

XOMOX[®]

brands you trust.

TECHNICAL DATASHEET
XOMOX[®] FK Ball Valves
Type K21F - K23F



CRANE[®]

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Xomox® FK Ball Valves Features and Benefits

Soft-Seated Ball Valves According to ASME Standards

Xomox FK Valves are designed in accordance with ASME B16.34, API-608, API-6D, these ball valves feature a full-port split body design, and the option of a locking hand lever or an enclosed operating gear and hand wheel. Each valve is tested to API 598 as standard.

FEATURES INCLUDE:

- Full bore design
- Face-to-face dimension Long Pattern ASME B16.10
- Raised Face Flange dimension per ASME B16.5
- Self-relieving seats
- Fire tested API 607 6th edition & ISO 10497:2010
- Anti-static design (electrical continuity between ball-stem-body)
- Blow-out proof stem
- Actuator mounting flange according to ISO 5211
- Patented SX stem seal for side load protection
- Fugitive emissions per EPA Method-21, ISO-15848, & TA-Luft (VDI 2440)



Standard hand lever with locking device.

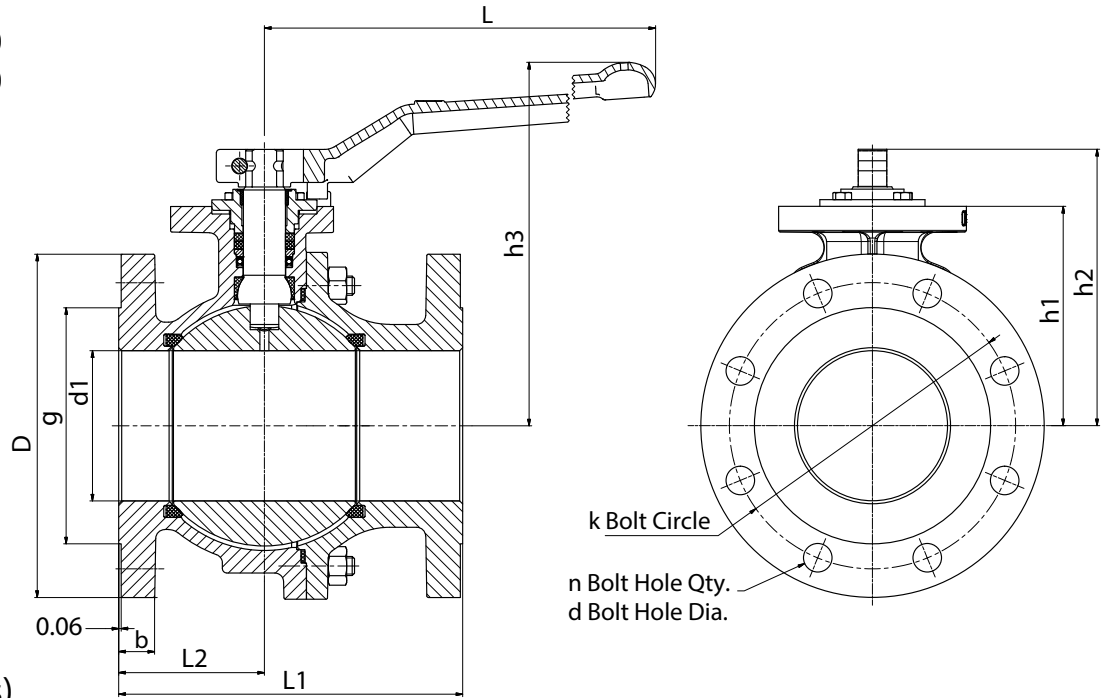
Scope of Supply

Class	Face-to-face Dimension	Dual-Certified Body Material
150	ASME B16.10	CF8M / 1.4408
300	ASME B16.10	CF8M / 1.4408
150	ASME B16.10	WCB / 1.0619
300	ASME B16.10	WCB / 1.0619

Class 150 & 300 Floating Ball Design Dimensions and Weights

K21F 1/2"-8" CL150

K23F 1/2"-8" CL300



CLASS 150 (Inches)

