.50	8.00	3.51	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	34

88A-100 SERIES

Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 4" through 8"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216 WCB
2 Retainer	ASTM A216 WCB
3 Ball	ASTM A108 Type 1215 or ASTM A216 WCB Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	316 SS
10 Adaptor Screw	316 SS
11 Handle Adapter	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Adapter Screw	18-8 SS
21 Pipe Handle	Galvanized Steel (not shown)

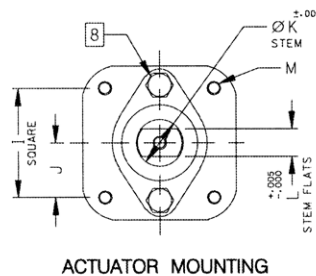
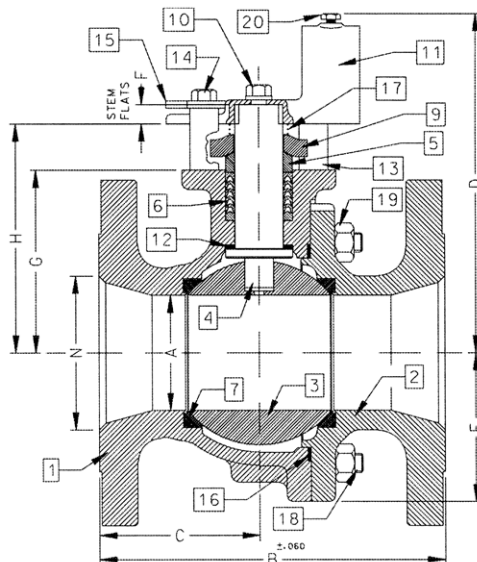
VARIATIONS AVAILABLE:

88A-140 Series (316 SS Ball & Stem)

88A-130 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88A-10A-01	4"	3.00	9.00	4.18	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	73
88A-10C-01	6"	4.00	10.50	4.69	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	117
88A-10E-01	8"	6.00	18.00	9.00	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	310



88A-100 SERIES

Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 10"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

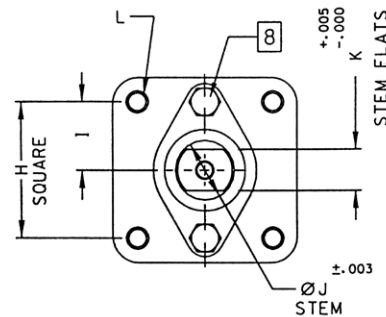
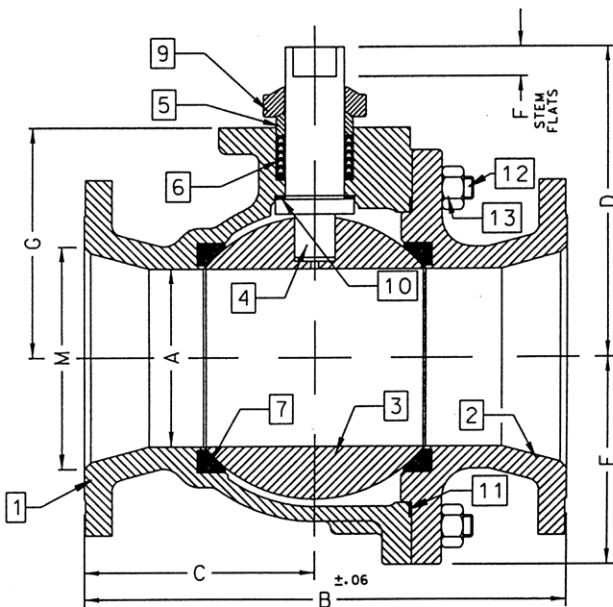
PART	MATERIAL
1 Body	ASTM A216 WCB
2 Retainer	ASTM A216 WCB
3 Ball	ASTM A108 Type 1215 or A216 WCB Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B7
13 Body Joint Nut	ASTM A194 Grade 2H

VARIATIONS AVAILABLE:

88A-130 Series (Ni-Cu Ball & Stem)
88A-140 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
88A-10G-01	10"	8.00	21.00	10.37	12.83	9.18	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00

88A-200 SERIES

Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 1/2" through 1"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A108 Type 1215
3	Ball	ASTM A108 Type 1215
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lock Washer	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A108 Type 1215
3	Ball	ASTM A108 Type 1215 Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS

VARIATIONS AVAILABLE:

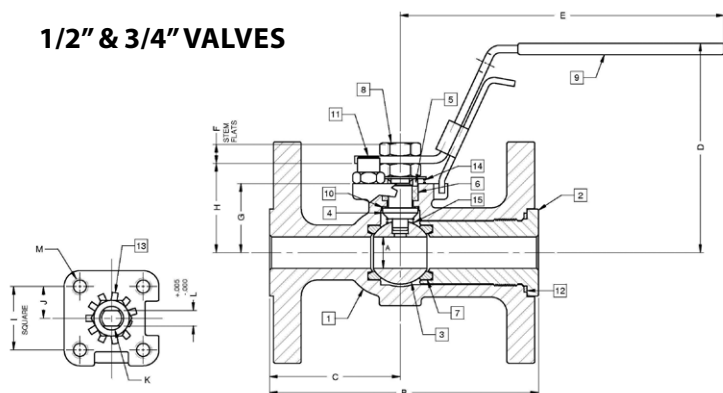
88A-240 Series (316 SS Ball & Stem)

88A-230 Series (Ni-Cu Ball & Stem)

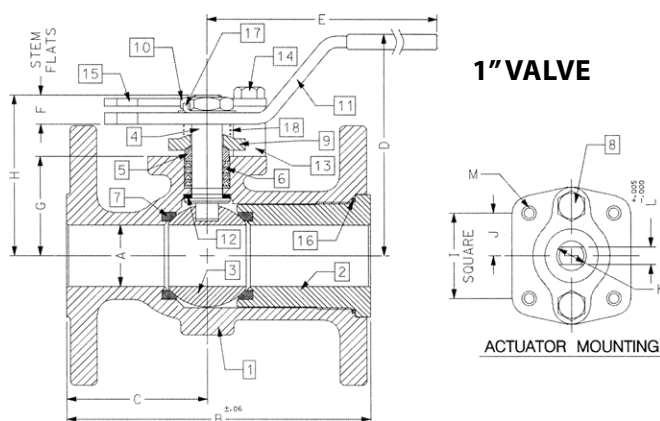
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-10-	SS Lever and Nut
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-65-	MPTE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)

1/2" & 3/4" VALVES



1" VALVE



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88A-203-01	1/2"	0.50	4.25	2.06	3.31	5.11	0.30	1.09	1.41	1.002	0.501	0.375	0.245	10-24	5
88A-204-01	3/4"	0.75	4.62	2.18	3.89	5.53	0.36	1.65	1.99	1.392	0.696	0.500	0.287	1/4-20	6
88A-205-01	1"	1.00	5.00	2.32	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	7

88A-200 SERIES

Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216 WCB
2 Retainer	ASTM A216 WCB
3 Ball	ASTM A108 Type 1215 or ASTM A216 WCB Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	302 & 304 SS
10 Stem Nut	ASTM A194 Grade 8I
11 Lever	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Lockwasher	302 or 304 SS

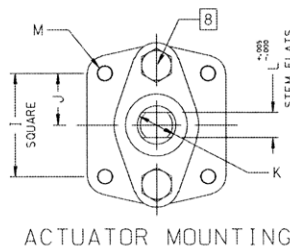
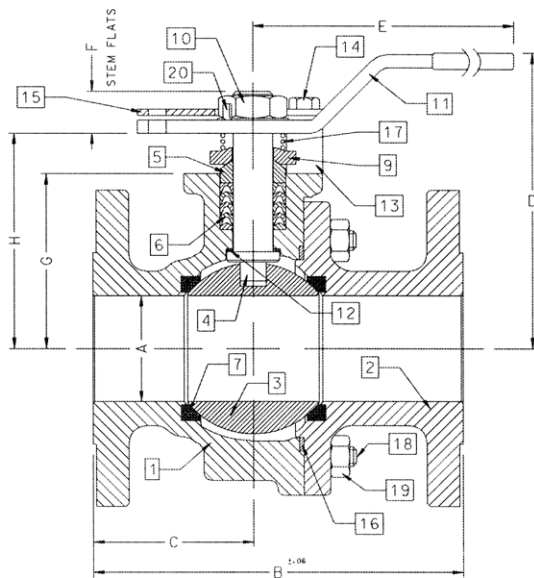
VARIATIONS AVAILABLE:

88A-240 Series (316 SS Ball & Stem)

88A-230 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension (up to 2")
-10-	SS Lever and Nut
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88A-207-01	1.5"	1.50	6.50	3.00	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	14
88A-208-01	2"	2.00	7.00	3.04	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	25
88A-209-01	2.5"	2.50	7.50	3.34	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	30

88A-200 SERIES

Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 3" through 6"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216 WCB
2 Retainer	ASTM A216 WCB
3 Ball	ASTM A108 Type 1215 or A216 WCB Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	316 SS
10 Adapter Screw	316 SS
11 Handle Adapter	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Pipe Handle	Galvanized Steel (not shown)

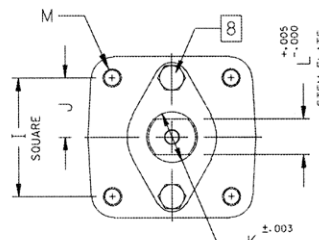
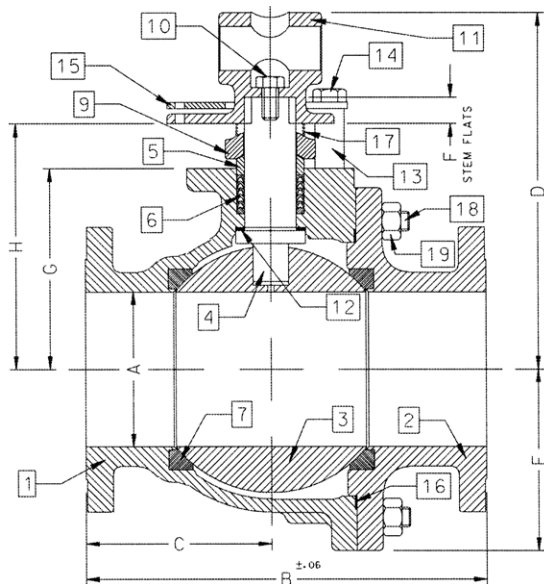
VARIATIONS AVAILABLE:

88A-240 Series (316 SS Ball & Stem)

88A-230 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88A-200-01	3"	3.00	8.00	3.68	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	60
88A-20A-01	4"	4.00	9.00	3.94	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	91
88A-20C-01	6"	6.00	15.50	7.19	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	248

88A-200 SERIES

Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 8" through 12"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

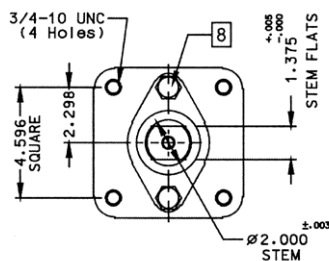
PART	MATERIAL
1 Body	ASTM A216 WCB
2 Retainer	ASTM A216 WCB
3 Ball	ASTM A108 Type 1215 or A216 WCB Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B7
13 Body Joint Nut	ASTM A194 Grade 2H

VARIATIONS AVAILABLE:

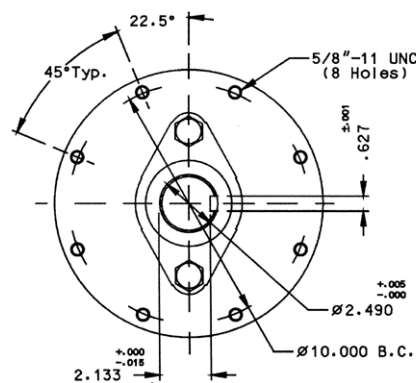
88A-230 Series (Ni-Cu Ball & Stem)
88A-240 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

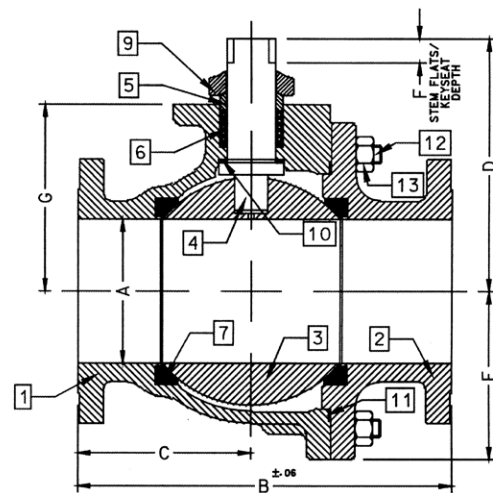
(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gas - CS Valves
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING: 8"



ACTUATOR MOUNTING: 10" & 12"



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G
88A-20E-01	8"	8.00	18.00	8.88	12.83	9.18	1.00	10.22
88A-20G-01	10"	10.00	21.00	10.26	18.57	11.33	2.31	12.80
88A-20H-01	12"	12.00	24.00	12.09	20.31	13.40	2.31	14.92

88A-700 SERIES

Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 1.5" through 2"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216 WCB
2 Retainer	ASTM A108 Type 1215
3 Ball	ASTM A108 Type 1215 Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	302 & 304 SS
10 Stem Nut	316 SS
11 Lever	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Lockwasher	302 or 304 SS
18 Grounding Spring	SS

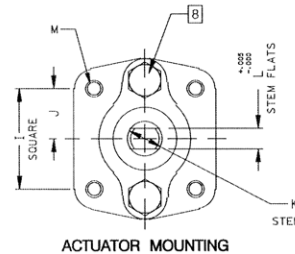
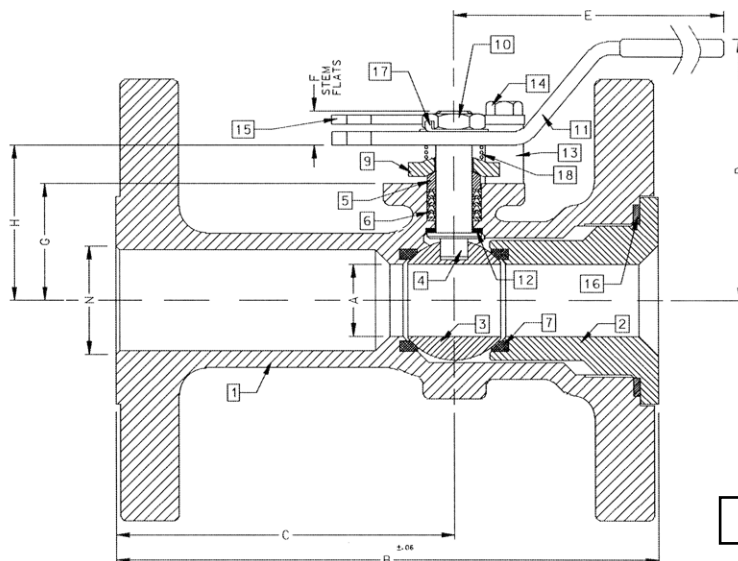
VARIATIONS AVAILABLE:

88A-740 Series (316 SS Ball & Stem)

88A-730 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-10-	SS Lever and Nut
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 5

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88A-707-01	1.5"	1.25	7.50	4.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	16
88A-708-01	2"	1.50	8.50	5.19	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	24



88A-700 SERIES

Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 2.5" through 3"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216 WCB
2 Retainer	ASTM A216 WCB
3 Ball	ASTM A108 Type 1215 or A216 WCB Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	302 or 304 SS
10 Stem Nut	ASTM A194 Grade 8
11 Lever	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Lockwasher	302 or 304 SS

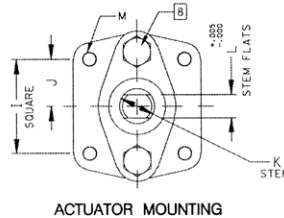
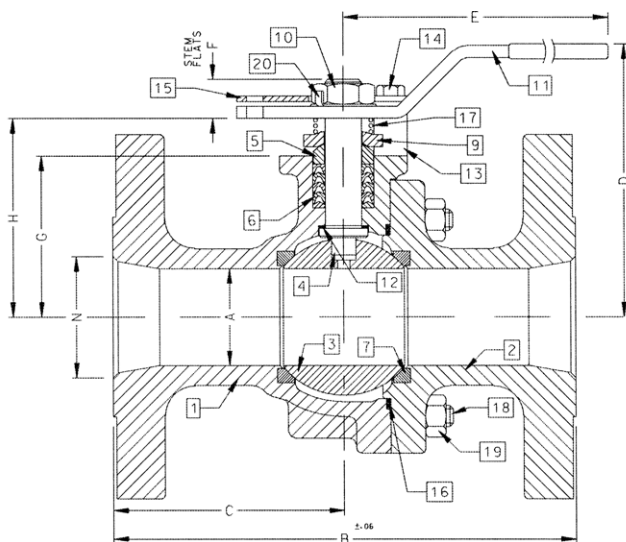
VARIATIONS AVAILABLE:

88A-740 Series (316 SS Ball & Stem)

88A-730 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-10-	SS Lever and Nut
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 5

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88A-709-01	2.5"	2.00	9.50	4.75	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	39
88A-700-01	3"	2.50	11.12	5.56	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	55

88A-700 SERIES

Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 4" through 8"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216 WCB
2 Retainer	ASTM A216 WCB
3 Ball	ASTM A108 Type 1215 or A216 WCB Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	316 SS
10 Adapter Screw	316 SS
11 Handle Adapter	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Adapter Screw	316 SS
21 Pipe Handle	Galvanized Steel (not shown)

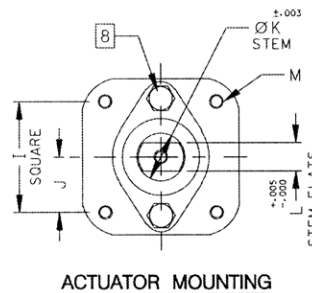
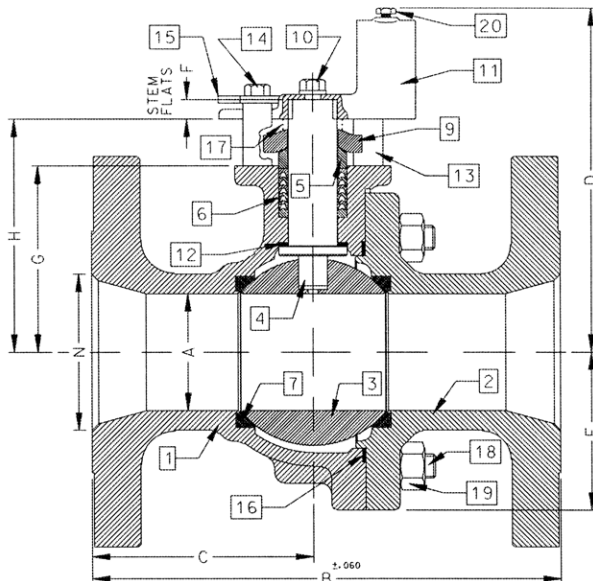
VARIATIONS AVAILABLE:

88A-740 Series (316 SS Ball & Stem)

88A-730 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 5

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88A-70A-01	4"	3.00	12.00	5.68	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	95
88A-70C-01	6"	4.00	15.88	7.38	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	187
88A-70E-01	8"	6.00	19.75	9.00	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	400



88A-700 SERIES

Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 10"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

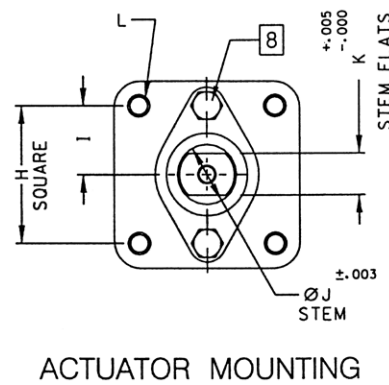
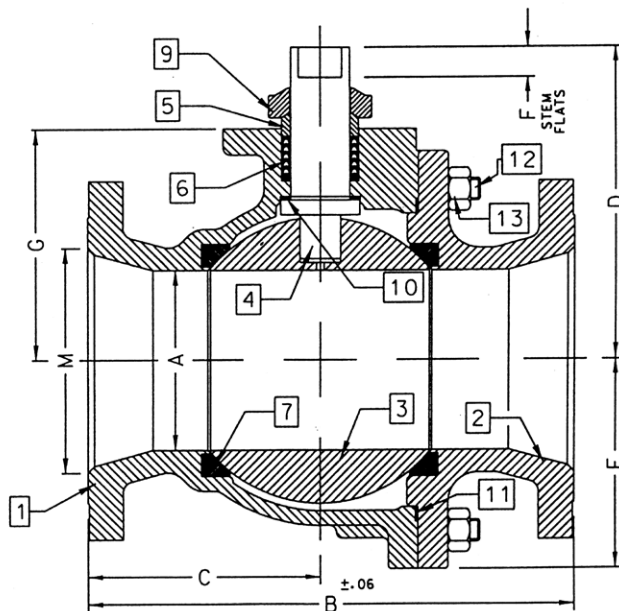
PART	MATERIAL
1 Body	ASTM A216 WCB
2 Retainer	ASTM A216 WCB
3 Ball	ASTM A108 Type 1215 or A216 WCB Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B7
13 Body Joint Nut	ASTM A194 Grade 2H

VARIATIONS AVAILABLE:

88A-730 Series (Ni-Cu Ball & Stem)
88A-740 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 5

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
88A-70G-01	10"	8.00	22.38	10.69	12.83	9.56	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00

88A-900 SERIES

Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 1/2" through 1"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A108 Type 1215
3	Ball	ASTM A108 Type 1215
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lock Washer	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A108 Type 1215
3	Ball	ASTM A108 Type 1215 Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS

VARIATIONS AVAILABLE:

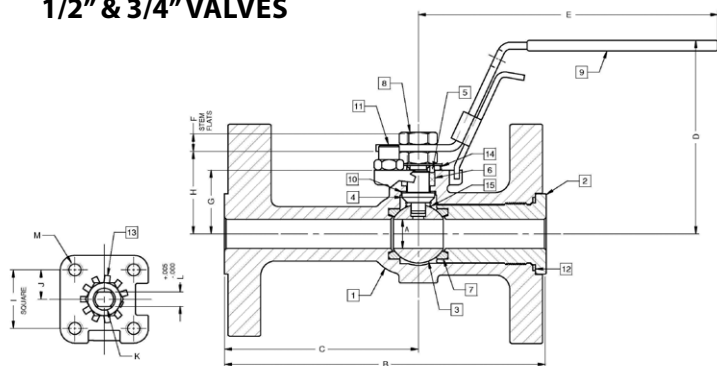
88A-940 Series (316 SS Ball & Stem)

88A-930 Series (Ni-Cu Ball & Stem)

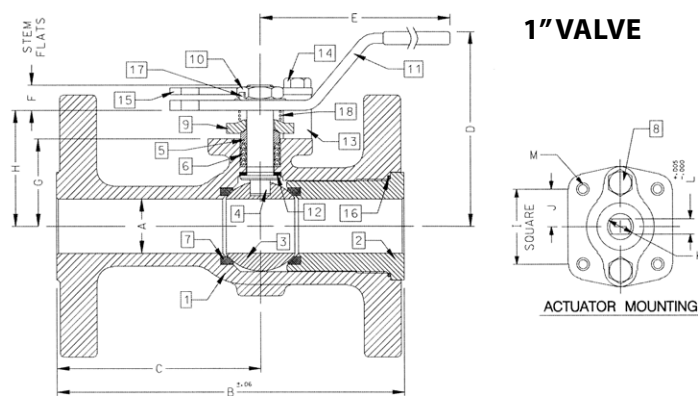
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-10-	SS Lever and Nut
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-65-	MPTE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)

1/2" & 3/4" VALVES



1" VALVE



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 5

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88A-903-01	1/2"	0.50	5.50	3.31	3.31	5.11	0.30	1.09	1.38	1.000	0.500	0.375	0.245	10-24	7.0
88A-904-01	3/4"	0.75	6.00	3.56	3.89	5.53	0.36	1.65	1.99	1.392	0.696	0.500	0.287	1/4-20	9.0
88A-905-01	1"	1.00	6.50	3.82	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	10.5



88A-900 SERIES

Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216 WCB
2 Retainer	ASTM A216 WCB
3 Ball	ASTM A108 Type 1215 or ASTM A216 WCB Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	302 & 304 SS
10 Stem Nut	ASTM A194 Grade 8I
11 Lever	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Lockwasher	302 or 304 SS

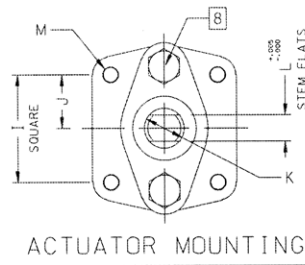
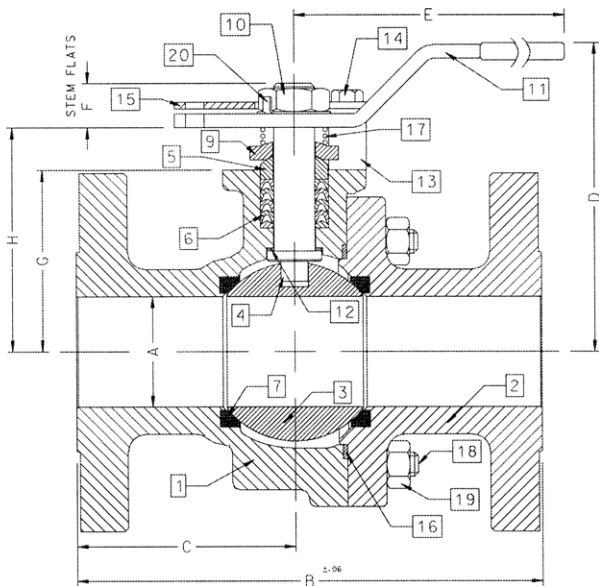
VARIATIONS AVAILABLE:

88A-940 Series (316 SS Ball & Stem)

88A-930 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension (up to 2")
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 5

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88A-907-01	1.5"	1.50	7.50	3.50	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	21
88A-908-01	2"	2.00	8.50	4.00	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	37
88A-909-01	2.5"	2.50	9.50	4.44	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	57

88A-900 SERIES

Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 3" through 6"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216 WCB
2 Retainer	ASTM A216 WCB
3 Ball	ASTM A108 Type 1215 or ASTM A216 WCB Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	316 SS
10 Adapter Screw	316 SS
11 Handle Adapter	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Pipe Handle	Galvanized Steel (not shown)

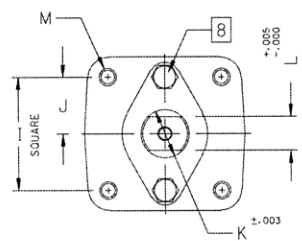
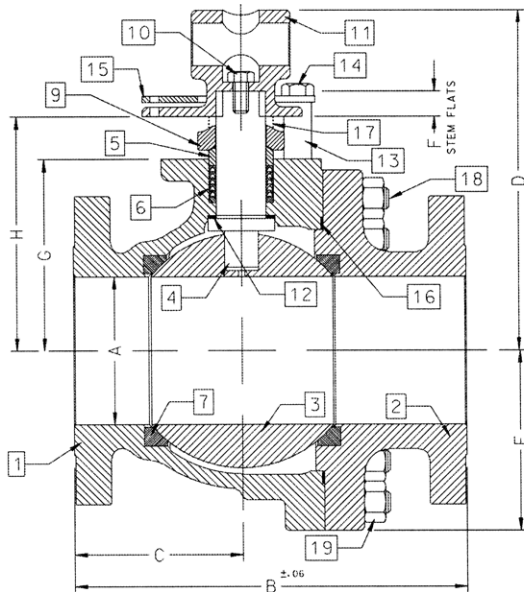
VARIATIONS AVAILABLE:

88A-940 Series (316 SS Ball & Stem)

88A-930 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 5

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88A-900-01	3"	3.00	11.12	5.24	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	78
88A-90A-01	4"	4.00	12.00	5.44	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	133
88A-90C-01	6"	6.00	15.88	6.82	13.73	7.30	1.00	7.75	9.48	4.596	2.296	2.000	1.375	3/4-10	329

88A-900 SERIES

Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 8" through 12"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

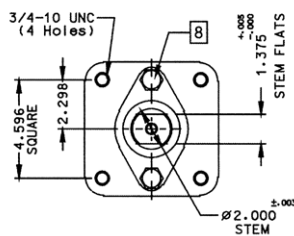
PART	MATERIAL
1 Body	ASTM A216 WCB
2 Retainer	ASTM A216 WCB
3 Ball	ASTM A108 Type 1215 or A216 WCB
4 Stem	ASTM A108 Type 1215
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	316 SS
10 Stem Bearing	RPTFE
11 Body Seal	RPTFE
12 Body Joint Stud	ASTM A193 Grade B7
13 Body Joint Nut	ASTM A194 Grade 2H

VARIATIONS AVAILABLE:

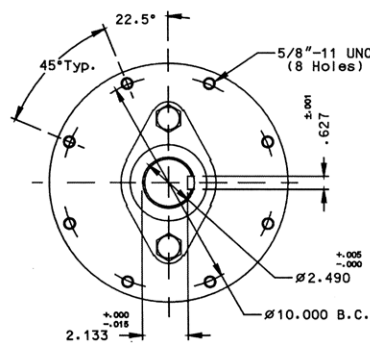
88A-930 Series (Ni-Cu Ball & Stem)
88A-940 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

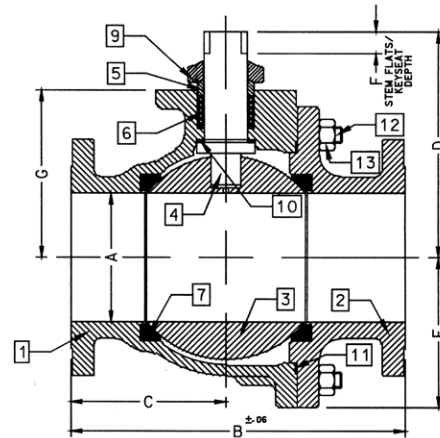
(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gas
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing (8" Only)
-9P-	4" Extended Bonnet with Double Packing & Port (8" Only)
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING: 8"



ACTUATOR MOUNTING: 10" & 12"



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 5

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G
88A-90E-01	8"	8.00	19.75	9.38	12.83	9.56	1.00	10.22
88A-90G-01	10"	10.00	22.38	10.95	18.57	11.33	2.31	12.80
88A-90H-01	12"	12.00	25.50	12.84	20.31	13.40	2.31	14.92

88B-100 SERIES

Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 3"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216-WCB
2 Retainer	ASTM A108 Type 1215
3 Ball	ASTM A108 Type 1215 Chrome Plated
4 Stem	ASTM A108 Type 1215 Chrome Plated
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	316 SS
10 Stem Nut	18-8 SS
11 Lever	316 SS with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Lockwasher	302 or 304 SS

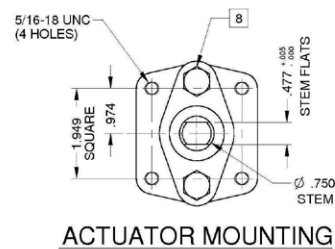
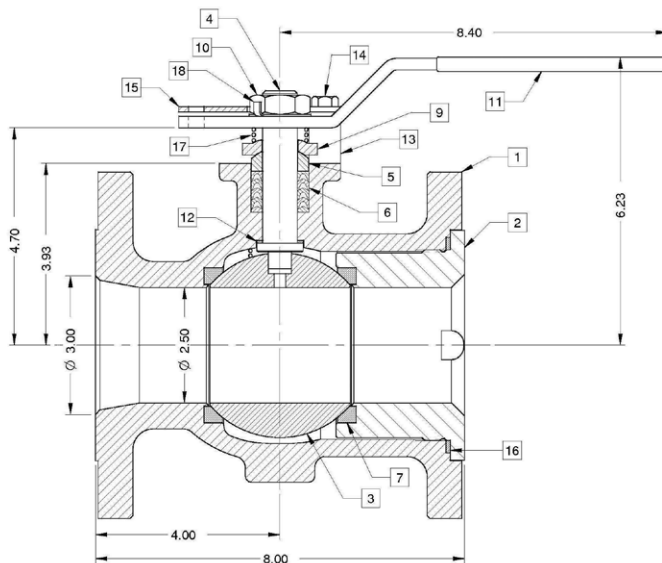
VARIATIONS AVAILABLE:

88B-130 Series (Ni-Cu Ball & Stem)

88B-140 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry.
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1

88B-100 SERIES

Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 4"-10" Short Pattern

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

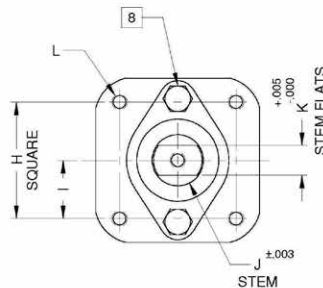
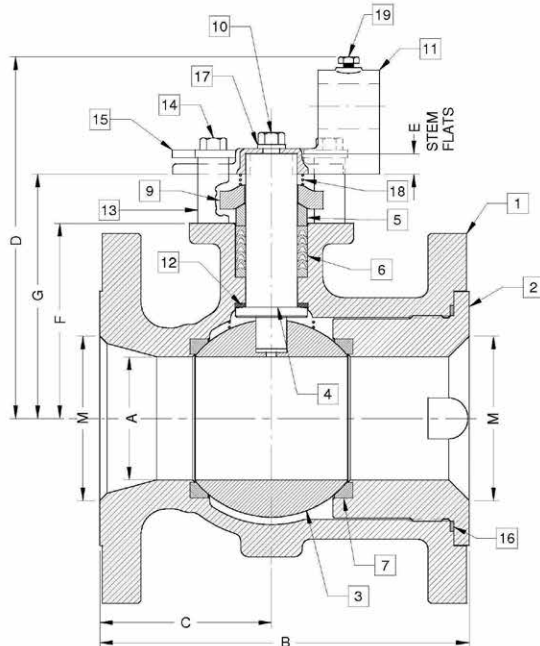
PART	MATERIAL
1 Body	ASTM A216-WCB
2 Retainer	ASTM A108 Type 1215
3 Ball	ASTM A108 Type 1215 (Chrome Plate)
4 Stem	ASTM A108 Type 1215 (Chrome Plate)
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Handle Adapter	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Stainless Steel
16 Body Seal	RPTFE
17 Lockwasher	302 or 304 SS
18 Grounding Spring	SS
19 Adapter Screw	18-8 SS
20 Pipe Handle	Galvanized Steel (not shown)

VARIATIONS AVAILABLE:

88B-130 Series (Ni-Cu Ball & Stem)
88B-140 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88B-10A-01	4"	3.00	9.00	4.18	8.80	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	72
88B-10C-01	6"	4.00	10.50	5.25	9.99	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	110
88B-10E-01	8"	6.00	11.50	5.75	13.61	1.00	7.63	9.36	4.596	2.298	2.000	1.375	3/4-10	8.00	210
88B-10G-01	10"	8.00	13.00	6.50	N/A	1.00	9.50	11.23	4.596	2.298	2.000	1.375	3/4-10	10.0	350

88L-140 SERIES

Low Temperature Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 1.5" through 2"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

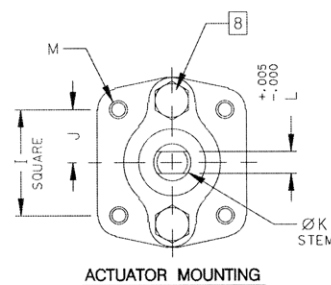
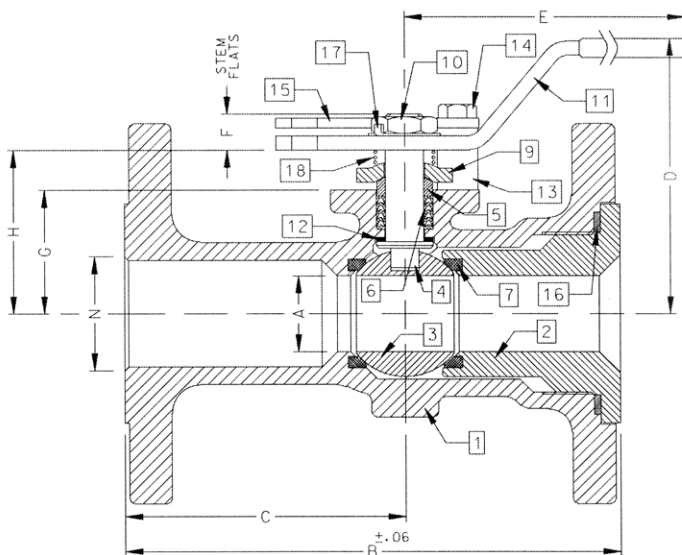
PART	MATERIAL
1 Body	ASTM A352-LCC
2 Retainer	ASTM A352-LCC
3 Ball	ASTM A276-316
4 Stem	ASTM A276-316
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	302 or 304 SS
10 Stem Nut	316 SS
11 Lever	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Lockwasher	302 or 304 SS
18 Grounding Spring	SS

VARIATIONS AVAILABLE:

88L-130 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-10-	SS Lever and Nut
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 31

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88L-147-01A	1.5"	1.25	6.50	3.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	9
88L-148-01	2"	1.50	7.00	3.69	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	18



88L-140 SERIES

Low Temperature Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 2.5" through 3"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).



STANDARD MATERIAL LIST

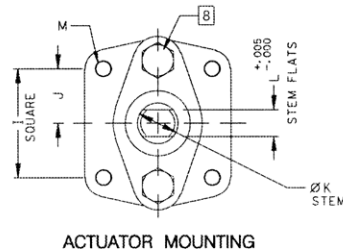
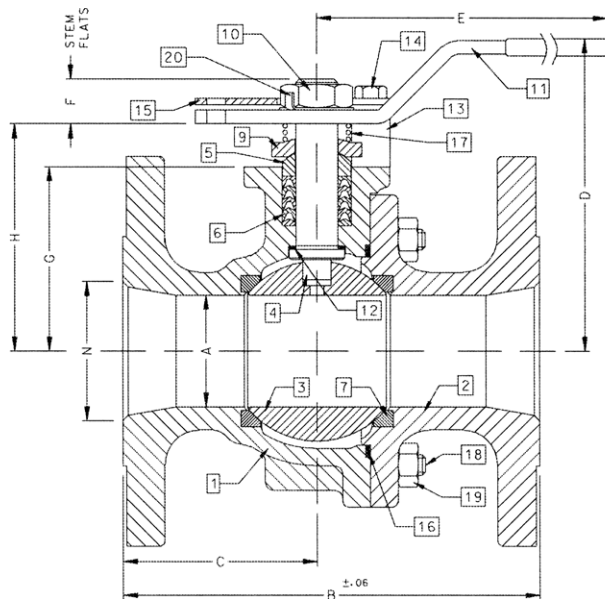
PART	MATERIAL
1 Body	ASTM A352-LCC
2 Retainer	ASTM A352-LCC
3 Ball	ASTM A276-316 or A351-CF8M
4 Stem	ASTM A276-316
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	302 or 304 SS
10 Stem Nut	ASTM A194 Grade 8
11 Lever	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Lockwasher	302 or 304 SS

VARIATIONS AVAILABLE:

88L-140 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-10-	SS Lever and Nut
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 31

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88L-149-01	2.5"	2.00	7.50	3.50	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	27
88L-140-01	3"	2.50	8.00	3.51	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	34

88L-140 SERIES

Low Temperature Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 4" through 8"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).



STANDARD MATERIAL LIST

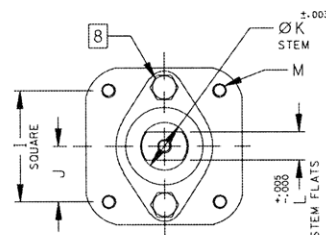
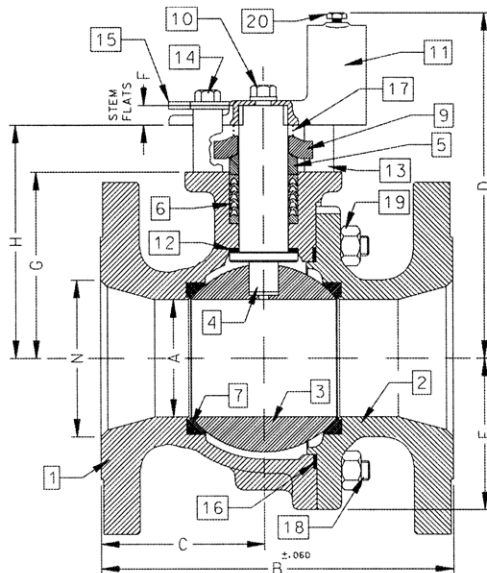
PART	MATERIAL
1 Body	ASTM A352-LCC
2 Retainer	ASTM A352-LCC
3 Ball	ASTM A276-316 or A351-CF8M
4 Stem	ASTM A276-316
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	316 SS
10 Adaptor Screw	316 SS
11 Handle Adapter	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Adapter Screw	18-8 SS
21 Pipe Handle	Galvanized Steel (not shown)

VARIATIONS AVAILABLE:

88L-140 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 31

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88L-14A-01	4"	3.00	9.00	4.18	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	73
88L-14C-01	6"	4.00	10.50	4.69	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	117
88L-14E-01	8"	6.00	18.00	9.00	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	310



88L-140 SERIES

Low Temperature Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 10"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).



STANDARD MATERIAL LIST

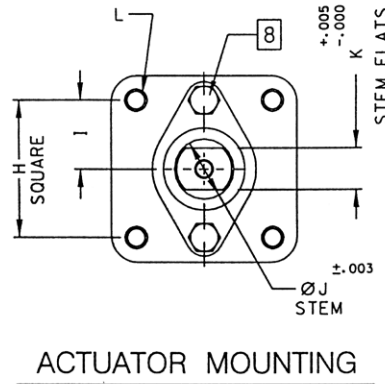
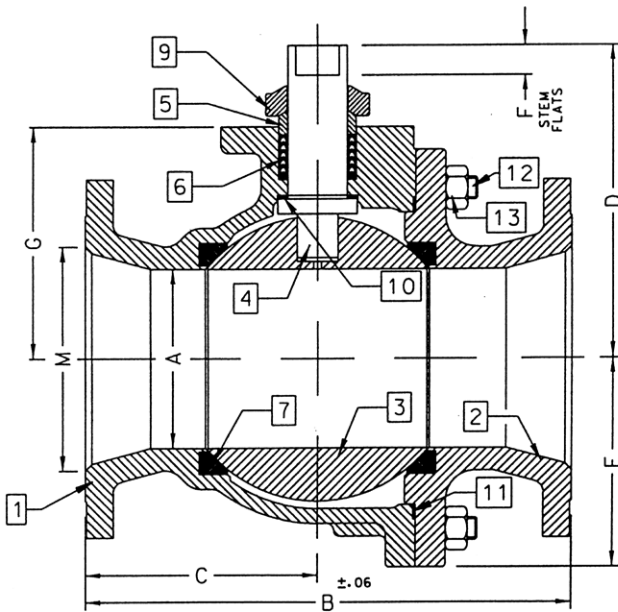
	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B7
13	Body Joint Nut	ASTM A194 Grade 2H

VARIATIONS AVAILABLE:

88L-130 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 31

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
88L-14G-01	10"	8.00	21.00	10.37	12.83	9.18	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00

88L-240 SERIES

Low Temperature Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 1/2" through 1"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).



STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lock Washer	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS

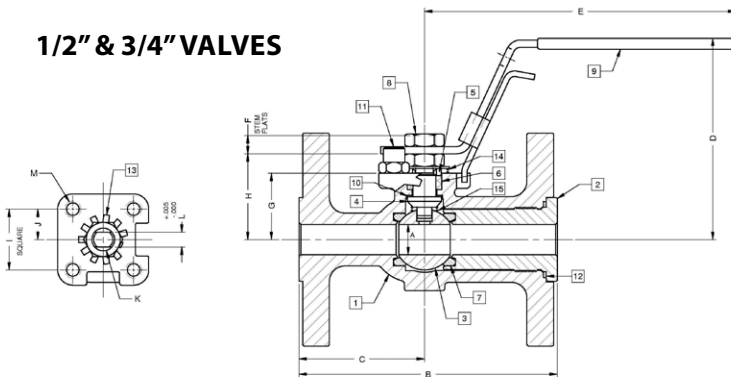
VARIATIONS AVAILABLE:

88L-230 Series (Ni-Cu Ball & Stem)

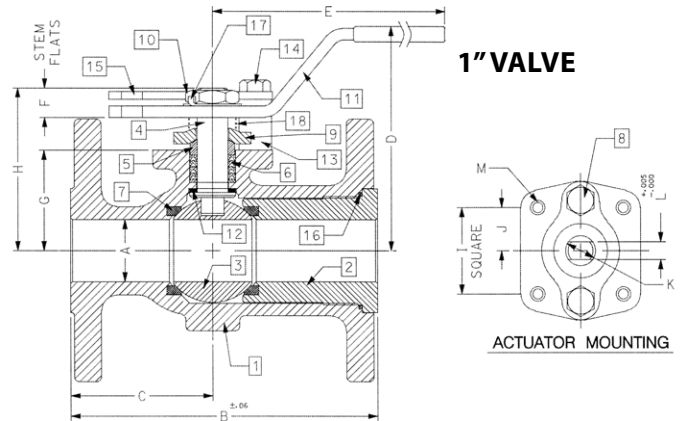
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-10-	SS Lever and Nut
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D

1/2" & 3/4" VALVES



1" VALVE



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 31

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88L-243-01	1/2"	0.50	4.25	2.06	3.31	5.11	0.30	1.09	1.41	1.002	0.501	0.375	0.245	10-24	5
88L-244-01	3/4"	0.75	4.62	2.18	3.89	5.53	0.36	1.65	1.99	1.392	0.696	0.500	0.287	1/4-20	6
88L-245-01	1"	1.00	5.00	2.32	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	7

88L-240 SERIES

Low Temperature Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).



STANDARD MATERIAL LIST

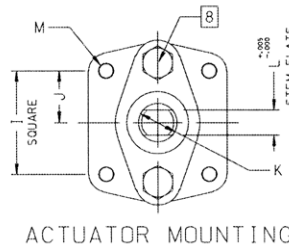
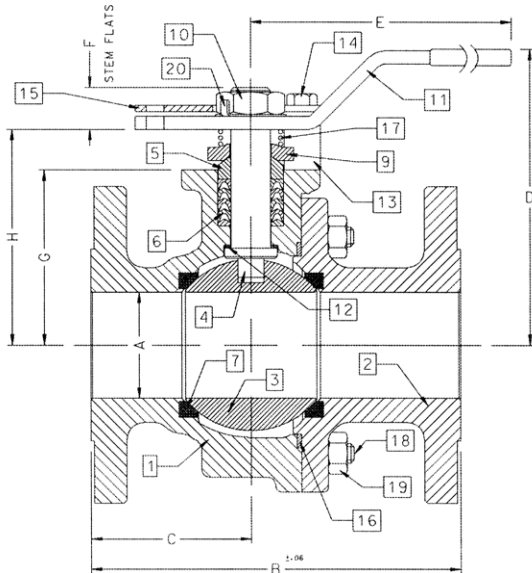
PART	MATERIAL
1 Body	ASTM A352-LCC
2 Retainer	ASTM A352-LCC
3 Ball	ASTM A276-316 or A351-CF8M
4 Stem	ASTM A276-316
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	302 & 304 SS
10 Stem Nut	ASTM A194 Grade 8I
11 Lever	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Lockwasher	302 or 304 SS

VARIATIONS AVAILABLE:

88L-230 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension (up to 2")
-10-	SS Lever and Nut
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 31

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88L-247-01	1.5"	1.50	6.50	3.00	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	14
88L-248-01	2"	2.00	7.00	3.04	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	25
88L-249-01	2.5"	2.50	7.50	3.34	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	30

88L-240 SERIES

Low Temperature Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 3" through 6"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).



STANDARD MATERIAL LIST

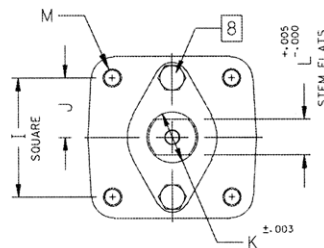
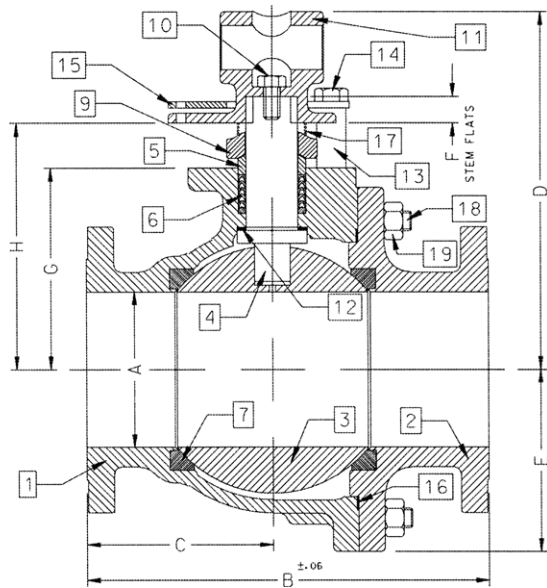
PART	MATERIAL
1 Body	ASTM A352-LCC
2 Retainer	ASTM A352-LCC
3 Ball	ASTM A276-316 or A351-CF8M
4 Stem	ASTM A276-316
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	316 SS
10 Adapter Screw	316 SS
11 Handle Adapter	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Pipe Handle	Galvanized Steel (not shown)

VARIATIONS AVAILABLE:

88L-230 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 31

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88L-240-01	3"	3.00	8.00	3.68	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	60
88L-24A-01	4"	4.00	9.00	3.94	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	91
88L-24C-01	6"	6.00	15.50	7.19	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	248



Low Temperature Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 8" through 12"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).



STANDARD MATERIAL LIST

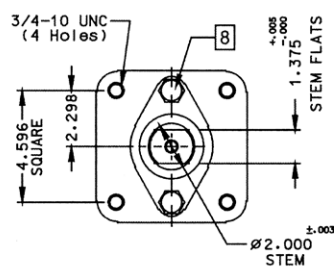
	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B7
13	Body Joint Nut	ASTM A194 Grade 2H

VARIATIONS AVAILABLE:

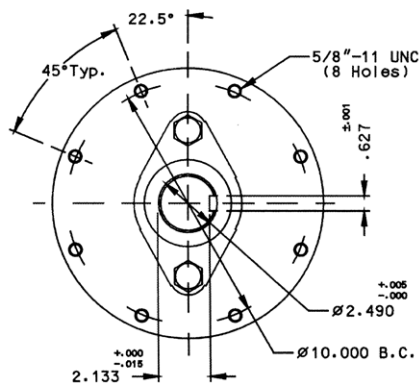
88L-230 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

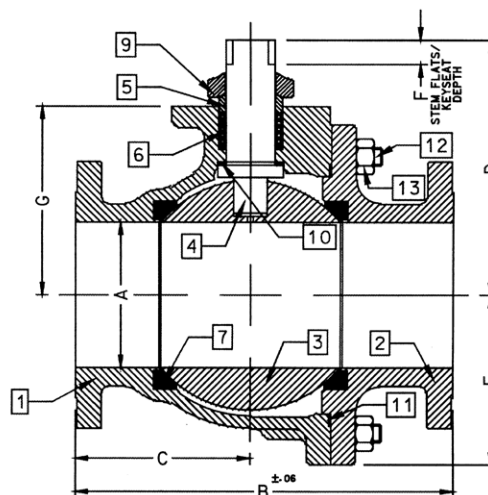
(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gas
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing (8" Only)
-9P-	4" Extended Bonnet with Double Packing & Port (8" Only)
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING: 8"



ACTUATOR MOUNTING: 10" & 12"



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 31

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G
88L-24E-01	8"	8.00	18.00	8.88	12.83	9.18	1.00	10.22
88L-24G-01	10"	10.00	21.00	10.26	18.57	11.33	2.31	12.80
88L-24H-01	12"	12.00	24.00	12.09	20.31	13.40	2.31	14.92

88L-740 SERIES

Low Temperature Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 1.5" through 2"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).



STANDARD MATERIAL LIST

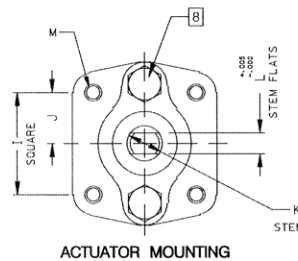
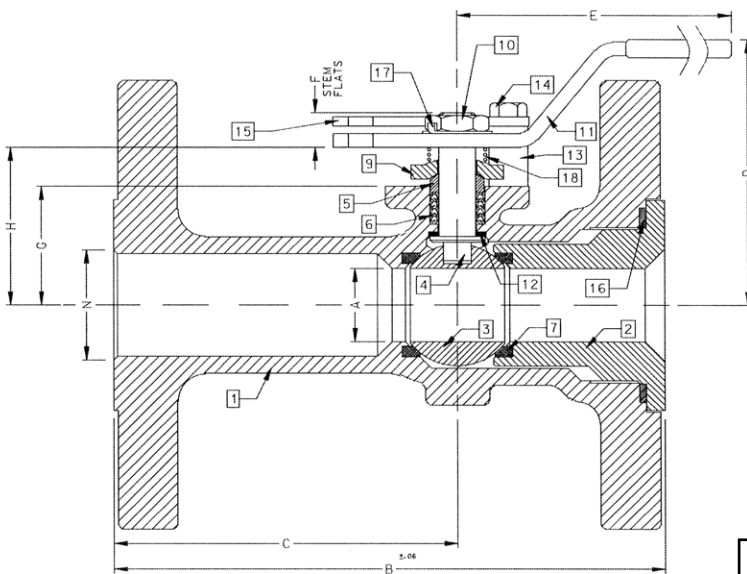
PART	MATERIAL
1 Body	ASTM A352-LCC
2 Retainer	ASTM A352-LCC
3 Ball	ASTM A276-316
4 Stem	ASTM A276-316
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	302 & 304 SS
10 Stem Nut	316 SS
11 Lever	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Lockwasher	302 or 304 SS
18 Grounding Spring	SS

VARIATIONS AVAILABLE:

88L-730 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-10-	SS Lever and Nut
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 32

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88L-747-01	1.5"	1.25	7.50	4.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	16
88L-748-01	2"	1.50	8.50	5.19	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	24



88L-740 SERIES

Low Temperature Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 2.5" through 3"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).



STANDARD MATERIAL LIST

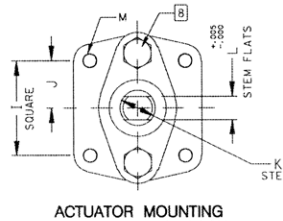
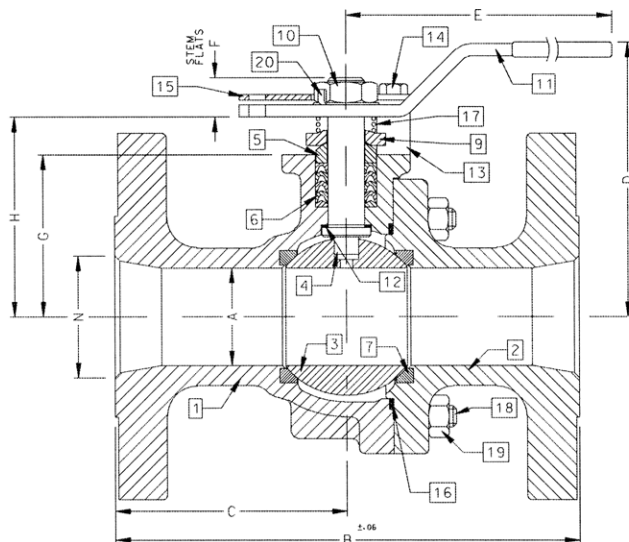
PART	MATERIAL
1 Body	ASTM A352-LCC
2 Retainer	ASTM A352-LCC
3 Ball	ASTM A276-316 or A351-CF8M
4 Stem	ASTM A276-316
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	302 or 304 SS
10 Stem Nut	ASTM A194 Grade 8
11 Lever	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Lockwasher	302 or 304 SS

VARIATIONS AVAILABLE:

88L-730 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-10-	SS Lever and Nut
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 32

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88L-749-01	2.5"	2.00	9.50	4.75	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	39
88L-740-01	3"	2.50	11.12	5.56	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	55

88L-740 SERIES

Low Temperature Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 4" through 8"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).



