

## CVS Controls Series 8000/8100 Floating Flanged Ball Valves

The CVS Controls Floating Flanged Ball Valves are available in a variety of configurations and materials to meet specific applications.

The CVS Floating Flanged Ball Valves are available in 2 Inch through 4 inch, ASME Class 150/300 and 600, both full and regular port. A 2 inch reduced port ASME Class 900/1500 floating flanged ball valve design is also available.

Standard features include:

- Blowout Proof Stem
- Ball Position Indicator
- Tight Sealing
- Bi-Directional Design and Sealing
- Equalized Cavity Pressure
- Fire Safe Design
- Manufactured to API 6D Specifications, NACE MRO175 and ASME B16.34-latest edition standards



Series 8000  
Reduced Port



Series 8100  
Full Port



2 Inch Class 1500 Reduced Port

ABSA CRN# 0C01943.2

## SPECIFICATIONS

### CVS Floating Flanged Ball Valve Product Range Full and Reduced Port, Flanged End Connection

Body Material	Class	Port	Valve Size (inches)		
			2	3	4
Carbon Steel and Stainless Steel	150	Reduced	X	X	X
		Full	X	X	X
	300	Reduced	X	X	X
		Full	X	X	X
	600	Reduced	X	X	X
		Full	X	X	X
	900/1500	Reduced	X	-	-

### How To Order:

Model number identification CVS Floating Flanged Ball Valves

Example: 3" Class 300, 8030, R-30-1-R-2-S-P-V-4

The above model number represents a 3" Reduced Port, ASME Class 300, Floating Ball Valve with RF Flanges, LCC Body Material, Stainless Steel Trim, PTFE Seats, Viton Seals, Flanged End with no operator

3"	R	30	1	R	2	S	N	F	4	
Valve Size	Port Config.	Pressure Class	Design	End Connection	Body Material	Trim Material	Seat Material	Seal Material	End Connection	Drive Type
2X1.5 2X2 3X2 3X3 4X3 4x4	R Reduced	10 150	1 Floating	R RF	Blank A105	C Carbon Steel	P PTFE	F PTFE	1 Female Thread	Blank Manual
		30 300			1 LF2		N Nylon	N Nylon		
					F Full		60 600	7 Trunnion	J RTJ	2 LCC
	3 SS	S Stainless Steel	6 BW							
	90* 900/1500									

\*2 Inch Class 1500 only available in reduced port

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## FLOW COEFFICIENTS

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### CVS Floating Flanged Ball Valves

The flow coefficients (Cv) factor for CVS Floating Flanged Ball Valves are to be used for reference to correctly size valve for desired applications. Cv is equal to volume of water @ 60°F in gallons per minute that will flow through an opening while producing a 1 psi pressure drop across the valve.

Flow Coefficients - Cv			
Series*	Valve Size		
	2	3	4
Reduced Port	180	350	880
Full Port	480	1200	2250

\*Includes all ASME Class Valves in the series.

### CVS Repair Kits

When ordering replacement parts for the Floating Flanged Ball Valve, please reference the model and serial number indicated on the nameplate. For more information contact a CVS Controls Sales Representative.



## Pressure/Temperature Ratings – Material Selection

CVS Series 8000/8100 Floating Flanged Ball Valves come standard with PTFE seat materials, and Viton seal materials. Additional materials may be available upon request, contact a CVS Controls Ltd. representative for more information.

Material	Temperature Capabilities	Application
Seat Selection		
PTFE – Virgin TFM	-328°F to 500°F	Wide temperature range
PTFE – Carbon Filled TFM	-328°F to 500°F	High Pressure
Nylon	-20°F-200°F	High Pressure, Low Temp
Viton	-20°F-400°F	High Temp, not suitable for steam
Stainless Steel		Severe Service
Seal Selection		
PTFE	-328°F to 500°F	Wide temperature range
Nylon	-22°F to 200°F	High Pressure, Low Temp
Viton	-15°F to 400°F	Wide range of temperature and process

\*Pressure and temperature limits determined by class and body material selection

## Approximate Shipping Weights (lbs)



Port		Valve Size (inches)		
		2	3	4
Class 150	Reduced	19	35	76
	Full	22	48	75
Class 300	Reduced	26	54	106
	Full	29	65	105
Class 600	Reduced	33	70	140
	Full	46	91	177
Class 900/1500	Reduced	92		

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## Maximum Stem Break Torques

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**Maximum Stem Break Torque at  
Maximum Operating Pressure  
(in-lbs)**

\*TFM and TFMC Seating

Class	Port	Valve Size (inches)		
		2	3	4
		285 psi M.O.P.		
150	Reduced	650	1200	1650
	Full	1200	1650	2265
		740 psi M.O.P.		
300	Reduced	730	1225	2390
	Full	1186	2390	3190
		1480 psi M.O.P.		
600	Reduced	845	1250	2390
	Full	1250	2390	4090
		3750 psi M.O.P.		
900/1500	Reduced	1755		

**Note:** No additional safety factor has been added

CVS Controls recommends the following:

- For Nylon Seating, add an additional 25% min.
- For powered actuation add 25% min.
- For Dirty Gas Service add additional 50% min.
- For Dry Gas Service add an additional 25% min.

\*For more information please contact a CVS Controls Sales Representative

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## FEATURES

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### **Blowout Proof Stems**

Anti-Blowout protection is standard on all CVS Floating Flanged Ball Valves.

### **Ball Position Indicator**

Ball position is easily determined and identified in either full open or full close position.

