KF Valves

Series FAE

Trunnion Mounted Ball Valves

KF Series FAE Two-Piece Trunnion Mounted Ball Valves

Features

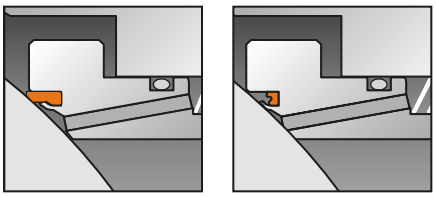
- Double block and bleed
- Self relieving seat
- Anti-blowout stem design
- O-rings plus firesafe packing prevents leakage
- Corrosion resistant low friction bearings
- Inconel® wave springs to provide upstream and downstream sealing
- Stainless steel sealant injection fittings for emergency stem or seat sealing
- Minimized torque required to open and close valve
- Antistatic device for grounding of the ball, stem/trunnion and body
- Integral topworks direct mounting pad
- 8" & larger valves are equipped with lifting lugs

This high quality two-piece split body trunnion mounted ball valve conforms to API 6D, ASME B 16.34 and ASTM specifications. Devlon® seats are standard.

All seats are retained in metal holders which are spring-loaded against the ball for low pressure, firesafe sealing. Series FAE valves are offered in: 2" thru 12" class 150 & 300

Firesafe Function

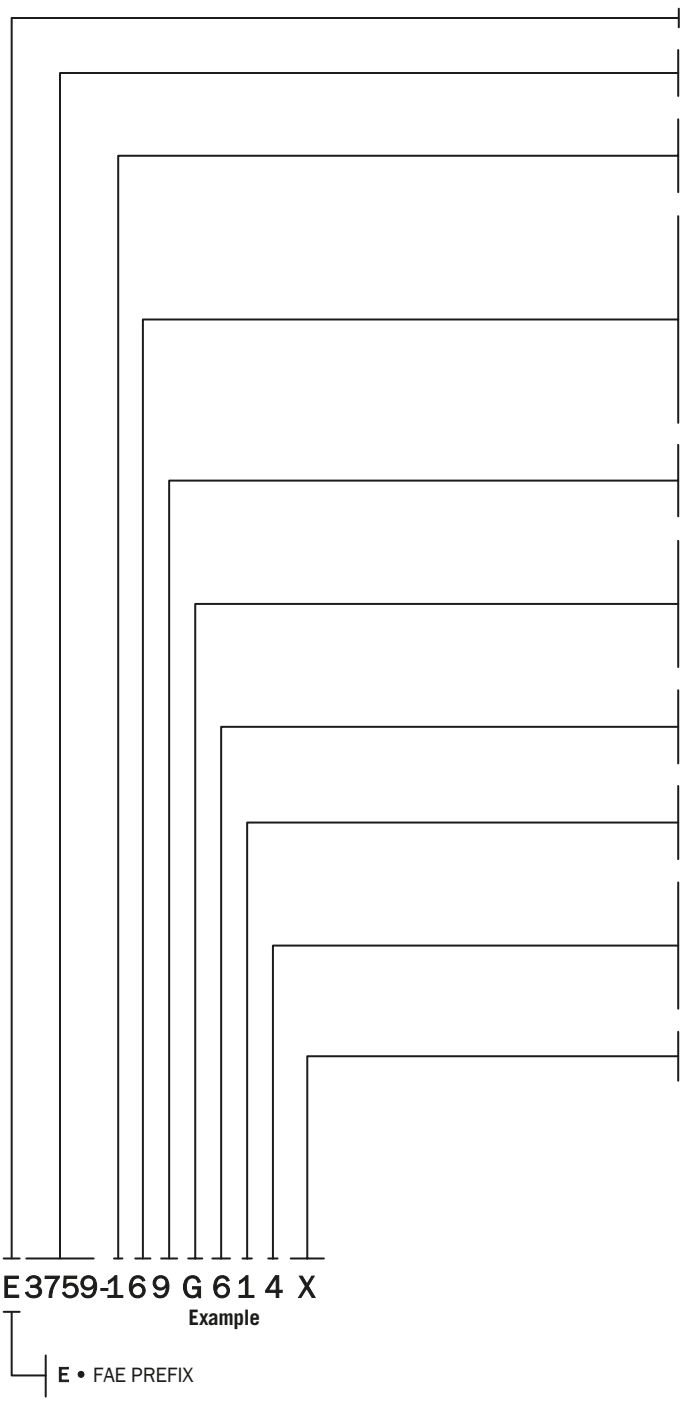
In case of fire and seat construction damage, firesafe requirements are accomplished with automatic metal-to-metal positive sealing.



Before *After*

Contents

KF Series FAE Part Number Codes



FAE PREFIX

Base Number
See Chart Below

Body/Bolting Material
1 • CS / CS
2 • SS / CS (Xylan®)
8 • LTCS / LTCS

Trim (Ball & Seats)
2 • 316SS
6 • CS (3 mil ENP)
7 • LTCS (3 mil ENP)

Note: Stem material will meet or supersede trim material

Seat Insert
2 • Teflon®
5 • HT6 (PEEK™)
9 • Devlon®

O-Ring
F • Elast-O-Lion® 985
G • HNBR

Specifications
6 • NACE Cl. II Bolting /Firesafe

Bolting Finish/Body & Adaptor
1 • Black
3 • Xylan® Coated

Actuation
4 • Handle w/Locking
6 • Gear Operator w/Locking Device
A • For Actuator

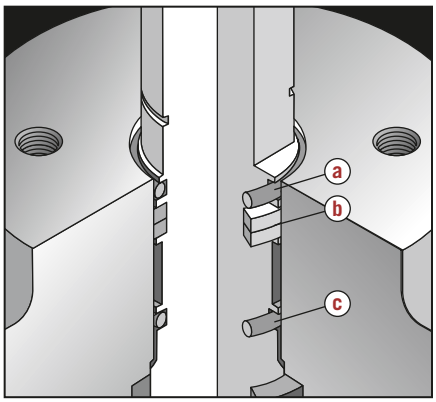
Process Codes
(Last two digits used ONLY when Process Codes are required.)

Other material and configuration options available upon application request.

