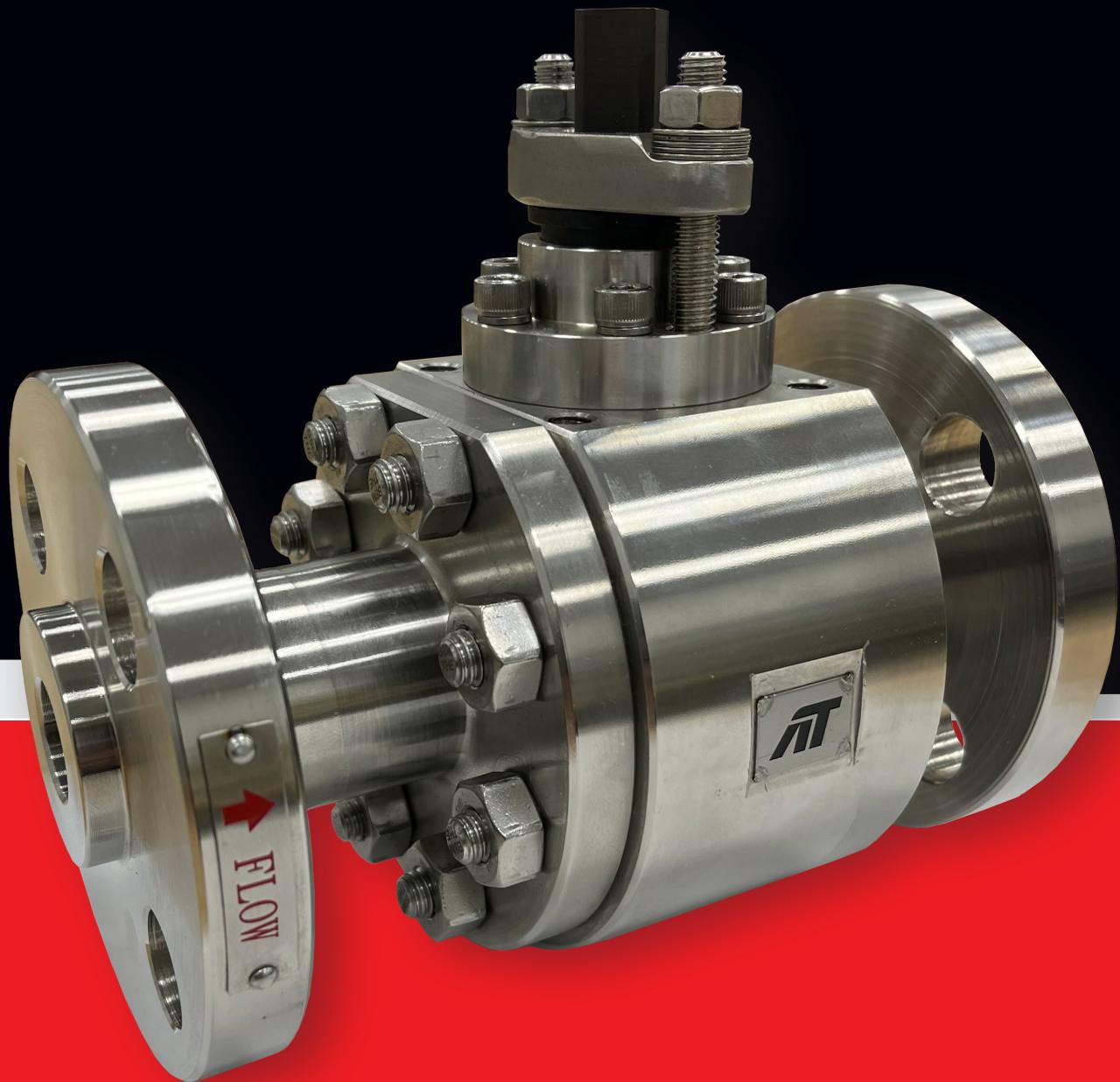




A-T Controls, Inc.

FME Series

**Flanged Metal Seat
Floating Ball Valve**

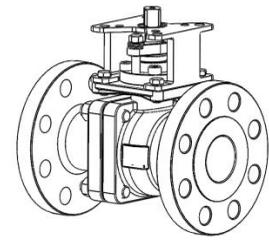


FME Series

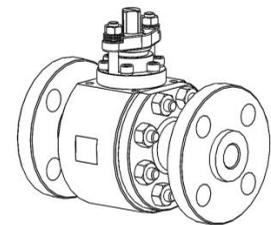
Metal Seated Fugitive Emission Floating Ball Valve

Full Bore Two-piece Metal Seated ASME Class 150/300/600

The Series FME Class 150/300/600 is a metal seated floating ball valve with bidirectional shutoff designed to be used in fugitive emission environments and severe services such as high temperature and abrasive fluids. It is used in industries such as Oil & Gas, Hydrogen, Petroleum, Chemicals & Petrochemicals, Power Generation, Pulp & Paper, and Mining. Available with Class 150/300/600 raised face flange ends, with socket weld and butt weld ends offered in Class 600.