### **Lockout Protection**

All CVS Floating Flanged Ball Valves come standard with lockout protection.

### **Actuation**

Pneumatic, hydraulic, and electric actuators are easily adaptable to CVS 8000/8100 Series Ball Valves. CVS Controls is able to supply and assemble the correct ball valve/actuator solution best suited for any application.

### **Bi-Directional Sealing**

CVS Floating Flanged Ball Valves may be installed in either direction, without compromising the integrity of the seal.

### **Equal Cavity Pressure**

Both line pressure and the ball valve cavity pressure is maintained equally while the valve is in the open position.

### **Bubble Tight Seal**

Downstream process flow is cut off by upstream pressure pushing against the ball in the closed position.

### **Firesafe ISO Design**

All CVS Floating Flanged Ball Valves have been proven to meet Firesafe API607 or API 6FA Design Standards.

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## Specifications/Certifications

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All CVS Controls Ball Valves are manufactured in accordance of applicable standards.

API6A and API6D certifications are maintained and current.

All CVS Floating Flanged Ball Valves conform to NACE MRO 175 design standards.

ABSA, The Pressure Equipment Safety Authority - CRN # 0C01943.2

CVS Controls Ltd. is a certified and registered ISO 9001-2008 manufacturing facility. Our in house quality assurance program is dedicated to continually improve the efficiency and the effectiveness of our quality management system. Our product is confirmed by a rigid quality control program which utilizes the most up to date methods of testing and inspection.

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## Application and Design

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CVS Controls in house engineering and application design can assist in finding the right solution best suited for your application.

Hydraulic or pneumatic actuation and Emergency Shut Down Devices (ESD) can be supplied and assembled to customer specifications. CVS Controls also has a wide variety of pressure pilots, limit switches, positioners as well as solenoid valves to complete the design package.

Contact a CVS Controls sales representative for more information.

