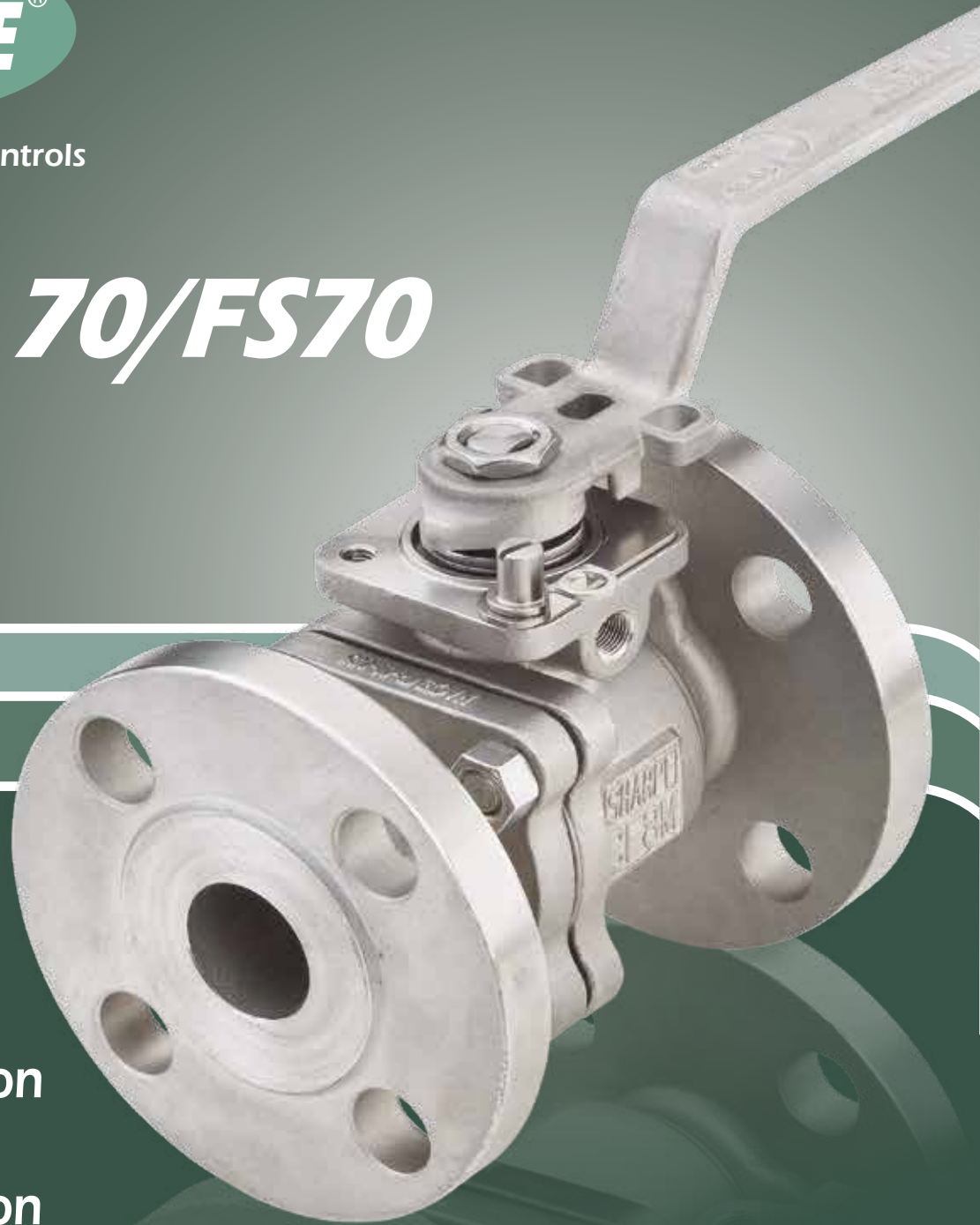




Valves, Automation & Controls

SERIES 70/FS70



Fully Compliant
API 608 5th Edition
Class 150 | 300
API 607 6th Edition

***HIGH PERFORMANCE FLANGED
FULL PORT BALL VALVE***

SMITH-COOPER®
INTERNATIONAL

Stem Sealing

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.

Safe Design

Blowout proof stem ensures the stem cannot be blown out by accidental medium pressure rise.

Wear Resistance

The thrust washer is either metallic for higher temperatures and wear resistance, or PEEK for lower temperatures.

Anti-Static

Static build-up discharges by anti-static device in stem or the metallic thrust washer.

Stem Assemblies

Various stem assemblies are available based on application requirements.