Class 150/300



Class 600

Product Features

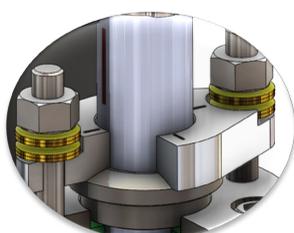
- Class VI Shutoff between ball and seats for HVOF Tungsten Carbide, Chrome Carbide and Stellite® Seats.
- Hard face treatment on ball and seats for extended life cycles in severe environments.
- Double Seal body design
- Bidirectional Anti-Jam Chasing Seat design.
- API 622 Fugitive Emissions Live Load Packing with Inconel X750 Belleville washers.
- Low emission design suitable for demanding ISO 15848 fugitive emission ratings.
- Pressure ratings up to fully rated temperature according to B16.34
- Extended stem and mounting bracket provide direct mount options for actuators and gears.

Certifications

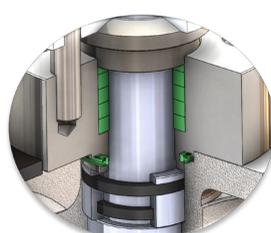
- Fire Safe API 6FA 5th Edition
- Fugitive Emission Test Certified ISO 15848-CH-CO3-SSA1-t400C ANSI Class 150/ 300 / 600 (1/2"-4" 150# / 300# | 1/2"-3" 600#)

Design Standards

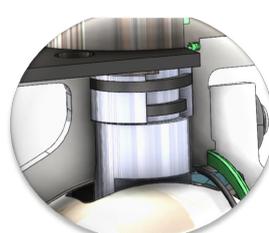
- Design: B16.34 (Fully conforms)
- API 608 (Fully conforms)
- API 6D
- Pressure Testing: ASME B16.34 / API 598
- Seat Leak Testing: ANSI B16.104/ FCI 70-2 Class VI
- Face to Face: ASME B16.10
- Flanged Dimensions: ASME B16.5
- Marking: MSS-SP-25
- Mounting: ISO 5211 / API 6DX



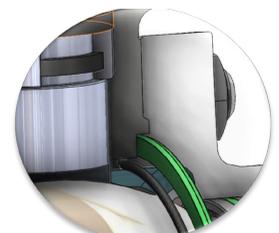
Live Loading / Adjustable Gland



API 622 Packing



Anti-Blowout Stem & VOC Ring



Double Body Seals

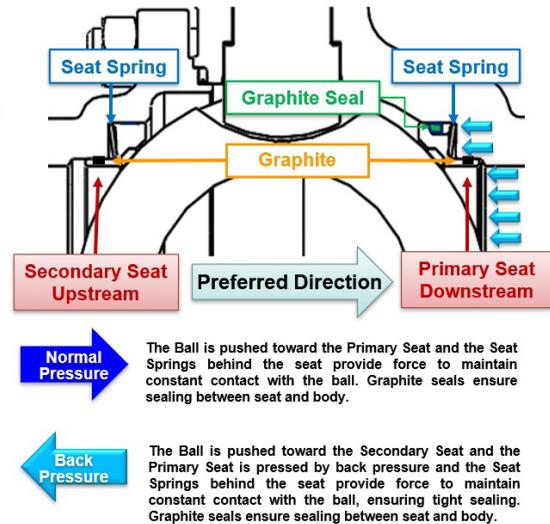


A-T Controls, Inc.

FME Seat Design

Bidirectional Anti-Jam Chasing seat design allows the valve seat to move or “chase” the ball during operation. This design ensures continuous contact between the seat and ball, enhancing sealing performance under fluctuating pressure and temperature conditions. The seats use durable wave springs to achieve continuous contact to the ball.