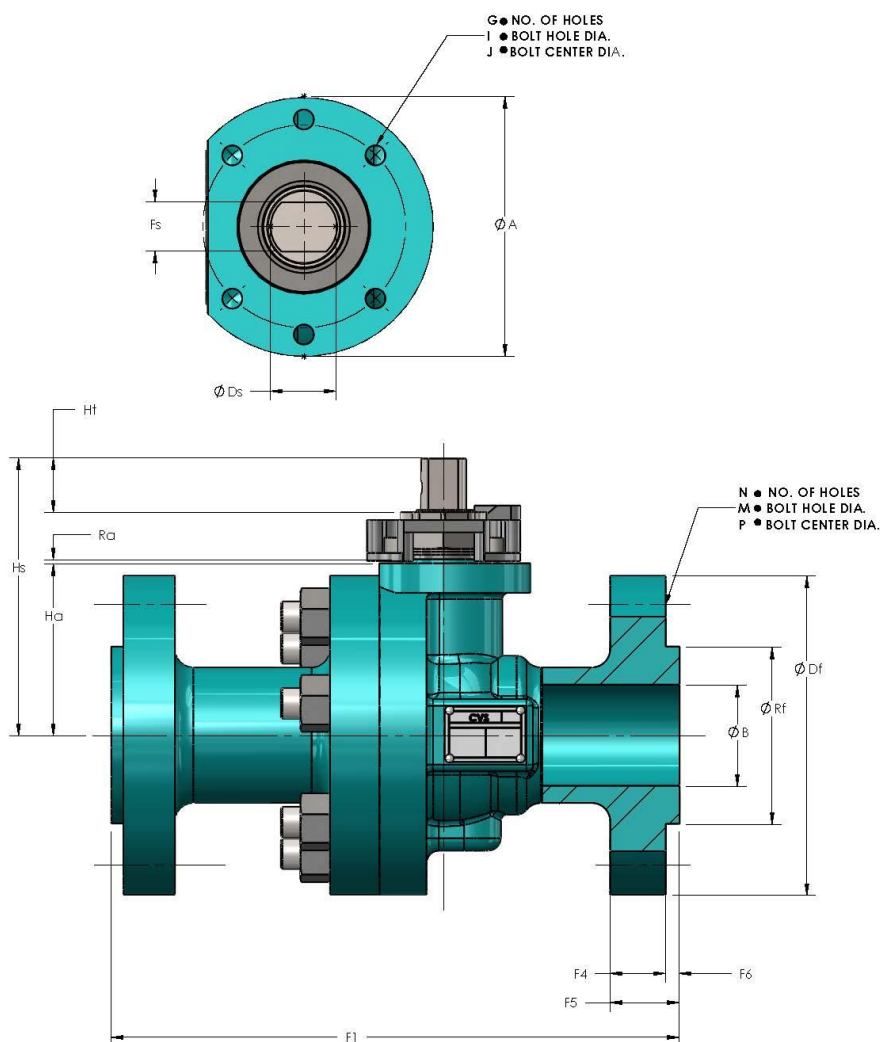


## Specifications

### Actuator Mounting - Dimensional Information (inches)

Series 8000 Reduced Port - 2 Inch and 3 Inch, Class 150/300, and Class 600

Series 8100 Full Port – 2 Inch Class 150/300, and Class 600



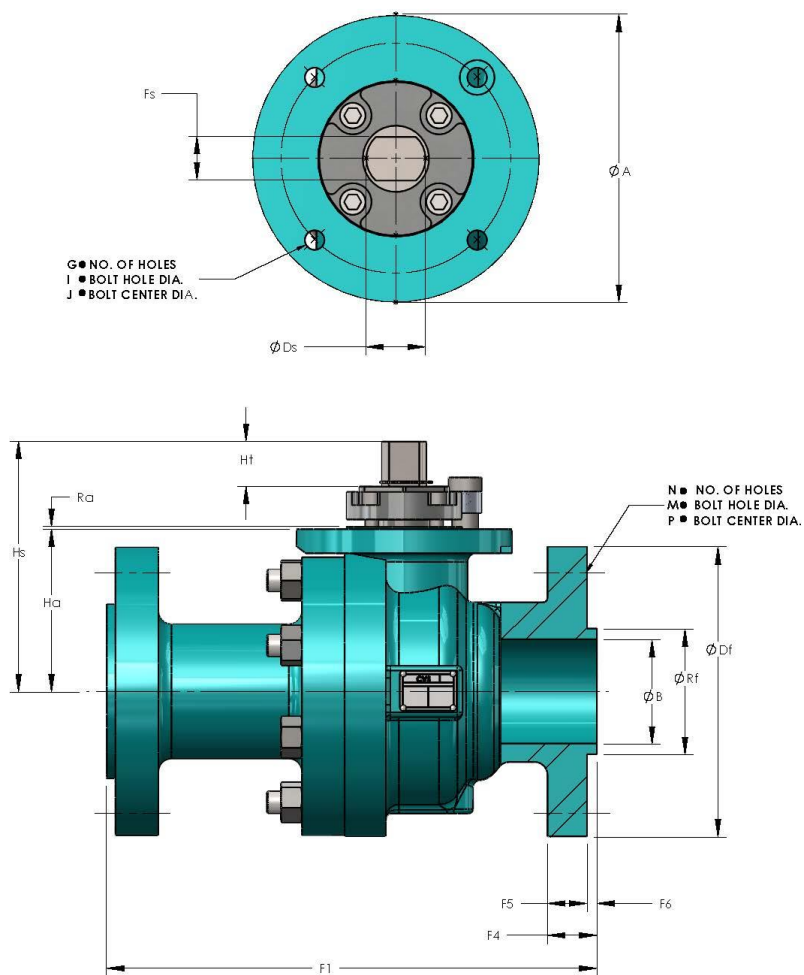
Valve Size (in.)	A	Ha	Hs	Ht	Ra	Ds +000/-003	Fs +000/-003	GxI	J	ISO 5211
<b>Series 8100 – Full Port – Class 150, 300</b>										
2	3.54	3.48	5.67	1.07	0.08	0.906	0.669	4x5/16-18 UNC	2.75	F07
<b>Series 8100 – Full Port – Class 600</b>										
2	3.54	3.48	5.67	1.07	0.08	0.906	0.669	4x5/16-18 UNC	2.75	F07