Size	DN	L1	L2	b	D Dia.	k Bolt Circle Dia.	n Bolt Hole Qty.	d Bolt Hole Dia.	g Dia.	d1 Dia.	ISO 5211 Pattern	Thread	h1	h2	h3	L	Bare Stem Weight lbs
1/2"	15	4.25	1.81	0.44	3.50	2.38	4	0.63	1.37	0.59	F05	M6	1.89	2.72	3.86	7.17	5.3
3/4"	20	4.61	1.97	0.50	3.88	2.75	4	0.63	1.69	0.79	F05	M6	2.09	2.89	4.02	7.17	6.4
1"	25	5.00	2.05	0.56	4.25	3.12	4	0.63	2.00	0.98	F05	M6	2.28	3.07	4.21	7.17	7.9
1 1/2"	40	6.50	2.80	0.69	5.00	3.88	4	0.63	2.87	1.50	F07	M8	3.23	4.33	5.94	11.02	17.6
2"	50	7.00	2.91	0.75	6.00	4.75	4	0.75	3.63	1.97	F07	M8	3.54	4.63	6.22	11.02	23.1
3"	80	8.00	3.39	0.94	7.50	6.00	4	0.75	5.00	3.07	F10	M10	5.00	6.50	8.78	17.72	51.0
4"	100	9.00	3.82	0.94	9.00	7.50	8	0.75	6.19	3.94	F10	M10	5.75	7.24	9.53	17.72	74.4
6"	150	15.50	7.76	1.00	11.00	9.50	8	0.87	8.50	5.94	F14	M16	8.35	10.24	12.72	28.35	215.5
8"	200	18.00	8.86	1.12	13.50	11.75	8	0.87	10.63	7.95	F14	M16	10.12	13.82	n/a	n/a	372.6

CLASS 300 (Inches)

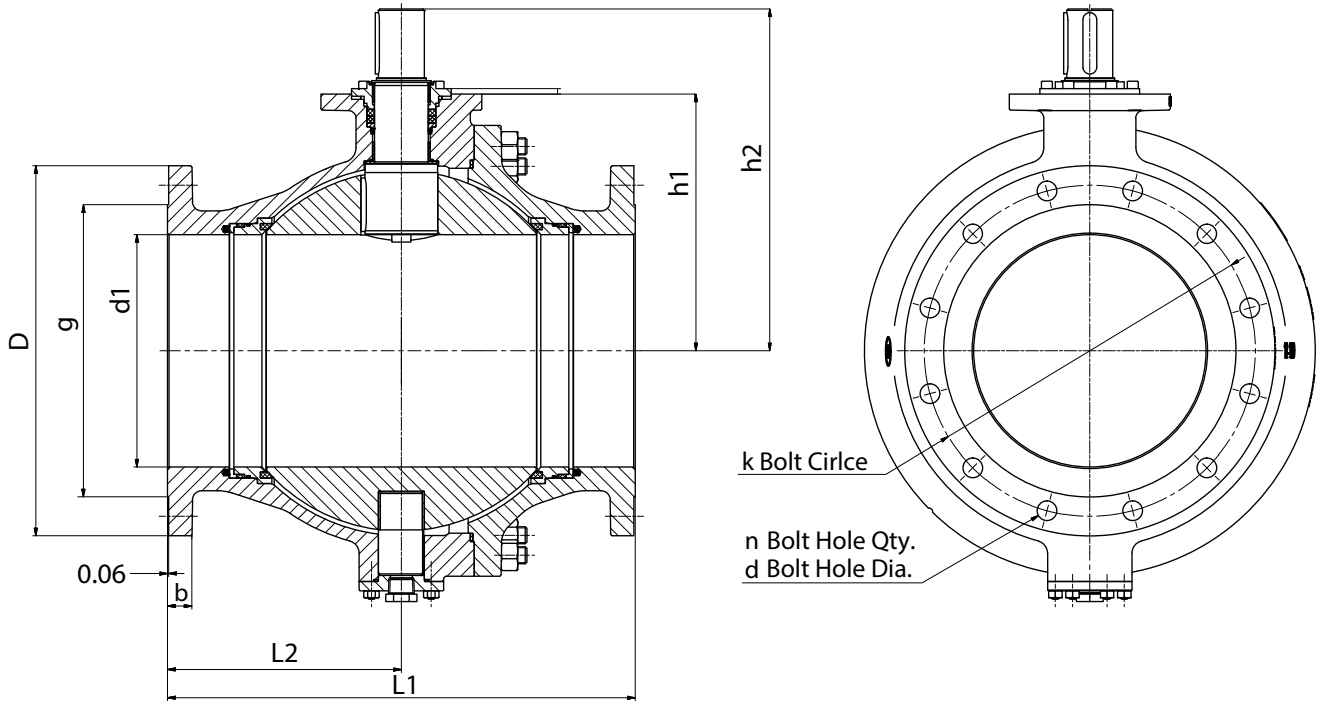
Size	DN	L1	L2	b	D Dia.	k Bolt Circle Dia.	n Bolt Hole Qty.	d Bolt Hole Dia.	g Dia.	d1 Dia.	ISO 5211 Pattern	Thread	h1	h2	h3	L	Bare Stem Weight lbs
1/2"	15	5.50	2.03	0.56	3.75	2.62	4	0.63	1.37	0.59	F05	M6	1.89	2.72	3.86	7.17	7.1
3/4"	20	6.00	2.11	0.62	4.62	3.25	4	0.75	1.69	0.79	F05	M6	2.09	2.89	4.02	7.17	9.7
1"	25	6.50	2.28	0.69	4.88	3.50	4	0.75	2.00	0.98	F05	M6	2.28	3.07	4.21	7.17	11.2
1 1/2"	40	7.50	2.99	0.81	6.12	4.50	4	0.87	2.87	1.57	F07	M8	3.23	4.33	5.94	11.02	24.7
2"	50	8.50	3.19	0.88	6.50	5.00	8	0.75	3.63	1.97	F07	M8	3.54	4.63	6.22	11.02	29.5
3"	80	11.12	3.90	1.12	8.25	6.62	8	0.87	5.00	3.15	F10	M10	5.00	6.50	8.78	17.72	67.4
4"	100	12.00	4.41	1.25	10.00	7.88	8	0.87	6.19	3.94	F10	M10	5.75	7.24	9.53	17.72	108.4
6"	150	15.88	7.95	1.44	12.50	10.62	12	0.87	8.50	5.94	F14	M16	8.35	10.40	n/a	n/a	302.0
8"	200	19.75	9.88	1.62	15.00	13.00	12	1.00	10.63	7.95	F16	M20	10.08	14.45	n/a	n/a	515.9

