

# AVCO

*Alloy Valves and Control*

## BALL VALVES 1500 SERIES

**INSTRUMENTS • CONTROLS • VALVES**

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**AVCO**

Engineering, Inc.

SINCE 1954

[www.arcoengineering.com](http://www.arcoengineering.com)

3317 Gilmore Industrial Blvd.  
Louisville, KY 40213

Ph: (502) 966-3134

Fx: (502) 966-3135



### Size

1/4" - 4" (Full Port)

### End Connections

NPT  
Butt Weld  
Socket Weld  
Flanged (150#, 300#, 600#)

### Valve Materials

316 Stainless Steel  
Hastelloy C  
Monel 400

### Ball and Stem Materials

316 Stainless Steel  
Hastelloy C  
Monel 400

### Seat Materials

Teflon (PTFE)  
Dyneon™ (TFM™)  
Carbon Filled Teflon  
Kel-F (PCTFE)

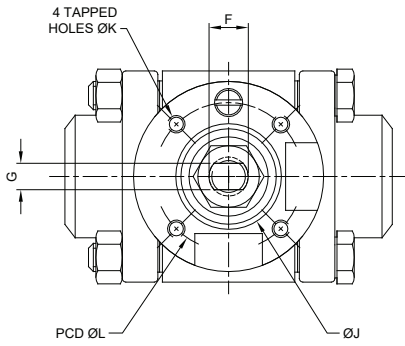
### Service Applications

Aerospace  
Cryogenic Service  
Food Processing  
Liquid H<sub>2</sub>  
Liquid N<sub>2</sub>  
Petro-Chemical

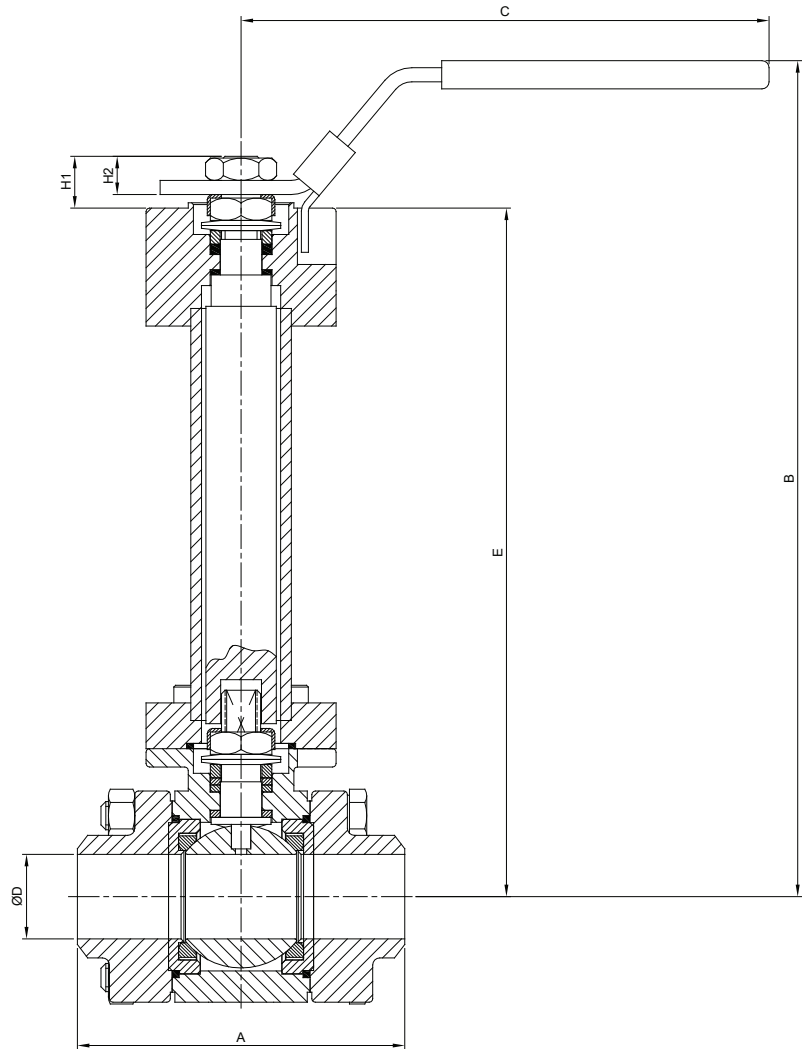
### Applicable Standards

ASME B16.34  
MSS SP-134  
API 598  
API 607 4th Edition  
BS 6364

1/4" THRU 2"