STANDARD MATERIAL LIST

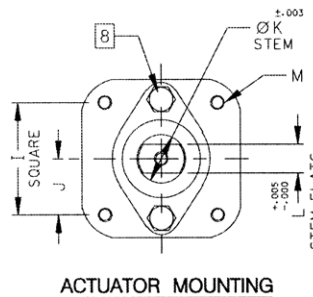
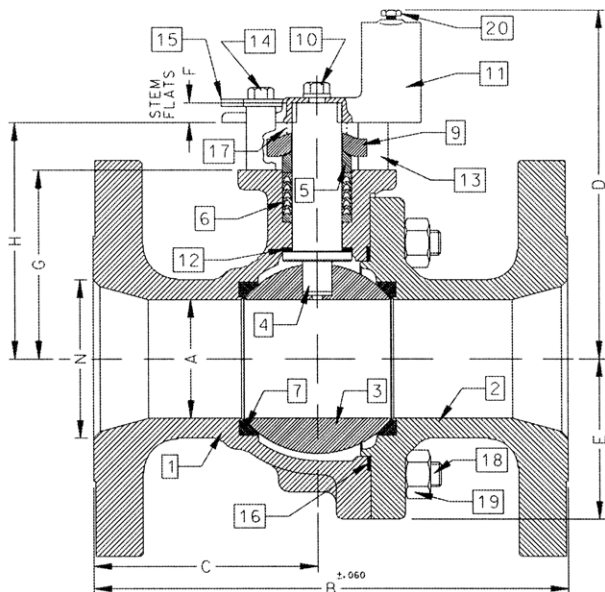
PART	MATERIAL
1 Body	ASTM A352-LCC
2 Retainer	ASTM A352-LCC
3 Ball	ASTM A276-316 or A351-CF8M
4 Stem	ASTM A276-316
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	316 SS
10 Adapter Screw	316 SS
11 Handle Adapter	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Adapter Screw	316 SS
21 Pipe Handle	Galvanized Steel (not shown)

VARIATIONS AVAILABLE:

88L-730 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 32

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88L-74A-01	4"	3.00	12.00	5.68	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	95
88L-74C-01	6"	4.00	15.88	7.38	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	187
88L-74E-01	8"	6.00	19.75	9.00	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	400



88L-740 SERIES

Low Temperature Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 10"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).



STANDARD MATERIAL LIST

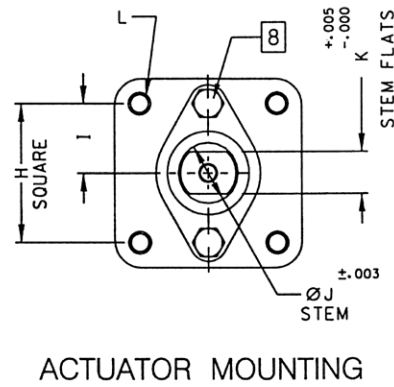
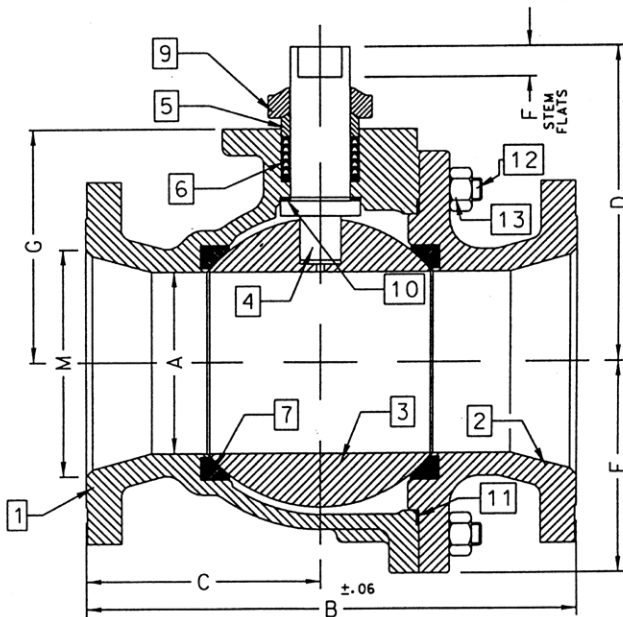
	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B7
13	Body Joint Nut	ASTM A194 Grade 2H

VARIATIONS AVAILABLE:

88L-730 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 32

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
88L-74G-01	10"	8.00	22.38	10.69	12.83	9.56	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00

88L-940 SERIES

Low Temperature Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 1/2" through 1"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).



STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lock Washer	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS

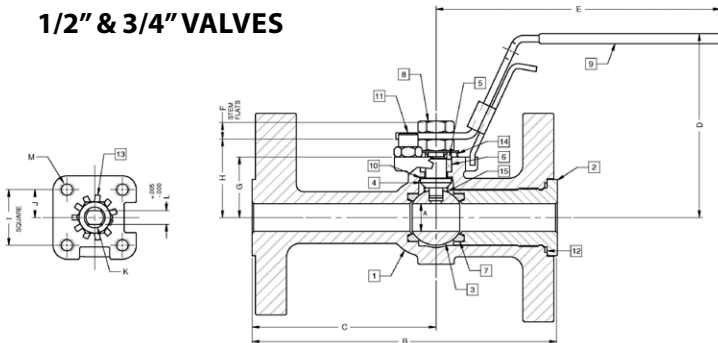
VARIATIONS AVAILABLE:

88L-930 Series (Ni-Cu Ball & Stem)

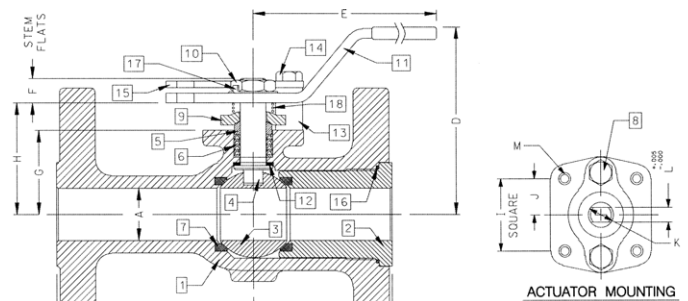
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension
-10-	SS Lever and Nut
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuated)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D

1/2" & 3/4" VALVES



1" VALVE



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 32

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88L-943-01	1/2"	0.50	5.50	3.31	3.31	5.11	0.30	1.09	1.38	1.000	0.500	0.375	0.245	10-24	7.0
88L-944-01	3/4"	0.75	6.00	3.56	3.89	5.53	0.36	1.65	1.99	1.392	0.696	0.500	0.287	1/4-20	9.0
88L-945-01	1"	1.00	6.50	3.82	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	10.5



88L-940 SERIES

Low Temperature Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).



STANDARD MATERIAL LIST

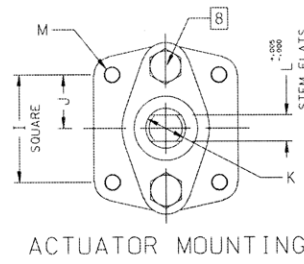
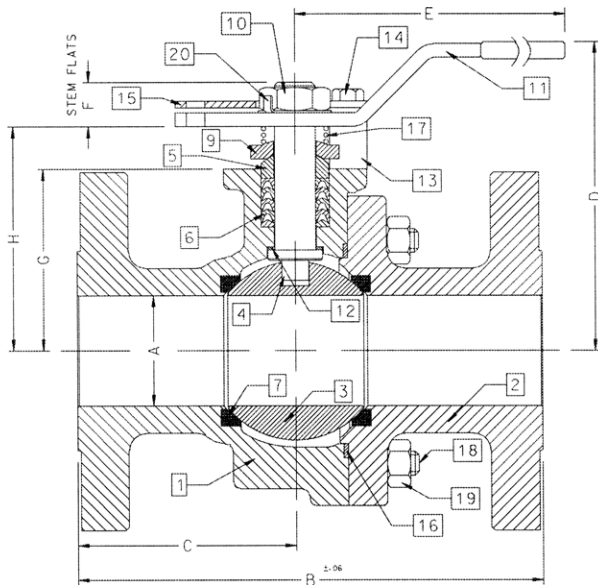
PART	MATERIAL
1 Body	ASTM A352-LCC
2 Retainer	ASTM A352-LCC
3 Ball	ASTM A276-316 or A351-CF8M
4 Stem	ASTM A276-316
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	302 & 304 SS
10 Stem Nut	ASTM A194 Grade 8I
11 Lever	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Lockwasher	302 or 304 SS

VARIATIONS AVAILABLE:

88L-930 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" CS Stem Extension (up to 2")
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 32

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88L-947-01	1.5"	1.50	7.50	3.50	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	21
88L-948-01	2"	2.00	8.50	4.00	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	37
88L-949-01	2.5"	2.50	9.50	4.44	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	57

88L-940 SERIES

Low Temperature Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 3" through 6"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).



STANDARD MATERIAL LIST

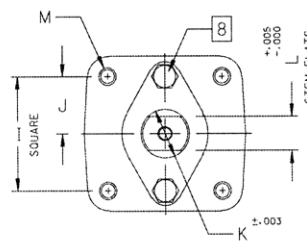
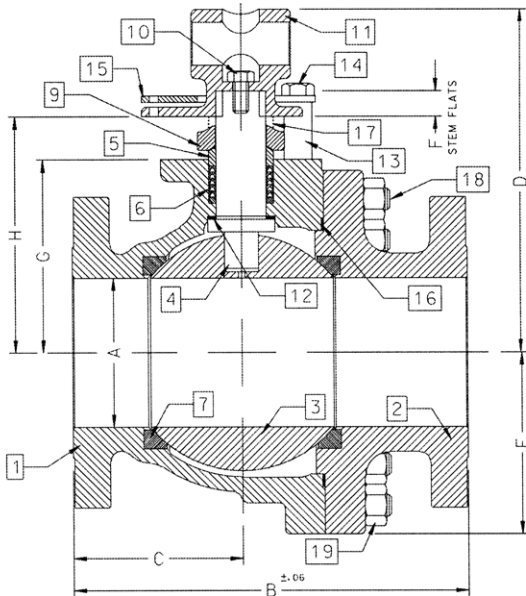
PART	MATERIAL
1 Body	ASTM A352-LCC
2 Retainer	ASTM A352-LCC
3 Ball	ASTM A276-316 or A351-CF8M
4 Stem	ASTM A276-316
5 Packing Gland	ASTM A108 Type 1215
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B7
9 Gland Plate	316 SS
10 Adapter Screw	316 SS
11 Handle Adapter	ASTM A366 Steel with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A108 Type 1215
14 Stop Screw	SAE J429 Grade 2
15 Lock Plate	ASTM A366 Steel
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B7
19 Body Joint Nut	ASTM A194 Grade 2H
20 Pipe Handle	Galvanized Steel (not shown)

VARIATIONS AVAILABLE:

88L-930 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-59-	SS External Trim
-65-	MPTE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 32

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88L-940-01	3"	3.00	11.12	5.24	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	78
88L-94A-01	4"	4.00	12.00	5.44	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	133
88L-94C-01	6"	6.00	15.88	6.82	13.73	7.30	1.00	7.75	9.48	4.596	2.296	2.000	1.375	3/4-10	329



88L-940 SERIES

Low Temperature Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 8" through 12"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).



STANDARD MATERIAL LIST

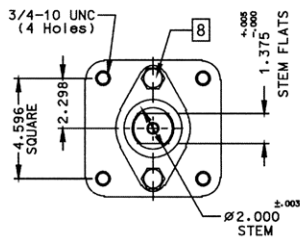
	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A351-CF8M
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B7
13	Body Joint Nut	ASTM A194 Grade 2H

VARIATIONS AVAILABLE:

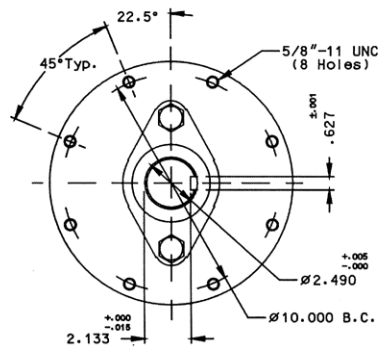
88L-930 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

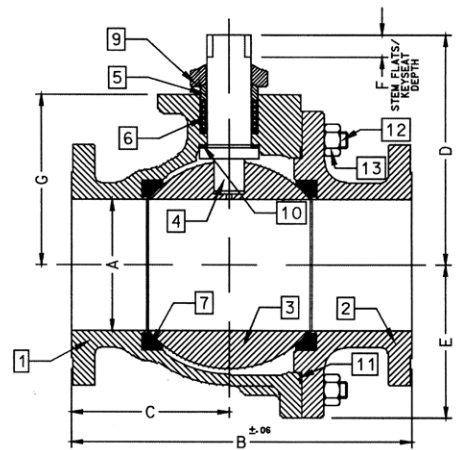
(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gas
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing (8" Only)
-9P-	4" Extended Bonnet with Double Packing & Port (8" Only)
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING: 8"



ACTUATOR MOUNTING: 10" & 12"



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 32

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G
88L-94E-01	8"	8.00	19.75	9.38	12.83	9.56	1.00	10.22
88L-94G-01	10"	10.00	22.38	10.95	18.57	11.33	2.31	12.80
88L-94H-01	12"	12.00	25.50	12.84	20.31	13.40	2.31	14.92

87A-400 SERIES

Alloy 20 ASME Class 150 Flanged Standard Port Ball Valve - 1.5" through 2"

For **STANDARDS COMPLIANCE** refer to page D-3.
STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).

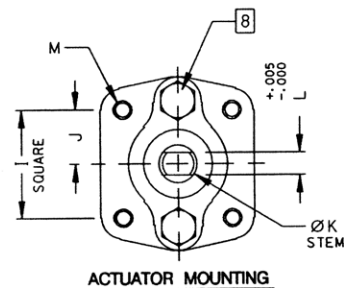
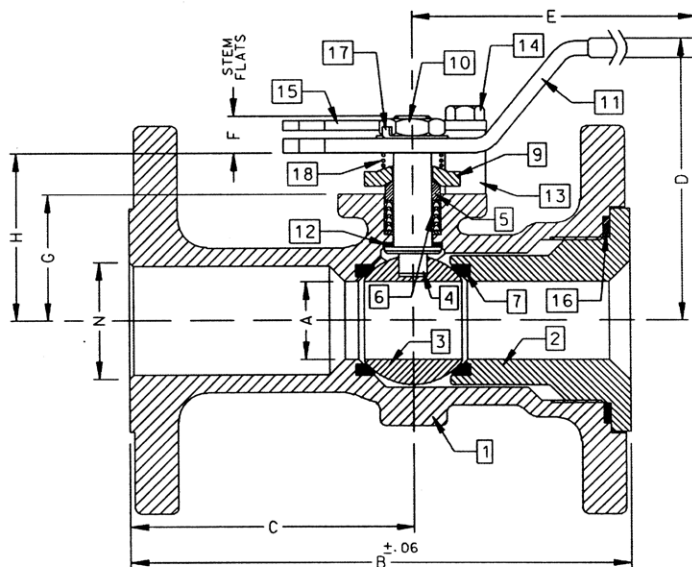


STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351 CN7M
2 Retainer	ASTM B473 (UNS N08020)
3 Ball	ASTM B473 (UNS N08020)
4 Stem	ASTM B473 (UNS N08020)
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	302 or 304 SS
10 Stem Nut	316 SS
11 Lever	302 or 304 SS with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	18-8 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Lockwasher	302 or 304 SS
18 Grounding Spring	SS
19 Grounding Spring	Inconel (not shown)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-PM-	Positive Material Identification
-TC-	With Test Certificate
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-16, GRAPH NO. 18

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-407-01A	1.5"	1.00	6.50	3.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	9
87A-408-01	2"	1.50	7.00	3.69	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	18



87A-400 SERIES

Alloy 20 ASME Class 150 Flanged Standard Port Ball Valve - 3"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.

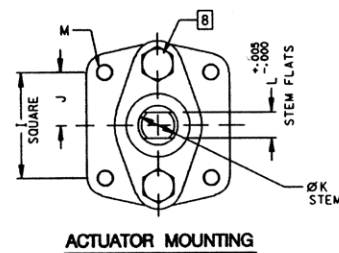
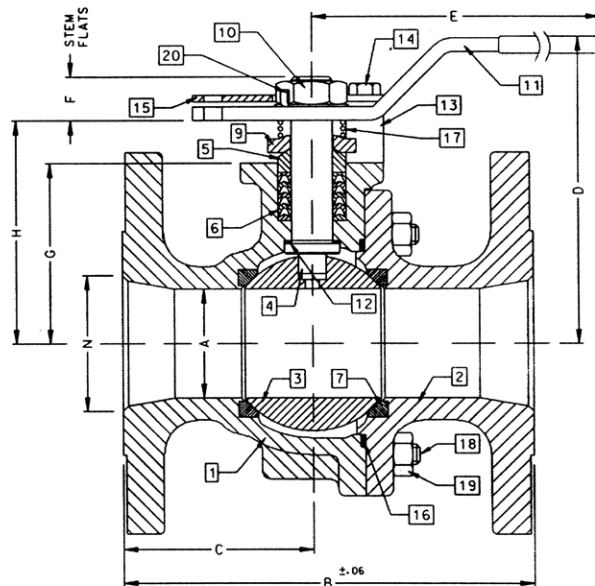


STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351 CN7M
2 Retainer	ASTM A351 CN7M
3 Ball	ASTM B473 (UNS N08020) or CN7M
4 Stem	ASTM B473 (UNS N08020)
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Stem Nut	18-8 SS
11 Lever	316 SS with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS
21 Grounding Spring	Inconel (not shown)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-16, GRAPH NO. 18

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-400-01	3"	2.50	8.00	3.51	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	34.3

87A-400 SERIES

Alloy 20 ASME Class 150 Flanged Standard Port Ball Valve - 4" through 8"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.

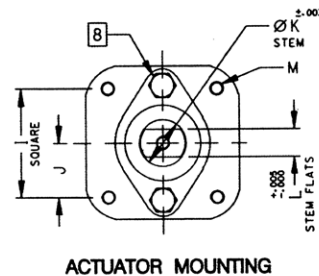
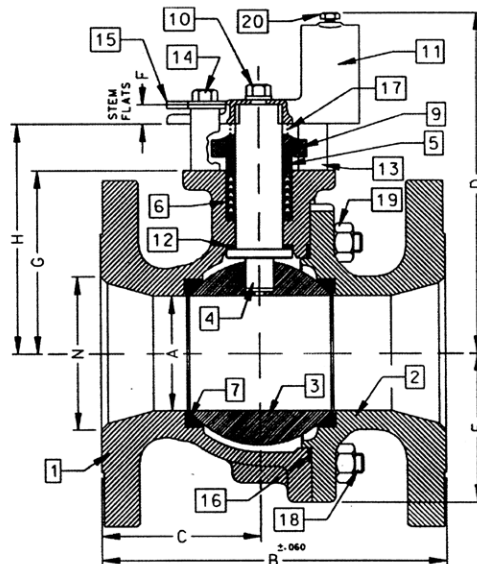


STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351 CN7M
2 Retainer	ASTM A351 CN7M
3 Ball	ASTM B473 (UNS N08020) or CN7M
4 Stem	ASTM B473 (UNS N08020)
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Handle Adapter	316 SS with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Adapter Screw	18-8 SS
21 Pipe Handle	Galvanized Steel (not shown)
22 Grounding Spring	Inconel (not shown)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-16, GRAPH NO. 18

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-40A-01	4"	3.00	9.00	4.18	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	73
87A-40C-01	6"	4.00	10.50	4.69	9.99	5.13	.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	117
87A-40E-01	8"	6.00	18.00	9.00	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	310



87A-500 SERIES

Alloy 20 ASME Class 150 Flanged Full Port Ball Valve - 1/2" through 1"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



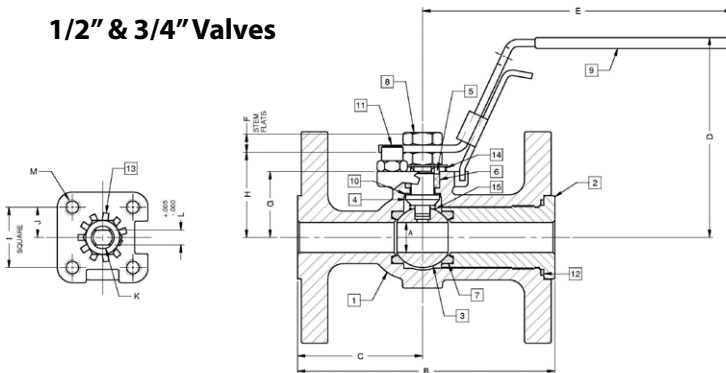
STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	MATERIAL
1	Body	ASTM A351 CN7M
2	Retainer	ASTM B473 (UNS N08020)
3	Ball	ASTM B473 (UNS N08020)
4	Stem	ASTM B473 (UNS N08020)
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/ Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lockwasher	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	MATERIAL
1	Body	ASTM A351 CN7M
2	Retainer	ASTM B473 (UNS N08020)
3	Ball	ASTM B473 (UNS N08020)
4	Stem	ASTM B473 (UNS N08020)
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS
19	Grounding Spring	Inconel (not shown)

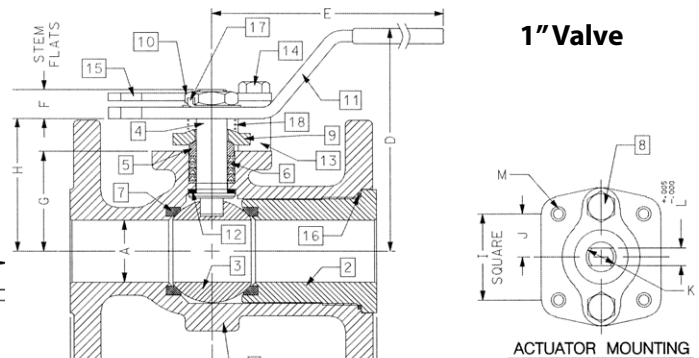
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	Alloy 20 Spiral Wound Gaskets w/PTFE Filler
-74-	Alloy 20 Spiral Wound Gaskets w/Graphite Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D

1/2" & 3/4" Valves



1" Valve



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-503-01	1/2"	0.50	4.25	2.06	3.31	5.11	0.30	1.09	1.41	1.000	0.500	0.375	0.245	10-24	5
87A-504-01	3/4"	0.75	4.62	2.18	3.89	5.53	0.36	1.65	1.99	1.392	0.696	0.500	0.287	1/4-20	6
87A-505-01	1"	1.00	5.00	2.32	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	7

87A-500 SERIES

Alloy 20 ASME Class 150 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.

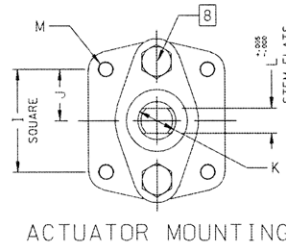
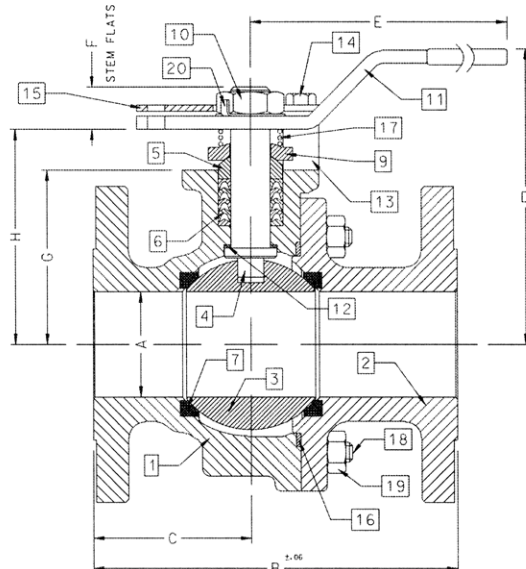


STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351 CN7M
2 Retainer	ASTM A351 CN7M
3 Ball	ASTM B473 (UNS N08020) or A351 CN7M
4 Stem	ASTM B473 (UNS N08020)
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Lever	316 SS
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Lockwasher	302 or 304 SS
21 Grounding Spring	Inconel (not shown)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTEF Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	Alloy 20 Spiral Wound Gaskets w/PTFE Filler
-74-	Alloy 20 Spiral Wound Gaskets w/Graphite Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-507-01	1.5"	1.50	6.50	3.00	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	14
87A-508-01	2"	2.00	7.00	3.04	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	25
87A-509-01	2.5"	2.50	7.50	3.34	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	30

87A-500 SERIES

Alloy 20 ASME Class 150 Flanged Full Port Ball Valve - 3" through 6"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.

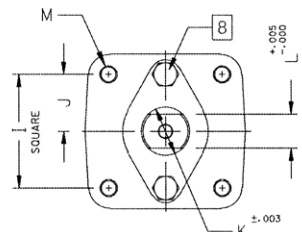
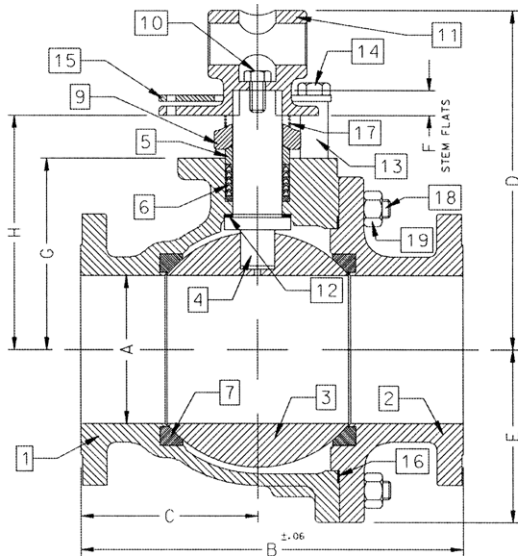


STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A351 CN7M
2 Retainer	ASTM A351 CN7M
3 Ball	ASTM B473 (UNS N08020 or A351 CN7M)
4 Stem	ASTM B473 (UNS N08020)
5 Packing Gland	ASTM A276 Type 316
6 Stem Seals	PTFE
7 Seats	RPTFE
8 Gland Screws	ASTM A193 B8 Class 1
9 Gland Plate	316 SS
10 Adapter Screw	18-8 SS
11 Handle Adapter	316 with Vinyl Grip
12 Stem Bearing	RPTFE
13 Stop	ASTM A276 Type 316
14 Stop Screw	316 SS
15 Lock Plate	302 or 304 SS
16 Body Seal	RPTFE
17 Grounding Spring	SS
18 Body Joint Stud	ASTM A193 Grade B8M
19 Body Joint Nut	ASTM A194 Grade 8
20 Pipe Handle	Galvanized Steel (not shown)
21 Grounding Spring	Inconel (not shown)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry.
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	Extended Bonnet
-73-	Alloy 20 Spiral Wound Gaskets w/PTFE Filler
-74-	Alloy 20 Spiral Wound Gaskets w/Graphite Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-90-	4" Extended Bonnet with Double Packing
-9P-	4" Extended Bonnet with Double Packing & Port
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-500-01	3"	3.00	8.00	3.68	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	60
87A-50A-01	4"	4.00	9.00	3.94	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	91
87A-50C-01	6"	6.00	15.50	7.19	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	248

87A-F00 SERIES

Stainless Steel ASME Class 600 Flanged Full Port Ball Valve - 1"

For **STANDARD COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

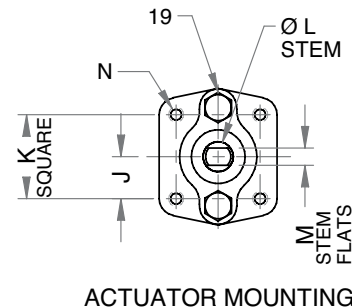
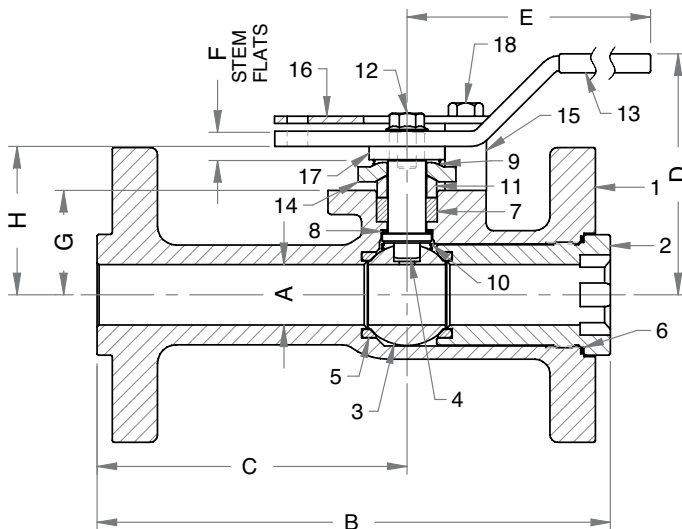
PART	MATERIAL
1 Body	ASTM A351-CF8M
2 Retainer	ASTM A276 Type 316
3 Ball	ASTM A351-CF8M or ASTM A276 Type 316
4 Stem	ASTM A276 Type 316
5 Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6 Body Seal	Defined by Seat Suffix Selected
7 Stem Seals	Defined by Seat Suffix Selected
8 Stem Bearing	Defined by Seat Suffix Selected
9 Grounding Spring	316 Stainless Steel
10 Grounding Spring	316 Stainless Steel
11 Packing Gland	ASTM A276 Type 316
12 Stem Screw	Steel Zinc Plated
13 Lever & Grip	316 Stainless Steel w/Vinyl Grip
14 Gland Plate	316 Stainless Steel
15 Stops	ASTM A276 Type 316
16 Lock Plate	302 or 304 Stainless Steel
17 Spacer	ASTM A276 type 316
18 Stop Screws	316 Stainless Steel
19 Gland Plate Screws	ASTM A193-B8

OPTIONS AVAILABLE: (More information in Section J)

Add desired suffixes in numerical order.

Not all possible combinations are available. Minimum quantities may apply.

(SUFFIX)	OPTION
- 04 -	2.25" stem extension (1" - 2")
- 14 -	Side vented ball (uni-directional)
- 21 -	UHMWPE seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 24 -	Graphite packing, spiral wound graphite body seal, RPTFE bearing (Fire Safe API607 6th Edition)
- 38 -	PEEK seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 45 -	Less lever and nut (bare stem)
- 49 -	No Lubrication. Assembled Dry.
- 57 -	Oxygen cleaned
- 69 -	Drilled & tapped purge port with plugs
- 70 -	4" extended bonnet
- 76 -	Live loaded (lever operated)
- 77 -	Live loaded (gear operator or actuator)
- 80 -	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK bearing
- 82 -	Flat face flanges
- 90 -	4" extended bonnet with double packing
- 95 -	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 9P -	4" extended bonnet with double packing & monitoring port
- EP -	Low emissions graphite packing, spiral wound graphite body seal
- KB -	Kolsterised ball
- MG -	Gear operator with standard handwheel
- MH -	Gear operator with standard handwheel & locking device
- MJ -	Gear operator with oversize handwheel
- MK -	Gear operator with oversize handwheel & locking device
- MP -	Positive material identification
- PH -	17-4 PH stem
- TC -	Hydrostatic test with certified report
- TD -	API 6D Test (hydrostatic testing)
- TR -	Hydrostatic test with certified report & MTR
- TW -	Hydrostatic test with certified report & witnessed



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-25, GRAPH NO. 34

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
87A-F05-XX	1"	1.00	8.50	5.13	3.99	6.65	0.45	1.730	2.460	0.98	1.95	0.625	0.412	5/16-18	13.0

87A-F00 SERIES

Stainless Steel ASME Class 600 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARD COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

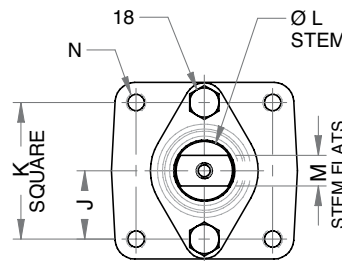
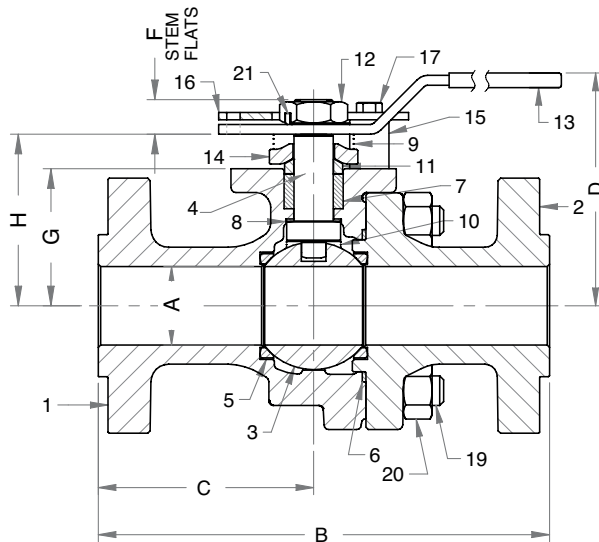
PART	MATERIAL
1 Body	ASTM A351-CF8M
2 Retainer	ASTM A351-CF8M
3 Ball	ASTM A351-CF8M or ASTM A276 Type 316
4 Stem	ASTM A276 Type 316
5 Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6 Body Seal	Defined by Seat Suffix Selected
7 Stem Seals	Defined by Seat Suffix Selected
8 Stem Bearing	Defined by Seat Suffix Selected
9 Grounding Spring	316 Stainless Steel
10 Grounding Spring	316 Stainless Steel
11 Packing Gland	ASTM A276 Type 316
12 Stem Nut	ASTM A194 Grade 8
13 Lever & Grip	316 Stainless Steel w/Vinyl Grip
14 Gland Plate	316 Stainless Steel
15 Stops	ASTM A276 Type 316
16 Lock Plate	302 or 304 Stainless Steel
17 Stop Screws	18-8 Stainless Steel
18 Gland Plate Screws	ASTM A193-B8
19 Body Joint Stud	ASTM A193-B8 Grade B8M
20 Body Joint Nut	ASTM A194-Grade 8
21 Lock Washer	302 or 304 Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

Add desired suffixes in numerical order.

Not all possible combinations are available. Minimum quantities may apply.

(SUFFIX)	OPTION
- 04 -	2.25" stem extension (1" - 2")
- 14 -	Side vented ball (uni-directional)
- 21 -	UHMWPE seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 24 -	Graphite packing, spiral wound graphite body seal, RPTFE bearing (Fire Safe API607 6th Edition)
- 38 -	PEEK seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 45 -	Less lever and nut (bare stem)
-49-	No Lubrication. Assembled Dry.
- 57 -	Oxygen cleaned
- 69 -	Drilled & tapped purge port with plugs
- 70 -	4" extended bonnet
- 76 -	Live loaded (lever operated)
- 77 -	Live loaded (gear operator or actuator)
- 80 -	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK bearing
- 82 -	Flat face flanges
- 90 -	4" extended bonnet with double packing
- 95 -	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 9P -	4" extended bonnet with double packing & monitoring port
- EP -	Low emissions graphite packing, spiral wound graphite body seal
- KB -	Kolsterised ball
- MG -	Gear operator with standard handwheel
- MH -	Gear operator with standard handwheel & locking device
- MJ -	Gear operator with oversize handwheel
- MK -	Gear operator with oversize handwheel & locking device
- MP -	Positive material identification
- PH -	17-4 PH stem
- TC -	Hydrostatic test with certified report
- TD -	API 6D Test (hydrostatic testing)
- TR -	Hydrostatic test with certified report & MTR
- TW -	Hydrostatic test with certified report & witnessed



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-25, GRAPH NO. 34 & 35

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
87A-F07-XX	1.5"	1.50	9.50	3.62	5.03	8.40	0.74	2.730	3.500	0.98	1.95	0.750	0.477	5/16-18	31.5
87A-F08-XX	2"	2.00	11.50	5.49	6.06	12.06	0.84	3.490	4.370	1.42	2.84	1.000	0.620	3/8-16	53.0
87A-F09-XX	2.5"	2.50	13.00	6.02	6.63	12.06	0.84	4.190	5.070	1.42	2.84	1.000	0.620	3/8-16	65.0

87A-F00 SERIES

Stainless Steel ASME Class 600 Flanged Full Port Ball Valve - 3" through 4"

For **STANDARD COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

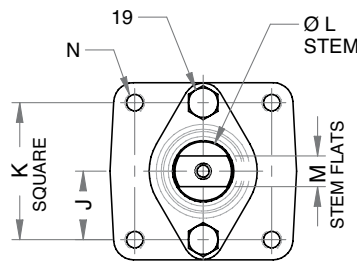
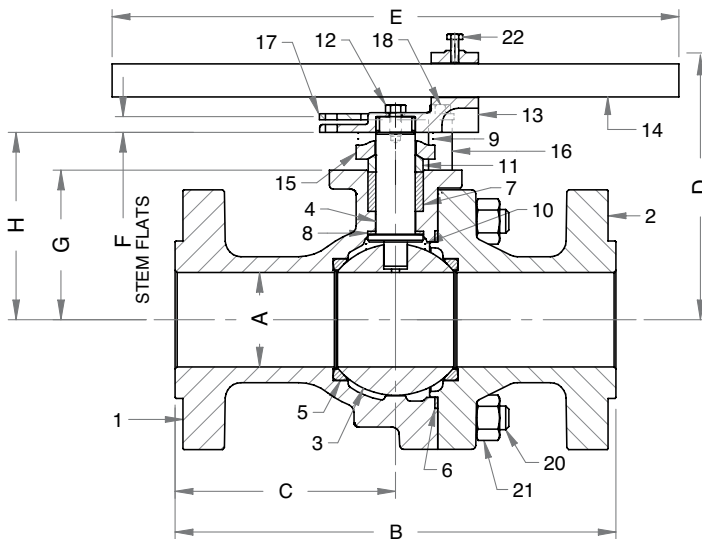
PART	MATERIAL
1 Body	ASTM A351-CF8M
2 Retainer	ASTM A351-CF8M
3 Ball	ASTM A351-CF8M or ASTM A276 Type 316
4 Stem	ASTM A276 Type 316
5 Seats	Defined by Seat Suffix Selected
6 Body Seal	Defined by Seat Suffix Selected
7 Stem Seals	Defined by Seat Suffix Selected
8 Stem Bearing	Defined by Seat Suffix Selected
9 Grounding Spring	316 Stainless Steel
10 Grounding Spring	316 Stainless Steel
11 Packing Gland	ASTM A276 Type 316
12 Stem Screw	304 Stainless Steel
13 Handle Adapter	316 Stainless Steel
14 Pipe Handle	Galvanized Steel
15 Gland Plate	ASTM A351-CF8M
16 Stops	ASTM A276 Type 316
17 Lock Plate	302 or 304 Stainless Steel
18 Stop Screws	18-8 Stainless Steel
19 Gland Plate Screws	ASTM A193-B8
20 Body Joint Stud	ASTM A193-B8M
21 Body Joint Nut	ASTM A194 Grade 8
22 Adapter Screw	18-8 Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

Add desired suffixes in numerical order.

Not all possible combinations are available. Minimum quantities may apply.

(SUFFIX)	OPTION
- 14 -	Side vented ball (uni-directional)
- 21 -	UHMWPE seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 24 -	Graphite packing, spiral wound graphite body seal, RPTFE bearing (Fire Safe API607 6th Edition)
- 38 -	PEEK seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 45 -	Less lever and nut (bare stem)
-49-	No Lubrication. Assembled Dry.
- 57 -	Oxygen cleaned
- 69 -	Drilled & tapped purge port with plugs
- 70 -	4" extended bonnet
- 76 -	Live loaded (lever operated)
- 77 -	Live loaded (gear operator or actuator)
- 80 -	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK bearing
- 82 -	Flat face flanges
- 90 -	4" extended bonnet with double packing
- 95 -	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 9P -	4" extended bonnet with double packing & monitoring port
- EP -	Low emissions graphite packing, spiral wound graphite body seal
- KB -	Kolsterised ball
- MG -	Gear operator with standard handwheel
- MH -	Gear operator with standard handwheel & locking device
- MJ -	Gear operator with oversize handwheel
- MK -	Gear operator with oversize handwheel & locking device
- MP -	Positive material identification
- PH -	17-4 PH stem
- TC -	Hydrostatic test with certified report
- TD -	API 6D Test (hydrostatic testing)
- TR -	Hydrostatic test with certified report & MTR
- TW -	Hydrostatic test with certified report & witnessed



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-25, GRAPH NO. 35

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
87A-F00-XX	3"	3.00	14.00	7.00	8.55	18.00	0.50	4.750	5.946	1.42	2.84	1.250	0.725	3/8-16	101.0
87A-F0A-XX	4"	4.00	17.00	7.19	11.20	34.00	0.75	6.630	8.081	1.74	3.48	1.500	0.780	1/2-13	194.0

87A-F00 SERIES

Stainless Steel ASME Class 600 Flanged Full Port Ball Valve - 6"

For **STANDARD COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

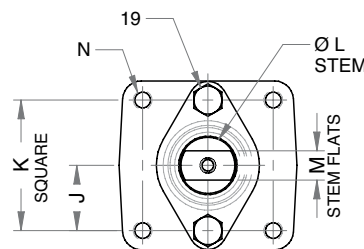
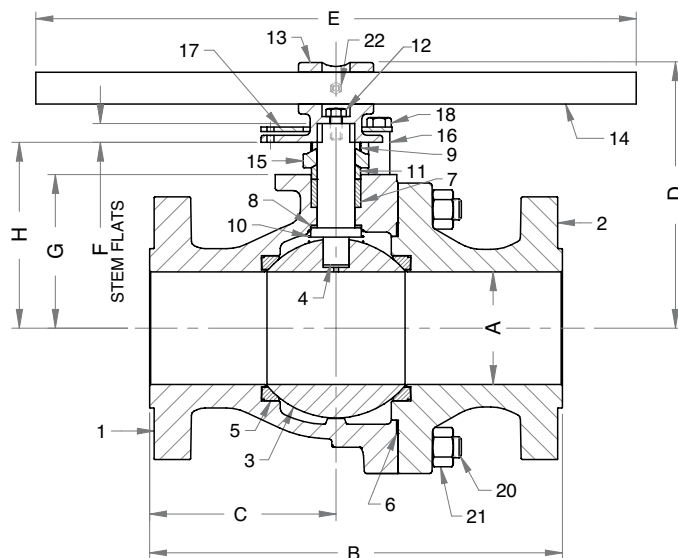
PART	MATERIAL
1 Body	ASTM A351-CF8M
2 Retainer	ASTM A351-CF8M
3 Ball	ASTM A351-CF8M or ASTM A276 Type 316
4 Stem	ASTM A276 Type 316
5 Seats	Defined by Seat Suffix Selected
6 Body Seal	Defined by Seat Suffix Selected
7 Stem Seals	Defined by Seat Suffix Selected
8 Stem Bearing	Defined by Seat Suffix Selected
9 Grounding Spring	316 Stainless Steel
10 Grounding Spring	316 Stainless Steel
11 Packing Gland	ASTM A276 Type 316
12 Stem Screw	304 Stainless Steel
13 Handle Adapter	316 Stainless Steel
14 Pipe Handle	Galvanized Steel
15 Gland Plate	316 Stainless Steel
16 Stops	ASTM A276 Type 316
17 Lock Plate	302 or 304 Stainless Steel
18 Stop Screws	316 Stainless Steel
19 Gland Plate Screws	ASTM A193-B8
20 Body Joint Stud	ASTM A193-B8M
21 Body Joint Nut	ASTM A194 Grade 8
22 Adapter Screw	18-8 Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

Add desired suffixes in numerical order.

Not all possible combinations are available. Minimum quantities may apply.

(SUFFIX)	OPTION
- 14 -	Side vented ball (uni-directional)
- 21 -	UHMWPE seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 24 -	Graphite packing, spiral wound graphite body seal, RPTFE bearing (Fire Safe API607 6th Edition)
- 38 -	PEEK seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 45 -	Less lever and nut (bare stem)
-49-	No Lubrication. Assembled Dry.
- 57 -	Oxygen cleaned
- 69 -	Drilled & tapped purge port with plugs
- 70 -	4" extended bonnet
- 76 -	Live loaded (lever operated)
- 77 -	Live loaded (gear operator or actuator)
- 80 -	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK bearing
- 82 -	Flat face flanges
- 90 -	4" extended bonnet with double packing
- 95 -	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 9P -	4" extended bonnet with double packing & monitoring port
- EP -	Low emissions graphite packing, spiral wound graphite body seal
- KB -	Kolsterised ball
- MG -	Gear operator with standard handwheel
- MH -	Gear operator with standard handwheel & locking device
- MJ -	Gear operator with oversize handwheel
- MK -	Gear operator with oversize handwheel & locking device
- MP -	Positive material identification
- PH -	17-4 PH stem
- TC -	Hydrostatic test with certified report
- TD -	API 6D Test (hydrostatic testing)
- TR -	Hydrostatic test with certified report & MTR
- TW -	Hydrostatic test with certified report & witnessed



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-26, GRAPH NO. 36

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
87A-F0C-XX	6"	6.00	22.00	9.94	14.17	45.00	1.00	8.190	9.915	2.298	4.59	2.00	1.375	3/4-10	500.0

87A-F00 SERIES

Stainless Steel ASME Class 600 Flanged Full Port Ball Valve - 8"

For **STANDARD COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

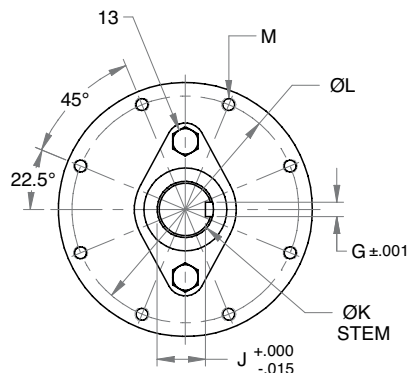
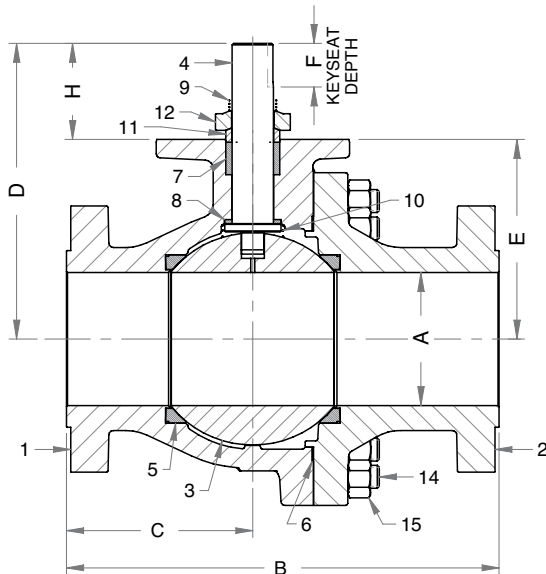
PART	MATERIAL
1 Body	ASTM A351-CF8M
2 Retainer	ASTM A351-CF8M
3 Ball	ASTM A351-CF8M or ASTM A276 Type 316
4 Stem	ASTM A276 Type 316
5 Seats	Defined by Seat Suffix Selected
6 Body Seal	Defined by Seat Suffix Selected
7 Stem Seals	Defined by Seat Suffix Selected
8 Stem Bearing	Defined by Seat Suffix Selected
9 Grounding Spring	316 Stainless Steel
10 Grounding Spring	316 Stainless Steel
11 Packing Gland	ASTM A276 Type 316
12 Gland Plate	316 Stainless Steel
13 Gland Plate Screws	ASTM A193-B8
14 Body Joint Stud	ASTM A193 Grade B8M
15 Body Joint Nut	ASTM A194 Grade 8

OPTIONS AVAILABLE: (More information in Section J)

Add desired suffixes in numerical order.

Not all possible combinations are available. Minimum quantities may apply.

(SUFFIX)	OPTION
- 14 -	Side vented ball (uni-directional)
- 21 -	UHMWPE seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 24 -	Graphite packing, spiral wound graphite body seal, RPTFE bearing (Fire Safe API607 6th Edition)
- 38 -	PEEK seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 45 -	Less lever and nut (bare stem)
-49-	No Lubrication. Assembled Dry.
- 57 -	Oxygen cleaned
- 69 -	Drilled & tapped purge port with plugs
- 70 -	4" extended bonnet
- 76 -	Live loaded (lever operated)
- 77 -	Live loaded (gear operator or actuator)
- 80 -	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK bearing
- 82 -	Flat face flanges
- 90 -	4" extended bonnet with double packing
- 95 -	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 9P -	4" extended bonnet with double packing & monitoring port
- EP -	Low emissions graphite packing, spiral wound graphite body seal
- KB -	Kolsterised ball
- MG -	Gear operator with standard handwheel
- MH -	Gear operator with standard handwheel & locking device
- MJ -	Gear operator with oversize handwheel
- MK -	Gear operator with oversize handwheel & locking device
- MP -	Positive material identification
- PH -	17-4 PH stem
- TC -	Hydrostatic test with certified report
- TD -	API 6D Test (hydrostatic testing)
- TR -	Hydrostatic test with certified report & MTR
- TW -	Hydrostatic test with certified report & witnessed



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-26, GRAPH NO. 36

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WT.
87A-F0E-XX	8"	8.00	26.00	11.20	17.77	12.00	2.25*	0.627	5.77	2.133	2.49	10.00	5/8-11	920.0

* Keyway Length



88A-F00 SERIES

Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 1"

For **STANDARD COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216-WCB
2 Retainer	ASTM A108 Type 1018
3 Ball	ASTM A108 Type 1215 Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6 Body Seal	Defined by Seat Suffix Selected
7 Stem Seals	Defined by Seat Suffix Selected
8 Stem Bearing	Defined by Seat Suffix Selected
9 Grounding Spring	316 Stainless Steel
10 Grounding Spring	316 Stainless Steel
11 Packing Gland	ASTM A108 Type 1215
12 Stem Screw	Steel Zinc Plated
13 Lever & Grip	ASTM A366 Steel w/Vinyl Grip
14 Gland Plate	302 or 304 Stainless Steel
15 Stops	ASTM A108 Type 1215
16 Lock Plate	ASTM A366 Steel
17 Spacer	ASTM A276 Type 316
18 Stop Screws	SAE J429 Grade 2 Steel Zinc Plated
19 Gland Plate Screws	ASTM A193-B7

VARIATIONS AVAILABLE:

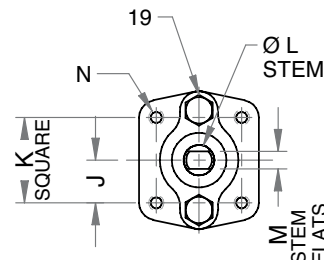
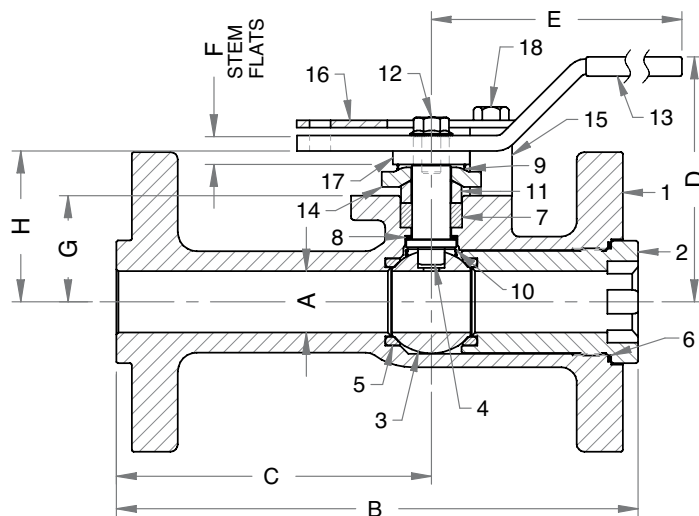
88A-F40 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

Add desired suffixes in numerical order.

Not all possible combinations are available. Minimum quantities may apply.

(SUFFIX)	OPTION
- 04 -	2.25" stem extension (1" - 2")
- 14 -	Side vented ball (uni-directional)
- 21 -	UHMWPE seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 24 -	Graphite packing, spiral wound graphite body seal, RPTFE bearing (Fire Safe API607 6th Edition)
- 38 -	PEEK seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 45 -	Less lever and nut (bare stem)
-49-	No Lubrication. Assembled Dry.
- 67 -	Cleaned for industrial gas (CS only)
- 69 -	Drilled & tapped purge port with plugs
- 70 -	4" extended bonnet
- 76 -	Live loaded (lever operated)
- 77 -	Live loaded (gear operator or actuator)
- 80 -	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK bearing
- 82 -	Flat face flanges
- 90 -	4" extended bonnet with double packing
- 95 -	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 9P -	4" extended bonnet with double packing & monitoring port
- EP -	Low emissions graphite packing, spiral wound graphite body seal
- KB -	Kolsterised ball
- MG -	Gear operator with standard handwheel
- MH -	Gear operator with standard handwheel & locking device
- MJ -	Gear operator with oversize handwheel
- MK -	Gear operator with oversize handwheel & locking device
- MP -	Positive material identification
- PH -	17-4 PH stem
- TC -	Hydrostatic test with certified report
- TD -	API 6D Test (hydrostatic testing)
- TR -	Hydrostatic test with certified report & MTR
- TW -	Hydrostatic test with certified report & witnessed



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-25, GRAPH NO. 34

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88A-F05-XX	1"	1.00	8.50	5.13	3.99	6.65	0.45	1.730	2.460	0.98	1.95	0.625	0.412	5/16-18	13.0

88A-F00 SERIES

Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARD COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216-WCB
2 Retainer	ASTM A216-WCB
3 Ball	ASTM A108 Type 1215 or A216-WCB Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Seats	Defined by Seat Suffix Selected
6 Body Seal	Defined by Seat Suffix Selected
7 Stem Seals	Defined by Seat Suffix Selected
8 Stem Bearing	Defined by Seat Suffix Selected
9 Grounding Spring	316 Stainless Steel
10 Grounding Spring	316 Stainless Steel
11 Packing Gland	ASTM A108 Type 1215
12 Stem Nut	ASTM A194 Grade 8
13 Lever & Grip	ASTM A366 Steel w/Vinyl Grip
14 Gland Plate	302 & 304 Stainless Steel
15 Stops	ASTM A108 Type 1215
16 Lock Plate	ASTM A366 Steel
17 Stop Screws	SAE J429 Grade 2
18 Gland Plate Screws	ASTM A193-B7
19 Body Joint Stud	ASTM A193-Grade B7
20 Body Joint Nut	ASTM A194-Grade 2H
21 Lock Washer	302 or 304 Stainless Steel

VARIATIONS AVAILABLE:

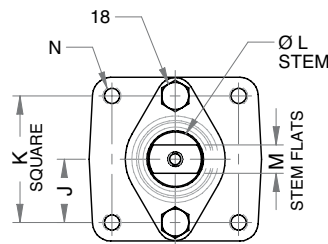
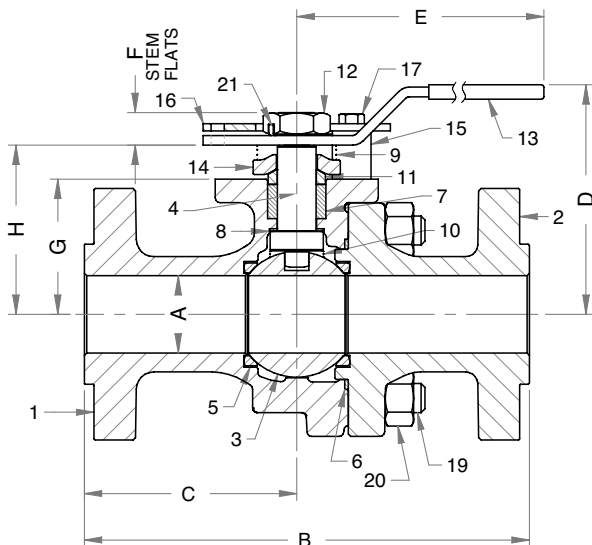
88A-F40 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

Add desired suffixes in numerical order.

Not all possible combinations are available. Minimum quantities may apply.