For actuation dimensions see pages 8 and 9.

Class 150 & 300 Trunnion Ball Design Dimensions and Weights

K21F-T 10"-12" CL150

K23F-T 10"-12" CL300



CLASS 150 (Inches)

Size	DN	L1	L2	b	D Dia.	k Bolt Circle Dia.	n Bolt Hole Qty.	d Bolt Hole Dia.	g Dia.	d1 Dia.	ISO 5211 Pattern	Thread	h1	h2	Bare Stem Weight lbs
10"	250	21.00	8.74	1.19	16.00	14.25	12	1.00	12.75	9.92	F14	M16	11.81	15.51	613
12"	300	24.00	12.01	1.25	19.00	17.00	12	1.00	15.00	11.93	F16	M20	13.19	17.56	1014

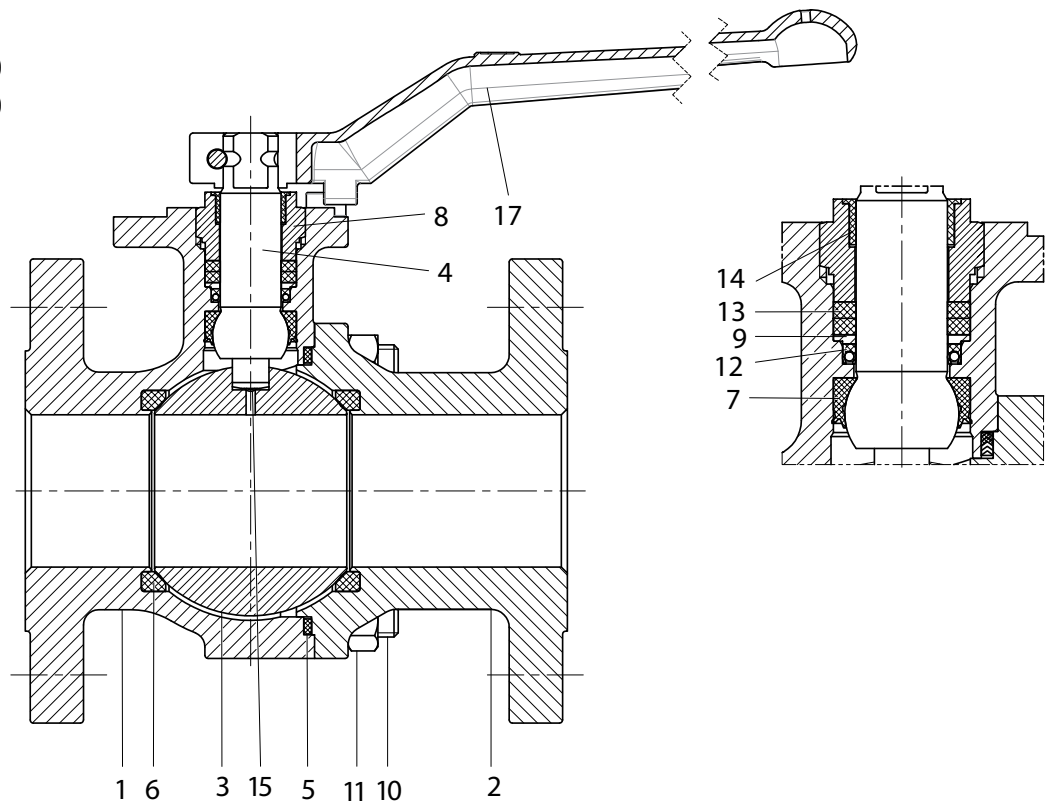
CLASS 300 (Inches)