Assembly Base Numbers, RF

Class	Size (in.)												
	2FP	3RP	3FP	4RP	4FP	6RP	6FP	8RP	8FP	10RP	10FP	12RP	12FP
150	3758	3759	3760	3761	3762	3763	3764	3765	3766	3767	3768	3769	3770
300	3778	3779	3780	3781	3782	3783	3784	3785	3786	3787	3788	3789	3790

KF Series FAE Design Features



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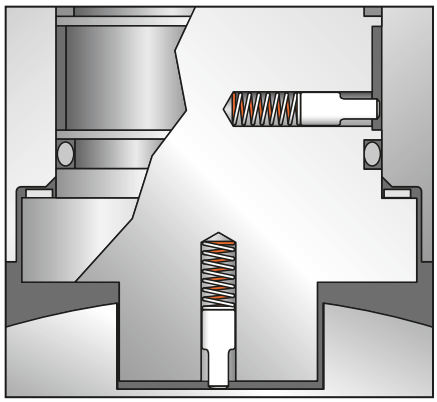

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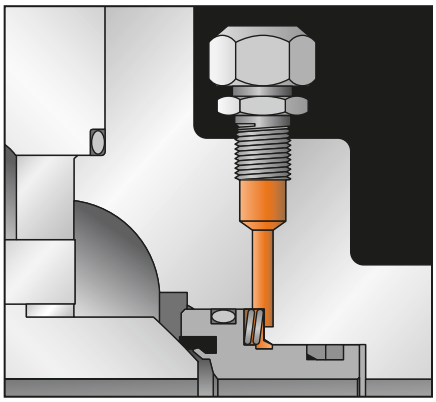

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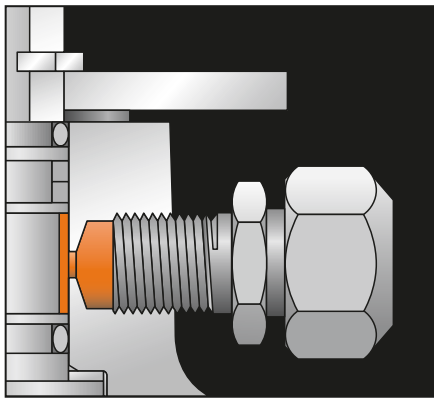

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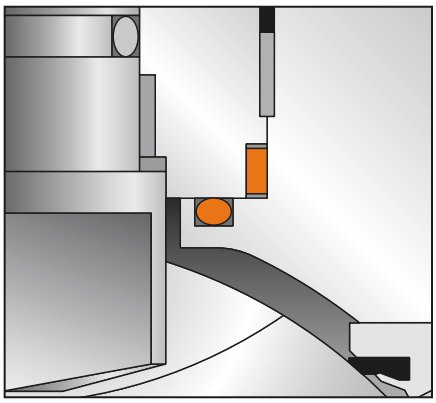

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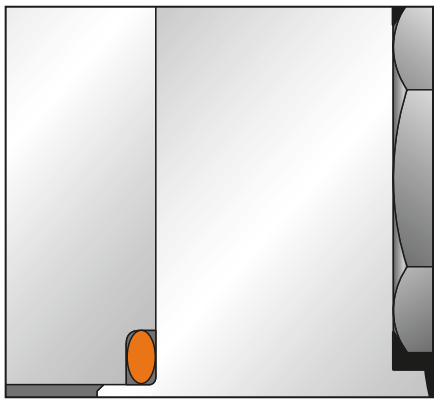

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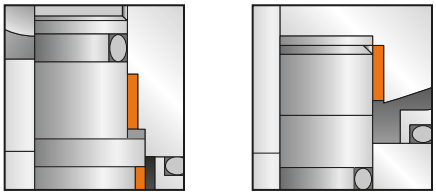
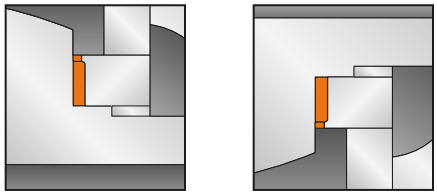


7 *Garloc DU stem and lower trunnion, 2"-4" bore*



Teflon® and glass liner w/316SS housing integral trunnion w/trunnion blocks, 6"-12" bore

1 Firesafe Standard Double Seal

2"FP - 12" Bore, class 150 & 300

- **a** Weather seal
- **b** Stem seal
  braided carbon rope
- **c** Primary stem seal

2 Antistatic Device*

A stainless steel grounding plunger between the body/stem and stem/ball permits electrical continuity.

*2"-4" bore antistatic accomplished through trunnion bearing.

3 Lubricant/Emergency Seat Seal

Special sealants may be injected into fittings that are located on the adapter flanges to restore sealing integrity if seat sealing surface is damaged.

4 Emergency Sealant Injection System

The sealant injection system located on the body can be utilized in case of emergencies, o-ring damage, or if stem leakage occurs.

5 Double Sealed Envelope Connections 2"- 4" Bore

A combination of an o-ring and firesafe gasket ensures a positive seal.

6 Body/Adapter Seal Connection 6"-12" Bore

An o-ring on this connection insures a positive seal.

7 Heavy Duty Bearings

Heavy duty bearings balance the pressure load on the ball by reducing friction between ball and seat resulting in smooth and easy operation of valve.

KF Series FAE Technical Seating Features

Double Block and Bleed

The double block and bleed condition is available in all seat design configurations. When the ball is in the closed position the body cavity pressure may be drained down to 'zero' by opening the bleed valve and draining the fluid by removing the drain plug. Each seat works independently assuring tight shut off seal against ball on the upstream and downstream side.