(SUFFIX)	OPTION
- 04 -	2.25" stem extension (1" - 2")
- 14 -	Side vented ball (uni-directional)
- 21 -	UHMWPE seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 24 -	Graphite packing, spiral wound graphite body seal, RPTFE bearing (Fire Safe API607 6th Edition)
- 38 -	PEEK seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 45 -	Less lever and nut (bare stem)
-49-	No Lubrication. Assembled Dry.
- 67 -	Cleaned for industrial gas (CS only)
- 69 -	Drilled & tapped purge port with plugs
- 70 -	4" extended bonnet
- 76 -	Live loaded (lever operated)
- 77 -	Live loaded (gear operator or actuator)
- 80 -	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK bearing
- 82 -	Flat face flanges
- 90 -	4" extended bonnet with double packing
- 95 -	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 9P -	4" extended bonnet with double packing & monitoring port
- EP -	Low emissions graphite packing, spiral wound graphite body seal
- KB -	Kolsterised ball
- MG -	Gear operator with standard handwheel
- MH -	Gear operator with standard handwheel & locking device
- MJ -	Gear operator with oversize handwheel
- MK -	Gear operator with oversize handwheel & locking device
- MP -	Positive material identification
- PH -	17-4 PH stem
- TC -	Hydrostatic test with certified report
- TD -	API 6D Test (hydrostatic testing)
- TR -	Hydrostatic test with certified report & MTR
- TW -	Hydrostatic test with certified report & witnessed



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-25, GRAPH NO. 34 & 35

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88A-F07-XX	1.5"	1.50	9.50	3.62	5.03	8.40	0.74	2.730	3.500	0.98	1.95	0.750	0.477	5/16-18	31.5
88A-F08-XX	2"	2.00	11.50	5.49	6.06	12.06	0.84	3.490	4.370	1.42	2.84	1.000	0.620	3/8-16	53.0
88A-F09-XX	2.5"	2.50	13.00	6.02	6.63	12.06	0.84	4.190	5.070	1.42	2.84	1.000	0.620	3/8-16	65.0

88A-F00 SERIES

Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 3" through 4"

For **STANDARD COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216-WCB
2 Retainer	ASTM A216-WCB
3 Ball	ASTM A108 Type 1215 or A216-WCB Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Seats	Defined by Seat Suffix Selected
6 Body Seal	Defined by Seat Suffix Selected
7 Stem Seals	Defined by Seat Suffix Selected
8 Stem Bearing	Defined by Seat Suffix Selected
9 Grounding Spring	316 Stainless Steel
10 Grounding Spring	316 Stainless Steel
11 Packing Gland	ASTM A108 Type 1215
12 Stem Screw	304 Stainless Steel
13 Handle Adapter	ASTM A366 Steel with Vinyl Grip
14 Pipe Handle	Galvanized Steel (not shown)
15 Gland Plate	316 Stainless Steel
16 Stops	ASTM A108 Type 1215
17 Lock Plate	ASTM A366 Steel
18 Stop Screws	SAE J429 Grade 2
19 Gland Plate Screws	ASTM A193-B7
20 Body Joint Stud	ASTM A193- Grade B7
21 Body Joint Nut	ASTM A194- Grade 2H
22 Adapter Screw	18-8 Stainless Steel

VARIATIONS AVAILABLE:

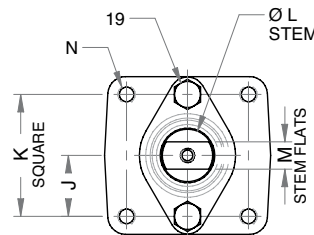
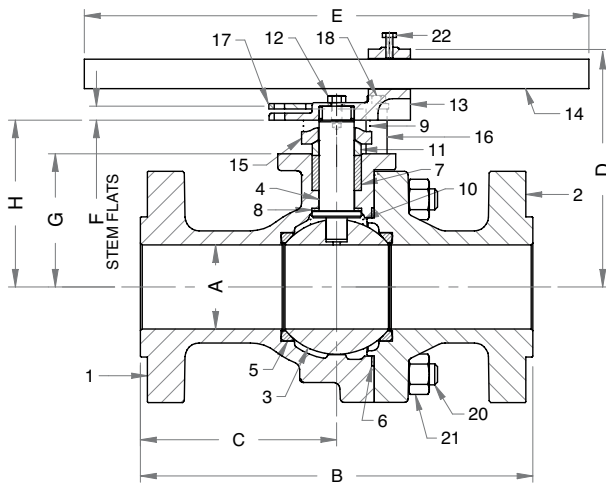
88A-F40 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

Add desired suffixes in numerical order.

Not all possible combinations are available. Minimum quantities may apply.

(SUFFIX)	OPTION
- 14 -	Side vented ball (uni-directional)
- 21 -	UHMWPE seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 24 -	Graphite packing, spiral wound graphite body seal, RPTFE bearing (Fire Safe API607 6th Edition)
- 38 -	PEEK seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 45 -	Less lever and nut (bare stem)
- 49 -	No Lubrication. Assembled Dry.
- 67 -	Cleaned for industrial gas (CS only)
- 69 -	Drilled & tapped purge port with plugs
- 70 -	4" extended bonnet
- 76 -	Live loaded (lever operated)
- 77 -	Live loaded (gear operator or actuator)
- 80 -	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK bearing
- 82 -	Flat face flanges
- 90 -	4" extended bonnet with double packing
- 95 -	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 9P -	4" extended bonnet with double packing & monitoring port
- EP -	Low emissions graphite packing, spiral wound graphite body seal
- KB -	Kolsterised ball
- MG -	Gear operator with standard handwheel
- MH -	Gear operator with standard handwheel & locking device
- MJ -	Gear operator with oversize handwheel
- MK -	Gear operator with oversize handwheel & locking device
- MP -	Positive material identification
- PH -	17-4 PH stem
- TC -	Hydrostatic test with certified report
- TD -	API 6D Test (hydrostatic testing)
- TR -	Hydrostatic test with certified report & MTR
- TW -	Hydrostatic test with certified report & witnessed



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-25, GRAPH NO. 35

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88A-F00-XX	3"	3.00	14.00	7.00	8.55	18.00	0.50	4.750	5.946	1.42	2.84	1.250	0.725	3/8-16	101.0
88A-F04-XX	4"	4.00	17.00	7.19	11.20	34.00	0.75	6.630	8.081	1.74	3.48	1.500	0.780	1/2-13	194.0

88A-F00 SERIES

Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 6"

For **STANDARD COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216-WCB
2	Retainer	ASTM A216-WCB
3	Ball	ASTM A108 Type 1215 or A216-WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Seats	Defined by Seat Suffix Selected
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	Stem Bearing	Defined by Seat Suffix Selected
9	Grounding Spring	316 Stainless Steel
10	Grounding Spring	316 Stainless Steel
11	Packing Gland	ASTM A108 Type 1215
12	Stem Screw	304 Stainless Steel
13	Handle Adapter	316 Stainless Steel
14	Pipe Handle	Galvanized Steel (not shown)
15	Gland Plate	316 Stainless Steel
16	Stops	ASTM A108 Type 1215
17	Lock Plate	ASTM A366 Steel
18	Stop Screws	SAE J429 Grade 2
19	Gland Plate Screws	ASTM A193-B7
20	Body Joint Stud	ASTM A193-Grade B7
21	Body Joint Nut	ASTM A194-Grade 2H
22	Adapter Screw	18-8 Stainless Steel

VARIATIONS AVAILABLE:

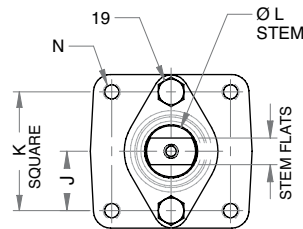
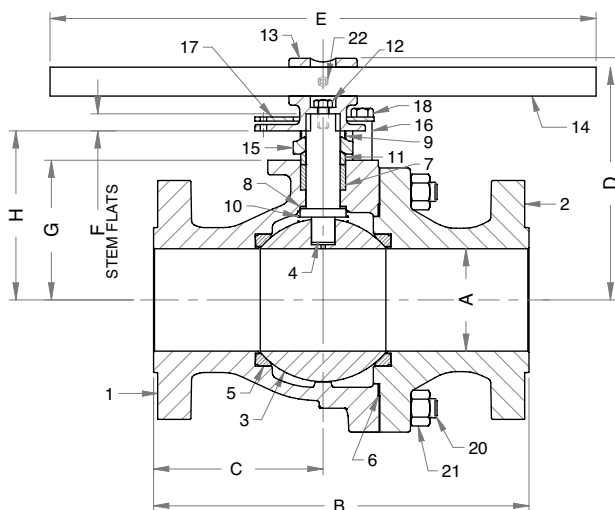
88A-F40 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

Add desired suffixes in numerical order.

Not all possible combinations are available. Minimum quantities may apply.

(SUFFIX)	OPTION
- 14 -	Side vented ball (uni-directional)
- 21 -	UHMWPE seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 24 -	Graphite packing, spiral wound graphite body seal, RPTFE bearing (Fire Safe API607 6th Edition)
- 38 -	PEEK seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 45 -	Less lever and nut (bare stem)
- 49 -	No Lubrication. Assembled Dry.
- 67 -	Cleaned for industrial gas (CS only)
- 69 -	Drilled & tapped purge port with plugs
- 70 -	4" extended bonnet
- 76 -	Live loaded (lever operated)
- 77 -	Live loaded (gear operator or actuator)
- 80 -	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK bearing
- 82 -	Flat face flanges
- 90 -	4" extended bonnet with double packing
- 95 -	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 9P -	4" extended bonnet with double packing & monitoring port
- EP -	Low emissions graphite packing, spiral wound graphite body seal
- KB -	Kolsterised ball
- MG -	Gear operator with standard handwheel
- MH -	Gear operator with standard handwheel & locking device
- MJ -	Gear operator with oversize handwheel
- MK -	Gear operator with oversize handwheel & locking device
- MP -	Positive material identification
- PH -	17-4 PH stem
- TC -	Hydrostatic test with certified report
- TD -	API 6D Test (hydrostatic testing)
- TR -	Hydrostatic test with certified report & MTR
- TW -	Hydrostatic test with certified report & witnessed



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-26, GRAPH NO. 36

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88A-F0C-XX	6"	6.00	22.00	9.94	14.17	45.00	1.00	8.190	9.915	2.298	3.48	2.000	1.375	3/4-10	500.0

88A-F00 SERIES

Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 8"

For **STANDARD COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Body	ASTM A216-WCB
2 Retainer	ASTM A216-WCB
3 Ball	ASTM A108 Type 1215 or ASTM A216-WCB Chrome Plated
4 Stem	ASTM A108 Type 1215
5 Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6 Body Seal	Defined by Seat Suffix Selected
7 Stem Seals	Defined by Seat Suffix Selected
8 Stem Bearing	Defined by Seat Suffix Selected
9 Grounding Spring	316 Stainless Steel
10 Grounding Spring	316 Stainless Steel
11 Packing Gland	ASTM A108 Type 1215
12 Gland Plate	316 Stainless Steel
13 Gland Plate Screws	ASTM A193-B7
14 Body Joint Stud	ASTM A193 Grade B7
15 Body Joint Nut	ASTM A194 Grade 2H

VARIATIONS AVAILABLE:

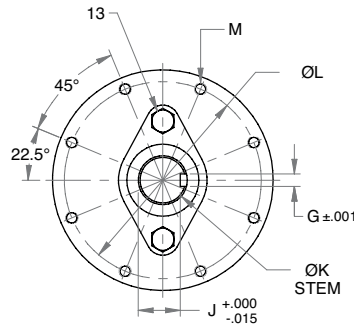
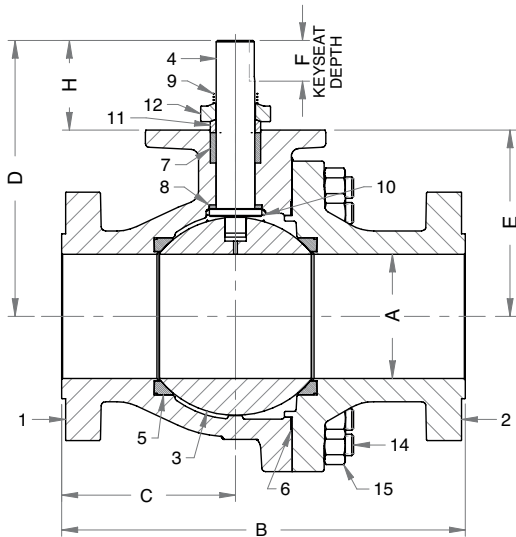
88A-F40 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

Add desired suffixes in numerical order.

Not all possible combinations are available. Minimum quantities may apply.

(SUFFIX)	OPTION
- 14 -	Side vented ball (uni-directional)
- 21 -	UHMWPE seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 24 -	Graphite packing, spiral wound graphite body seal, RPTFE bearing (Fire Safe API607 6th Edition)
- 38 -	PEEK seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 45 -	Less lever and nut (bare stem)
-49-	No Lubrication. Assembled Dry.
- 67 -	Cleaned for industrial gas (CS only)
- 69 -	Drilled & tapped purge port with plugs
- 70 -	4" extended bonnet
- 76 -	Live loaded (lever operated)
- 77 -	Live loaded (gear operator or actuator)
- 80 -	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK bearing
- 82 -	Flat face flanges
- 90 -	4" extended bonnet with double packing
- 95 -	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 9P -	4" extended bonnet with double packing & monitoring port
- EP -	Low emissions graphite packing, spiral wound graphite body seal
- KB -	Kolsterised ball
- MG -	Gear operator with standard handwheel
- MH -	Gear operator with standard handwheel & locking device
- MJ -	Gear operator with oversize handwheel
- MK -	Gear operator with oversize handwheel & locking device
- MP -	Positive material identification
- PH -	17-4 PH stem
- TC -	Hydrostatic test with certified report
- TD -	API 6D Test (hydrostatic testing)
- TR -	Hydrostatic test with certified report & MTR
- TW -	Hydrostatic test with certified report & witnessed



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-26, GRAPH NO. 36

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WT.
88A-F0E-XX	8"	8.00	26.00	11.20	17.77	12.00	2.25*	0.627	5.77	2.133	2.49	10.00	5/8-11	920.0

* Keyway Length



88L-F40 SERIES

Low Temperature Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 1"

For **STANDARD COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

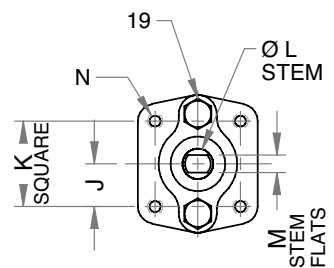
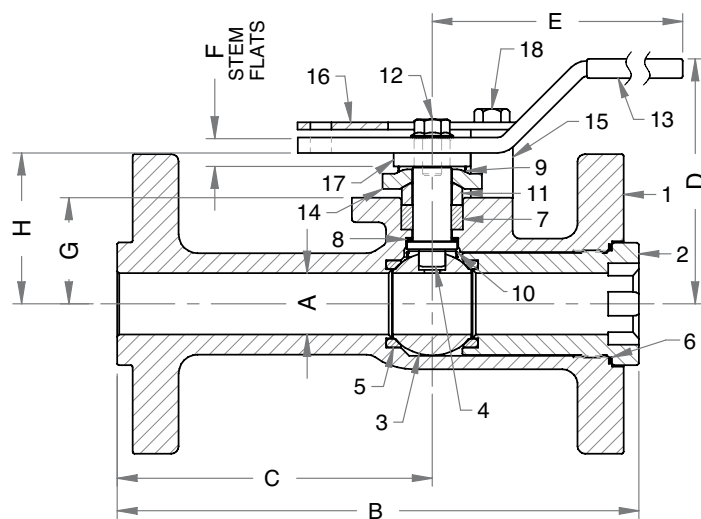
PART	MATERIAL
1 Body	ASTM A352-LCC
2 Retainer	ASTM A352-LCC
3 Ball	ASTM A276-316
4 Stem	ASTM A276-316
5 Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6 Body Seal	Defined by Seat Suffix Selected
7 Stem Seals	Defined by Seat Suffix Selected
8 Stem Bearing	Defined by Seat Suffix Selected
9 Grounding Spring	316 Stainless Steel
10 Grounding Spring	316 Stainless Steel
11 Packing Gland	See Options Available
12 Stem Screw	Steel, Zinc Plated
13 Lever	ASTM A366 Steel with Vinyl Grip
14 Gland Plate	302 or 304 Stainless Steel
15 Stop	ASTM A108 Type 1215
16 Lock Plate	ASTM A366 Steel
17 Spacer	ASTM A276 Type 216
18 Stop Screw	SAE J429 Grade 2 Steel Zinc Plated
19 Gland Plate Screws	ASTM A193 B7

OPTIONS AVAILABLE: (More information in Section J)

Add desired suffixes in numerical order.

Not all possible combinations are available. Minimum quantities may apply.

(SUFFIX)	OPTION
- 04 -	2.25" stem extension (1" - 2")
- 14 -	Side vented ball (uni-directional)
- 21 -	UHMWPE seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 24 -	Graphite packing, spiral wound graphite body seal, RPTFE bearing (Fire Safe API607 6th Edition)
- 38 -	PEEK seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 45 -	Less lever and nut (bare stem)
- 49 -	No Lubrication. Assembled Dry.
- 67 -	Cleaned for industrial gas (CS only)
- 69 -	Drilled & tapped purge port with plugs
- 70 -	4" extended bonnet
- 76 -	Live loaded (lever operated)
- 77 -	Live loaded (gear operator or actuator)
- 80 -	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK bearing
- 82 -	Flat face flanges
- 90 -	4" extended bonnet with double packing
- 95 -	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 9P -	4" extended bonnet with double packing & monitoring port
- EP -	Low emissions graphite packing, spiral wound graphite body seal
- KB -	Kolsterised ball
- MG -	Gear operator with standard handwheel
- MH -	Gear operator with standard handwheel & locking device
- MJ -	Gear operator with oversize handwheel
- MK -	Gear operator with oversize handwheel & locking device
- MP -	Positive material identification
- PH -	17-4 PH stem
- TC -	Hydrostatic test with certified report
- TD -	API 6D Test (hydrostatic testing)
- TR -	Hydrostatic test with certified report & MTR
- TW -	Hydrostatic test with certified report & witnessed



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-26, GRAPH NO. 37

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88L-F45-XX	1"	1.00	8.50	5.13	3.99	6.65	0.45	1.730	2.460	0.98	1.95	0.625	0.412	5/16-18	13.0

88L-F40 SERIES

Low Temperature Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARD COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

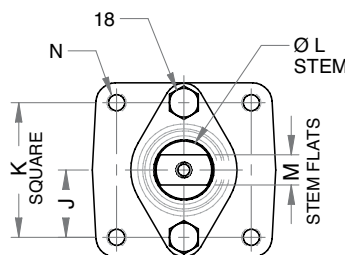
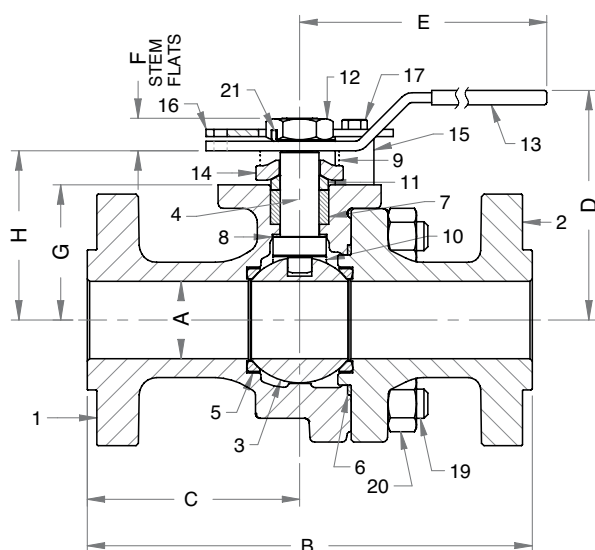
PART	MATERIAL
1 Body	ASTM A352-LCC
2 Retainer	ASTM A352-LCC
3 Ball	ASTM A276-316 or A351-CF8M
4 Stem	ASTM A276-316
5 Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6 Body Seal	Defined by Seat Suffix Selected
7 Stem Seals	Defined by Seat Suffix Selected
8 Stem Bearing	Defined by Seat Suffix Selected
9 Grounding Spring	316 Stainless Steel
10 Grounding Spring	316 Stainless Steel
11 Packing Gland	ASTM A108 Type 1215
12 Stem Nut	ASTM A194 Grade 8
13 Lever	ASTM A366 Steel with Vinyl Grip
14 Gland Plate	302 or 304 Stainless Steel
15 Stop	ASTM A108 Type 1215
16 Lock Plate	ASTM A366 Steel
17 Stop Screw	SAE J429 Grade 2
18 Gland Plate Screws	ASTM A193 B7
19 Body Joint Stud	ASTM A193 Grade B7
20 Body Joint Nut	ASTM A194 Grade 2H
21 Lock Washer	302 or 304 SS

OPTIONS AVAILABLE: (More information in Section J)

Add desired suffixes in numerical order.

Not all possible combinations are available. Minimum quantities may apply.

(SUFFIX)	OPTION
- 14 -	Side vented ball (uni-directional)
- 21 -	UHMWPE seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 24 -	Graphite packing, spiral wound graphite body seal, RPTFE bearing (Fire Safe API607 6th Edition)
- 38 -	PEEK seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 45 -	Less lever and nut (bare stem)
-49-	No Lubrication. Assembled Dry.
- 67 -	Cleaned for industrial gas (CS only)
- 69 -	Drilled & tapped purge port with plugs
- 70 -	4" extended bonnet
- 76 -	Live loaded (lever operated)
- 77 -	Live loaded (gear operator or actuator)
- 80 -	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK bearing
- 82 -	Flat face flanges
- 90 -	4" extended bonnet with double packing
- 95 -	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 9P -	4" extended bonnet with double packing & monitoring port
- EP -	Low emissions graphite packing, spiral wound graphite body seal
- KB -	Kolsterised ball
- MG -	Gear operator with standard handwheel
- MH -	Gear operator with standard handwheel & locking device
- MJ -	Gear operator with oversize handwheel
- MK -	Gear operator with oversize handwheel & locking device
- MP -	Positive material identification
- PH -	17-4 PH stem
- TC -	Hydrostatic test with certified report
- TD -	API 6D Test (hydrostatic testing)
- TR -	Hydrostatic test with certified report & MTR
- TW -	Hydrostatic test with certified report & witnessed



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-26-27, GRAPH NO. 37 & 38

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88L-F47-XX	1.5"	1.50	9.50	3.62	5.03	8.40	0.74	2.730	3.500	0.98	1.95	0.750	0.477	5/16-18	31.5
88L-F48-XX	2"	2.00	11.50	5.49	6.06	12.06	0.84	3.490	4.370	1.42	2.84	1.000	0.620	3/8-16	53.0
88L-F49-XX	2.5"	2.50	13.00	6.02	6.63	12.06	0.84	4.190	5.070	1.42	2.84	1.000	0.620	3/8-16	65.0

88L-F40 SERIES

Low Temperature Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 3" through 4"

For **STANDARD COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

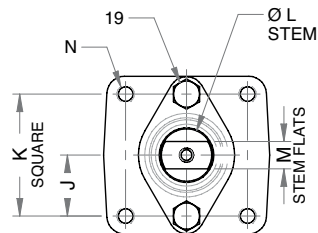
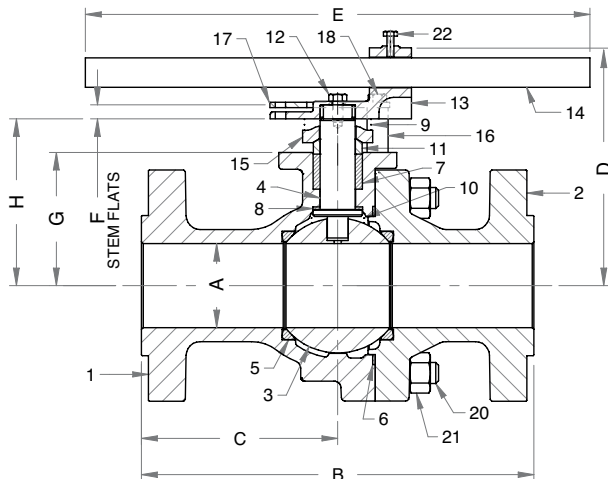
PART	MATERIAL
1 Body	ASTM A352-LCC
2 Retainer	ASTM A352-LCC
3 Ball	ASTM A276-316 or A351-CF8M
4 Stem	ASTM A276 Type 316
5 Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6 Body Seal	Defined by Seat Suffix Selected
7 Stem Seals	Defined by Seat Suffix Selected
8 Stem Bearing	Defined by Seat Suffix Selected
9 Grounding Spring	316 Stainless Steel
10 Grounding Spring	316 Stainless Steel
11 Packing Gland	ASTM A108 Type 1215
12 Stem Screw	304 Stainless Steel
13 Handle Adapter	ASTM A366 Steel with Vinyl Grip
14 Pipe Handle	Galvanized Steel (not shown)
15 Gland Plate	316 Stainless Steel
16 Stops	ASTM A108 Type 1215
17 Lock Plate	ASTM A366 Steel
18 Stop Screws	SAE J429 Grade 2
19 Gland Plate Screws	ASTM A193-B7
20 Body Joint Stud	ASTM A193 Grade B7
21 Body Joint Nut	ASTM A194 Grade 2H
22 Adapter Screw	18-8 Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

Add desired suffixes in numerical order.

Not all possible combinations are available. Minimum quantities may apply.

(SUFFIX)	OPTION
- 14 -	Side vented ball (uni-directional)
- 21 -	UHMWPE seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 24 -	Graphite packing, spiral wound graphite body seal, RPTFE bearing (Fire Safe API607 6th Edition)
- 38 -	PEEK seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 45 -	Less lever and nut (bare stem)
-49-	No Lubrication. Assembled Dry.
- 67 -	Cleaned for industrial gas (CS only)
- 69 -	Drilled & tapped purge port with plugs
- 70 -	4" extended bonnet
- 76 -	Live loaded (lever operated)
- 77 -	Live loaded (gear operator or actuator)
- 80 -	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK bearing
- 82 -	Flat face flanges
- 90 -	4" extended bonnet with double packing
- 95 -	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 9P -	4" extended bonnet with double packing & monitoring port
- EP -	Low emissions graphite packing, spiral wound graphite body seal
- KB -	Kolsterised ball
- MG -	Gear operator with standard handwheel
- MH -	Gear operator with standard handwheel & locking device
- MJ -	Gear operator with oversize handwheel
- MK -	Gear operator with oversize handwheel & locking device
- MP -	Positive material identification
- PH -	17-4 PH stem
- TC -	Hydrostatic test with certified report
- TD -	API 6D Test (hydrostatic testing)
- TR -	Hydrostatic test with certified report & MTR
- TW -	Hydrostatic test with certified report & witnessed



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-27, GRAPH NO. 38

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88L-F40-XX	3"	3.00	14.00	7.00	8.55	18.00	0.50	4.750	5.946	1.42	2.84	1.250	0.725	3/8-16	101.0
88L-F4A-XX	4"	4.00	17.00	7.19	11.20	34.00	0.75	6.630	8.081	1.74	3.48	1.500	0.780	1/2-13	194.0

88L-F40 SERIES

Low Temperature Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 6"

For **STANDARD COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

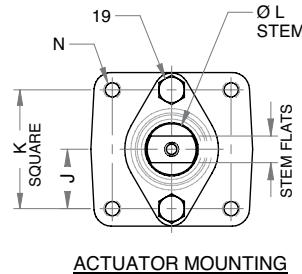
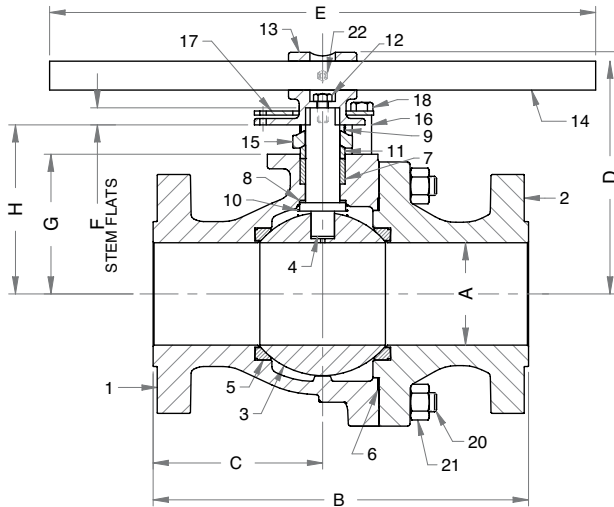
PART	MATERIAL
1 Body	ASTM A352-LCC
2 Retainer	ASTM A352-LCC
3 Ball	ASTM A276-316 or A351-CF8M
4 Stem	ASTM A276-316
5 Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6 Body Seal	Defined by Seat Suffix Selected
7 Stem Seals	Defined by Seat Suffix Selected
8 Stem Bearing	Defined by Seat Suffix Selected
9 Grounding Spring	316 Stainless Steel
10 Grounding Spring	316 Stainless Steel
11 Packing Gland	ASTM A108 Type 1215
12 Stem Screw	304 Stainless Steel
13 Handle Adapter	ASTM A366 Steel with Vinyl Grip
14 Pipe Handle	Galvanized Steel (not shown)
15 Gland Plate	316 Stainless Steel
16 Stops	ASTM A108 Type 1215
17 Lock Plate	ASTM A366 Steel
18 Stop Screws	SAE J429 Grade 2
19 Gland Plate Screws	ASTM A193-B7
20 Body Joint Stud	ASTM A193-Grade B7
21 Body Joint Nut	ASTM A194-Grade 2H
22 Adapter Screw	18-8 Stainless Steel

OPTIONS AVAILABLE: (More information in Section J)

Add desired suffixes in numerical order.

Not all possible combinations are available. Minimum quantities may apply.

(SUFFIX)	OPTION
- 14 -	Side vented ball (uni-directional)
- 21 -	UHMWPE seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 24 -	Graphite packing, spiral wound graphite body seal, RPTFE bearing (Fire Safe API607 6th Edition)
- 38 -	PEEK seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 45 -	Less lever and nut (bare stem)
-49-	No Lubrication. Assembled Dry.
- 67 -	Cleaned for industrial gas (CS only)
- 69 -	Drilled & tapped purge port with plugs
- 70 -	4" extended bonnet
- 76 -	Live loaded (lever operated)
- 77 -	Live loaded (gear operator or actuator)
- 80 -	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK bearing
- 82 -	Flat face flanges
- 90 -	4" extended bonnet with double packing
- 95 -	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 9P -	4" extended bonnet with double packing & monitoring port
- EP -	Low emissions graphite packing, spiral wound graphite body seal
- KB -	Kolsterised ball
- MG -	Gear operator with standard handwheel
- MH -	Gear operator with standard handwheel & locking device
- MJ -	Gear operator with oversize handwheel
- MK -	Gear operator with oversize handwheel & locking device
- MP -	Positive material identification
- PH -	17-4 PH stem
- TC -	Hydrostatic test with certified report
- TD -	API 6D Test (hydrostatic testing)
- TR -	Hydrostatic test with certified report & MTR
- TW -	Hydrostatic test with certified report & witnessed



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-27, GRAPH NO. 39

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88L-F4C-XX	6"	6.00	22.00	9.94	13.64	45.00	1.00	8.190	9.915	2.298	3.48	2.000	1.375	3/4-10	500.0

88L-F40 SERIES

Low Temperature Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 8"

For **STANDARD COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



STANDARD MATERIAL LIST

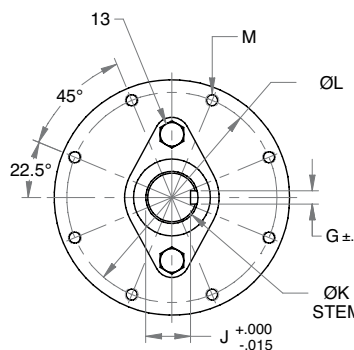
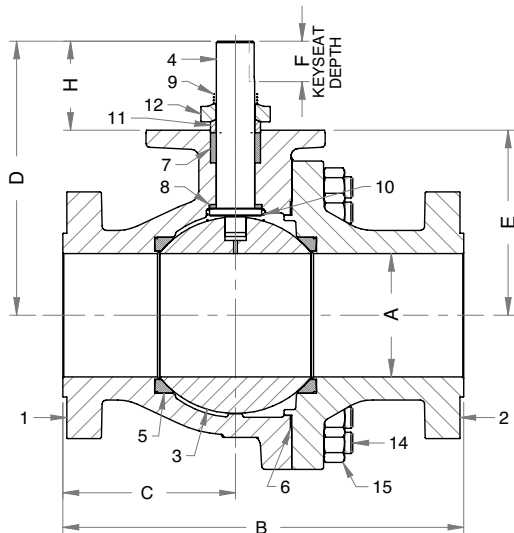
PART	MATERIAL
1 Body	ASTM A352-LCC
2 Retainer	ASTM A352-LCC
3 Ball	ASTM A276-316 or A351-CF8M
4 Stem	ASTM A276-316
5 Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6 Body Seal	Defined by Seat Suffix Selected
7 Stem Seals	Defined by Seat Suffix Selected
8 Stem Bearing	Defined by Seat Suffix Selected
9 Grounding Spring	316 Stainless Steel
10 Grounding Spring	316 Stainless Steel
11 Packing Gland	ASTM A108 Type 1215
12 Gland Plate	316 Stainless Steel
13 Gland Plate Screws	ASTM A193-B7
14 Body Joint Stud	ASTM A193 Grade B7
15 Body Joint Nut	ASTM A194 Grade 2H

OPTIONS AVAILABLE: (More information in Section J)

Add desired suffixes in numerical order.

Not all possible combinations are available. Minimum quantities may apply.

(SUFFIX)	OPTION
- 14 -	Side vented ball (uni-directional)
- 21 -	UHMWPE seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 24 -	Graphite packing, spiral wound graphite body seal, RPTFE bearing (Fire Safe API607 6th Edition)
- 38 -	PEEK seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 45 -	Less lever and nut (bare stem)
-49-	No Lubrication. Assembled Dry.
- 67 -	Cleaned for industrial gas (CS only)
- 69 -	Drilled & tapped purge port with plugs
- 70 -	4" extended bonnet
- 76 -	Live loaded (lever operated)
- 77 -	Live loaded (gear operator or actuator)
- 80 -	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK bearing
- 82 -	Flat face flanges
- 90 -	4" extended bonnet with double packing
- 95 -	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK bearing
- 9P -	4" extended bonnet with double packing & monitoring port
- EP -	Low emissions graphite packing, spiral wound graphite body seal
- KB -	Kolsterised ball
- MG -	Gear operator with standard handwheel
- MH -	Gear operator with standard handwheel & locking device
- MJ -	Gear operator with oversize handwheel
- MK -	Gear operator with oversize handwheel & locking device
- MP -	Positive material identification
- PH -	17-4 PH stem
- TC -	Hydrostatic test with certified report
- TD -	API 6D Test (hydrostatic testing)
- TR -	Hydrostatic test with certified report & MTR
- TW -	Hydrostatic test with certified report & witnessed



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-27, GRAPH NO. 39

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WT.
88L-F4E-XX	8"	8.00	26.00	11.20	17.77	12.00	2.25*	0.627	5.77	2.133	2.49	10.00	5/8-11	920.0

* Keyway Length



SECTION D – ASME FLANGED BALL VALVES

SECTION E – THREE WAY BALL VALVES

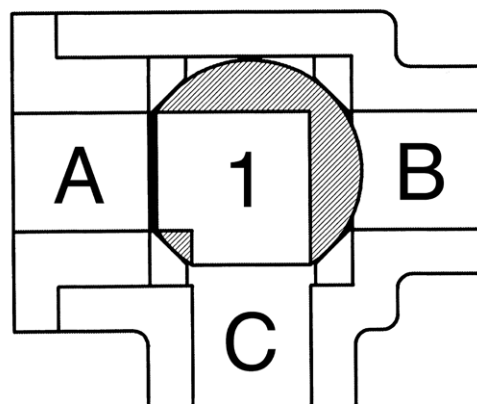
Table of Contents

SERIES	DESCRIPTION	PAGE
3-Way Valve Application		E-2
 <u>BRONZE</u>		
70-600 Series	Threaded Bronze.....	E-3
70-900 Series	Solder Bronze	E-4
77-640 Series	Full Port Bronze.....	E-6
 <u>STAINLESS STEEL</u>		
76-600 Series	Threaded Stainless Steel.....	E-5

THREE WAY BALL VALVES

Mixing Vs. Diverting

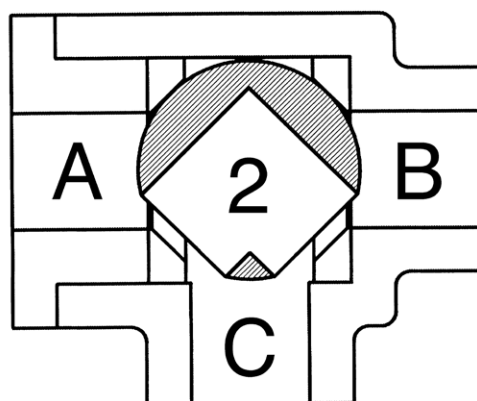
Illustrated to the right are the three normal operating positions for a three-way valve. Apollo's three-way valve has only two (2) seats as illustrated and as such has limitations for use in both diverter and mixing valve applications. As can be seen from this illustration, there is no off position for port "C". Ports "A" and "B" cannot be off at the same time.



Apollo's Three-Way Valve as a Mixing Valve

When ports "A" and "B" are the inlets, and port "C" is the outlet, the valve becomes a mixing valve. With minor variations in position 2 the percentage of components at "A" and "B" can be varied to the outlet "C". This has been successfully applied to hydronic systems.

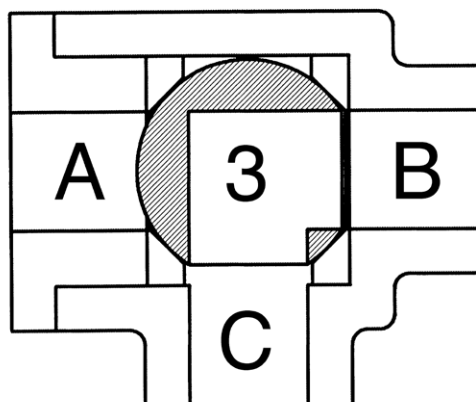
It may not be possible to isolate the ports from one another in any position. If the valve is in position 1, and the pressure at port "B" is significantly higher than port "A", the ball may be forced off the seat allowing mixing from all ports. Whether or not this is a problem depends on the application and its sensitivity to unwanted mixing.



Apollo's Three-Way Valve as a Diverter Valve

When port "C" is the inlet, and ports "A" and "B" are the outlets, the valve is a diverter valve. With port "C" as the inlet, flow is diverted to either port "A" (position 1) or "B" (position 3). In position 2, inlet flow from "C" is split to "A" and "B".

Just as described above, it may not be possible to isolate any one port from the other two. That condition is most likely to occur in mixing applications. That is why the valve tends to be promoted as a diverter valve rather than a mixing valve.



70-600 SERIES

3-Way Diversion Bronze Ball Valve

Female NPT Thread, 400 CWP (psig), Cold Non-Shock.



FEATURES

- Two piece body
- Reinforced seats
- Blow-out-proof stem design
- Adjustable packing gland

VARIATIONS AVAILABLE:

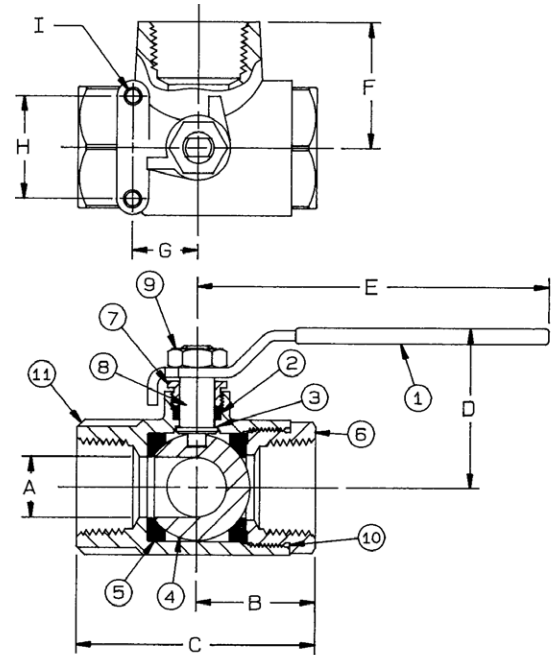
70-640 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

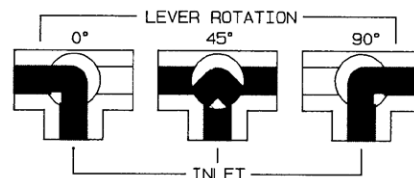
(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-02-	Stem Grounded	1/4" to 2"
-04-	2.25" CS Stem Extension	1/4" to 2"
-05-	Plain Ball	1/4" to 2"
-10-	SS Lever & Nut	1/4" to 2"
-17-	Rough Chrome Plated - Bronze Valves	1/4" to 2"
-21-	UHMWPE Seats (Non-PTFE)	1/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 2"
-49-	Assembled Dry	1/4" to 2"
-50-	2.25" CS Locking Stem Extension	1/4" to 2"
-56-	Multifill Seats & Packing	1/4" to 2"
-57-	Oxygen Cleaned	1/4" to 2"
-60-	Grounded Ball & Stem	1/4" to 2"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	B16, chrome plated
5 Seat (2)	RPTFE
6 Retainer	B16 (1/4" to 1") B584-C84400 (1.25" to 2")
7 Gland nut	B16
8 Stem	B16
9 Lever nut	Steel, zinc plated
10 Body seal (1.5" to 2")	PTFE
11 Body	B584-C84400



FLOW PATTERN



NOTE: Open port pressure must exceed Closed port pressure.

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	WT.
70-601-01	1/4"	0.50	1.09	2.25	1.80	3.88	1.18	0.87	1.37	10-24	0.86
70-602-01	3/8"	0.50	1.12	2.27	1.80	3.88	1.18	0.87	1.37	10-24	0.84
70-603-01	1/2"	0.50	1.10	2.75	1.75	3.88	1.18	0.87	1.37	10-24	0.99
70-604-01	3/4"	0.68	1.50	3.00	2.12	4.87	1.62	0.87	1.37	10-24	1.91
70-605-01	1"	0.87	1.59	3.20	2.20	4.87	1.71	0.87	1.37	10-24	2.42
70-606-01	1.25"	1.00	1.99	3.98	2.69	5.50	2.09	0.94	1.50	1/4-20	4.27
70-607-01	1.5"	1.25	2.21	4.40	2.87	5.50	2.38	0.94	1.50	1/4-20	5.82
70-608-01	2"	1.50	2.34	4.69	3.07	5.50	2.50	0.94	1.50	1/4-20	8.55

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 3



70-900 SERIES

3-Way Diversion Bronze Solder End Ball Valve

Solder, 400 CWP (psig), Cold Non-Shock.



FEATURES

- Two-piece body
- Reinforced seats
- Blow-out-proof stem design
- Adjustable packing gland

VARIATIONS AVAILABLE:

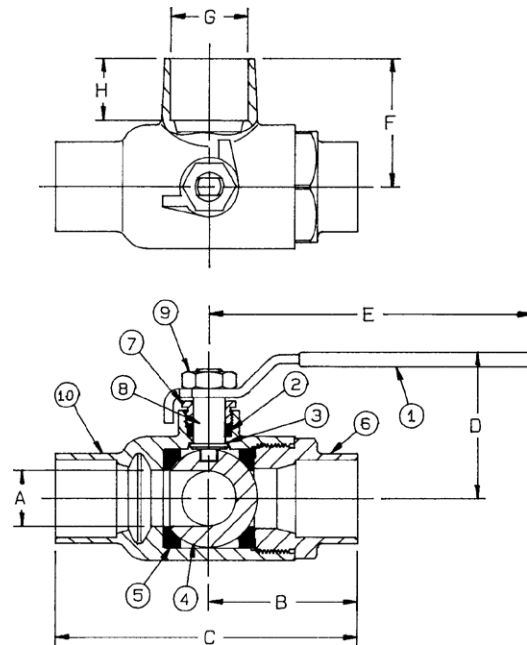
70-940 Series (316 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

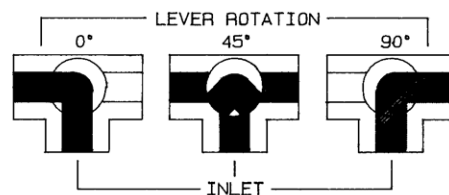
(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02	Stem Grounded	1/2" to 1"
-04	2.25" CS Stem Extension	1/2" to 1"
-05	Plain Ball	1/2" to 1"
-10	SS Lever & Nut	1/2" to 1"
-17	Rough Chrome Plated - Bronze Valves	1/2" to 1"
-21	UHMWPE Seats (Non-PTFE)	1/2" to 1"
-24	Graphite Packing	1/2" to 1"
-27	SS Latch-Lock Lever & Nut	1/2" to 1"
-35	PTFE Trim	1/2" to 1"
-49	Assembled Dry	1/2" to 1"
-50	2.25" CS Locking Stem Extension	1/2" to 1"
-56	Multifill Seats & Packing	1/2" to 1"
-57	Oxygen Cleaned	1/2" to 1"
-60	Grounded Ball & Stem	1/2" to 1"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Stem packing	MPTFE
3	Stem bearing	RPTFE
4	Ball	B16, chrome plated
5	Seat (2)	RPTFE
6	Retainer	B16
7	Gland nut	B16
8	Stem	B16
9	Lever nut	Steel, zinc plated
10	Body	B584-C84400



FLOW PATTERN



NOTE: Open port pressure must exceed Closed port pressure.

The 70-900 is designed to be soft soldered into lines without disassembly. This allows a tested valve to be installed without disturbing the seats and seals in any way. Soldering temperature not to exceed 500°F.

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	WT.
70-903-01	1/2"	0.50	1.44	2.33	2.04	3.87	1.34	.628	0.50	0.76
70-904-01	3/4"	0.68	1.94	3.04	2.08	4.78	1.69	.878	0.75	1.65
70-905-01	1"	.875	2.24	3.50	2.16	4.78	1.87	1.129	0.90	2.15

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 3

76-600 SERIES

3-Way Diversion Stainless Steel Ball Valve

Female NPT Thread, 800 CWP (psig), Cold Non-Shock.



FEATURES

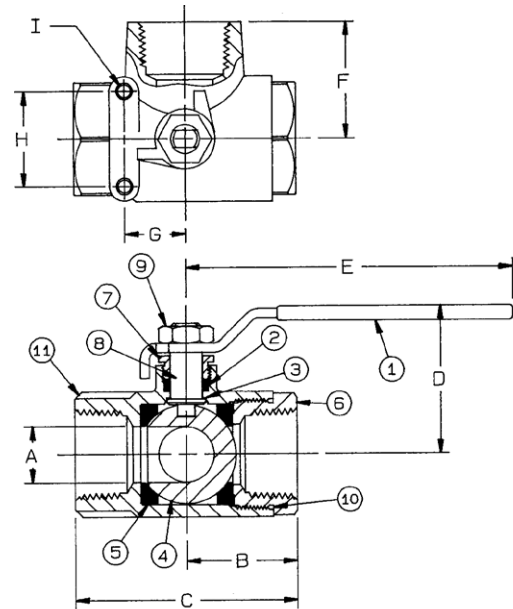
- Reinforced seats
- Meets NACE MR0175 (2000) & MR0103 (2012)
- Blow-out-proof stem design
- Adjustable packing gland
- Investment cast body

OPTIONS AVAILABLE: (More information in Section J)

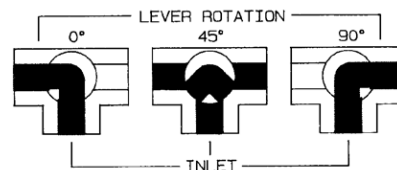
(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-02-	Stem Grounded	1/4" to 2"
-04-	2.25" CS Stem Extension	1/4" to 2"
-21-	UHMWPE Seats (Non-PTFE)	1/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 2"
-49-	Assembled Dry	1/4" to 2"
-50-	2.25" CS Locking Stem Extension	1/4" to 2"
-56-	Multifill Seats & Packing	1/4" to 2"
-57-	Oxygen Cleaned	1/4" to 2"
-60-	Grounded Ball & Stem	1/4" to 2"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	304 SS w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	A276-316
5 Seat (2)	RPTFE
6 Retainer	A276-316 (1/4" to 1") A351-CF8M (1.5" to 2")
7 Gland nut	A276-316
8 Stem	A276-316
9 Lever nut	18-8 SS
10 Body seal (1.5" to 2")	PTFE
11 Body	A351-CF8M



FLOW PATTERN



NOTE: Open port pressure must exceed Closed port pressure.

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	WT.
76-601-01	1/4"	0.437	1.12	2.32	1.80	3.88	1.18	0.875	1.375	10-24	0.70
76-602-01	3/8"	0.437	1.12	2.32	1.80	3.88	1.18	0.875	1.375	10-24	0.68
76-603-01	1/2"	0.505	1.12	2.32	1.80	3.88	1.18	0.875	1.375	10-24	0.75
76-604-01	3/4"	0.687	1.47	2.97	2.06	4.78	1.50	0.875	1.375	10-24	1.45
76-605-01	1"	0.875	1.60	3.20	2.15	4.78	1.68	0.875	1.375	10-24	1.86
76-607-01	1.5"	1.265	1.99	4.38	3.03	5.43	2.40	0.937	1.500	1/4-20	4.67
76-608-01	2"	1.515	2.75	5.45	3.22	5.43	2.81	0.937	1.500	1/4-20	7.02

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-18, GRAPH NO. 21



2" Full Port 3-Way Diversion Bronze Ball Valve

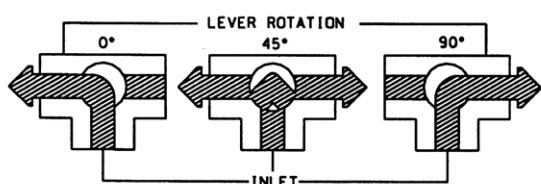
Female NPT Thread, 2" 400 CWP (psig), Cold Non-Shock



FEATURES

- Cast Body & Retainer
- MPTFE seats and stem packing
- Four Bolt ISO Mounting ISO 5211 (F07)
- Blow-out-proof stem design
- Adjustable packing gland
- SS Lever and Nut
- Latch Lock Lever

FLOW PATTERN

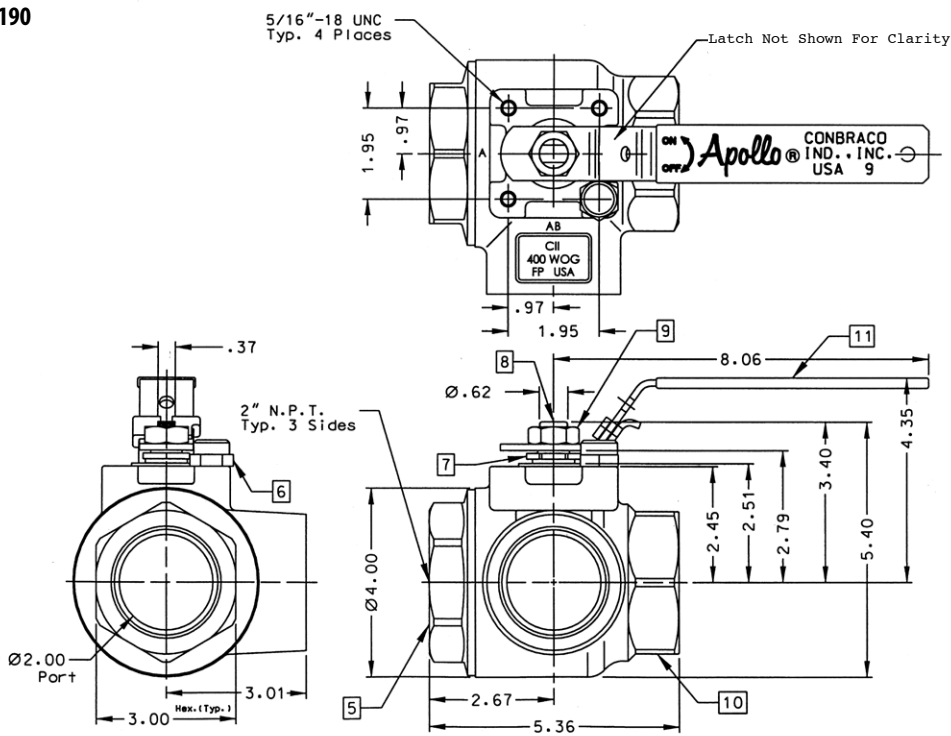


NOTE: Open port pressure must exceed Closed port pressure.

CV = 190

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Stem packing	MPTFE
2	Stem bearing	RPTFE
3	Ball	A276 316 SS
4	Seat (2)	MPTFE
5	Retainer	ASTM B584 C84400
6	Stop	A276 316 SS
7	Gland	ASTM B-16
8	Stem	A276 316 SS
9	Lever Nut	304 SS
10	Body	ASTM B584 C84400
11	Lever and Grip	SS w/Vinyl



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 3

SECTION F – UNION END BALL VALVES

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STAINLESS STEEL		
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SECTION F – UNION END BALL VALVES

70-300 SERIES

Single Union End Bronze Ball Valve

Threaded, Single Union End, 600 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.

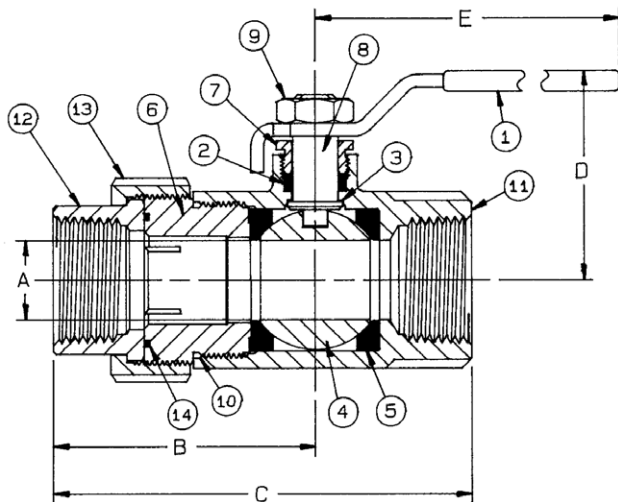


FEATURES

- Reinforced seats
- Fluorocarbon O-Ring sealed single union requires only light torque to seal
- Blow-out-proof stem design
- Adjustable packing gland

VARIATIONS AVAILABLE:

70-340 Series (316 SS Ball & Stem)



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MRPTFE
3 Stem bearing	RPTFE
4 Ball	B16, chrome plated
5 Seat (2)	RPTFE
6 Retainer	B16 (1/4" to 1.5") B584-C84400 (2")
7 Gland nut	B16
8 Stem	B16
9 Lever nut	Steel, zinc plated
10 Body seal (1.25" to 2")	PTFE
11 Body	B584-C84400
12 Tailpiece	B16 or B584-C84400
13 Union nut	B16 or B584-C84400
14 Union seal	Fluorocarbon

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	1/4" to 2"
-04-	2.25" CS Stem Extension	1/4" to 2"
-05-	Plain Ball	1/4" to 2"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 2"
-10-	SS Lever & Nut	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-17-	Rough Chrome Plated - Bronze Valves	1/4" to 2"
-18-	Plain Yellow Grip	1/4" to 2"
-20-	Slot Vented Ball (Bi-Directional) - Bronze Valves	1/4" to 2"
-21-	UHMWPE Seats (Non-PTFE)	1/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 2"
-46-	Latch-Lock Lever - Lock in Closed Position Only	1/4" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 2"
-50-	2.25" CS Locking Stem Extension	1/4" to 2"
-56-	Multifill Seats & Packing	1/4" to 2"
-57-	Oxygen Cleaned	1/4" to 2"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Grounded Ball & Stem	1/4" to 2"
-63-	NPT x Solder/Socket Weld	3/8" to 2"
-92-	Balancing Stop	1/4" to 2"
-94-	2.25" CS Stem Extension and Balancing Stop	1/4" to 2"

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
70-301-01	1/4"	0.37	1.90	2.93	1.75	3.87	0.86
70-302-01	3/8"	0.37	1.90	2.93	1.75	3.87	0.84
70-303-01	1/2"	0.50	2.00	3.09	1.75	3.87	0.99
70-304-01	3/4"	0.68	2.46	3.96	2.12	4.87	1.91
70-305-01	1"	0.87	2.78	4.46	2.25	4.87	2.42
70-306-01	1.25"	1.00	2.68	4.68	2.62	5.50	4.27
70-307-01	1.5"	1.25	2.87	5.06	3.05	8.00	5.82
70-308-01	2"	1.50	3.25	5.59	3.24	8.00	8.55

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4



70-400 SERIES

Single Union End Solder Bronze Ball Valve

Solder Ends, Single Union End, 600 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



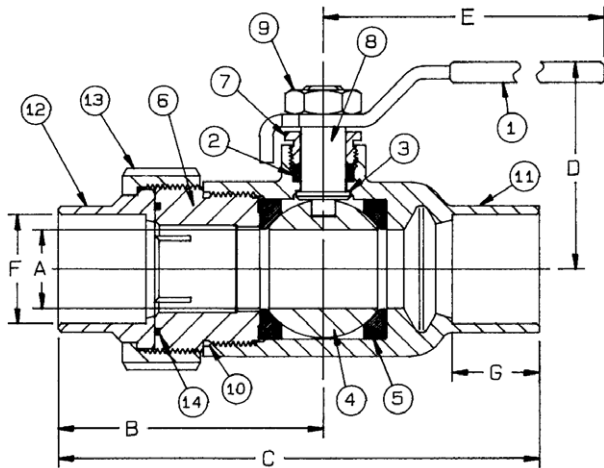
FEATURES

- Reinforced seats
- Fluorocarbon O-Ring sealed single union requires only light torque to seal
- Blow-out-proof stem design
- Adjustable packing gland

VARIATIONS AVAILABLE:

70-440 Series (316 SS Ball & Stem)

The 70-400 is designed to be soft soldered into lines without disassembly. This allows a tested valve to be installed without disturbing the seats and seals in any way. Soldering temperature not to exceed 500°F.