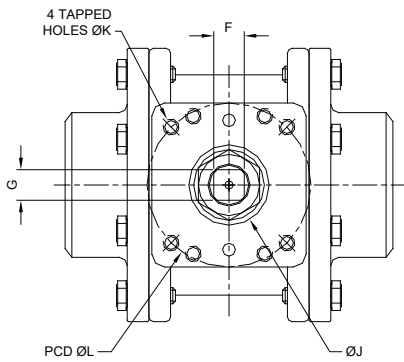


Plan View with Handle Removed

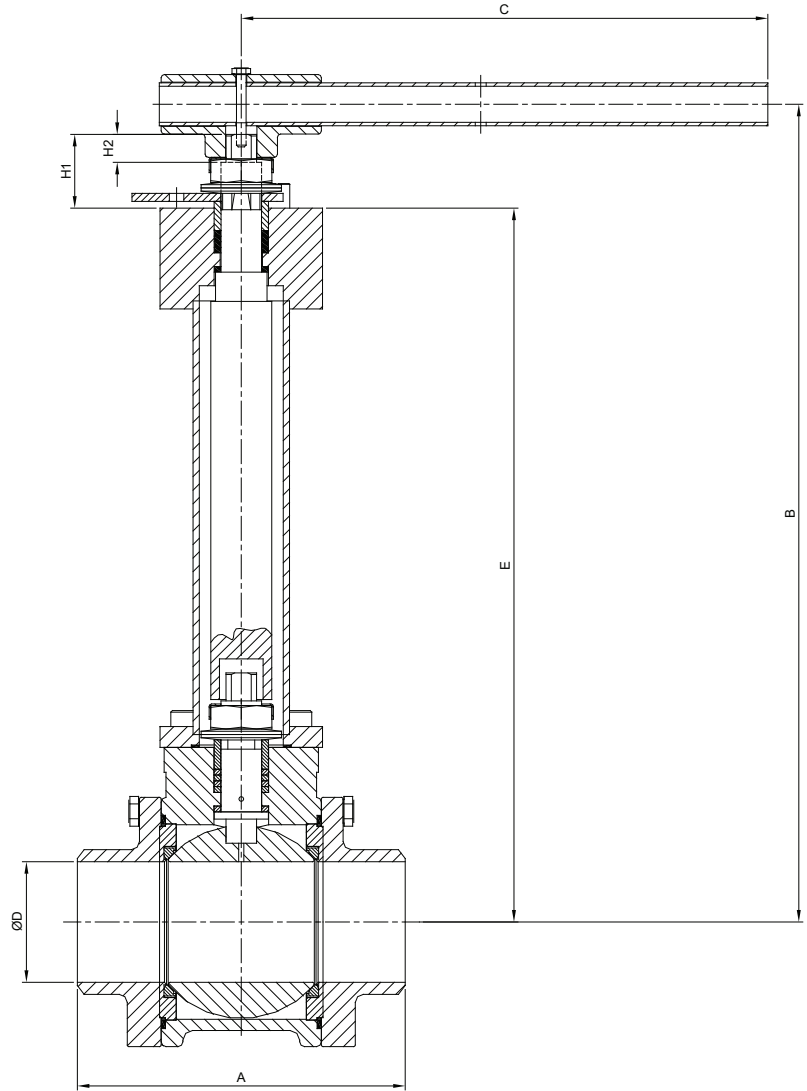


SIZE	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	G (in.)	H1 (in.)	H2 (in.)	J (in.)	K	L (in.)	ISO 5211	Weight (lbs)	TORQUE (in-lbs)	CV
1/4"	2.61	9.06	4.53	0.36	7.85	0.375	0.224	0.543	0.344	0.984	M5	1.417	F03	3.7	65	9
3/8"	2.61	9.06	4.53	0.49	7.85	0.375	0.224	0.543	0.344	0.984	M5	1.417	F03	3.7	65	18
1/2"	2.97	9.06	4.53	0.59	7.85	0.375	0.224	0.543	0.344	0.984	M5	1.417	F03	3.7	65	28
3/4"	3.17	9.14	4.53	0.75	7.93	0.375	0.224	0.543	0.344	0.984	M5	1.417	F03	4.5	80	49
1"	3.67	9.35	5.91	0.95	7.70	0.438	0.295	0.654	0.494	1.181	M5	1.654	F04	7.1	120	82
1 1/4"	4.37	9.55	5.91	1.18	7.89	0.438	0.295	0.654	0.494	1.181	M5	1.654	F04	9.5	235	135
1 1/2"	4.72	11.30	6.85	1.50	9.35	0.563	0.339	1.126	0.671	1.378	M6	1.969	F05	13.9	290	225
2"	5.53	11.66	6.85	1.97	9.71	0.563	0.339	1.126	0.671	1.378	M6	1.969	F05	19.6	450	400