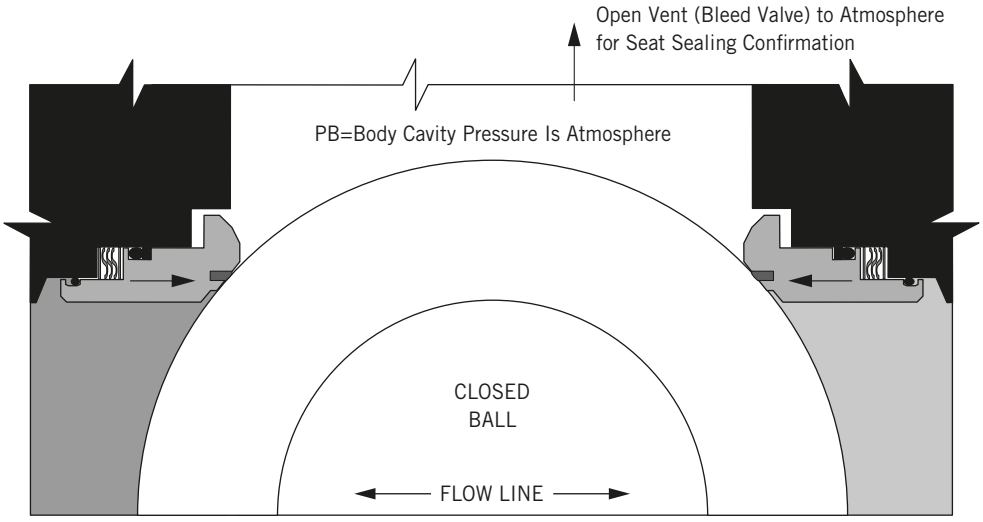
Self Relieving Seat Design

Upstream Seat

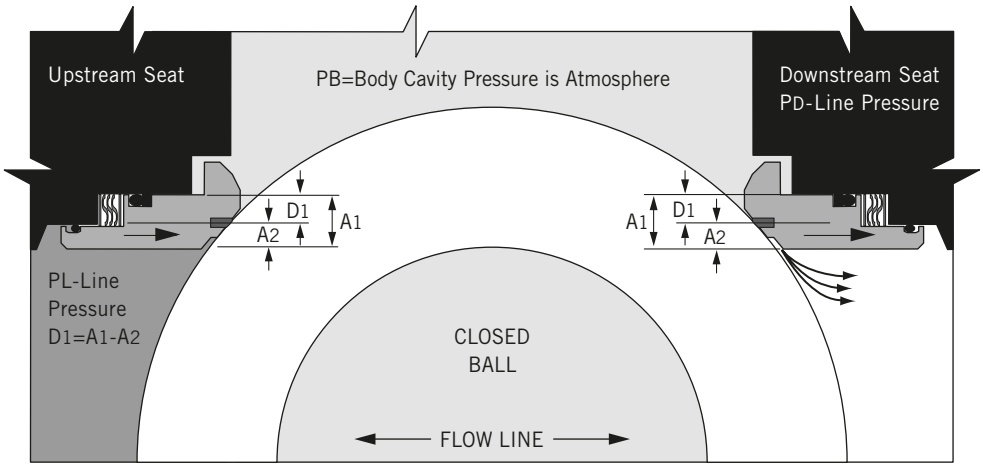
The difference in the area (D1) times the line pressure forces the seat against the ball surface. Also the springs behind the seat adds the force to the seat which keeps the seat in contact with the ball surface by providing the tight seal.

Downstream Seat

When the body cavity pressure exceeds the spring pressure, automatic pressure relief will occur by relieving the body cavity pressure past the downstream seat. This eliminates the need for the body relief valve.



Double Block and Bleed



Self Relieving Seat Design

Availability & Maximum Pressure Ratings, ASME B 16.34 & API 6D

Class	Standard	Size (in.)												
		2FP	3RP	3FP	4RP	4FP	6RP	6FP	8RP	8FP	10RP	10FP	12RP	12FP
150	ASME B 16.34	285	285	285	285	285	285	285	285	285	285	285	285	285
150	API 6D	275	275	275	275	275	275	275	275	275	275	275	275	275
300	ASME B 16.34	740	740	740	740	740	740	740	740	740	740	740	740	740
300	API 6D	720	720	720	720	720	720	720	720	720	720	720	720	720

KF Series FAE Applicable Standards

The following list contains the most important applicable standards for ball valves. KF valves may be designed, manufactured and tested in accordance with other international standards on request.

API - American Petroleum Institute

Spec. 6D
Specification for pipeline valves.

Std. 607
Fire test for soft seated quarter-turn valves.

Spec. 6FA
Specification for fire testing of valves.

Std. 598
Valve inspection and test.

Std. 605
Large diameter carbon steel flanges.

ASME/ANSI - American National Standard Institute

B 16.5
Steel pipe flanges and flanged fittings.

B 16.10
Face-to-face and end-to-end dimensions of ferrous valves.

B 16.25
Butt welding ends.

B 16.34
Steel valves - flanged and butt welding ends (pressure & temperature ratings).

B 31.3
Chemical plant and petroleum refinery piping.

B 31.4
Liquid petroleum transportation piping systems.

B 31.8
Gas transmission and distribution piping systems.

British Standards

BS 1503
Specification for steel forgings for pressure purposes.

BS 1504
Specification for steel castings for pressure purposes.

BS 2080
Face-to-face, center-to-face, end-to-end, and center-to-end dimensions of flanged and butt welding end steel valves for the petroleum, petrochemical and allied industries.

EC - European Community

CE Marked
(P.E.D. 97/23/EC, Cat. 3)

ISO - International Organization for Standardization

ISO 9001:2000
Quality systems - Model for quality assurance in design/development, production, installation and servicing.

ISO 15156
For use in H_2S containing environments in oil and gas production.

MSS - Manufacturers Standardization Society

SP 6
Standard finishes for contact faces of pipe flanges and connecting - end flanges of valves and fittings.

SP 25
Standard marking system for valves, fittings, flanges and unions.

SP 55
Quality standard for steel castings - visual method.

Hydrogen Sulfide (H_2S Environments)

NACE MR0175

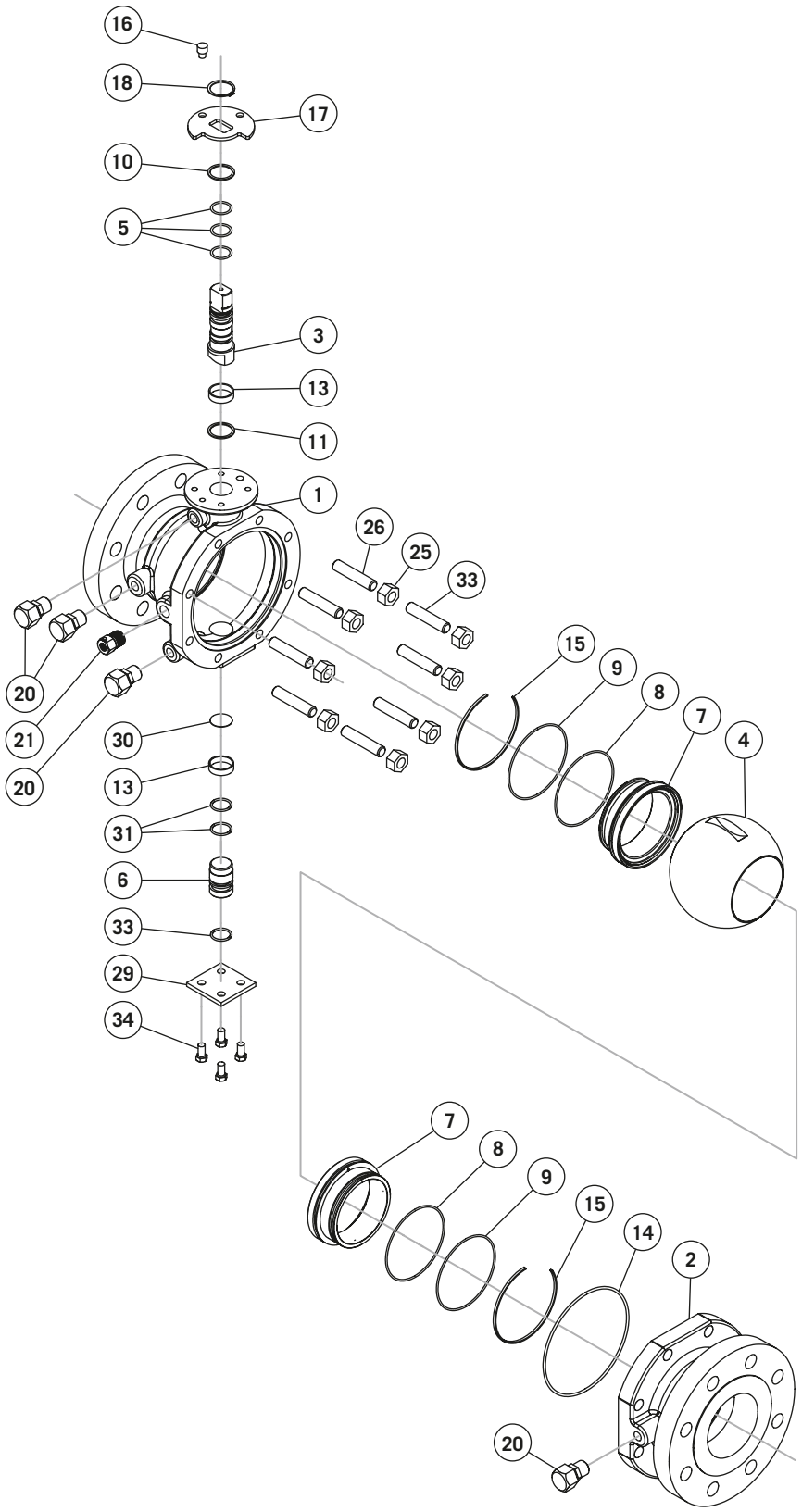
ISO 15156
General principles for cracking resistant materials in H_2S containing environments in oil & gas production.