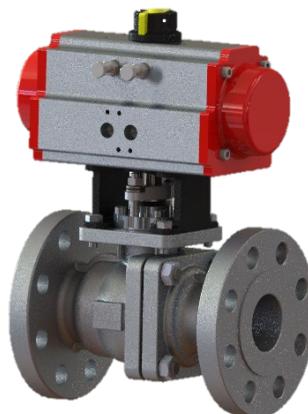
The upstream seat is designed to relieve pressure automatically. When pressure inside the body cavity exceeds the line pressure, the seat temporarily unseats, allowing excess pressure to escape into the pipeline. This prevents damage to the valve due to overpressure



Additional Options:



Manual Handle Operator



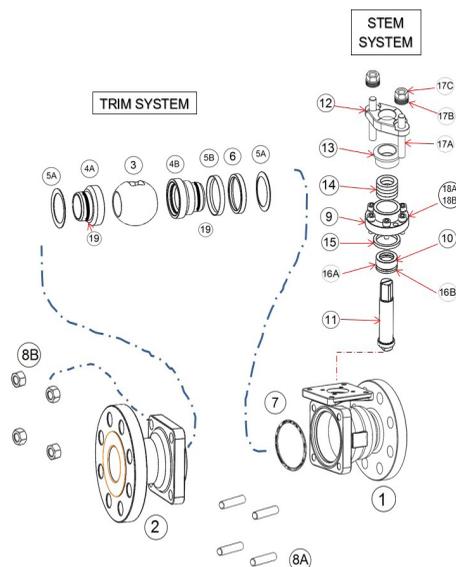
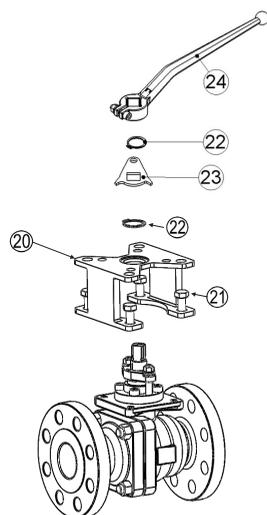
Bracket for Automation



Extended Bonnet for Automation

FME Series

Materials & Components Class 150/300



MATERIALS LIST

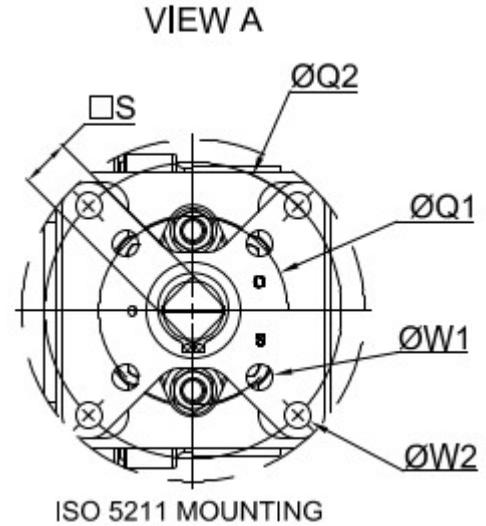
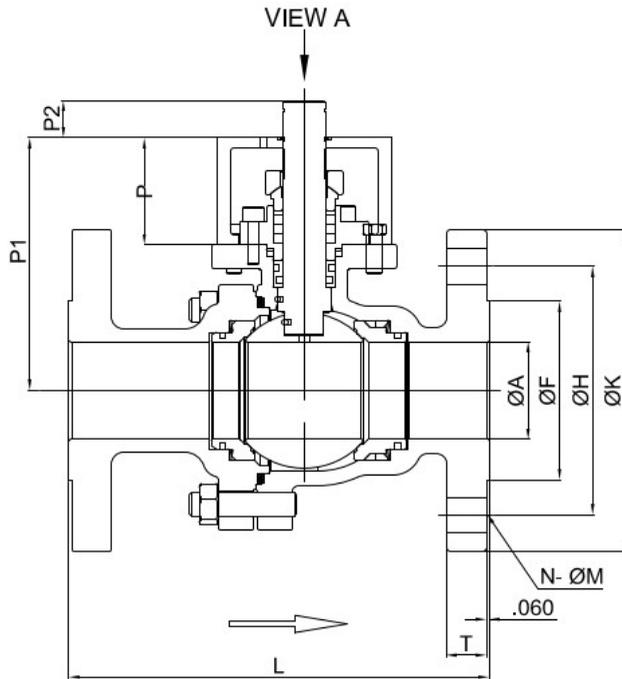
Valve Options		Carbon Steel			Stainless Steel			
		Stellite® Seats	Tungsten Carbide	Chrome Carbide	Stellite® Seats	Tungsten Carbide	Chrome Carbide	
ITEM	PART NAME	-20°F - 750°F	-20°F - 800°F	-20°F - 800°F	-20°F - 750°F	-50°F - 900°F	-50°F - 1000°F	
1	Body	A216-WCB			ASTM A351-CF8M			
2	End Cap	A216-WCB			ASTM A351-CF8M			
Trim System	3	Ball	ASTM A182-F316+Stellite	ASTM A182-F316 + TC	ASTM A182-F316 + CRC	ASTM A182-F316+Stellite	ASTM A182-F316 + TC	ASTM A182-F316 + CRC
	4A	Upstream Seat	ASTM A479-316+Stellite	ASTM A479-316 + TC	ASTM A479-316 + CRC	ASTM A479-316+Stellite	ASTM A479-316 + TC	ASTM A479-316 + CRC
	4B	Downstream Seat	ASTM A479-316+Stellite	ASTM A479-316 + TC	ASTM A479-316 + CRC	ASTM A479-316+Stellite	ASTM A479-316 + TC	ASTM A479-316 + CRC
	5A	Seat Spring	INCONEL X-750					
	5B	Seat Gasket	GRAPHITE					
	6	Seat Retainer	ASTM A479-316					
7	Body Gasket	SPIRAL WOUND 316SS + GRAPHITE						
8A	Body Bolt	ASTM A193 GRADE B7			ASTM A193 GRADE B8M			
8B	Body Bolt Nut	ASTM A194 GRADE 2H			ASTM A194 GRADE 8M			
9	Body Gland	ASTM A479-316						
10	Stem Retainer Ring	ASTM A479-316 + QPQ						
11	Stem	A453-S66286(A286) + QPQ						
12	Gland Flange	A351-CF8						
13	Gland Follower	ASTM A479-316 + QPQ						
14	Gland Packing	API 622 GRAPHITE						
15	Gland Gasket	GRAPHITE						
16A / 16B	Seal	API 622 GRAPHITE						
17A	Packing Gland Bolt	A2-70						
17B	Belleville Washers	INCONEL X-750						
17C	Packing Gland Nut	A2-70						
18A / 18B	Body Gland Screw with Spring Washer	A2-70						
19	Anti Jam	SPIRAL WOUND 316SS + GRAPHITE						
20	Bracket	304 SS						
21	Bracket Bolt	A2-70						
22	Retainer Ring	STAINLESS STEEL						
23	Handle Stop	STAINLESS STEEL						
24	Handle	STAINLESS STEEL						