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	B16, chrome plated
5 Seat (2)	RPTFE
6 Retainer	B16 or B584-C84400
7 Gland nut	B16
8 Stem	B16
9 Lever nut	Steel, zinc plated
10 Body seal (1.25" to 2")	PTFE
11 Body	B584-C84400
12 Tailpiece	B16 or B584-C84400
13 Union nut	B16 or B584-C84400
14 Union seal	Fluorocarbon

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	3/8" to 2"
-04-	2.25" CS Stem Extension	3/8" to 2"
-05-	Plain Ball	3/8" to 2"
-07-	Steel Tee Handle	3/8" to 2"
-08-	90° Reversed Stem	3/8" to 2"
-10-	SS Lever & Nut	3/8" to 2"
-14-	Side Vented Ball (Uni-Directional)	3/8" to 2"
-15-	Wheel Handle, Steel	3/8" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-17-	Rough Chrome Plated - Bronze Valves	3/8" to 2"
-18-	Plain Yellow Grip	3/8" to 2"
-20-	Slot Vented Ball (Bi-Directional) - Bronze Valves	3/8" to 2"
-21-	UHMWPE Seats (Non-PTFE)	3/8" to 2"
-24-	Graphite Packing	3/8" to 2"
-27-	SS Latch-Lock Lever & Nut	3/8" to 2"
-30-	Cam-Lock and Grounded	3/8" to 2"
-32-	SS Tee Handle & Nut	3/8" to 2"
-35-	PTFE Trim	3/8" to 2"
-45-	Less Lever & Nut	3/8" to 2"
-46-	Latch-Lock Lever - Lock in Closed Position Only	3/8" to 2"
-48-	SS Oval Handle (No Latch) & Nut	3/8" to 2"
-49-	Assembled Dry	3/8" to 2"
-50-	2.25" CS Locking Stem Extension	3/8" to 2"
-56-	Multifill Seats & Packing	3/8" to 2"
-57-	Oxygen Cleaned	3/8" to 2"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Grounded Ball & Stem	3/8" to 2"
-63-	NPT x Solder/Socket Weld	3/8" to 2"
-92-	Balancing Stop	3/8" to 2"
-94-	2.25" CS Stem Extension and Balancing Stop	3/8" to 2"

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	WT.
70-402-01	3/8"	0.37	1.81	3.09	1.75	3.87	0.503	0.37	0.85
70-403-01	1/2"	0.50	2.00	3.43	1.75	3.87	0.628	0.50	1.02
70-404-01	3/4"	0.68	2.62	4.56	2.06	4.78	0.878	0.75	1.93
70-405-01	1"	0.87	2.81	5.06	2.25	4.78	1.129	0.90	2.42
70-406-01	1.25"	1.00	2.87	5.18	2.62	5.50	1.378	0.96	4.11
70-407-01	1.5"	1.25	2.92	5.53	3.10	8.00	1.629	1.09	5.44
70-408-01	2"	1.50	3.50	6.75	3.24	8.00	2.129	1.34	7.77

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

73-300 SERIES

Carbon Steel Double Union End Ball Valve

Threaded, 3000 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Heavy duty quarter turn lever
- Reinforced seats and seals
- Steel barstock design
- Easy installation and maintenance
- Blow-out-proof stem design
- Adjustable packing gland
- Zinc phosphate corrosion protection

VARIATIONS AVAILABLE:

73-340 Series (316 SS Ball & Stem)

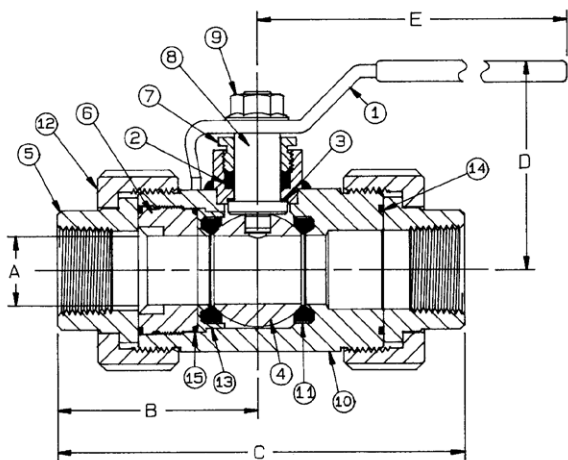
UL LISTINGS @ 250 PSIG MAX.

- Guide YRPV: Gas shutoff valve for use with natural and manufactured gases.
- Guide YSDT: LP gas shutoff valve.
- Guide YRBX: Flammable liquid shutoff valve.

Note: Listings apply ONLY to the standard -01 valves.

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01	BSPT (Tapered) Thread Connection	1/4" to 2"
-02-	Stem Grounded	1/4" to 2"
-07-	Steel Tee Handle	1/4" to 1.5"
-08-	90° Reversed Stem	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 1"
-18-	Plain Yellow Grip	1/4" to 2"
-19-	Lock Plate	1/4" to 2"
-21-	UHMWPE Seats (Non-PTFE)	1/4" to 2"
-22-	Viton Union Seals	1/4" to 2"
-29-	Graphite Packing & Seals	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 2"
-60-	Grounded Ball & Stem	1/4" to 2"
-63-	Threaded x Socket Weld	1/2" to 2"
-64-	250# Steam Trim	1/4" to 2"



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Stem packing	RPTFE
3	Stem bearing	RPTFE
4	Ball	ASTM A276, Type 316 Stainless Steel
5	Tailpiece (2)	A108-CS
6	Retainer	A108-CS
7	Gland nut	A108-CS
8	Stem	ASTM A108, CS, zinc phosphate finish or ASTM A276, Type 316 Stainless Steel
9	Lever nut	Steel, zinc plated
10	Body	A108-CS
11	Seat (2)	RPTFE
12	Union nut (2)	A108-CS
13	Seat holder	A108-CS
14	Union seal (2)	RPTFE
15	Retainer seal	RPTFE

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
73-301-01	1/4"	0.43	2.50	5.00	2.50	5.62	3.51
73-302-01	3/8"	0.57	2.50	5.00	2.50	5.62	3.45
73-303-01	1/2"	0.62	2.50	5.00	2.50	5.62	3.35
73-304-01	3/4"	0.81	2.71	5.31	2.62	5.62	4.48
73-305-01	1"	1.00	2.96	6.06	3.12	6.62	7.04
73-306-01	1.25"	1.25	2.87	6.12	3.43	8.00	9.96
73-307-01	1.5"	1.50	3.46	7.12	3.56	8.00	14.83
73-308-01	2"	1.75	3.75	7.50	4.18	9.00	20.50

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-15, GRAPH NO. 15



73-400 SERIES

Carbon Steel Double Union End Socket Weld Ball Valve

Socket Weld End, 3000 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Heavy duty quarter turn lever
- Reinforced seats and seals
- Steel barstock design
- Easy installation and maintenance
- Blow-out-proof stem design
- Adjustable packing gland
- Zinc phosphate corrosion protection

VARIATIONS AVAILABLE:

73-440 Series (316 SS Ball & Stem)

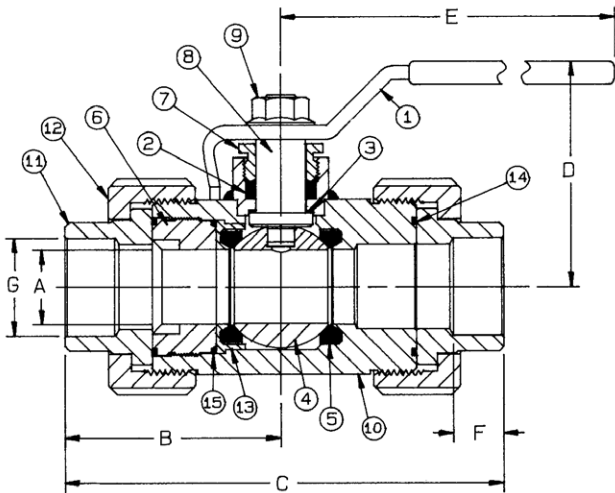
UL LISTINGS @ 250 PSIG MAX.

- Guide YRPV: Gas shutoff valve for use with natural and manufactured gases.
- Guide YSDT: LP gas shutoff valve.
- Guide YRBX: Flammable liquid shutoff valve.

Note: Listings apply ONLY to the standard -01 valves.

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	1/2" to 2"
-07-	Steel Tee Handle	1/2" to 1.5"
-08-	90° Reversed Stem	1/2" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/2" to 2"
-15-	Wheel Handle, Steel	1/2" to 1"
-18-	Plain Yellow Grip	1/2" to 2"
-19-	Lock Plate	1/2" to 2"
-21-	UHMWPE Trim (non-PTFE)	1/2" to 2"
-22-	Viton Union Seals	1/2" to 2"
-29-	Graphite Packing & Seals	1/2" to 2"
-45-	Less Lever & Nut	1/2" to 2"
-60-	Grounded Ball & Stem	1/2" to 2"
-64-	250# Steam Trim	1/2" to 2"



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	RPTFE
3 Stem bearing	RPTFE
4 Ball	ASTM A276, Type 316 Stainless Steel
5 Seat (2)	RPTFE
6 Retainer	A108-CS
7 Gland nut	A108-CS
8 Stem	ASTM A108, CS, zinc phosphate finish or ASTM A276, Type 316 Stainless Steel
9 Lever nut	Steel, zinc plated
10 Body	A108-CS
11 Tail piece (2)	A108-1018
12 Union nut (2)	A108-CS
13 Seat holder	A108-CS
14 Union seal (2)	RPTFE
15 Retainer seal	RPTFE

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-15, GRAPH NO. 15

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	WT.
73-403-01	1/2"	0.62	2.50	5.00	2.50	5.62	0.43	0.855	3.35
73-404-01	3/4"	0.81	2.71	5.31	2.62	5.62	0.56	1.065	4.48
73-405-01	1"	1.00	2.93	6.06	3.12	6.62	0.68	1.330	7.04
73-406-01	1.25"	1.25	2.87	6.12	3.43	8.00	0.81	1.675	9.96
73-407-01	1.5"	1.50	3.46	7.12	3.56	8.00	0.81	1.915	14.83
73-408-01	2"	1.75	3.75	7.50	4.18	9.00	1.06	2.406	20.50

76-300 SERIES

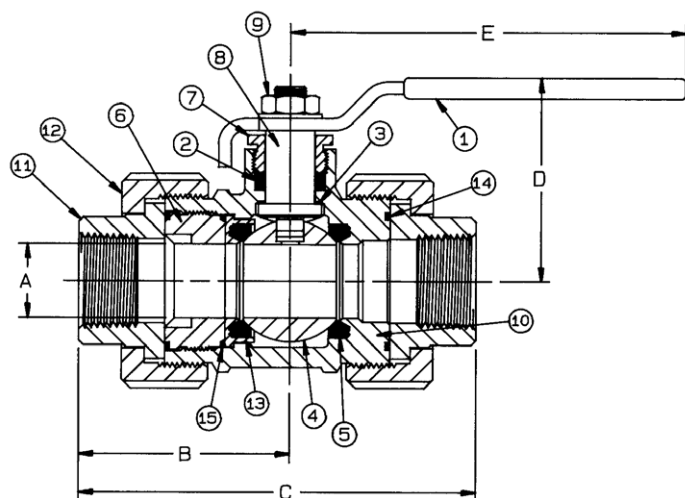
Double Union End Stainless Steel Ball Valve

Threaded, 1/2" to 1" 2000 CWP (psig), 1.25" to 2" 1500 CWP (psig). Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Heavy duty quarter turn handles
- Reinforced seats and seals
- Blow-out-proof stem design
- Adjustable packing gland



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	304 SS w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	A276-316
5 Seat (2)	RPTFE
6 Retainer	A276-316
7 Gland nut	A276-316
8 Stem	A276-316
9 Lever nut	18-8 SS
10 Body	A351-CF8M
11 Tailpiece (2)	A276-316
12 Union nut (2)	A108-CS
13 Seat holder	A276-316
14 Union seal (2)	RPTFE
15 Retainer seal	RPTFE

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
76-303-01	1/2"	0.62	2.27	4.33	2.12	4.87	2.88
76-304-01	3/4"	0.81	2.46	4.51	2.31	4.87	3.81
76-305-01	1"	1.00	2.89	5.45	2.75	5.50	5.98
76-306-01	1.25"	1.25	2.88	5.32	2.97	5.50	8.47
76-307-01	1.5"	1.50	3.43	6.43	3.39	7.87	12.61
76-308-01	2"	1.75	3.75	6.87	4.12	9.87	16.88

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/2" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/2" to 2"
-02-	Stem Grounded	1/2" to 2"
-04-	2.25" CS Stem Extension	1/2" to 1.5"
-07-	Steel Tee Handle	1/2" to 1.5"
-08-	90° Reversed Stem	1/2" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/2" to 2"
-15-	Wheel Handle, Steel	1/2" to 1.5"
-18-	Plain Yellow Grip	1/2" to 2"
-22-	Viton Union Seals	1/2" to 2"
-27-	SS Latch-Lock Lever & Nut	1/2" to 1.5"
-29-	Graphite Packing & Seals	1/2" to 2"
-32-	SS Tee Handle & Nut	1/2" to 1.5"
-45-	Less Lever & Nut	1/2" to 2"
-46-	Latch-Lock Lever - Lock in Closed Position Only	1/2" to 1.5"
-49-	Assembled Dry	1/2" to 2"
-57-	Oxygen Cleaned	1/2" to 2"
-60-	Grounded Ball & Stem	1/2" to 2"
-63-	Threaded Socket Weld	1/2" to 2"
-64-	250# Steam Trim	1/2" to 2"

**FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-14, GRAPH NO. 14
(1/2" TO 1") REFER TO PAGE M-13, GRAPH NO.12 (1.25" TO 2")**

76-400 SERIES

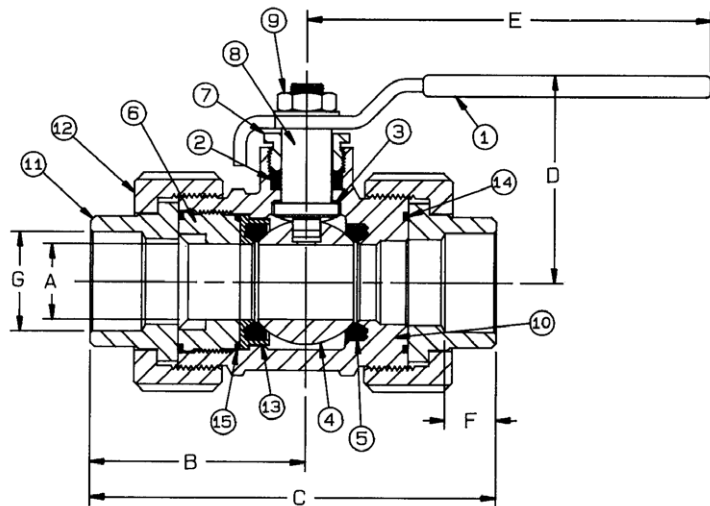
Stainless Steel Double Union End Socket Weld Ball Valve

Socket Weld, 1/2" to 1" 2000 CWP (psig), 1.25" to 2" 1500 CWP (psig). Cold Non-Shock.
150 psig Saturated Steam, Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Heavy duty quarter turn handles
- Reinforced seats and seals
- Blow-out-proof stem design
- Adjustable packing gland



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	1/2" to 2"
-04-	2.25" CS Stem Extension	1/2" to 1.5"
-07-	Steel Tee Handle	1/2" to 1.5"
-08-	90° Reversed Stem	1/2" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/2" to 2"
-15-	Wheel Handle, Steel	1/2" to 1.5"
-18-	Plain Yellow Grip	1/2" to 2"
-22-	Viton Union Seals	1/2" to 2"
-27-	SS Latch-Lock Lever & Nut	1/2" to 1.5"
-29-	Graphite Packing & Seals	1/2" to 2"
-32-	SS Tee Handle & Nut	1/2" to 2"
-45-	Less Lever & Nut	1/2" to 2"
-46-	Latch-Lock Lever - Lock in Closed Position Only	1/2" to 1.5"
-49-	Assembled Dry	1/2" to 2"
-57-	Oxygen Cleaned	1/2" to 2"
-60-	Grounded Ball & Stem	1/2" to 2"
-64-	250# Steam Trim	1/2" to 2"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	304 SS w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	A276-316
5 Seat (2)	RPTFE
6 Retainer	A276-316
7 Gland nut	A276-316
8 Stem	A276-316
9 Lever nut	18-8 SS
10 Body	A351-CF8M
11 Tailpiece (2)	A276-316
12 Union nut (2)	A108-CS
13 Seat holder	A276-316
14 Union seal (2)	RPTFE
15 Retainer seal	RPTFE

**FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-14, GRAPH NO. 14
(1/2" TO 1") REFER TO PAGE M-13, GRAPH NO.12 (1.25" TO 2")**

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	WT.
76-403-01	1/2"	0.62	2.27	4.33	2.12	4.87	0.43	0.855	2.88
76-404-01	3/4"	0.81	2.46	4.51	2.31	4.87	0.56	1.065	3.81
76-405-01	1"	1.00	2.89	5.45	2.75	5.50	0.68	1.330	5.98
76-406-01	1.25"	1.25	2.88	5.32	2.97	5.50	0.81	1.675	8.47
76-407-01	1.5"	1.50	3.43	6.43	3.39	7.87	0.87	1.915	12.61
76-408-01	2"	1.75	3.75	6.87	4.12	9.87	1.06	2.406	16.88

SECTION G – STEAM PREP BALL VALVES

Table of Contents

FEATURES

- These Valves are Recommended for Saturated Steam to 250 psig
- 316 SS Ball and Stem
- Multifill Seats
- Multifill Stuffing Box Ring
- Valves with "64" Suffix Include Yellow Vinyl Grip with Distinctive Red Lettering



SERIES	DESCRIPTION	PAGE
BRONZE		
70-140-64 Series	Threaded Bronze	A-3
70B-140 Series	Threaded ASME B31.1 Power Piping Bronze Ball Valve	A-5
71-140-64 Series	Threaded Bronze with Mounting Pad	A-9
CARBON STEEL		
72-140-64 Series	Threaded High Pressure Carbon Steel	A-11
73A-140-64 Series	Threaded A105 Carbon Steel	A-13
73-340-64 Series	Threaded Double Union End Carbon Steel	F-5
73-440-64 Series	Socket Weld Double Union End Carbon Steel	F-6
89-140-64 Series	Threaded Carbon Steel with Mounting Pad	A-35
STAINLESS STEEL		
76-100-64 Series	Threaded Stainless Steel with Mounting Pad	A-14-16
76-300-64 Series	Threaded Double Union End Stainless Steel	F-7
76-400-64 Series	Socket Weld Double Union End Stainless Steel	F-8

SECTION G – STEAM PREP BALL VALVES

SECTION H – SPECIALTY BALL VALVES

Table of Contents

SERIES	DESCRIPTION	PAGE
BRONZE		
7K-100 Series	Threaded Full Port Bronze with Drain	H-5
71-500 Series	Threaded Bronze Spring Return Handle	H-6
75-100 Series	Threaded Bronze Pad Locking Valve	H-8
7K-100-SV Series	Threaded Full Port Bronze with Safety Vent (W/Threaded Port)	H-10
77-100-SV Series	Threaded Bronze Full Port with Safety Vent	H-11
78-124 & 78-125	Threaded Bronze 5-Port Fuel Selector	H-12
78-248, 250, 256, 438	Threaded Bronze Surface Mount	H-13
78-257 Thru 78-267	M x F Threaded Brass and Bronze Instrumentation	H-14
78-621 Thru 78-625	Threaded Bronze Irrigation	H-15
78-664 Thru 78-962	Threaded Bronze with Center Drain	H-16
78-668	3/4" Solder End Bronze Purge and Drain	H-17
95-100 Series	Threaded Full Port Bronze Stop and Drain	H-19
95-200 Series	Solder End Full Port Bronze Stop and Drain	H-20
82-200 Special	Male Brazed Extensions	H-21
82-200 Special	Female Brazed Extensions	H-22
CARBON STEEL		
7A-130-26 Series	Threaded Dry Chlorine Carbon Steel with Ni-Cu Ball & Stem	H-3
89-500 Series	Threaded Carbon Steel Spring Return Handle	H-18
STAINLESS STEEL		
7H-800 Series	M x F Threaded Full Port Stainless Steel	H-4
76-500 Series	Threaded Stainless Steel Spring Return Handle	H-9
NICKEL		
74-100 Series	Threaded Chemical Resistant Nickel	H-7

(continued on next page)

SECTION H – SPECIALTY BALL VALVES

Table of Contents (continued)

SERIES	DESCRIPTION	PAGE
UL LISTED BALL VALVES		
<u>BRONZE/BRASS</u>		
77C-100-UL Series	Bronze Full Port Ball Valve For Trim & Drain	H-25
77C-200-UL Series	Bronze Full Port Ball Valve For Trim & Drain	H-26
77G-100-UL Series	Bronze Full Port Fuel Shut-Off Valve	H-27
79-700 Series	Solder End Brass Full Port Refrigerant	H-28
80-100 Series	Threaded Bronze Gas Shut-off	H-29
90-100 Series	Threaded Bronze Unibody	H-30
<u>CARBON STEEL</u>		
73-300 Series	Carbon Steel Double Union End Ball Valve	H-23
73-400 Series	Socket Weld Carbon Steel, Double Union End	H-24
489-100 Series	Threaded Cast Carbon Steel	H-31
87A/88A Series	ASME 150 & 300 Flanged	D-4

7A-130-26 SERIES

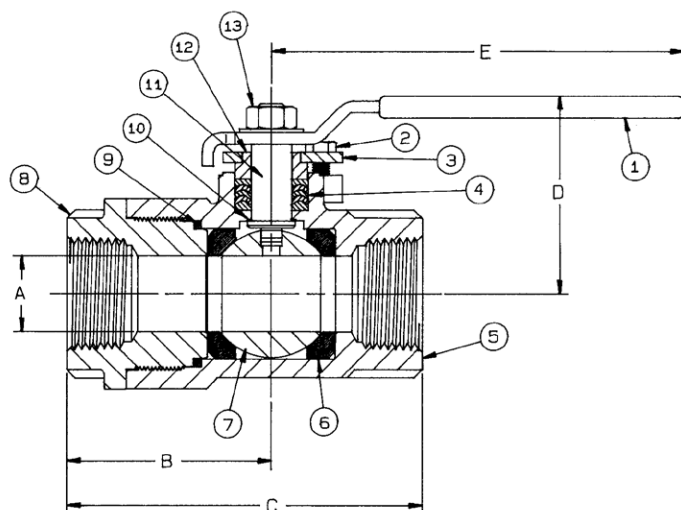
Carbon Steel Dry Chlorine Ball Valve with Ni-Cu Ball and Stem

Female NPT Thread. 400 CWP (psig), Cold Non-Shock.
For Use With Dry Chlorine Gas and Dry Liquid.
Complies With Recommendations of Chlorine Institute Pamphlet No. 6.
MSS SP-110 compliant.



FEATURES

- Chevron style stem packing
- Ni-Cu ball and stem
- Investment Cast Parts
- Zinc phosphate corrosion protection
- Blow-out-proof stem design
- Bolted, adjustable packing gland
- Vented ball



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	304 SS w/vinyl
2	Bolt (2)	Zinc Plated Steel
3	Gland plate	304 SS
4	Packing set	PTFE, Chevron style
5	Body	A216-WCB
6	Seats (2)	RPTFE
7	Ball	B164
8	Retainer	A216-WCB
9	Body seal	RPTFE
10	Stem bearing	RPTFE
11	Stem	B164
12	Packing gland	A276-316
13	Lever nut	18-8 SS

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
7A-131-26	1/4"	0.43	1.56	2.75	1.93	3.87	1.25
7A-132-26	3/8"	0.50	1.56	2.75	1.93	3.87	1.21
7A-133-26	1/2"	0.50	1.56	2.75	1.93	3.87	1.14
7A-134-26	3/4"	0.68	2.00	3.50	2.31	4.87	2.11
7A-135-26	1"	0.87	2.37	4.12	2.43	4.87	2.94
7A-136-26	1.25"	1.00	2.24	4.24	3.00	5.50	4.40
7A-137-26	1.5"	1.25	2.65	5.13	3.38	8.00	7.04
7A-138-26	2"	1.50	3.25	6.00	3.67	8.00	10.86

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-16, GRAPH NO. 17

7H-800 SERIES

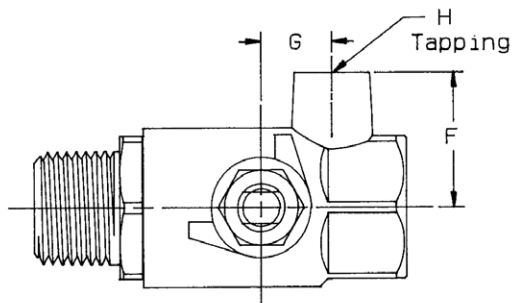
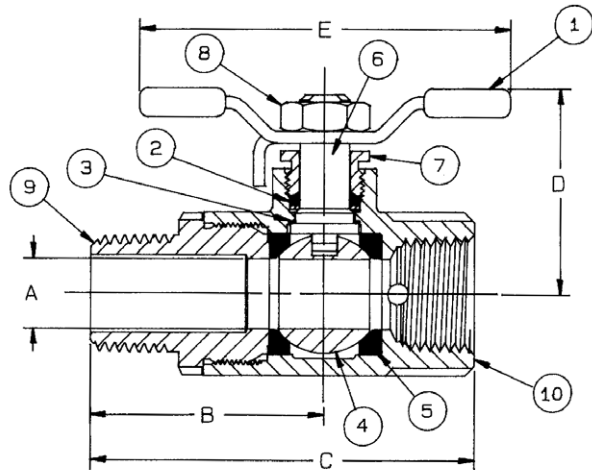
M x F Stainless Steel Full Port Hydro Ball Valve

Male x Female NPT Thread, 800 CWP (psig), Cold Non-Shock.
125 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- 316 SS ball & stem
- MPTFE packing
- PTFE seats
- Blow-out-proof stem design
- Adjustable packing gland
- Threaded drain port



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-31-	7H Series w/Boss NOT Drilled & Tapped	1/4" to 1"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	T-handle & grip	SS
2	Stem packing	MPTFE
3	Stem bearing	RPTFE
4	Ball	A276-316
5	Seat (2)	PTFE
6	Stem	A276-316
7	Gland screw	A276-316
8	Lever nut	304 SS
9	Retainer	A276-316
10	Body	A351-CF8M

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	WT.
7H-801-01	1/4"	0.37	1.47	2.46	1.39	2.56	0.93	0.53	1/8 NPT	0.65
7H-802-01	3/8"	0.37	1.55	2.54	1.39	2.56	0.93	0.53	1/8 NPT	0.62
7H-803-01	1/2"	0.50	1.79	2.83	1.45	2.56	1.00	0.53	1/8 NPT	0.73
7H-804-01	3/4"	0.75	2.01	3.42	2.08	3.25	1.01	0.75	1/8 NPT	0.86
7H-805-01	1"	1.00	2.39	4.17	2.38	3.93	1.12	0.94	1/8 NPT	1.65

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-18, GRAPH NO. 21

7K-100 SERIES

Bronze Full Port Ball Valve with Safety Vent

Female NPT Thread with Female NPT threaded drain port.
Recommended for water or air services.
Rated +50°F to 200°F, 0-125 psig.



FEATURES

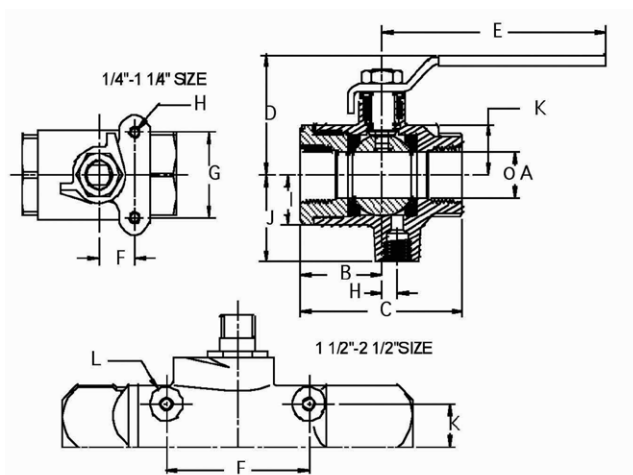
- Adjustable packing
- Blow-out-proof stem design
- RPTFE seats and stuffing box ring
- Chromium plated ball
- Mounting pad for easy actuator mounting

VARIATIONS AVAILABLE:

7K-100	Standard
7K-150	Balancing Stop
7K-190	Locked Retainer

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	1/4" to 2.5"
-04-	2.25" CS Stem Extension	1/4" to 2.5"
-07-	Steel Tee Handle	1/4" to 1.25"
-08-	90° Reversed Stem	1/4" to 2.5"
-10-	SS Lever & Nut	1/4" to 2.5"
-15-	Wheel Handle, Steel	1/4" to 1.25"
-16-	Chain Lever, Vertical	3/4" to 2.5"
-17-	Rough Chrome Plated	1/4" to 2.5"
-18-	Plain Yellow Grip	1/4" to 2.5"
-24-	Graphite Packing	1/4" to 2.5"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2.5"
-30-	Cam-Lock & Grounded	1/4" to 1.25"
-32-	SS Tee Handle & Nut	1/4" to 1.25"
-35-	PTFE Trim	3/4" to 2"
-40-	Cyl-Loc & Grounded	1/4" to 1.25"
-45-	Less Lever and Nut	1/4" to 2.5"
-46-	Latch Lock Lever - Closed Position	1/4" to 2.5"
-47-	SS Oval latch-Lock Handle & Nut	1/4" to 3/4"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 2.5"
-50-	2.25" CS Locking Stem Extension	1/4" to 2.5"
-56-	MPTFE Seats and Packing	1/4" to 2.5"
-57-	Oxygen Cleaned	1/4" to 2.5"
-58-	Chain Lever - Horizontal	3/4" to 2.5"
-60-	Grounded Ball & Stem	1/4" to 2.5"
-61	Grounded Ball & Stem, Assembled dry	1/4" to 2.5"
-63-	NPT x Solder/Socketweld	1/4" to 2.5"



STANDARD MATERIAL LIST

PART	MATERIAL
Lever and grip	Steel, zinc plated w/vinyl
Stem packing	RPTFE
Stem bearing	RPTFE
Ball	B16, chrome plated
Seat (2)	RPTFE
Retainer	B16 (1/4" to 1") B584-C84400 (1.25" to 2.5")
Gland nut	B16
Stem	B16
Lever nut	Steel, zinc plated
Body	B584-C84400

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	WT.
7K-101-01	1/4"	0.43	1.12	2.25	1.81	3.87	0.50	1.12	10-24 NC	0.70
7K-102-01	3/8"	0.50	1.12	2.25	1.81	3.87	0.50	1.12	10-24 NC	0.66
7K-103-01	1/2"	0.50	1.12	2.25	1.81	3.87	0.50	1.12	10-24 NC	0.73
7K-104-01	3/4"	0.81	1.56	3.12	2.12	4.87	0.87	1.37	10-24 NC	1.93
7K-105-01	1"	1.00	1.81	3.62	2.62	5.50	0.93	1.50	1/4-20 NC	3.42
7K-106-01	1.25"	1.25	2.12	4.25	2.87	5.50	0.93	1.50	1/4-20 NC	5.15
7K-107-01	1.5"	1.50	2.37	4.75	3.34	8.00	2.08	3.06	5/16-24 NF	6.81
7K-108-01	2"	2.00	2.65	5.37	3.71	8.00	2.41	3.52	5/16-24 NF	11.85
7K-109-01	2.5"	2.50	3.25	6.50	4.12	8.00	2.75	3.37	1/4-20 NC	17.35

NOTE:

Also consider the 7K with "SV" suffix.
The 7K with "SV" suffix has spring washers that keep the upstream seat in contact with the ball.

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4



71-500 SERIES

Bronze Ball Valve with Spring Return Handle

Female NPT Thread, 600 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Spring return to close (-01)
- Spring return to open (-08)
- All components of lever are SS
- Operating torque is approximately three times standard valve torque
- Reinforced seats
- Blow-out-proof stem design

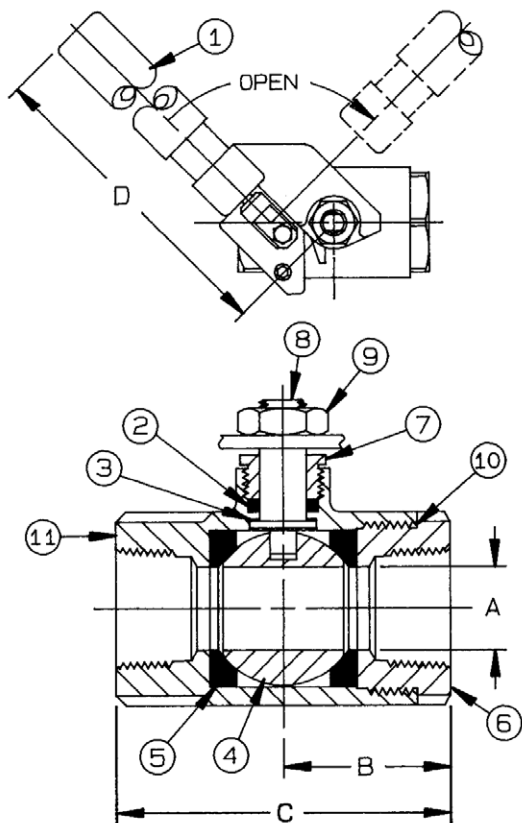
- Adjustable packing gland
- Chromium plated ball

VARIATIONS AVAILABLE:

71-540 Series (316 SS Ball & Stem)
71-590 Series (Pinned Retainer)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-20-	Slot Vented Ball	1/4" to 2"
-21-	UHMWPE Seats (Non-PTFE)	1/4" to 2"
-24-	Graphite Stem Packing	1/4" to 2"
-35-	PTFE Trim	1/4" to 2"
-49-	Assembled Dry	1/4" to 2"
-57-	Oxygen Cleaned	1/4" to 2"



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Handle	SS w/vinyl
2	Stem packing	Multifill PTFE
3	Stem bearing	RPTFE
4	Ball	B16, chrome plated
5	Seat (2)	Multifill PTFE
6	Retainer	B16 (1/4" to 1") B584-C84400 (1.25" to 2")
7	Gland nut	B16
8	Stem	A276-316
9	Lever nut	Steel, zinc plated
10	Body seal	PTFE (1.25" to 2")
11	Body	B584-C84400

PRODUCT NUMBER	SIZE	A	B	C	D	WT.
71-501-01	1/4"	0.43	1.12	2.25	7.00	1.47
71-502-01	3/8"	0.50	1.12	2.25	7.00	1.45
71-503-01	1/2"	0.50	1.12	2.25	7.00	1.35
71-504-01	3/4"	0.68	1.50	3.00	7.00	2.33
71-505-01	1"	0.87	1.68	3.37	7.00	2.59
71-506-01	1.25"	1.00	2.00	4.00	9.00	4.18
71-507-01	1.5"	1.25	2.18	4.37	9.00	5.31
71-508-01	2"	1.50	2.34	4.68	9.00	6.41

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

74-100 SERIES

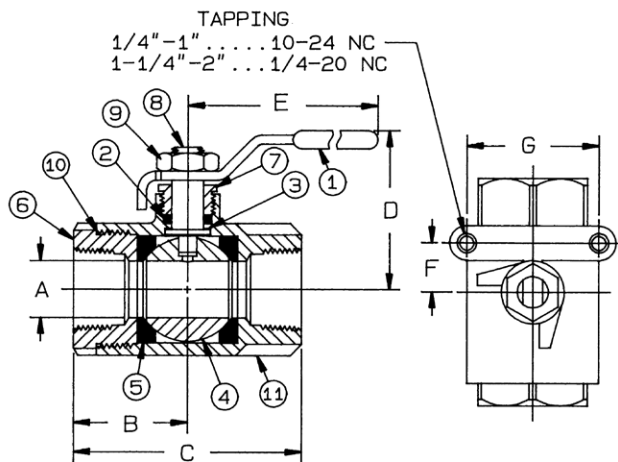
Chemical Resistant Nickel Ball Valve

Female NPT Thread, 800 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.



FEATURES

- Investment cast components
- Reinforced
- SS lever and nut
- Blow-out-proof stem design
- Adjustable packing gland
- API 607 Type Design (Requires "24" suffix)



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	304 SS w/vinyl
2	Stem packing	MPTFE
3	Stem bearing	RPTFE
4	Ball	Nickel 200, ASTM-B162
5	Seat (2)	RPTFE
6	Retainer	Nickel 200, ASTM-B160 (1/2" to 1") Nickel CZ100, ASTM-A494 (1.5" to 2")
7	Gland nut	A276-316
8	Stem	Nickel 200, ASTM-B160
9	Lever nut	18-8 SS
10	Body seal	PTFE (1.5" & 2")
11	Body	Nickel CZ100, ASTM-A494

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/2" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/2" to 2"
-02-	Stem Grounded	1/2" to 2"
-04-	2.25" CS Stem Extension	1/2" to 2"
-07-	Steel Tee Handle	1/2" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/2" to 2"
-15-	Wheel Handle, Steel	1/2" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-18-	Plain Yellow Grip	1/2" to 2"
-21-	UHMWPE Seats (Non-PTFE)	1/2" to 2"
-24-	Graphite Packing	1/2" to 2"
-27-	SS Latch-Lock Lever & Nut	1/2" to 2"
-30-	Cam-Lock and Grounded	1/2" to 2"
-32-	SS Tee Handle & Nut	1/2" to 2"
-35-	PTFE Trim	1/2" to 2"
-45-	Less Lever & Nut	1/2" to 2"
-46-	Latch Lock Lever - Lock Close Only	1/2" to 2"
-48-	SS Oval Handle (No Latch) & Nut	1/2" to 2"
-49-	Assembled Dry	1/2" to 2"
-50-	2.25" CS Locking Stem Extension	1/2" to 2"
-56-	Multifill Seats & Packing	1/2" to 2"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Grounded Ball & Stem	1/2" to 2"

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
74-103-01	1/2"	0.50	1.12	2.25	1.75	3.87	0.58
74-104-01	3/4"	0.68	1.50	3.00	2.12	4.87	1.18
74-105-01	1"	0.87	1.68	3.37	2.25	4.87	1.57
74-107-01	1.5"	1.25	2.18	4.37	3.06	8.00	4.11
74-108-01	2"	1.50	2.34	4.68	3.25	8.00	6.02

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-18, GRAPH NO. 22



75-100 SERIES

Bronze Pad Locking Ball Valve

Female NPT Thread, 600 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

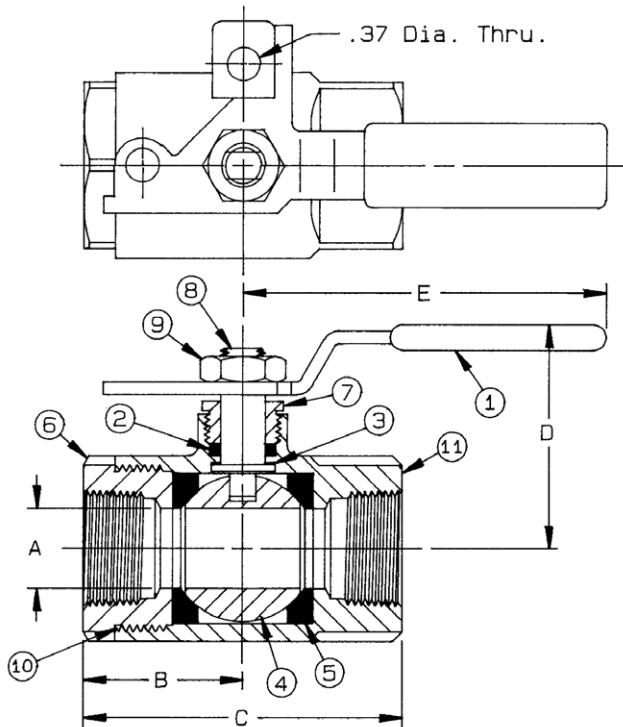
- Reinforced seats
- Blow-out-proof stem design
- May be padlocked in open or closed position with no change of hardware
- Adjustable packing gland

VARIATIONS AVAILABLE:

75-140 Series (316 SS Ball & Stem)
75-190 Series (Pinned Retainer)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-02-	Stem Grounded	1/4" to 2"
-05-	Plain Ball	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 2"
-10-	SS Lever & Nut	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-17-	Rough Chrome Plated - Bronze Valves	1/4" to 2"
-18-	Plain Yellow Grip	1/4" to 2"
-20-	Slot Vented Ball	1/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-41-	Automatic Drain	1/4" to 2"
-49-	Assembled Dry	1/4" to 2"
-57-	Oxygen Cleaned	1/4" to 2"
-60-	Grounded Ball & Stem	1/4" to 2"



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Stem packing	MPTFE
3	Stem bearing	RPTFE
4	Ball	B16, chrome plated
5	Seat (2)	RPTFE
6	Retainer	B16 (1/4" to 1") B584-C84400 (1.25" to 2")
7	Gland nut	B16
8	Stem	B16
9	Lever nut	Steel, zinc plated
10	Body seal	PTFE (1.25" & 2")
11	Body	B584-C84400

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
75-101-01	1/4"	0.43	1.10	2.22	1.74	2.87	0.80
75-102-01	3/8"	0.50	1.10	2.22	1.74	2.87	0.77
75-103-01	1/2"	0.50	1.10	2.22	1.74	2.87	0.70
75-104-01	3/4"	0.87	1.68	3.35	2.20	3.81	2.03
75-105-01	1"	0.87	1.68	3.35	2.20	3.81	1.83
75-106-01	1.25"	1.00	1.98	3.97	2.56	5.50	3.48
75-107-01	1.5"	1.25	2.14	4.31	2.74	5.50	4.23
75-108-01	2"	1.50	2.35	4.67	2.93	5.50	5.69

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

76-500 SERIES

Stainless Steel Ball Valve with Spring Return Handle

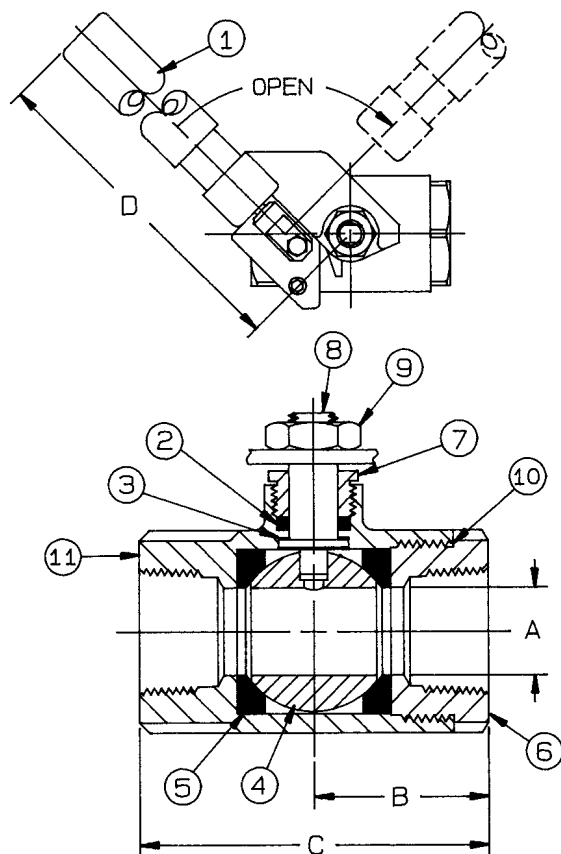
Female NPT Thread, 1/4" to 1" 2000 CWP (psig), 1.25" to 2" 1500 CWP (psig). Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Spring return to close ("01" suffix)
- Spring return to open ("08" suffix)
- Carbon and Graphite Reinforced seats (MPTFE)
- All components of lever are stainless steel
- Operating torque is approximately three times standard valve torque

- Blow-out-proof stem design
- Adjustable packing gland
- Meets NACE MR0175 (2000) & MR0103 (2012)
- Investment cast components



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-21-	UHMWPE Seats (Non-PTFE)	1/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-35-	PTFE Trim	1/4" to 2"
-44-	Seal Welded	1/4" to 2"
-49-	Assembled Dry	1/4" to 2"
-52-	Two Tack Welds	1/4" to 2"
-57-	Oxygen Cleaned	1/4" to 2"
-60-	Grounded Ball & Stem	1/4" to 2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Handle	SS w/vinyl
2	Stem packing	Multifil PTFE (MPTFE)
3	Stem bearing	RPTFE
4	Ball	A276-316
5	Seat (2)	Multifil PTFE (MPTFE)
6	Retainer	A276-316 (1/4" to 1") A351-CF8M (1.25" to 2")
7	Gland nut	A276-316
8	Stem	A276-316
9	Lever nut	18-8 SS
10	Body seal	PTFE (1.25" to 2")
11	Body	A351-CF8M

PRODUCT NUMBER	SIZE	A	B	C	D	WT.
76-501-01A	1/4"	0.37	1.03	2.06	7.00	1.26
76-502-01A	3/8"	0.37	1.03	2.06	7.00	1.25
76-503-01A	1/2"	0.50	1.12	2.25	7.00	1.31
76-504-01A	3/4"	0.68	1.50	3.00	7.00	1.98
76-505-01A	1"	0.87	1.68	3.37	7.00	2.35
76-506-01	1.25"	1.00	2.00	4.00	9.00	3.96
76-507-01	1.5"	1.25	2.18	4.37	9.00	4.78
76-508-01	2"	1.50	2.75	5.50	9.00	6.66

FOR PRESSURE/TEMPERATURE RATINGS:
REFER TO PAGE M-14, GRAPH NO. 14 (1/4" TO 1")
REFER TO PAGE M-13, GRAPH NO. 12 (1.25" TO 2")

7K-100-SV SERIES

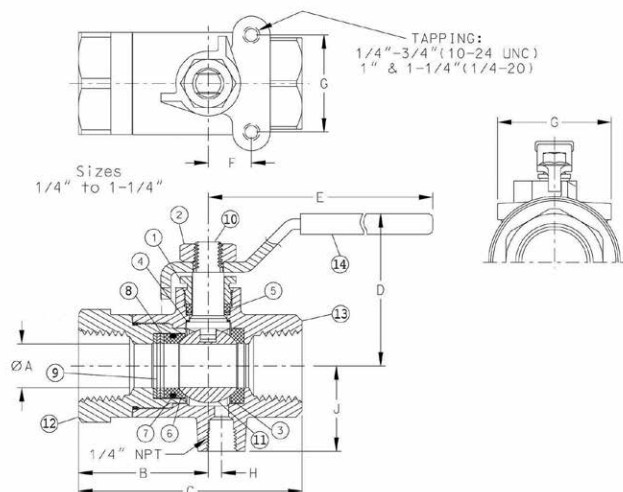
Bronze Full Port Ball Valve with Safety Vent

Female NPT Threaded with Female NPT threaded drain port.
Recommended for water or air services.
Rated 0-200 psig; -20°F to 150°F



FEATURES

- Reinforced seats
- Blow-out-proof stem design
- Downstream venting in closed position
- Adjustable packing gland
- Mounting pad for easy actuator mounting
- Full port for full flow



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Packing Gland	B16
2	Lever nut	Steel, zinc plated
3	Seat	RPTFE
4	Stem bearing	RPTFE
5	Stem packing	RPTFE
6	Seat	RPTFE
7	O-ring	Fluorosilicone
8	Spacer	B16
9	Belleville washers	Stainless Steel
10	Stem	B16
11	Ball	B16, chrome plated
12	Retainer	B16 (1/2" to 1") B584-C84400 (1.25" to 2")
13	Body	B584-C84400
14	Lever/grip	Steel, zinc plated w/vinyl

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	1/2" to 2"
-04-	2.25" CS Stem Extension	1/2" to 2"
-07-	Steel Tee Handle	1/2" to 1.25"
-08-	90° Reversed Stem	1/2" to 2"
-10-	SS Lever & Nut	1/2" to 2"
-15-	Wheel Handle, Steel	1/2" to 1.25"
-16-	Chain Lever - Vertical	3/4" to 2"
-17-	Rough Chrome Plated - Bronze Valves	1/2" to 2"
-18-	Plain Yellow Grip	1/2" to 2"
-24-	Graphite Packing	1/2" to 2"
-27-	SS Latch-Lock Lever & Nut	1/2" to 2"
-30-	Cam-Lock and Grounded	1/2" to 1.25"
-32-	SS Tee Handle & Nut	1/2" to 1.25"
-40-	Cyl-Loc and Grounded	1/2" to 1.25"
-45-	Less Lever & Nut	1/2" to 2"
-46-	Latch-Lock Lever - Lock in Closed Position Only	1/2" to 2"
-47-	SS Latch-Lock Oval Handle & Nut	1/2" to 3/4"
-48-	SS Oval Handle (No Latch) & Nut	1/2" to 2"
-49-	Assembled Dry	1/2" to 2"
-50-	2.25" CS Locking Stem Extension	1/2" to 2"
-57-	Oxygen Cleaned	1/2" to 2"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Grounded Ball & Stem	1/2" to 2"
-61-	Grounded Ball & Stem, Assembled Dry	1/2" to 2"

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	G	WT.
7K-103-SV	1/2"	0.50	1.50	2.59	1.76	3.88	0.50	1.12	0.12	1.25	0.73
7K-104-SV	3/4"	0.81	1.82	3.37	2.16	5.43	0.87	1.37	0.29	1.56	1.93
7K-105-SV	1"	1.00	2.05	3.86	2.69	5.43	0.93	1.50	0.31	1.78	3.42
7K-106-SV	1.25"	1.25	2.37	4.50	2.91	5.43	0.93	1.50	0.37	2.03	5.15
7K-107-SV	1.5"	1.50	2.63	7.78	3.31	7.78	2.08	3.06	0.50	2.21	6.81
7K-108-SV	2"	2.00	3.00	5.69	3.73	7.78	2.40	3.52	0.62	2.68	11.85

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

77-100-SV SERIES

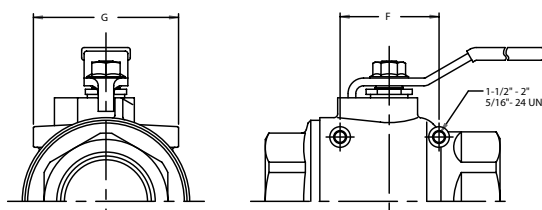
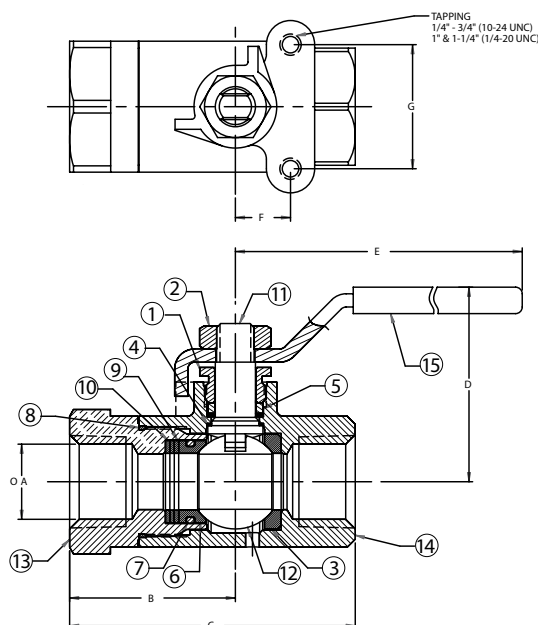
Bronze Full Port Ball Valve with Safety Vent

Female NPT Thread, 0-200 psig, -20°F to 150°F
MSS SP-110 compliant.



FEATURES

- Reinforced seats
- Mounting pad for easy actuator mounting
- Down stream venting in closed position
- Blow-out-proof stem design
- Adjustable packing gland
- Full port for full flow & min. pressure drop



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-02-	Stem Grounded	1/4" to 2"
-04-	2.25" CS Stem Extension	1/4" to 1.25"
-07-	Steel Tee Handle	1/4" to 1.25"
-08-	90° Reversed Stem	1/4" to 2"
-10-	SS Lever & Nut	1/4" to 2"
-15-	Wheel Handle, Steel	1/4" to 1.25"
-16-	Chain Lever - Vertical	3/4" to 2"
-17-	Rough Chrome Plated - Bronze Valves	1/4" to 2"
-18-	Plain Yellow Grip	1/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2"
-30-	Cam-Lock and Grounded	1/4" to 1.25"
-32-	SS Tee Handle & Nut	1/4" to 1.25"
-36-	SS High-Rise Round Handle & Nut	1/4" to 1.25"
-40-	Cyl-Loc and Grounded	1/4" to 1.25"
-45-	Less Lever & Nut	1/4" to 2"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 3/4"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 2"
-50-	2.25" CS Locking Stem Extension	1/4" to 2"
-57-	Oxygen Cleaned	1/4" to 2"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 2"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Packing gland	B16
2 Lever nut	Steel, zinc plated
3 Seat	RPTFE
4 Stem bearing	RPTFE
5 Stem packing	MPTFE
6 Seat	RPTFE
7 O-ring	Fluorosilicone
8 Body seal	PTFE (1.25" to 2")
9 Spacer	B16
10 Belleville washers	SS
11 Stem	B16
12 Ball	B16, chrome plated B16 (1/4" to 1") B584 C84400 (1.25" to 2")
13 Retainer	B584 C84400
14 Body	B584 C84400
15 Lever/grip	Steel, zinc plated w/vinyl

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	WT.
77-101-SV	1/4"	0.43	1.43	2.52	1.76	3.88	0.50	1.12	0.79
77-102-SV	3/8"	0.50	1.60	2.69	1.76	3.88	0.50	1.12	0.75
77-103-SV	1/2"	0.50	1.50	2.59	1.76	3.88	0.50	1.12	0.69
77-104-SV	3/4"	0.81	1.82	3.37	2.16	5.43	0.87	1.37	1.83
77-105-SV	1"	1.00	2.05	3.86	2.69	5.43	0.93	1.50	3.32
77-106-SV	1.25"	1.25	2.37	4.50	2.91	5.43	0.93	1.50	5.05
77-107-SV	1.5"	1.50	2.63	7.78	3.31	7.78	2.08	3.06	6.71
77-108-SV	2"	2.00	3.00	5.69	3.73	7.78	2.40	3.52	11.75

FOR PRESSURE/TEMPERATURE RATINGS,
REFER TO PAGE M-10, GRAPH NO. 4



78-124 & 78-125 SERIES

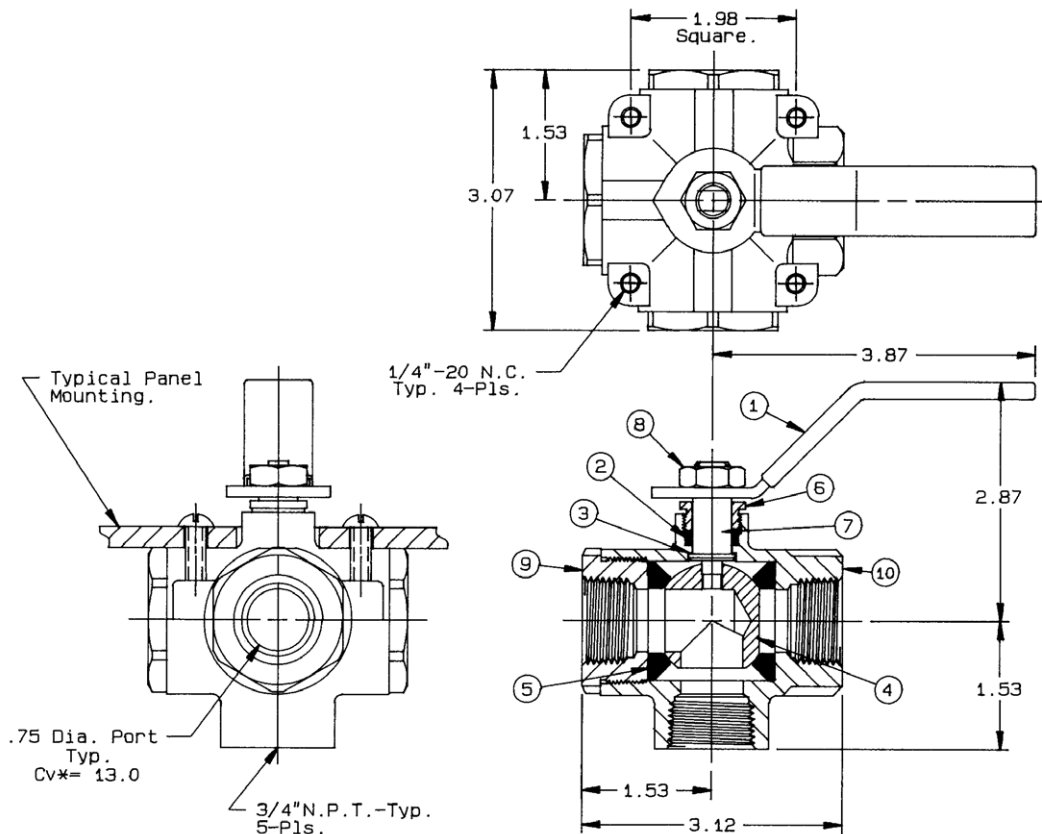
Bronze 5-Port Fuel Selector Ball Valve

Female NPT Thread. 50 CWP (psig).