Size	DN	L1	L2	b	D Dia.	k Bolt Circle Dia.	n Bolt Hole Qty.	d Bolt Hole Dia.	g Dia.	d1 Dia.	ISO 5211 Pattern	Thread	h1	h2	Bare Stem Weight lbs
10"	250	22.38	9.37	1.88	17.50	15.25	16	1.13	12.75	9.92	F16	M20	11.22	15.59	836
12"	300	25.50	12.76	2.00	20.50	17.75	16	1.25	15.00	11.93	F25	M16	13.19	18.82	1310

For actuation dimensions see pages 8 and 9.

Floating Ball Design **Materials of Construction**

K21F 1/2"-3" CL150
K23F 1/2"-3" CL300

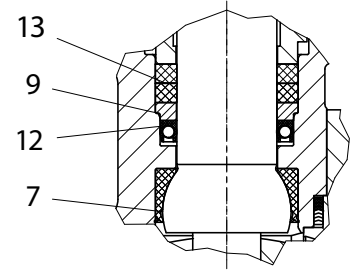
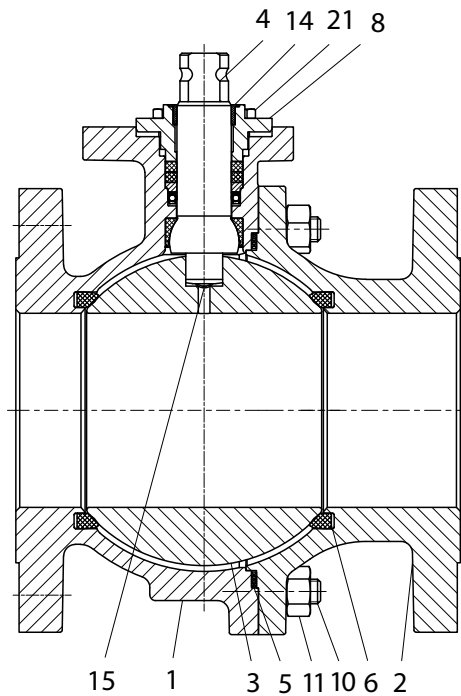


Item	Description	Carbon Steel	Stainless Steel
1	Body	ASTM A216 Gr WCB	ASTM A351 Gr. CF8M
2	Tail	ASTM A216 Gr WCB	ASTM A351 Gr. CF8M
3	Ball	316ss	316ss
4	Stem	UNS S31803	UNS S31803
5	Body Gasket	PTFE/Graphite/316ss	PTFE/Graphite/316ss
6	Seat	TFM	TFM
7	SX Stem Seal	TFM	TFM
8	Packing Gland	UNS S31803	UNS S31803
9	Support Ring	316ss	316ss
10	Stud	ASTM A193 Gr. B7	ASTM A193 Gr. B8M Cl.2
11	Heavy hex nut	ASTM A194 Gr. 2H	ASTM A194 Gr. 8M
12	Spring energized Lip Seal	PTFE Filled/SST	PTFE Filled/SST
13	Packing	Graphite	Graphite
14	Guide bushing	PTFE-Carbon filled	PTFE-Carbon filled
15	Anti-static spring	SST	SST
*16	Stop Pin	316ss	316ss
17	Hand lever	316ss	316ss
*18	Socket Head Cap Screw	316ss	316ss
*19	Hex Nut	316ss	316ss
*20	Locking pin with Ring	316ss	316ss

