



*Valves, Automation & Controls*

# **SERIES 70**

*HIGH PERFORMANCE  
FLANGED FULL PORT  
BALL VALVE*

**Fully Compliant  
API 608  
Class 150#**

For petroleum  
refining, chemical  
& petrochemical  
processing



**Added Features | Enhanced Performance | Design Flexibility**

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

### End connection combinations

- Optional butt weld or extended butt weld end caps are available.

### Cast mounting brackets

- Cast brackets all in stainless steel material with hole patterns conforming to ISO 5211 on top and bottom planes for actuation mounting.
- Optional safety locking holes for securing valves during maintenance.
- Wide tool clearance for installation, aesthetic design and open visibility.

### Extension bonnets

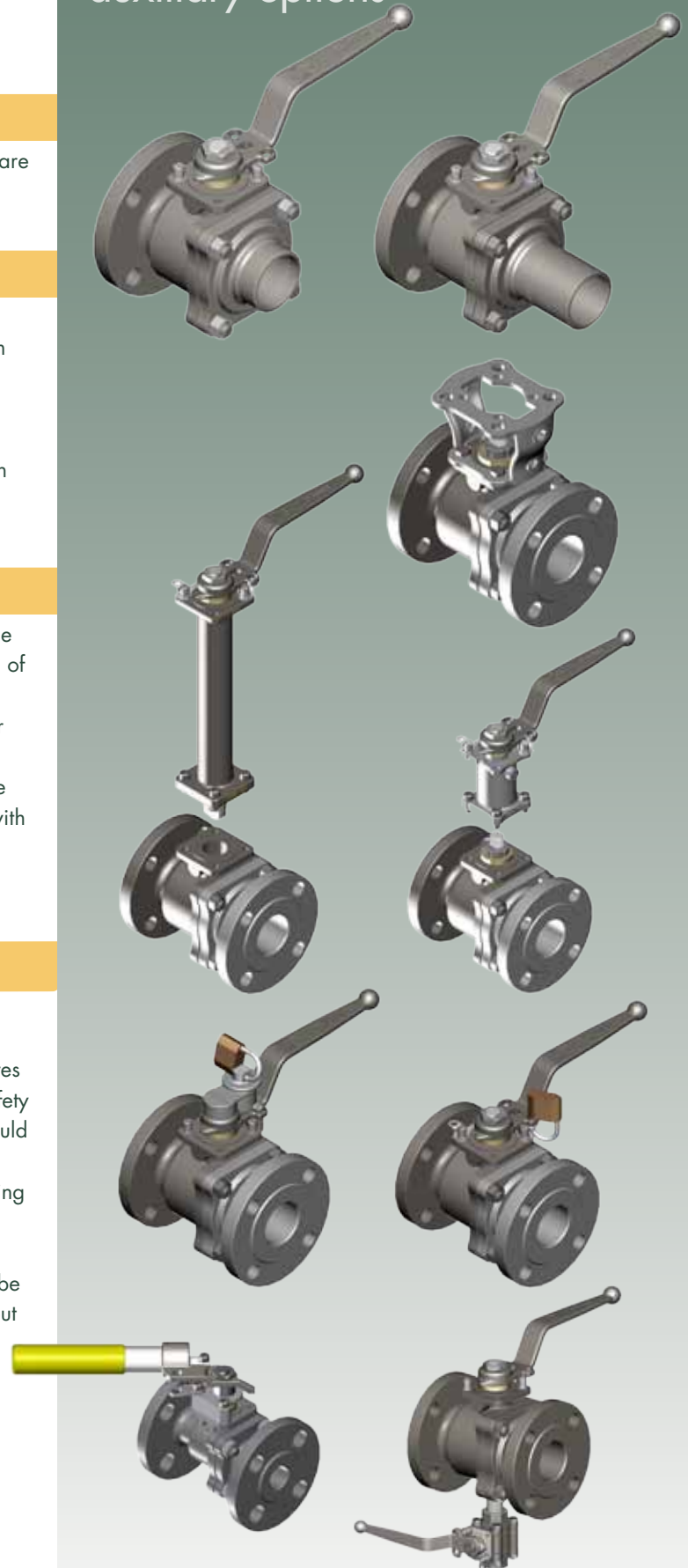
- Extensions - an option to move the valve top interface away from the pipe line for insulation and reduction of heat transfer.
- Emission bonnets - an added stem sealing system for valves without integral emission ports.
- Cryogenic bonnets - valves for cryogenic service are converted to accept a cryogenic extension bonnet with an extended stem, to distance the stem sealing area away from low temperatures.

### Additional options

- Steam jackets - enables the valves to be kept at a controlled temperature.
- Double Block & Bleed - one valve replacing two valves when it is necessary to provide dual isolation for safety or maintenance. Fluid trapped in the body cavity could be released through the bleed valve.
- Locking device - Sharpe exclusive tamper proof locking device is spring loaded and ensures lock is always activated.
- Spring return handles - ensure that the valve cannot be left open (or closed). Can be retrofitted on-site without valve disassembly.

