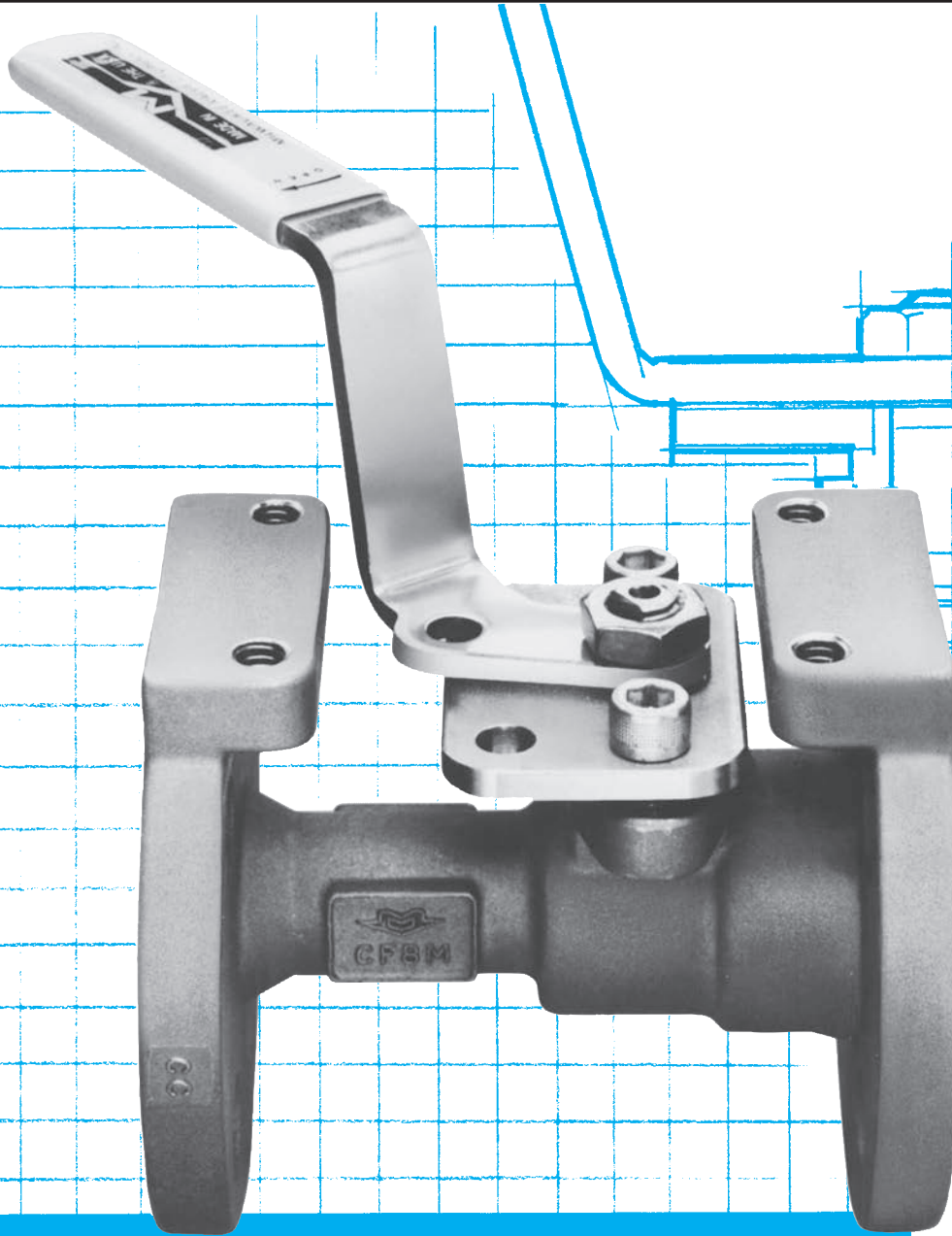


F90/91SS150/300, F90/91CC150/300 AND F90/91CS150/300 UNIBODY FLANGED-END BALL VALVES



INNOVATION IN EVERY VALVE



MILWAUKEE VALVE

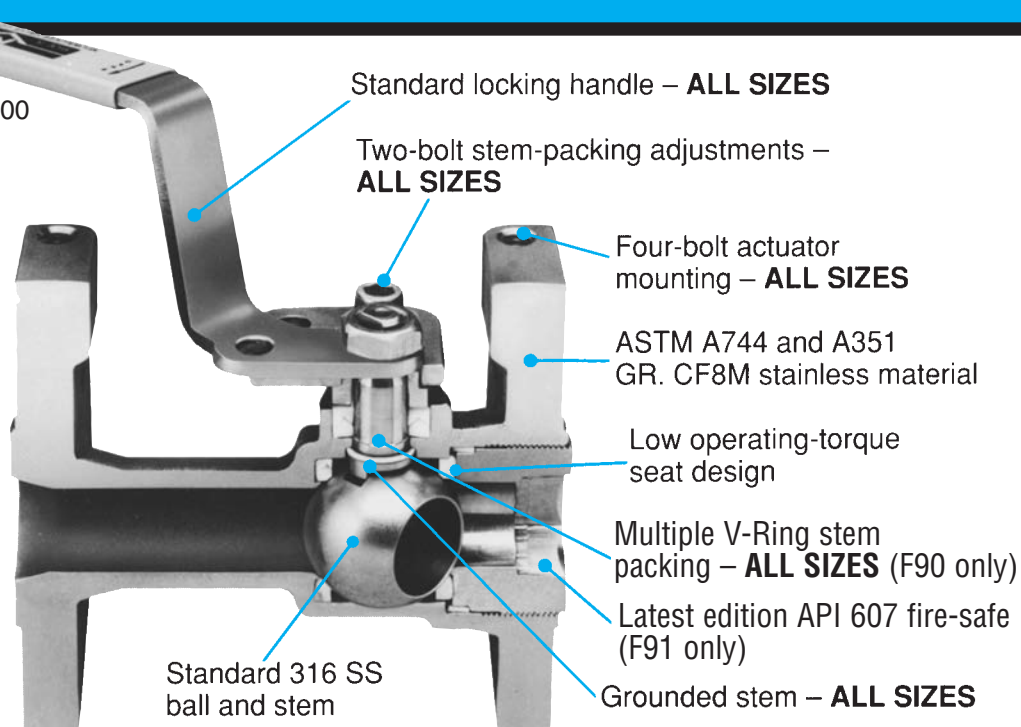
F90/91SS150/300, F90/91CC150/300 AND F90/91CS150/300 UNIBODY FLANGED-END BALL VALVE

The F90/91SS150/300, F90/91CC150/300 and F90/91CS150/300 Series unibody flanged-end ball valves are the most advanced flanged ball valves available in the world.

These products were designed “from scratch” to comply with the **new** requirements of ANSI B.16.34, API 607 and 608, ANSI B.16.5/10 (revised flange finish) and other national and end-user specifications.

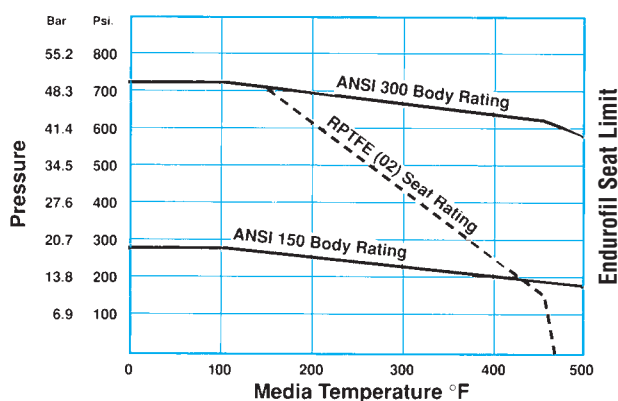
Lower operating torque, superior stem and seat operating life and the **best** actuator mounting configuration in the industry make the F90 Series the logical choice for your severe-service applications.

The F90/91 Series is available in 1/2” thru 6” sizes in ANSI 150 and 300 classes.



PERFORMANCE DATA

PRESSURE TEMPERATURE RATINGS



TORQUE RATING AND C_v

VALVE SIZE	150# 0-300 PSID BREAKAWAY OR TORQUE (in lbs.)	300# 301-740 PSID MAXIMUM BREAKAWAY TORQUE (in lbs.)	C _v
1/2	40	40	15
3/4	60	60	25
1	125	125	37
1-1/2	190	190	90
2	240	300	120
3	500	750	460
4	900	1,000	640
6	1,900	N/A	1,025

SPECIFICATIONS

Approved valves shall have multiple V-Ring stem packing and grounded stem.