CSA - Canadian Standards Association

CSA Z245.15-09
Standard for steel valves for intended use in oil or gas pipeline systems.

CSA Z662-07
Oil and gas pipeline systems.

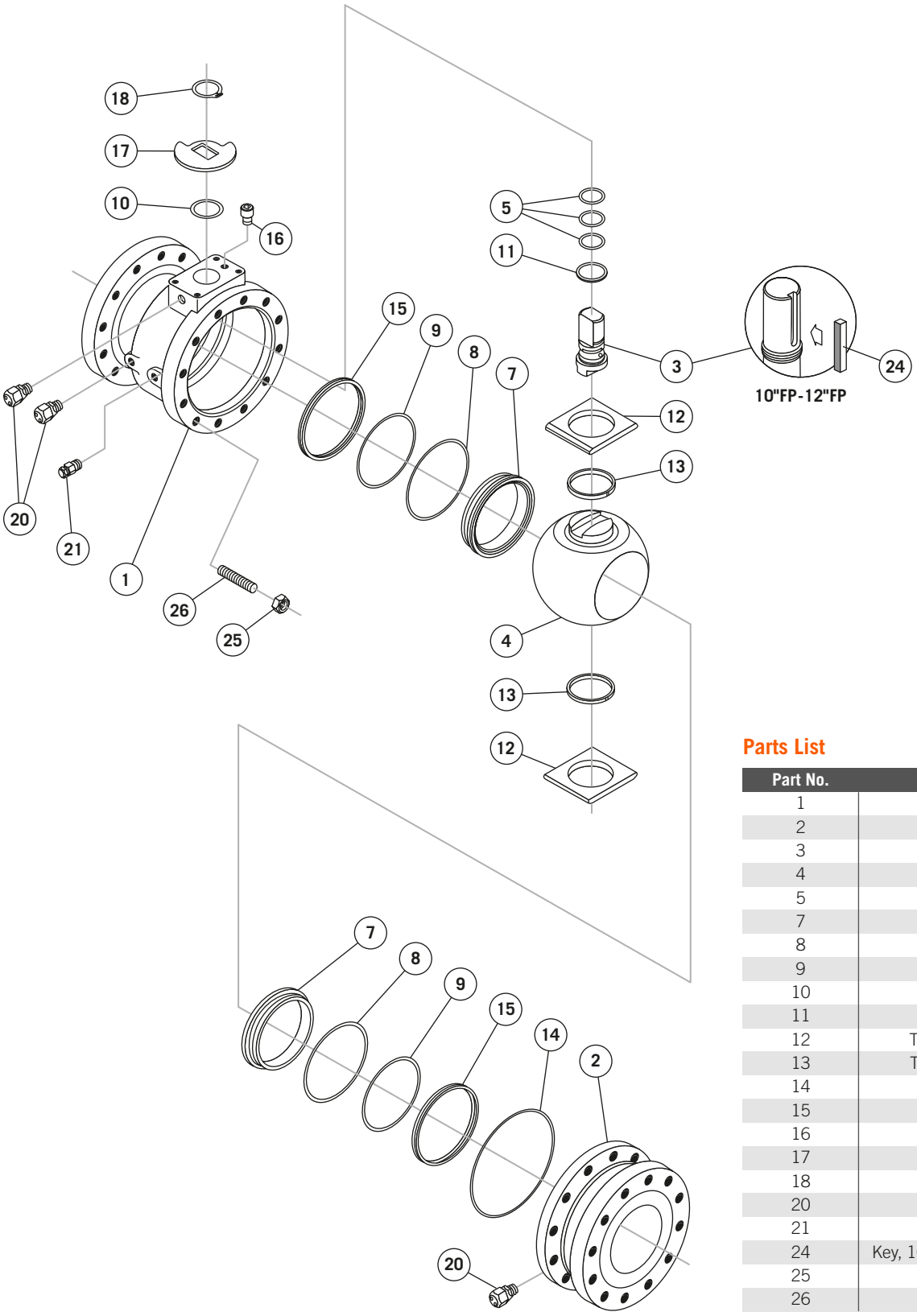
KF Series FAE Component Parts, 2"FP-6"RP



Parts List

Part No.	Description
1	Body
2	Adapter
3	Stem Assembly
4	Ball
5	Stem Seal
6	Trunnion Support
7	Seat
8	Seat O-Ring
9	Seat Sub Seal
10	Stem Bearing
11	Thrust Bearing
13	Trunnion Bearing
14	Body Seal
15	Wave Spring
16	Stop Screw
17	Stop Plate
18	Retainer
20	Injection Fitting
21	Bleed Valve
25	Hex Nut
26	Stud