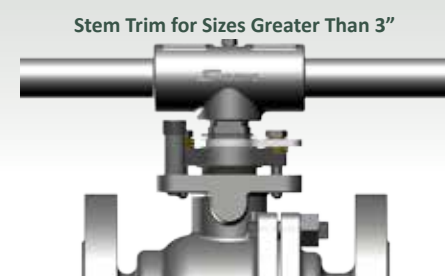
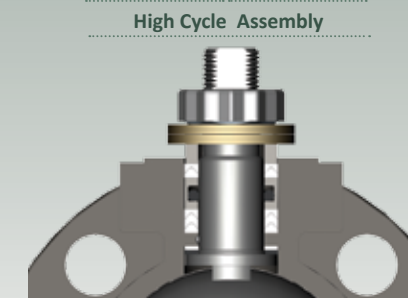
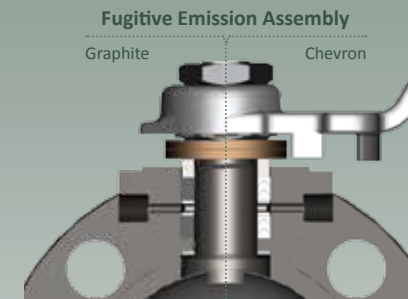
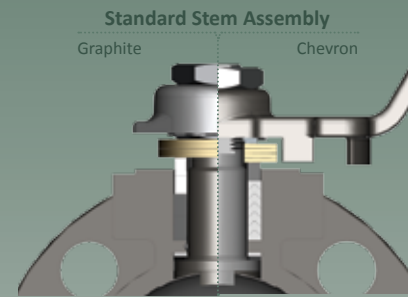
Standard – a multiple pack of Chevron “V” shaped stem seals for better sealing in TFM® or Nova materials.

High Temperature – double pack of flexible graphite seals for sealing under high temperature conditions.

Fugitive Emission – 2-pack stem seals in PTFE or graphite, with lantern ring to allow leak detection through the emission port(s).

High Cycle – unique design for demanding high cycle applications that consist of multi-system sealing devices in the stem bonnet.

Stem Trim for Sizes Greater Than 3” – According to API 608 all valve sizes greater than 3” have an adjustable packing gland with thru bolt holes. Gland bolts pass through the holes and thread to the valve body. The position stops are bolted to the body and are not integral to the packing gland, gland flange or gland bolting.



Rugged Body

Rugged body, (316 Stainless Steel, Carbon Steel, or Alloy 20) with higher and deeper stem packing area to allow for more stem seals.

Two cast bosses for optional fugitive emission ports. Larger ISO 5211 bolt pattern for handling higher valve torques.

Heavy Duty Stem Design

Stem diameters have been increased to meet the higher torque requirements of the most demanding applications. Stem to ball contact area is wider and larger, allowing the valve to be used for higher torque applications.

Design allows for the use of 316 stainless steel stem material, rather than 17-4PH, for superior corrosion resistance.

Floating Ball Design

Solid stainless steel ball with wide selection of configurations for a variety of applications including; diverting, mixing, controlling, flushing, purging and more.

Floating ball seals on the downstream seat, reducing torque and assuring a bubble-tight shutoff.

ISO 5211 Top-Works Compatibility

The top-works offer compatibility for mounting a wide range of accessories.

Sharpe® actuators and accessories may be retrofitted on existing valves without disruption of line integrity.

Unique Handle

A unique cast stainless steel handle specially designed to accommodate locking devices and high operating torques.

A comfortable, ergonomic, non-slip, hand grip design. Handle length according to API 608 requirements.

Tamper Proof Locking Device

All Sharpe® Valves come standard with a lockable handle. The optional, Sharpe® exclusive, tamper proof locking device cannot be removed with a lock in place. When not being used with a lock its springs ensure the locking device snaps into place in the open or closed position to prevent accidental operation.



Valves, Automation & Controls

Integrated Fugitive Emission Ports

One or two ports can be drilled and tapped into our specially designed body.

Ports align with a lantern ring precisely located between an upper and lower set of stem packing to allow monitoring of emissions.

Lockable Stem Extension

An option to move the valve top interface away from the pipe line to accommodate insulation.

Tamper Proof Locking Device

Upgrade from the standard locking device found on all Sharpe® Valves to our unique spring loaded Tamper Proof Locking Device.

Spring Return Handle

Spring return handle ensures that the valve cannot be left open (or closed).

Cast Mounting Brackets

Cast stainless steel brackets with hole patterns conforming to ISO 5211 on top and bottom for actuation mounting.