FEATURES

- SS lever and nut
- Non-lubricated design
- Operation: Four selected inlets feed on common outlet.
Pointer on handle indicates the selected inlet
- Blow-out-proof stem design
- Adjustable packing gland
- PTFE seats



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	304 SS w/vinyl
2	Stem packing	MPTFE
3	Stem bearing	RPTFE
4	Ball	B16, chrome plated
5	Seat (4)	PTFE
6	Gland nut	B16
7	Stem	B16
8	Lever nut	304 SS
9	Retainer (3)	B16
10	Body	B584-C84400

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	WT./100
78-124-01	1/2"	0.50	1.26	2.52	2.27	3.53	1.12	10-24	1.40	106
78-125-01A	3/4"	0.75	1.53	3.12	2.87	3.87	1.53	1/4-20	1.98	264

78-248, 250, 256, 438 SERIES

Bronze Threaded Surface Mount Ball Valve

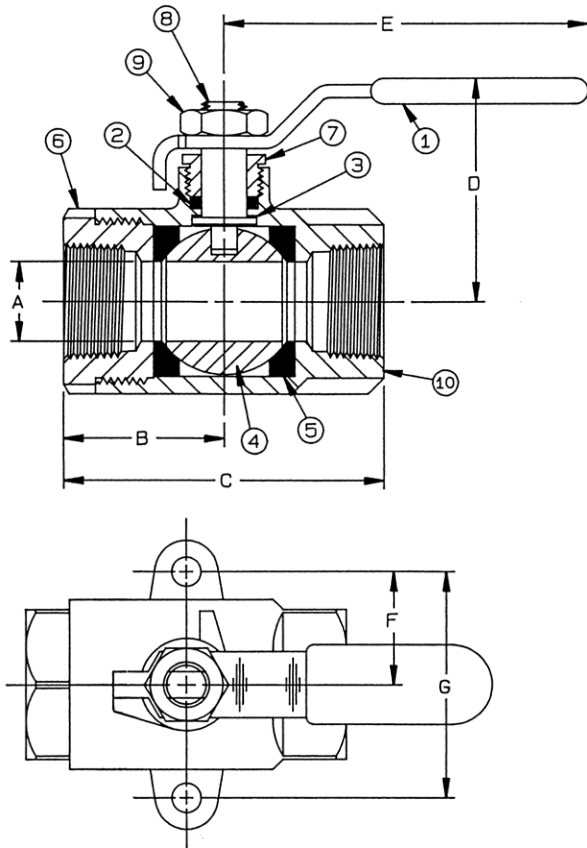
Female NPT Thread, 600 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Two piece body
- Reinforced seats

- Blow-out-proof stem design
- Adjustable packing gland



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 3/4"
-04-	2.25" CS Stem Extension	1/4" to 3/4"
-07-	Steel Tee Handle	1/4" to 3/4"
-10-	SS Lever & Nut	1/4" to 3/4"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 3/4"
-15-	Wheel Handle, Steel	1/4" to 3/4"
-17-	Rough Chrome Plated - Bronze Valves	1/4" to 3/4"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3/4"
-30-	Cam-Lock and Grounded	1/4" to 3/4"
-32-	SS Tee Handle & Nut	1/4" to 3/4"
-35-	PTFE Trim	1/4" to 3/4"
-41-	Automatic Drain (Bronze Valves Only)	1/4" to 3/4"
-56-	Multifill Seats & Packing	1/4" to 3/4"
-57-	Oxygen Cleaned	1/4" to 3/4"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Stem packing	MPTFE
3	Stem bearing	RPTFE
4	Ball	B16, chrome plated
5	Seat (2)	RPTFE
6	Retainer	B16
7	Gland nut	B16
8	Stem	B16
9	Lever nut	Steel, zinc plated
10	Body	B584-C84400

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	WT.
78-248-01	1/4"	0.43	1.12	2.25	1.78	3.87	0.93	1.87	0.68
78-250-01	3/8"	0.50	1.12	2.25	1.78	3.87	0.93	1.87	0.68
78-256-01	1/2"	0.50	1.12	2.25	1.78	3.87	0.93	1.87	0.65
78-438-01	3/4"	0.68	1.50	3.00	2.12	4.87	1.06	2.12	1.40



78-257 THRU 78-267 SERIES

Brass And Bronze Instrumentation Ball Valve

Male x Female NPT Thread. 400 CWP (psig), Cold Non-Shock.
Air & Liquid Service Rating.



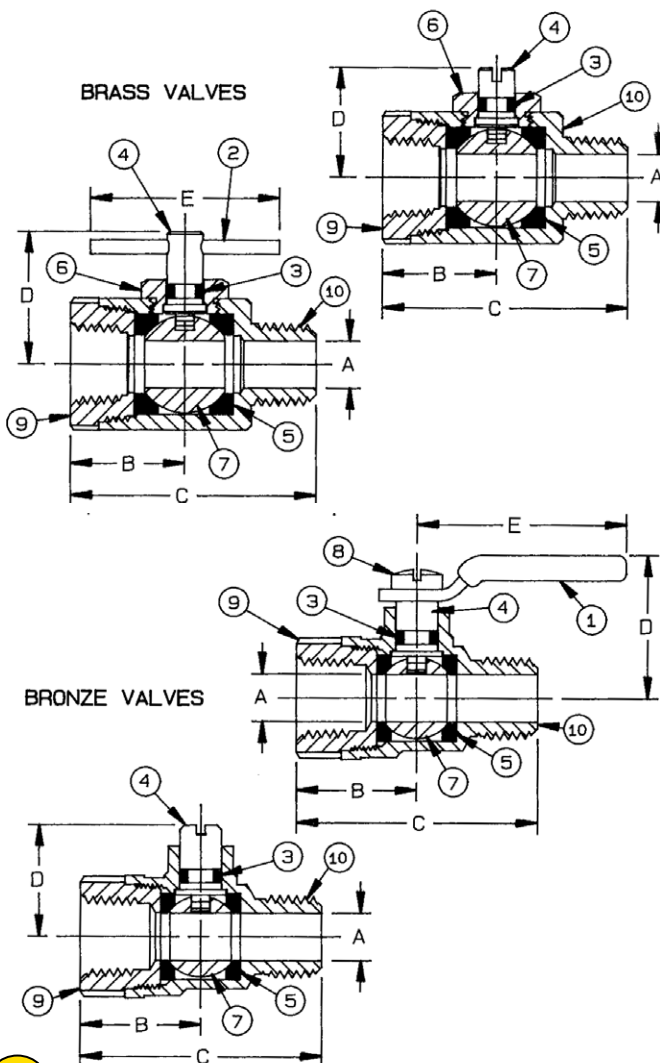
FEATURES

- Micro-finish ball
- Nitrile stem seal
- Optional mixed end fittings available
- Blow-out-proof stem design
- Plated steel tee handle
- PTFE seats
- Compact design

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Drive pin	Steel, zinc plated
3	O-Ring	Nitrile
4	Stem	B16
5	Seat (2)	PTFE
6	Stem boss	B16
7	Ball*	B16
8	Stem screw	Steel, zinc plated
9	Retainer	B16
10	Body	B16 or B584-C84400

* Chrome Plated Ball In Bronze Valves.



TEE HANDLE NUMBER	SIZE	A	B	C	D	E	Cv*	WT.
BRASS INSTRUMENTATION BALL VALVE								
78-260-05	1/8" M x 1/8" F	0.21	0.37	1.43	0.87	1.25	4.0	0.20
78-261-05	1/4" M x 1/4" F	0.31	0.43	1.43	0.87	1.25	5.5	0.19

SCREW SLOT NUMBER	SIZE	A	B	C	D	E	Cv*	WT.
BRASS INSTRUMENTATION BALL VALVE								
78-262-05	1/8" M X 1/8" F	0.21	0.37	1.43	0.75	N/A	4.0	0.20
78-263-05	1/4" M X 1/4" F	0.31	0.43	1.43	0.75	N/A	5.5	0.19

*The Cv factor is the gallons of water per minute that the valve will pass with a 1 psig pressure drop.

SCREW SLOT NUMBER	SIZE	A	B	C	D	E	Cv*	WT.
BRONZE INSTRUMENTATION BALL VALVE								
78-257-01	1/8" M x 1/4" F	0.21	0.80	1.60	0.72	N/A	4.0	0.19
78-258-01	1/4" M x 1/4" F	0.31	0.80	1.60	0.72	N/A	5.5	0.19

LEVER HANDLE NUMBER	SIZE	A	B	C	D	E	Cv*	WT.
BRONZE INSTRUMENTATION BALL VALVE								
78-267-01	1/4" M X 1/4" F	0.25	0.65	1.45	0.93	1.37	5.5	0.20

*The Cv factor is the gallons of water per minute that the valve will pass with a 1 psig pressure drop.

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 3

78-621 SERIES THRU 78-625 SERIES

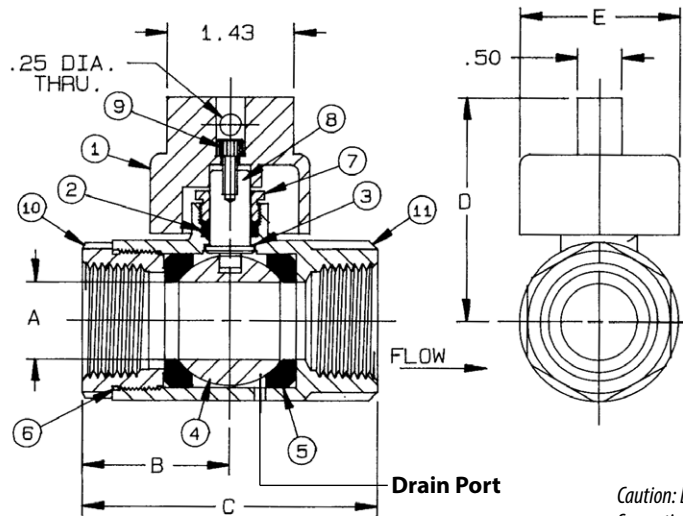
Bronze Irrigation Ball Valve

Female NPT Thread. 600 psig Water, Cold Non-Shock.



FEATURES

- Two piece body
- RPTFE seats and stuffing box ring
- Temperature range: +50°F to +400°F
- Blow-out-proof stem design
- Adjustable packing gland
- Automatic Draining in the Off Position
- SS Underground Curb Stop Handle



Caution: Do not use where drained media could cause damage.
See options section (option -41) for description of Auto-Drain feature.

STANDARD MATERIAL LIST

PART	MATERIAL
1 Head adapter	A351-CF8M
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	B16, chrome plated
5 Seat (2)	RPTFE
6 Body seal	PTFE (1.25" to 2")
7 Gland nut	B16
8 Stem	B16
9 Screw	SS
10 Retainer	B16 (3/4" to 1") B584-C84400 (1.25" to 2")
11 Body	B584-C84400

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
78-621-01	3/4"	0.68	1.47	2.96	2.40	1.81	1.59
78-622-01	1"	0.87	1.66	3.34	2.53	1.81	1.92
78-623-01	1.25"	1.00	1.98	3.97	3.00	2.50	3.57
78-624-01	1.5"	1.25	2.12	4.28	3.18	2.50	4.68
78-625-01	2"	1.50	2.35	4.67	3.37	2.50	6.11

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4



78-664 SERIES THRU 78-962 SERIES

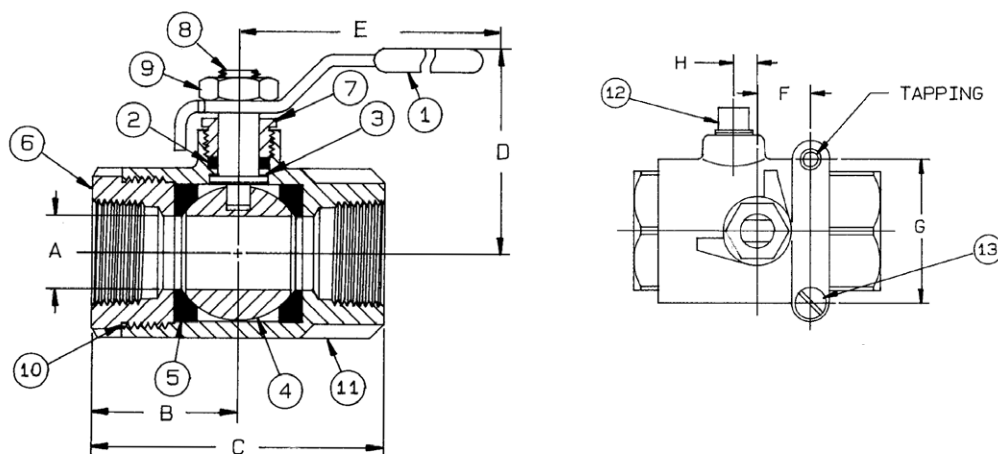
Bronze Ball Valve With Center Drain

Female NPT Thread, 600 CWP (psig), Cold Non-Shock.



FEATURES

- Two piece body
- Reinforced seats
- Mounting pad with bonding screw
- Blow-out-proof stem design
- Adjustable packing gland
- Drainable ball cavity to prevent freeze damage



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	304 SS w/vinyl
2	Stem packing	MPTFE
3	Stem bearing	RPTFE
4	Ball	B16, chrome plated
5	Seat (2)	RPTFE
6	Retainer	B16 (3/4" & 1") B584-C84400 (1.25" to 2")
7	Gland nut	B16
8	Stem	B16
9	Lever nut	SS
10	Body seal	PTFE (1.25" to 2")
11	Body	B584-C84400
12	Drain plug	B16
13	Screw	Brass

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	WT.
78-664-01	3/4"	0.68	1.50	3.00	2.12	4.87	0.87	1.37	0.17	1.53
78-665-01	1"	0.87	1.68	3.37	2.25	4.87	0.87	1.37	0.21	1.86
78-666-01	1.25"	1.00	2.00	4.00	2.62	5.50	0.93	1.50	0.28	3.39
78-667-01	1.5"	1.25	2.18	4.37	3.05	8.00	0.93	1.50	0.40	4.68
78-962-01	2"	1.50	2.34	4.68	3.24	8.00	0.93	1.50	0.45	5.72

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

78-668 SERIES

Bronze Purge And Drain Ball Valve

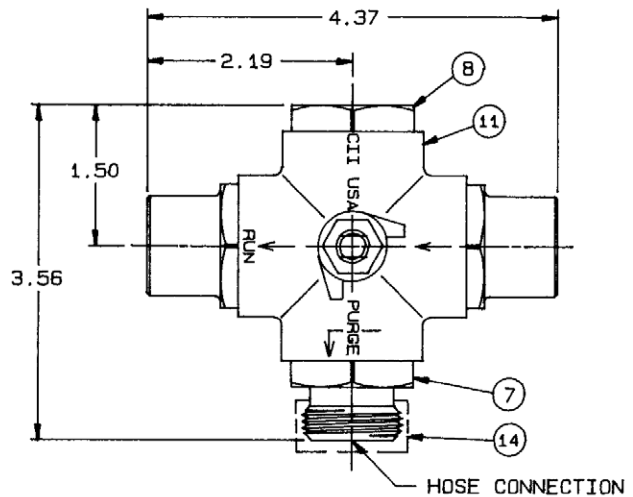
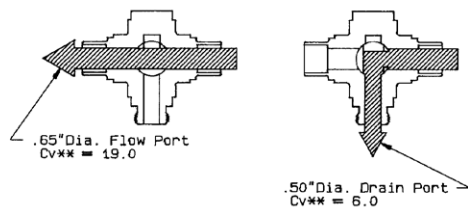
Solder End Flow Port, Hose Connection Drain Port. 600 CWP (psig), Cold Non-Shock.



FEATURES

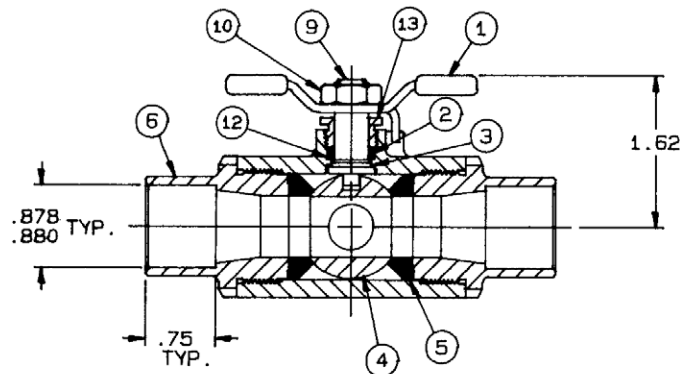
- Chromium plated ball
- Reinforced seats
- Hose thread connection for disposal of drained media
- Blow-out-proof stem design
- Adjustable packing gland
- Furnished with dust cover* and chain

FLOW PATTERN



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	RPTFE
3 Stem bearing	RPTFE
4 Ball	B16, chrome plated
5 Seat (2)	RPTFE
6 Solder Retainer (2)	B16
7 Hose Retainer	B16
8 Port Cap	B16
9 Stem	B16
10 Lever nut	Steel, zinc plated
11 Body	B584-C84400
12 Washer	316 SS
13 Gland screw	B16
14 Dust cover	B16



PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	H	I	WT.
78-668-01	3/4"	0.64	2.19	4.37	1.62	2.59	3.56	1.50	0.88	0.75	2.66
78-668-02	1"	0.75	2.41	4.82	1.91	3.56	5.33	1.91	1.13	0.90	2.75

The 78-668 is designed to be soft soldered into lines without disassembly. This allows a tested valve to be installed without disturbing the seats and seals in any way. Soldering temperature not to exceed 500°F.

*Dust cover cannot be used to contain pressure.

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

89-500 SERIES

Carbon Steel Ball Valve With Spring Return Handle

Female NPT Thread, 1/4" to 1" 2000 CWP (psig), 1.25" to 2" 1500 CWP (psig). Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Spring return to close ("01" suffix)
- Spring return to open ("08" suffix)
- All components of lever are stainless steel
- Zinc phosphate corrosion protection
- Operating torque is approximately three times standard valve torque

- Blow-out-proof stem design
- Adjustable packing gland
- Investment cast components
- Multifill seats

VARIATIONS AVAILABLE:

89-540 Series (316 SS Ball & Stem)

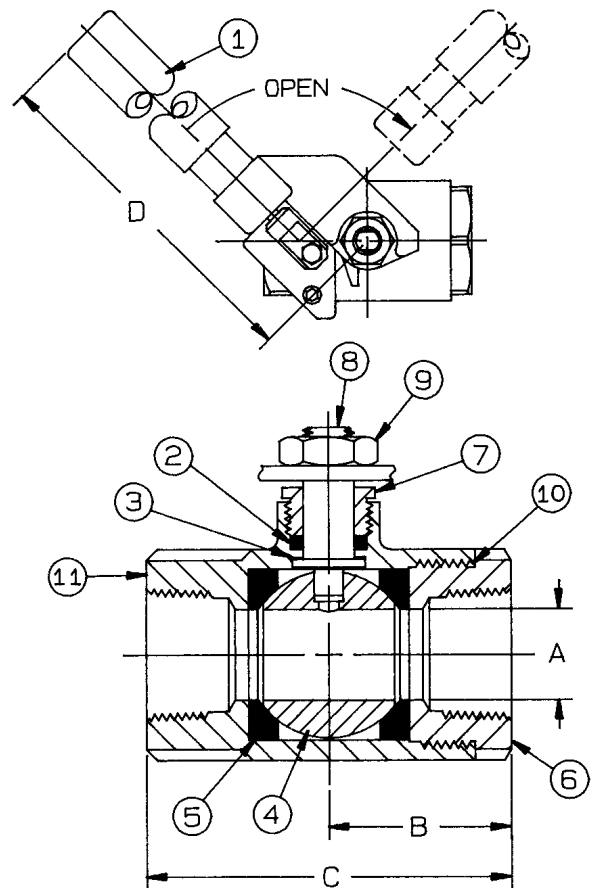
OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 2"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-35-	PTFE Trim	1/4" to 2"

STANDARD MATERIAL LIST

PART	MATERIAL
1 Handle	SS
2 Stem packing	Multifill PTFE
3 Stem bearing	RPTFE
4 Ball	A108-CS chrome plated
5 Seat (2)	Multifill PTFE
6 Retainer	A108-CS (1/4" to 1") A216-WCB (1.25" to 2")
7 Gland nut	A108-CS
8 Stem	A276-316
9 Lever nut	Steel, Zinc Plated
10 Body seal	PTFE (1.25" to 2")
11 Body	A216-WCB

PRODUCT NUMBER	SIZE	A	B	C	D	WT.
89-501-01A	1/4"	0.37	1.03	2.06	7.00	1.26
89-502-01A	3/8"	0.37	1.03	2.06	7.00	1.25
89-503-01A	1/2"	0.50	1.12	2.25	7.00	1.31
89-504-01A	3/4"	0.68	1.50	3.00	7.00	1.98
89-505-01A	1"	0.87	1.68	3.37	7.00	2.35
89-506-01	1.25"	1.00	2.00	4.00	9.00	3.96
89-507-01	1.5"	1.25	2.18	4.37	9.00	4.78
89-508-01	2"	1.50	2.75	5.50	9.00	6.66



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-14, GRAPH NO. 13
(1/4" TO 1") REFER TO PAGE M-13 GRAPH NO. 11 (1.25" TO 2")

95-100 SERIES

Bronze Full Port Stop and Drain Ball Valve

Female NPT Thread, 400 CWP (psig), Cold Non-Shock.
MSS SP-110 compliant.



FEATURES

- Two piece body
- Reinforced seats
- Drain cap designed to prevent loss
- Blow-out-proof stem design
- Adjustable packing gland
- Rugged construction

VARIATIONS AVAILABLE:

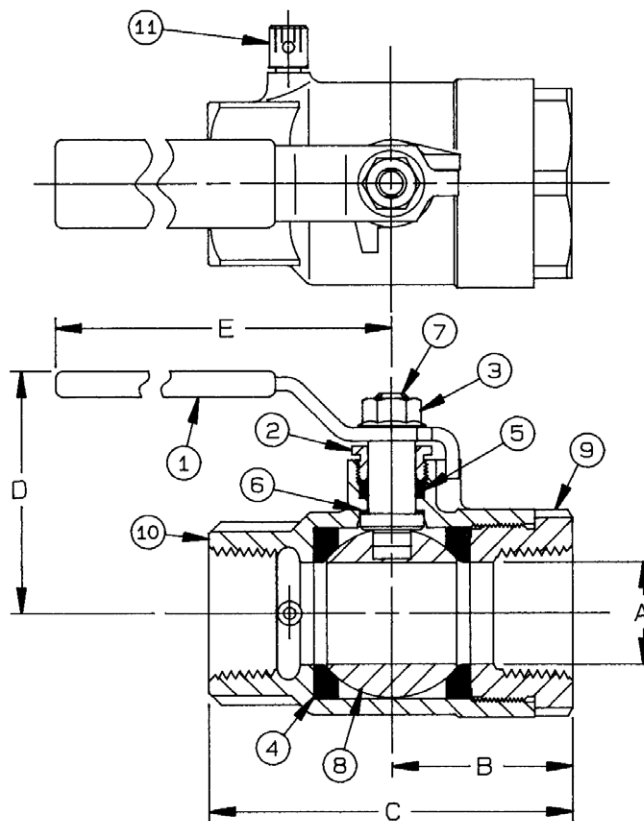
95-120 Series (Adjustable Stop Lever)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-07-	Steel Tee Handle	1/2" to 1"
-08-	90° Reversed Stem	1/2" to 1"
-10-	SS Lever & Nut	1/2" to 1"
-14-	Side Vented Ball (Uni-Directional)	1/2" to 1"
-15-	Wheel Handle, Steel	1/2" to 1"
-18-	Plain Yellow Grip	1/2" to 1"
-20-	Slot Vented Ball	1/2" to 1"
-27-	SS Latch-Lock Lever & Nut	1/2" to 1"
-32-	SS Tee Handle & Nut	1/2" to 1"
-45-	Less Lever & Nut	1/2" to 1"
-46-	Latch Lock Lever - Lock Close Only	1/2" to 1"
-48-	SS Oval Handle (No Latch) & Nut	1/2" to 1"
-49-	Assembled Dry	1/2" to 1"
-63-	Threaded x Solder Retainer	1/2" to 1"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Gland screw	B16
3	Lever nut	Zinc plated steel
4	Seat (2)	RPTFE
5	Stem packing	MPTFE
6	Stem bearing	RPTFE
7	Stem	B16
8	Ball	B16, chrome plated
9	Retainer	B16
10	Body	B584-C84400
11	Cap and seal	B16 and EPR



PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
95-103-01	1/2"	0.50	1.09	2.18	1.75	3.87	0.63
95-104-01	3/4"	0.81	1.56	3.12	2.15	4.87	1.39
95-105-01	1"	1.00	1.81	3.62	2.43	4.87	1.70

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 3

95-200 SERIES

Bronze Solder End Full Port Stop and Drain Ball Valve

Solder End, 400 CWP (psig), Cold Non-Shock.
MSS SP-110 compliant.



FEATURES

- Two piece body
- Blow-out-proof stem design
- Reinforced seats
- Adjustable packing gland
- Drain cap designed to prevent loss
- Rugged construction

VARIATIONS AVAILABLE:

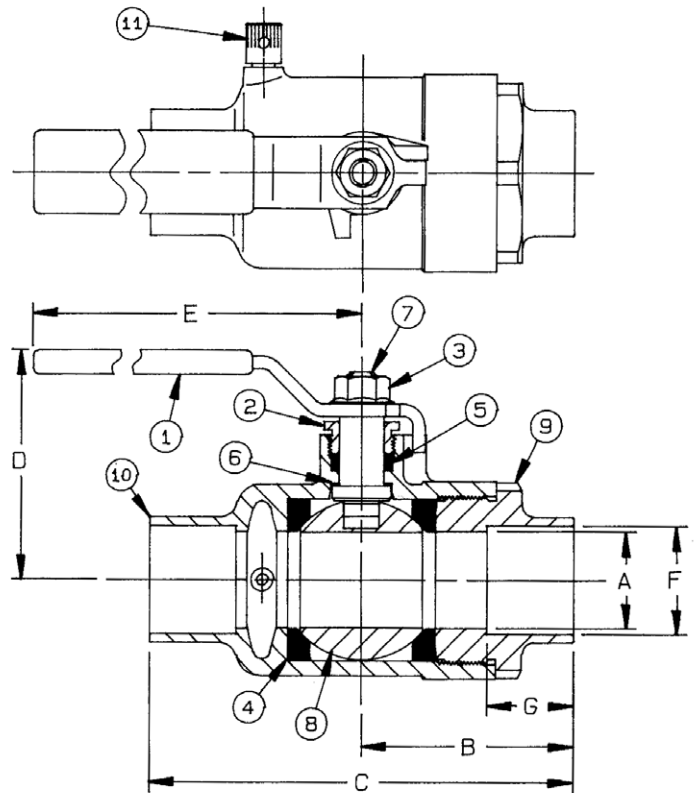
95-220 Series (Adjustable Stop Lever)

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-07-	Steel Tee Handle	1/2" to 1"
-08-	90° Reversed Stem	1/2" to 1"
-10-	SS Lever & Nut	1/2" to 1"
-14-	Side Vented Ball (Uni-Directional)	1/2" to 1"
-15-	Wheel Handle, Steel	1/2" to 1"
-18-	Plain Yellow Grip	1/2" to 1"
-20-	Slot Vented Ball	1/2" to 1"
-24-	Graphite Packing	1/2" to 1"
-27-	SS Latch-Lock Lever & Nut	1/2" to 1"
-32-	SS Tee Handle & Nut	1/2" to 1"
-45-	Less Lever & Nut	1/2" to 1"
-46-	Latch Lock Lever - Lock Close Only	1/2" to 1"
-48-	SS Oval Handle (No Latch) & Nut	1/2" to 1"
-49-	Assembled Dry	1/2" to 1"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Gland screw	B16
3	Lever nut	Steel, zinc plated
4	Seat (2)	RPTFE
5	Stem packing	RPTFE
6	Stem bearing	RPTFE
7	Stem	B16
8	Ball	B16, chrome plated
9	Retainer	B16
10	Body	B584-C84400
11	Cap and seal	B16 and EPR



The 95-200 is designed to be soft soldered into lines without disassembly. This allows a tested valve to be installed without disturbing the seats and seals in any way. Soldering temperatures not to exceed 500°F.

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	WT.
95-203-01	1/2"	0.50	1.43	2.87	1.75	3.87	0.628	0.50	0.70
95-204-01	3/4"	0.81	2.12	4.12	2.15	4.87	0.878	0.75	1.23
95-205-01	1"	1.00	2.21	4.43	2.43	4.87	1.128	0.90	1.90

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 3

82-200 SPECIAL – MALE

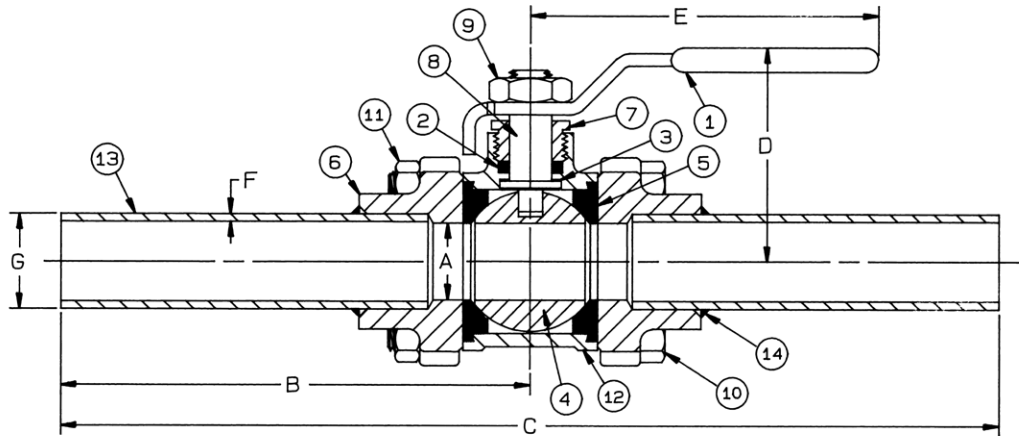
Bronze 3-Piece Full Port Ball Valve With Male Brazed Extensions

Solder end, 600 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
Designed for soft solder or brazed installation without disassembly.
MSS SP-110 compliant.



FEATURES

- Full port configuration
- Reinforced seats and seals
- In-line repairable
- Blow-out-proof stem design
- Adjustable packing gland
- Latch lock handle optional



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	B16, chrome plated
5 Seat (2)	RPTFE
6 End cap (2)	B584-C84400
7 Gland	B16
8 Stem	B16
9 Lever nut	Steel, zinc plated
10 Body bolt	Steel, zinc plated
11 Hex nut	Steel, zinc plated
12 Body	B584-C84400
13 Extension	Type K copper tubing
14 Brazing alloy	Sil-Fos 5
15 Cap plugs	(not shown)

STANDARD		OXYGEN CLEANED		SIZE	A	B	C	D	E	F	G	WT.
PRODUCT NUMBER	MODEL NUMBER W/ 316 SS BALL & STEM	PRODUCT NUMBER	MODEL NUMBER W/ 316 SS BALL & STEM									
82-203-B8	82-243-A8	82-203-K1	82-243-K1	1/2"	0.62	6.90	13.81	2.00	4.87	.049	5/8"	1.66
82-204-A8	82-244-B3	82-204-K1	82-244-K1	3/4"	0.81	6.96	13.93	2.18	4.87	.065	7/8"	2.37
82-205-B7	82-245-B1	82-205-K1	82-245-K1	1"	1.00	6.97	13.95	2.62	5.50	.065	1-1/8"	3.43
82-206-B7	82-246-B0	82-206-K1	82-246-K1	1.25"	1.25	7.40	14.75	2.89	5.50	.065	1-3/8"	5.52
82-207-B2	82-247-B2	82-207-K1	82-247-K1	1.5"	1.50	7.53	15.07	3.37	8.00	.072	1-5/8"	8.51
82-208-B7	82-248-B2	82-208-K1	82-248-K1	2"	2.00	7.61	15.23	3.70	8.00	.083	2-1/8"	14.20

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4



82-200 SPECIAL – FEMALE

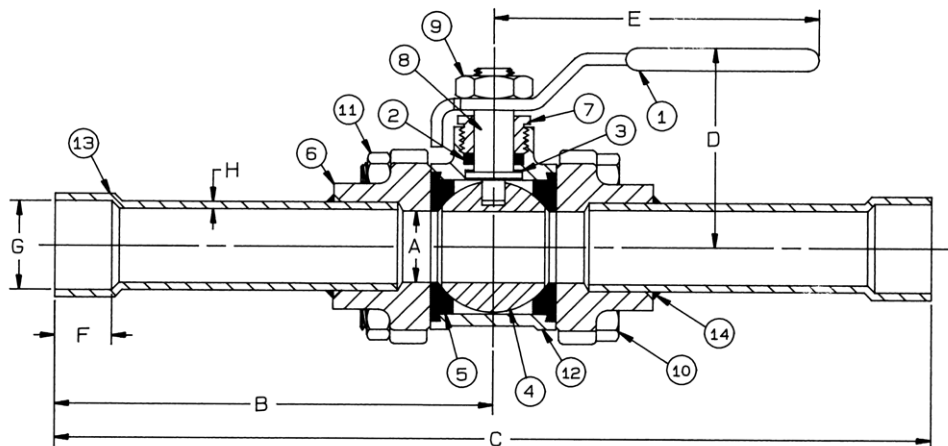
Bronze 3-Piece Full Port Ball Valve With 6" Female Brazed Extensions

Solder End, 600 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
Designed for soft solder or brazed installation without disassembly.
MSS SP-110 compliant.



FEATURES

- Full port configuration
- Reinforced seats & seals
- In-line repairable
- Blow-out-proof stem design
- Adjustable packing gland
- Latch lock handle optional



STANDARD MATERIAL LIST

PART	MATERIAL
1 Lever and grip	Steel, zinc plated w/vinyl
2 Stem packing	MPTFE
3 Stem bearing	RPTFE
4 Ball	B16, chrome plated
5 Seat (2)	RPTFE
6 End cap (2)	B584-C84400
7 Gland	B16
8 Stem	B16
9 Lever nut	Steel, zinc plated
10 Body bolt	Steel, zinc plated
11 Hex nut	Steel, zinc plated
12 Body	B584-C84400
13 Extension	Type K copper tubing
14 Brazing alloy	Sil-Fos 5
15 Cap plugs	(not shown)

STANDARD PRODUCT NO.	OXYGEN CLEANED PRODUCT NO.		SIZE	A	B	C	D	E	F	G*	H	WT.
TRIM: PLATED	TRIM: PLATED	TRIM: STAINLESS										
NON-LOCKING HANDLE	NON-LOCKING HANDLE	NON-LOCKING HANDLE										
82-203-C2	82-203-K2	82-243-K2	1/2"	0.62	7.40	14.80	2.00	4.87	0.50	5/8"	.049	1.7
82-204-C3	82-204-K2	82-244-K2	3/4"	0.81	7.71	15.42	2.18	4.87	0.75	7/8"	.065	2.4
82-205-C2	82-205-K2	82-245-K2	1"	1.00	7.92	15.84	2.62	5.50	0.90	1-1/8"	.065	3.5
82-206-C1	82-206-K2	82-246-K2	1.25"	1.25	8.45	16.90	2.89	5.50	0.96	1-3/8"	.065	5.6
82-207-B8	82-207-K2	82-247-K2	1.5"	1.50	8.58	17.16	3.37	8.00	1.09	1-5/8"	.072	8.6
82-208-C1	82-208-K2	82-248-K2	2"	2.00	9.06	18.12	3.70	8.00	1.34	2-1/8"	.083	14.3

*NOMINAL TUBING O.D.

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4



REV. 2-27-14

www.apollovalves.com Customer Service (704) 841-6000



73-300 SERIES

Steel Double Union End Ball Valve

Female NPT Thread, 3000 CWP (psig), Cold Non-Shock, 150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Heavy duty quarter turn lever
- Reinforced seats and seals
- Steel barstock design
- Easy installation and maintenance
- Blow-out-proof stem design
- Adjustable packing gland
- Zinc phosphate corrosion protection

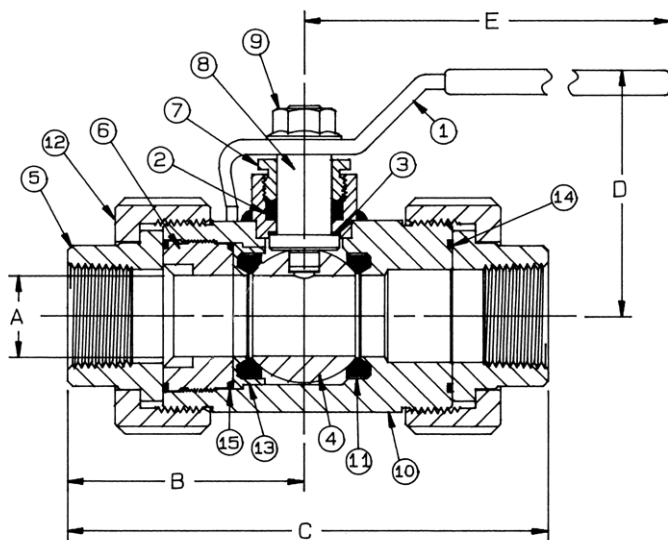
VARIATIONS AVAILABLE:

73-340 Series (316 SS ball & Stem)

UL LISTING @ 250 PSIG MAX

- Guide YRPV: Gas shutoff valve for use with natural and manufactured gases.
- Guide YSDT: LP gas shutoff valve.
- Guide YRBX: Flammable liquid shutoff valve.

Note: Listings apply ONLY to the standard -01 valves.



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Stem packing	RPTFE
3	Stem bearing	RPTFE
4	Ball	ASTM A276, Type 316 Stainless Steel
5	Tailpiece (2)	A108-CS
6	Retainer	A108-CS
7	Gland nut	A108-CS
8	Stem	ASTM A108, CS, zinc phosphate finish or ASTM A276, Type 316 Stainless Steel
9	Lever nut	Steel, zinc plated
10	Body	A108-CS
11	Seat (2)	RPTFE
12	Union nut (2)	A108-CS
13	Seat holder	A108-CS
14	Union seal (2)	RPTFE
15	Retainer seal	RPTFE

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
73-301-01	1/4"	0.43	2.50	5.00	2.50	5.62	3.51
73-302-01	3/8"	0.57	2.50	5.00	2.50	5.62	3.45
73-303-01	1/2"	0.62	2.50	5.00	2.50	5.62	3.35
73-304-01	3/4"	0.81	2.71	5.31	2.62	5.62	4.48
73-305-01	1"	1.00	2.96	6.06	3.12	6.62	7.04
73-306-01	1.25"	1.25	2.87	6.12	3.43	8.00	9.96
73-307-01	1.5"	1.50	3.46	7.12	3.56	8.00	14.83
73-308-01	2"	1.75	3.75	7.50	4.18	9.00	20.50

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-15, GRAPH NO. 15



73-400 SERIES

Carbon Steel Double Union End Socket Weld Ball Valve

Socket Weld End, 3000 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.



FEATURES

- Heavy duty quarter turn lever
- Reinforced seats and seals
- Steel barstock design
- Easy installation and maintenance
- Blow-out-proof stem design
- Adjustable packing gland
- Zinc phosphate corrosion protection

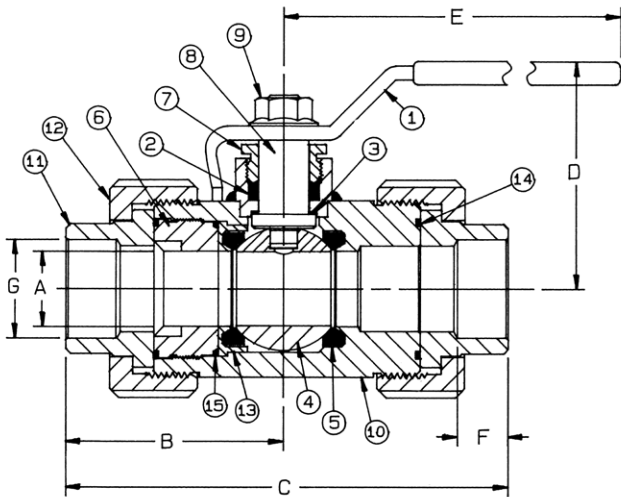
VARIATIONS AVAILABLE:

73-440 Series (316 SS Ball & Stem)

UL LISTING @ 250 PSIG MAX

- Guide YRPV: Gas shutoff valve for use with natural and manufactured gases.
- Guide YSDT: LP gas shutoff valve.
- Guide YRBX: Flammable liquid shutoff valve.

Note: Listings apply ONLY to the standard -01 valves.



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Stem packing	RPTFE
3	Stem bearing	RPTFE
4	Ball	ASTM A276, Type 316 Stainless Steel
5	Seat (2)	RPTFE
6	Retainer	A108-CS
7	Gland nut	A108-CS
8	Stem	ASTM A108, CS, zinc phosphate finish or ASTM A276, Type 316 Stainless Steel
9	Lever nut	Steel, zinc plated
10	Body	A108-CS
11	Tail Piece (2)	A108-1018
12	Union nut (2)	A108-CS
13	Seat holder	A108-CS
14	Union seal (2)	RPTFE
15	Retainer seal	RPTFE

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	WT.
73-403-01	1/2"	0.62	2.50	5.00	2.50	5.62	0.43	0.855	3.35
73-404-01	3/4"	0.81	2.71	5.31	2.62	5.62	0.56	1.065	4.48
73-405-01	1"	1.00	2.93	6.06	3.12	6.62	0.68	1.330	7.04
73-406-01	1.25"	1.25	2.87	6.12	3.43	8.00	0.81	1.675	9.96
73-407-01	1.5"	1.50	3.46	7.12	3.56	8.00	0.81	1.915	14.83
73-408-01	2"	1.75	3.75	7.50	4.18	9.00	1.06	2.406	20.50

77C-100-UL SERIES

Bronze Full Port Ball Valve For Trim & Drain "Contractor" Series

Female NPT Thread, 600 CWP (psig), 150 SWP (psig).
 Vacuum Service to 29 inches Hg.
 MSS SP-110 compliant.
 UL Listed VQGU, "Valves, Trim and Drain", per UL 258 at 300 psig max.

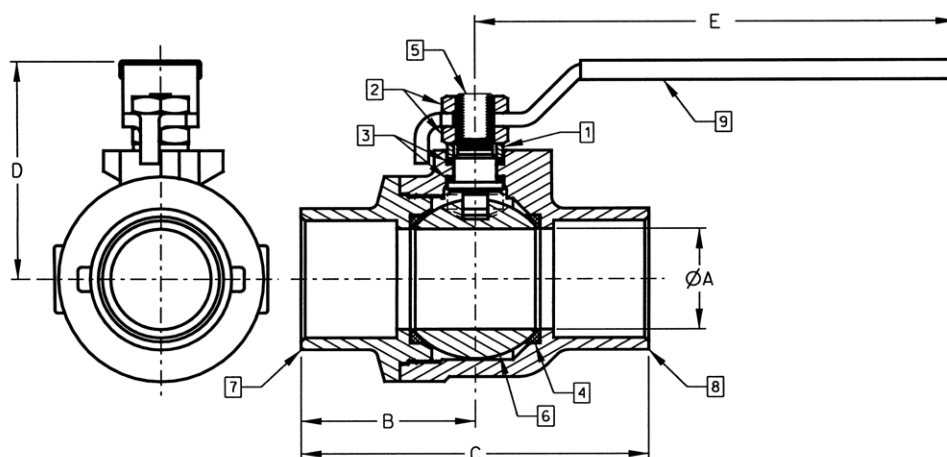


FEATURES

- Machined Solid Chrome-Plated Ball
- Multi-Fill PTFE Seats & Seals
- Blow-out-proof stem design
- Adjustable packing gland
- Full Port Design Through 2"

VARIATIONS AVAILABLE:

77C-140 Series (316 SS Ball & Stem)



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Gland	B16 Brass
2	Nut	Zinc Plated Steel
3	Packing	MPTFE
4	Seat	MPTFE
5	Stem	B16 Brass
6	Ball	B16 (chromium plated)
7	Retainer	B584 Bronze*
8	Body	B584 Bronze
9	Handle	Zinc Plated Steel/Vinyl

*1/4" - 1/2" B16 Brass

PRODUCT NUMBER	SIZE	A	B	C	D	E	Cv	WT.**
77C-101-UL	1/4"	0.37	0.95	1.97	1.76	3.74	5	0.6
77C-102-UL	3/8"	0.37	1.07	2.09	1.76	3.74	7	0.5
77C-103-UL	1/2"	0.50	1.15	2.25	1.79	3.74	16	0.6
77C-104-UL	3/4"	0.75	1.32	2.65	2.00	4.88	36	1.0
77C-105-UL	1"	1.00	1.53	3.07	2.19	4.88	68	1.8
77C-106-UL	1.25"	1.25	2.04	4.08	3.13	7.06	125	4.4
77C-107-UL	1.5"	1.50	2.12	4.23	3.29	7.06	177	4.6
77C-108-UL	2"	2.00	2.43	4.85	3.83	7.06	389	8.1

**Weights are based on standard configuration 77C-10X-01.



77C-200-UL SERIES

Bronze Full Port Ball Valve For Trim & Drain "Contractor" Series

Solder End, 600 CWP (psig), 150 SWP (psig). (See referenced P/T chart)
 Vacuum Service to 29 inches Hg.
 MSS SP-110 compliant.
 UL Listed VQGU, "Valves, Trim and Drain", per UL 258 at 300 psig max.

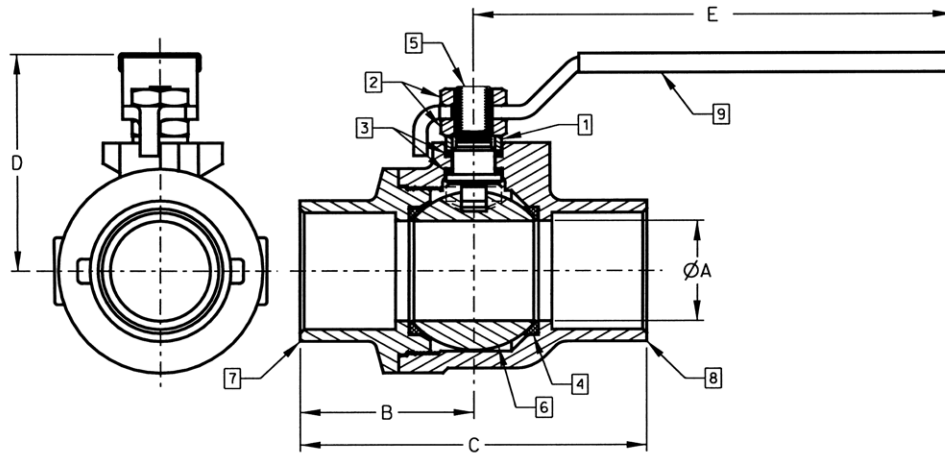


FEATURES

- Blow-out-proof stem design
- Machined Solid Chrome-Plated Ball
- Adjustable packing gland
- Multi-Fill PTFE Seats & Seals
- Full Port Design Through 2.5"

VARIATIONS AVAILABLE:

77C-240 Series (316 SS Ball & Stem)



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Gland	B16 Brass
2	Nut	Zinc Plated Steel
3	Packing	MPTFE
4	Seat	MPTFE
5	Stem	B16 Brass
6	Ball	B16 (chromium plated)
7	Retainer	B584 Bronze*
8	Body	B584 Bronze
9	Handle	Zinc Plated Steel/Vinyl

*1/4" - 1/2" B16 Brass

PRODUCT NUMBER	SIZE	A	B	C	D	E	Cv	WT.**
77C-202-UL	3/8"	0.37	1.30	2.21	1.76	3.74	7	0.6
77C-203-UL	1/2"	0.50	1.41	2.58	1.79	3.74	16	0.6
77C-204-UL	3/4"	0.75	1.64	3.03	2.00	4.88	36	1.0
77C-205-UL	1"	1.00	1.92	3.61	2.19	4.88	68	1.6
77C-206-UL	1.25"	1.25	2.36	4.44	3.13	7.06	125	3.9
77C-207-UL	1.5"	1.50	2.63	4.89	3.29	7.06	177	4.3
77C-208-UL	2"	2.00	3.17	6.06	3.83	7.06	389	7.6

**Weights are based on standard configuration 77C-20X-01.

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

77G-100-UL SERIES

Bronze Full Port Fuel Shut-Off Valve UL/CSA Listed

Female NPT Thread, 600 CWP (psig), 150 SWP (psig). (See referenced P/T chart)
 Vacuum Service to 29 inches Hg.
 MSS SP-110 compliant.
 UL & CSA approvals



FEATURES

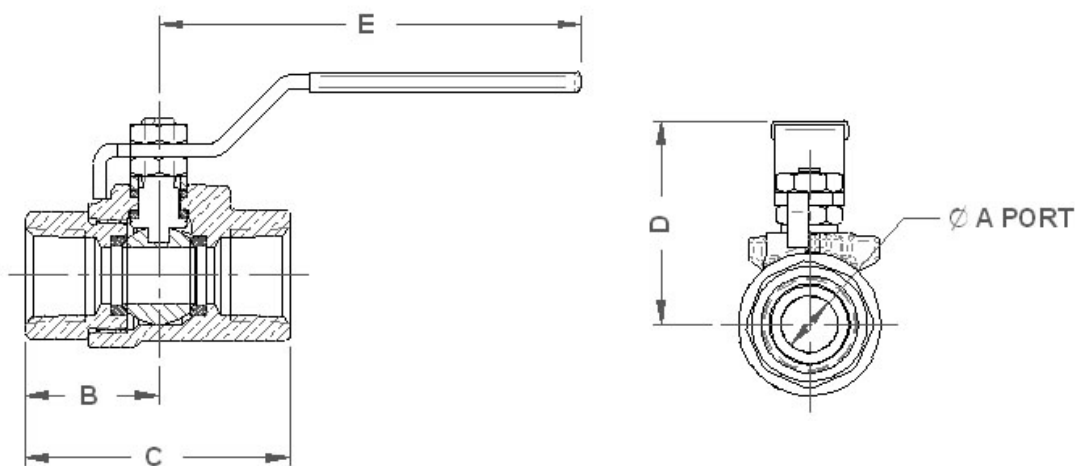
- American Made Bronze Castings
- Machined Solid Chrome-Plated Ball
- Multi-Fill PTFE Seats & Seals
- CSA to ASME B16.33 (125 psig)
- Blow-out-proof stem design
- Adjustable packing gland
- Full Port Design Through 2"
- CGA 3.16-M88 (125 psig)

UL LISTING

- MHKZ Manual valves
- YSDT LP gas shutoff, 250
- YQNZ Compressed gas shutoff
- YRBX Flammable liquid shutoff

CUL LISTING

- YRPV7 Gas shutoff
- YRBX7 Flammable liquid shutoff
- MHKZ7 Manual valves
- YSDT7 LP gas shutoff



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Gland	B16 Brass
2	Nut	Zinc Plated Steel
3	Packing	MPTFE
4	Seat	MPTFE
5	Stem	B16 Brass
6	Ball	B16 (chromium plated)
7	Retainer	B584 Bronze*
8	Body	B584 Bronze
9	Handle	Zinc Plated Steel/Vinyl

*1/4" - 1/2" B16 Brass

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
77G-103-UL	1/2"	0.50	1.19	2.35	1.80	3.74	0.68
77G-104-UL	3/4"	0.75	1.42	2.74	1.98	4.78	1.26
77G-105-UL	1"	1.00	1.64	3.18	2.18	4.78	2.08

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4



79-700 SERIES

Full Port Forged Brass Refrigerant Ball Valve



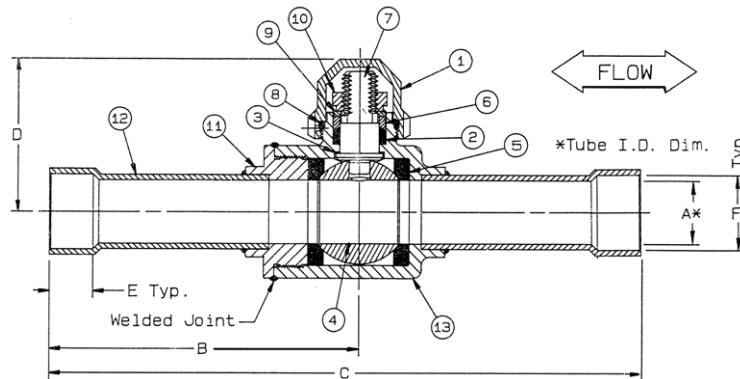
FEATURES

- Bi-directional flow design
- Reinforced seats and seals
- Pressure equalizing ball
- Exclusive design rotation stops
- Copper extensions silver brazed to body allows use of Sil-Fos
- Capped, triple sealed stem with metal back up reduces leaks
- Blow-out-proof stem design

- Adjustable packing gland
- Hermetic welded assembly
- Full Port Design

UL LISTING

- Guide SFJQ: Valves, Refrigerant



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Cap	B16
2	Stem packing	RPTFE
3	Stem bearing	RPTFE
4	Ball	B16, Chrome plated
5	Seat (2)	RPTFE
6	Packing gland	B16
7	Stem	B16
8	O-Ring	Neoprene
9	Stop Plate	Steel, Plated
10	Hex nut	B16
11	Retainer	B16
12	Tube extension	Copper tubing
13	Body	Forged brass

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	WT.	Cv	EQUIVALENT LENGTH OF TUBE
79-701-01	3/8"	0.32	3.18	6.09	1.55	0.38	0.38	0.94	2.9	10.8
79-702-01	1/2"	0.45	3.18	6.09	1.55	0.38	0.50	0.94	5.6	13.3
79-703-01	5/8"	0.50	3.43	6.59	1.55	0.50	0.62	0.94	13.1	10.4
79-704-01	7/8"	0.75	3.69	7.07	1.83	0.75	0.87	1.31	31.9	11.2
79-705-01	1-1/8"	1.00	4.20	8.00	2.01	0.90	1.12	2.06	68.0	10.7
79-706-01	1-3/8"	1.25	4.54	8.63	2.61	0.96	1.38	4.00	109	11.6
79-707-01	1-5/8"	1.50	4.47	8.85	2.79	1.09	1.62	4.25	152	13.2
79-708-01	2-1/8"	2.00	4.84	9.59	3.17	1.34	2.12	6.00	275	15.1
79-709-01	2-5/8"	2.43	5.00	10.00	3.90	1.48	2.62	17.50	349	21.1
79-600-01*	3-1/8"	2.50	7.00	14.00	3.90	1.67	3.13	17.60	391	30.1

*NOTE: 3-1/8" size is not full port

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4

80-100 SERIES

Bronze LP-Gas Ball Valve

Female NPT Thread, 600 CWP (psig), Cold Non-Shock. 250 psig LP-Gas.
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.

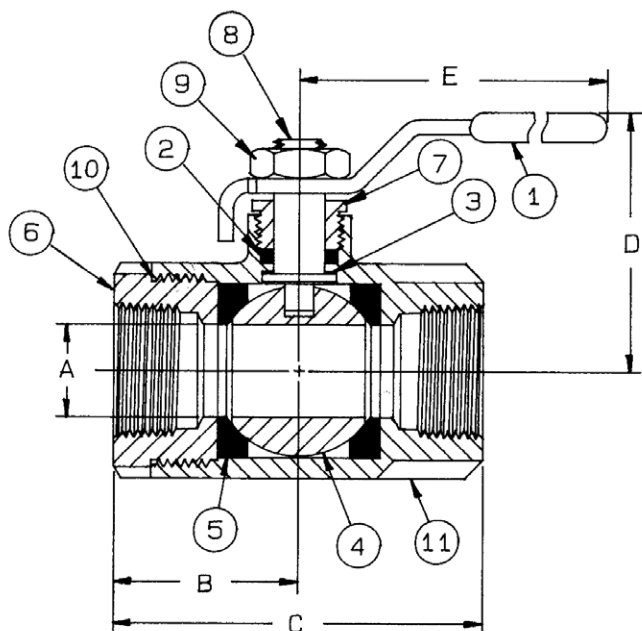


FEATURES

- UL Listed for LP-Gas, natural gas, flammable liquid and heated oil
- Large ports to reduce pressure drop
- Reinforced seats
- Blow-out-proof stem design
- Adjustable packing gland
- Two piece bronze body

UL LISTINGS

- Guide YSDT: LP-Gas shut-off valve.
- Guide YRPV: Gas shut-off valve for use with natural and manufactured gases.
- Guide YRBX: Flammable liquid shutoff valve.
- Guide MHKZ: No. 6 oil at 250°F.