<b>Series 8000 – Reduced Port – Class 150, 300</b>										
2	3.54	2.59	4.38	0.71	0.08	0.767	0.551	4x5/16-18 UNC	2.75	F07
3	3.54	3.48	5.67	1.06	0.08	0.906	0.669	4x5/16-18 UNC	2.75	F07
<b>Series 8000 – Reduced Port – Class 600</b>										
2	3.54	2.59	4.38	0.71	0.08	0.767	0.551	4x5/16-18 UNC	2.75	F07
3	3.54	3.48	5.67	1.06	0.08	0.906	0.669	4x5/16-18 UNC	2.75	F07



## Specifications

### Actuator Mounting – Dimensional Information (inches)

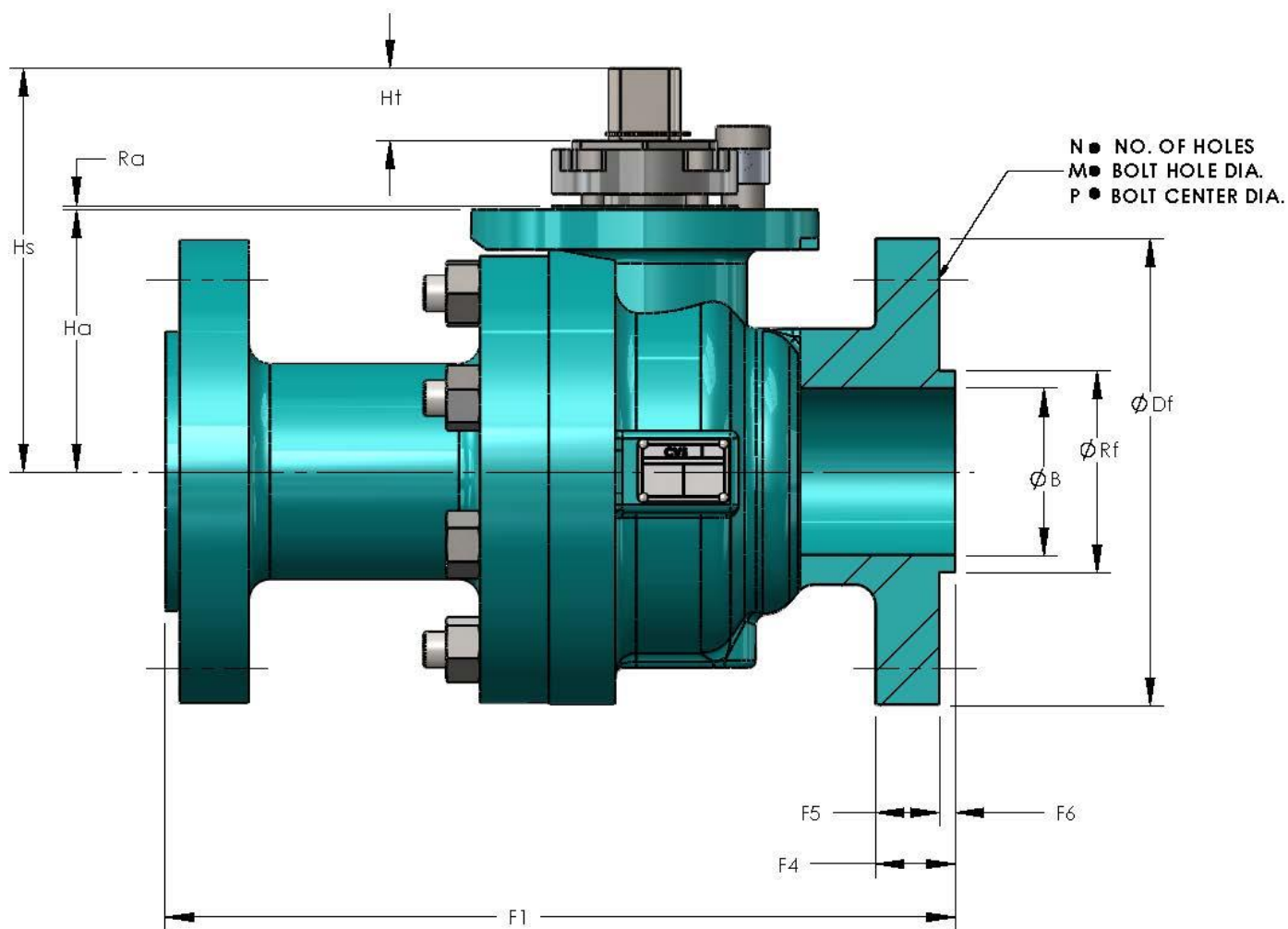
Series 8000/8100 – 3 Inch and 4 Inch, Class 150, Class 300, and Class 600