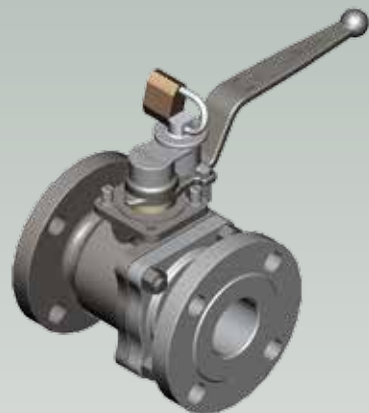
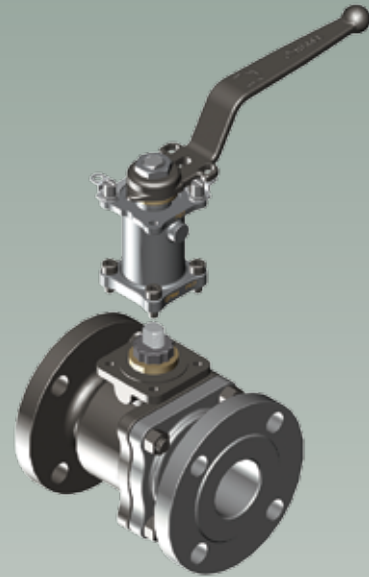
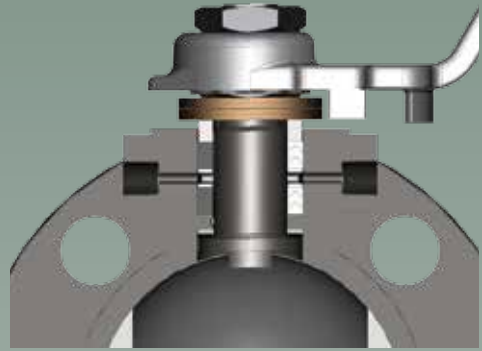
Safety locking holes for securing valves during maintenance (requires special coupler)

Aesthetic design offers wide tool clearance for installation and open visual.

Steam Jackets

Steam jackets enables the valves to be kept at a controlled temperature.

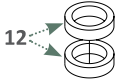
ACCESSORIES:



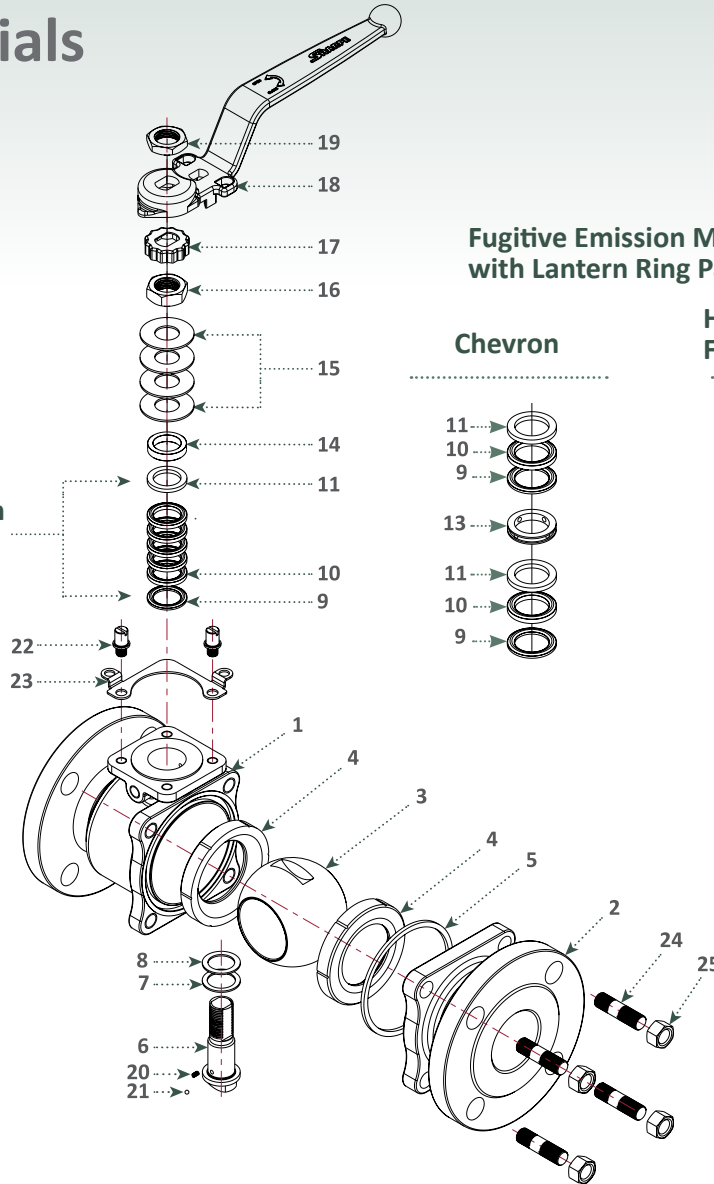
Parts & Materials

Series 70/FS70 - 1/2" - 2"