Trim abbreviations: HVOF Thermal Spray for Stellite, TC, and CRC;
TC = Tungsten Carbide; CRC = Chrome Carbide

*Various usage conditions shall determine stem material: A286: use up to 1000°F | 17-4 PH® SST: use below 750°F
XM-19: use up to 1100°F | DUPLEX 2205: use below 570°F
INCONEL® 718: use up to 1100°F

FME Series

Dimensions Class 150/300



Dimensions (in.) ASME Class 150

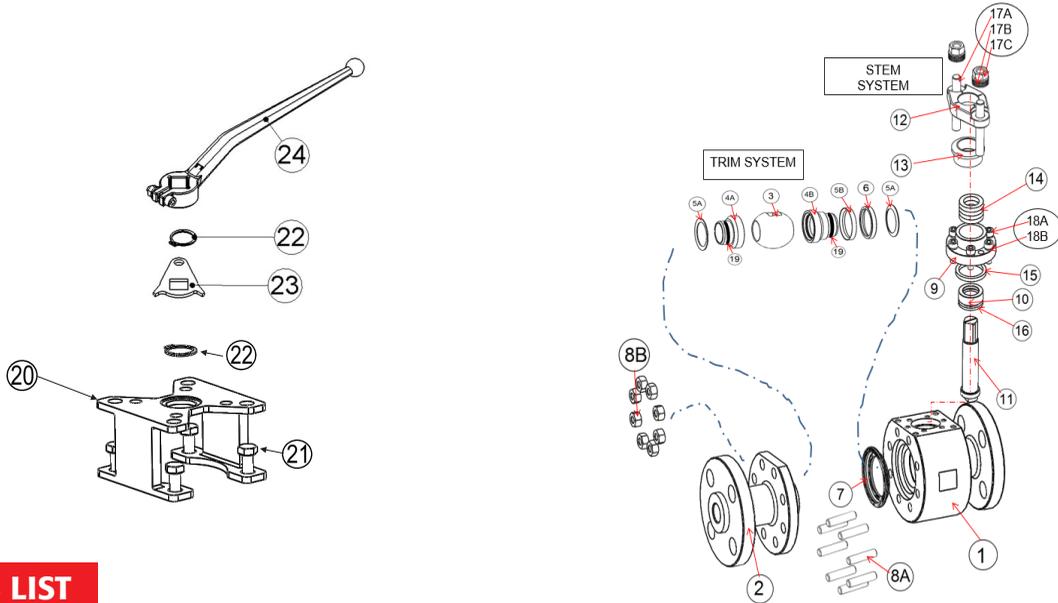
Size	Valve Dimensions								Mounting Dimensions								Weight (lbs)	
	ØA	ØF	ØH	ØK	T	ØM	N	L	S	ØQ1	ØQ2	ISO 5211	ØW1	ØW2	P	P1		P2
1/2"	0.59	1.38	2.38	3.50	0.38	0.63	4	4.252	0.354	-	1.969	F05	-	0.26	1.969	3.88	0.43	6.17
3/4"	0.79	1.69	2.75	3.90	0.44	0.63	4	4.606	0.354	-	1.969	F05	-	0.26	1.969	4.04	0.43	7.72
1"	0.98	2.00	3.12	4.25	0.50	0.63	4	5.000	0.433	-	2.756	F07	-	0.354	2.559	4.84	0.51	11.68
1-1/2"	1.50	2.87	3.88	5.00	0.63	0.63	4	6.496	0.551	-	2.756	F07	-	0.354	2.362	5.12	0.71	18.74
2"	1.97	3.62	4.75	5.98	0.69	0.75	4	7.008	0.669	2.756	4.016	F07 / F10	0.354	0.433	2.362	5.31	0.79	26.68
3"	2.99	5.00	6.00	7.48	0.88	0.75	4	7.992	0.866	-	4.921	F12	-	0.551	3.740	7.99	0.98	61.29
4"	3.94	6.19	7.50	9.02	0.88	0.75	8	9.016	1.063	4.921	5.512	F12 / F14	0.551	0.709	4.331	9.65	1.18	92.59
6"	5.91	8.50	9.50	10.98	0.94	0.87	8	15.512	1.417	-	6.496	F16	-	0.866	5.315	12.80	1.57	220.46
8"	7.91	10.62	11.75	13.50	1.06	0.87	8	17.992	1.811	-	10.000	F25	-	0.709	5.906	15.43	1.97	416.67