Valve Size (in.)	A	Ha	Hs	Ht	Ra	Ds +000/-003	Fs +000/-003	GxI	J	ISO 5211
<b>Series 8100 – Full Port – Class 150, 300</b>										
<b>3</b>	4.92	4.30	6.51	1.03	0.08	0.906	0.669	4x3/8-16 UNC	4.00	F10
<b>4</b>	5.90	5.31	7.83	1.10	0.08	1.279	0.905	4x1/2-13 UNC	4.95	F12
<b>Series 8100 – Full Port – Class 600</b>										
<b>3</b>	5.90	4.65	7.19	1.11	0.08	1.279	0.906	4x1/2-13 UNC	4.95	F12
<b>4</b>	5.90	5.83	9.26	1.73	0.08	1.633	1.062	4x1/2-13 UNC	4.95	F12
<b>Series 8000 – Reduced Port – Class 150, 300</b>										
<b>4</b>	4.92	4.30	6.51	1.03	0.08	0.906	0.669	4x3/8-16 UNC	4.00	F10
<b>Series 8000 – Reduced Port – Class 600</b>										
<b>4</b>	5.90	4.65	7.19	1.11	0.08	1.279	0.906	4x1/2-13 UNC	4.95	F12

## Dimensions (in)

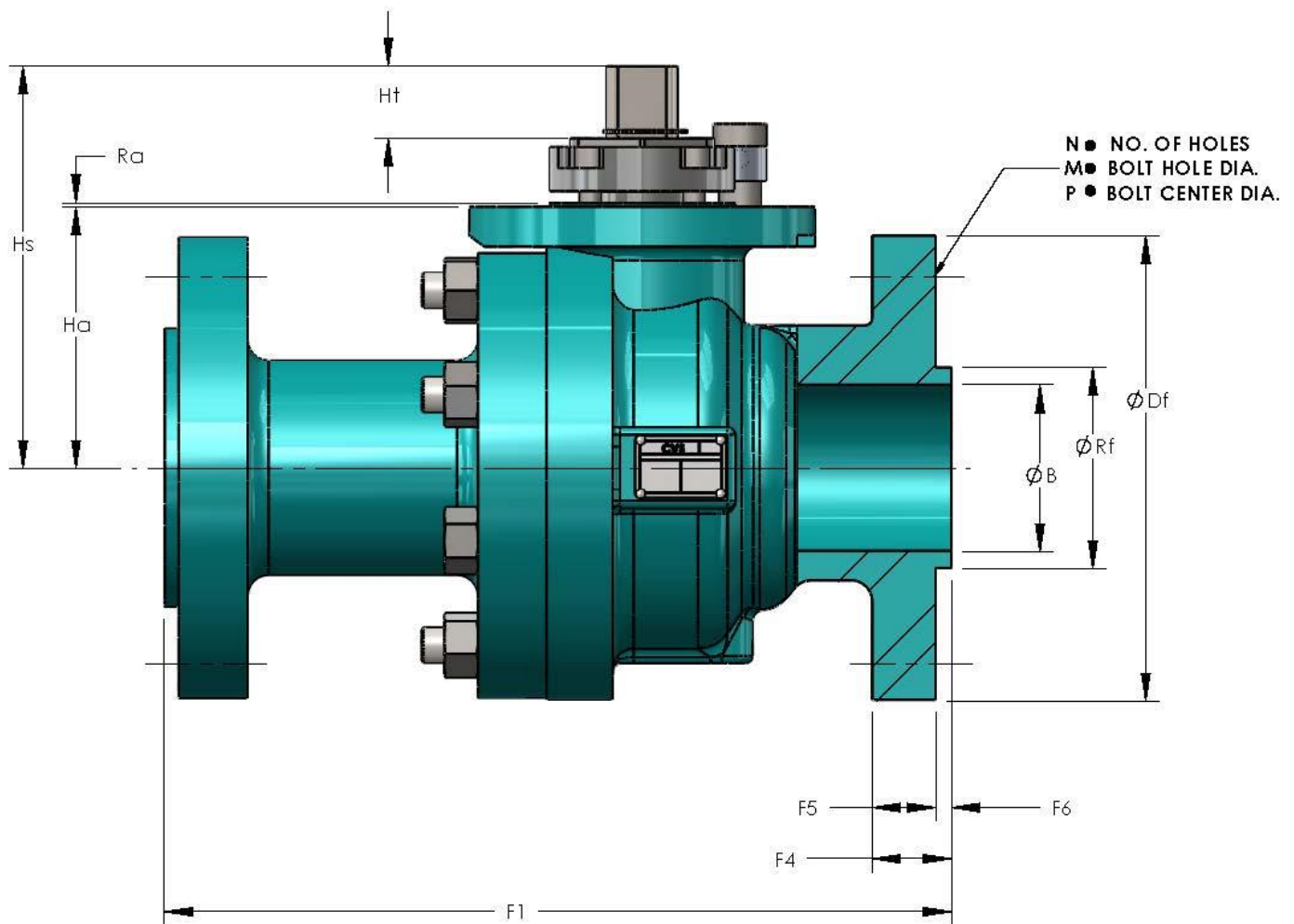
### CVS Series 8100 Full Port – 2 Inch through 4 Inch, Class 150, Class 300, and Class 600