*not shown

Floating Ball Design **Materials of Construction**

K21F 4"-8" CL150
K23F 4"-8" CL300

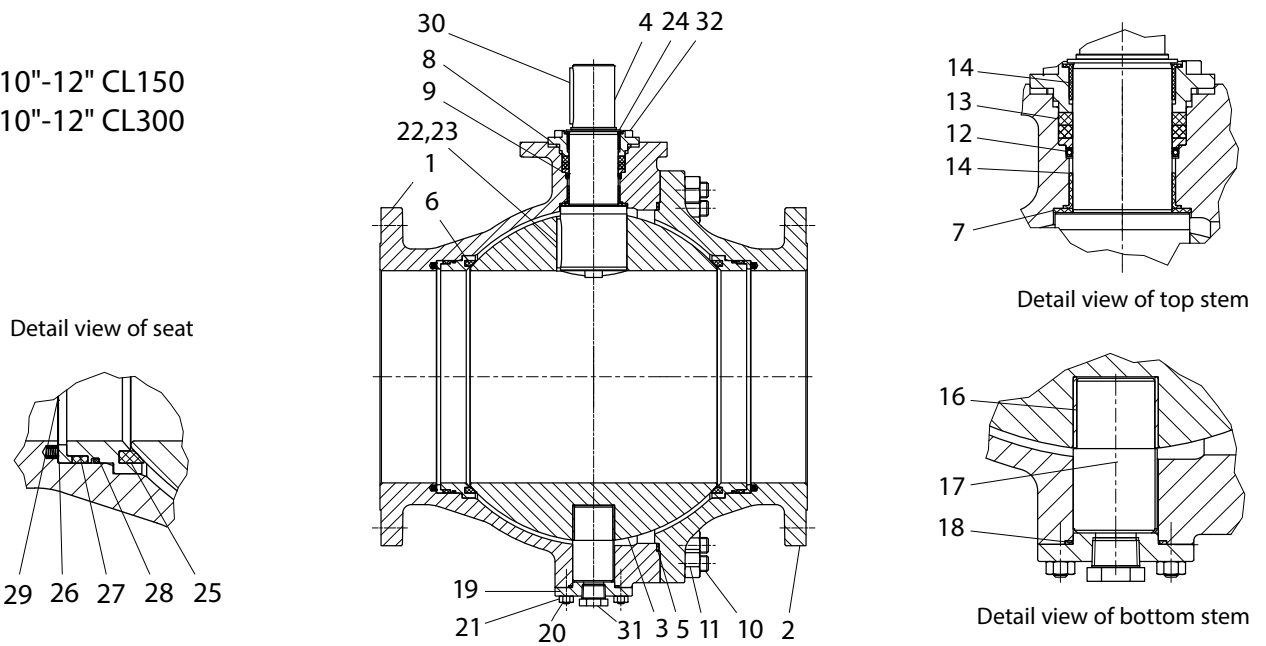


Item	Description	Carbon Steel	Stainless Steel
1	Body	ASTM A216 Gr WCB	ASTM A351 Gr. CF8M
2	Tail	ASTM A216 Gr WCB	ASTM A351 Gr. CF8M
3	Ball	316ss	316ss
4	Stem	UNS S31803	UNS S31803
5	Body Gasket	PTFE/Graphite/316ss	PTFE/Graphite/316ss
6	Seat	TFM	TFM
7	SX Stem Seal	TFM	TFM
8	Packing Gland	316ss	316ss
9	Support Ring	316ss	316ss
10	Stud	ASTM A193 Gr. B7	ASTM A193 Gr. B8M Cl.2
11	Heavy hex nut	ASTM A194 Gr. 2H	ASTM A194 Gr. 8M
12	Spring energized Lip Seal	PTFE Filled/SST	PTFE Filled/SST
13	Packing	Graphite	Graphite
14	Guide bushing	PTFE-Carbon filled	PTFE-Carbon filled
15	Anti-static spring	SST	SST
*16	Stop Pin	316ss	316ss
*17	Hand lever	316ss	316ss
*18	Socket Head Cap Screw	316ss	316ss
*19	Hex nut	316ss	316ss
*20	Locking pin with ring	316ss	316ss
21	Packing Adjustment Bolt	ASTM A193 Gr. B8M Cl.2	ASTM A193 Gr. B8M Cl.2

*not shown

Trunnion Ball Design Materials of Construction

K21F-T 10"-12" CL150
K23F-T 10"-12" CL300



Item	Description	Carbon Steel	Stainless Steel
1	Body	ASTM A216 Gr WCB	ASTM A351 Gr. CF8M
2	Tail	ASTM A216 Gr WCB	ASTM A351 Gr. CF8M
3	Ball	316ss	316ss
4	Stem	UNS S31803	UNS S31803
5	Body Gasket	PTFE/Graphite/316ss	PTFE/Graphite/316ss
6	Seat	TFM	TFM
7	Stem Seal	TFM	TFM
8	Packing Gland	316ss	316ss
9	Support Ring	316ss	316ss
10	Stud	ASTM A193 Gr. B7	ASTM A193 Gr. B8M Cl.2
11	Heavy hex nut	ASTM A194 Gr. 2H	ASTM A194 Gr. 8M
12	Spring energized Lip Seal	PTFE Filled/SST	PTFE Filled/SST
13	Packing	Graphite	Graphite
14	Flange bearing	Reinforced Thermoplastic	Reinforced Thermoplastic
16	Sleeve bearing	Reinforced Thermoplastic	Reinforced Thermoplastic
17	Bottom Stem	316ss	316ss
18	Gasket	PTFE/Graphite/316ss	PTFE/Graphite/316ss
19	Cover	ASTM A105	316ss
20	Stud	ASTM A193 Gr. B7	A193 Gr. B8M Cl.2
21	Heavy hex nut	ASTM A194 Gr.2H	A194 Gr. 8M
22	Parallel key	316ss	316ss
23*	Socket Head Cap Screw	316ss	316ss
24	Retaining ring	SST	SST
25	Seat Retaining ring	316ss	316ss
26	L-Ring	316ss	316ss
27	Seal Ring	Graphite	Graphite
28	O-Ring	Viton	Viton
29	Spring	SST	SST
30	Parallel Key	316ss	316ss
31	Pipe plug	316ss	316ss
32	Packing Adjustment Bolt	ASTM A193 Gr. B8M Cl.2	ASTM A193 Gr. B8M Cl.2

