

Mark 90 Series

Cavity-Filled Three Piece Ball Valves

The Mark 90 Series is a sanitary ball valve designed with FDA-approved cavity filler seats and Tri-clamp ends to minimize pockets where media can collect. The inner diameters and end connections are exactly the same size as the ID of the ball/seat ensuring no obstruction of flow from tubing through the valve.



FEATURES

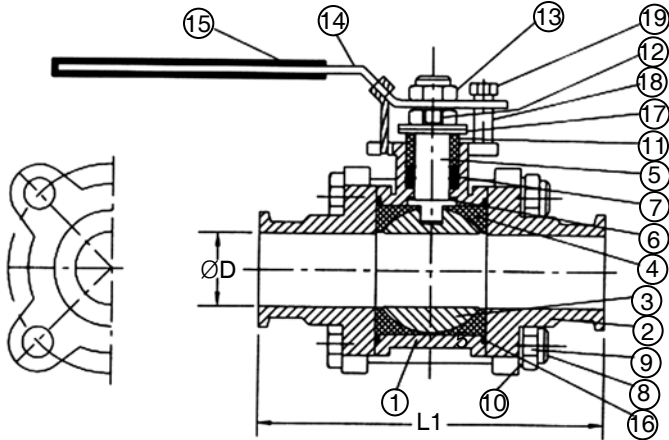
- In sizes from 1/2" (DN15) through 4" (DN100) with "tube ID design" to provide unobstructed flow and better drainage
- Pressure ratings up to 900 psi (62,5 bar)
- Virgin Teflon cavity filler
- Internal finish to 25 Ra
- Lockable handle prevents accidental opening or closing of valve
- ISO 5211 actuator mounting flange
- Designed for simple maintenance with in-line repairable feature
- Anti-blowout stem
- Spring-loaded stem seal – no threads in packing chamber
- No sharp internal fillet radius – for smooth finish
- Tri-clamp or tube weld ends
- Available as manual or actuated (pneumatic/ electric) valve

INDUSTRIES AND APPLICATIONS

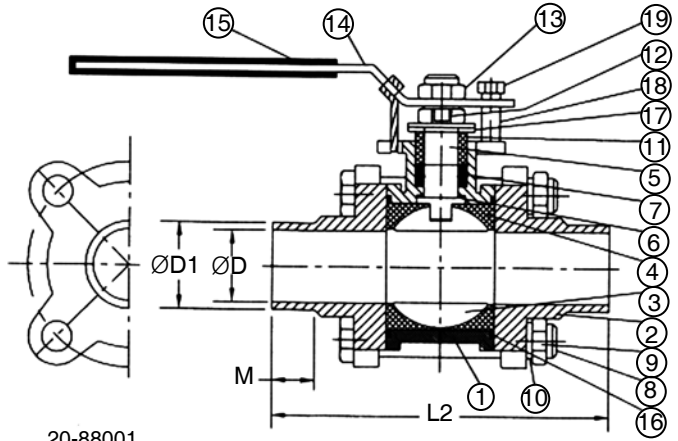
The Mark 90 is designed for applications in the following industries and applications:

- Pharmaceutical
- Healthcare/Cosmetics
- Food & Beverage
- Specialty Chemical
- Low Pressure Clean Steam
- Purified Water
- SIP/CIP
- Process Gases (N₂, CO₂)
- Clean Air Systems
- Viscous Media

MATERIAL SPECIFICATIONS



20-88001



20-88001

VALVE NAME PLATE RATING

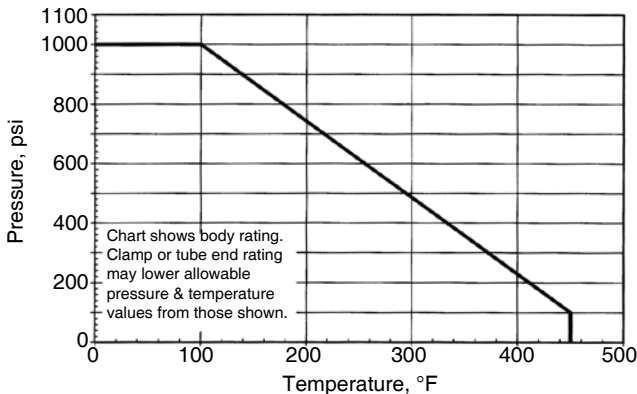
Size, NPS	Body Pressure Rating	Valve Name Plate Pressure Rating, PSI	
		Clamp End ¹	Tube End ¹
1/2"	1000	500	1000
3/4"	1000	500	1000
1"	1000	500	1000
1-1/2"	1000	500	1000
2"	1000	450	950
2-1/2"	1000	400	50
3"	1000	350	625
4"	1000	300	600

