

708MV Series Motor Valve

Fractional Flow Control Valves

CRN Registration Number Available

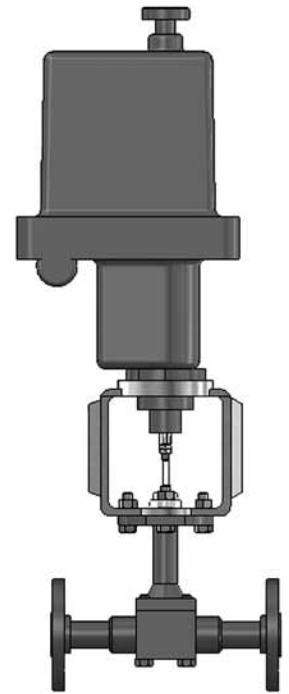
FRACTIONAL FLOW CONTROL VALVES

The Mark 708MV offers several advantages including extreme accuracy, high turndown ratios and repeatability. The features of this high resolution, low hysteresis digitally controlled motor makes the MK708MV a premiere control valve for applications involving chemical injection, dosing, pilot plants and research labs. In addition, it is a prime valve for skid builders.

Additional features of the MK708MV include a switch-selectable power supply, a hand-wheel for manual operation, and a 4-20 mA or split range current input signal. 0-5 or 0-10 VDC voltage signal, 4-20 mA feedback, and various protective enclosure classes are standard features on these motors. Upon loss of input (not loss of power), the motor is designed to either lock in place, or fail to minimum input signal position.

FEATURES

- Spring-loaded TFE/Chevron packing – the spring-loaded packing maintains a proper compression, while minimizing excessive friction. This alleviates the need for most field adjusting. The TFE packing is suitable for temperatures to 450°F (232°C), while braided or Graphite/Grafoil may be used for higher temperature requirements.
- Bolted body/bonnet connection – the bolting provides solid construction and secure connection. This bolting adds ease to maintenance, as bonnet/actuator assembly may be removed with the valve body in-line.
- Guided trim – extended orifice and plug guiding are standard and offers improved shutoff and accuracy equivalent to heavy duty trim option of competitors (not applicable to cv's below 0.05).
- Manual operation by hand knob
- Output shaft with soft seating mechanism
- 4-20mA position feedback (requires customer supplied external 12-36 power supply and a load connected in series with one lead from power supply)



MK708MV SERIES SPECIFICATIONS

Sizes: 1/4", 1/2", 3/4" (DN8, DN15, DN20)

End Connections

- Threaded – NPT, BSPT, BSPP
- Socket weld
- Integral tube ends
- Welded flanges (ANSI, DIN, JIS)

Body/Bonnet Materials

- Carbon Steel
- Stainless Steel
- Hastelloy C
- Hastelloy B
- Alloy 20
- Monel
- Titanium
- Other materials upon request

Trim Materials

- Cv's 0.05 (0,04 Kv) and above: 17-4 plug, 316SS & seat
- Cv's below 0.05 (0,04 Kv): Nitronic 60 stem/plug & seat

Optional Trim Materials

- 17-4 plug, 416SS seat
- Stellite plug and Stellite seat (hard seat only)
- 316Ss stem/plug & seat

Stem Packing

- Standard: spring-loaded TFE/Chevron (to 450°F/232°C)
- Optional: braided or Graphite/Grafoil (MV1020 required)

Body/Bonnet Gasket: RPTFE or Grafoil (*matches packing material unless specified*)

Service: steam, air, gas, oil, water, chemicals

Shutoff

- Standard – Cv's 0.05 and greater: ANSI Class IV; Cv's 0.02 and lower: ANSI Class VI
- Optional – Cv's 0.05 and greater: ANSI Class VI (with PEEK seats)

Action

- Direct (increasing signal closes valve)
- Reverse (increasing signal opens valve)

Flow Characteristic: linear (all Cv's, equal percentage (Cv ≥ 0.05/0,43 Kv only); or quick opening (Cv ≥ 0.05/0,43 Kv only)