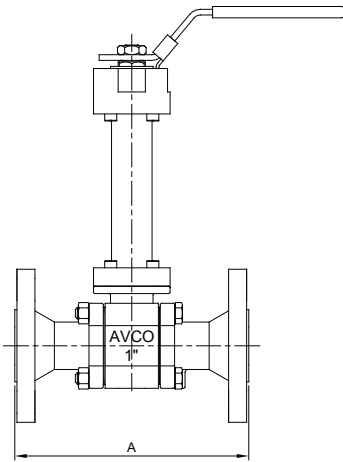
2 1/2" THRU 4"



Plan View with Handle Removed  
2 1/2" has double D stem  
3" & 4" have square stem



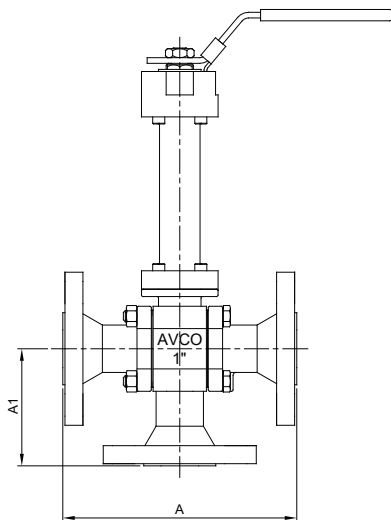
SIZE	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	G (in.)	H1 (in.)	H2 (in.)	J (in.)	K	L (in.)	ISO 5211	Weight (lbs)	TORQUE (in-lbs)	CV
2 1/2"	7.27	16.39	9.90	2.52	14.08	0.787	0.551	1.677	0.724	1.575	M8	2.756	F07	35.8	685	665
3"	8.02	19.98	13.74	2.95	17.54	0.748	0.748	1.831	0.689	1.969	M10	4.016	F10	65.4	1200	935
4"	9.46	20.52	13.74	3.78	18.08	0.748	0.748	1.831	0.689	1.969	M10	4.016	F10	82.7	2000	1575



### Standard Flanged Ends (150#, 300#, 600#)

SIZE	A (in.)		
	150#	300#	600#
1/2"	5.50	5.50	6.50
3/4"	6.00	6.00	7.50
1"	6.50	6.50	8.50
1 1/4"	7.00	7.00	9.00
1 1/2"	7.50	7.50	9.50
2"	8.50	8.50	11.50
2 1/2"	9.50	9.50	13.00
3"	11.12	11.12	14.00
4"	12.00	12.00	17.00

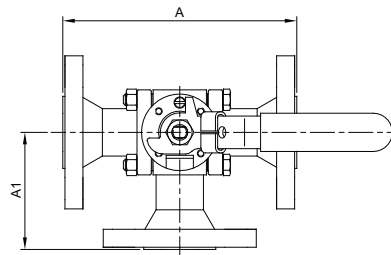
See tables on pages 2 & 3 for all other dimensions



### 3 Way Bottom Entry with Flanged Ends (150#, 300#, 600#)

SIZE	A (in.)			A1 (in.)		
	150#	300#	600#	150#	300#	600#
1/2"	5.50	5.50	6.50	2.75	2.75	3.25
3/4"	6.00	6.00	7.50	3.00	3.00	3.75
1"	6.50	6.50	8.50	3.25	3.25	4.25
1 1/4"	7.00	7.00	9.00	3.50	3.50	4.50
1 1/2"	7.50	7.50	N/A	3.75	4.33	N/A
2"	8.50	8.50	N/A	4.25	4.75	N/A
2 1/2"	9.50	9.50	N/A	4.75	5.75	N/A
3"	11.12	11.12	N/A	6.25	6.25	N/A
4"	12.00	12.00	N/A	7.25	7.25	N/A