High Temperature or Fire Safe Packing

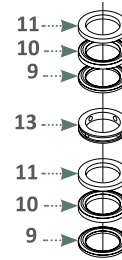


Chevron Packing

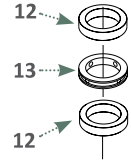


Fugitive Emission Monitoring with Lantern Ring Packing

Chevron



High Temperature or Fire Safe



Sizes 1/2" - 2"

ITEM	DESCRIPTION	MATERIAL	QTY
1	Body	Carbon Steel	ASTM A216 WCB
		316 Stainless Steel	ASTM A351 CF8M
		Alloy 20	ASTM A351 CN7M

2	End Piece	Carbon Steel	ASTM A216 WCB
		316 Stainless Steel	ASTM A351 CF8M
		Alloy 20	ASTM A351 CN7M

3	Ball	316 Stainless Steel Alloy 20 ***	1
4*	Seat	PTFE, RTFE, TFM®, Nova, PEEK, Super Nova	2
5*	Body Seal	PTFE, TFM®, Graphite, Impregnated Graphie	1
6	Stem	316 Stainless Steel	
		17-4PH	
		Alloy 20	

ITEM	DESCRIPTION	MATERIAL	QTY
7*	Thrust Bearing - Bottom	Nova, PEEK	1
8*	Thrust Bearing - Top	Nova	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*	Stem Packing	Graphite (FS or high temperature)	2
13	Lantern Ring	300 Series Stainless Steel	1
14	Gland	300 Series Stainless Steel	1
15*	Belleville Washer	17-7PH	4
16	Packing Nut	300 Series Stainless Steel	1
17	Lock Tab	300 Series Stainless Steel	1
18	Handle	304 Stainless Steel ASTM A351 CF8	1
19	Handle Nut	300 Series Stainless Steel	1
20	Anti - Static Ball	300 Series Stainless Steel	1
21	Anti - Static Spring	Hard Drawn Stainless Steel	1
22	Stop Pin	300 Series Stainless Steel	2
23	Lock Plate	300 Series Stainless Steel	1
24	Stud	A193 Gr. B8A	4
25	Nut	300 Series Stainless Steel	4

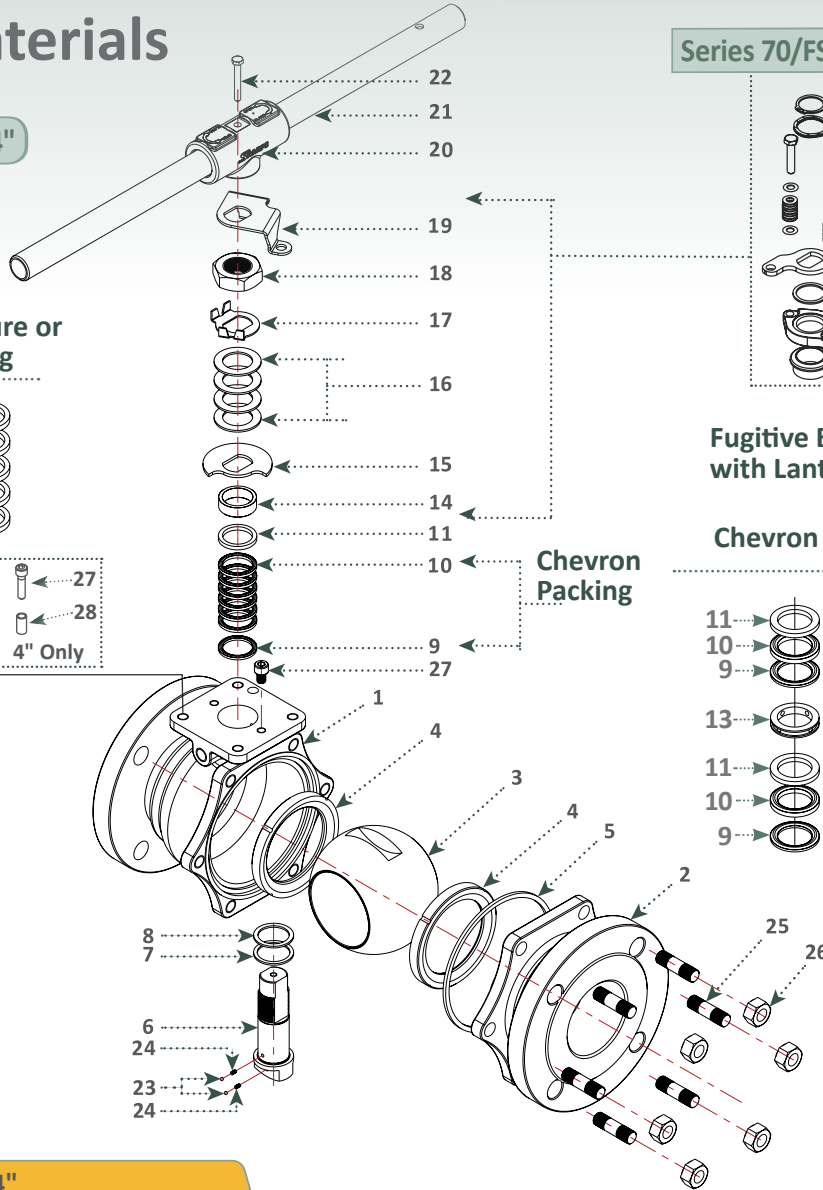
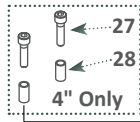
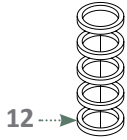
The quantities listed in the stem arrangement are for fugitive emission assemblies. Standard stem assemblies carry more seals and no lantern rings.
 * these parts are used in repair kits. ** middle stem packing is only used from size 1-1/2" and above.