¹ Clamp end name plate pressure rating is based on Tri-Clover A13MHM Tri-Clamp (hinged 2-segment clamp with wing nut)

² Tube end name plate pressure rating is the lesser of the body rating or the tube end rating calculated with ANSI B31.3 using Sy=20ksi Y=0.4 and E=0.8

No.	Part	Material	Qty
1	Body	CF8M	1
2	Cap	CF8M	2
3	Ball	316	1
4	Seat	PTFE	2
5	Stem	AISI 316	1
6	Thrust Washer	PTFE	1
7	Stem Packing	PTFE	2
8	Bolt	AISI 304	4 - 6
9	Hex Nut	AISI 304	4 - 12
10	Bolt Washer	AISI 304	4 - 12
11	Gland	AISI 304	1
12	Lock Washer	AISI 304	1
13	Stem Nut	AISI 304	2
14	Locking Handle	AISI 304	1
15	Handle Cover	Vinyl	1
16	Body Seal	PTFE	2
17	Disc Spring	AISI 304	2
18	Stop Pin	AISI 304	1
19	Hex Cap Screw	AISI 304	1
20	Name Plate	SST	1

PRESSURE – TEMPERATURE CHART

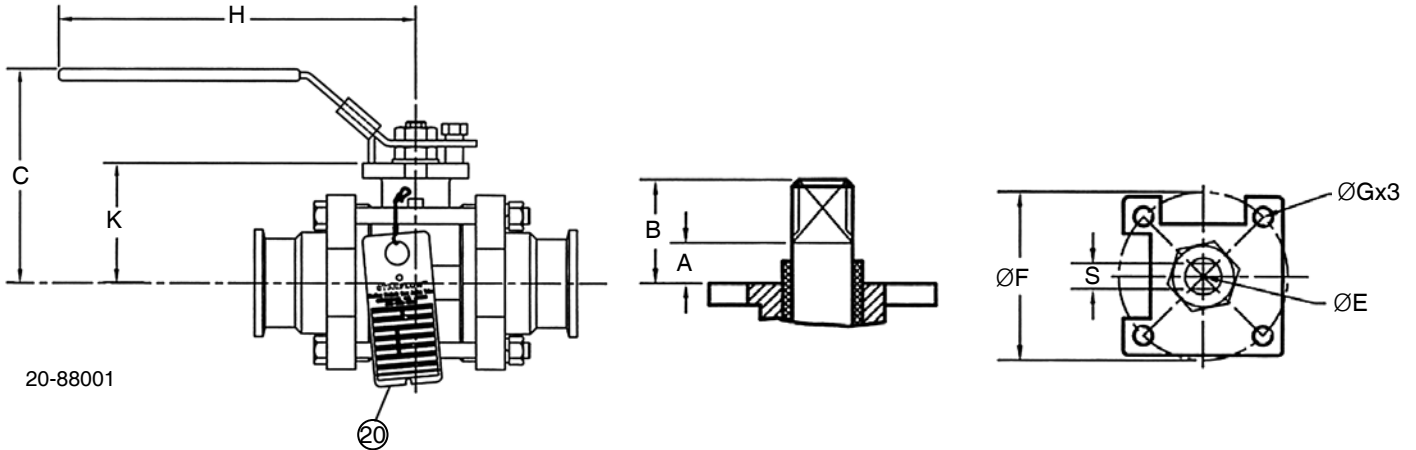


TECHNICAL SPECIFICATIONS

Size	Operating Torque in-lbs (Nm)	Cv (Kv)	Weight Lb (Kg)
1/2"	89 (10)	8 (6,9)	1.6 (0,73)
3/4"	142 (16)	30 (26)	1.8 (0,82)
1"	177 (20)	65 (56)	2.8 (1,27)
1-1/2"	310 (35)	190 (163)	5.4 (2,45)
2"	443 (50)	435 (374)	8.1 (3,67)
2-1/2"	752 (85)	720 (619)	18.9 (8,57)
3"	974 (110)	1120 (963)	26.5 (12,0)
4"	1195 (135)	2100 (1806)	-

