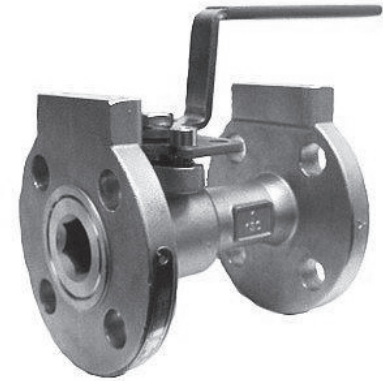


F90/91 SERIES Ball Valve

Milwaukee Valve Company

F90/91CS/SS Class 150/300



Unibody Standard Port Flanged Ball Valve

Features and Benefits

- Locking Lever for Safety Lockout
- 2 Bolt Adjustable Stem Packing Arrangement for Longer Packing Life
- Vented Ball in Ball Slot for Cavity Venting
- Optional Grounded Ball and Stem
- Four Bolt Actuator Mounting Pad for Easy Actuation
- NACE Compliant for Sour Gas Service
- Blow-out Proof Stem Design
- Fire-safe to API 607 (F91)
- Pressure Relieving Seat Design
- Meets API, ASTM, ASME and MSS Standards

Operators Available

- Locking Lever Handle, Oval Handle, Gear Operated
- Pneumatic and Electric Actuation

Materials of Construction

- Body: Carbon Steel or CF8M Stainless Steel
- Ball: 316 Stainless Steel
- Stem: 316 Stainless Steel
- Seats: STD (NXT-75) or Multi-Fil PTFE
- Packing: Graphite or PTFE

Specifications

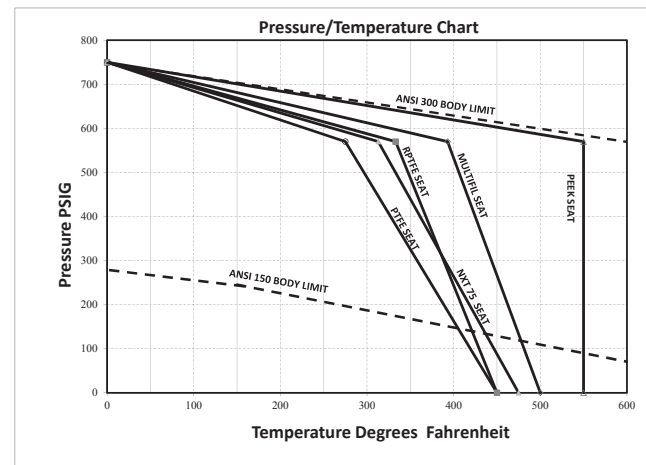
- Valves Sizes 1/2" through 6"
- ASME/ANSI Class 150/300
- Meets ASME B16.34 Design
- Valves Meet API 608
- Valves Meet API 607 for Fire-Safe Testing (F91)
- Valves Tested to API 598 and MSS SP-72
- Valves Meet NACE MRO175

Pressure Ratings:	Class 150	Class 300
Carbon Steel	285 psi	740 psi
Stainless Steel	275 psi	720 psi

Valve is Rated 150 psi Steam @ 350°F.
Multi-Fil PTFE Suitable for Steam
Applications > 150 psi.

TORQUE & CV VALUES

Valve Size	Class 150 (0-300 PSID) Recommended Actuator Torque (in. lbs. Nm)	Class 300 (301-740 PSID) Recommended Actuator Torque (in. lbs. Nm)	Cv	Valve Size	Class 150 (0-300 PSID) Recommended Actuator Torque (in. lbs. Nm)	Class 300 (301-740 PSID) Recommended Actuator Torque (in. lbs. Nm)	Cv
1/2	40 4.5	40 4.5	15	2	240 27.1	300 33.9	120
3/4	60 6.8	60 6.8	25	3	500 56.6	750 84.8	460
1	125 14.1	125 14.1	37	4	900 101.8	1000 113.1	640
1 1/2	190 21.5	190 21.5	90	6	1900 214.9	3525 398.8	1025