***Other materials available, call to discuss your special requirements.

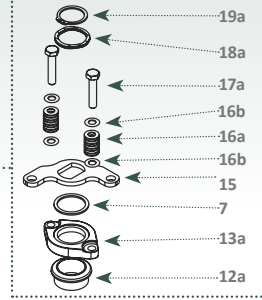
Parts & Materials

Series 70/FS70 - 2½" - 4"

High Temperature or Fire Safe Packing



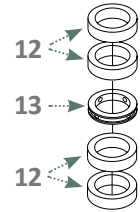
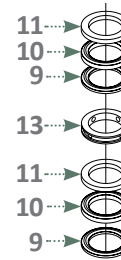
Series 70/FS70 - 4" Gland Flange Set



Fugitive Emission Monitoring with Lantern Ring Packing

Chevron

High Temperature or Fire Safe



Sizes 2½" - 4"

ITEM	DESCRIPTION	MATERIAL	QTY
1	Body	Carbon Steel 316 Stainless Steel Alloy 20	1
2	End Piece	Carbon Steel 316 Stainless Steel Alloy 20	1
3	Ball	316 Stainless Steel Alloy 20	1
4*	Seat	PTFE, RTFE, TFM®, Nova, PEEK	2
5*	Body Seal	PTFE, Graphite	1
6	Stem	Stainless Steel 17-4PH Alloy 20	1
7*	Thrust Bearing - Bottom	Nova, PEEK	1
8*	Thrust Bearing - Top	Nova	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*	Stem Packing	Graphite (Fire safe or high temperature)	4
12a	Gland Position Ring	300 Series Stainless Steel	1
13	Lantern Ring	300 Series Stainless Steel	1
13a	Gland (size 4" only)	316 Stainless Steel A351 CF8M	1

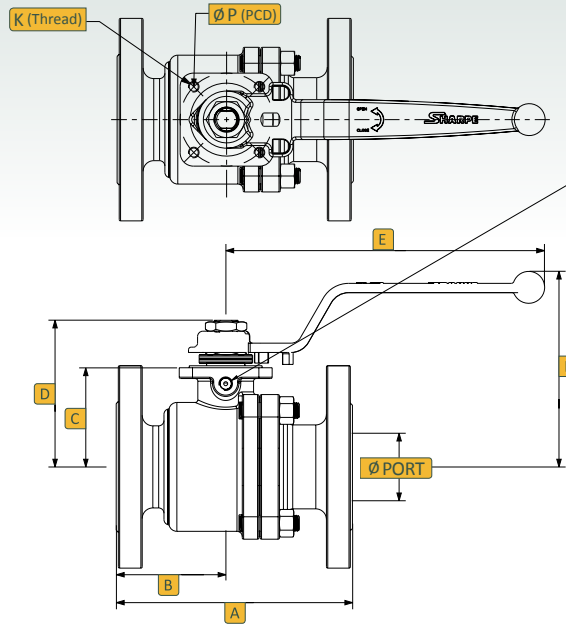
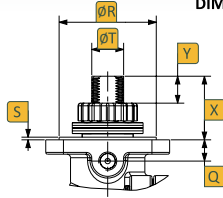
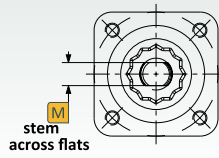
ITEM	DESCRIPTION	MATERIAL	QTY
14	Gland	300 Series Stainless Steel	1
15	Stop Plate	300 Series Stainless Steel	1
16*	Belleville Washer	17-7PH	4
16a	Belleville Washer	17-7PH	16
16b	Washer	300 Series Stainless Steel	4
17	Lock Tab	300 Series Stainless Steel	1
17a	Gland Bolt	300 Series Stainless Steel	2
18	Packing Nut	300 Series Stainless Steel	1
18a	Retainer Spring	300 Series Stainless Steel	1
19	Lock Plate	300 Series Stainless Steel	1
19a	Retainer Lock	300 Series Stainless Steel	1
20	Wrench Block	304 Stainless Steel ASTM A351 CF8	1
21	Handle Pipe	Stainless Steel Zinc Plated Carbon Steel	1
22	Wrench Bolt	300 Series Stainless Steel	1
23	Anti-Static Ball	300 Series Stainless Steel	2
24	Anti-Static Spring	Hard Drawn Stainless Steel	2
25	Body Stud	A193 Gr. B8A	6/8
26	Body Nut	300 Series Stainless Steel	6/8
27	Stop Pin	300 Series Stainless Steel	1/2
28	Stop Pin Sleeve	300 Series 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.