* Not shown, only used on 12" CL300, K23F-T

Actuator Mounting Dimensions

Figure 1

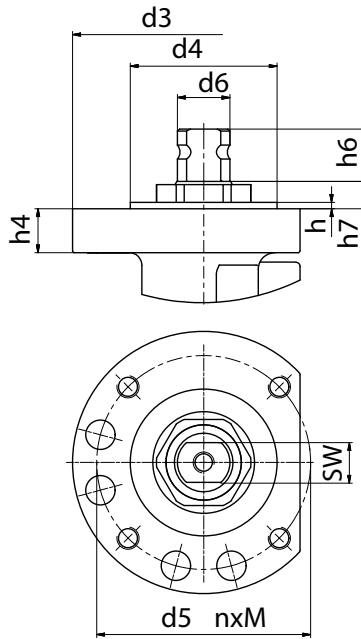


Figure 2

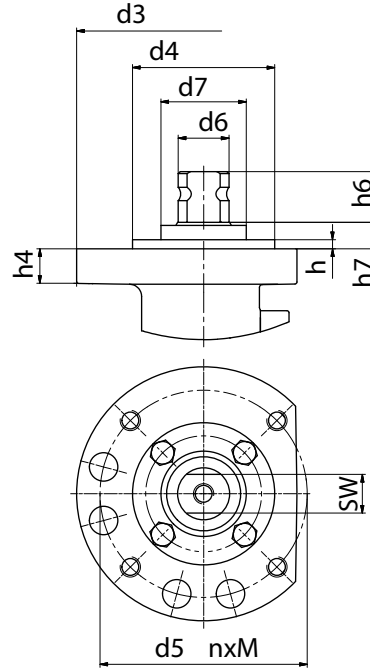


Figure 3

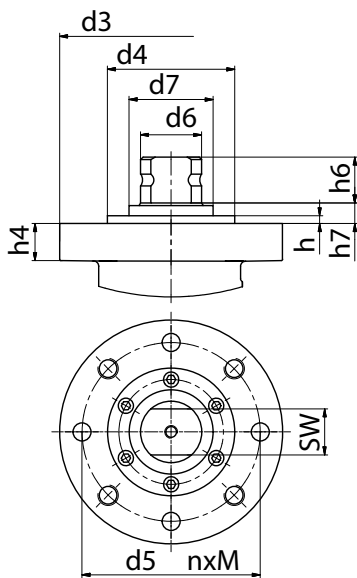


Figure 4

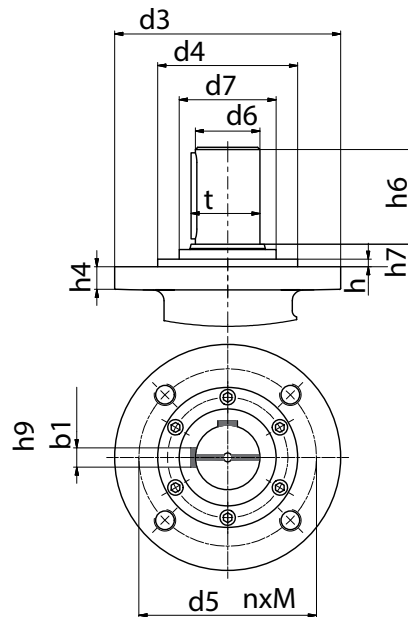
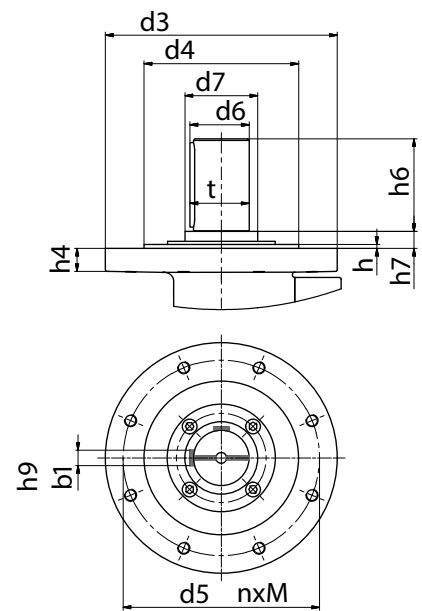