Dimensions (in.) ASME Class 300

Size	Valve Dimensions								Mounting Dimensions								Weight (lbs)	
	ØA	ØF	ØH	ØK	T	ØM	N	L	S	ØQ1	ØQ2	ISO 5211	ØW1	ØW2	P	P1		P2
1/2"	0.59	1.38	2.62	3.74	0.50	0.63	4	5.512	0.354	-	1.969	F05	-	0.26	1.969	3.88	0.43	7.28
3/4"	0.79	1.69	3.25	4.61	0.56	0.75	4	5.984	0.354	-	1.969	F05	-	0.26	1.969	4.04	0.43	10.36
1"	0.98	2.00	3.50	4.88	0.62	0.75	4	6.496	0.433	-	2.756	F07	-	0.354	2.559	4.84	0.51	14.55
1-1/2"	1.50	2.87	4.50	6.10	0.75	0.87	4	7.480	0.551	-	2.756	F07	-	0.354	2.362	5.12	0.71	25.13
2"	1.97	3.62	5.00	6.50	0.81	0.75	8	8.504	0.669	2.756	4.016	F07 / F10	0.354	0.433	2.362	5.31	0.79	31.53
3"	2.99	5.00	6.62	8.27	1.06	0.87	8	11.102	0.866	-	4.921	F12	-	0.551	3.740	7.99	0.98	80.25
4"	3.94	6.19	7.88	10.00	1.19	0.87	8	12.008	1.063	4.921	5.512	F12 / F14	0.551	0.709	4.331	9.65	1.18	121.25
6"	5.91	8.50	10.62	12.52	1.38	0.87	12	15.866	1.417	-	6.496	F16	-	0.866	5.315	12.80	1.57	288.81
8"	7.91	10.62	13.00	15.00	1.56	0.98	12	19.764	1.811	-	10.000	F25	-	0.709	5.906	15.43	1.97	533.52