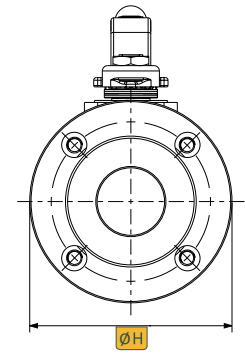
* these parts are used in repair kits.

Dimensions

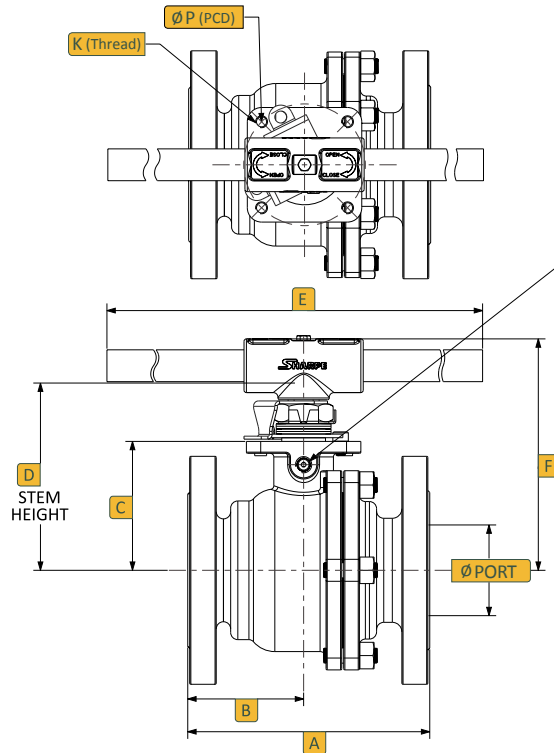
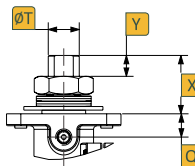
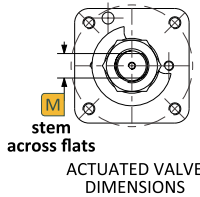
Series 70/FS70 - 1/2" - 2"



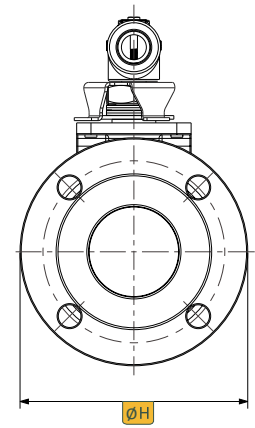
Optional
EMISSION PORT THREAD
1/8" NPT (Sizes 1/2" to 2")



Series 70/FS70 - 2 1/2" - 4"



Optional
EMISSION PORT THREAD
1/4" NPT (Sizes 2 1/2" to 4")