## ACCESSORIES

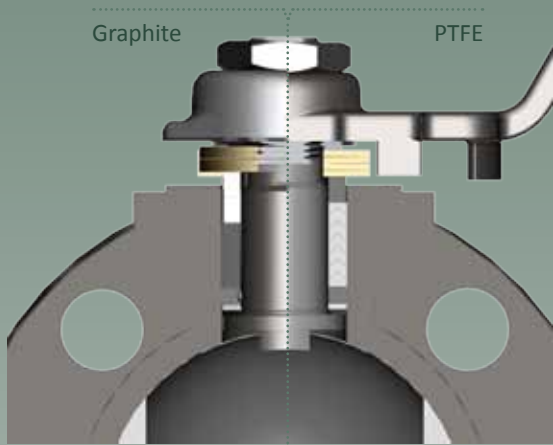
Extensions, brackets and auxiliary options



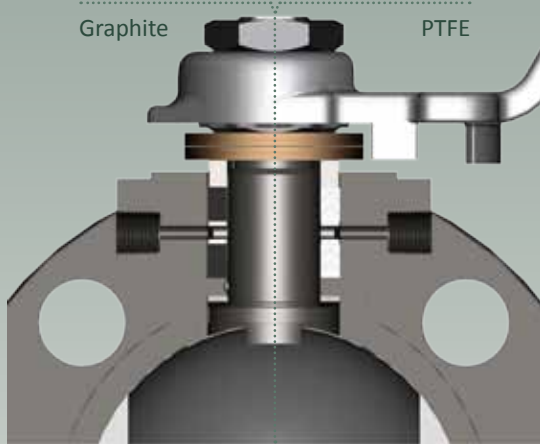
# VALVE TRIM

Operational flexibility and process compatibility of stem assemblies

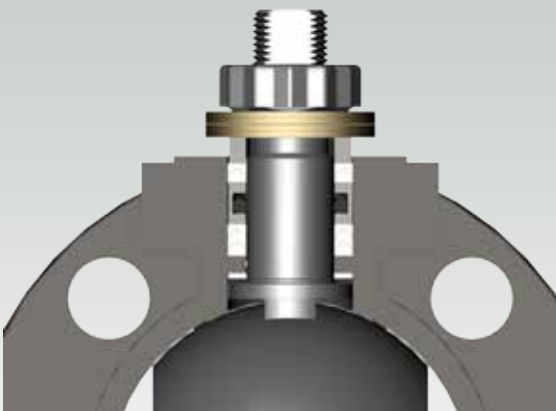
Standard Stem Assembly



Fugitive Emission Assembly



High Cycle Assembly



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

## Stem assemblies

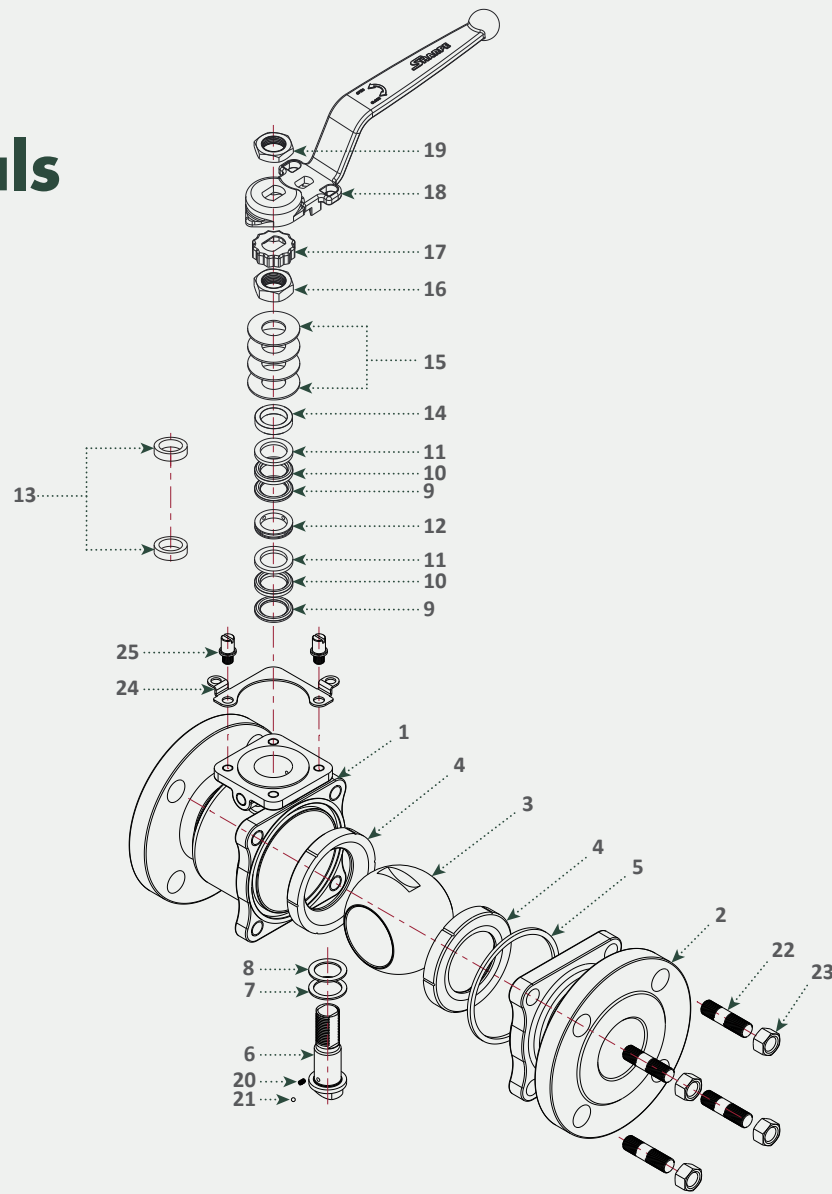
Various stem assemblies are available based on application requirements.