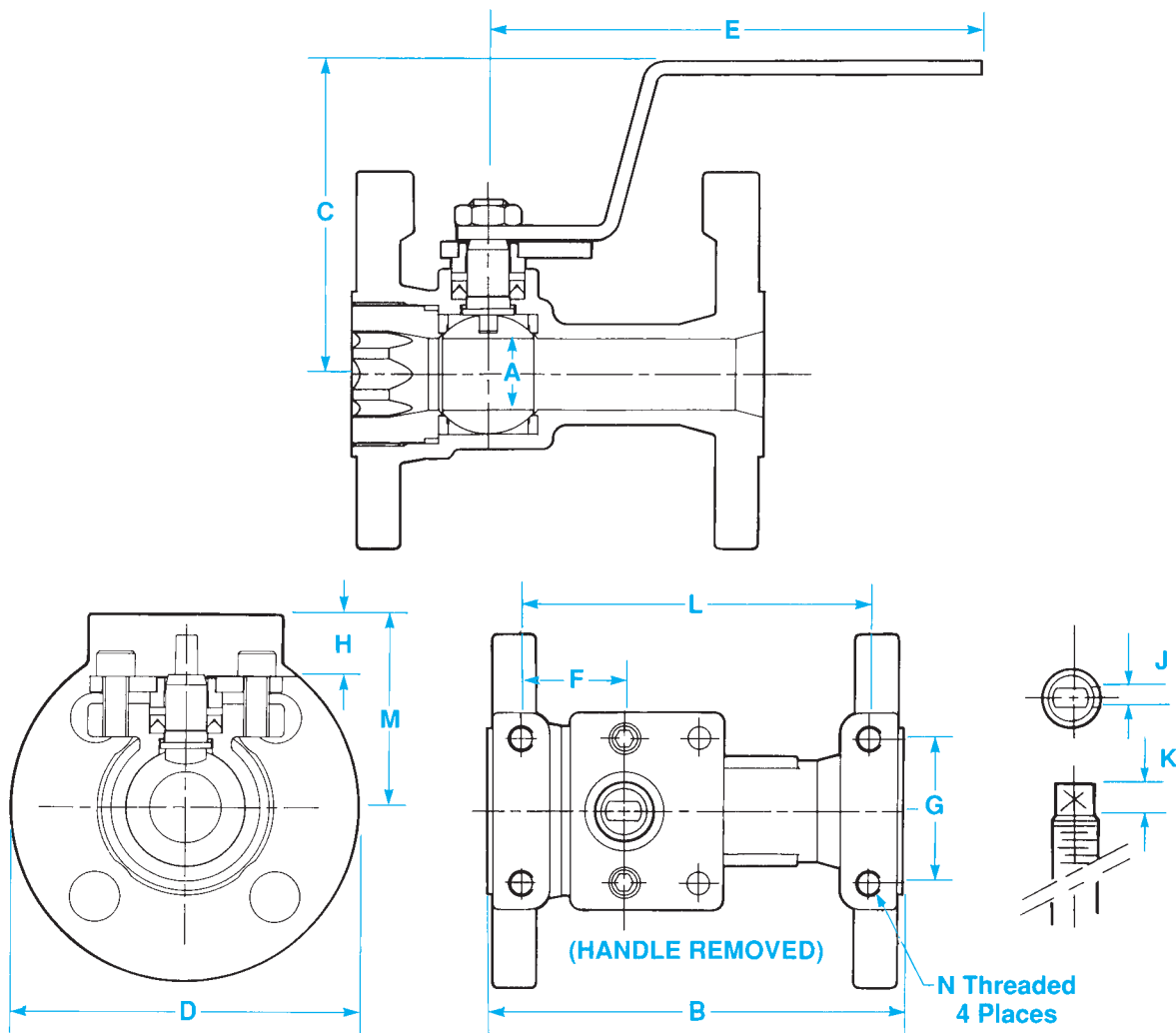
All body and tailpiece materials shall comply with ASTM specifications.

Valves must be tested to ANSI B.16.34 current edition.

All valves must have four-bolt actuator-mounting configuration and two-bolt stem-packing adjustment.

All valves must meet specifications as set in NACE MR0175 AND MSS-SP-72.