KF Series FAE Component Parts, 6"FP-12"FP



Parts List

Part No.	Description
1	Body
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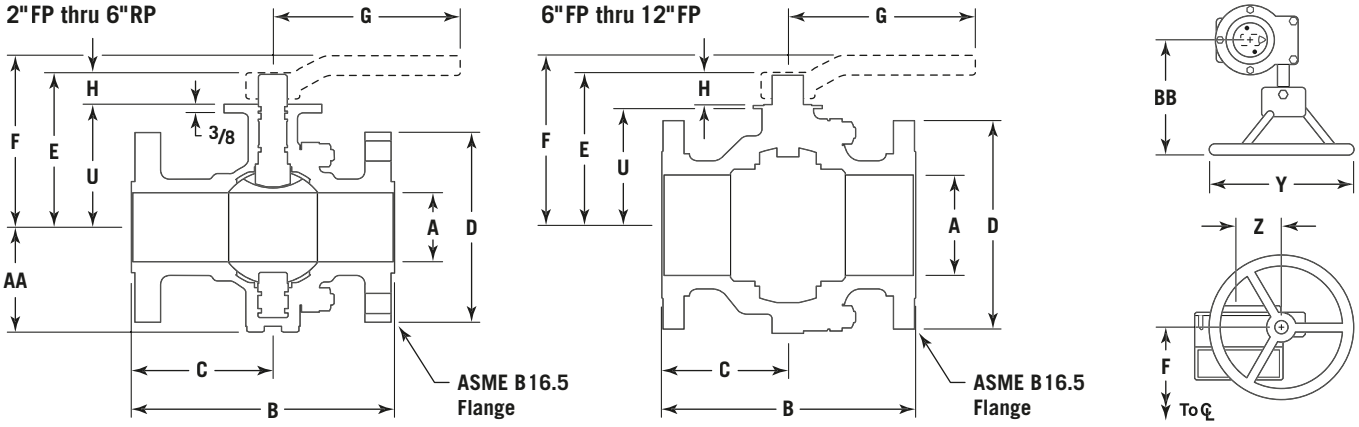
4	Ball
5	Stem Seal
7	Seat
8	Seat O-Ring
9	Seat Sub Seal
10	Stem Bearing
11	Thrust Bearing
12	Trunnion Support
13	Trunnion Bearing
14	Body Seal
15	Wave Spring
16	Stop Screw
17	Stop Plate
18	Retainer
20	Injection Fitting
21	Bleed Valve
24	Key, 10"FP thru 12"FP Only
25	Hex Nut
26	Stud

KF Series FAE Dimensional Data

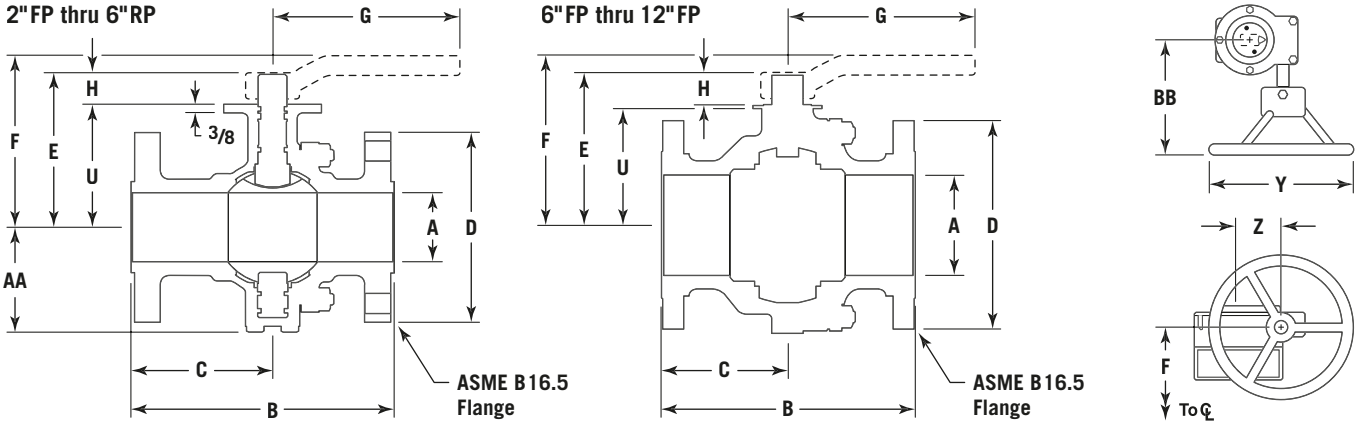


Dimensional Data (in., mm), 2"FP-12"FP, Class 150, API 6D & ASME B16.34

Size (in.)	Weight (lbs.)		Dimension (in.)													
	Valve Only	w/Gear Op.	A	B	C	D	E	F Top of Handle	F CL of H/Whl.	G	H	U	Y	Z	AA	BB
2 x 2	31	43	2	7.00	3.13	6.00	4.94	6.88	5.00	8.50	1.06	3.88	8	2.75	3.56	7.19
3 x 2	33	46	2	8.00	4.00	7.50	4.94	6.88	5.00	8.50	1.06	3.88	8	2.75	3.56	7.19
3 x 3	52	65	3	8.00	3.88	7.50	6.63	8.25	6.50	15.00	1.25	5.38	8	2.75	4.50	7.19
4 x 3	60	73	3	9.00	4.50	9.00	6.63	8.25	6.50	15.00	1.25	5.38	8	2.75	4.50	7.19
4 x 4	78	91	4	9.00	4.50	9.00	7.44	9.00	7.31	15.00	1.25	6.19	8	2.75	5.25	7.19
6 x 4	110	123	4	15.50	5.25	11.00	7.44	9.00	7.31	15.00	1.25	6.19	8	2.75	5.25	7.19
6 x 6	204	234	6	15.50	7.75	11.00	9.50	10.81	9.25	48.00	2.09	7.00	12	2.50	—	9.25
8 x 6	271	301	6	18.00	9.00	13.50	9.50	10.81	9.25	48.00	2.09	7.00	12	2.50	—	9.25
8 x 8	365	429	8	18.00	9.00	13.50	11.56	12.59	10.38	48.31	2.38	8.75	18	3.50	—	11.94
10 x 8	456	520	8	21.00	10.50	16.00	11.56	12.59	10.38	48.31	2.38	8.75	18	3.50	—	11.94
10 x 10	528	605	10	21.00	10.50	16.00	14.31	—	13.38	—	3.19	11.25	24	4.63	—	14.63
12 x 10	648	725	10	24.00	12.00	19.00	14.31	—	13.38	—	3.19	11.25	24	4.63	—	14.63
12 x 12	794	899	12	24.00	12.00	19.00	15.69	—	14.75	—	3.19	12.63	24	4.63	—	14.63