- **STANDARD** - a multiple pack of chevron "V" shaped stem seals for better sealing in PTFE, TFM® or Nova materials.
- **FIRE SAFE** - double pack of flexible graphite seals for sealing under fire conditions.
- **FUGITIVE EMISSION** - 2-pack stem seals in PTFE or graphite, with lantern ring to allow leak detection through the emission ports.
- **HIGH-CYCLE** - unique designs for demanding high-cycle applications that consist of multi-system sealing devices in the stem bonnet.

## Stem sealing

- **INTEGRATED FUGITIVE EMISSION BODY** (*patent pending*)  
Double containment stem packing with threaded ports to connect sensors.
- **INCREASED STEM SEALING AREA**  
Allows for a range of sealing combinations for severe applications and other stringent design demands.
- **LIVE-LOADED STEM**
  - Two pairs of concave and opposing spring washers provide additional compensation for seal wear.
  - Self-adjusts with pressure and temperature fluctuations.
- **SAFE DESIGN**  
Blowout proof stem design with anti-static device ensures the stem cannot be blown out by accidental medium pressure rise or cause ignition.
- **EXTENDED VALVE CYCLE LIFE**  
PEEK and Nova thrust bearings and stem seals extend valve life-cycle, and are the perfect choice for actuation applications.

# Parts & Materials



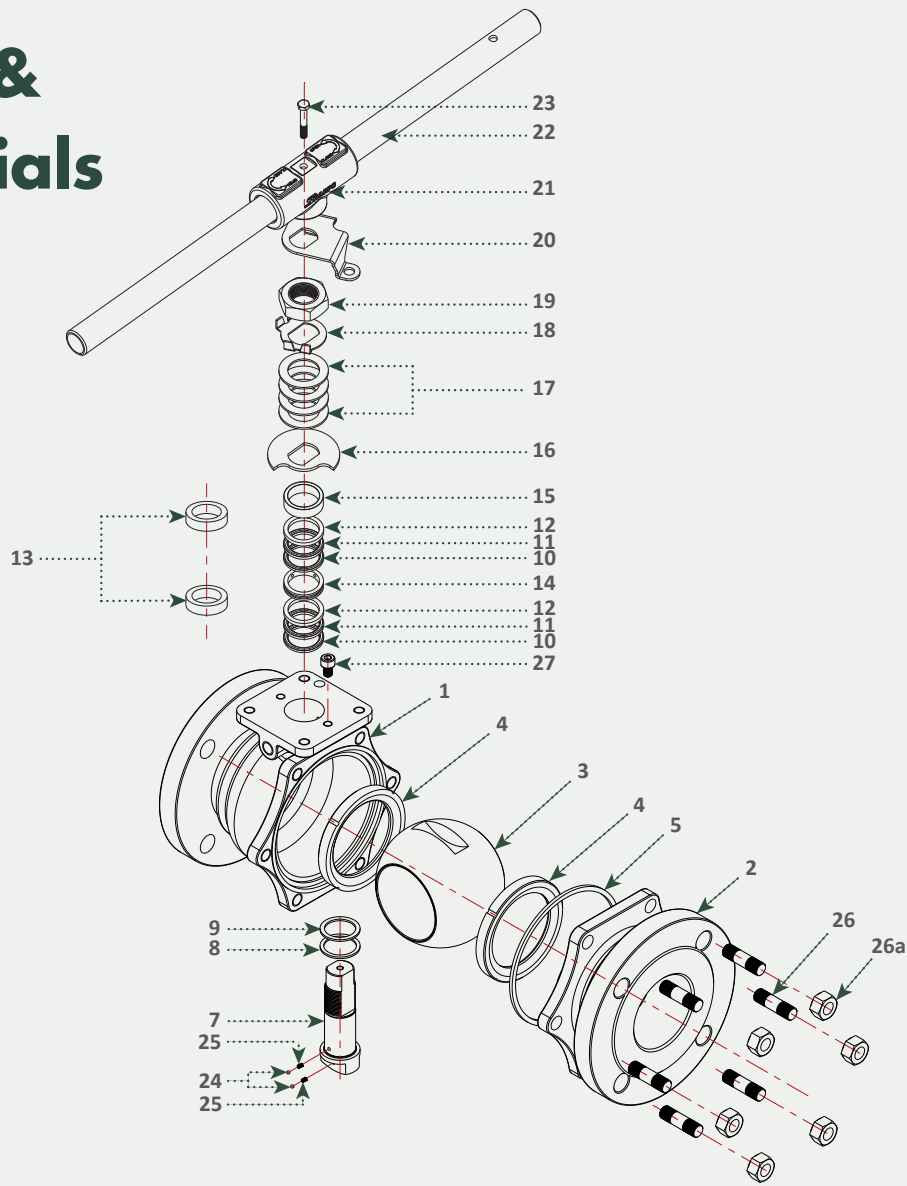
## Sizes ½" - 2"