DIMENSIONS



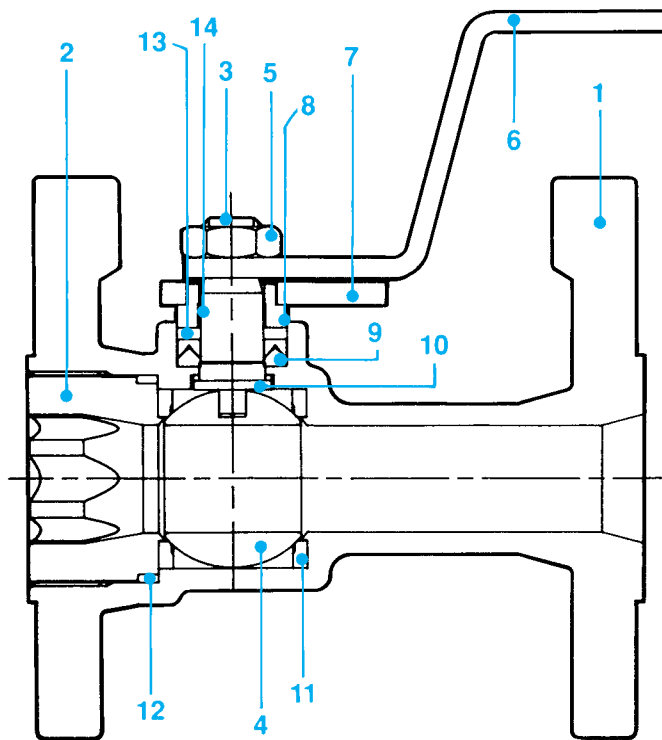
ANSI 150 LB. – DIMENSIONS – INCHES AND MILLIMETERS (90/91 – SERIES BALL VALVES)

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

MATERIAL LIST



PART	F90C 150/300	F90S 150/300
1. Body	Carbon Steel ASTM-A216 WCB	Stainless Steel ASTM A351/A744 GR. CF8M
2. Ball Retainer	Carbon Steel ASTM-A216 WCB	Stainless Steel ASTM A351/A744 GR. CF8M
3. Stem	Stainless Steel ASTM-A276 Type 316	Stainless Steel ASTM-A276 Type 316
4. Ball	Stainless Steel ASTM-276 Type 316	Stainless Steel ASTM-276 Type 316
5. Handle Nut	Stainless Steel 18-8	Stainless Steel 18-8
6. Handle	1/2"-2" Stainless Steel Type 304 3"-6" Ductile Iron	1/2"-2" Stainless Steel Type 304 3"-6" Ductile Iron
7. Packing Plate	1/2"-1" Stainless Steel Type 304 1-1/2"-6" ASTM A351 GR. CF8M	1/2"-1" Stainless Steel Type 304 1-1/2"-6" ASTM A351 GR. CF8M
8. Gland Follower	Stainless Steel Type 304	Stainless Steel Type 304
9. Packing	PTFE	PTFE
10. Thrust Washer	PTFE	PTFE
11. Seat (02 Standard)	15% Glass Filled Reinforced PTFE	15% Glass Filled Reinforced PTFE
12. Retainer Seal	PTFE	PTFE
13. Ground Washer	Graphite	Graphite
14. Bearing, Gland Follower	PTFE	PTFE

ORDERING INFORMATION

4" F90SS150R-02-XH-AD

Size:
1/2"-6"

Series:
F90 = Unibody Flanged,
Non API Fire Safe
F91 = Unibody Flanged,
API Fire Safe

Body Material:
C = Carbon Steel
S = Stainless Steel
M = Monel
H = Hastalloy C

Ball/Stem Material:
C = Carbon Steel-Plated
S = Stainless Steel
M = Monel
H = Hastalloy C

End Connection Type:
150 = ANSI 150 Flanged
300 = ANSI 300 Flanged

Seat Material:
01 = Virgin PTFE
02 = Reinforced PTFE
03 = Steam Service
Modified PTFE
04 = UHMW
Polyethylene
06 = Eurafill

Port Size:
R = Single Reduced Bore

External Options:
OS = Stainless Oval Handle
(1/2"-2" Only)
XH = Extended Handle
(1/2"-2" Only)
Patent pending.

Internal Options:
AD = Assemble Dry
CC = Chlorine Prepared
GB = Grounded Ball
OC = Oxygen Clean
VB = Vented Ball

Note: If specifying more
than one internal option,
list ALPHABETICALLY.

NOTE: The information presented in this brochure is
correct at time of printing. Milwaukee Valve reserves the
right to change design, dimensions and/or material
specifications without notice.

Valves built to take it... since 1901

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MILWAUKEE VALVE

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