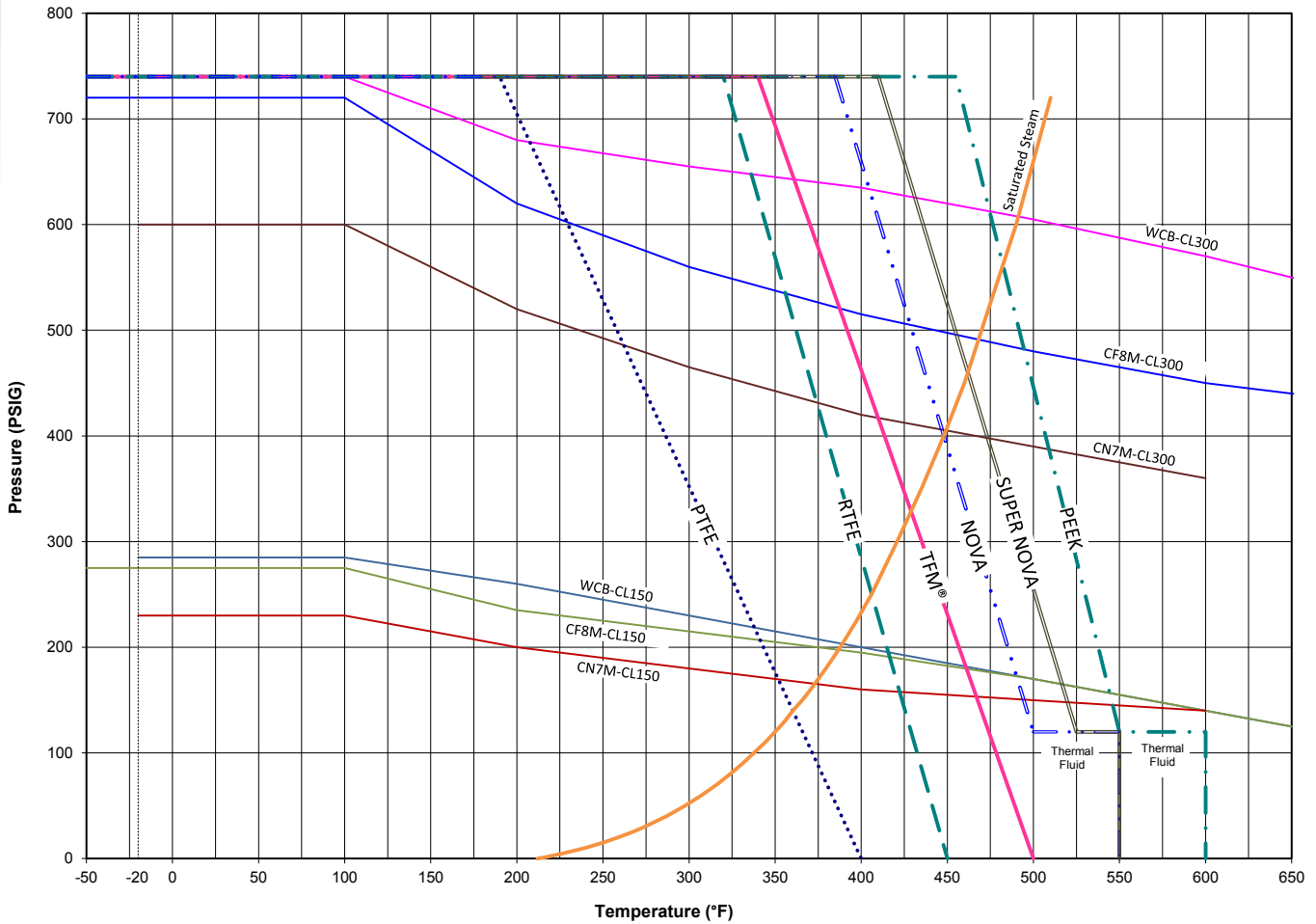


Dimensions (Inches)

SIZE	ØPORT	Class 150		Class 300		C	D	E	F	Class 150		Class 300		K (Thread)	M	ØP (PCD)	Q	ØR	S	ØT	X	Y
		A	A	B	B					ØH	ØH											
1/2"	0.56	4.25	5.50	1.96	2.36	1.41	2.15	6.42	3.54	3.50	3.75	M5-P0.8	0.264	F04 (1.65)	0.27	1.18	0.051	0.394	0.74	0.33		
3/4"	0.82	4.62	6.00	2.13	2.52	1.53	2.27	6.42	3.66	3.88	4.61	M5-P0.8	0.264	F04 (1.65)	0.37	1.18	0.051	0.394	0.74	0.33		
1"	1.00	5.00	6.50	2.13	2.72	1.93	2.74	7.28	3.73	4.25	4.88	M6-P1.0	0.343	F05 (1.97)	0.39	1.38	0.059	0.472	0.81	0.30		
1 1/2"	1.50	6.50	7.50	2.97	3.21	2.56	3.97	9.45	5.28	5.00	6.12	M8-P1.25	0.512	F07 (2.76)	0.47	2.17	0.059	0.709	1.41	0.48		
2"	2.00	7.00	8.50	3.25	3.37	2.94	4.35	9.45	5.87	6.00	6.50	M8-P1.25	0.512	F07 (2.76)	0.47	2.17	0.059	0.709	1.41	0.48		
2 1/2"	2.50	7.50	9.50	3.58	4.00	3.98	5.91	23.62	7.48	7.01	7.52	M10-P1.5	0.807	F10 (4.02)	0.77	-	-	1.024	1.92	0.65		
3"	3.00	8.00	11.12	3.83	4.20	4.25	6.18	23.62	7.64	7.52	8.27	M10-P1.5	0.807	F10 (4.02)	0.77	-	-	1.024	1.93	0.65		
4"	3.94	9.00	12.00	4.61	5.06	4.90	6.83	23.62	8.28	9.02	10.00	M10-P1.5	0.807	F10 (4.02)	0.77	-	-	1.024	1.93	0.65		

The dimensions above are for informational purposes only. Please contact Sharpe® Valves if you need dimensions for construction

Pressure-Temperature Ratings Series 70



Note:

The maximum pressure/temperature ratings of the valve assemblies are limited to lowest of the body or seat material fitted. The valve body ratings are based on ASME B16.34 rating for materials. The graphs are based on laboratory testing and our experience in field. The seat ratings depend on the material, design, application and function.