Size (in.)	Weight (kg)		Dimension (mm)													
	Valve Only	w/Gear Op.	A	B	C	D	E	F Top of Handle	F CL of H/Whl.	G	H	U	Y	Z	AA	BB
2 x 2	14.1	19.5	50.8	178	79.4	152	125.4	174.6	127	216.9	27.0	98.4	203.2	69.9	90.5	182.6
3 x 2	15.0	20.9	50.8	203	102	191	125.4	174.6	127	216.9	27.0	98.4	203.2	69.9	90.5	182.6
3 x 3	23.6	29.5	76.2	203	98.4	191	168.3	209.6	165	381	31.8	136.3	203.2	69.9	114.3	182.6
4 x 3	27.2	33.1	76.2	229	114.3	229	168.3	209.6	165	381	31.8	136.3	203.2	69.9	114.3	182.6
4 x 4	35.4	41.3	101.6	229	114.3	229	188.9	228.6	185.7	381	31.8	157.2	203.2	69.9	114.3	182.6
6 x 4	49.9	55.8	101.6	394	133.3	279	188.9	228.6	185.7	381	31.8	157.2	203.2	69.9	133.4	182.6
6 x 6	92.5	106.1	152	394	196.8	279	241	274.6	235.0	1219	53.2	177.8	304.8	63.5	133.4	235.0
8 x 6	122.9	136.5	152	457	229	342.9	241	274.6	235.0	1219	53.2	177.8	304.8	63.5	—	235.0
8 x 8	165.6	194.6	203	457	229	342.9	293.7	319.9	263.5	1227	60.3	222.3	457.2	88.9	—	303.2
10 x 8	206.8	235.9	203	533	267	406	293.7	319.9	263.5	1227	60.3	222.3	457.2	88.9	—	303.2
10 x 10	239.5	274.4	254	533	267	406	363.6	—	339.7	—	81.0	285.8	609.6	117.5	—	371.5
12 x 10	293.9	328.9	254	610	305	483	363.6	—	339.7	—	81.0	285.8	609.6	117.5	—	371.5
12 x 12	360.2	407.8	305	610	305	483	398.5	—	374.7	—	81.0	320.7	609.6	117.5	—	371.5

KF Series FAE Dimensional Data

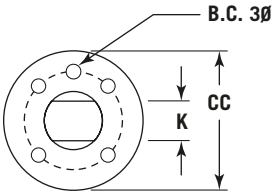


Dimensional Data (in., mm), 2"FP-12"FP, Class 300, API 6D & ASME B16.34

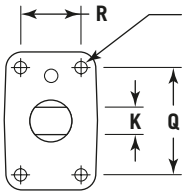
Size (in.)	Weight (lbs.) Valve Only	Weight (lbs.) w/Gear Op.	Dimension (in.) A	B	C	D	E	F Top of Handle	F CL of H/Whl.	G	H	U	Y	Z	AA	BB
2 x 2	35	48	2	8.50	4.25	6.50	4.94	6.88	5.00	8.50	1.06	3.88	8	2.75	3.56	7.19
3 x 2	42	55	2	11.13	5.56	8.25	4.94	6.88	5.00	8.50	1.06	3.88	8	2.75	3.56	7.19
3 x 3	63	76	3	11.13	6.00	8.25	6.63	8.25	6.50	15.00	1.25	5.38	8	2.75	4.50	7.19
4 x 3	83	96	3	12.00	6.00	10.00	6.63	8.25	6.50	15.00	1.25	5.38	8	2.75	4.50	7.19
4 x 4	114	127	4	12.00	6.00	10.00	7.44	9.00	7.31	15.00	1.25	6.19	8	2.75	5.25	7.19
6 x 4	160	173	4	15.88	7.94	12.50	7.44	9.00	7.31	15.00	1.25	6.19	8	2.75	5.25	7.19
6 x 6	282	312	6	15.88	7.94	12.50	9.50	10.81	9.25	48.00	2.09	7.00	14	2.50	—	9.38
8 x 6	352	382	6	19.75	9.88	15.00	9.50	10.81	9.25	48.00	2.09	7.00	14	2.50	—	9.38
8 x 8	481	545	8	19.75	9.88	15.00	11.56	12.59	10.38	48.31	2.38	8.75	18	3.50	—	11.94
10 x 8	597	661	8	22.38	11.19	17.50	11.56	12.59	10.38	48.31	2.38	8.75	18	3.50	—	11.94
10 x 10	735	840	10	22.38	11.19	17.50	14.31	—	13.38	—	3.19	11.25	24	4.63	—	14.63
12 x 10	904	1009	10	25.50	12.75	20.50	14.31	—	13.38	—	3.19	11.25	24	4.63	—	14.63
12 x 12	1083	1188	12	25.50	12.75	20.50	15.69	—	14.75	—	3.19	12.63	24	4.63	—	14.63

Size (in.)	Weight (kg) Valve Only	Weight (kg) w/Gear Op.	Dimension (mm) A	B	C	D	E	F Top of Handle	F CL of H/Whl.	G	H	U	Y	Z	AA	BB
2 x 2	15.9	21.8	50.8	215.9	108.0	165.1	125.4	174.6	127	216.9	27.0	98.4	203.2	69.9	90.5	182.6
3 x 2	19.1	24.9	50.8	282.6	141.3	209.6	125.4	174.6	127	216.9	27.0	98.4	203.2	69.9	90.5	182.6
3 x 3	28.6	34.5	76.2	282.6	152.4	209.6	168.3	209.6	165	381	31.8	136.3	203.2	69.9	114.3	182.6
4 x 3	37.6	43.5	76.2	304.8	152.4	254	168.3	209.6	165	381	31.8	136.3	203.2	69.9	114.3	182.6
4 x 4	51.7	57.6	101.6	304.8	152.4	254	188.9	228.6	185.7	381	31.8	157.2	203.2	69.9	114.3	182.6
6 x 4	72.6	78.5	101.6	403.2	201.6	317.5	188.9	228.6	185.7	381	31.8	157.2	203.2	69.9	133.4	182.6
6 x 6	127.9	141.5	152	403.2	201.6	317.5	241	274.6	235.0	1219	53.2	177.8	355.6	63.5	133.4	238.1
8 x 6	159.7	173.3	152	501.7	250.8	381	241	274.6	235.0	1219	53.2	177.8	355.6	63.5	—	238.1
8 x 8	218.2	247.2	203	501.7	250.8	381	293.7	319.9	263.5	1227	60.3	222.3	457.2	88.9	—	303.2
10 x 8	270.8	299.8	203	568.3	281.0	444.5	293.7	319.9	263.5	1227	60.3	222.3	457.2	88.9	—	303.2
10 x 10	333.4	381.0	254	568.3	281.0	444.5	363.6	—	339.7	—	81.0	285.8	609.6	117.5	—	371.5
12 x 10	410.0	457.7	254	647.7	323.9	520.7	363.6	—	339.7	—	81.0	285.8	609.6	117.5	—	371.5
12 x 12	491.2	538.9	305	647.7	323.9	520.7	398.5	—	374.7	—	81.0	320.7	609.6	117.5	—	371.5