ITEM	DESCRIPTION	MATERIAL	QTY	
1	Body	Stainless Steel	ASTM A351 CF8M	1
		Carbon Steel	ASTM A216 WCB	
		SMO	ASTM A351 CK3MCuN	
		Alloy 20	ASTM A351 CN7M	
		Hastelloy C	ASTM A494 TYPE CW-12MW	
		Monel	ASTM A494 GR M35-1	
2	End Cap	Stainless Steel	ASTM A351 CF8M/CF3M	2
		Carbon Steel	ASTM A216 WCB	
		SMO	ASTM A351 CK3MCuN	
		Alloy 20	ASTM A351 CN7M	
		Hastelloy C	ASTM A494 TYPE CW-12MW	
		Monel	ASTM A494 GR M35-1	
3	Ball	Stainless Steel	Carbon Steel	1
		Alloy 20	SMO 254 (R)	
		Hastelloy C	Monel	
4*	Seat	PTFE, RTFE, TFM®, Nova, PEEK, DELRIN®, UHMWPE	2	
5*	Body Seal	PTFE, RTFE, Graphite, Viton®	1	
6	Stem	316 Stainless Steel	SMO 254 (R)	1
		Alloy 20	17-4PH	
		Hastelloy C	Monel	
			Inconel	

ITEM	DESCRIPTION	MATERIAL	QTY
7*	Thrust Bearing - Bottom	PEEK, UHMWPE, NYLATRON	1
8*	Thrust Bearing - Top	Nova, PEEK, UHMWPE, NYLATRON	1
9*	Stem Packing - Bottom	PTFE, TFM®, Nova	2
10**	Stem Packing - Middle	PTFE, TFM®, Nova	2
11*	Stem Packing - Top	PTFE, TFM®, Nova	2
12	Lantern Ring	Stainless Steel	1
13*	Stem Packing	Graphite (Fire safe or high temperature)	2
14	Gland	Stainless Steel	1
15	Belleville Spring	S.ST 17-7	4
16	Packing Nut	Stainless Steel	1
17	Lock Tab	Stainless Steel	1
18	Handle	ASTM A351 CF8 / CS	1
19	Handle Nut	Stainless Steel	1
20	Anti - Static Ball	Stainless Steel	1
21	Anti - Static Spring	Hard Drawn	1
22	Body Bolt	A193 Gr. B8M or B8	4
23	Body Nut	A194 Gr. B8M or B8	4
24	Lock Plate	Stainless Steel	1
25	Stop Pin	Stainless Steel	2

The quantities listed in the stem arrangement are for fugitive emission assemblies. Standard stem assemblies carry more seals and no lantern rings.  
 \* these parts are used in repair kits. \*\* middle stem packing is only used from size 1-1/2" and above.

# Parts & Materials



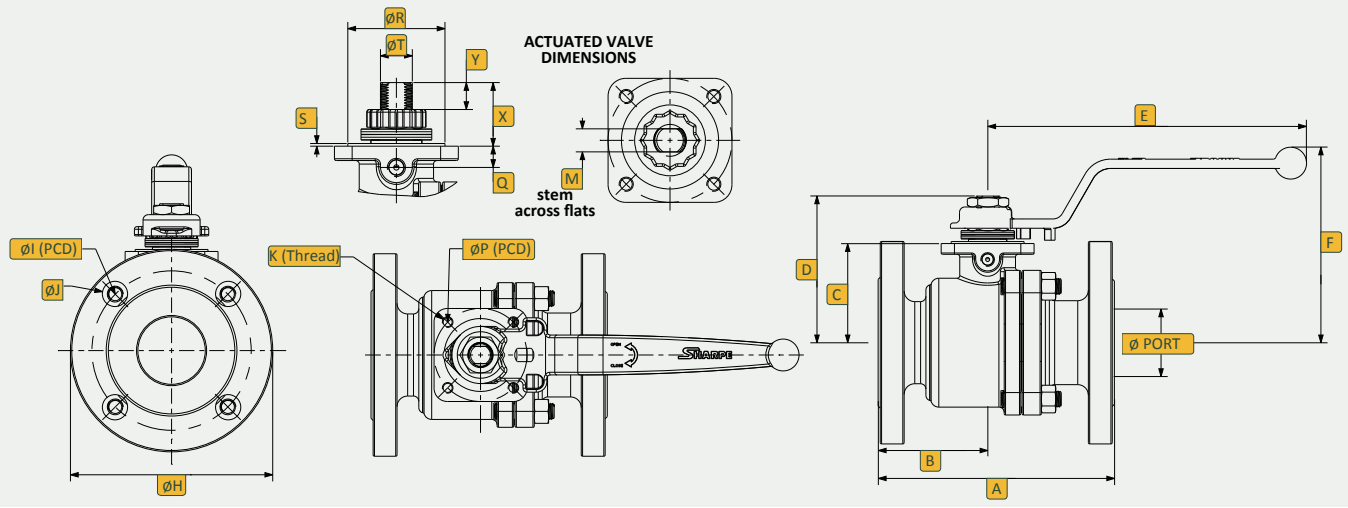
### Sizes 2½" - 4"