Sharpe® Seat Materials

PTFE **T** - Virgin PTFE
 Polytetrafluoroethylene is a Fluorocarbon-based polymer. This seating material has excellent chemical resistance and a low coefficient of friction. Its temperature range is -100°F to 400°F (-73°C to 204°C). Color - white.

TFM® **M** - TFM® PTFE
 Dyneon TFM® PTFE is a second generation PTFE with improved chemical and heat resistant properties and 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 15% 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.

SUPER NOVA **B** - Super Nova is a free-flowing compound based on TFM® containing electro-graphitized carbon. It features: increased thermal dimensional stability and surface hardness, improved deformation under load, reduced friction and wear, and good chemical stability. It has a high limiting oxygen index (LOI), low coefficient of friction, very good mechanical properties and exceptional temperature resistance. It is used as a seat material in chemical processing and automotive industries. It is ideal to use with steam and thermal fluid applications up to 550°F (288°C) and as low as -40°F (-40°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 (315°C). Color - beige.

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/FS70

1" Size **FS70** Series **1** Class - **6** Body/Ends **6** Ball **6** Stem **R** Seat **G** Body Seal **G** Stem Packing - **1 / 1** Ends - **X** Service - **OH** Options

Size	Series	Class	Body/Ends	Ball	Stem	Seat	Body Seal	Stem Packing	Ends	Service	Options
1/2"	70 Full Port	150	2 Alloy 20	2 Alloy 20	2 Alloy 20	B Super Nova	G Graphite	G Graphite	1 Class 150 Flanged RF	X Oxygen Service**	OH Oval Handle*
3/4"	FS70 Fire Safe	300	4 Carbon Steel	6 316 Stainless Steel	6 316 Stainless Steel	M TFM®	I Impregnated Graphite	I Impregnated Graphite	1F Class 150 Flanged FF	U Vacuum	F1 1 Emission Port
1"	CF70 Cavity Fill		6 316 Stainless Steel			N Nova	M TFM®	M TFM®	3 Class 300 Flanged RF	MN Ammonia Service	F2 2 Emission Port
1 1/2"	Fire Safe valves must use: Graphite or Impregnated Graphite Body Seals and Stem Packing, PTFE, RTFE, TFM®, Nova, Super Nova Seats					P Virgin PEEK	N Nova	N Nova	3F Class 300 Flanged FF	SF Silicone Free **	L Lockable Stem Extension**
2"	Cavity Filler Seats available in PTFE.					R RTFE 15% Glass Filled	T PTFE	T PTFE			VB Vented Ball
2 1/2"						T PTFE					SJ Steam Jacket
3"											SJ3 Steam Jacket With 3 Outlets
4"											TP Tamper Proof Locking Device

Class
1 150
3 300

Stem
2 Alloy 20
6 316 Stainless Steel
7 17-4 PH

Stem Packing
G Graphite
I Impregnated Graphite
M TFM®
N Nova
T PTFE

Service
X Oxygen Service**
U Vacuum
MN Ammonia Service
SF Silicone Free **

** Per Sharpe® Standard

* Up to 1 1/2"
** 3/4" up to 1" valves
4" on larger valves
*** Call Sharpe® Valves for sizing / application of DMH (up to 1")

* POA

Other materials / options available please contact us with your unique requirement.

Technical Information

VALVE SIZE	Cv	APPROX. WEIGHT lbs	
		Class 150	Class 300
1/2"	26	4	5
3/4"	50	5	8
1"	94	7	10
1 1/2"	260	15	20
2"	480	23	28
2 1/2"	730	39	47
3"	1100	45	62
4"	2100	65	94



Applicable Standards

Wall Thickness	ASME B16.34
Face to Face Dimensions	ASME B16.10
Fugitive Emission	ISO 15848-1 (with I or N stem packing)
Flange Dimensions	ASME B16.5
Basic Design	ASME B16.34, API 608 5th Edt.
Fire Safe	API 607 6th Edt. (FS70 only)
Pressure Test	API 598, MSS-SP 72
Mounting Dimensions	ISO 5211
NACE (Only with 316 SS Stem)	MR-0175 / ISO 15156
Marking	MSS-SP 25

TFM® is a registered trademark of Dyneon

Due to continuous development of our product range we reserve the right to change the dimensions and information contained in the leaflet as required.



SMITH-COOPER®
INTERNATIONAL

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