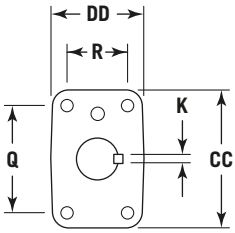
KF Series FAE Topworks & Stem Data (in., mm)



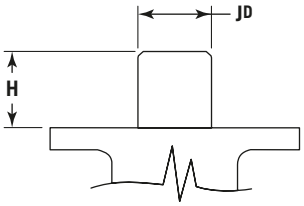
2"FP-6"RP
Flatted Stem



6"FP-10"RP
Flatted Stem



10"FP-12"FP
Stem w/Square Key

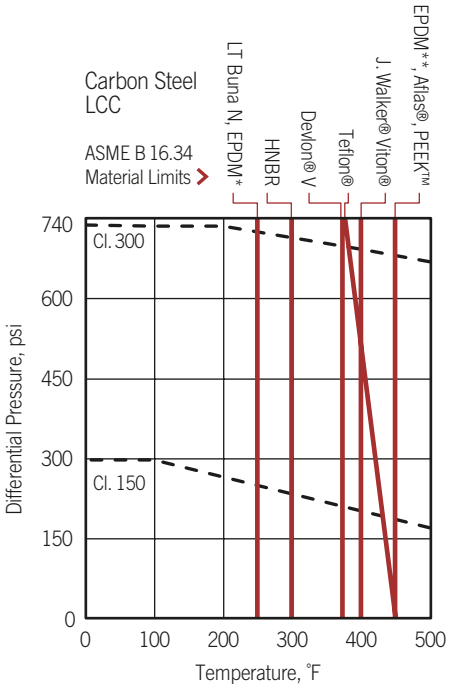


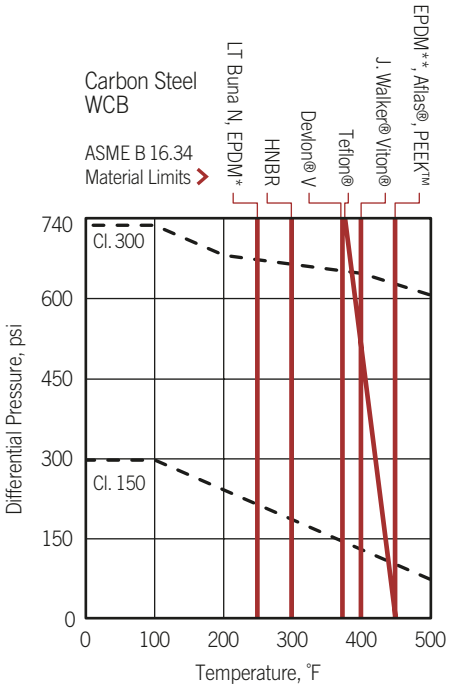
Bore Size (in.)	Pressure Class	Dimension (in.)								
		H	JD Stem Dia.	K	P Hole Depth	Q	R	S Threaded Hole	CC	DD
2	150	1.06	.873/.867	.558/.554	thru	—	—	—	4.13	—
2	300	1.06	.873/.867	.558/.554	—	—	—	—	4.13	—
3	150	1.25	1.246/1.240	.748/.744	—	—	—	—	4.13	—
3	300	1.25	1.246/1.240	.748/.744	—	—	—	—	4.13	—
4	150	1.25	1.246/1.240	.748/.744	—	—	—	—	4.13	—
4	300	1.25	1.246/1.240	.748/.744	—	—	—	—	4.13	—
6	150	2.09	1.999/1.995	1.249/1.245	.75	3.38	2.00	3/8-16	5.13	3.13
6	300	2.09	1.999/1.995	1.249/1.245	.75	4.50	2.38	1/2-13	5.63	3.50
8	150	2.38	2.499/2.495	1.749/1.745	1.00	4.63	2.88	1/2-13	6.25	4.13
8	300	2.38	2.499/2.495	1.749/1.745	1.00	4.63	2.88	1/2-13	6.25	4.13
10	150	3.19	2.874/2.871	.75 Sq.	1.13	6.00	3.50	5/8-11	7.50	5.00
10	300	3.19	2.874/2.871	.75 Sq.	1.13	6.00	3.50	5/8-11	7.50	5.00
12	150	3.19	2.874/2.871	.75 Sq.	1.13	6.00	3.50	5/8-11	7.50	5.00
12	300	3.19	2.874/2.871	.75 Sq.	1.13	6.00	3.50	5/8-11	7.50	5.00

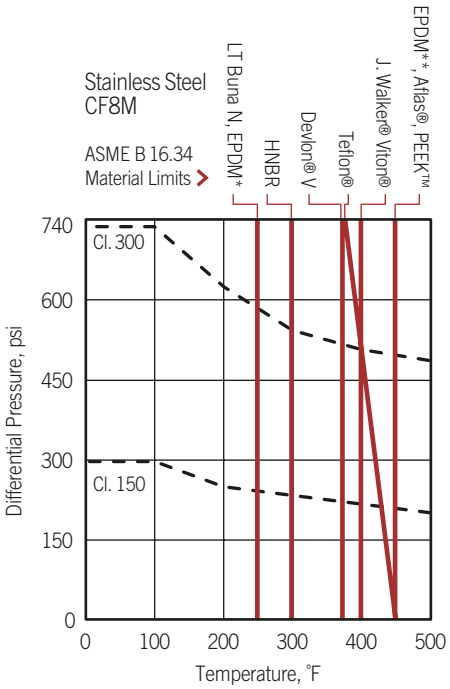
Bore Size (in.)	Pressure Class	Dimension (mm)								
		H	JD Stem Dia.	K	P Hole Depth	Q	R	S Threaded Hole	CC	DD
2	150	27.0	22.17/22.02	14.17/14.07	thru	—	—	—	104.8	—
2	300	27.0	22.17/22.02	14.17/14.07	—	—	—	—	104.8	—
3	150	31.8	31.65/31.50	19.00/18.90	—	—	—	—	104.8	—
3	300	31.8	31.65/31.50	19.00/18.90	—	—	—	—	104.8	—
4	150	31.8	31.65/31.50	19.00/18.90	—	—	—	—	104.8	—
4	300	31.8	31.65/31.50	19.00/18.90	—	—	—	—	104.8	—
6	150	53.2	50.77/50.67	31.72/31.62	19.1	85.7	50.8	3/8-16	130.2	79.4
6	300	53.2	50.77/50.67	31.72/31.62	19.1	114.3	60.3	1/2-13	142.9	88.9
8	150	60.3	63.47/63.37	44.42/44.32	25.4	117.5	73.0	1/2-13	158.8	104.8
8	300	60.3	63.47/63.37	44.42/44.32	25.4	117.5	73.0	1/2-13	158.8	104.8
10	150	81.0	73.00/72.92	19.1 Sq.	28.6	152.4	88.9	5/8-11	190.5	127
10	300	81.0	73.00/72.92	19.1 Sq.	28.6	152.4	88.9	5/8-11	190.5	127
12	150	81.0	73.00/72.92	19.1 Sq.	28.6	152.4	88.9	5/8-11	190.5	127
12	300	81.0	73.00/72.92	19.1 Sq.	28.6	152.4	88.9	5/8-11	190.5	127