ITEM	DESCRIPTION	MATERIAL	QTY	
1	Body	Stainless Steel	ASTM A351 CF8M	1
		Carbon Steel	ASTM A216 WCB	
		SMO	ASTM A351 CK3MCuN	
		Alloy 20	ASTM A351 CN7M	
		Hastelloy C	ASTM A494 TYPE CW-12MW	
		Monel	ASTM A494 GR M35-1	
2	End Cap	Stainless Steel	ASTM A351 CF8M/CF3M	1
		Carbon Steel	ASTM A216 WCB	
		SMO	ASTM A351 CK3MCuN	
		Alloy 20	ASTM A351 CN7M	
		Hastelloy C	ASTM A494 TYPE CW-12MW	
		Monel	ASTM A494 GR M35-1	
3	Ball	Stainless Steel	Carbon Steel	1
		Alloy 20	Duplex/Super Duplex	
		Hastelloy C	Monel	
4*	Seat	PTFE, RTFE, TFM®, Nova, PEEK, DELRIN®, UHMWPE		2
5*	Body Seal	PTFE, RTFE, Graphite, Viton®		1
7	Stem	316 Stainless Steel	Duplex/Super Duplex	1
		Alloy 20	17-4PH	
		Hastelloy C	Monel	
			Inconel	

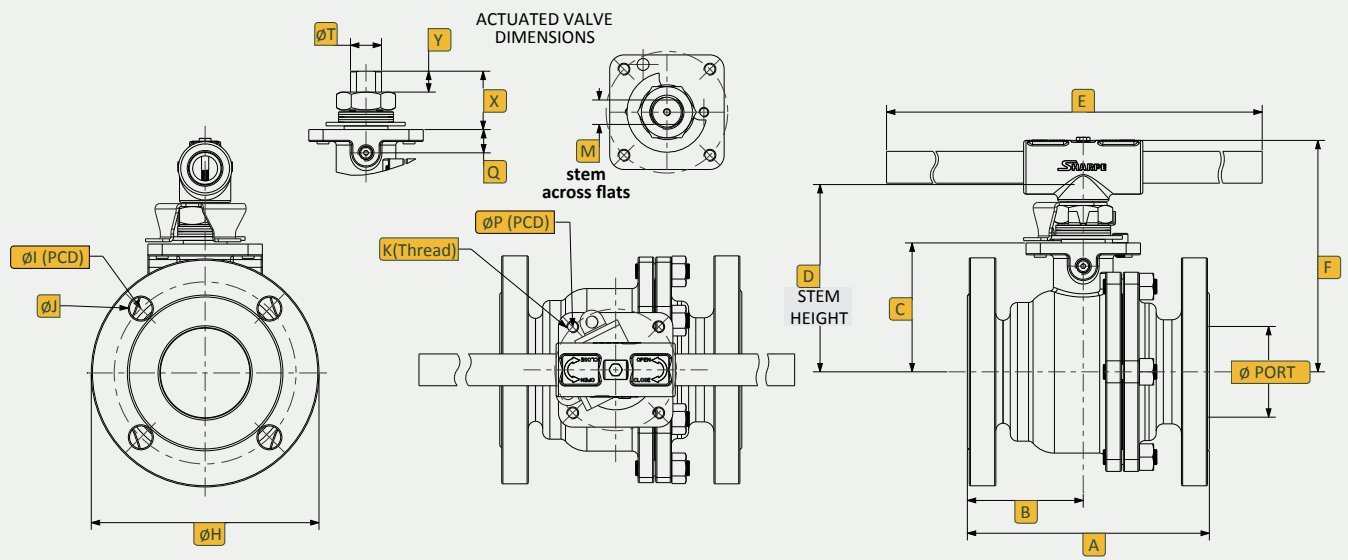
ITEM	DESCRIPTION	MATERIAL	QTY
8*	Thrust Bearing - Bottom	PEEK, UHMWPE, NYLATRON	1
9*	Thrust Bearing - Top	Nova, PEEK, UHMWPE, NYLATRON	1
10*	Stem Packing - Bottom	PTFE, TFM®, Nova	2
11*	Stem Packing - Middle	PTFE, TFM®, Nova	2
12*	Stem Packing - Top	PTFE, TFM®, Nova	2
13*	Stem Packing	Graphite (Fire safe or high temperature)	2
14	Lantern Ring	Stainless Steel	1
15	Gland	Stainless Steel	1
16	Stop Plate	Stainless Steel	1
17	Belleville Washer	S.ST 17-7	4
18	Lock Tab	Stainless Steel	1
19	Packing Nut	Stainless Steel	1
20	Lock	Stainless Steel	1
21	Wrench Block	Stainless Steel ASTM A351 CF8	1
22	Handle Pipe	Stainless Steel	1
23	Wrench Bolt	Stainless Steel	1
24	Anti-Static Ball	Stainless Steel	1
25	Anti-Static Spring	Hard Drawn	1
26 / 26a	Body Bolt / Body Nut	A193 Gr. B8M or B8	6/8
27	Stop pin	Stainless Steel	1