Figure 5



Actuator Mounting Dimensions

Dimensions (Inches)				ISO 5211 Mounting Dimension													
Size	DN	Class	Figure	ISO 5211	d3	d5 (Bolt Circle)	n Qty.	M	d4	SW	d6	h	d7	h4	h6	h7	Stem end connection
½"	15	150/300	1	F05	2.56	1.97	4	M6	1.38	0.433	0.55	0.08	-	0.35	0.47	0.35	Double D
¾"	20	150/300	1	F05	2.56	1.97	4	M6	1.38	0.433	0.55	0.08	-	0.35	0.47	0.35	Double D
1"	25	150/300	1	F05	2.56	1.97	4	M6	1.38	0.433	0.55	0.08	-	0.35	0.47	0.35	Double D
1½"	40	150/300	1	F07	3.54	2.76	4	M8	2.17	0.551	0.71	0.12	-	0.31	0.71	0.39	Double D
2"	50	150/300	1	F07	3.54	2.76	4	M8	2.17	0.551	0.71	0.12	-	0.39	0.71	0.39	Double D
3"	80	150/300	1	F10	4.92	4.02	4	M10	2.76	0.748	0.98	0.12	-	0.83	0.98	0.51	Double D
4"	100	150/300	2	F10	4.92	4.02	4	M10	2.76	0.748	0.98	0.24	1.65	0.67	0.98	0.51	Double D
6"	150	150	3	F14	6.89	5.51	4	M16	3.94	1.063	1.42	0.28	2.32	0.87	1.26	0.63	Double D
6"	150	300	3	F14	6.89	5.51	4	M16	3.94	1.417	1.89	0.28	2.60	1.14	1.42	0.63	Double D
8"	200	150	4	F14	6.89	5.51	4	M16	3.94	-	1.89	0.31	2.60	0.67	2.99	0.71	2 Keys
8"	200	300	4	F16	8.27	6.50	4	M20	5.12	-	2.36	0.31	3.54	0.83	3.54	0.83	2 Keys
10"	250	150	4	F14	6.89	5.51	4	M16	3.94	-	1.89	0.31	2.60	0.87	3.07	0.63	2 Keys
10"	250	300	4	F16	8.27	6.50	4	M20	5.12	-	2.36	0.31	3.54	0.83	3.54	0.83	2 Keys
12"	300	150	4	F16	8.27	6.50	4	M20	5.12	-	2.36	0.31	3.54	0.83	3.54	0.83	2 Keys
12"	300	300	5	F25	11.81	10.00	8	M16	7.87	-	2.83	0.20	3.70	1.18	4.70	0.91	2 Keys

Keyway Dimensions - Actuator Mounting Figures 4 & 5 (Inches)

Size	DN	Class	Figure	b1 Key	b1 Tolerance	h9 Keyway	h9 Tolerance	t Key Standout	Stem end connection
8"	200	150	4	0.551	-0.001 / -0.002	0.551	0.000 / -0.002	2.028	2 Keys
8"	200	300	4	0.709	-0.001 / -0.002	0.709	0.000 / -0.002	2.520	2 Keys
10"	250	150	4	0.551	-0.001 / -0.002	0.551	0.000 / -0.002	2.028	2 Keys
10"	250	300	4	0.709	-0.001 / -0.002	0.709	0.000 / -0.002	2.520	2 Keys
12"	300	150	4	0.709	-0.001 / -0.002	0.709	0.000 / -0.002	2.520	2 Keys
12"	300	300	5	0.787	-0.001 / -0.003	0.787	0.000 / -0.002	3.012	2 Keys

Valve Torque – Cv

Valve Torque: IN - LBS

Size	½"	¾"	1"	1½"	2"	3"	4"	6" CL150	6" CL300	8" CL150	8" CL300	10" CL150	10" CL300	12" CL150	12" CL300
DN	15	20	25	40	50	80	100	150	150	200	200	250	250	300	300
Class 150	71	71	80	252	372	664	1,018	3,540	-	7,081	-	8,408	-	14,161	-
Class 300	71	89	106	354	487	885	1,239	-	7,081	-	16,816	-	16,816	-	25,667

Break torque at max. pressure drop for Lubricating Fluids in clear/clear service conditions (i.e water, oil at 100°F)

IMPORTANT!! If Non-Lubrication medias (i.e. Gases, Benzine), slurry's or adhesive medias are used, increasing torque values have to be considered.