KF Series FAE Engineering Data

Pressure Temperature







Note: Consult factory for service above 325°F.
*For chemical service. **For water and steam service only.

Low Temperature Limits

Body Material	°F	°C
LCC	-50	-45.6
WCB	-20	-28.9
CF8M	-50	-45.6

Seat Material	°F	°C
Devlon® V	-50	-45.6
Teflon®	-50	-45.6
HT4 (PEEK™)	-50	-45.6

Seal Material	°F	°C
Aflas®	+32	0
Low Temp Buna N	-50	-45.6
Viton®	-15	-26.1
J. Walker® Viton®	+10	-12.2
HNBR	-40	-40
EPDM	-50	-45.6
LT HNBR	-50	-45.6

Flow Coefficient (C_V)

Size (in.)	Class 150	Class 300
2FP	420	420
3RP	225	225
3FP	1050	1050
4RP	600	600
4FP	2000	2000
6RP	910	910
6FP	5470	5100
8RP	2500	2400
8FP	10,750	10,300
10RP	5000	4825
10FP	17,775	16,300
12RP	8400	8200
12FP	26,750	26,000

Method of Calculating Flow

The flow coefficient "C_V" of a valve is the flow rate of water (gallons/minute) through a fully opened valve, with a pressure drop of 1 psi across the valve. To find the flow of liquid through valve from the Cv, use the following formulas:

Liquid Flow

QL = Flow rate of liquid (gal./min.)
ΔP = Differential pressure across the valve (psi)
G = Specific gravity of liquid (for water, G=1)

$$QL = C_V\sqrt{\frac{\Delta P}{G}}$$

Gas Flow

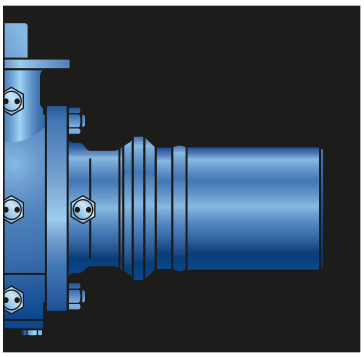
Qg = Flow rate of gas (CFH at STP)
P2 = Outlet pressure (psia)
g = Specific gravity of gas (for air, g=1.000)

$$Qg = 61C_V\sqrt{\frac{P2\,\Delta P}{g}}$$

For non-critical flow

$$\left\{\frac{\Delta P}{P2} < 1.0\right\}$$

KF Series FAE Optional Accessories & Installation



Pups

Buttweld valves may be supplied with transition pieces (PUPS) to avoid any risk of seat and seal damage during welding and post weld heat treatment operations. Length of pups and type of pipe and grade to be specified by customer.

Extensions

KF series FAE ball valves are available for below ground or buried service with fully operational extensions to meet your specifications. Body bleed and sealant injection functions are maintained along with total valve control by manual or powered actuators. Extension dimensions for gear operator or actuator are given with reference from the valve center line to the center of hand wheel.

Actuation

The bonnet design on KF series FAE ball valves permits easy adaptation to mount manual, electric, hydraulic or pneumatic actuators.

External Coating

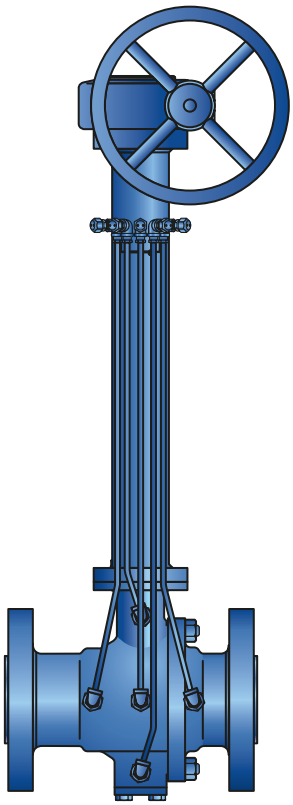
KF series FAE ball valves can be coated for added corrosion protection to meet specific application requirements. Coating is available upon request. Ask your KF Valves representative for more information on this special coating process.

Metal Seated Ball Valves

KF series FAE metal seated ball valves have been designed to provide a reliable, efficient and safe method to handle services where higher temperatures and/or the presence of solid particles in the fluid make it not recommended to use soft seated ball valves.

Subsea Options

Subsea valves are optionally available with coal tar epoxy coating (18 to 20 mils), xylan® coated bolting and subsea gear operators.



Installation

Flange Ends (RF)

- Series FAE ball valves may be mounted in either vertical or horizontal piping systems. The stem may be positioned vertically or horizontally.
- Mating flanges must be correctly aligned. Alignment includes bolt hole placement, parallelism and perpendicularity.
- Flange studs or bolting must be correct size and properly tightened.
- Properly constructed piping systems do not cause undo stress in valve assemblies. Valves are not intended to make up for insufficient pipe tolerances.

Weld Ends (WE)

- Keep ball in open position prior to installation/welding of KF series FAE weld end ball valves.
- Place the valve in position by aligning weld ends to the pipe. Prior to welding it is imperative that all welding surfaces be clean from contamination such as dirt, dust and grease which may affect weld performance.
- Caution: During the welding process, valve body temperatures should be monitored around the circumference at a location in line with the sealant injection fittings. The temperatures at this plane should be checked with temperature stick or other reliable temperature indicator and not allowed to exceed 300°F. This precaution is necessary to assure that non-metallic seals do not suffer heat damage.
- Tack weld valve in position and check for proper alignment.
- Finish weld following proper weld procedure for material grade and condition and the above caution.

KF Valves LLC is a market-leading, global provider of integrated flow control solutions, specializing in the manufacture of highly engineered valves for critical and severe service applications in the oil and gas, industrial, power generation, and process industries.

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