The quantities listed in the stem arrangement are for fugitive emission assemblies. Standard stem assemblies carry more seals and no lantern rings.  
 \* these parts are used in repair kits.

# 1/2" - 2" Dimensions



# 2-1/2" - 4" Dimensions



Dimensions (Metric)

Series	ØPORT	A	B	C	D	E	F	ØH	ØI (PCD)	ØJ	K (Thread)	M	ØP (PCD)	Q	ØR	S	ØT	X	Y
70	14.3	108	49.8	35.9	54.6	163	90	89	60.5	16	M5-P0.8	6.7	42 (F04)	6.9	30	1.3	10	18.7	8.3
1/2"	14.3	108	49.8	35.9	54.6	163	90	89	60.5	16	M5-P0.8	6.7	42 (F04)	6.9	30	1.3	10	18.7	8.3
3/4"	20.8	117.5	54.1	38.9	57.6	163	93	98.6	70	16	M5-P0.8	6.7	42 (F04)	9.4	30	1.3	10	18.7	8.3
1"	25.4	127	54.2	49	70	185	94.7	108	79.3	16	M6-P1.0	8.7	50 (F05)	9.8	35	1.5	12	21	9.9
1 1/2"	38.2	165	75.4	65	101	240	134	128	98.6	16	M8-P1.25	13	70 (F07)	12	55	1.5	18	35.9	14.7
2"	50.8	178	82.5	74.6	110.5	240	149	152.4	120.6	19	M8-P1.25	13	70 (F07)	12	55	1.5	18	35.9	14.7
2 1/2"	63.5	190.5	90.9	101	150	600	190	178	139.8	19	M10-P1.5	20.5	102 (F10)	19.5	-	-	26	48.9	17.5
3"	76.0	203	97.2	108	157	600	194	191	152.5	19	M10-P1.5	20.5	102 (F10)	19.5	-	-	26	48.9	17.5
4"	100.0	228.6	117	124.5	205	600	210.4	229	190.5	19	M10-P1.5	20.5	102 (F10)	19.5	-	-	26	48.9	17.5

Dimensions (Inches)