Note: 250 psig Max. UL Listing.

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-07-	Tee Handle, Steel	1/4" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Stem packing	RPTFE
3	Stem bearing	RPTFE
4	Ball	B16, chrome plated
5	Seat (2)	RPTFE
6	Retainer	B16 or B584-C84400
7	Gland nut	B16
8	Stem	B16
9	Lever nut	Steel, zinc plated
10	Seal	PTFE (1.25" to 3")
11	Body	B584-C84400

PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
80-101-01	1/4"	0.37	1.03	2.06	1.75	3.87	0.60
80-102-01	3/8"	0.37	1.03	2.06	1.75	3.87	0.56
80-103-01	1/2"	0.50	1.12	2.25	1.81	3.87	0.63
80-104-01	3/4"	0.68	1.50	3.00	2.12	4.87	1.39
80-105-01	1"	0.87	1.68	3.37	2.25	4.87	1.72
80-106-01	1.25"	1.00	2.00	4.00	2.62	5.50	3.26
80-107-01	1.5"	1.25	2.18	4.37	2.87	5.50	4.57
80-108-01	2"	1.50	2.34	4.68	3.06	5.50	5.56
80-109-01	2.5"	2.50	3.25	6.50	4.12	8.00	17.25
80-100-01	3"	2.50	3.37	6.75	4.12	8.00	18.60

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 4



90-100 SERIES

Bronze Uni-Body Ball Valve

Female NPT Thread, 400 CWP (psig), Cold Non-Shock.
150 psig Saturated Steam.
MSS SP-110 compliant.



FEATURES

- UL Listed at 400 psig for fuel, inert gas and flammable liquids
- Valves with tee handles UL listed
- Reinforced seats and seals
- Blow-out-proof stem design
- Adjustable packing gland
- One piece bronze body
- Compact

UL LISTINGS

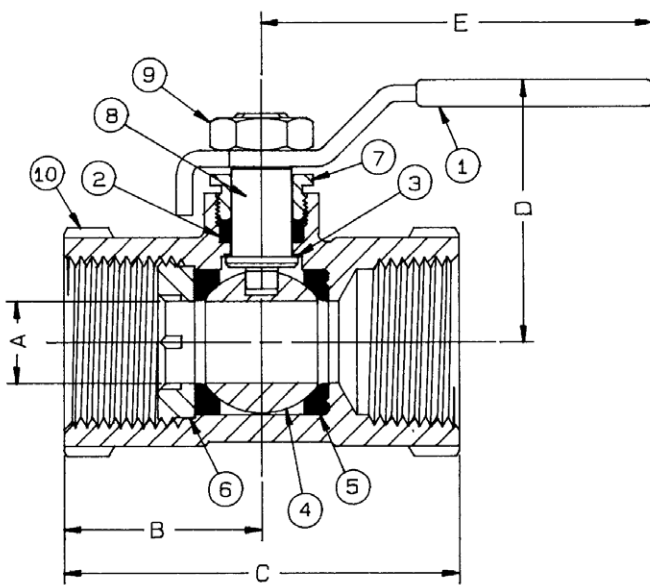
- Guide YRPV: Gas shutoff valve for use with natural and manufactured gases.
- Guide YQNZ: Compressed gas shutoff valve for use with air, inert gases, hydrogen, oxygen and common refrigerants except ammonia.
- Guide YRBX: Flammable liquid shutoff valve.

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-05-	Plain Ball	1/2" to 2"
-07-	Steel Tee Handle	1/2" to 2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Stem packing	RPTFE
3	Stem bearing	RPTFE
4	Ball	B16, chrome plated
5	Seat (2)	RPTFE
6	Retainer	B16
7	Gland nut	B16
8	Stem	B16
9	Lever nut (Screw 1/2")	Steel, zinc plated
10	Body	B584-C84400



PRODUCT NUMBER	SIZE	A	B	C	D	E	WT.
90-103-01	1/2"	0.37	1.14	2.15	1.61	3.87	0.53
90-104-01	3/4"	0.50	1.36	2.61	1.75	3.87	0.82
90-105-01	1"	0.62	1.50	2.90	2.02	4.78	1.25
90-106-01	1.25"	0.81	1.79	3.50	2.18	4.78	1.98
90-107-01	1.5"	1.00	1.96	3.79	2.70	5.43	2.99
90-108-01	2"	1.25	2.29	4.42	2.92	5.43	4.64

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-10, GRAPH NO. 3

489-100 SERIES

Carbon Steel LP-Gas Ball Valve

Female NPT Thread, 1/4" to 1" 2000 CWP (psig), 1.25" to 2" 1500 CWP (psig), 2.5" to 3" 1000 CWP (psig) Cold Non-Shock.
250 psig LP-Gas. 150 psig Saturated Steam.
Vacuum Service to 29 in. Hg.
MSS SP-110 compliant.



FEATURES

- UL Listed for LP-Gas, natural gas and flammable liquid to 250 psig
- Reinforced seats
- Mounting pad for easy actuator mounting
- Investment cast components
- Blow-out-proof stem design
- Adjustable packing gland
- Zinc phosphate corrosion protection

UL LISTINGS

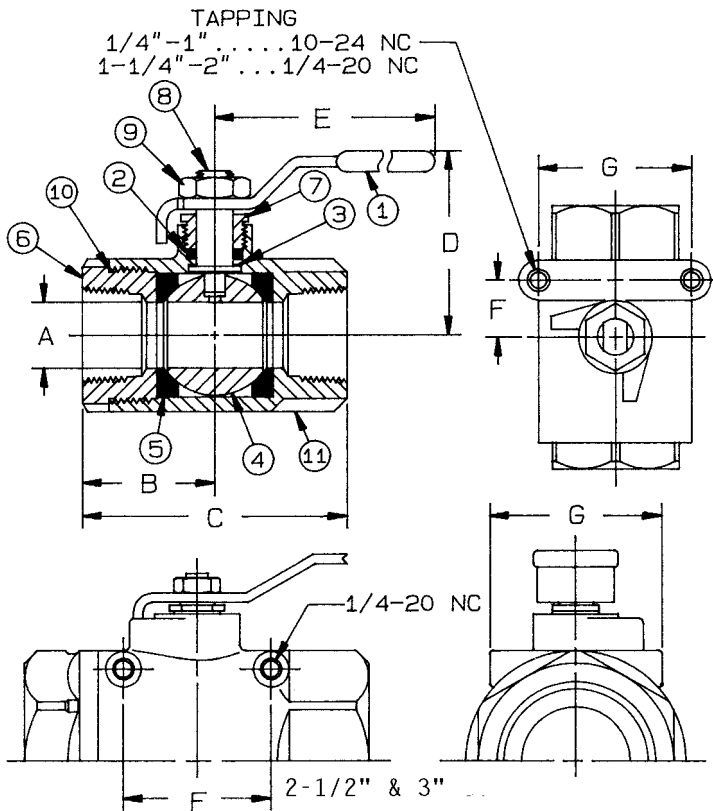
- Guide YSDT: LP-Gas shut-off valve.
- Guide YRPV: Gas shut-off valve for use with natural and manufactured gases.
- Guide YRBX: Flammable liquid shutoff valve.
- Guide MHKZ: No. 6 oil at 250°F.

VARIATIONS AVAILABLE:

489-140-01 Series with 316 SS Ball and Stem, UL Listed as noted above

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Stem packing	RPTFE
3	Stem bearing	RPTFE
4	Ball	A108-12L14, chrome plated
5	Seat (2)	RPTFE
6	Retainer	A108-12L14 (1/4" to 1") A216-WCB (1.25" to 3")
7	Gland nut	A108-12L14
8	Stem	A108-12L14
9	Lever nut	Steel, zinc plated
10	Body seal	PTFE (1.25" to 3")
11	Body	A216-WCB



FOR PRESSURE/TEMPERATURE RATINGS:
REFER TO PAGE M-14, GRAPH NO. 13 (1/4" TO 1")
REFER TO PAGE M-13, GRAPH NO. 11 (1.25" TO 2")

PRODUCT NUMBER	SIZE	A	B	C	D	E	F	G	WT.
489-101-01	1/4"	0.37	1.03	2.06	1.75	3.87	0.50	1.12	0.58
489-102-01	3/8"	0.37	1.03	2.06	1.75	3.87	0.50	1.12	0.54
489-103-01	1/2"	0.50	1.12	2.25	1.81	3.87	0.50	1.12	0.63
489-104-01	3/4"	0.68	1.50	3.00	2.12	4.87	0.87	1.37	1.27
489-105-01	1"	0.87	1.68	3.37	2.25	4.87	0.87	1.37	1.63
489-106-01	1.25"	1.00	2.00	4.00	2.62	5.50	0.93	1.50	3.06
489-107-01	1.5"	1.25	2.18	4.37	3.05	8.00	0.93	1.50	3.98
489-108-01	2"	1.50	2.75	5.50	3.24	8.00	0.93	1.50	5.99
489-109-01	2.5"	2.50	3.37	6.75	4.12	8.00	2.75	3.37	15.57
489-100-01	3"	2.50	3.37	6.75	4.12	8.00	2.75	3.37	16.79



SECTION H – SPECIALTY BALL VALVES

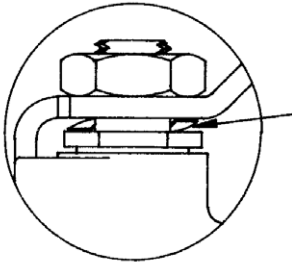
SECTION J – OPTIONAL CONFIGURATIONS

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-32-	SS Tee Handle And Nut	J-7
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-39-	SS High-Rise Locking Wheel Handle	J-7
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-45-	Less Lever And Nut	J-9
-46-	SS Lock Closed Only	J-9
-47-	SS Latch-Lock Oval Handle	J-9
-50-	2.25" Locking Stem Extension	J-9
-59-	SS Body Trim (Bolts, Nuts & Lever).....	J-10
-60-	Grounded Ball And Stem	J-10

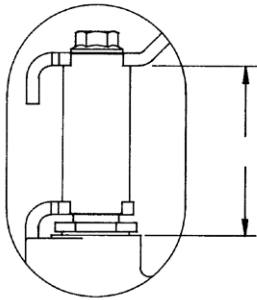
SECTION J – OPTIONAL CONFIGURATIONS

OPTIONS



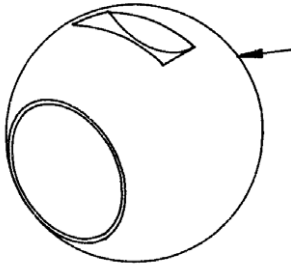
-02- STATIC GROUNDING DEVICE

Used to help prevent static electrical discharge (sparking) between valve components. Accomplished by use of a stainless steel spring washer or coil spring (dependent on valve size). -02 grounds stem, lever & lever nut to valve body.



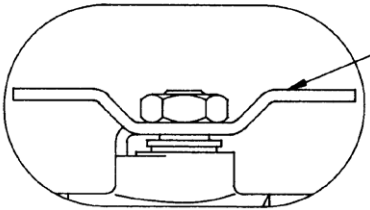
-04- 2.25" ZINC PLATED CARBON STEEL STEM EXTENSION ASSEMBLIES

Used to elevate the handle to accommodate pipe insulation or to relocate the position of the handle where necessary. Also available with balancing stop. (Example: 70-120-94)



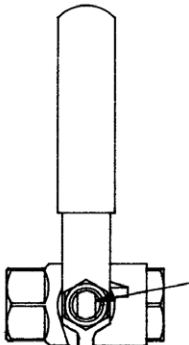
-05- PLAIN BALL

Unplated ball available for bronze valves. Furnished exclusively by customer preference. Not recommended by engineering.



-07- STEEL TEE HANDLE

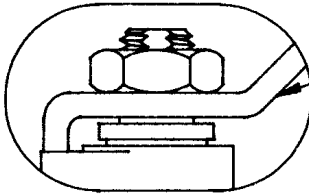
Used where space limitation prevents use of the standard lever type handle. Useful also to help prevent accidental openings by: Limiting projection of the operating device distance beyond the valve and increasing the turning force required to operate valve. Also, balances the turning effect of vibration.



-08- 90° REVERSED STEM

Lever grip no longer indicates flow or no flow. (Valve shown in open position).

OPTIONS

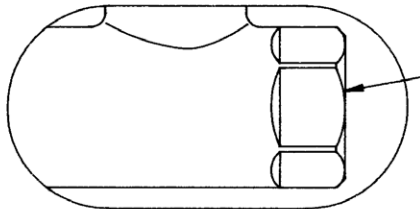


-10- SS LEVER AND NUT

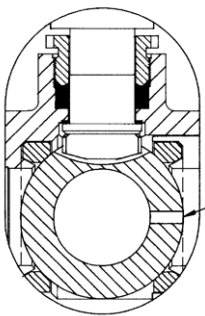


-11- THERMA SEAL

The *Therma-Seal™* handle option is designed to maintain the thermal integrity of insulated piping systems and prevent condensation. Condensation can lead to failed insulation, energy loss, water damage and mold. The *Therma-Seal™* handle option is most commonly used on chilled water lines.



-13- STAMPED 157 SWP



-14- SIDE VENTED BALL

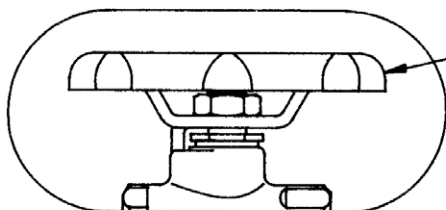
(Uni-Directional Flow)

Vent hole is on the higher pressure side when closed.

Valve body will be stamped with arrow indicating proper flow direction.

Equalizes pressure gain caused by liquid thermal expansion, preventing seat blow-out.

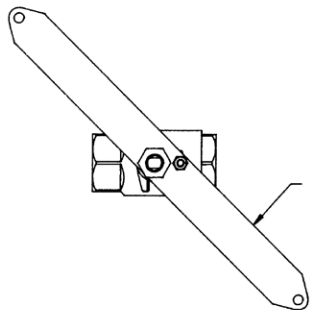
Does not reduce the load capability of seats.



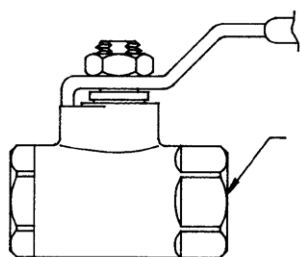
-15- STEEL WHEEL HANDLE

Prevents accidental operation and balances the turning effect of vibration.

OPTIONS



- 16- VERTICAL CHAIN LEVER
- 58- HORIZONTAL CHAIN LEVER



- 17- ROUGH CHROME PLATED

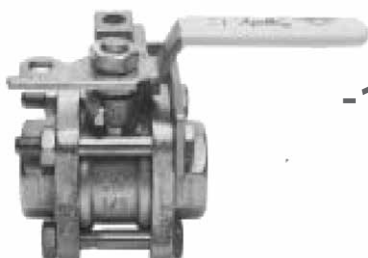


- 19- PAD-LOCKING DEVICES FOR 72 & 73 SERIES

Recommended for aftermarket
U.S. PATENT #4,498,320

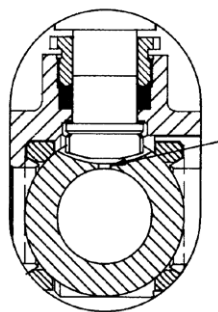


- 19- PAD-LOCKING DEVICES FOR 76 & 89 SERIES



- 19- PAD-LOCKING DEVICES 82-100-19 SERIES

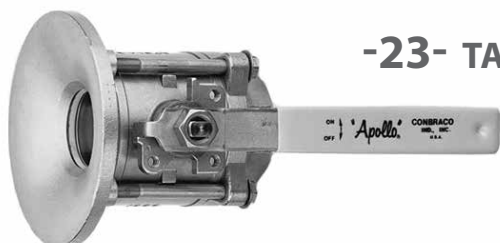
OPTIONS



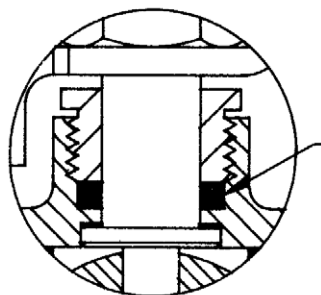
-20- SLOT VENTED BALL

(Bi-Directional Flow)

Available on bronze balls. (All other ball materials are already slot-vented).

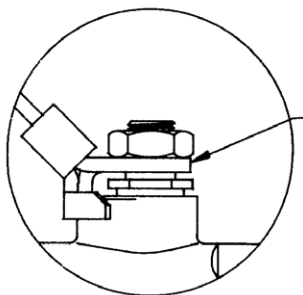


-23- TANK BOTTOM FLANGE VALVE 2" SIZE 86R ONLY

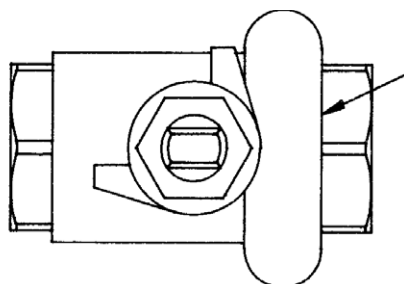


-24- GRAPHITE STEM PACKING

- Necessary for firesafe design

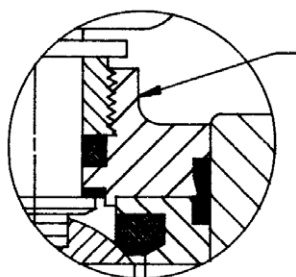


-27- SS LATCH-LOCK HANDLE AND SS NUT



-28- MOUNTING PADS NOT THREADED

OPTIONS

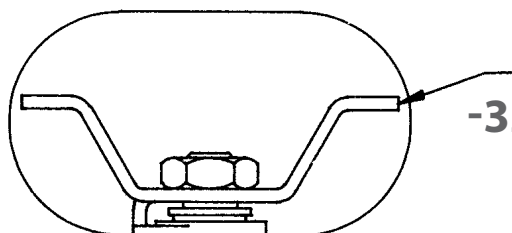


-29- 1500 PSIG 3-PIECE FIRESAFE DESIGN

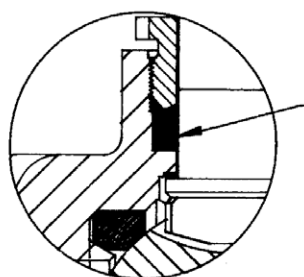
Graphite packing and gaskets



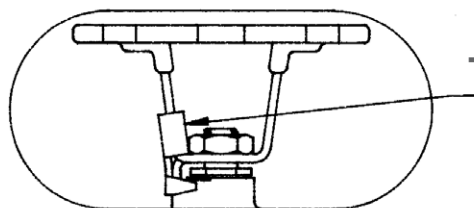
-30- CAM-LOCK HANDLE



-32- SS TEE HANDLE AND NUT

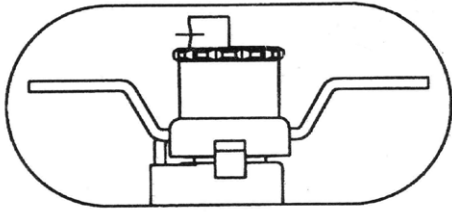


-35- PTFE TRIM



-39- SS HIGH-RISE LOCKING WHEEL HANDLE

OPTIONS



-40- CYL-LOC

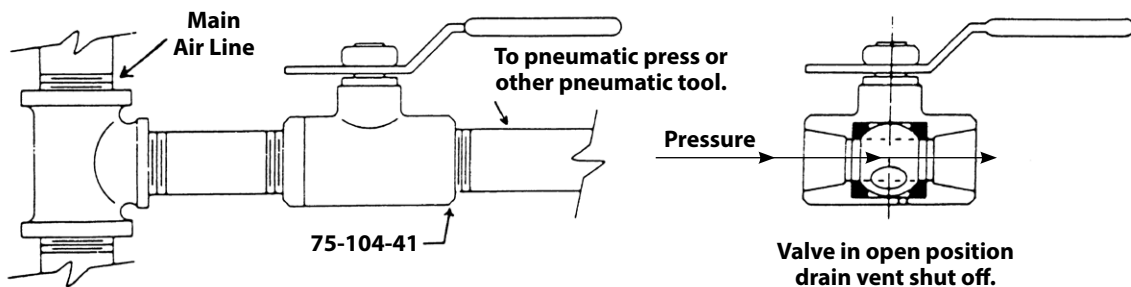


70-100 (Threaded)

-41- AUTOMATIC DRAIN

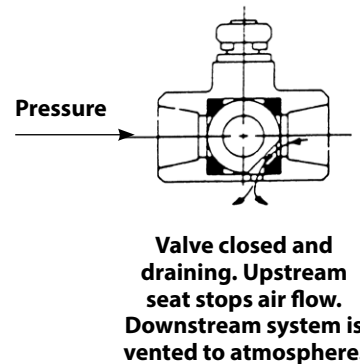
- Conforms to certain OSHA requirements in pneumatic installations
- Easy, safe maintenance of pneumatic tools
- Cannot be used where drained media could cause damage
- Temperature range = +50°F to 200°F
- Recommended for water or air services only
- Pressures 0- 125 psig

TYPICAL AUTO-DRAIN OPERATION

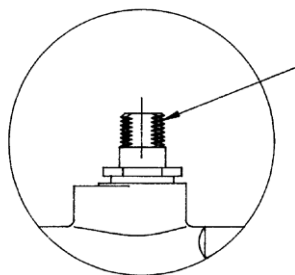


When this valve is shut off for maintenance of a pneumatic tool, pressure between the valve and tool is automatically drained to atmosphere to prevent possible injury caused by accidental operation of the tool.

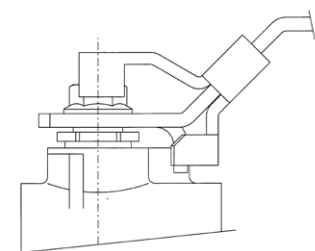
NOTE: Temperature variations and dirty systems can cause vent discharge in both the open and closed positions.



OPTIONS

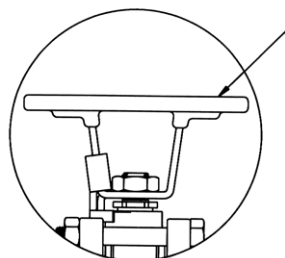


-45- LESS LEVER AND NUT

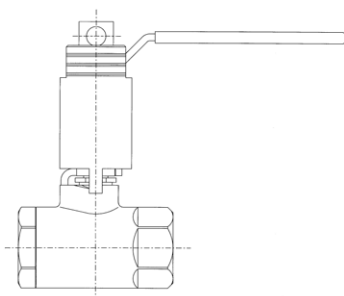


-46- SS LOCK CLOSED ONLY

Latch-Lock Handle



-47- SS LATCH-LOCK OVAL HANDLE



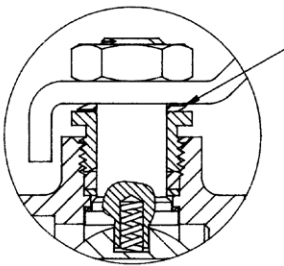
-50- 2.25" LOCKING STEM EXTENSION

Zinc Plated CS

OPTIONS



-59- SS BODY TRIM (BOLTS, NUTS & LEVER)



-60- GROUNDED BALL AND STEM

SECTION M – ENGINEERING DATA

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SECTION M – ENGINEERING DATA

FLOW DATA

For Apollo® Ball Valves

The listed Cv "factors" are derived from actual flow testing, in the Apollo® Ball Valve Division, Conbraco Industries, Inc., Pageland, South Carolina. These tests were completed using standard "off the shelf" valves with no special preparation and utilizing standard schedule 40 pipe. It should be understood that these factors are for the valve only and also include the connection configuration. The flow testing is done utilizing water as a fluid media and is a direct statement of the gallons of water flowed per minute with a 1 psig pressure differential across the valve/connection unit. Line pressure is not a factor. Because the Cv is a factor, the formula can be used to estimate flow of most media for valve sizing.

FLOW OF LIQUID

$$Q = C_v \sqrt{\frac{\Delta P}{\text{SpGr}}}$$

$$\text{or } \Delta P = \frac{(Q)^2 (\text{SpGr})}{(C_v)^2}$$

Where:

Q = flow in US gpm
 ΔP = pressure drop (psig)
 SpGr = specific gravity at flowing temperature
 Cv = valve constant

FLOW OF GAS

$$Q = 1360 C_v \sqrt{\frac{(\Delta P) (P_2)}{(\text{SpGr}) (T)}}$$

$$\text{or } \Delta P = \frac{5.4 \times 10^{-7} (\text{SpGr}) (T) (Q)^2}{(C_v)^2 (P_2)}$$

Where:

Q = flow in SCFH
 ΔP = pressure drop (psig)
 SpGr = specific gravity (based on air = 1.0)
 P₂ = outlet pressure-psia (psig + 14.7)
 T = (temp. °F + 460)
 Cv = valve constant

CAUTION: The gas equation shown, is valid at very low pressure drop ratios. The gas equation is **NOT** valid when the ratio of pressure drop (ΔP) to inlet pressure (P₁) exceeds 0.02.

NOTE: Only use the gas equation shown if (P₁-P₂)/P₁ is less than 0.02.

Cv FACTORS FOR APOLLO VALVES

SIZE (IN.)	1/4	3/8	1/2	3/4	1	1.25	1.5	2	2.5	3	4	6	8	10	12
VALVE															
32-100/200 Series	5.1	6.6	8	24	30	45	55	95	--	--	--	--	--	--	--
64-100/200 Series	6	7	19	34	50	104	268	309	629	1018	1622	--	--	--	--
64W Series	--	--	--	--	--	--	--	--	629	1018	1622	--	--	--	--
70B-140 Series	8.4	7.2	15	30	43	48	84	108	190	370	670	--	--	--	--
70-100/200 Series	8.4	7.2	15	30	43	48	84	108	190	370	670	--	--	--	--
70-300/400 Series	--	--	15	30	43	48	84	108	--	--	--	--	--	--	--
70-600 Series	2.3	4.5	5.4	12	14	21	34	47	--	--	--	--	--	--	--
70-800 Series	8.4	7.2	15	30	43	48	84	--	--	--	--	--	--	--	--
71AR Series	--	--	--	30	43	48	84	108	190	370	--	--	--	--	--
71-100/200 Series	--	--	--	30	43	48	84	108	190	370	--	--	--	--	--
72-100/900 Series	--	--	26	48	65	125	170	216	--	--	--	--	--	--	--
73A-100 Series	8.4	7.2	15	30	43	48	84	108	--	--	--	--	--	--	--
73-300/400 Series	--	--	26	48	65	125	170	216	--	--	--	--	--	--	--
74-100 Series	8.4	7.2	15	30	43	48	84	108	190	370	670	--	--	--	--
75-100 Series	8.4	7.2	15	30	43	48	84	108	190	370	670	--	--	--	--
76AR Series	8.4	7.2	15	30	43	48	84	108	190	370	670	--	--	--	--
76F-100 Series	8.1	15	15	51	68	125	177	389	--	--	--	--	--	--	--
76-100 Series	8.4	7.2	15	30	43	48	84	108	190	370	--	--	--	--	--
76-300/400 Series	--	--	26	48	65	125	170	216	--	--	--	--	--	--	--
76-600 Series	2.3	4.5	5.4	12	14	21	34	47	--	--	--	--	--	--	--
7K-100 Series	--	--	15	51	68	125	177	389	503	--	--	--	--	--	--
77AR Series	8.1	15	15	51	68	125	177	389	--	--	--	--	--	--	--
77C-100/200 Series	4.5	7.2	16	36	68	125	177	389	503	--	--	--	--	--	--
77D-140 Series	4.5	7.2	16	36	68	125	177	389	--	--	--	--	--	--	--
77D-640 Series	--	--	--	11	24	35	--	--	--	--	--	--	--	--	--
77G-UL Series	4.5	7.2	16	36	68	125	177	389	503	--	--	--	--	--	--

continued on next page

FLOW DATA

For Apollo® Ball Valves

Cv FACTORS FOR APOLLO VALVES (continued from page M-3)

SIZE (IN.)	1/4	3/8	1/2	3/4	1	1.25	1.5	2	2.5	3	4	6	8	10	12
VALVE															
77W Series	--	--	16	36	68	125	177	389	--	--	--	--	--	--	--
77X Series	--	--	16	36	68	--	--	--	--	--	--	--	--	--	--
77-100/200 Series	8.1	15	15	51	68	125	177	389	503	--	--	--	--	--	--
79 Series	8.5	8.5	9.8	32	44	66	148	218	440	390	--	--	--	--	--
80/81 Series	8.4	7.2	15	30	43	48	84	108	190	370	--	--	--	--	--
82-100/200 Series	8.1	14	26	51	68	120	170	376	510	996	1893	--	--	--	--
83A/83B Series	8.1	14	26	51	68	120	170	376	--	--	--	--	--	--	--
83R-100/200 Series	--	--	--	--	--	--	170	376	--	996	1893	--	--	--	--
86A/86B Series	8.1	14	26	51	68	120	170	376	--	--	--	--	--	--	--
86R-100/200 Series	--	--	--	--	--	--	170	376	--	996	1893	--	--	--	--
87A-100 Series	--	--	--	--	--	--	86	104	234	375	673	1099	1902	3890	--
87A-200 Series	--	--	15	19	75	--	195	410	545	1021	2016	4837	9250	15170	22390
87A-700 Series	--	--	--	--	--	--	86	104	234	375	673	1099	1902	3890	--
87A-900 Series	--	--	15	19	75	--	195	410	545	1021	2016	4837	9250	15170	22390
87A-F00 Series	--	--	--	--	75	--	195	410	545	1021	2016	4837	--	--	--
87B-100 Series	--	--	--	--	--	--	--	--	--	375	673	1099	1902	3890	--
88A-100 Series	--	--	--	--	--	--	86	104	234	375	673	1099	1902	3890	--
88A-200 Series	--	--	15	19	75	--	195	410	545	1021	2016	4837	9250	15170	22390
88A-700 Series	--	--	--	--	--	--	86	104	234	375	673	1099	1902	3890	--
88A-900 Series	--	--	15	19	75	--	195	410	545	1021	2016	4837	9250	15170	22390
88A-F00 Series	--	--	--	--	75	--	195	410	545	1021	2016	4837	--	--	--
88B-100 Series	--	--	--	--	--	--	--	--	--	375	673	1099	1902	3890	--
89-100 Series	8.4	7.2	15	30	43	48	84	108	190	370	--	--	--	--	--
9A-100 Series	8.3	6.7	5.7	10	16	25	40	62	--	--	--	--	--	--	--
91-100 Series	8.3	6.7	5.7	10	16	25	40	62	--	--	--	--	--	--	--
92-100 Series	8.3	6.7	5.7	10	16	25	40	62	--	--	--	--	--	--	--
93-100 Series	8.3	6.7	5.7	10	16	25	40	62	--	--	--	--	--	--	--
94A-100/200 Series	6	7	19	34	50	104	268	309	629	1018	1622	--	--	--	--
95-100/200 Series	--	--	15	51	68	--	--	--	--	--	--	--	--	--	--
95A-300/400 Series	--	--	19	34	50	--	--	--	--	--	--	--	--	--	--
96-100 Series	8.3	6.7	5.7	10	16	25	40	62	--	--	--	--	--	--	--
399-100 Series	8.4	7.2	15	30	43	48	84	108	190	370	--	--	--	--	--
489-100 Series	8.4	7.2	15	30	43	48	84	108	190	370	--	--	--	--	--

CAUTION

Engineering Data

It is the responsibility of the installer and/or system designer to ensure that these valves are installed in accordance with applicable and current ANSI B31 standards.

Following, are some safeguards that must be considered prior to installation.

EASE OF OPERATION:

Ball Valves are easier to operate than other types of shut-off valves, when these valves are installed so that there is a possibility that the handles can be hooked or snagged, appropriate action to prevent accidental or unwanted opening or closing of the valve must be taken. Vibrations in, through or around the valve can also cause accidental or unwanted opening or closing of the valve.

PRESSURE RELIEF:

Determine and provide corrective action against excessive pressure build up in the valve or piping system due to thermal expansion. Thermal expansion can create extreme pressures well above the working pressure limit of the valve which can cause leaking or bursting of the valve.

SUPPORTS:

If you choose to connect a flexible hose or other non-ridged conduit to the valve, the design of such installation must prevent any "whipping action" that could injure or damage personnel or equipment. Valve must be immobile.

FITTINGS:

Use only those fittings or piping that are compatible with the valves being used to prevent breakage and/or leakage. (As for one example, it is poor practice and never recommended to use plastic pipe or fittings with metallic valves since thermal expansion, external forces or other situations can cause breakage or leakage at or near the joint).

PRESSURE/TEMPERATURE LIMITS:

The maximum working pressure limit of the valve is marked on the valve body. Never exceed this "WOG" rating which is specified up to 100°F. Temperatures higher than 100°F decrease the maximum working pressure limit. Refer to the appropriate pressure/temperature chart that is published in the catalog.

FREEZING:

Provide means to protect the valve from freezing and bursting when used with liquids.

FLUID COMPATIBILITY:

Consider the corrosive, erosive and adhesive effects of fluids on the valve and piping components. It is your responsibility to ensure that the valve is compatible with the materials(s) used in the system.

INSTALLATION:

The use of TFE pipe tape as a sealant is recommended for threaded valves when making joints. Correct lubrication of stainless steel pipe threads is especially important to prevent thread galling. Do not apply excessive torque when installing the valve. To prevent distortion or damage to the valve, do not apply torque through the valve. Use proper supports in handling pre-fabricated sections and in final installation. **Always test the system before using.**

MAINTENANCE:

Do not disassemble the valve while under pressure. Request a maintenance manual before attempting repairs to the valve.

FOR BRONZE VALVES - WARNING:

This product is made from bronze alloys which contain lead; a chemical known to the state of California to cause cancer and birth defects and other reproductive harm. (Plumber California law requires that this warning be given to the consumer).

LEAD FREE:



The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with CA AB1953, VT Act 193, MD HB372, LA HB471 and Federal Public Law 111-380. ANSI 3rd party approved and listed.

TORQUE CONSTANTS

Apollo® AR™ Two Piece Actuator Ready Valves

TORQUE CONSTANTS

DIFFERENTIAL PRESSURE psig		100	200	400	600	800	1000	1500	2000	LSST***	-24 ADDER
VALVE MODEL	SIZE									(IN.-LBS.)	(IN.-LBS.)
**STD PORT **71-ARX-64 89-ARX-64 76-ARX-64	1/4 - 1/2	25	26	27	28	30	32	35	38	50	45
	3/4	50	50	52	54	57	60	64	72	100	45
	1	85	86	88	90	94	97	110	138	170	56
	1.25	140	140	145	156	160	172	194		280	96
	1.5	160	164	173	186	195	201	235		320	96
	2	220	230	258	270	310	350	460		440	96
	2.5	450	495	596	680	790	900			900	96
*FULL PORT **77-ARX-64	3	500	540	700	820	920	1030			1000	96
	1/4 - 1/2	25	50	52	54					100	45
	3/4	50	86	88	90					170	56
	1	140	148	160	180					280	56
	1.5	290	300	310	340					580	96
	2	340	355	420	563					680	96

* Torques tested with multifilled seats. Does not require torque adjustment of -20%.

** 71-ARX-64 and 77-ARX-64 rated to 600 psig maximum.

*** LSST - Long Stand Still Torque

Apollo® End Entry Valves (1), (2)

TORQUE CONSTANT (LB-IN) AT DIFFERENTIAL PRESSURE INDICATED psig

DIFFERENTIAL PRESSURE psig		200	400	600	800	1000	1500	LSST***	-24 ADDER
VALVE MODEL	SIZE							(IN.-LBS.)	(IN.-LBS.)
STD PORT 70-64X 71-14X 76-10X 76-60X 89-14X 399-10X	1/4 - 1/2	35	35	40	43	46	48	70	45
	3/4	50	50	54	59	62	64	100	45
	1	101	101	103	106	116	130	202	56
	1.25	171	171	205	216	246	286	342	96
	1.5	192	192	216	265	280	311	384	96
	2	271	271	276	300	309	354	542	96
	2.5 & 3	715	715	790		1200		1430	96
FULL PORT BRONZE 77-14X	1/4 - 1/2	35	35	40				70	45
	3/4	74	74	84				148	56
	1	234	234	250				468	56
	1.25	286	286	321				552	56
	1.5	357	357	398				714	96
	2	650	650	722				1300	96
FULL PORT BRONZE 77D-14X	2.5 & 3	715	715	790				1430	111
	1/2	25	25	25	25			50	
	3/4	55	55	55	55			110	
	1	87	87	87	87			174	
	1.5	120	120	120	120			240	
	2	280	280	280	280			560	
FULL PORT 3-PIECE 82-14X & 24X	1/4 - 1/2	78	78	90				156	56
	3/4	156	156	178				312	56
	1	208	208	230				416	96
	1.25	234	234	276				468	96
	1.5	350	350	390				700	96
	2	715	715	755				1430	96
	3	710						1100	292
FULL PORT 3-PIECE 83A-14X & 24X 83B-14X & 24X 86A-10X & 20X 86B-10X & 20X	4	1052						1540	292
	1/4 - 1/2	38	39	41	42	43	49	75	45
	3/4	61	62	63	63	67	79	121	68
	1	97	104	110	117	124	141	180	68
	1.25	182	198	213	228	243	281	335	96
	1.5	182	198	213	228	243	281	335	96
FULL PORT 3-PIECE 83R-108-01 & 83R-100-01 86R-108-01 & 86R-100-01	2	275	338	402	466	529	688	422	127
	2	715	715	755	800	912	1024	1430	96
	3	1030	1030	1087	1148	1212		2060	201

TORQUE CONSTANTS

Apollo® PEEK Seated 83B/86B with Graphite Stem Packing

TORQUE CONSTANT (LB-IN) AT DIFFERENTIAL PRESSURE INDICATED psig

DIFFERENTIAL PRESSURE psig		200	400	600	800	1000	1200	1400	1500	LSST
VALVE MODEL	SIZE									
FULL PORT 3-PIECE 83B/86B	1/4 - 1/2	75	80	86	91	98	105	111	118	112
	3/4	130	150	170	177	185	194	204	210	195
	1	250	263	276	289	302	315	328	345	375
	1.25	420	463	506	549	592	635	678	720	630
	1.5	420	463	506	549	592	635	678	720	630
	2	840	922	1004	1086	1168	1250	1332	1410	1260

Caution: 2" PEEK seated valves operating at pressures higher than 1000 psig, should be automated or have a gear operator installed. Lever operation is not suggested. All values are stated in (in. lbs.)

Apollo® Flanged Ball Valves

VALVE SERIES	SIZE	WORKING PRESSURE (psig)										LSST (IN.-LBS.)	-24 ADDER (IN.-LBS.)
		0	100	200	300	400	500	600	700	740			
87A-100's 88A-140's 87B-100's 88B-100's	1.5" SP 150	132	144	155	167						264	68	
	2" SP 150	176	193	211	228						352	96	
	2.5" SP 150	231	254	277	300						462	127	
	3" SP 150	253	327	402	476						506	127	
	4" SP 150	850	860	875	890						1700	292	
	6" SP 150	1325	1345	1370	1400						2650	292	
	8" SP 150	2200	2494	2788	3081						4400	661	
	10" SP 150	3300	3580	3860	4140						6600	661	
87A-200's 88A-240's	1/2" FP 150	22	22	22	22						44	45	
	3/4" FP 150	39	43	47	51						77	68	
	1" FP 150	132	144	155	167						264	68	
	1.5" FP 150	176	193	211	228						352	96	
	2" FP 150	231	254	277	300						462	127	
	2.5" FP 150	253	327	402	476						506	127	
	3" FP 150	850	860	875	890						1700	292	
	4" FP 150	1325	1345	1370	1400						2650	292	
	6" FP 150	2200	2494	2788	3081						4400	661	
	8" FP 150	3300	3580	3860	4140						6600	661	
	10" FP 150	4400	5059	5718	6377						8800	988	
	12" FP 150	4950	8300	11650	15000						9900	988	
87A-700's 88A-740's	1.5" SP 300	132	144	155	167	178	190	201	213	217	264	68	
	2" SP 300	176	193	211	228	245	262	280	297	304	352	96	
	2.5" SP 300	231	254	277	300	323	346	369	392	401	462	127	
	3" SP 300	253	327	402	476	551	625	700	774	804	506	127	
	4" SP 300	850	860	875	890	910	950	1030	1110	1142	1700	292	
	6" SP 300	1325	1345	1370	1400	1430	1474	1615	1756	1812	2650	292	
	8" SP 300	2200	2494	2788	3081	3375	3669	3963	4257	4374	4400	661	
	10" SP 300	3300	3580	3860	4140	4420	4700	4980	5260	5372	6600	661	
87A-900's 88A-940's	1/2" FP 300	22	22	22	22	23	23	23	23	23	44	45	
	3/4" FP 300	39	43	47	51	55	59	63	67	69	77	68	
	1" FP 300	132	144	155	167	178	190	201	213	217	264	68	
	1.5" FP 300	176	193	211	228	245	262	280	297	304	352	96	
	2" FP 300	231	254	277	300	323	346	369	392	401	462	127	
	2.5" FP 300	253	327	402	476	551	625	700	774	804	506	127	
	3" FP 300	850	860	875	890	910	950	1030	1110	1142	1700	292	
	4" FP 300	1325	1345	1370	1400	1430	1474	1615	1756	1812	2650	292	
	6" FP 300	2200	2494	2788	3081	3375	3669	3963	4257	4374	4400	661	
	8" FP 300	3300	3580	3860	4140	4420	4700	4980	5260	5372	6600	661	
	10" FP 300	4400	5059	5718	6377	7036	7696	8355	9014	9277	8800	988	
	12" FP 300	4950	8300	11650	15000	18349	21699	25049	28399	29739	9900	988	

TORQUE CONSTANTS

Apollo® Class 600 Full Port Flanged Valves

TORQUE CONSTANTS FOR TOP ENTRY BALL VALVES – See *Top Entry Ball Valve Catalog (TECA9000)* for Top Entry Torque Constants.

TORQUE CONSTANTS FOR APOLLO CLASS 600 FULL PORT FLANGED VALVES

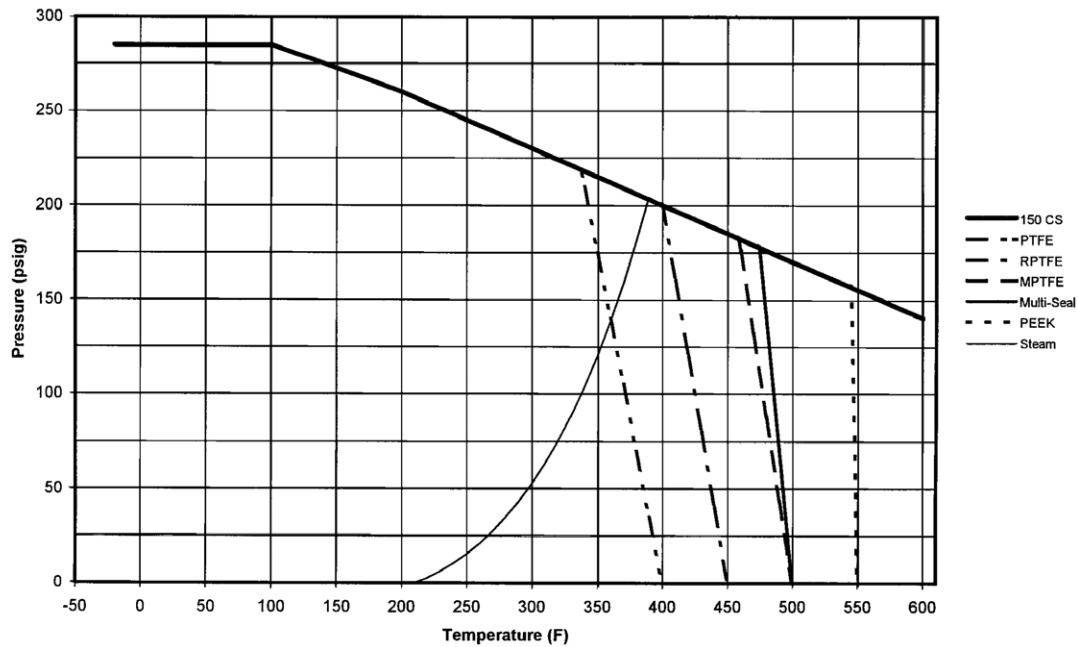
SEAT MATERIAL	SIZE	WORKING PRESSURE (PSIG)								
		200	400	600	800	1000	1200	1400	1500	LSST*
Devlon V-API	2"	686	698	710	721	732	744	755	761	1350
	2.5"	1150	1190	1231	1272	1313	1353	1395	1415	2256
	3"	1893	2030	2167	2304	2440	2577	2714	2782	3512
	4"	2406	2681	2957	3232	3508	3784	4060	4197	4260
	6"	7935	8280	8625	8970	9135	9660	10005	10178	13638
PEEK	8"	8282	8868	9454	10041	10627	11213	11799	12092	15978
	2"	1134	1245	1355	1466	1577	1688	1798	1904	2024
	2.5"	1360	1371	1383	1395	1406.2	1418	1430	1436	2706
	3"	2378	2588	2797	3007	3217	3427	3637	3741	4336
	4"	5771	6832	7892	8952	10012	11073	12133	12663	9422
UHMWPE	6"	6983	8675	10368	12061	13753	15446	17139	17985	10580
	8"	8586	12822	17058	21294	25531	29767	34003	36121	12936
	2"	428	454	479	505	531	556	582	594	806
	2.5"	447	467	486	506	525				875
	3"	1139	1224	1310	1396	1482				2106
MULTISEAL	4"	1506	1638	1820	2002	2184				2600
	6"	3133	3487	3842						5558
	8"	3814	4354	4894						7088
	2"	313	356	400	444	487	531	575	597	538
	2.5"	410	437	465	493	520				791
PTFE	3"	875	890	1030	1151	1228				1112
	4"	1506	1584	1683	1781	1880				2776
	6"	2788	3375	3963						4824
	8"	4836	5175	5514						8993
	2"	418	429	439	450	460	471	481	487	815
	2.5"	364	389	413	438	463				703
	3"	875	890	1030	1151	1228				878
	4"	1506	1562	1617	1672	1728				2908
	6"	2788	3375	3963						3051
	8"	4207	4622	5038						7585

Caution: For torque constants in the highlighted areas, manual valve operation is not suggested. Automated and gear operated assembly options are available. All values are stated in (in. lbs)

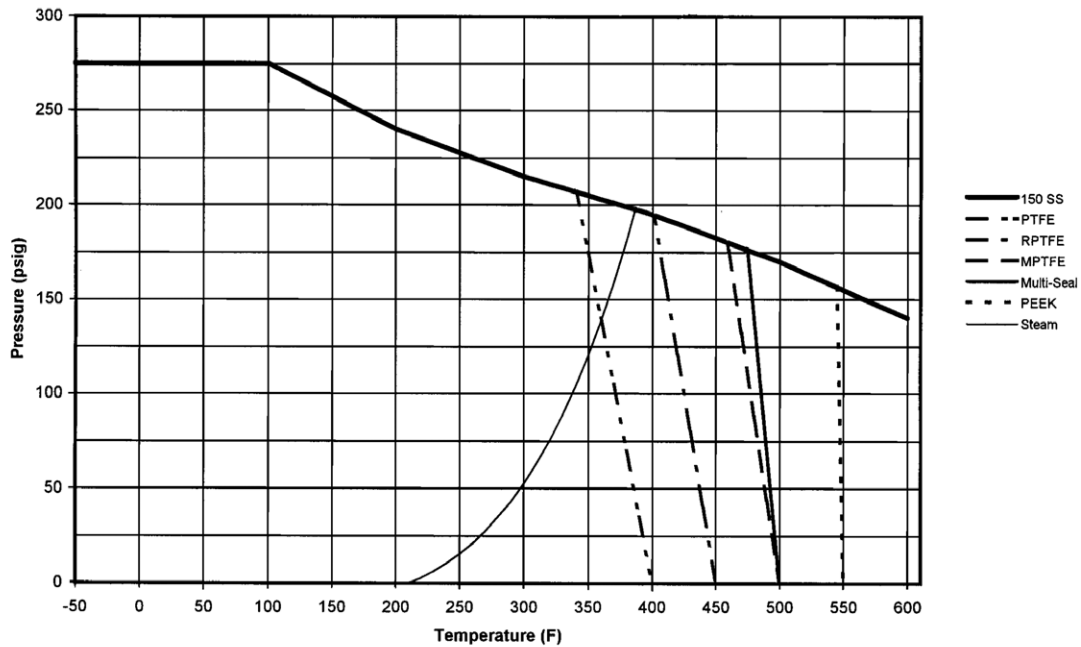
*LSST - Long Stand Still Torque

PRESSURE TEMPERATURE RATINGS

Class 150 CS (GRAPH 1)

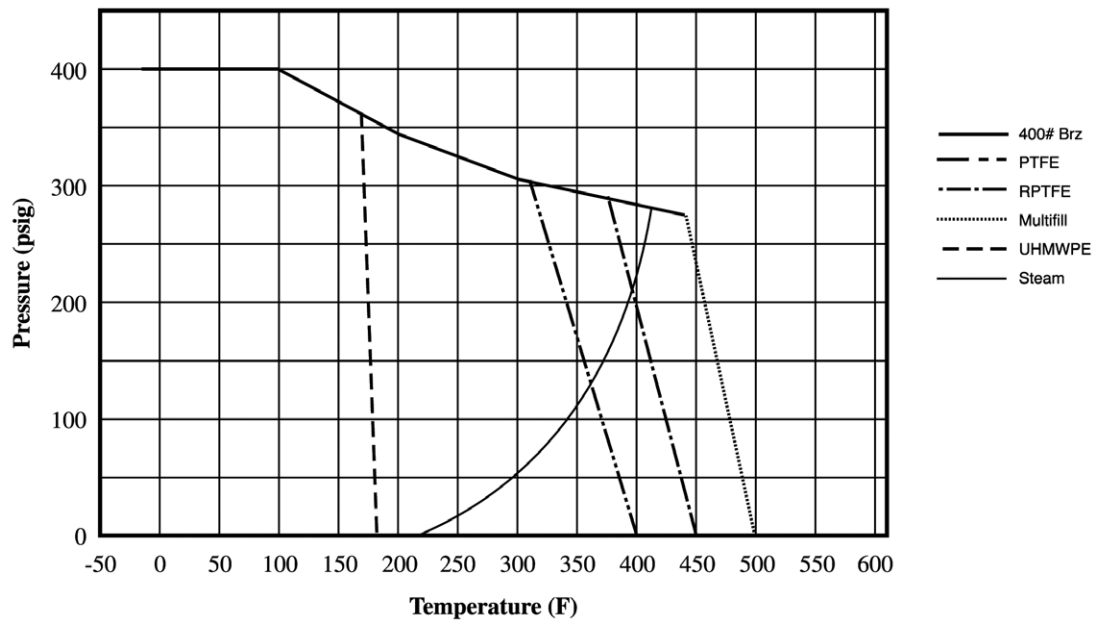


Class 150 SS (GRAPH 2)

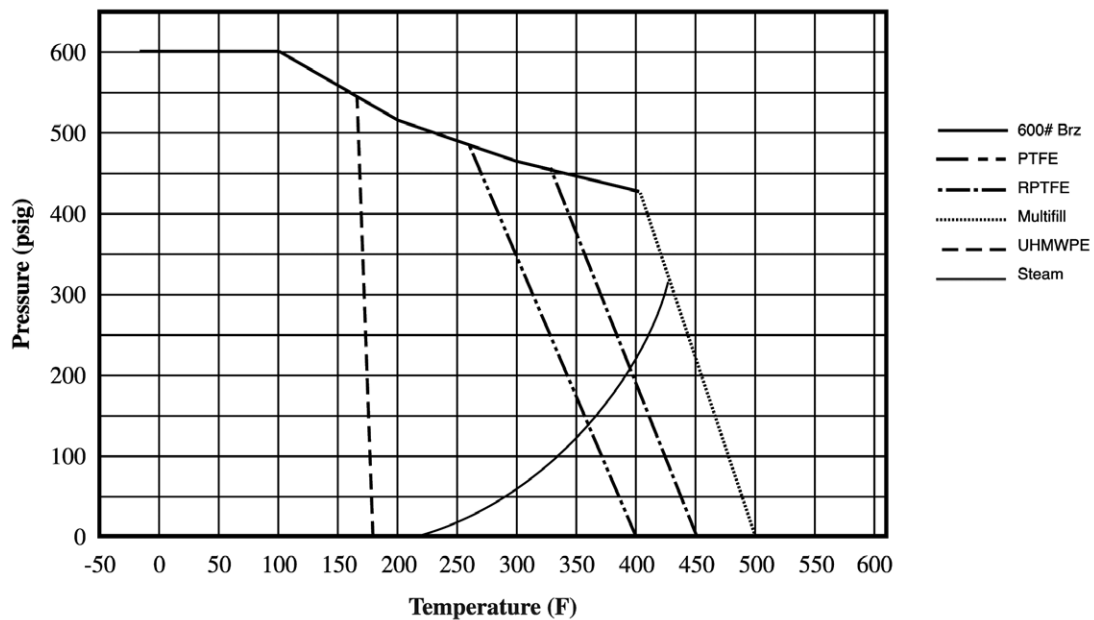


PRESSURE TEMPERATURE RATINGS

400# Bronze (GRAPH 3)

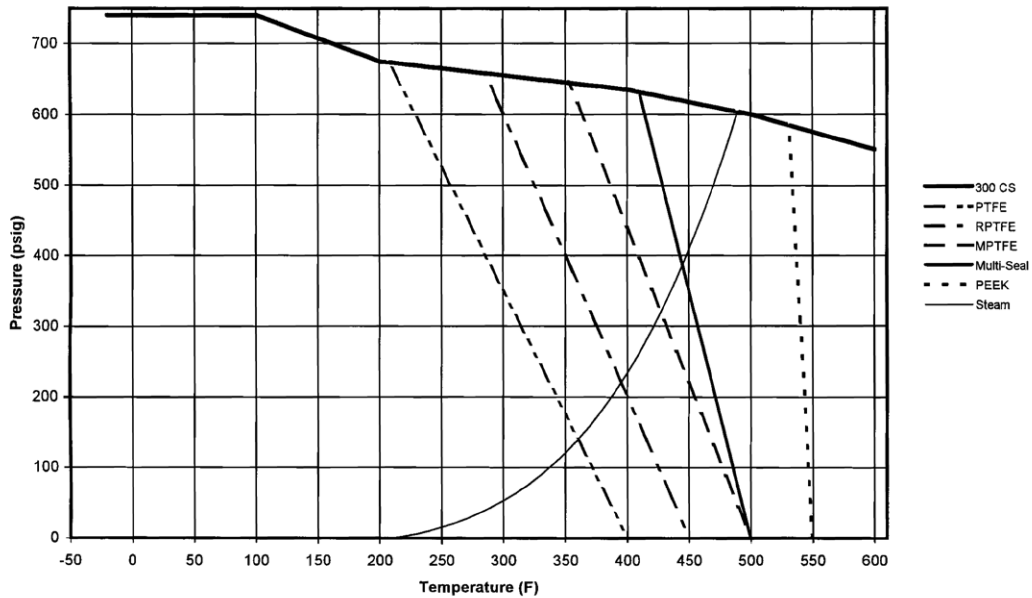


600# Bronze (GRAPH 4)

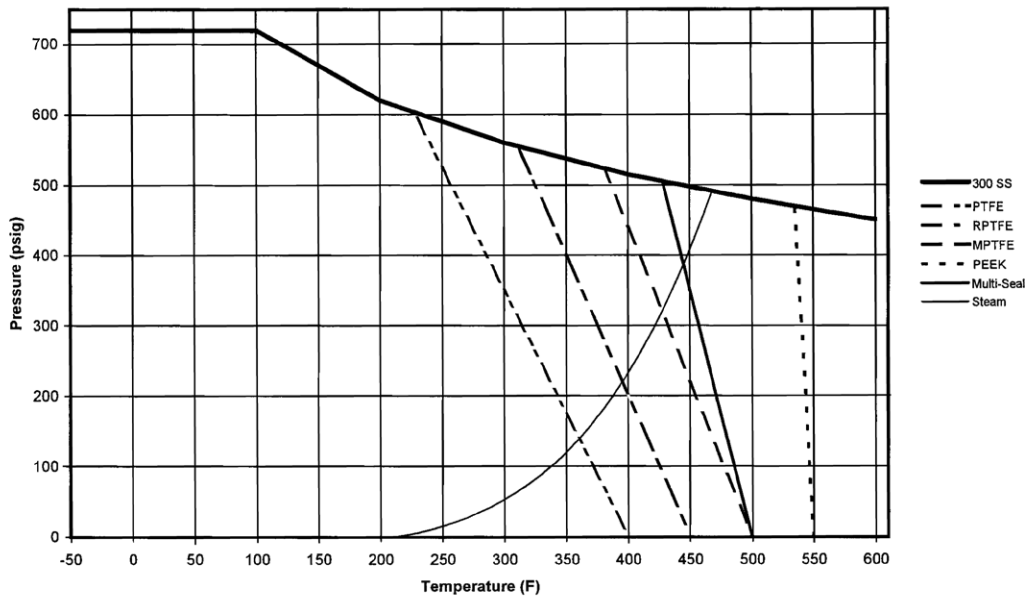


PRESSURE TEMPERATURE RATINGS

Class 300 CS (GRAPH 5)

