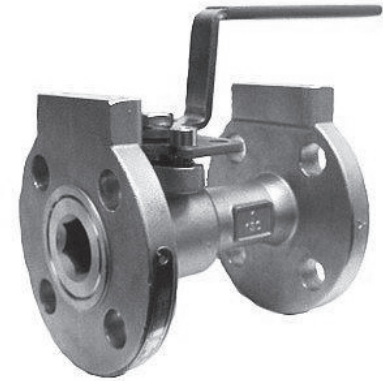


F90/91 SERIES Ball Valve

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

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

Operators Available

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

Materials of Construction

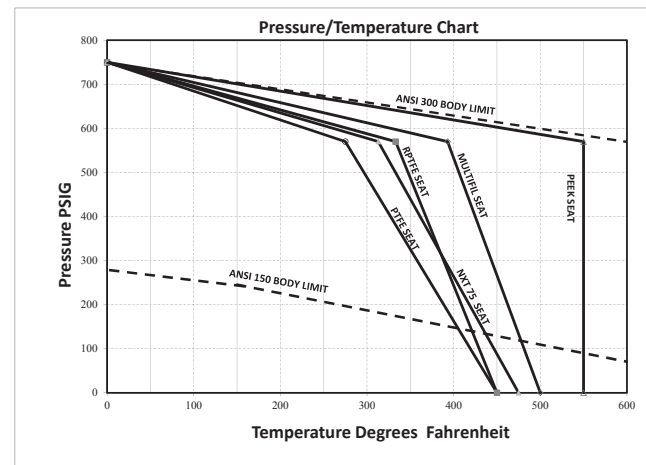
- Body: Carbon Steel or CF8M Stainless Steel
- Ball: 316 Stainless Steel
- Stem: 316 Stainless Steel
- Seats: STD (NXT-75) or Multi-Fil PTFE
- Packing: Graphite or PTFE

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

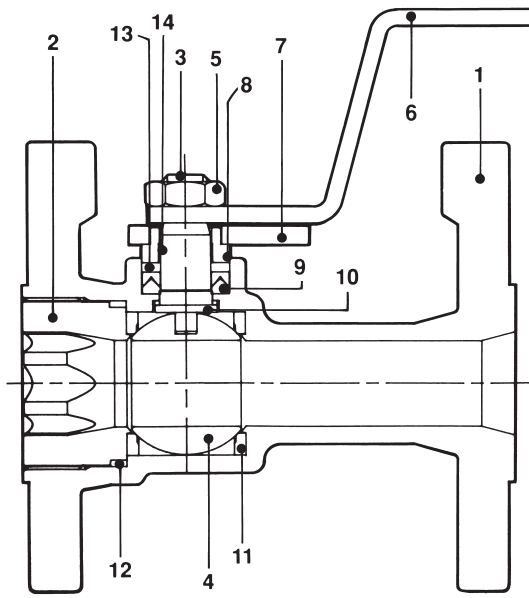
F91CS150RN1 100 - (1" Class Fire-safe, Flanged 150 Carbon Steel Body, Stainless Trim, NXT Seats, Lever)

The information presented on this sheet is correct at time of publication. Milwaukee Valve reserves the right to change design and/or materials without notice. For our Installation, Operation and Maintenance Manual and the most current product information go to www.milwaukeevalve.com.

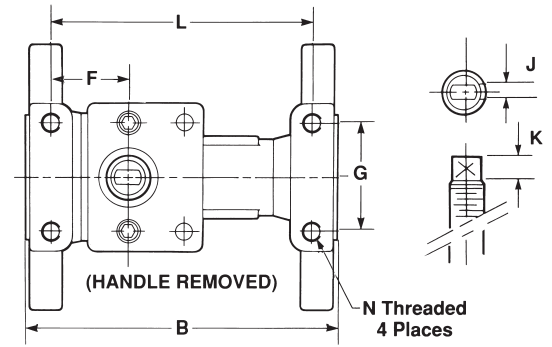
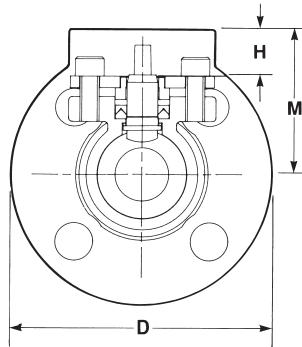
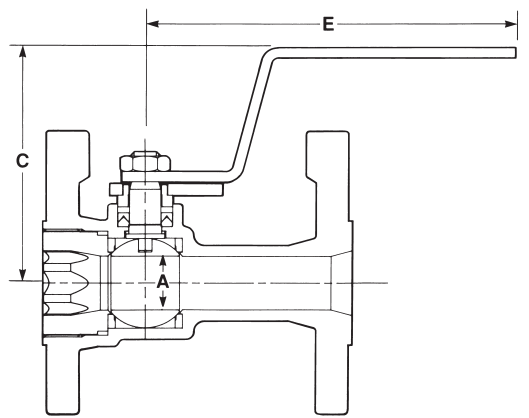
⚠ State of California Prop 65 **WARNING:** Cancer and Reproductive Harm. For more information visit www.p65warnings.ca.gov.



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

The information presented on this sheet is correct at time of publication. Milwaukee Valve reserves the right to change design and/or materials without notice. For our Installation, Operation and Maintenance Manual and the most current product information go to www.milwaukeevalve.com.
 ⚠ State of California Prop 65 **WARNING: Cancer and Reproductive Harm.** For more information visit www.p65warnings.ca.gov.