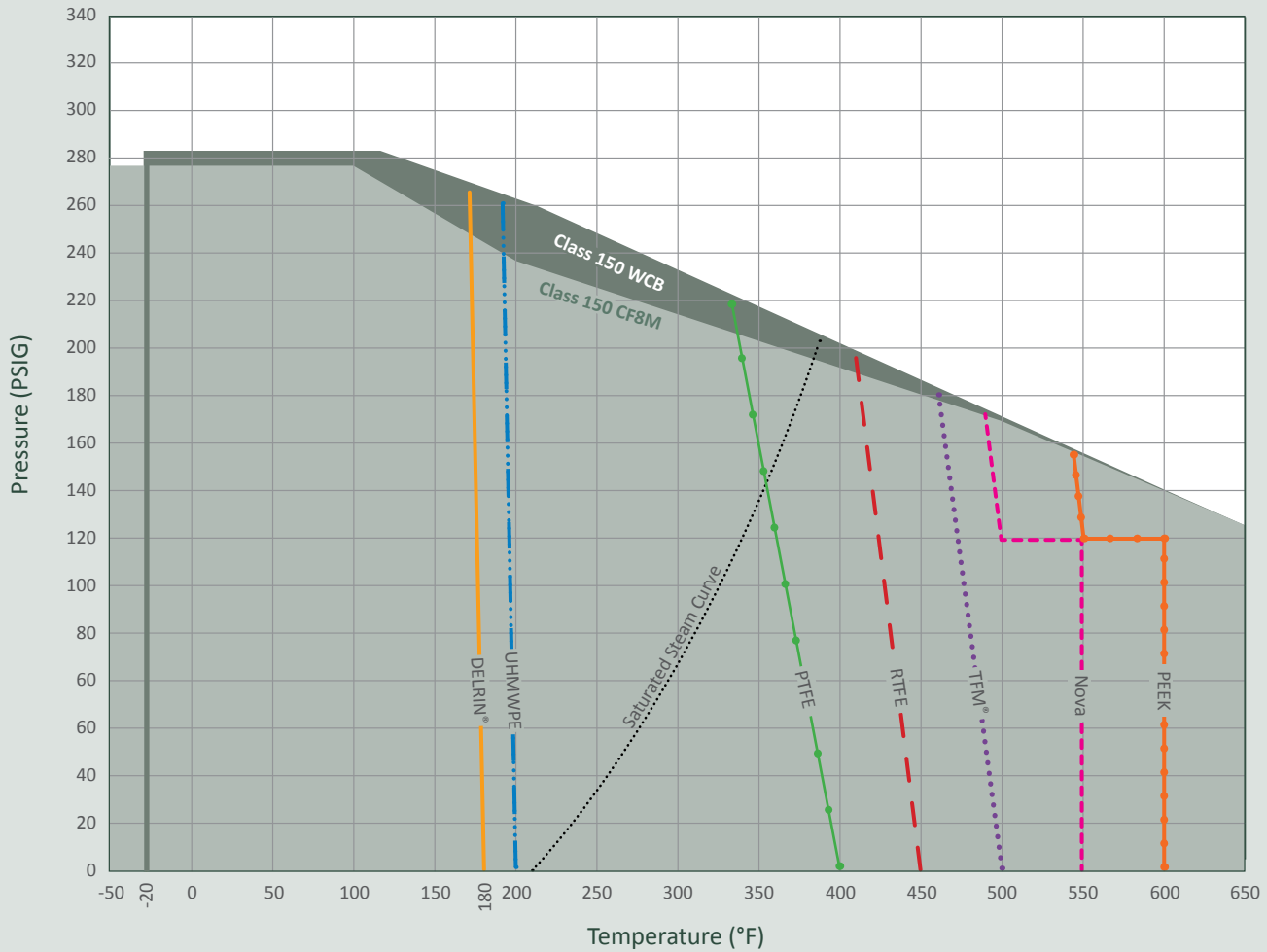
Series	ØPORT	A	B	C	D	E	F	ØH	ØI (PCD)	ØJ	K (Thread)	M	ØP (PCD)	Q	ØR	S	ØT	X	Y
70	0.563	4.25	1.96	1.41	2.15	6.42	3.54	3.50	2.38	0.63	M5-P0.8	0.264	1.65 (F04)	0.27	1.18	0.051	0.394	0.74	0.327
1/2"	0.563	4.25	1.96	1.41	2.15	6.42	3.54	3.50	2.38	0.63	M5-P0.8	0.264	1.65 (F04)	0.27	1.18	0.051	0.394	0.74	0.327
3/4"	0.819	4.63	2.13	1.53	2.27	6.42	3.66	3.88	2.75	0.63	M5-P0.8	0.264	1.65 (F04)	0.37	1.18	0.051	0.394	0.74	0.327
1"	1.000	5.00	2.13	1.93	2.76	7.28	3.73	4.25	3.12	0.63	M6-P1.0	0.343	1.97 (F05)	0.39	1.38	0.059	0.472	0.83	0.390
1 1/2"	1.504	6.50	2.97	2.56	3.98	9.45	5.28	5.04	3.88	0.63	M8-P1.25	0.512	2.76 (F07)	0.47	2.17	0.059	0.709	1.41	0.579
2"	2.000	7.01	3.25	2.94	4.35	9.45	5.87	6.00	4.75	0.75	M8-P1.25	0.512	2.76 (F07)	0.47	2.17	0.059	0.709	1.41	0.579
2 1/2"	2.500	7.50	3.58	3.98	5.91	23.62	7.48	7.01	5.50	0.75	M10-P1.5	0.807	4.02 (F10)	0.77	-	-	1.024	1.93	0.689
3"	2.992	7.99	3.83	4.25	6.18	23.62	7.64	7.52	6.00	0.75	M10-P1.5	0.807	4.02 (F10)	0.77	-	-	1.024	1.93	0.689
4"	3.937	9.00	4.61	4.90	8.07	23.62	8.28	9.02	7.50	0.75	M10-P1.5	0.807	4.02 (F10)	0.77	-	-	1.024	1.93	0.689

The dimensions above are for information only. Please refer to Sharpe Valves if you need dimensions for construction.

SHARPE VALVES - SERIES 70 | HIGH PERFORMANCE FLANGED BALL VALVE

# VALVE SEATS

## Pressure/Temperature Rating



### Sharpe Seat Materials

**PTFE**  
**T - Virgin PTFE**  
 Polytetrafluoroethylene is a Fluorocarbon-based polymer. This seating material has excellent chemical resistance and low coefficient of friction. Its temperature range is -100°F to 450°F (-73°C to 232°C). Color - white.

**TFM**  
**M - TFM® PTFE**  
 Dyneon® TFM PTFE is a second generation PTFE with improved chemical and heat resistant properties over first generation PTFE and exhibits better stress recovery. Its temperature range is -100°F to 500°F (-73°C to 260°C) Color - white.

**RTFE**  
**R - Reinforced Polytetrafluoroethylene (RTFE).**  
 PTFE's mechanical properties are enhanced by adding percentage of filler material to provide improved strength, stability and wear resistance. Its temperature range is from -320°F to 450°F (-196°C to 232°C). Color-off-white.

**NOVA**  
**N - Nova**  
 This is a Teflon base filled with glass amorphous carbon powder and graphite. It has a lower thermal contraction-expansion than PTFE, and is ideal for steam or thermal fluid applications up to 550°F (288°C). Color - black.