FME Series

Materials & Components Class 600



MATERIALS LIST

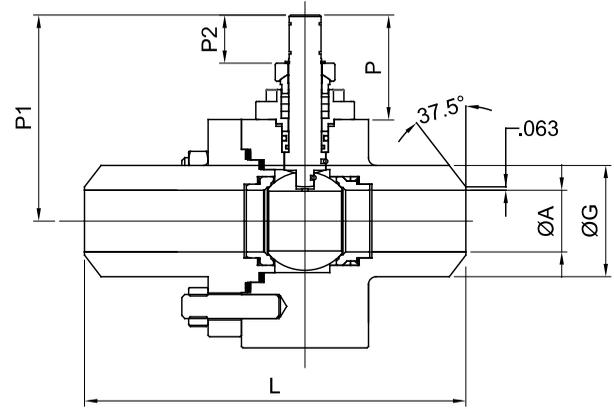
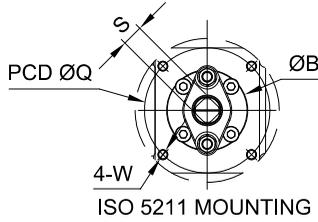
Valve Options		Carbon Steel			Stainless Steel			
		Stellite® Seats	Tungsten Carbide	Chrome Carbide	Stellite® Seats	Tungsten Carbide	Chrome Carbide	
ITEM	PART NAME	-20°F - 750°F	-20°F - 800°F	-20°F - 800°F	-20°F - 750°F	-50°F - 900°F	-50°F - 1000°F	
1	Body	ASTM A105N			ASTM A182-F316			
2	End Cap	ASTM A105N			ASTM A182-F316			
Trim System	3	Ball	ASTM A479-316+Stellite	ASTM A479-316 + TC	ASTM A479-316 + CRC	ASTM A479-316+Stellite	ASTM A479-316 + TC	ASTM A479-316 + CRC
	4A	Upstream Seat	ASTM A479-316+Stellite	ASTM A479-316 + TC	ASTM A479-316 + CRC	ASTM A479-316+Stellite	ASTM A479-316 + TC	ASTM A479-316 + CRC
	4B	Downstream Seat	ASTM A479-316+Stellite	ASTM A479-316 + TC	ASTM A479-316 + CRC	ASTM A479-316+Stellite	ASTM A479-316 + TC	ASTM A479-316 + CRC
	5A	Seat Spring	INCONEL X-750					
	5B	Seat Gasket	GRAPHITE					
	6	Seat Retainer	ASTM A479-316					
7	Body Gasket	SPIRAL WOUND 316SS + GRAPHITE						
8A	Body Bolt	ASTM A193 GRADE B7			ASTM A193 GRADE B8M			
8B	Body Bolt Nut	ASTM A194 GRADE 2H			ASTM A194 GRADE 8M			
9	Body Gland	ASTM A479-316						
10	Stem Retainer Ring	ASTM A479-316 + QPQ						
11	Stem	INCONEL 718 + QPQ						
12	Gland Flange	316 SS						
13	Gland Follower	ASTM A479-316 + QPQ						
14	Gland Packing	API 622 GRAPHITE PACKING						
15	Gland Gasket	GRAPHITE						
16	VOC Packing	API 622 GRAPHITE PACKING						
17A	Packing Gland Bolt	ASTM A193 GRADE B7			ASTM A193 GRADE B8M			
17B	Belleville Washers	INCONEL X-750						
17C	Packing Gland Nut	ASTM A194 GRADE 2H			ASTM A194 GRADE 8M			
18A / 18B	Body Gland Screw with Spring Washer	A4-70						
19	Anti Jam	SPIRAL WOUND 316SS + GRAPHITE						
20	Bracket	304 SS						
21	Bracket Bolt	A2-70						
22	Retainer Ring	STAINLESS STEEL						
23	Handle Stop	STAINLESS STEEL						
24	Handle	STAINLESS STEEL						

Trim abbreviations: HVOF Thermal Spray for Stellite, TC, and CRC;
TC = Tungsten Carbide; CRC = Chrome Carbide

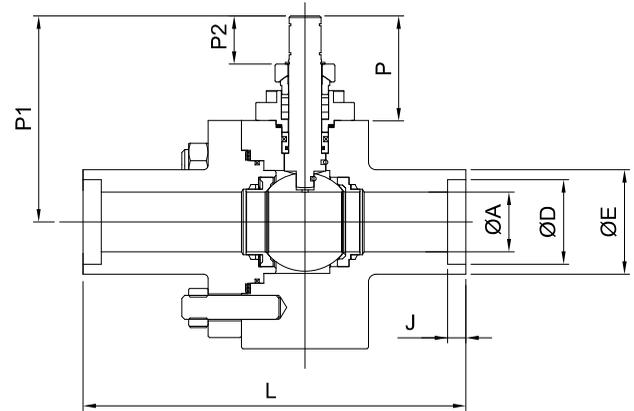
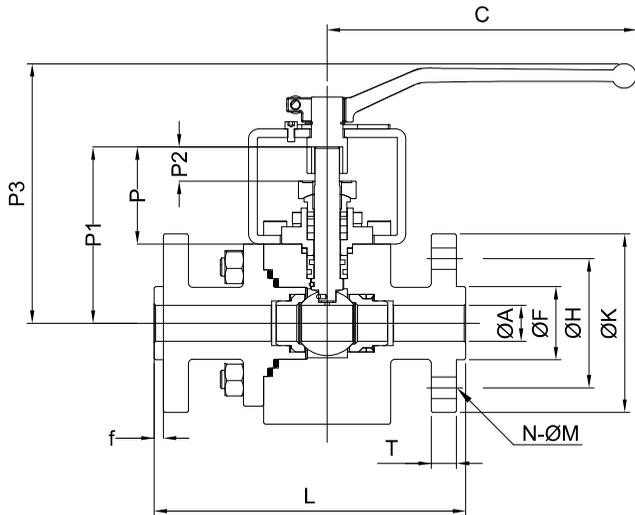
*Various usage conditions shall determine stem material: A286: use up to 1000°F | 17-4 PH® SST: use below 750°F
XM-19: use up to 1100°F | DUPLEX 2205: use below 570°F
INCONEL® 718: use up to 1100°F