Valve Size (in.)	F1	Df	Rf	F5	F6	NxØM	P
<b>Class 150</b>							
<b>2X2</b>	7.00	6.00	3.62	0.62	0.06	4xØ.75	4.75
<b>3X3</b>	8.00	7.50	5.00	0.75	0.06	4xØ.75	6.00
<b>4X4</b>	9.00	9.00	6.19	0.94	0.06	8xØ.75	7.50
<b>Class 300</b>							
<b>2X2</b>	8.50	6.50	3.62	0.88	0.06	4xØ.75	5.00
<b>3X3</b>	11.12	8.25	5.00	1.12	0.06	8xØ.88	6.62
<b>4X4</b>	12.00	10.00	6.19	1.25	0.06	8xØ.88	7.88
<b>Class 600</b>							
<b>2X2</b>	11.50	6.50	3.62	1.28	0.25	4xØ.75	5.00
<b>3X3</b>	14.00	8.25	5.00	1.50	0.25	8xØ.88	6.62
<b>4X4</b>	17.00	10.75	6.19	1.75	0.25	8xØ1.00	8.50

## Dimensions (in)

### CVS Series 8000 Reduced Port – 2 Inch through 4 Inch, Class 150, Class 300, and Class 600

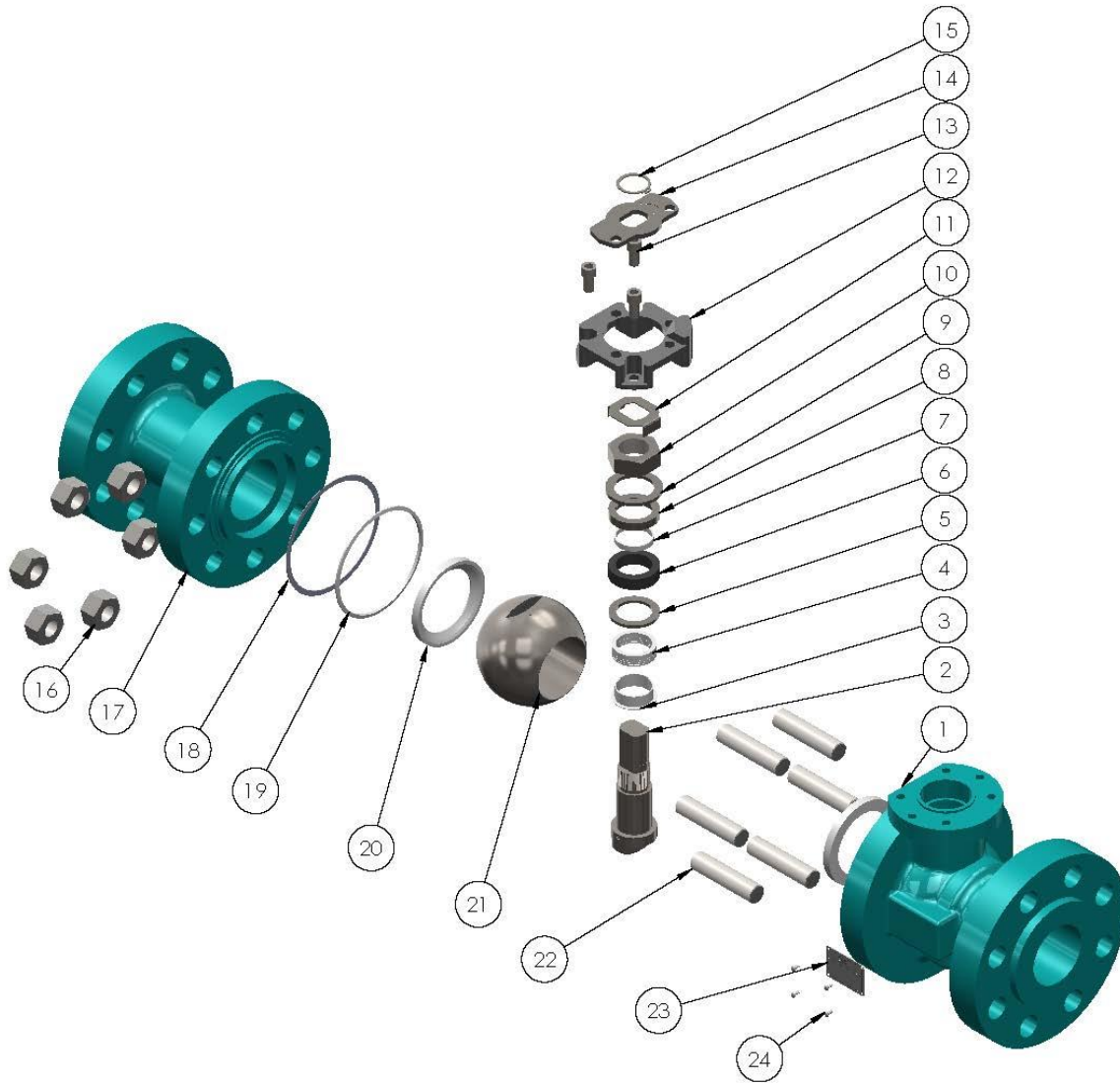


Valve Size (in.)	Rf	Df	F6	F5	F1	NxØM	P
<b>Class 150</b>							
<b>2X1.50</b>	3.62	4.00	0.06	0.62	7.00	4xØ.75	4.75
<b>3X2</b>	5.00	7.50	0.06	0.75	8.00	4xØ.75	6.00
<b>4X3</b>	6.19	9.00	0.06	0.94	9.00	8xØ.75	7.50
<b>Class 300</b>							
<b>2X1.50</b>	3.62	6.50	0.06	0.88	8.50	8xØ.75	5.00
<b>3X2</b>	5.00	8.25	0.06	1.12	11.12	8xØ.88	6.62
<b>4X3</b>	6.19	10.00	0.06	1.25	12.00	8xØ.88	7.88
<b>Class 600</b>							
<b>2X1.50</b>	3.62	6.50	0.25	1.25	11.50	8xØ.75	5.00
<b>3X2</b>	5.00	8.25	0.25	1.50	14.00	8xØ.88	6.62
<b>4X3</b>	6.19	10.75	0.25	1.75	17.00	8xØ1.00	8.50