**PEEK**  
**P - PEEK (Unfilled) Polyetheretherketone**  
 PEEK Polymer offers a unique combination of chemical, mechanical and thermal properties. Excellent for water and steam application at elevated temperatures up to 600°F. Color - beige.

**UHMWPE**  
**U - Ultra High Molecular Weight Polyethylene (UHMWPE)**  
 Also known as High Modulus Polyethylene (HMPE) or High Performance Polyethylene (HPPE). Very tough material. It is highly resistant to corrosive chemicals, with the exception of oxidizing acids and organic solvents. This is rated to 2000 PSIG at temperatures from -70°F to 200°F (-57°C to 90°C). Color - white.

**DELRIN**  
**D - Delrin®**  
 This material is very rigid and does not undergo cold flow. It has a combination of strength, stiffness, hardness, dimensional stability, toughness, fatigue resistance, abrasion resistance, low wear and low friction. It can withstand pressure up to 6000 PSIG depending on valve size and class rating. Has a temperature range of -70°F to 180°F (-57°C to 82°C).

**OTHER**  
**Other seat materials**  
 Other seat material are available according to the application, such as very high temperature or cryogenic conditions.

# How To Order Series 70

1"	FS70	1 - 4	6	6 - R	G	G -	1/1	- W	- OH		
Size	Series	Class	Body / Ends	Ball	Stem	Seat	Seal	Stem Packing	Ends	Service	Options
<b>Size</b>	<b>Series</b>	<b>Class</b>	<b>Body/Ends Ball/Stem</b>	<b>Ball</b>	<b>Stem</b>	<b>Seat</b>	<b>Seal</b>	<b>Stem Packing</b>	<b>Ends</b>	<b>Service</b>	<b>Options</b>
½"	70 Full Port	1 150#	1 Brass	B TFM® Carbon Filled	G Graphite	B Buna Sh90	1 150# Flanged RF	X Oxygen Service	OH Oval Handle		
¾"	FS70 Fire Safe		2 Alloy 20	C PEEK Carbon Filled	I Impregnated Graphite	B Buna	1F 150# Flanged FF*	U Vacuum	F1 1 Emission Port		
1"	CF70 Cavity Fill		3 Monel	D Delrin®	M TFM®	E EPDM	1B 150# Butt Weld**	MN Ammonia Service	F2 2 Emission Port		
1½"			4 Carbon Steel	K PCTFE (KEL-F)	N Nova	G Graphite		CL Chlorine	L Lockable Ext Stem		
2"			5 Hastelloy C	M TFM®	R RTFE 15% Glass Filled	I Impregnated Graphite		W Thermal Oil/Steam	GO Gear Operator		
2½"			6 316 Stainless Steel	N Nova	T PTFE	M TFM®			A NACE		
3"			7 17-4 PH	P Virgin PEEK	U UHMWPE	O Neoprene			VB Vented Ball		
4"			8 316L Stainless Steel	R RTFE 15% Glass Filled	V Viton®	T PTFE			NS Anti-Static		
			9 Carbon Steel LCB	T PTFE	Z Kalrez®	U UHMWPE			SJ Steam Jacket		
			B Bronze	U UHMWPE					SJ3 Steam Jacket With 3 Outlets		
			D Duplex	V Vespel®					DBB Double Block & Bleed		
			E 304 Stainless Steel						TP Tamper Proof Locking Device		
			F 304L Stainless Steel						DMH Spring Return Handle		
			I Inconel						HC High Cycle Stem		
			K Super Duplex						AP4 API 608 Gland (4" Only)		
			S SMO 254						V15 V-Ball V15		
			T Titanium Gr2						V30 V-Ball V30		
			W Hastelloy C22						V60 V-Ball V60		
			X AL6XN								
			Z Inconel 718								



When placing an order or requesting a quotation, please provide as many details on the application as possible such as media type, temperature, pressure, pipe size, etc.

### Example: 2" FS70-14467NGG-1/1-A-TP

Size 2", fire safe, series 70, 150# carbon steel body and ends, stainless steel ball, 17-4PH stem, Nova seats, graphite body seals, graphite stem seals, 150# raised face ends, anti-static stem, tamper proof locking device.

### Technical Information

VALVE SIZE	FLOW COEFF. Cv	FLOW COEFF. Kv	APPROX. WEIGHT lbs
½"	26	22	3.8
¾"	50	43	4.9
1"	94	81	7.2
1½"	260	224	14.9
2"	480	414	22.7
2½"	730	629	38.8
3"	1300	1121	45.6
4"	2300	1983	64.8



### Applicable Standards

Body Wall Thickness	ASME B16.34
Face to Face Dimensions	ASME B16.10
Fugitive Emission	ISO 15848-1
Flange Dimensions	ASME B16.5
Basic Design	ASME B16.34, API 608 4th Edt.
Fire Safe	API 607 6th Edt.
Pressure Test	API 598, MSS-SP 72
Mounting Dimensions	ISO 5211
NACE	MR0175/ISO 15156
Marking	MSS-SP 25

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