FME Series

Dimensions Class 600



Butt Weld Option



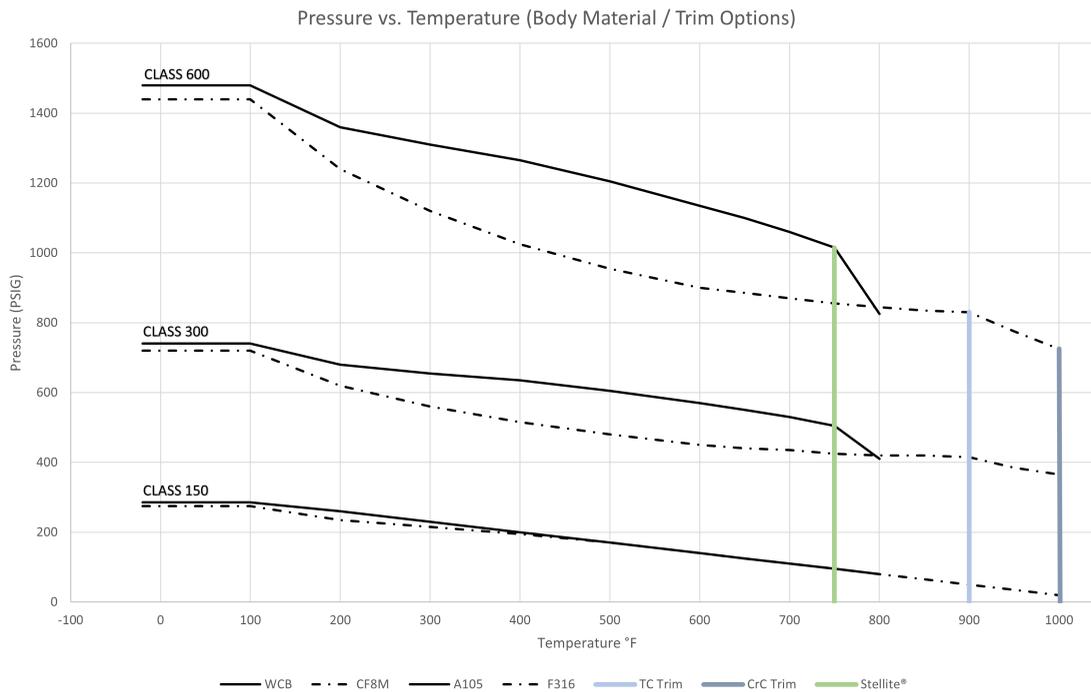
Socket Weld Option

Dimensions (in.) ASME Class 600

Size	Valve Dimensions													Mounting Dimensions								Weight (lbs)		
	ØA	C	ØD	ØE	ØF	ØG	ØH	J	ØK	T	f	ØM	N	L	P3	S	Q	ISO 5211	W	P	P1		P2	B
1/2"	0.59	9.45	0.87	1.42	1.38	1.42	2.62	0.37	3.74	0.56	0.25	0.63	4	6.50	6.50	0.551	2.756	F07	M8	2.441	4.33	0.75	2.165	20.29
3/4"	0.79	9.45	1.08	1.65	1.69	1.65	3.25	0.49	4.61	0.62	0.25	0.75	4	7.48	6.50	0.551	2.756	F07	M8	2.441	4.33	0.75	2.165	23.37
1"	0.98	9.45	1.35	1.97	2.00	1.97	3.50	0.49	4.88	0.69	0.25	0.75	4	8.50	7.09	0.551	4.016	F10	M10	2.657	4.82	0.93	2.480	37.71
1-1/2"	1.57	11.42	1.93	2.56	2.87	2.56	4.50	0.49	6.10	0.88	0.25	0.87	4	9.49	7.48	0.669	4.016	F10	M10	2.756	5.51	0.98	2.677	59.98
2"	1.97	11.42	2.43	3.03	3.62	3.03	5.00	0.63	6.50	1.00	0.25	0.75	8	11.50	9.45	0.866	4.921	F12	M12	3.819	7.01	1.14	3.543	95.70
3"	2.99	N/A	3.55	4.13	5.00	4.13	6.62	0.63	8.27	1.25	0.25	0.87	8	14.02	N/A	1.063	5.512	F14	M16	4.528	8.78	1.50	4.331	N/A
4"	3.94	N/A	4.55	5.35	6.19	5.35	8.50	0.75	10.75	1.50	0.25	1.00	8	17.01	N/A	1.417	6.496	F16	M20	5.039	9.96	1.77	4.961	N/A