How To Order Milwaukee Valve F90/F91 Series Unibody Flanged Ball Valve

Valve Series	Body Material	Ball/Stem Material	End Connection	Port Size	Seat Material	External Options	Internal Options	Size
XXX	X	X	XXX	X	XX	XXX	XX	XXX
F90 Non-fire-safe F91 Fire safe	C-Carbon Steel (WCB) S-Stainless Steel (CF8M) M-Monel H-Hastalloy-C	C-Carbon Steel (WCB) S-Stainless Steel (CF8M) M-Monel H-Hastalloy-C	150 = ANSI 150 Flanged 300 = ANSI 300 Flanged	R = Standard Port	N1 -NXT 1-Virgin PTFE 2-Reinforced PTFE 3-Multi-Fil PTFE (Steam Seat 250 psi) 06-Peek	OS-Stainless Oval XH-Extended Handle OH-Carbon Oval XLH-Extended Locking GO- Gear Operator	AD-Assemble Dry CC-Chlorine Cleaned OC-Oxygen Cleaned GB-Grounded Ball VB-Vented Ball	1/2 3/4 1 112 2 3 4 6

Example Product Numbers

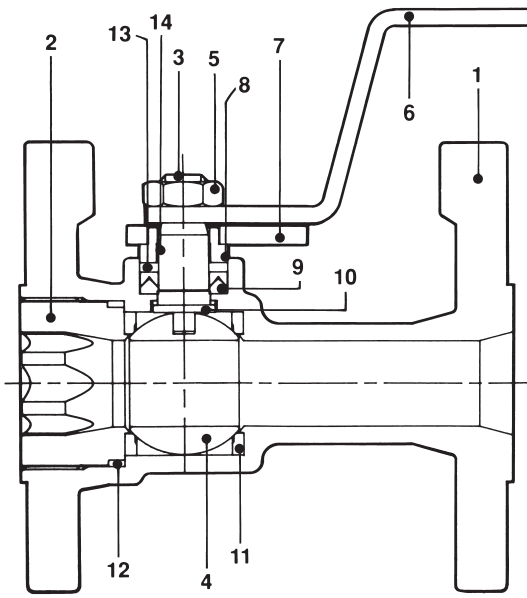
F91CS150RN1 100 - (1" Class Fire-safe, Flanged 150 Carbon Steel Body, Stainless Trim, NXT Seats, Lever)

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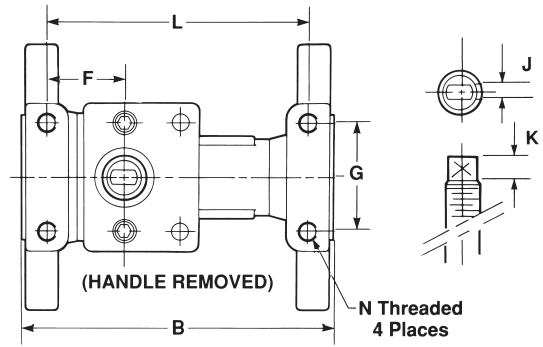
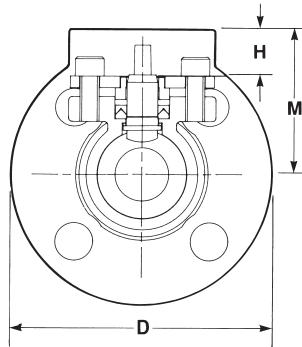
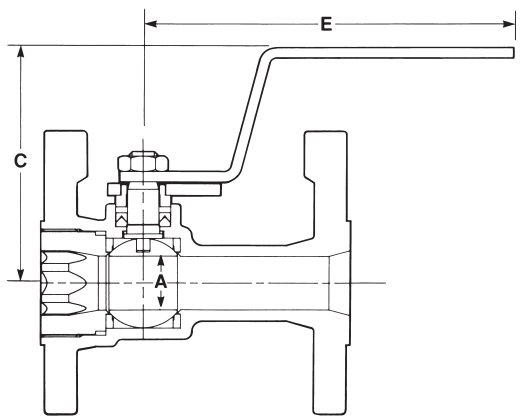
⚠ State of California Prop 65 **WARNING:** Cancer and Reproductive Harm. For more information visit www.p65warnings.ca.gov.