Maximum Allowable ΔP Rating

Cv (Kv)	4.0 (3,4)	1.25-2.0 (1,1-1,7)	0.5-1.0 (0,4-0,9)	0.02-0.05 (0,017-0,04)	<0.02 (<0,017)
ΔP (bar)	1000 (69)	1600 (110)	5000 (345)	5000 (345)	5000 (345)

Note: ΔP can be doubled in most seats with the use of optional MV1020 motor. Consult factory for details

Cv (Kv) Selection

4.0** (3,4)	2.0* (1,7)	1.25* (1,1)	1.0 (0,9)	0.5 (0,43)
0.2 (0,17)	0.1 (0,09)	0.05 (0,04)	0.02 (0,017)	0.01 (0,009)
0.005 (0,00043)	0.002 (0,0017)	0.001 (0,0009)	0.0005 (0,00043)	0.0002 (0,00017)
0.0001 (0,00009)	0.00005 (0,000043)	0.00002 (0,000017)	0.00001 (0,000009)	

Pressure & Temperature Ratings

Temp F° (°C)	1/4" & 1/2" (DN8 & 15) Body/Bonnet psi (bar)		3/4" (DN20) Body/Bonnet psi (bar)	
	CF8M, SST	A105, CS	CF8M, SST	A105, CS
100 (38)	5000 (345)	5000 (345)	4000 (276)	4000 (276)
200 (93)	4299 (296)	4555 (314)	3439 (237)	3644 (251)
300 (149)	3882 (268)	4426 (305)	3106 (214)	3541 (244)
400 (204)	3569 (246)	4278 (295)	2855 (199)	3422 (236)
500 (260)	3319 (229)	4042 (279)	2655 (183)	3234 (223)
600 (316)	3132 (216)	3691 (254)	2506 (173)	2953 (204)
650 (343)	3083 (213)	3623 (250)	2466 (170)	2898 (200)
700 (371)	3000 (207)	3596 (248)	2400 (165)	2877 (198)
750 (399)	2931 (202)	3401 (234)	2345 (162)	2721 (188)
800 (427)	2882 (199)	2780 (192)	2306 (159)	2224 (153)
850 (454)	2819 (194)	—	2255 (155)	—
900 (482)	2736 (189)	—	2189 (151)	—
950 (510)	2681 (185)	—	2145 (148)	—
1000 (538)	2528 (174)	—	2022 (139)	—

MK708MV SERIES MOTOR SPECIFICATIONS & DIMENSIONS

Electrical

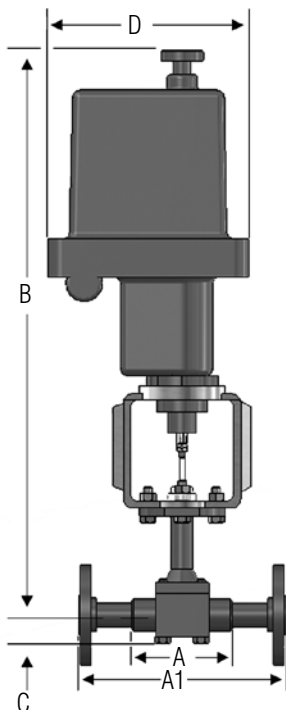
- Line Voltage: 120/240 VAC (switch selectable)
Note: Standard factory setting is 120 VAC. Use accessory option 04 for 240 VAC.
- Conduit Entry: two 1/2" NPT
- Frequency: 50/60 Hz
- Current: 0.25/0.12A (12VA)
- Command Signal Input (switch selectable)
 - Current: 4-20mA; 4-12mA; 12-20mA
 - Voltage: 0-5VDC; 0-10VDC

Mechanical

- Thrust: 100 lb (0,4 Kn)
- Speed: 0.02 to 0.20"/sec (0.5 - 5,0 mm/sec) (potentiometer adjustable)
- Action: direct or reverse (switch adjustable)