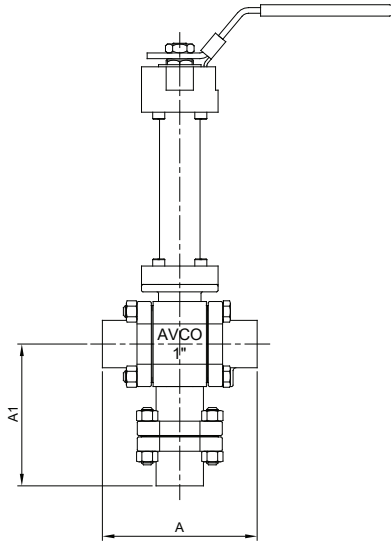
See tables on pages 2 & 3 for all other dimensions



### 3 Way Side Entry with Flanged Ends (150#, 300#, 600#)

SIZE	A (in.)			A1 (in.)		
	150#	300#	600#	150#	300#	600#
1/2"	5.50	5.50	6.50	2.75	2.75	3.25
3/4"	6.00	6.00	7.50	3.00	3.00	3.75
1"	6.50	6.50	8.50	3.25	3.25	4.25
1 1/4"	7.00	7.00	9.00	3.50	3.50	4.50
1 1/2"	7.50	7.50	N/A	3.75	4.33	N/A
2"	8.50	8.50	N/A	4.25	4.75	N/A
2 1/2"	9.50	9.50	N/A	4.75	5.75	N/A
3"	11.12	11.12	N/A	6.25	6.25	N/A
4"	12.00	12.00	N/A	7.25	7.25	N/A

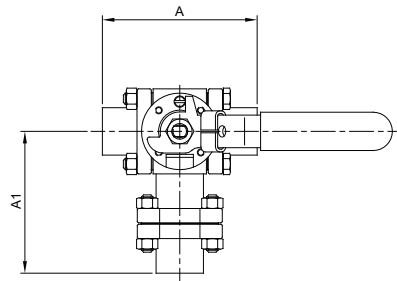
See tables on pages 2 & 3 for all other dimensions



### 3 Way Bottom Entry with BW, NPT or SW Ends

SIZE	A (in.)	A1 (in.)
1/4"	2.61	2.72
3/8"	2.61	2.72
1/2"	2.95	2.90
3/4"	3.17	3.05
1"	3.67	3.31
1 1/4"	4.37	3.93
1 1/2"	4.72	4.23
2"	5.53	4.85