MARK 90 SERIES CAVITY-FILLED BALL VALVES

DIMENSIONS



20-88001

- Clamp End & Tube End Dimensions, inches

Size	A	B	C	H	K	E	F	G	S	ISO 5211
1/2"	0.28	0.57	2.6	5.2	1.18	0.315	1.65	M5	0.197	F01
3/4"	0.35	0.69	2.8	5.2	1.37	0.394	1.65	M5	0.276	F01
1"	0.39	0.79	3.1	6.5	1.48	0.394	1.97	M6	0.276	F05
1-1/2"	0.51	1.00	4.0	7.9	2.10	0.472	1.97	M6	0.354	F05
2"	0.51	0.96	4.3	8.4	2.43	0.472	2.76	M8	0.354	F7
2-1/2"	0.75	1.44	6.1	10.9	3.14	0.787	2.76	M8	0.472	F07
3"	0.75	1.46	6.4	14.6	3.41	0.787	4.02	M10	0.472	F10
4"	0.84	1.61	7.6	14.7	4.54	0.945	4.02	M10	0.630	F10

- Clamp End & Tube End Dimensions, metric

Size	A	B	C	H	K	E	F	G	S	ISO 5211
DN15	7,1	14,5	66,0	132,1	30,2	8,00	41,9	M5	5,00	F01
DN20	8,9	17,5	71,1	132,1	34,8	10,01	41,9	M5	7,01	F01
DN25	9,9	17,5	78,7	165,1	37,6	10,01	50,0	M6	7,01	F05
DN40	13,0	25,4	101,6	200,7	53,3	11,99	50,0	M6	8,99	F05
DN50	13,0	24,4	109,2	213,4	61,7	11,99	70,1	M8	8,99	F7
DN65	19,1	36,6	154,9	276,9	79,8	19,99	70,1	M8	11,99	F07
DN80	19,1	37,1	162,6	370,8	86,6	19,99	102,1	M10	11,99	F10
DN100	21,3	40,9	193,0	373,4	115,3	24,00	102,1	M10	16,00	F10

- Tube End Dimensions, inches

Size	D	D1	M	L2
1/2"	0.370	0.504	1.57	6.6
3/4"	0.618	0.750	1.57	6.7
1"	0.870	1.000	1.57	7.1
1-1/2"	1.366	1.500	1.57	8.0
2"	1.870	2.00	1.57	8.5
2-1/2"	2.374	2.504	1.57	10.0
3"	2.874	3.004	1.57	10.6
4"	3.835	4.004	2.09	12.9

- Tube End Dimensions, metric

Size	D	D1	M	L2
DN15	9,4	12,8	39,9	167,6
DN20	15,7	19,1	39,9	170,1
DN25	22,1	25,4	39,9	180,3
DN40	34,7	38,1	39,9	203,2
DN50	47,5	50,8	39,9	215,9
DN65	60,3	63,6	39,9	254,0
DN80	73,0	76,3	39,9	269,2
DN100	97,4	101,7	53,1	327,7

- Clamp End Dimensions, inches

Size	D	L1
1/2"	0.37	3.5
3/4"	0.62	4.0
1"	0.87	4.5
1-1/2"	1.37	5.5
2"	1.87	6.1
2-1/2"	2.37	7.8
3"	2.87	9.0
4"	3.83	9.5

- Clamp End Dimensions, inches

Size	D	D1
1/2"	9,4	88,9
3/4"	15,7	101,6
1"	22,1	114,3
1-1/2"	34,8	139,7
2"	47,5	154,9
2-1/2"	60,2	198,1
3"	72,9	228,6
4"	97,3	241,3

ORDERING SCHEMATIC

Model	—	Size	—	Body Mat'l	/	1	2	3	4	5	6

Model Number	
90BD	Double Acting Pneumatic Actuator
90BH	Handle Operated
90BM	Motor Operated
90BS	Spring Return Pneumatic Actuator

Size	
05	1/2"
07	3/4"
10	1"
15	1-1/2"
20	2"
25	2-1/2"
30	3"
40	4"

Body Material	
S	316SS

End Connections	
C	Clamp Ends
T	Tube Ends (Extended)

Packing	
T	Virgin Teflon

Cavity Filler & Seats	
T	Virgin Teflon

Actuator	
90BH	
1	Standard
90BD & 90BS	
A	with 80 psi to Actuator
B	with 60 psi to Actuator
C	with 40 psi to Actuator
90BM	
M	with 110VAC

Actuator Accessories	
0	None
1	Limit Switch 2-SPDT NEMA 4
2	Positioner 3-15 psi
3	Positioner with I-P 4-20mA
4	Solenoid 4-Way 110VAC (NEMA 4)
5	Solenoid 4-Way 24VDC (NEMA 4)
6	#1 & #4
7	#1 & #5
Z	Non-Standard

Fail Position	
90BD, 90BH, 90BM	
0	Standard
90BS	
1	Fail Open
2	Fail Closed



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