F90/91SS150/300, F90/91CC150/300 AND F90/91CS150/300 FLANGED-END BALL VALVE



Item	Qty.	Description	F90 Class 150/300
1	1	Body	SS ASTM A351/A744 GR CF8M
			CS ASTM A216 GR WCB
2	1	Ball Retainer	SS ASTM A351/A744 GR CF8M
			CS ASTM A216 GR WCB
3	1	Stem	SS ASTM A276 Type 316
4	1	Ball	SS ASTM 276 Type 316
5	1	Handle Nut	SS 18-8
6	1	Handle	1/2"-2" SS Type 304
			3"-6" Ductile Iron
7	1	Packing Plate	1/2"-1" SS Type 304
8	1	Gland Follower	SS Type 304
9	1	Packing	(F90) PTFE
			(F91) Graphoil
10	1	Thrust Washer	NXT 75
11	2	Seat (NXT Standard)	NXT 75
12	1	Retainer Seal	PTFE
13	1	Ground Washer	Graphite
14	1	Bearing, Gland Follower	RPTFE



ANSI 150 LB. - DIMENSIONS - INCHES AND MILLIMETERS (90/91 - SERIES BALL VALVES)

SIZE	A		B		C		D		E		F		G		H		J		K		L		M		N
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	
1/2"	0.50	13	4.25	108	2.50	64	3.50	89	5.06	129	0.81	21	1.75	44	0.71	18	0.20	5	0.32	8	2.88	73	1.88	48	5/16 - 18
3/4"	0.69	18	4.62	117	3.65	93	3.88	99	5.97	152	0.94	24	1.75	44	0.57	15	0.28	7	0.48	12	3.13	80	2.06	52	5/16 - 18
1"	0.88	22	5.00	127	3.80	97	4.25	108	5.97	152	1.25	32	1.75	44	0.82	21	0.28	7	0.48	12	4.19	106	2.46	63	5/16 - 18
1-1/2"	1.25	32	6.50	165	4.77	121	5.00	127	8.85	225	1.81	46	1.75	44	0.06	2	0.45	12	0.63	16	5.63	143	2.50	64	5/16 - 18
2"	1.50	38	7.00	178	4.72	120	6.00	152	8.85	225	2.07	52	2.25	57	0.31	8	0.45	12	0.63	16	6.19	157	3.00	76	5/16 - 18
3"	2.31	59	8.00	203	6.80	172	7.50	191	11.00	279	3.09	79	3.50	89	0.34	9	0.45	12	1.20	31	7.13	181	3.75	95	3/8 - 16
4"	3.12	79	9.00	229	7.96	202	9.00	229	14.12	359	3.92	100	4.00	102	0.30	8	0.66	17	1.35	34	8.00	203	5.27	134	7/16 - 14
6"	4.50	114	10.50	267	9.44	240	11.00	279	18.00	457	4.70	119	4.00	102	0.58	15	0.91	23	1.88	48	9.44	240	6.63	168	7/16 - 14

ANSI 300 LB. - DIMENSIONS - INCHES AND MILLIMETERS (90/91 - SERIES BALL VALVES)

SIZE	A		B		C		D		E		F		G		H		J		K		L		M		N
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	
1/2"	0.50	13	5.50	140	2.50	64	3.75	95	5.06	129	0.81	21	1.75	44	0.71	18	0.20	5	0.32	8	4.00	102	1.88	48	5/16 - 18
3/4"	0.69	18	6.00	152	3.65	93	4.62	117	5.97	152	0.94	24	1.75	44	0.84	21	0.28	7	0.48	12	4.38	111	2.31	59	5/16 - 18
1"	0.88	22	6.50	165	3.80	97	4.88	124	5.97	152	1.25	32	1.75	44	0.91	23	0.28	7	0.48	12	5.69	145	2.56	65	5/16 - 18
1-1/2"	1.25	32	7.50	191	4.77	121	6.12	155	8.85	225	1.81	46	1.75	44	0.62	16	0.45	12	0.63	16	6.56	167	3.06	78	5/16 - 18
2"	1.50	38	8.50	216	4.72	120	6.50	165	8.85	225	1.97	50	2.25	57	1.10	28	0.45	12	0.63	16	7.50	191	3.80	97	5/16 - 18
3"	2.31	59	11.12	282	6.80	172	8.25	209	11.00	279	2.91	74	3.50	89	1.18	30	0.45	12	1.20	31	9.88	251	4.60	117	3/8 - 16
4"	3.12	79	12.00	305	7.96	202	10.00	254	14.12	359	3.92	100	4.00	102	0.80	20	0.66	17	1.35	34	10.68	271	5.77	147	7/16 - 14
6"	4.50	114	15.88	403	9.44	240	12.50	318	18.00	457	4.70	119	4.00	102	1.11	28	0.91	23	1.88	48	14.38	365	7.38	188	7/16 - 14

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