## Assembly

Series 8000 – 2 Inch and 3 Inch, Class 150, Class 300, and Class 600

Series 8100 – 2 Inch Class 150, Class 300, and Class 600

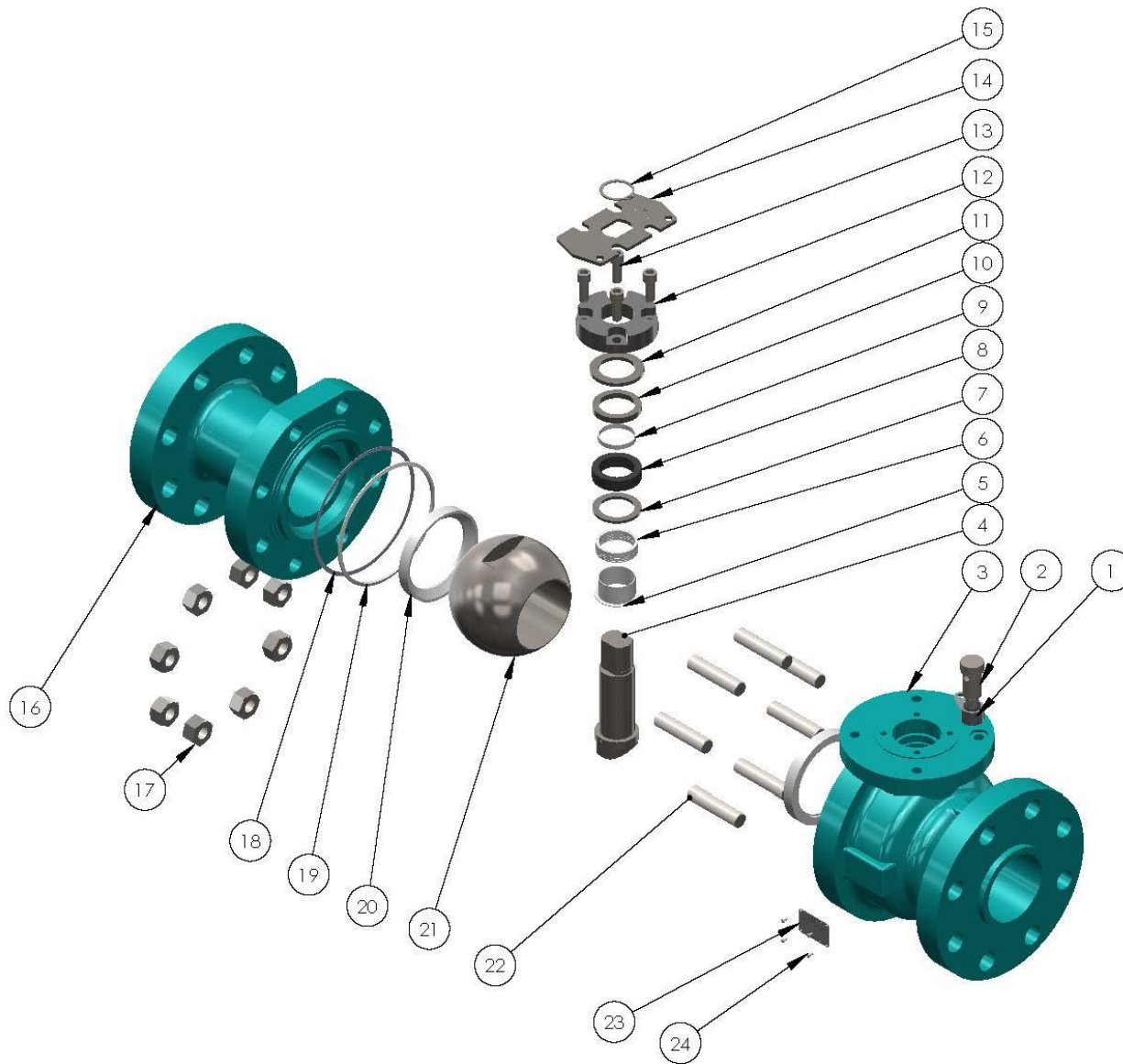


Item	Description	Material	Item	Description	Material
1	Body	LCC	13	5/16-18, RH Socket Screw	17-4 SST
2	Stem	316 SST	14	Stop Plate	304 SST
3	Stem Bearing	PTFE	15	Snap Ring	SST
4	Primary Packing	PTFE	16	5/8-11 Hex Nut	B7M
5	Secondary Packing Washer	304 SST	17	Adapter	LCC
6	Secondary Packing	Flex Graphite	18	Body Gasket	Graphite
7	Gland Bearing	PTFE	19	Body Seal Ring	Virgin PTFE
8	Gland	304 SST	20	Body Seal	TFM/TFMC
9	Washer	304 SST	21	Ball	316 SST
10	Jam Nut	SST	22	Stud, 5/8-11 X 2.6	1018 Steel
11	Lock Nut Plate	SST	23	Name Plate	304 SST
12	Gland Plate	304 SST	24	Drive Screw	17-4 SST

## Assembly

Series 8000 – 4 Inch, Class 150, Class 300, and Class 600

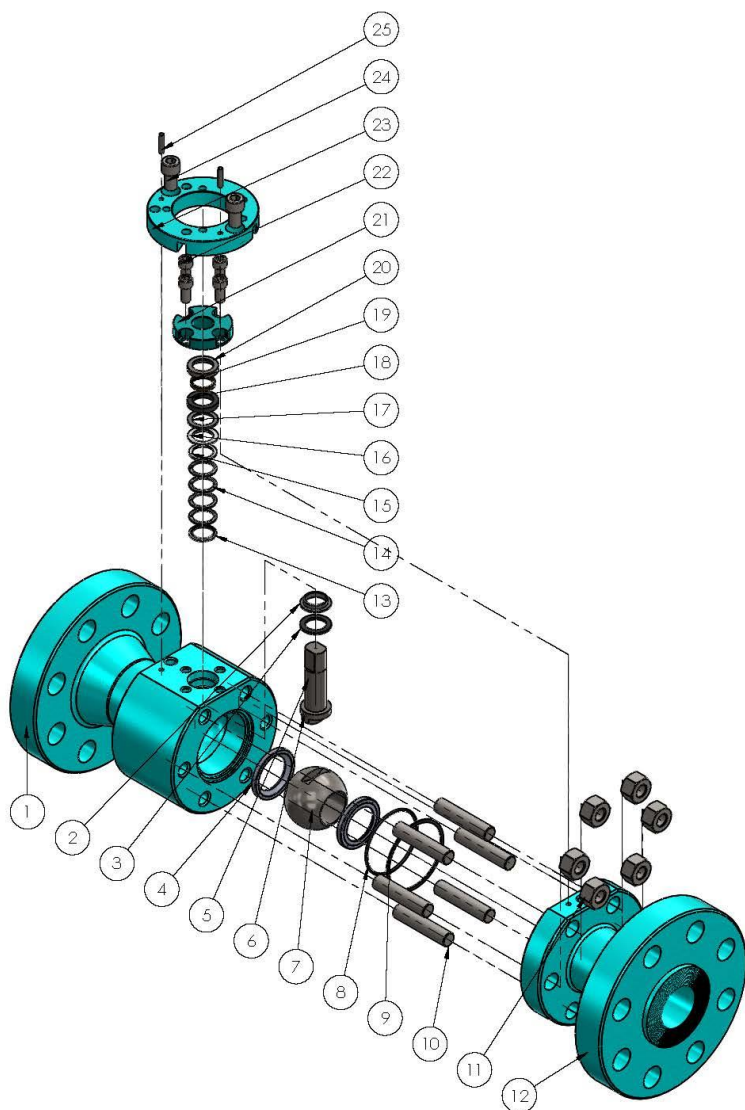
Series 8100 – 3 Inch and 4 Inch, Class 150, Class 300, and Class 600



Item	Description	Material	Item	Description	Material
1	Stop Connector	6061 T4	13	3/8-16 RH Socket Screw	17-4 SST
2	Stop	17-4 SST	14	Stop Plate	304 SST
3	Body	LCC	15	Snap Ring	SST
4	Stem	316 SST	16	Adapter	LCC
5	Stem Bearing	PTFE	17	5/8-11 Hex Nut	B7M
6	Primary Packing	PTFE	18	Body Gasket	Graphite
7	Secondary Packing Washer	3014 SST	19	Body Seal Ring	Virgin PTFE
8	Secondary Packing	Flex Graphite	20	Body Seal	TFM/TFMC
9	Gland Bearing	PTFE	21	Ball	316 SST
10	Gland	304 SST	22	5/8-11 Stud, 2.75" Long	1018 Steel
11	Washer	304 SST	23	Name Plate	304 SST
12	Gland Plate	304 SST	24	Drive Screw	17-4 SST