FME Series

Flanged Metal Seat Floating Ball Valve



FME Series Metal Seat Torque Table Class 150/300

Rating	Class 300										
	Class 150					Class 300					
Size	Torques (in*lbs) @ PSIG										
	0	75	150	200	285	350	400	500	600	650	740
1/2"	31	33	40	44	52	58	62	71	80	84	92
3/4"	38	40	51	58	72	81	88	103	118	125	139
1"	71	75	93	105	125	141	153	177	201	213	234
1-1/2"	127	134	177	206	256	293	322	380	438	467	519
2"	266	275	397	505	624	722	803	966	1128	1212	1355
3"	852	882	1210	1502	1822	2084	2302	2739	3176	3403	3788
4"	1623	1683	2241	2740	3283	3730	4102	4847	5591	5988	6633
6"	4489	4678	6019	7217	8675	9596	10490	12403	14066	14996	16569
8"	8915	9303	11806	14041	17144	18880	20149	23485	26822	28558	31654

Safety Factor		
Temperature range (°F)		Factor
< 200		1.0
200	350	1.1
351	450	1.3
451	750	1.6
751	1000	1.8

- 1) Safety factors should be added for high temperature, viscous fluid, powders, steam and slurries.
- 2) Torques are based on valve being installed in suggested direction. Consult The Application Sizing Guide for assistance with sizing actuators.

FME Series Metal Seat Torque Table Class 600

Rating	Class 600													
	Torques (in*lbs) @ PSIG													
Size	150	200	285	350	400	500	600	650	740	870	1000	1160	1300	1480
	1/2"	66	69	74	78	81	87	93	96	101	109	116	126	134
3/4"	88	90	95	107	115	133	150	159	174	197	230	247	271	310
1"	155	163	177	188	197	214	240	239	254	276	297	324	348	390
1-1/2"	195	210	228	252	276	325	374	398	442	505	580	673	719	802
2"	700	775	920	1000	1075	1226	1376	1451	1586	1814	2037	2217	2448	2698
3"	1462	1682	2055	2341	2561	3000	3439	3659	4054	4637	5261	5868	6469	7304
4"	2954	3369	4015	4500	4877	5631	6385	6762	7440	8443	9514	10532	11662	13019

Cv Values

Size	Cv
1/2"	27
3/4"	61
1"	114
1-1/2"	268
2"	501
3"	1,125
4"	2,100
6"	5,050
8"	9,600

- 1) Safety factors should be added for high temperature, viscous fluid, powders, steam and slurries.
- 2) Torques are based on valve being installed in suggested direction. Consult The Application Sizing Guide for assistance with sizing actuators.



FME Series Part Number Matrix

1 Prefix	
F	Firesafe Tested

2 Valve Series	
ME	Metal Seat Bidirectional, for low emission ISO 15848-1

3 Body Material	
Blank	CF8M-316 SST (Class 150 / 300 Standard)
C	Carbon Steel Body, A216 Gr WCB (Class 150 / 300 Standard)
7	A105N Forged Steel (Class 600 Standard)
4	F316 (Class 600 Standard)
L	Low Carbon 316 SST, CF3M-316L
D	CD3MN Duplex SST
G	CE3MN Super Duplex SST
F	A350 LF2
5	LCB, A352
6	WC6, A217
8	LCC, A352
9	WC9, A217

4 End Connection	
F1	150# Flanged Ends
F3	300# Flanged Ends
F6	600# Flanged Ends
SW	Socket Weld Ends (Class 600 only)
BW	Butt Weld Ends (Class 600 only)

5 Valve Size	
0050	1/2"
0075	3/4"
0100	1"
0150	1-1/2"
0200	2"
0300	3"
0400	4"
0600	6"
0800	8"

6 Seat, Lining & Trim Materials	
3	HVOF Stellite® Coated 316 SST Seats & Ball
2	HVOF Tungsten Carbide Coated 316 SST Seats & Ball
4	HVOF Chrome Carbide Coated 316 SST Seats & Ball (Standard)

7 Special Designation	
X	No Specials
L	Locking Handle Operator

8 Additional Specials	
X	No Specials
O	Oxygen Cleaned
V	Vented Ball
E	Extended Bonnet Type

9 Special Designation	
D	Inconel® 718 Stem (Class 600 Standard)
A	17-4PH Stem
B	XM-19 (Nitronic 50) Stem
C	Duplex 2205 Stem
E	A286 Stem (Class 150 / 300 Standard)

10 Stem Seals	
G	Graphite (Standard)

How To Order FME Series														
1	2	3	-	4	-	5	-	6	7	8	-	9	-	10
↓	↓	↓		↓		↓		↓	↓	↓		↓		↓
F	ME	4	-	F6	-	0100	-	4	X	X	-	D	-	G



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