See tables on pages 2 & 3 for all other dimensions

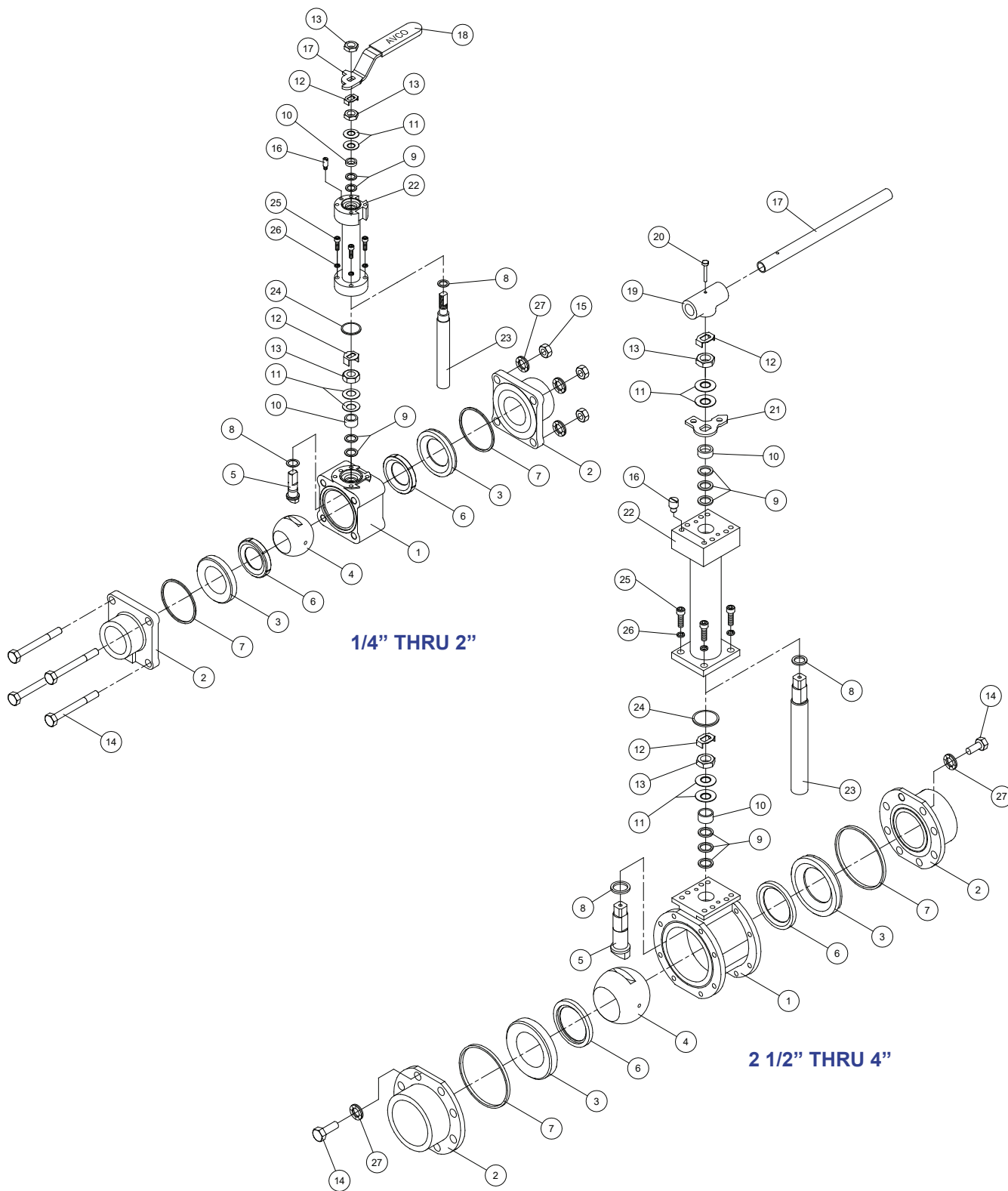


### 3 Way Side Entry with BW, NPT or SW Ends

SIZE	A (in.)	A1 (in.)
1/4"	2.61	2.72
3/8"	2.61	2.72
1/2"	2.95	2.90
3/4"	3.17	3.05
1"	3.67	3.31
1 1/4"	4.37	3.93
1 1/2"	4.72	4.23
2"	5.53	4.85

See tables on pages 2 & 3 for all other dimensions

Alloy Valves and Control



### Alloy Valves and Control

Item	Parts	Material
1	Body	316 Stainless Steel/Hastelloy C/Monel 400
2	End Cap	316 Stainless Steel/Hastelloy C/Monel 400
3	Retainer*	316 Stainless Steel/Hastelloy C/Monel 400
4	Ball	316 Stainless Steel/Hastelloy C/Monel 400
5	Stem	316 Stainless Steel/Hastelloy C/Monel 400
6	Ball Seat	25% Carbon PTFE/PTFE/PCTFE/TFM™
7	Body Seal	25% Carbon PTFE/PTFE/Graphoil
8	Thrust Washer	25% Carbon PTFE/PTFE/PCTFE/Graphoil/TFM™
9	Packing	25% Carbon PTFE/PTFE/Graphoil
10	Gland Ring	304 Stainless Steel
11	Disc Spring	304 Stainless Steel
12	Lock Tab	304 Stainless Steel
13	Stem Nut	304 Stainless Steel
14	Body Bolt	304 Stainless Steel
15	Body Nut	304 Stainless Steel
16	Stop Pin	304 Stainless Steel
17	Handle	304 Stainless Steel
18	Handle Sleeve	Vinyl
19	Wrench Block	304 Stainless Steel
20	Handle Bolt	304 Stainless Steel
21	Lock Pad	304 Stainless Steel
22	Bonnet Extension	316 Stainless Steel/Hastelloy C/Monel 400
23	Stem Extension	316 Stainless Steel/Hastelloy C/Monel 400
24	Bonnet Gasket	Spiral Wound Gasket (316 SS w/ Flexicarb or PTFE)
25	Bonnet Bolt	304 Stainless Steel
26	Bonnet Washer	304 Stainless Steel
27	Disc-Lock Washer	316 Stainless Steel

\* This item is integral with the end cap (item 2) on sizes 1/4" thru 3/4"

### Features

- Extended Bonnet
- Optional Extended Bonnet Lengths
- Optional Shortened Bonnet Lengths
- Encapsulated Seats, Seals & Body Bolts
- Spring Loaded Stem Packing
- Bottom Entry Stem to Prevent Blow-Out
- Vent Hole on Pressure Side of Ball
- ISO 5211 Mounting Pad
- Locking Handle
- Inter-Changeable End Connections

### Notes

Please contact AVCO if you require customized versions of our valves. CAD drawings are available for most variations, including actuators etc.