## Assembly

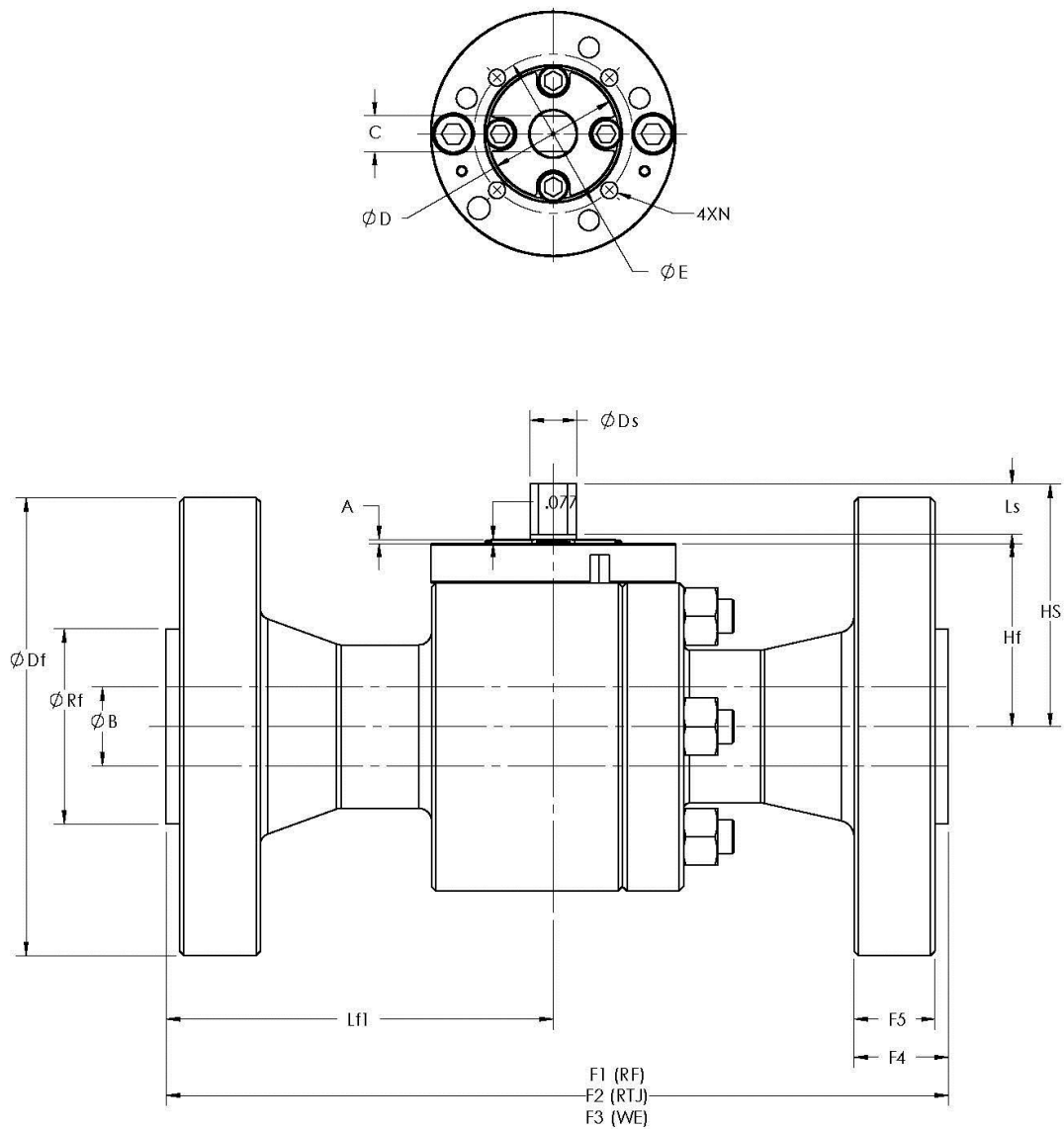
### Series 8000 – 2 Inch, Class 1500



Item	Description	Material	Item	Description	Material
1	Body		14	V-Packing Ring	
2	Stem Thrust Bearing		15	Packing Top Ring	
3	Anti Static Device		16	Packing Spacer	
4	Seat Ring		17	Packing Washer	
5	Stem		18	Anti-Static	
6	Stem Ball		19	Stem Bearing	
7	Ball		20	Bearing Retainer	
8	Flange End O-Ring		21	Gland Flange	
9	Flange End Gasket		22	Socket Screw	
10	Stud		23	Actuating Flange	
11	Nut		24	Socket Screw	
12	Closure/Flange End		25	Pin	
13	Packing Base				

## Dimensions (in)

### Series 8000 – 2 Inch, Class 1500 – Reduced Port



Valve Size (in.)	A	B	Rf	Df	F1-RF	F2-RTJ	F3-WE	F4	F5	Ds	Hf	Hs	Ls
<b>Class 1500</b>													
<b>2X1.50</b>	.075	1.46	3.62	8.50	14.50	14.62	14.50	1.75	1.50	0.862	3.395	4.50	0.94

### Mounting Dimensions – 2 inch Class 1500

Valve Size (in.)	N	E	D	C
<b>Class 1500</b>				
<b>2X1.50</b>	5/16-18	2.95	2.43	0.667