Torque Factors for Actuation:

Break = 100%

Run = 70%

Seat = 90%

Maxium Allowable Stem Torque: IN - LBS

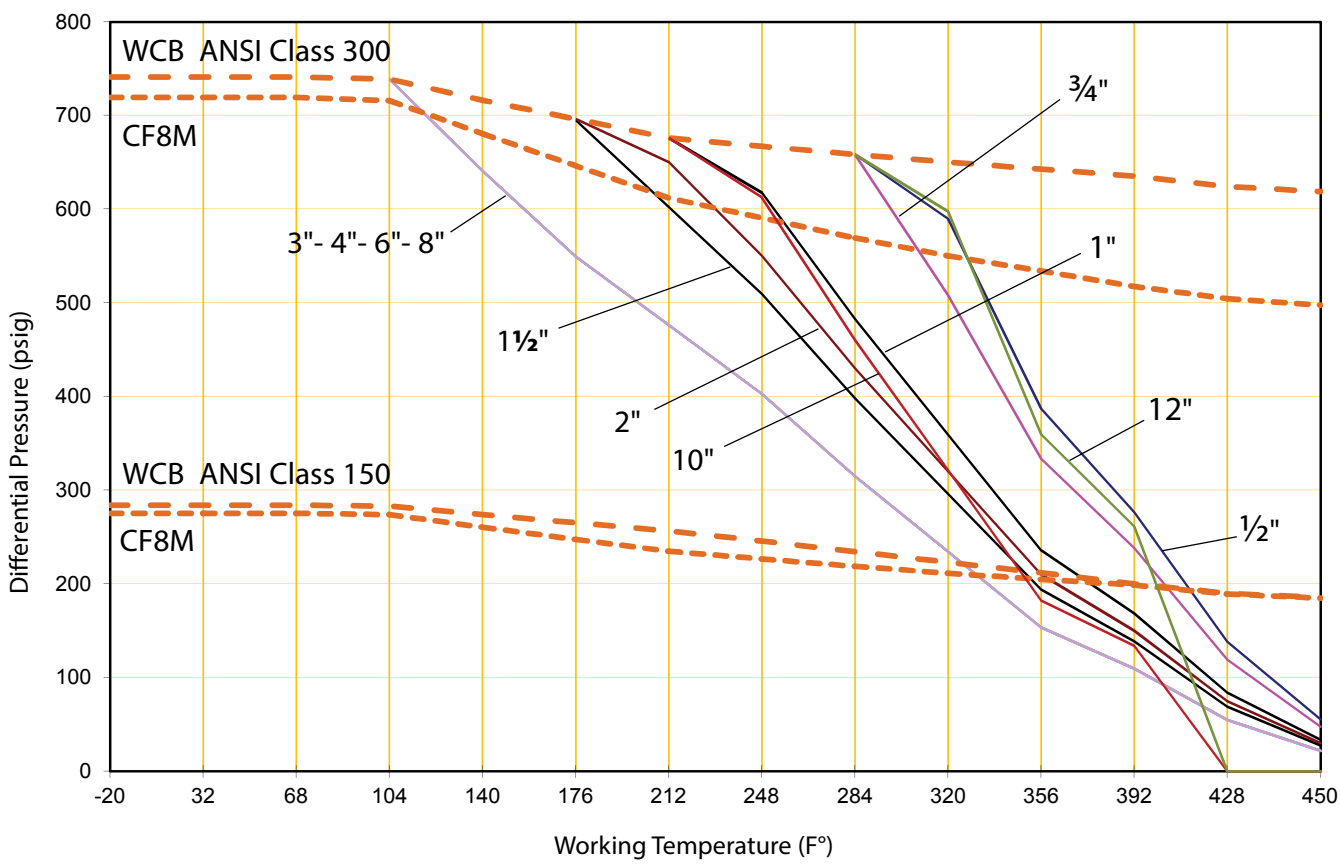
Size	½"	¾"	1"	1½"	2"	3"	4"	6" CL150	6" CL300	8" CL150	8" CL300	10" CL150	10" CL300	12" CL150	12" CL300
DN	15	20	25	40	50	80	100	150	150	200	200	250	250	300	300
Stem MAST	558	752	752	1,151	1,593	4,425	4,425	14,161	26,552	21,242	38,943	21,242	38,943	47,794	70,806

Cv Factors

Size	DN	Kv	Cv
1/2"	15	26	30
3/4"	20	48	55
1"	25	82	95
1-1/2"	40	225	260
2"	50	424	490
3"	80	1125	1300
4"	100	1903	2200
6"	150	4801	5550
8"	200	8737	10100
10"	250	14186	16400
12"	300	20933	24200

Pressure / Temperature Range

Maximum allowable pressure (PSI)
(Based on standard TFM seats).



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