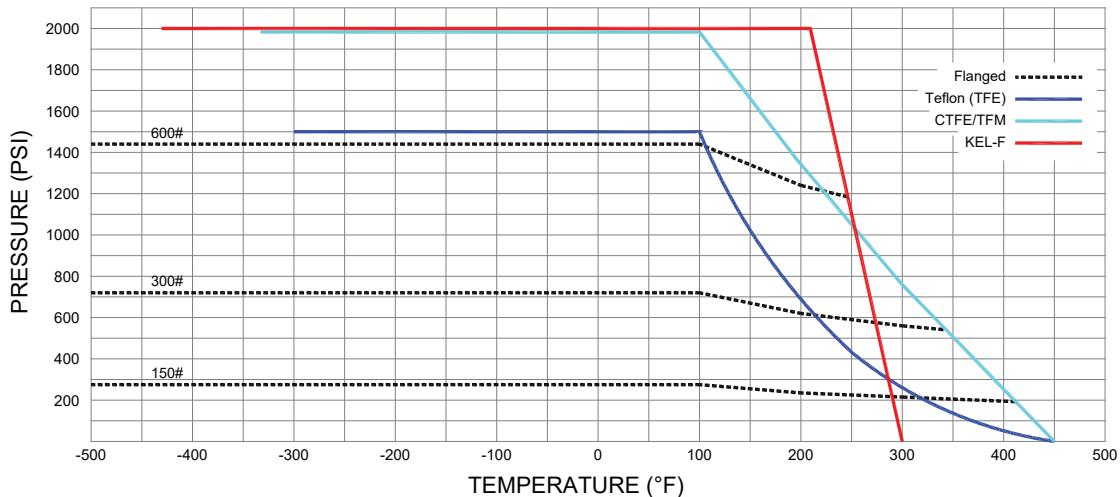
### Pressure Limits

1/4" thru 1 1/4"  
2000 psi (2000 WOG)

1 1/2" thru 2"  
1500 psi (1500 WOG)

2 1/2" thru 4"  
1000 psi (1000 WOG)

### Pressure/Temperature Rating





### Electric Actuator

120 VAC  
12/24 VDC  
NEMA 4/7  
Positioners 4-20 MA  
Reversing  
Telemetry  
Battery Back-up  
Spring Return



### Pneumatic Actuator

Double Acting  
Spring Return  
Solenoid Valves  
Limit Switches  
Positioners 3-15 PSI  
Positioners 4-20 MA  
Intelligent Positioner  
Dec clutchable Manual Override



### Manual Valves

Oval Handle  
Spring Return  
Fusible Link  
Lock Device  
Gear Operators

## HOW TO ORDER

15	3	3	T	T	SE	100	LH
Series	Body & End Material	Ball & Stem Material	Seat Material	Seal Material	End Style	Size	Options
1500 Series 3 Piece Cryogenic Full Port Ball Valve	3 - 316 SS 4 - Monel 400 6 - Hastelloy C	3 - 316 SS 4 - Monel 400 6 - Hastelloy C	T - Teflon (PTFE) C - 25% Carbon PTFE K - Kel-F (PCTFE) E - TFM™	T - Teflon (PTFE) C - 25% Carbon PTFE G - Graphoil	SE - NPT SW - Socket Weld BW - Butt Weld 150 - 150# Flange 300 - 300# Flange 600 - 600# Flange	025 - 1/4" 038 - 3/8" 050 - 1/2" 075 - 3/4" 100 - 1" 125 - 1 1/4" 150 - 1 1/2" 200 - 2" 250 - 2 1/2" 300 - 3" 400 - 4"	BAHL - Hardened Ball BAB90 - 90° Bottom Diverter BAB180 - 180° Bottom Diverter BAS90 - 90° Side Entry Diverter BAV15 - 15° Vee Port BAV30 - 30° Vee Port BAV45 - 45° Vee Port BAV60 - 60° Vee Port EBxx - Custom Bonnet Length FS - Fire Safe O2CB - O <sub>2</sub> Cleaned & Bagged LH - Lever Handle
					Variations of the above or special ends can be supplied upon request		

### Example ordering codes:

1533TT-SE-100-LH = 1" ball valve with stainless steel body/ball, Teflon seats/seals, NPT ends & locking lever handle  
1544KG-300-100-FS = 1" ball valve with Monel 400 body/ball, Kel-F seats, Graphoil Seals, 300# RF Flange, Fire Safe and bare stem

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