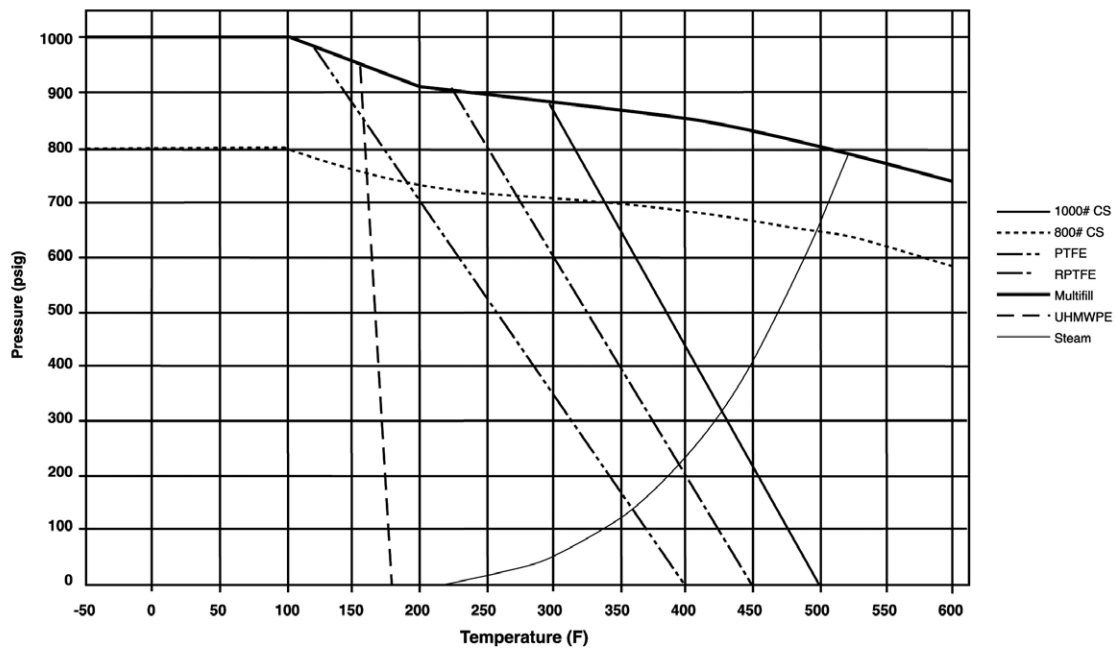


Class 300 SS (GRAPH 6)

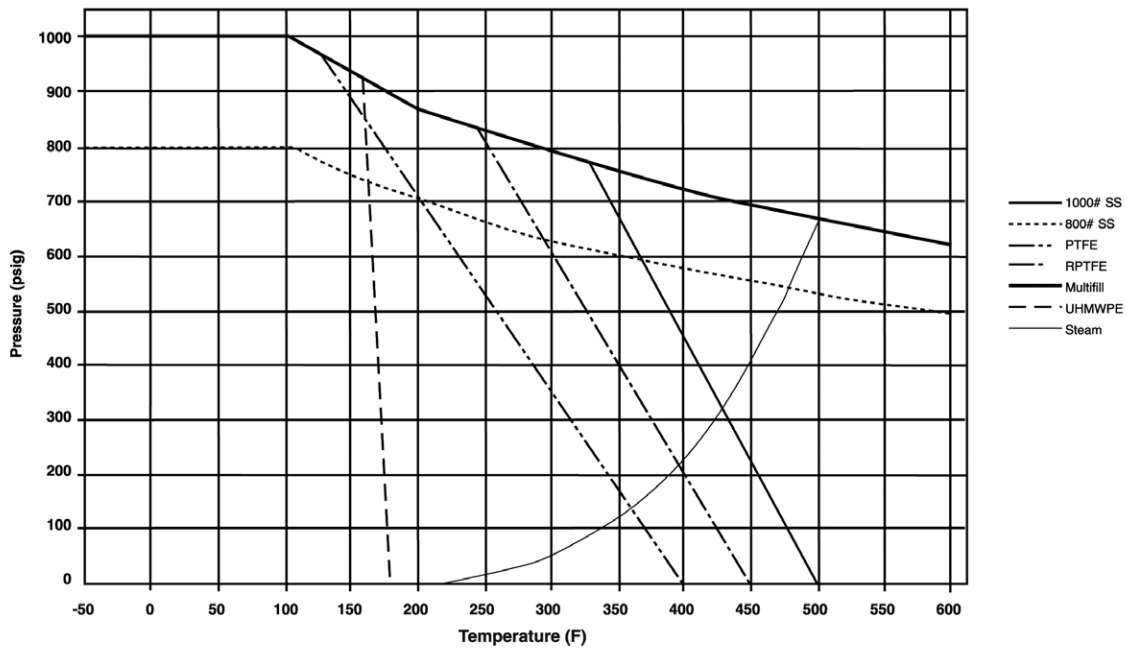


PRESSURE TEMPERATURE RATINGS

1000# CS (GRAPH 7)

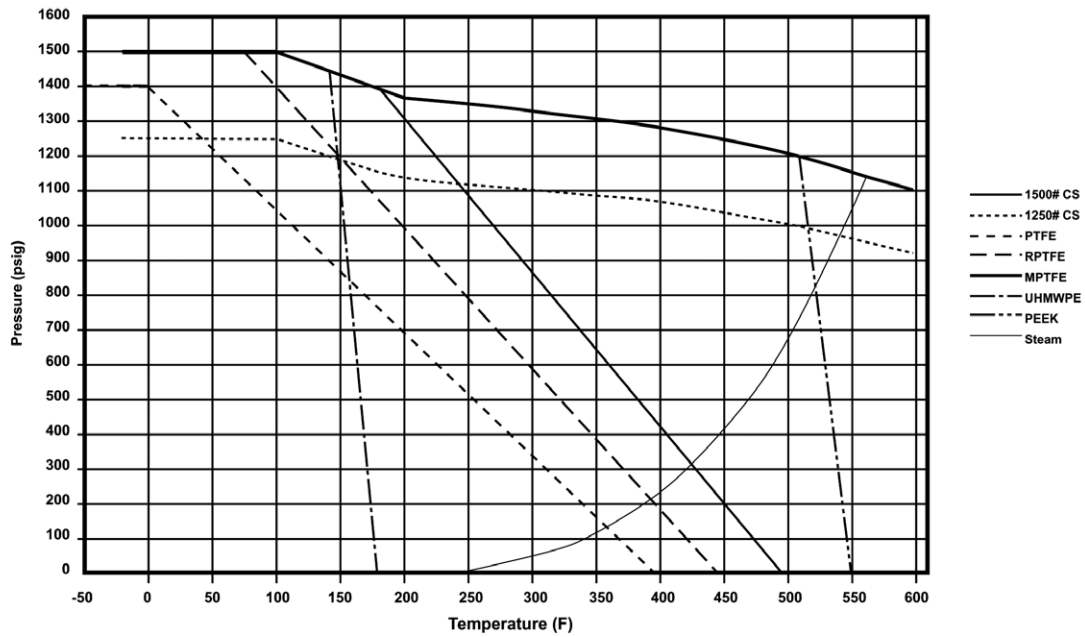


1000# SS (GRAPH 8)

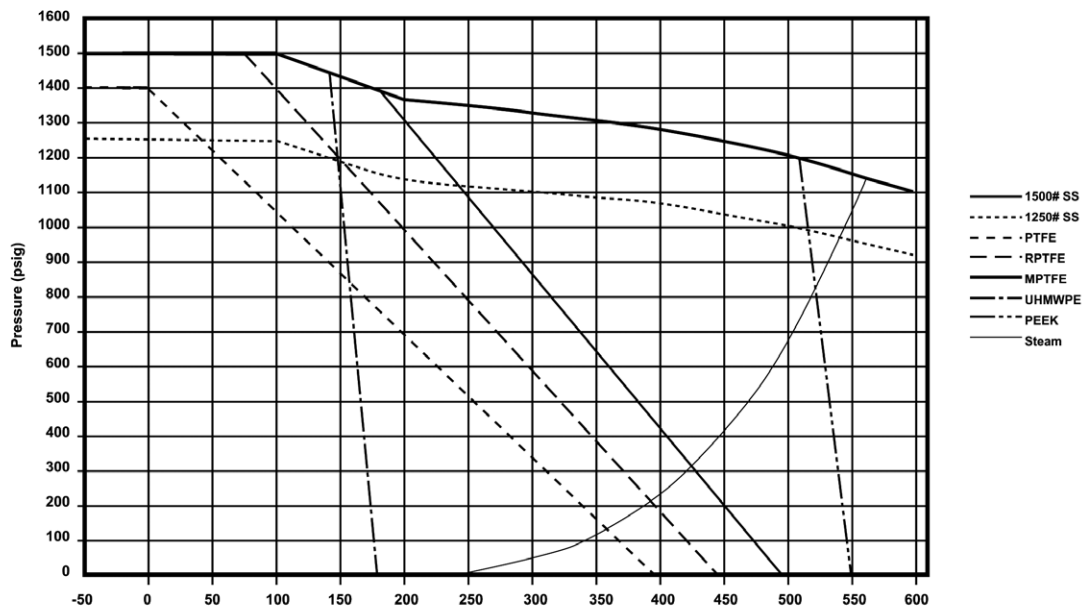


PRESSURE TEMPERATURE RATINGS

1500# CS (GRAPH 11)

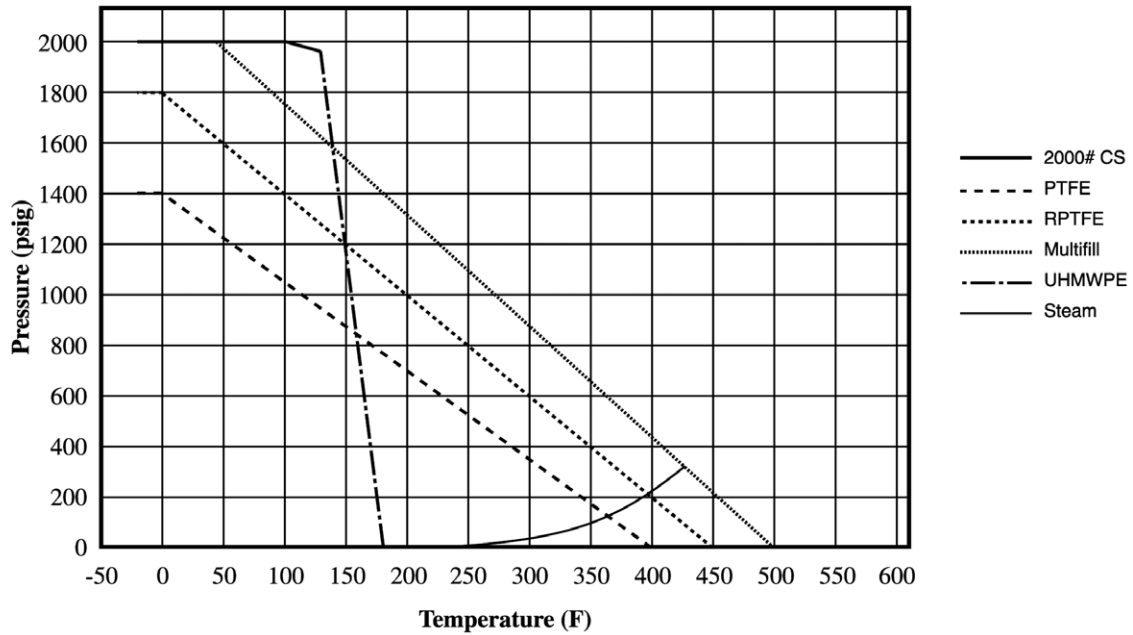


1500# SS (GRAPH 12)

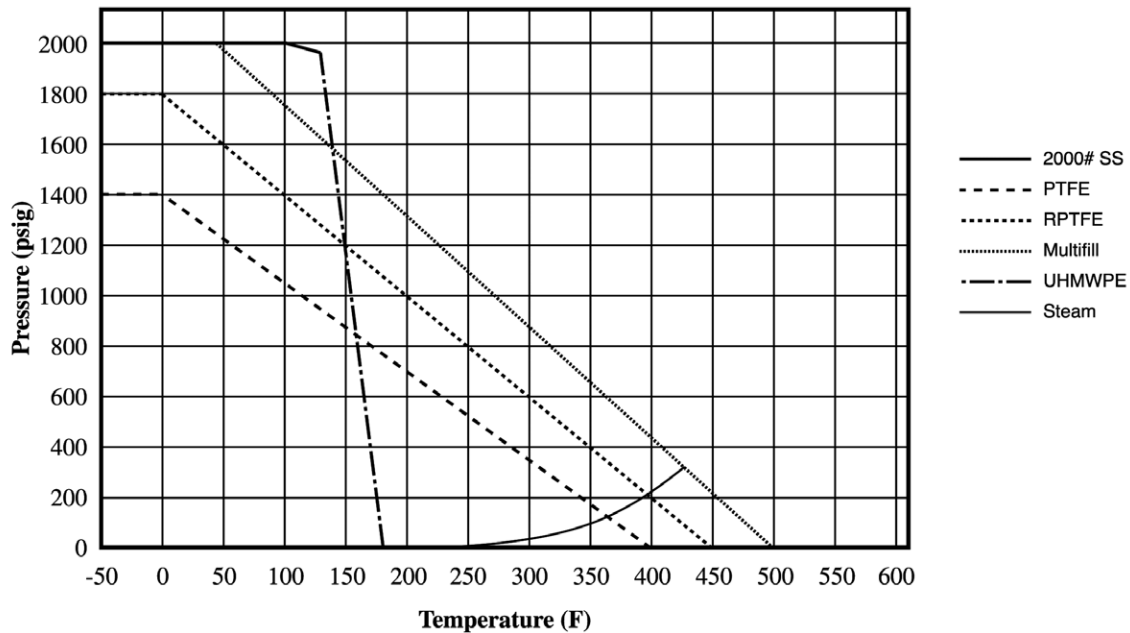


PRESSURE TEMPERATURE RATINGS

2000# CS (GRAPH 13)

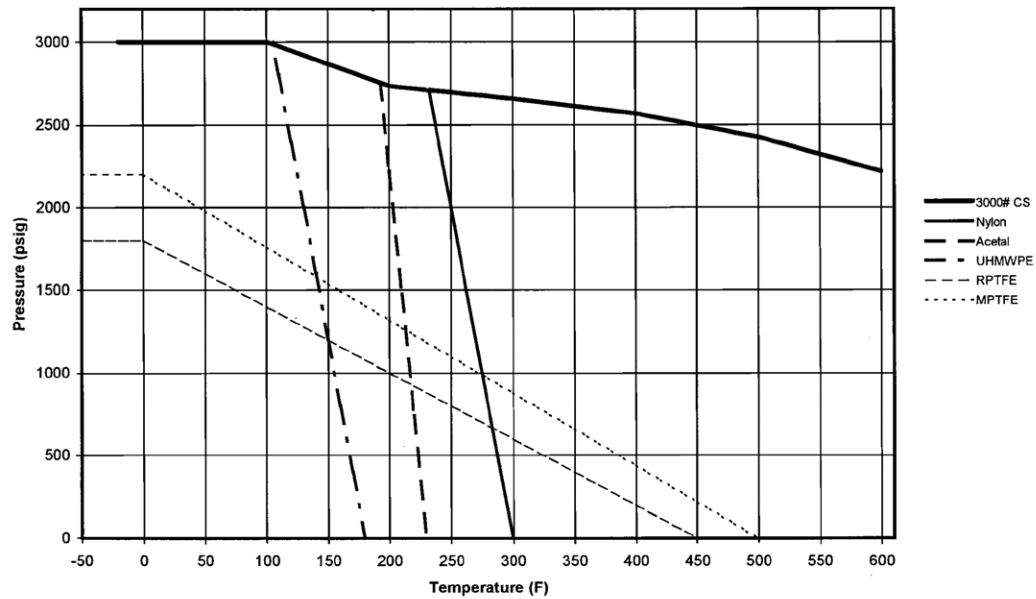


2000# SS (GRAPH 14)

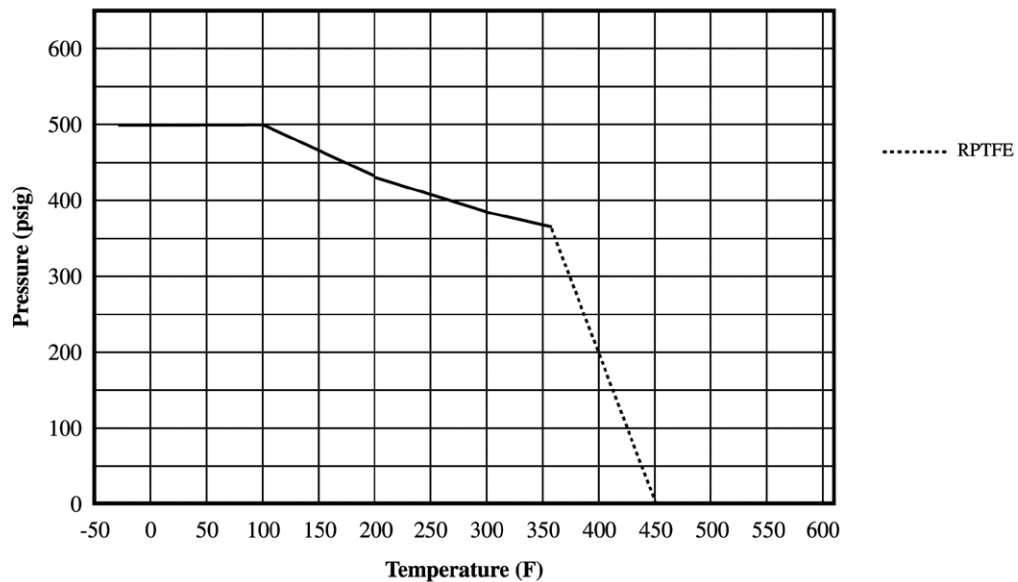


PRESSURE TEMPERATURE RATINGS

3000# CS (GRAPH 15)

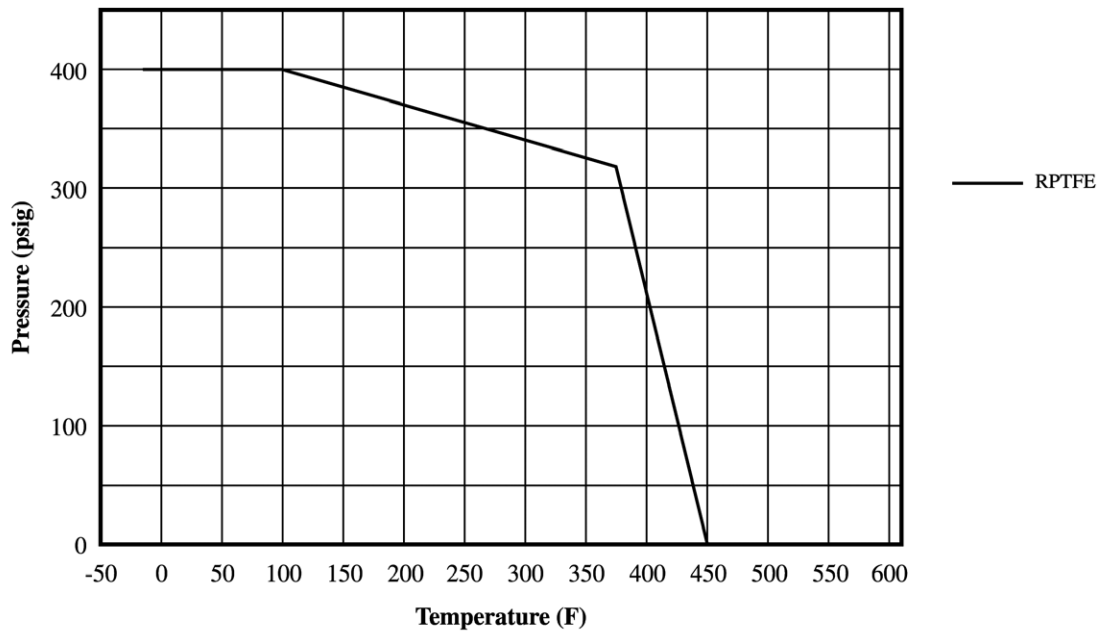


Refrigeration Valve (GRAPH 16)

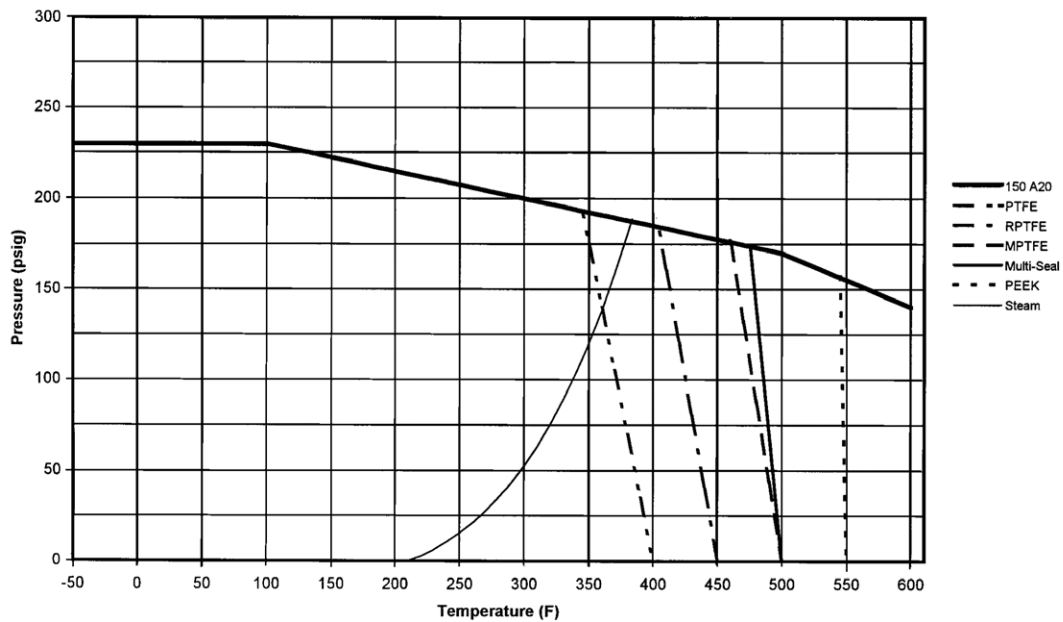


PRESSURE TEMPERATURE RATINGS

400# CS (GRAPH 17)

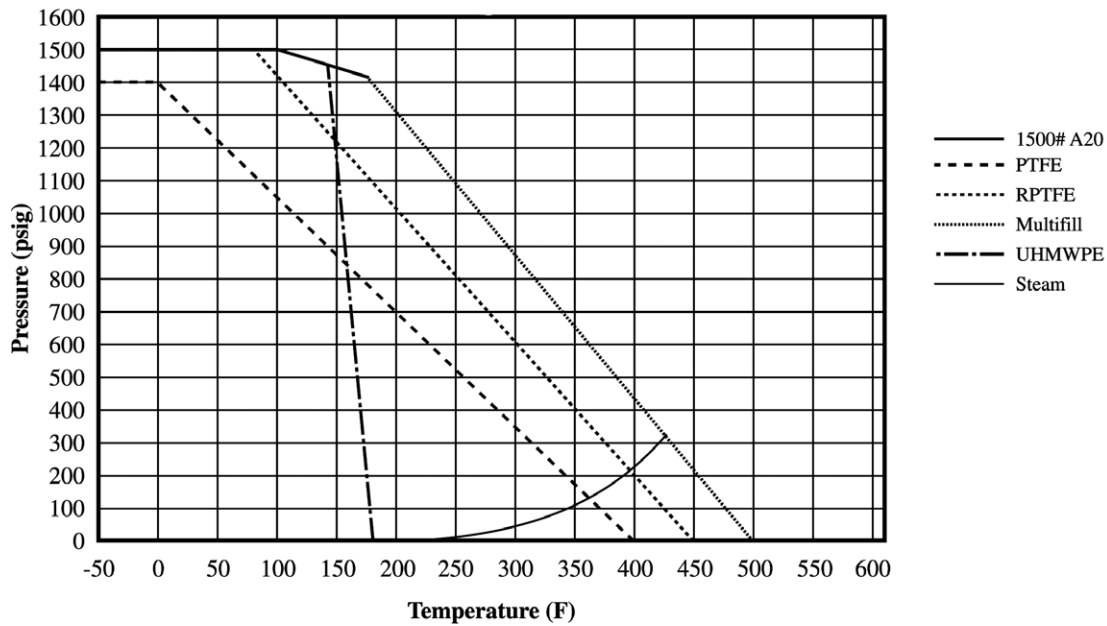


Class 150 Alloy 20 (GRAPH 18)

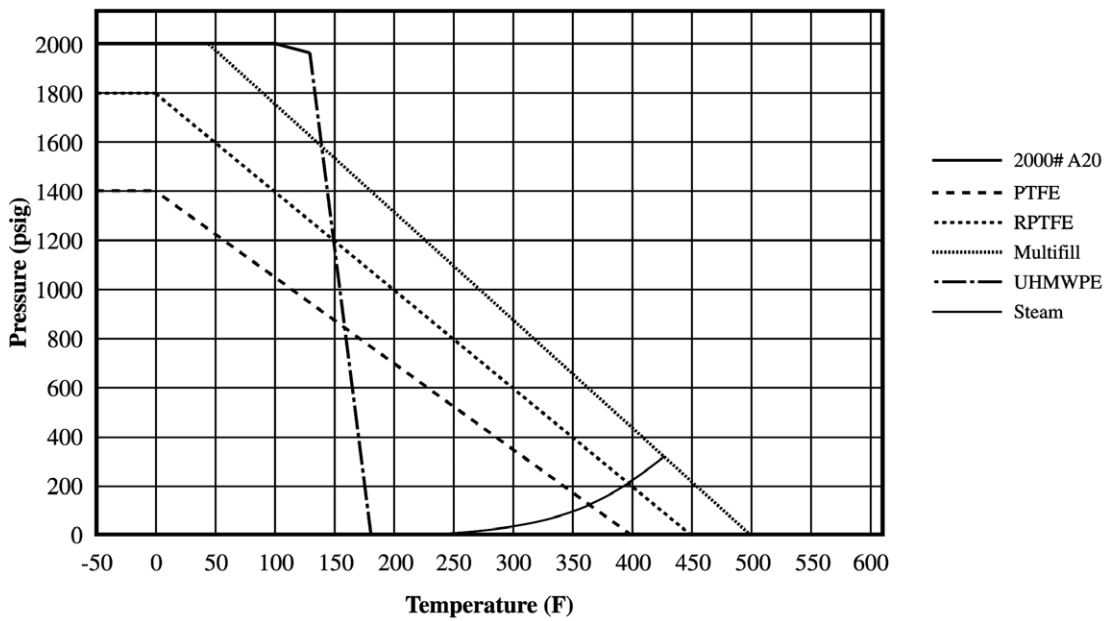


PRESSURE TEMPERATURE RATINGS

1500# Alloy 20 (GRAPH 19)

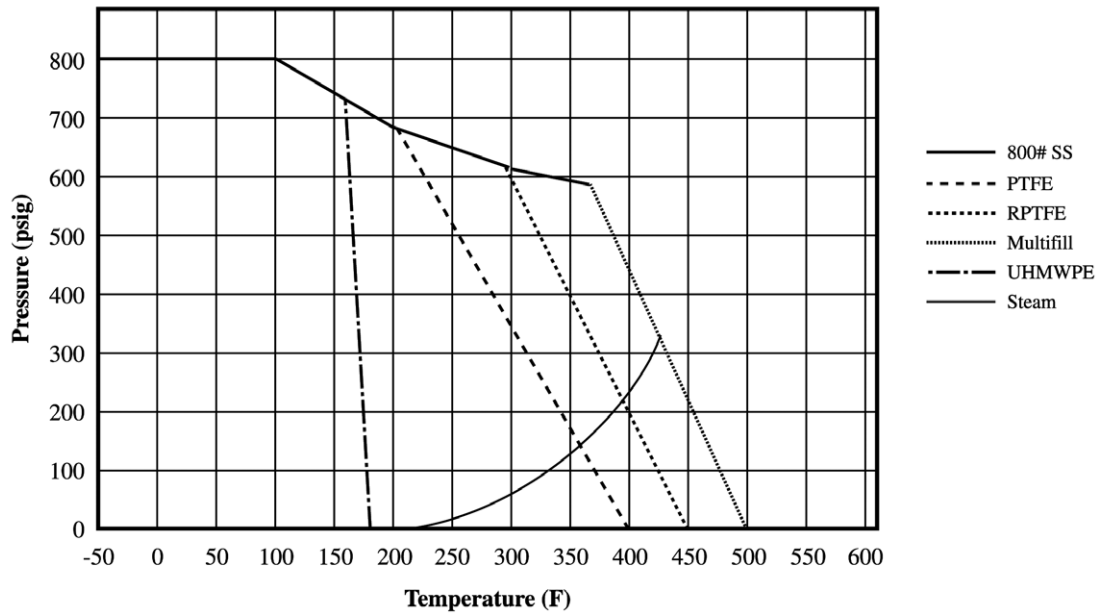


2000# Alloy 20 (GRAPH 20)

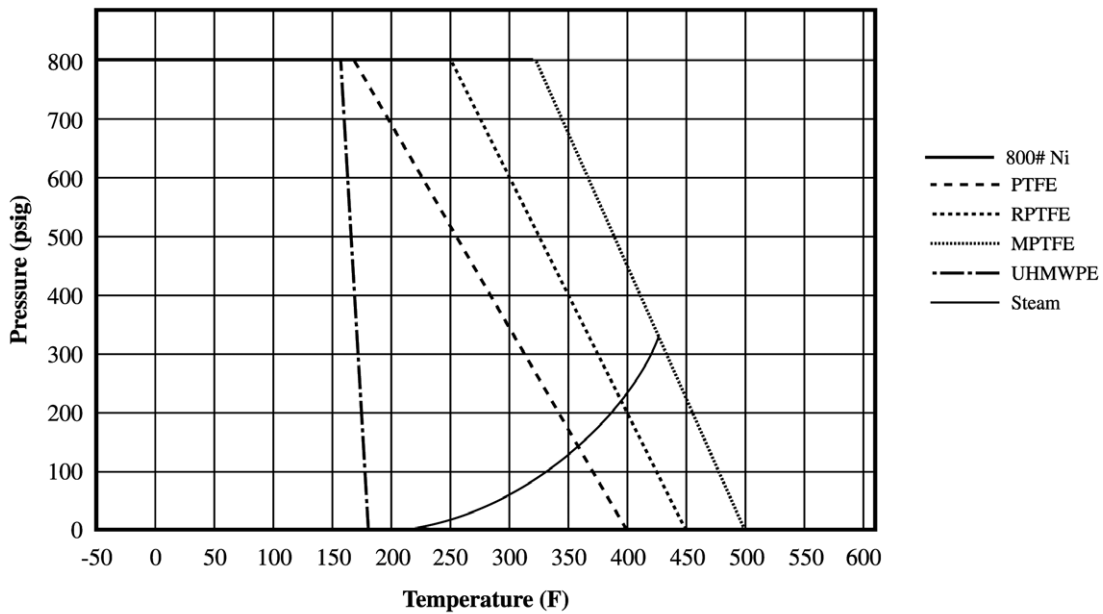


PRESSURE TEMPERATURE RATINGS

800# SS (GRAPH 21)

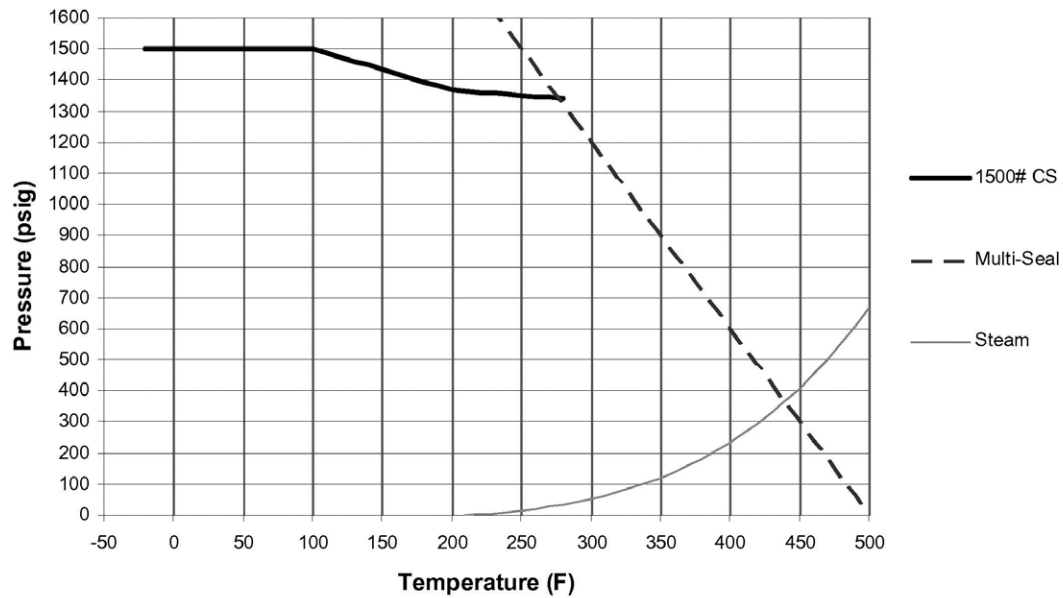


800# Nickel (GRAPH 22)

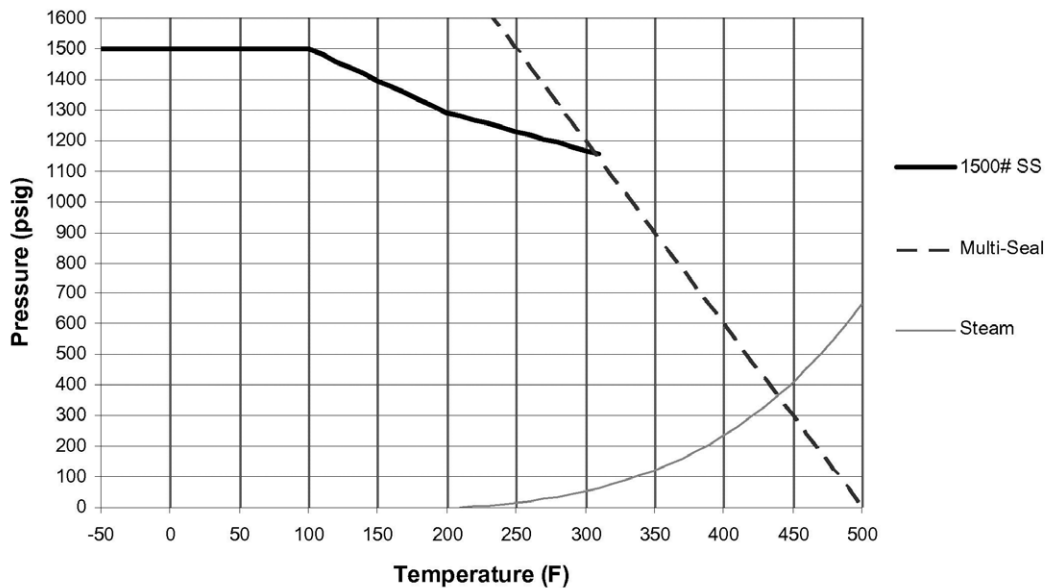


PRESSURE TEMPERATURE RATINGS

1500 CWP CS (GRAPH 23)

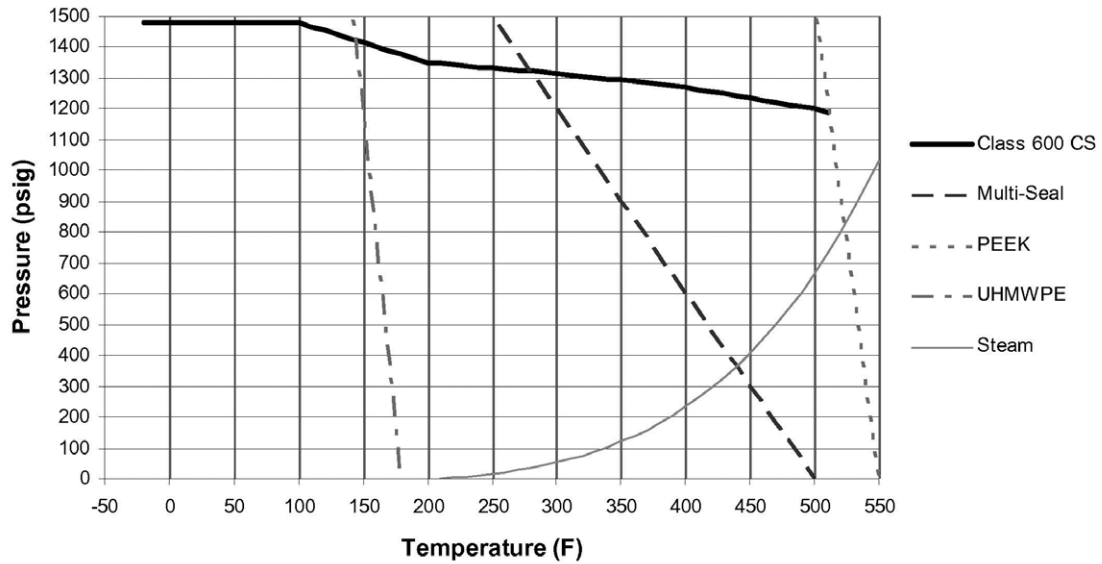


1500 CWP SS (GRAPH 24)

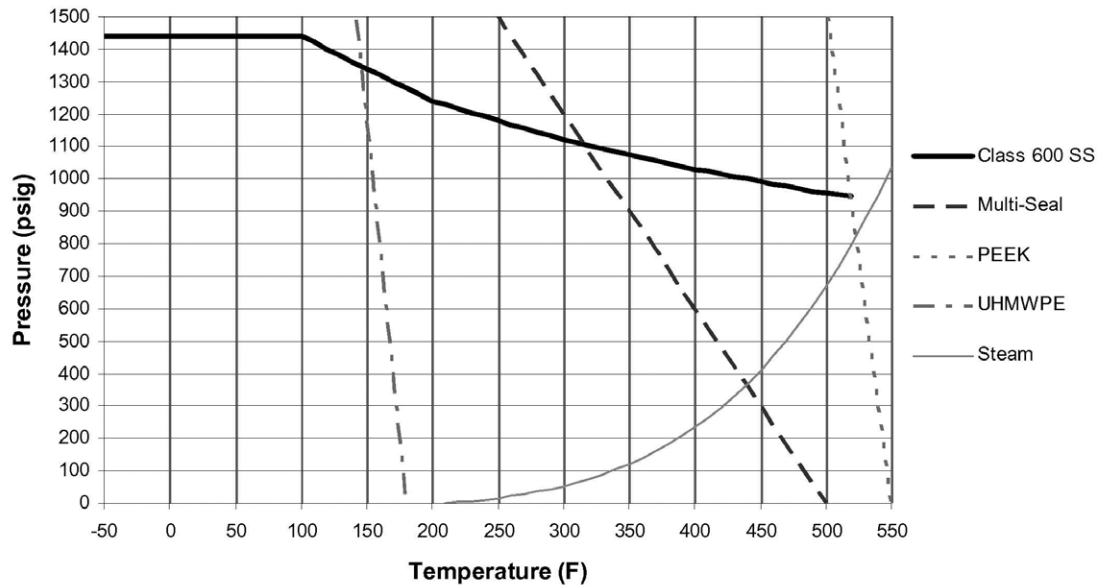


PRESSURE TEMPERATURE RATINGS

ASME Class 600 CS (GRAPH 25)

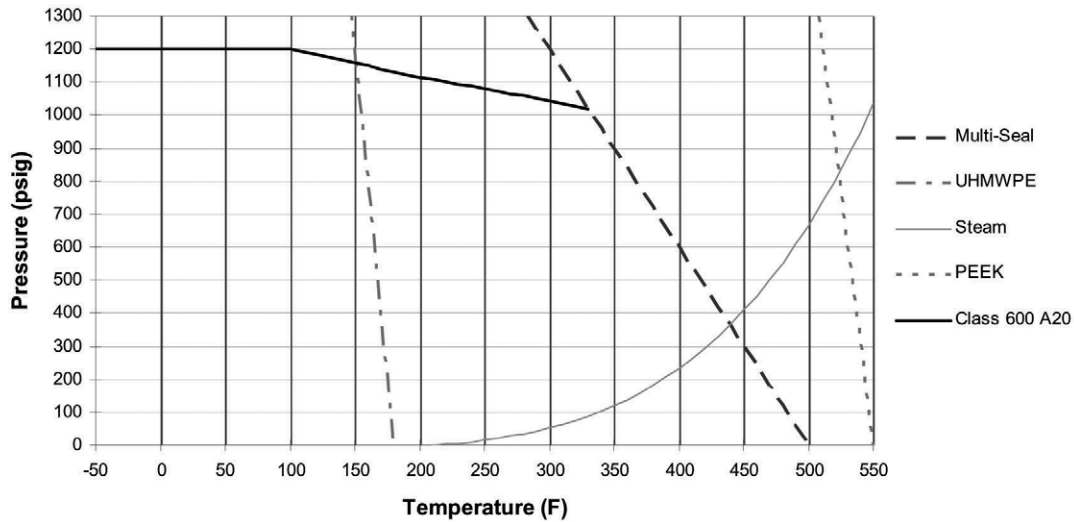


ASME Class 600 SS (GRAPH 26)

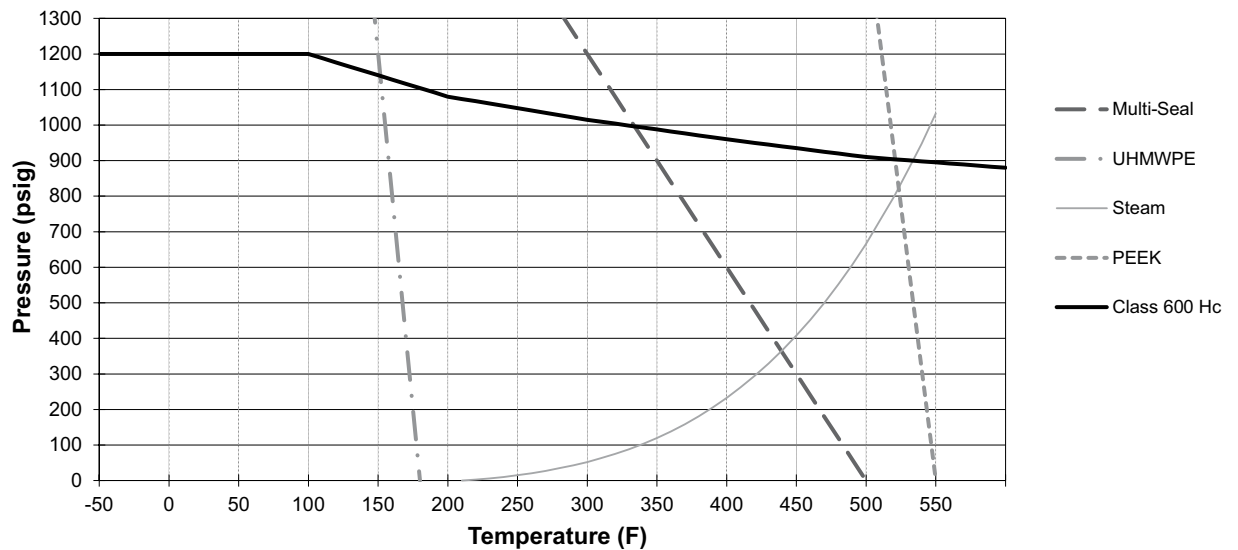


PRESSURE TEMPERATURE RATINGS

ASME Class 600 Alloy 20 (GRAPH 27)

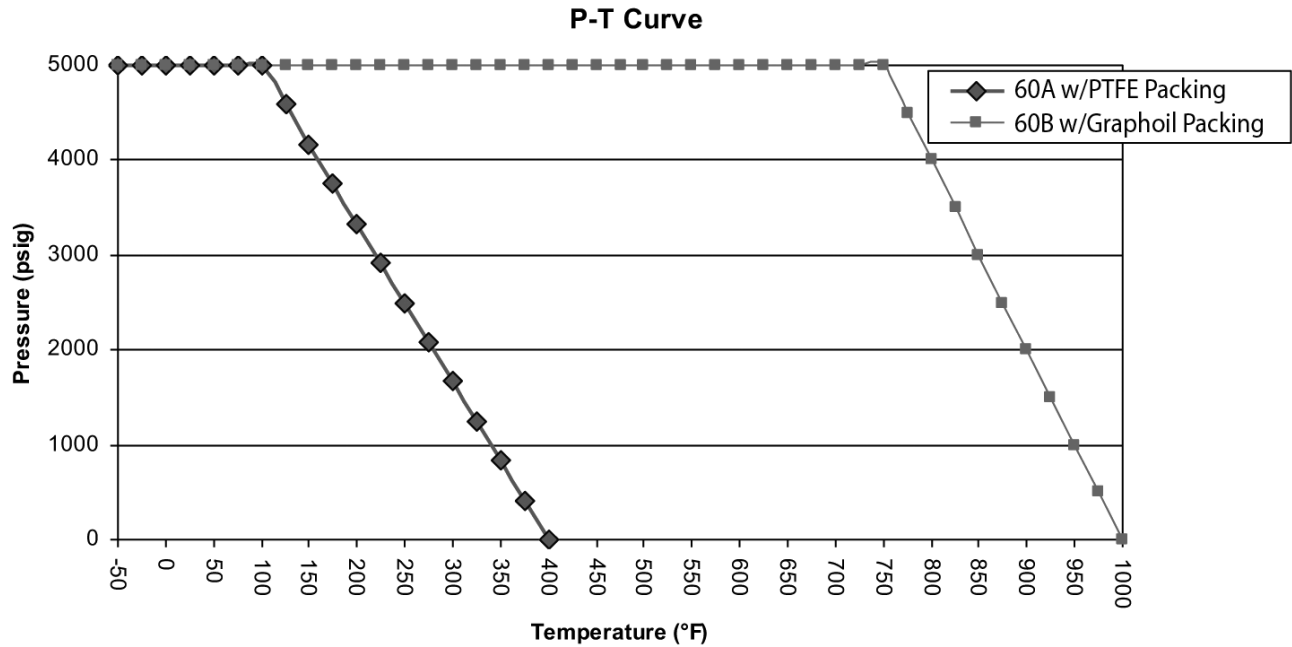


ASME Class 600 Hastelloy C (GRAPH 28)

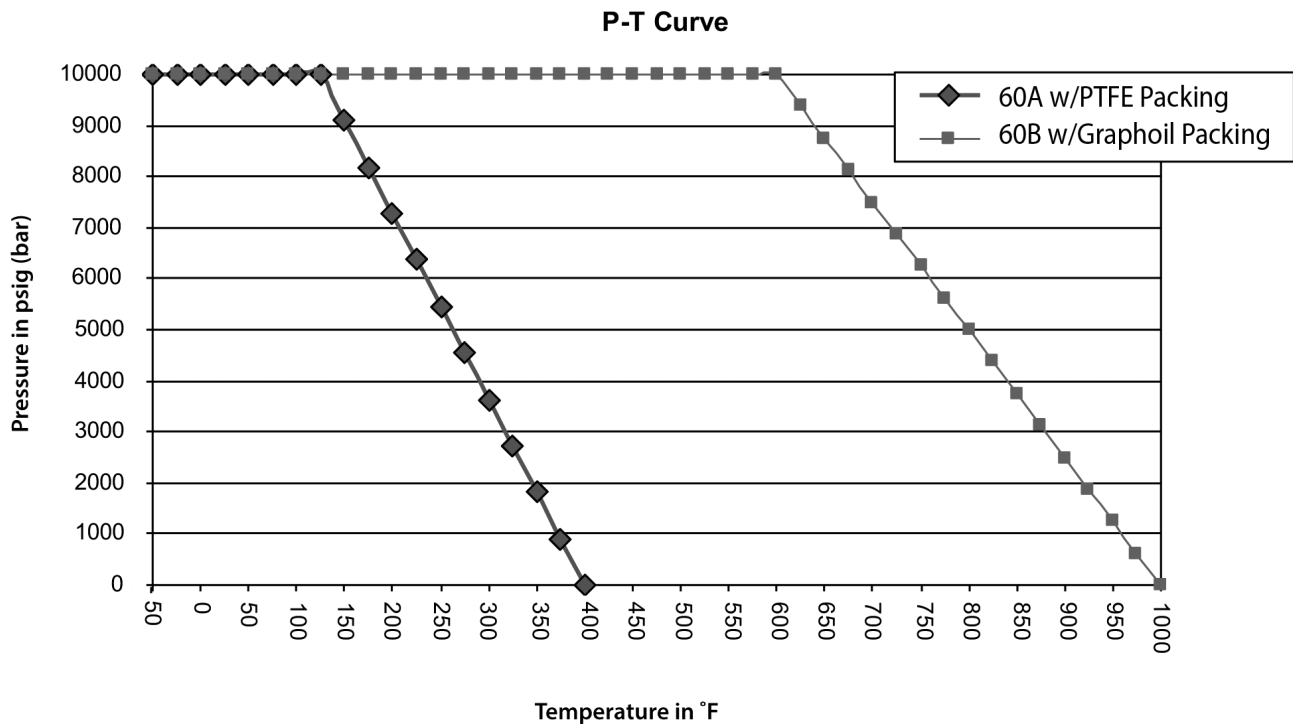


PRESSURE TEMPERATURE RATINGS

60A - Metal Seated, Globe Pattern, Vee-Tip, Needle Valves (GRAPH 29)

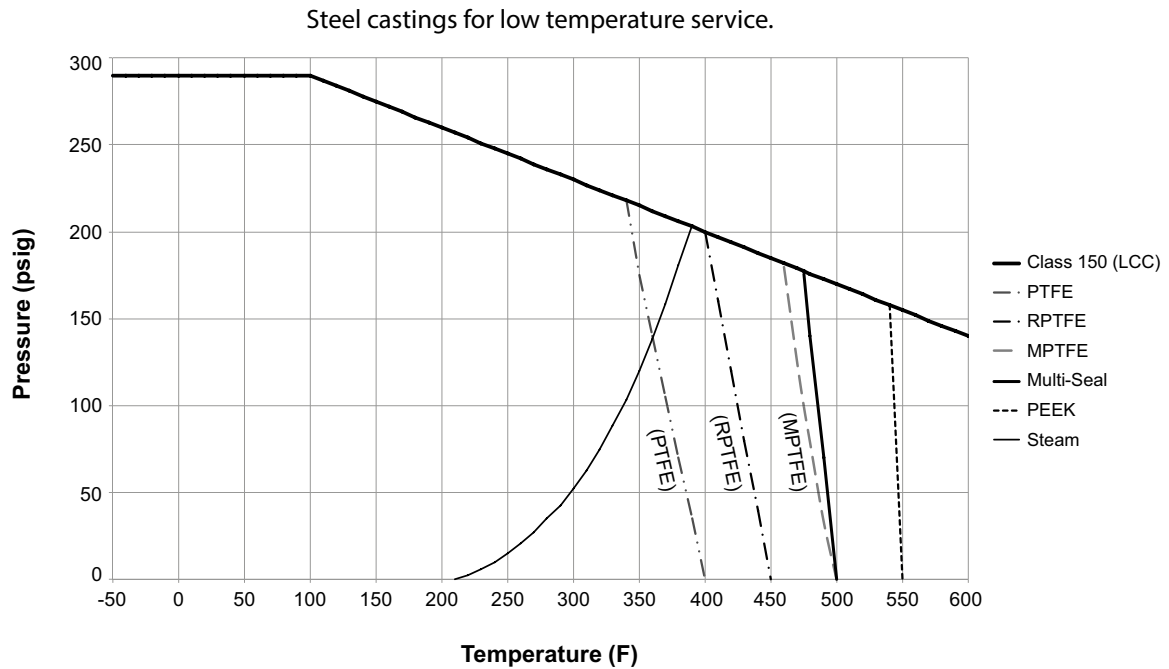


60B - Metal Seated, Globe Pattern, Vee-Tip, Needle Valves (GRAPH 30)

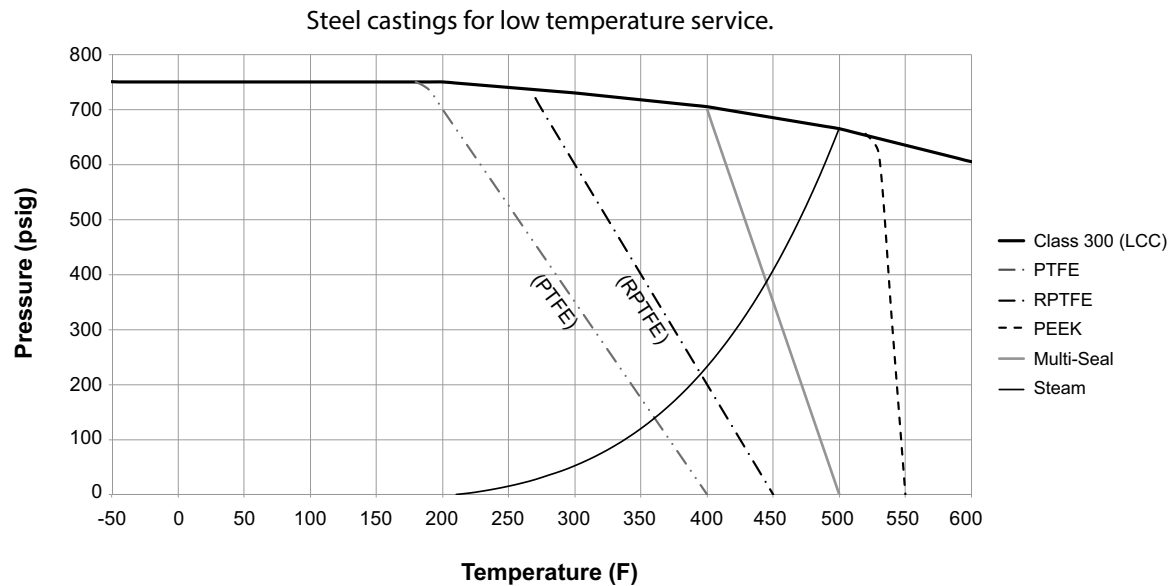


PRESSURE TEMPERATURE RATINGS

Class 150 ASTM A352-LCC (GRAPH 31)

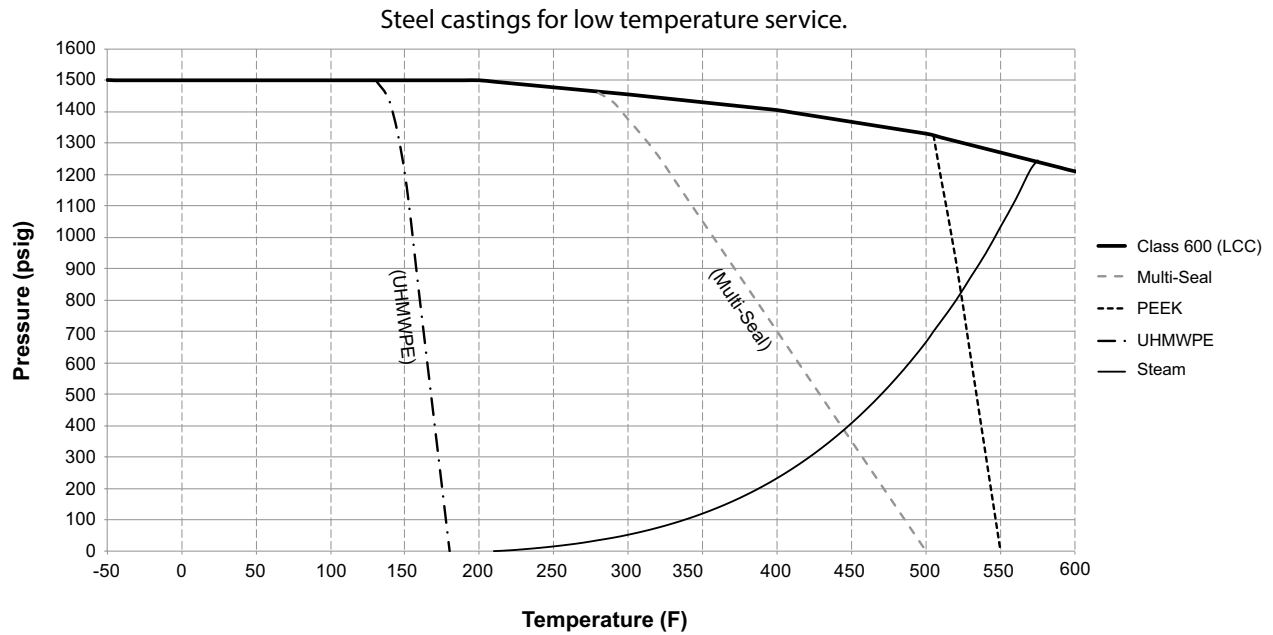


Class 300 ASTM A352-LCC (GRAPH 32)



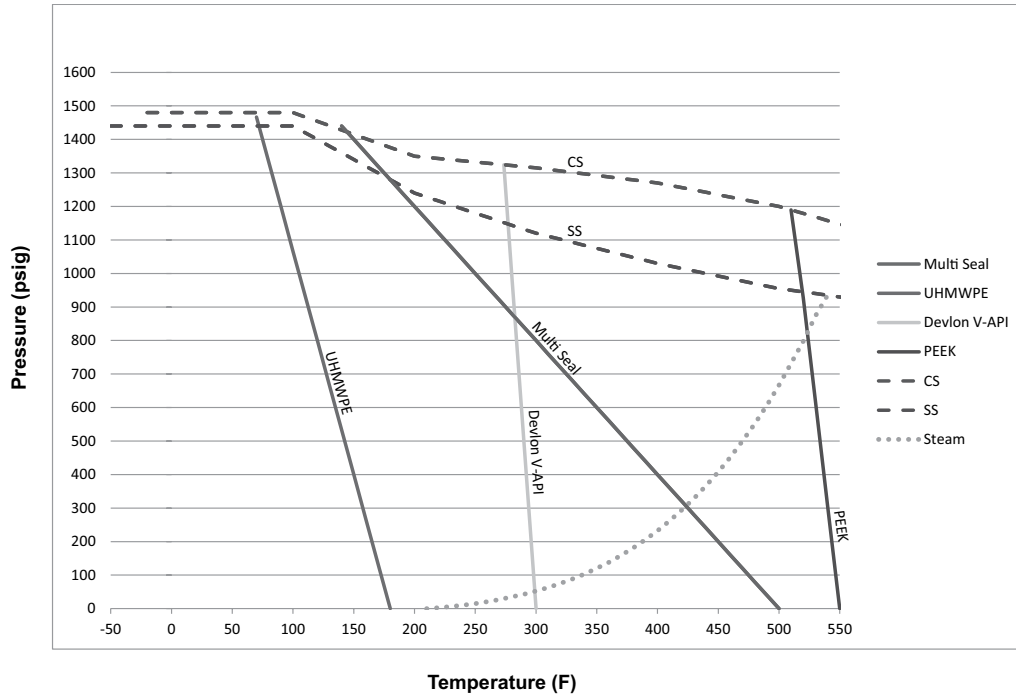
PRESSURE TEMPERATURE RATINGS

Class 600 ASTM A352-LCC (GRAPH 33)

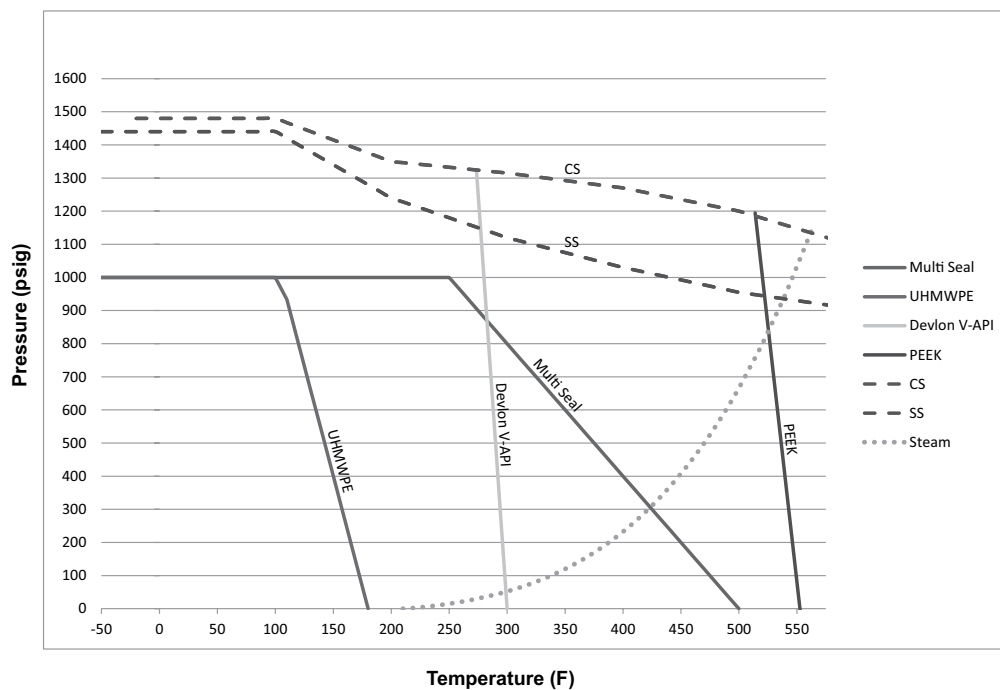


PRESSURE TEMPERATURE RATINGS

Class 600 Stainless Steel & Carbon Steel - 1" through 2" (GRAPH 34)

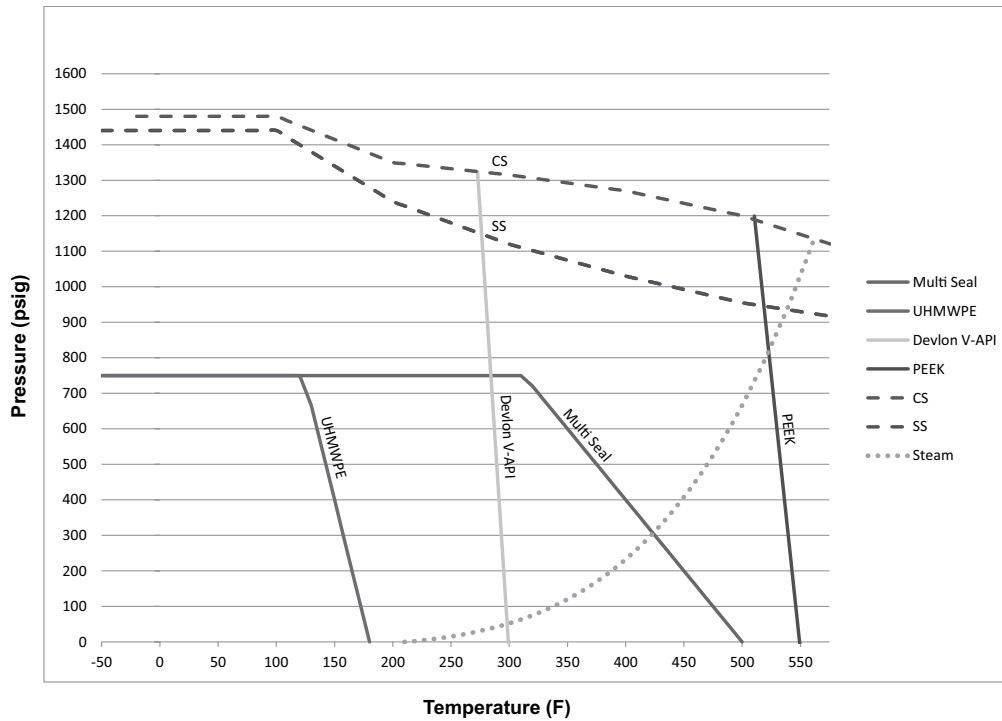


Class 600 Stainless Steel & Carbon Steel - 2-1/2" through 4" (GRAPH 35)



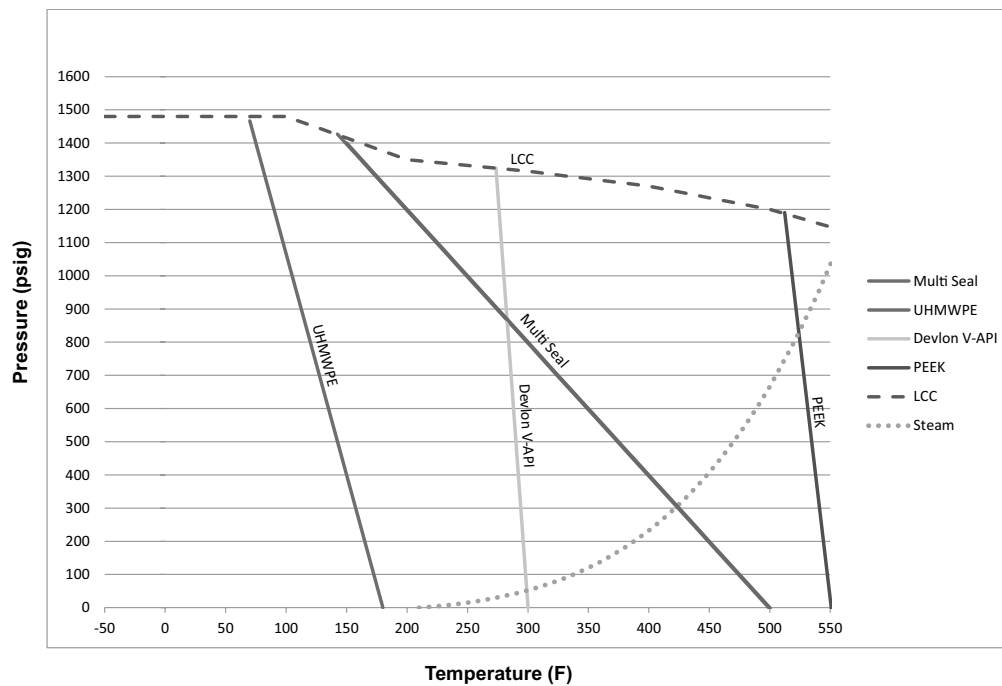
PRESSURE TEMPERATURE RATINGS

Class 600 Stainless Steel & Carbon Steel - 6" and 8" (GRAPH 36)



Class 600 ASTM A352-LCC - 1" through 2" (GRAPH 37)

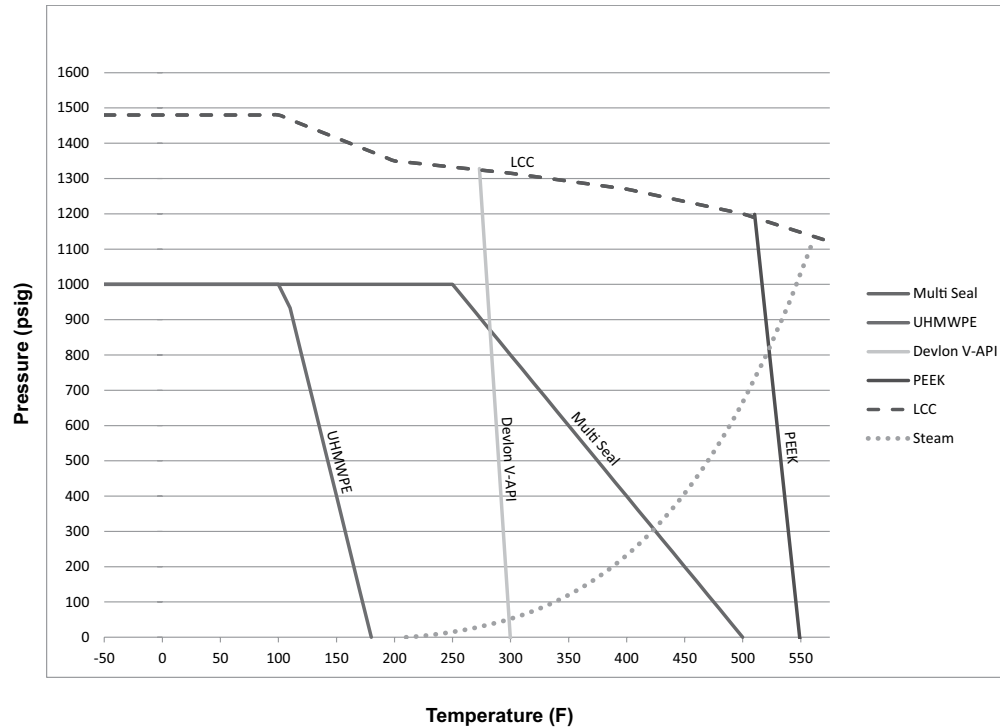
Steel castings for low temperature service.



PRESSURE TEMPERATURE RATINGS

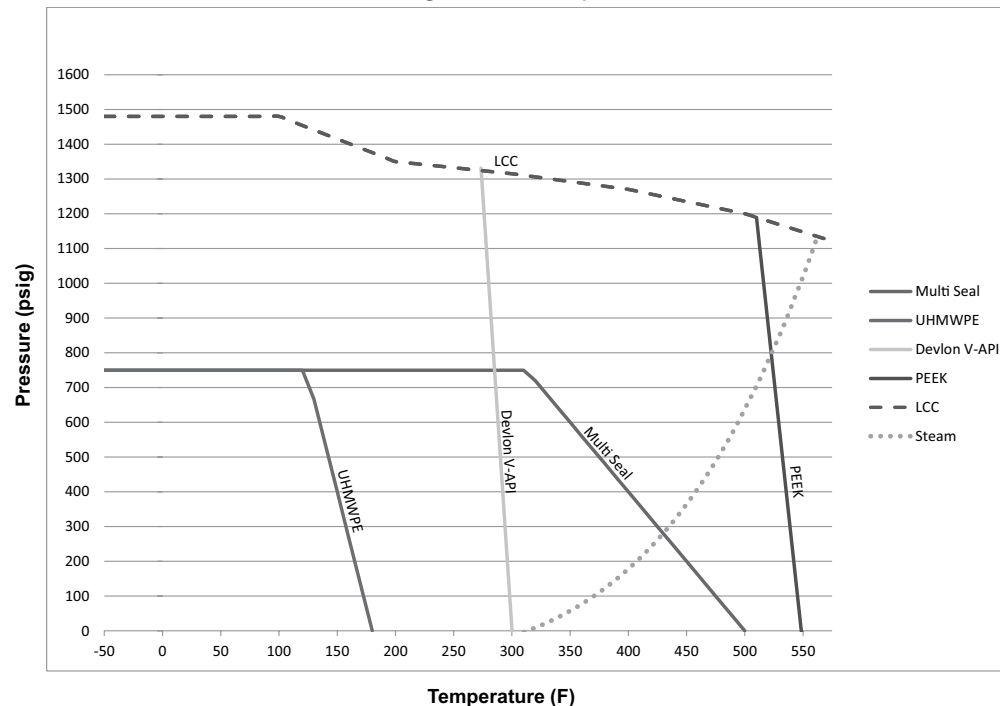
Class 600 ASTM A352-LCC - 2-1/2" through 4" (GRAPH 38)

Steel castings for low temperature service.



Class 600 ASTM A352-LCC - 6" and 8" (GRAPH 39)

Steel castings for low temperature service.



MATERIAL REFERENCE DATA

CARBON STEEL

ITEM PROPERTY	BARSTOCK	CASTING	FORGING
ASTM Specifications	A108-1215	A216-WCB	A105
Unified Numbering System	G12150	J03002	K03504
MAJOR ELEMENTS			
Carbon	0.09% max.	0.30% max.	0.35% max.
Manganese	0.75 - 1.05%	1.00% max.	0.60 - 1.05%
Phosphorus	0.04 - 0.09%	0.04% max.	0.04% max.
Sulfur	0.26 - 0.35%	0.045% max	0.05% max.
Silicon	-	0.60% max.	0.35% max.
MECHANICAL PROPERTIES			
Tensile Strength	70,000 psi min.	70,000 psi min.	70,000 psi min.
Yield Strength	36,000 psi min.	36,000 psi min.	36,000 psi min.

316 STAINLESS STEEL

ITEM PROPERTY	BARSTOCK	CASTING	FORGING
ASTM Specifications	A276-316	A351-CF8M	A182-F316
Unified Numbering System	S31600	J92900	S31600
MAJOR ELEMENTS			
Carbon	0.08% max.	0.08% max.	0.08% max.
Chromium	16.00 - 18.00%	18.00 - 21.00%	16.00 - 18.00%
Molybdenum	2.00 - 3.00%	2.00 - 3.00%	2.00 - 3.00%
Nickel	10.00 - 14.00%	9.00 - 12.00%	10.00 - 14.00%
MECHANICAL PROPERTIES			
Tensile Strength	75,000 psi min.	70,000 psi min.	75,000 psi min.
Yield Strength	30,000 psi min.	30,000 psi min.	30,000 psi min.

316L STAINLESS STEEL

ITEM PROPERTY	BARSTOCK	CASTING	FORGING
ASTM Specifications	A276-316L	A351-CF3M	A182-F316L
Unified Numbering System	S31603	J92800	S31603
MAJOR ELEMENTS			
Carbon	0.03% max.	0.03% max.	0.03% max.
Chromium	16.00 - 18.00%	17.00 - 21.00%	16.00 - 18.00%
Molybdenum	2.00 - 3.00%	2.00 - 3.00%	2.00 - 3.00%
Nickel	10.00 - 14.00%	9.00 - 13.00%	10.00 - 15.00%
MECHANICAL PROPERTIES			
Tensile Strength	70,000 psi min.	70,000 psi min.	75,000 psi min.
Yield Strength	25,000 psi min.	30,000 psi min.	30,000 psi min.

ALLOY 20

ITEM PROPERTY	BARSTOCK	CASTING	FORGING
ASTM Specifications	B473-N08020	A351-CN7M	B462-N08020
Unified Numbering System	N08020	N08007	N08020
MAJOR ELEMENTS			
Chromium	19.00 - 21.00%	19.00 - 22.00%	19.00 - 21.00%
Copper	3.00 - 4.00%	3.00 - 4.00%	3.00 - 4.00%
Manganese	2.00% max.	1.50% max.	2.00% max.
Molybdenum	2.00 - 3.00%	2.33 - 3.00%	2.00 - 3.00%
Nickel	32.00 - 38.00%	27.50 - 30.50%	32.00 - 38.00%
MECHANICAL PROPERTIES			
Tensile Strength	80,000 psi min.	62,000 psi min.	80,000 psi min.
Yield Strength	35,000 psi min.	25,000 psi min.	35,000 psi min.

MATERIAL REFERENCE DATA

HASTELLOY

ITEM PROPERTY	BARSTOCK	CASTING	FORGING
ASTM Specifications	B574-C276	A494-CW12MW	B564-N10276
Unified Numbering System	N10276	N30002	N10276
MAJOR ELEMENTS			
Chromium	14.5 - 16.5%	15.5 - 17.5%	14.5 - 16.5%
Molybdenum	15.0 - 17.0%	16.0 - 18.0%	15.0 - 17.0%
Nickel	51.0 - 63.5%	49.2 - 60.0%	51.0 - 63.5%
Tungsten	3.0 - 4.5%	3.75 - 5.25%	3.0 - 4.5%
MECHANICAL PROPERTIES			
Tensile Strength	100,000 psi min.	72,000 psi min.	100,000 psi min.
Yield Strength	41,000 psi min.	40,000 psi min.	41,000 psi min.

NICKEL

ITEM PROPERTY	BARSTOCK	CASTING	FORGING
ASTM Specifications	B160-N02200	A494-CZ100	B160-N02200
Unified Numbering System	N02200	N02100	N02200
MAJOR ELEMENTS			
Molybdenum	2.00 - 3.00%	2.33 - 3.00%	2.00 - 3.00%
Nickel	99.00% max.	95.00% min.	99.00% max.
MECHANICAL PROPERTIES			
Tensile Strength	55,000 psi min.	50,000 psi min.	55,000 psi min.
Yield Strength	15,000 psi min.	18,000 psi min.	15,000 psi min.

NICKEL-COPPER ALLOY (MONEL®)

ITEM PROPERTY	BARSTOCK	CASTING	FORGING
ASTM Specifications	B164-N04400	A494-M35-1	B564-N04400
Unified Numbering System	N04400	N/A	N04400
MAJOR ELEMENTS			
Copper	28.00 - 34.00%	26.00 - 33.00%	28.00 - 34.00%
Iron	2.50% max.	3.50% max.	2.50% max.
Manganese	2.00% max.	1.50% max.	2.00% max.
Molybdenum	2.00 - 3.00%	2.33 - 3.00%	2.00 - 3.00%
Nickel	63.00% min.	60.00% min.	63.00% min.
MECHANICAL PROPERTIES			
Tensile Strength	70,000 psi min.	65,000 psi min.	70,000 psi min.
Yield Strength	25,000 psi min.	25,000 psi min.	25,000 psi min.

LEADED BRASS & BRONZE ALLOYS

ITEM PROPERTY	BARSTOCK	CASTING
ASTM Specification	B16	B584-C84400
Unified Numbering System	C36000	C84400
MAJOR ELEMENTS		
Copper	60.0 - 63.0%	78.0 - 82.0%
Tin		2.3 - 3.5%
Lead	2.5 - 3.7%	6.0 - 8.0%
Zinc	33.0 - 37.5%	7.0 - 10.0%
MECHANICAL PROPERTIES		
Tensile Strength	25,000 psi min.	29,000 psi min.
Yield Strength	10,000 psi min.	13,000 psi min.

85-5-5-5 BRONZE ALLOYS

ITEM PROPERTY	BARSTOCK	CASTING
ASTM Specification	N/A	B62-C83600
Unified Numbering System	C83600	C83600
MAJOR ELEMENTS		
Copper	84.0 - 86.0%	84.0 - 86.0%
Tin	4.0 - 6.0%	4.0 - 6.0%
Lead	4.0 - 6.0%	4.0 - 6.0%
Zinc	4.0 - 6.0%	4.0 - 6.0%
MECHANICAL PROPERTIES		
Tensile Strength	30,000 psi min.	30,000 psi min.
Yield Strength	14,000 psi min.	14,000 psi min.

SEAT APPLICATION GUIDE

Apollo® Ball Valves

<u>DESIGNATION</u>	<u>RANGE</u>	<u>GENERAL DESCRIPTION</u>
-01 (RPTFE)	to 450°F	Glass Reinforced PolyTetraFluoroEthylene Seat Seals and Packings: Most commonly specified seat material. Maintains the chemical resistance of PTFE with increased resistance to wear and abrasion resulting in longer life.
-21 (UHMWPE)	to 180°F	Ultra High Molecular Weight Polyethylene Seats with Graphite Seals and Packings: Offers good abrasion resistance making it suitable for use in high solids or slurry applications. This seat is frequently specified in services where fluorine off-gassing in even the slightest amounts is objectionable, services such as food and tobacco processing, and Nuclear services. UHMWPE should be used with caution in the presence of solvents, and the operating torque can be expected to be 30% higher than RPTFE seat materials.
-35 (PTFE)	to 400°F	PolyTetraFluoroEthylene (PTFE) Seats, Seals and Packings: General application seat material, exhibiting lowest operating torque and excellent resistance to chemical attack.
-38 (PEEK)	to 550°F	PolyEtherEtherKetone Seats with Graphite Seals and Packings: Offers a high strength alternative to RPTFE, resistant to creep and cold flow. This seat offers good abrasion resistance. This material offers similar chemical resistance to PTFE but should be checked on application. For actuator sizing, consult factory.
-56 (Multifill)	to 500°F	Carbon and Graphite Reinforced PTFE Seats, Seals and Packings: Reduced creep and cold flow like any RPTFE but with 20% lower operating torque than the glass reinforced versions.
-64 (Multifill)	to 500°F	Carbon and Graphite Reinforced PTFE Seats, Seals and Packings: Reduced creep and cold flow like any RPTFE but with 20% lower operating torque than the glass reinforced versions. Includes handle graphics for 250 psig saturated steam.
-65 (Multifill)	to 500°F	Carbon and Graphite RPTFE Seats, Graphite Seals and Packings: Reduced creep and cold flow like any RPTFE but with 20% lower operating torque than the glass reinforced versions. This configuration is also good for steam applications.
-78 (Delrin)	to 230°F	Delrin is the homopolymer version of Acetal. The material is both strong and rigid but not brittle making it ideal for many high pressure applications. It's a preferred material for use in hydrocarbon systems, oils and gases, but should be used with caution in hot wet systems.
-79 (Nylon)	to 300°F	Nylon is a polyamide. This material has very good mechanical properties making it ideally suited for many high pressure applications. It's a preferred material for use in hydrocarbon systems, oils and gases, but should not be used in wet systems above 120°F.
-80 (Multiseal)	to 500°F	This material is the latest generation of PolyTetraFluoroEthylene. It improves on the chemical resistance of PTFE with increased resistance to wear, abrasion and creep resistance even above the glassed reinforced PTFE, without fillers. This material is particularly suited for primary monomer applications such as styrene, butadiene and latex offering performance nearly equal to PFA materials.

CONVERSION FACTORS

TO CONVERT	INTO	MULTIPLY BY
atmospheres	cms of mercury	76.0
atmospheres	ft. of water (at 4°C)	33.90
atmospheres	in. of mercury (at 0°C)	29.92
atmospheres	kgs/sq cm	1.0333
atmospheres	kgs/sq meter	10,332
atmospheres	pounds/sq. in.	14.70
Bar	newtons/sq m	105
bar	atmospheres	0.9869
bar	at (tech.)	1.0197
bar	psi	14.504
Barrels-Oil	gals-oil	42
BT Units	kg-calories	0.2520
BTU's	ft-lbs	777.9
BTU's	hp-hrs	3.927 x 10 ⁻⁴
BTU's	kgs-meters	107.5
BTU's	kw-hrs	2.928 x 10 ⁻⁴
BTU/Min	ft-lbs/sec	12.96
BTU/min	hp	0.02356
BTU/min	kw	0.01757
BTU/min	watts	17.57
Centimeters	inches	0.3937
cm	meters	0.01
cm	mm	10
Cms Mercury	atm	0.01316
cms mercury	ft water	0.4461
cms mercury	kgs/sq meter	136.0
cms mercury	lbs/sq ft	27.85
cms mercury	lbs/sq in	0.1934
Cms/Second	ft/min	1.969
cms/sec	ft/sec	0.03281
cms/sec	km/hr	0.036
cms/sec	meters/min	0.6
cms/sec	miles/hr	0.02237
cms/sec	miles/min	3.728 x 10 ⁻⁴
Cms/Sec/Sec	ft/sec/sec	0.03281
Cubic Cms	cu ft	3.531 x 10 ⁻⁵
Cu cms	cu in	6.102 x 10 ⁻²
cu cms	cu meters	10 ⁻⁶
cu cms	cu yds	1.308 x 10 ⁻⁶
cu cms	gals	2.642 x 10 ⁻⁴
cu cms	liters	10 ⁻³
cu cms	pints (liq)	2.113 x 10 ⁻³
cu cms	quarts (liq)	1.057 x 10 ⁻³
Cubic Feet	cubic cms	2.832 x 10 ⁴
cu ft	cu inches	1728
cu ft	cu meters	0.02832
cu ft	cu yds	0.03704
cu ft	gals	7.48052
cu ft	liters	28.32
cu ft	pints (liq)	59.84
cu ft	quarts (liq)	29.92
Cu Ft/min	cu cms/sec	472.0
cu ft/min	gals/sec	0.1247
cu ft/min	liters/sec	0.4720
cu ft/min	lbs water/min	62.43
cu ft/sec	gals/min	448.831
Cu Inches	cc	16.39
cu ins	cu ft	5.787 x 10 ⁻⁴
cu ins	cu meters	1.639 x 10 ⁻⁵
cu ins	cu yds	2.143 x 10 ⁻⁵
cu ins	gals	4.329 x 10 ⁻³
cu ins	liters	1.639 x 10 ⁻²
cu ins	pints (liq)	0.03463
cu ins	quarts (liq)	0.01732
Cu Meters	cc	104

TO CONVERT	INTO	MULTIPLY BY
cu M	cu ft	35.31
cu M	cu ins	61,023
cu M	cu yds	1.308
cu M	gals	264.2
cu M	liters	103
cu M	pints (liq)	2113
cu M	quarts (liq)	1057
Cu Yards	cu cms	7.646 x 10 ⁵
cu yds	cu ft	27
cu yds	cu ins	46,656
cu yds	cu meters	0.7646
cu yds	gals	202.0
Decimeters	meters	0.1
Deg (Angle)	minutes	60
degs (angle)	radians	0.01745
degs (angle)	secs	3600
Degrees/Sec	radians/sec	0.01745
degs/sec	revs/min	0.1667
degs/sec	revs/sec	0.002778
Feet	cms	30.48
ft	ins	12
ft	meters	0.3048
ft	yds	1/3
Ft of Water	atms	0.02950
ft of w	ins mercury	0.8826
ft of w	kgs/sq cm	0.03048
ft of w	lbs/sq ft	62.32
ft of w	lbs/sq in	0.4328
Feet/Min	cms/sec	0.5080
ft/min	ft/sec	0.01667
ft/min	kms/hr	0.01829
ft/min	meters/min	0.3048
ft/min	miles/hr	0.01136
Ft/Sec/Sec	cms/sec/sec	30.48
ft/sec/sec	Meters/sec/sec	0.3048
Ft-Pounds	BTU s	1.286 x 10 ⁻³
ft lbs	hp-hrs	5.050 x 10 ⁻⁷
ft lbs	kg-calories	3.241 x 10 ⁻⁴
ft lbs	kg-meters	0.1383
ft lbs	kw-hrs	3.766 x 10 ⁻⁷
Ft-lbs/Min	BTUs/min	1.286 x 10 ⁻³
ft-lbs/min	ft-lbs/sec	0.01667
ft-lbs/min	hp	3.030 x 10 ⁻⁵
ft-lbs/min	kg-calories/min	3.241 x 10 ⁻⁴
ft-lbs/min	kws	2.260 x 10 ⁻⁵
Ft-Lbs/Sec	BTUs/min	7.717 x 10 ⁻²
ft-lbs/sec	hp	1.818 x 10 ⁻³
ft-lbs/sec	kg-calories/min	1.945 x 10 ⁻²
ft-lbs/sec	kws	1.356 x 10 ⁻³
Gallons	ccs	3785
gals	cu ft	0.1337
gals	cu ins	231
gals	cu meters	3.785 x 10 ⁻³
gals	liters	3.785
gals	pints (liq)	8
gals	quarts (liq)	4
Gallons, Imp	US gals	1.20095
gallons, US	imp gals	0.83267
Gals Water	lbs water	8.3304
Gallons/Min	cu ft/sec	2.228 x 10 ⁻³
gals/min	liters/sec	0.06308
gals/min	cu ft/hr	8.0208
Horse-Power	BTUs/min	42.44
hp	ft-lbs/min	33,000
hp	ft-lbs/sec	550

CONVERSION FACTORS

TO CONVERT	INTO	MULTIPLY BY
hp	hp (metric)	1.014
hp	kg-calories/min	10.70
hp	kws	0.7457
hp	watts	745.7
Hp-Hours	BTUs	2547
hp-hrs	ft-lbs	1.98 x 106
hp-hrs	kg-calories	641.7
hp-hrs	kg-meters	2.737x105
hp-hrs	kw-hrs	0.7457
Inches	cms	2.540
Inches	mms	25.4
Ins Mercury	atms	0.03342
ins mercury	ft water	1.133
ins mercury	kgs/sq cm	0.03453
ins mercury	lbs/sq ft	70.73
ins mercury	lbs/sq in	0.4912
Ins of Water	atms	0.002458
ins of w	ins mercury	0.07355
ins of w	kgs/sq cm	0.002540
ins of w	lbs/sq ft	5.202
ins of w	lbs/sq in	0.03613
Kilograms	dynes	980,665
kgs	lbs	2.205
kgs	tons (short)	1.102 x 10-3
kgs	grams	1000
Kgs/Sq Cm	atms	0.9678
kgs/sq cm	ft water	32.81
kgs/sq cm	ins mercury	28.96
kgs/sq cm	lbs/sq ft	2048
kgs/sq cm	lbs/sq in	14.22
Kilometers	cms	105
kms	ft	3281
kms	meters	103
kms	miles	0.6214
Kms/Hr	cms/sec	27.78
kms/hr	ft/min	54.68
kms/hr	ft/sec	0.9113
kms/hr	meters/min	16.67
kms/hr	miles/hr	0.6214
Kms/Hr/Sec	cms/sec/sec	27.78
kms/hr/sec	ft/sec/sec	0.9113
kms/hr/sec	Meters/sec/sec	0.2778
Kilowatts	BTUs/min	56.92
kws	ft-lbs/min	4.425 x 104
kws	ft-lbs/sec	737.6
kws	hp	1.341
kws	kg-calories/min	14.34
kws	watts	103
Kilowatt-Hrs	BTUs	3415
kw-hrs	ft-lbs	2.655 x 106
kw-hrs	hp-hours	1.341
kw-hrs	kg-calories	860.5
kw-hrs	kg-meters	3.671 x 105
Liters	ccs	103
liters	cu ft	0.03531
liters	cu ins	61.02
liters	cu meters	10-2
liters	gals	0.2642
liters	quarts (liq)	1.057
Liters/Min	gals/sec	4.403 x 10-3
Meters	cms	100
meters	ft	3.281
meters	ins	39.37
meters	kms	10-3

TO CONVERT	INTO	MULTIPLY BY
meters	mms	103
meters/min	cms/sec	1.667
meters/min	ft/min	3.281
meters/min	ft/sec	0.05468
meters/min	kms/hr	0.06
meters/min	miles/hr	0.03728
Meters/Sec	ft/min	196.8
meters/sec	ft/sec	3.281
meters/sec	kms/hr	3.6
meters/sec	kms/min	0.06
meters/sec	miles/hr	2.237
meters/sec	miles/min	0.03728
Microns	meters	10-6
microns	in	39 x 10-6
Miles/Hr	cms/sec	44.70
miles/hr	ft/min	88
miles/hr	ft/sec	1.467
miles/hr	kms/hr	1.609
miles/hr	meters/min	26.82
Millimeters	cms	0.1
mms	ins	0.03937
Minutes (Angle)	radians	2.909 x 10-4
Newton	kgs	0.1020
Ounces	lbs	0.0625
ozs.	gram	28.349527
Ozs (Fluid)	cu in	1.805
ozs. (fluid)	liters	0.02957
Pounds	ozs.	16
lbs.	kgs	0.4536
lbs.	tons (short)	0.0005
lbs.	newtons (N)	4.44
lbs.	gram	453.5924
Pounds/Inch	newton-meters	0.113
Pounds/Foot	newton-meters	1.356
Lbs of Water	cu ft	0.01605
lbs of water	cu in	27.73
lbs of water	gals	0.1204
Lbs of Water/Min	cu ft/sec	2.679 x 10-4
Pounds/Cu Ft	lbs/cu in	5.787 x 10-4
Pounds/Cu In	lbs/cu ft	1728
Pounds/Sq In	atms	0.06804
lbs/sq in	ft water	2.311
lbs/sq in	in mercury	2.036
lbs/sq in	kgs/sq cm	0.07031
Radians	degrees	57.29578
Tons (Long)	kgs	1016
tons (long)	lbs	2240
tons (long)	tons (short)	1.12000
Tons (Short)	kgs	2000
tons (short)	kps	907.18486
tons (short)	tons (long)	0.89287
tons (short)	tons (metric)	0.90718
Watts	BTUs/min	0.05692
watts	ft-lbs/min	44.26
watts	ft-lbs/sec	0.7376
watts	hp	1.341 x 10-3
watts	kg-calories/min	0.01434
watts	kws	10-3
Watts/Hours	BTUs	3.415
watts-hrs	ft-lbs	2655
watts-hrs	hp-hrs	1.341 x 10-3
watts-hrs	kg-calories	0.8605
watts-hrs	kg-meters	367.1
watts-hrs	kw-hrs	10-3

SECTION P – METAL SEATED, GLOBE PATTERN, VEE-TIP, NEEDLE VALVES

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SERIES	DESCRIPTION	PAGE
<u>CARBON STEEL (CS)</u>		
60A-1xx Series	5000 CWP, CS, Metal Seated, Vee-Tip, Needle Valves (globe pattern).....	P-3
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60B-20x Series	10000 CWP, CS, Metal Seated, Vee-Tip, Needle Valves (angle pattern).....	P-5
<u>STAINLESS STEEL (SS)</u>		
60A-7xx Series	5000 CWP, SS, Metal Seated, Vee-Tip, Needle Valves (globe pattern)	P-4
60B-7xx Series	10000 CWP, SS, Metal Seated, Vee-Tip, Needle Valves (globe pattern).....	P-6
60B-80x Series	10000 CWP, SS, Metal Seated, Vee-Tip, Needle Valves (angle pattern)	P-6

SECTION P – METAL SEATED, GLOBE PATTERN, VEE-TIP, NEEDLE VALVES

60A-100 SERIES

5000 CWP, Carbon Steel, Metal Seated, Globe Pattern, Vee-Tip, Needle Valves

Female NPT Thread
5,000 CWP (psig)
NACE MR0175 (2000) & MR0103 (2012)



FEATURES

- Backseat stem design reduces pressure exerted on the packing, prolonging packing life. Design also prevents stem from being accidentally turned out of the valve.
- Integral metal-to-metal seat design.
- Externally adjustable PTFE packing is standard, graphoil available as an option.
- Malleable iron handle for long lasting, reliable service.
- All valves 100% pressure tested
- Fully threaded bonnet to accommodate optional panel mounting nut.
- Locking bonnet option available.
- All pressure retaining parts constructed of ASTM materials.
- Meets the requirements of MSS SP-99 & SP-105.

VARIATIONS AVAILABLE:

- 60A-12x Series (Socket Weld End Connection)

STANDARD MATERIAL LIST

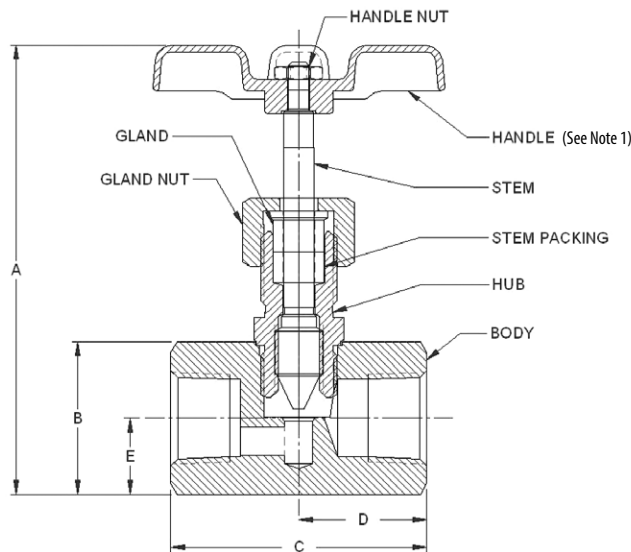
	PART	MATERIAL
1	Body	ASTM A108 Carbon Steel
2	Hub	ASTM A108 Carbon Steel
3	Stem	ASTM A276 Stainless Steel
4	Stem Packing	PTFE
5	Gland	ASTM B484
6	Gland Nut	ASTM A108 Carbon Steel
7	Handle ¹	ASTM A47 Malleable Iron, Zinc Phosphate Finish
8	Handle Nut	Carbon Steel, Zinc Plated

NOTE 1:

- 1/2" and smaller come standard with Cross Handle
- 3/4" and 1" sizes come standard with Tee Handle

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-07-	Steel Tee Handle (See Note 1)	1/4" to 1/2"
-09-	Lock Bonnet	1/4" to 1"
-24-	Graphite Packing	1/4" to 1"
-57-	Oxygen Cleaned	1/4" to 1"
-88-	Panel Mount	1/4" to 1"



PRODUCT NUMBER	SIZE	A MIN.	A MAX.	B	C	D	E	Cv	WT.
60A-101-01	1/4"	3.8	4.1	1.38	2.25	1.13	0.69	0.6	1.23
60A-102-01	3/8"	3.8	4.1	1.38	2.25	1.13	0.69	0.9	1.19
60A-103-01	1/2"	3.8	4.1	1.38	2.75	1.38	0.69	0.8	1.64
60A-104-01	3/4"	4.9	5.4	2.00	3.19	1.60	1.00	2.7	3.34
60A-105-01	1"	4.9	5.4	2.00	3.62	1.81	1.00	2.6	4.24

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-22, GRAPH NO. 29



60A-700 SERIES

5000 CWP, Stainless Steel, Metal Seated, Globe Pattern, Vee-Tip, Needle Valves

Female NPT Thread
5,000 CWP (psig)
NACE MR0175 (2000) & MR0103 (2012)



FEATURES

- Backseat stem design reduces pressure exerted on the packing, prolonging packing life. Design also prevents stem from being accidentally turned out of the valve.
- Integral metal-to-metal seat design.
- Externally adjustable PTFE packing is standard, graphoil available as an option.
- Malleable iron handle for long lasting, reliable service.
- All valves 100% pressure tested
- Fully threaded bonnet to accommodate optional panel mounting nut.
- Locking bonnet option available.
- All pressure retaining parts constructed of ASTM materials.
- Meets the requirements of MSS SP-99 & SP-105.

VARIATIONS AVAILABLE:

- 60A-72x Series (Socket Weld End Connection)

STANDARD MATERIAL LIST

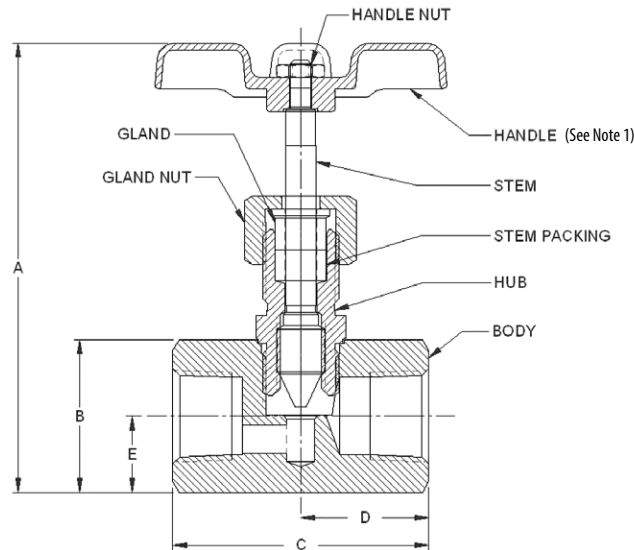
	PART	MATERIAL
1	Body	ASTM A276 316 Stainless Steel
2	Hub	ASTM A276 316 Stainless Steel
3	Stem	ASTM A276 Stainless Steel
4	Stem Packing	PTFE
5	Gland	ASTM B525
6	Gland Nut	ASTM A276 316 Stainless Steel
7	Handle ¹	ASTM A47 Malleable Iron, Zinc Phosphate Finish
8	Handle Nut	Carbon Steel, Zinc Plated

NOTE 1:

- 1/2" and smaller come standard with Cross Handle
- 3/4" and 1" sizes come standard with Tee Handle

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-07-	Steel Tee Handle (See Note 1)	1/4" to 1/2"
-09-	Lock Bonnet	1/4" to 1"
-24-	Graphite Packing	1/4" to 1"
-57-	Oxygen Cleaned	1/4" to 1"
-88-	Panel Mount	1/4" to 1"



PRODUCT NUMBER	SIZE	A MIN.	A MAX.	B	C	D	E	Cv	WT.
60A-701-01	1/4"	3.8	4.1	1.38	2.25	1.13	0.69	0.6	1.23
60A-702-01	3/8"	3.8	4.1	1.38	2.25	1.13	0.69	0.9	1.19
60A-703-01	1/2"	3.8	4.1	1.38	2.75	1.38	0.69	0.8	1.64
60A-704-01	3/4"	4.9	5.4	2.00	3.19	1.60	1.00	2.7	3.34
60A-705-01	1"	4.9	5.4	2.00	3.62	1.81	1.00	2.6	4.24

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-22, GRAPH NO. 29

60B-1XX (globe pattern) SERIES and 60B-20X (angle pattern) SERIES

10000 CWP, Carbon Steel, Metal Seated, Vee-Tip, Needle Valves (globe and angle patterns)

Female NPT Thread
10,000 CWP (psig)
NACE MR0175 (2000) & MR0103 (2012)



FEATURES

- Backseat stem design reduces pressure exerted on the packing, prolonging packing life. Design also prevents stem from being accidentally turned out of the valve.
- Integral metal-to-metal seat design.
- Externally adjustable PTFE packing is standard, graphoil available as an option.
- Malleable iron handle for long lasting, reliable service.
- All valves 100% pressure tested

- Fully threaded bonnet to accommodate optional panel mounting nut.
- Locking bonnet option available.
- All pressure retaining parts constructed of ASTM materials.

VARIATIONS AVAILABLE:

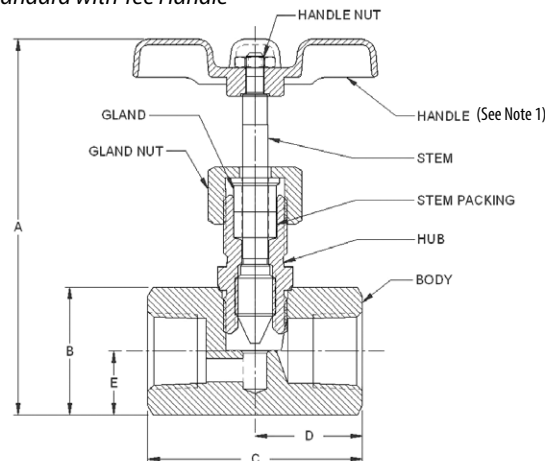
- 60B-12x Series (Socket Weld End Connection. Not available on angled valves.)

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A108 Carbon Steel
2	Hub	ASTM A108 Carbon Steel
3	Stem	ASTM A276 Stainless Steel
4	Stem Packing	PTFE
5	Gland	ASTM B484
6	Gland Nut	ASTM A108 Carbon Steel
7	Handle ¹	ASTM A47 Malleable Iron, Zinc Phosphate Finish
8	Handle Nut	Carbon Steel, Zinc Plated

NOTE 1:

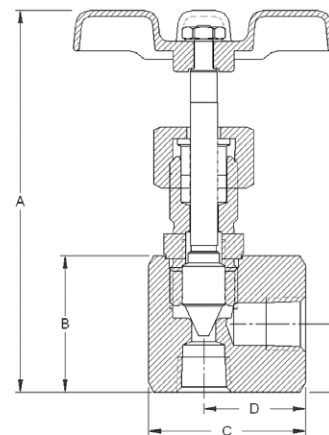
- 1/2" and smaller come standard with Cross Handle
- 3/4" and 1" sizes come standard with Tee Handle



OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-07-	Steel Tee Handle (See Note 1)	1/4" to 1/2"
-09-	Lock Bonnet	1/4" to 1"
-24-	Graphite Packing	1/4" to 1"
-57-	Oxygen Cleaned	1/4" to 1"
-88-	Panel Mount	1/4" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-22, GRAPH NO. 30



ANGLED VALVE

PRODUCT NUMBER	SIZE	A MIN.	A MAX.	B	C	D	E	Cv	WT.
60B-101-01	1/4"	3.8	4.1	1.38	2.25	1.13	0.69	0.6	1.23
60B-102-01	3/8"	3.8	4.1	1.38	2.25	1.13	0.69	0.9	1.19
60B-103-01	1/2"	3.8	4.1	1.38	2.75	1.38	0.69	0.8	1.64
60B-104-01	3/4"	4.9	5.4	2.00	3.19	1.60	1.00	2.7	3.34
60B-105-01	1"	4.9	5.4	2.00	3.62	1.81	1.00	2.6	4.24

ANGLED VALVE

PRODUCT NUMBER	SIZE	A MIN.	A MAX.	B	C	D	E	Cv	WT.
60B-201-01	1/4"	3.8	4.1	1.38	1.59	1.03	0.69	0.6	0.94
60B-202-01	3/8"	3.8	4.1	1.38	1.59	1.06	0.69	0.9	0.90
60B-203-01	1/2"	3.8	4.1	1.38	2.00	1.37	0.69	0.8	1.34
60B-204-01	3/4"	4.9	5.4	2.00	2.50	1.62	1.00	2.7	2.79
60B-205-01	1"	4.9	5.4	2.00	2.93	1.93	1.00	2.6	3.72



60B-7XX (globe pattern) SERIES and 60B-80X (angle pattern) SERIES

10000 CWP, Stainless Steel, Metal Seated, Vee-Tip, Needle Valves (globe and angle patterns)

Female NPT Thread
10,000 CWP (psig)
NACE MR0175 (2000) & MR0103 (2012)



FEATURES

- Backseat stem design reduces pressure exerted on the packing, prolonging packing life. Design also prevents stem from being accidentally turned out of the valve.
- Integral metal-to-metal seat design.
- Externally adjustable PTFE packing is standard, graphoil available as an option.
- Malleable iron handle for long lasting, reliable service.
- All valves 100% pressure tested

- Fully threaded bonnet to accommodate optional panel mounting nut.
- Locking bonnet option available.
- All pressure retaining parts constructed of ASTM materials.

VARIATIONS AVAILABLE:

- 60B-72x Series (Socket Weld End Connection. Not available on angled valves.)

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A276 316 Stainless Steel
2	Hub	ASTM A276 316 Stainless Steel
3	Stem	ASTM A276 Stainless Steel
4	Stem Packing	PTFE
5	Gland	ASTM B525
6	Gland Nut	ASTM A276 316 Stainless Steel
7	Handle ¹	ASTM A47 Malleable Iron, Zinc Phosphate Finish
8	Handle Nut	Carbon Steel, Zinc Plated

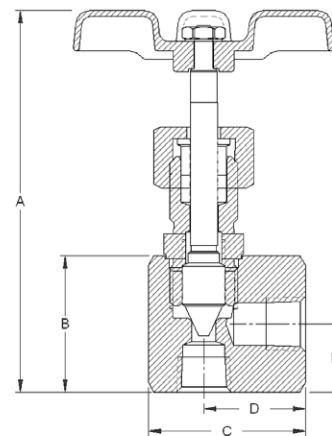
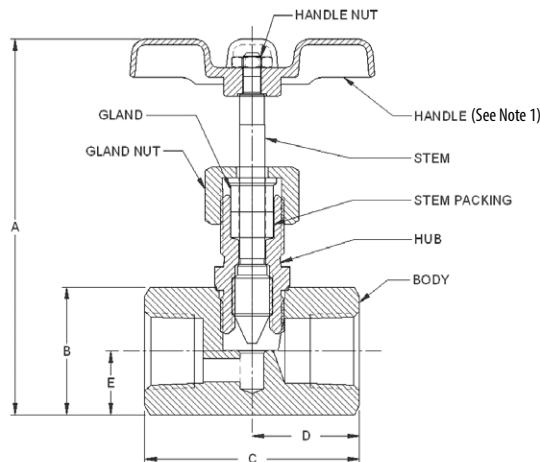
NOTE 1:

- 1/2" and smaller come standard with Cross Handle
- 3/4" and 1" sizes come standard with Tee Handle

OPTIONS AVAILABLE: (More information in Section J)

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-07-	Steel Tee Handle (See Note 1)	1/4" to 1/2"
-09-	Lock Bonnet	1/4" to 1"
-24-	Graphite Packing	1/4" to 1"
-57-	Oxygen Cleaned	1/4" to 1"
-88-	Panel Mount	1/4" to 1"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-22, GRAPH NO. 30



ANGLED VALVE

PRODUCT NUMBER	SIZE	A MIN.	A MAX.	B	C	D	E	Cv	WT.
60B-701-01	1/4"	3.8	4.1	1.38	2.25	1.13	0.69	0.6	1.23
60B-702-01	3/8"	3.8	4.1	1.38	2.25	1.13	0.69	0.9	1.19
60B-703-01	1/2"	3.8	4.1	1.38	2.75	1.38	0.69	0.8	1.64
60B-704-01	3/4"	4.9	5.4	2.00	3.19	1.60	1.00	2.7	3.34
60B-705-01	1"	4.9	5.4	2.00	3.62	1.81	1.00	2.6	4.24

ANGLED VALVE

PRODUCT NUMBER	SIZE	A MIN.	A MAX.	B	C	D	E	Cv	WT.
60B-801-01	1/4"	3.8	4.1	1.38	1.59	1.03	0.69	0.6	0.94
60B-802-01	3/8"	3.8	4.1	1.38	1.59	1.06	0.69	0.9	0.90
60B-803-01	1/2"	3.8	4.1	1.38	2.00	1.37	0.69	0.8	1.34
60B-804-01	3/4"	4.9	5.4	2.00	2.50	1.62	1.00	2.7	2.79
60B-805-01	1"	4.9	5.4	2.00	2.93	1.93	1.00	2.6	3.72



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REVISIONS

Page A-11	Sept. 24, 2014	Removed -44 option.
Page A-13	April 14, 2014	Revised Standard Material List (#6 Ball, #10 Stem)
Page A-14, 15, 16	Nov. 18, 2013	Added CSA/CAN 3.16. Clarified "-49" option.
Page A-18	Nov. 18, 2013	Added CSA/CAN 3.16. Clarified "-49" option.
Page A-18	Sept. 3, 2014	Corrected size for "-27" option.
Page A-34, 35, 36	Nov. 18, 2013	Added CSA/CAN 3.16.
Page A-34, 35, 36	Sept. 24, 2014	Removed -44 option.
Page B-4 & B-6	March 12, 2014	Removed option -35 - not available
Page B-7 to B-18	May 20, 2014	Corrected 2" valve's dimension "F" and weight. Clarified "-49" option.
Page B-7-B-56	Jan. 17, 2014	Clarified "-49" option.
Page B-19 to B-24	Dec. 2, 2013	Changed referenced graph number
Page B-19 to B-24	May 20, 2014	Corrected 2" valve's dimension "F" and weight. Clarified "-49" option.
Page B-25 to B-42	May 20, 2014	Corrected 2" valve's dimension "F" and weight. Clarified "-49" option.
Page B-43, B-44	May 20, 2014	Corrected 2" valve's dimension "F". Clarified "-49" option.
Page B-43	July 21, 2014	Added part number 86D-101-01
Page B-45 to B-56	May 20, 2014	Corrected 2" valve's dimension "F" and weight. Clarified "-49" option.
Page C-5 to C-7	May 16, 2014	Changed referenced graph numbers
Pages D-5, 6, 9, 10, 13-14, 17-18, 21, 23-24, 27-28, 31-32, 35-36, 39-40, 43-44, 47-48, 51-52, 55-56, 59-60, 63-64, 67-68, 71, 73-74, 77-78, 81-82, 85-86	Nov. 7, 2014	Added -04- Option (2.25" CS Stem Extension)
Pages D-5 to D109	July 11, 2014	Corrected Option MP (Positive Material Identification) - changed from PM to MP
Page D-23 to D-26	Dec. 27, 2013	Corrected Standard Material List
Page D-31 to D-34	Dec. 27, 2013	Corrected Standard Material List
Page D-35 to D-38	Dec. 27, 2013	Corrected Standard Material List
Page D-39 to D-42	Dec. 13, 2013	Removed "-UL" suffix option
Page D-43	Dec. 27, 2013	Corrected Standard Material List
Page D-44 to D-54	Dec. 13, 2013	Removed "-UL" suffix option
Page D-56 to D-57	Sept. 25, 2014	Correct Material List for Ball
Page D-60	Sept. 25, 2014	Correct Material List for Ball
Page D-68 to D-69	Sept. 25, 2014	Correct Material List for Ball
Page D-73 to D-88	Dec. 2, 2013	Changed referenced graph number
Pages D-95 to D-109	July 11, 2014	Added 87AF00, 88AF00, and 88LF00 Series
Page F-5	April 14, 2014	Corrected Standard Material List (#4 Ball, #8 Stem)
Page F-6	April 14, 2014	Corrected Standard Material List (#4 Ball, #8 Stem)
Page F-7	Sept. 9, 2014	Corrected Standard Material List (#12 Union nut)
Page F-8	Sept. 9, 2014	Corrected Standard Material List (#12 Union nut)
Page H-3	Dec. 3, 2013	Corrected bolt material
Page H-23	April 14, 2014	Corrected Standard Material List (#4 Ball, #8 Stem)
Page H-24	April 14, 2014	Corrected Standard Material List (#4 Ball, #8 Stem)
Page J-5	April 2, 2014	Corrected -19 option (82-100-19)
Page J-7	March 10, 2014	Corrected photo for -39 option
Page M-1	May 7, 2014	Edited table of contents
Page M-14	Nov. 18, 2013	Removed "Bronze" from Graph 13's description
Page M-22	April 2, 2014	Edited title block & chart keys
Page M-23, 24	Dec. 2, 2013	Added three new Graphs for LCC material
Page P-1	Nov. 18, 2013	Edited table of contents
	April 2, 2014	Edited table of contents
Page P-3, 4	Nov. 20, 2013	Added variations available
	April 2, 2014	Edited title block
Page P-5, 6	Nov. 18, 2013	Corrected product numbers for angled valves.
	Nov. 20, 2013	Added variations available.
	April 2, 2014	Edited title block