Environmental

- Temperature Limits: -40°F to +150°F (-40°C to +66°C)
- Enclosure:
 - Explosion-proof for Class I, Div. 1, Group C & D
 - Dust-ignition-proof for Class II, Div. 1, Group E, F, G
 - NEMA 4 (IP65), indoor or outdoor



Performance: Position Accuracy: +/- 0.002 (0,051mm) unrestricted modulating duty

Features

- Manual operation by hand knob
- 4-20mA position feedback (requires customer supplied external 12-36 power supply and a load connected in series with one lead from power supply)
- Output shaft with soft seating mechanism
- Failure mode is switch selectable – on loss of command, choose lock-in-place or return to minimum input signal

• Mark 708MV Series Threaded & FSW Ends, Inches

VALVE SIZE	DIMENSIONS, INCHES				WEIGHT LBS
	A	B*	C	D	
1/4"	3.50	19.75	0.9	7.13	16.8
1/2"	3.50	19.75	0.9	7.13	16.8
3/4"	4.38	19.75	1.2	7.13	19.1

• Mark 708MV Series Threaded & FSW Ends, Metric

VALVE SIZE	DIMENSIONS, MM				WEIGHT KGS
	A	B*	C	D	
DN8	89	499	23	181	6,9
DN15	89	499	23	181	6,9
DN20	111	499	30	181	8,0

• Mark 708MV Series Flanged Ends, Inches

VALVE SIZE	ANSI FLANGE	DIMENSIONS, INCHES				WEIGHT LBS
		A1	B*	C	D	
1/2"	150#	7.25	19.75	0.9	7.13	18.8
	300#	7.50				20.8
3/4"	150#	7.25	19.75	1.2	7.13	23.1
	300#	7.62				25.1

• Mark 708MV Series Flanged Ends, Metric

VALVE SIZE	ANSI FLANGE	DIMENSIONS, MM				WEIGHT KGS
		A1	B*	C	D	
DN15	10/16	130	499	23	181	7,8
	25/40	130				8,8
DN20	10/16	184	499	30	181	9,8
	25/40	184				10,7

* An additional 5.25" (133mm) is needed to remove motor cover for electrical connections

MK708MV SERIES ORDERING SCHEMATIC

Model No.	Size	Body Mat'l	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

MODEL	
708MV	Motor Valve

SIZE	
025	1/4" (DN8)
050	1/2" (DN15)
075	3/4" (DN20)

BODY MATERIAL	
CS	Carbon Steel (WCB)
S6	Stainless Steel (CF8M)
MN	Monel
A2	Alloy 20

1 & 2 END CONNECTION	
PT	NPT
SW	FSW
F5	150# FE
F3	300# FE
TN	Integral Tube Nuts
ZZ	Non-Standard

3 & 4 TRIM	
T6	316SS/Teflon Packing
TM	Monel/Teflon Packing
TA	Alloy 20/Teflon Packing
G6*	316SS/Graphite
ZZ	Non-Standard

* MV1020 Required

5 & 6 PLUG SEAT			
	Material of Stem/Plug/Seat		Cv
A	Standard - Linear Hard	A	0.00001
B	Standard =% Hard	B	0.00002
C	Standard Q.O. Hard	C	0.00005
D	Standard Linear Soft (PEEK)	D	0.0001
E	Standard =% Soft (PEEK)	E	0.0002
F	Standard Q.O. Soft (PEEK)	F	0.0005
M	316/Stellite/Stell-Lin. Hard	G	0.001
N	316/Stellite/Stell =% Hard	H	0.002
P	316/Stellite/Stell Q.O. Hard	I	0.005
		J	0.01
		K	0.02
		L	0.05
		M	0.1
		N	0.2
		P	0.5
		Q	1.0
		R	2.0
		S	4.0
ZZ	Non-standard		

7 & 8 RANGE	
NF	On-Off
42	4-20mA
41	4-12mA
12	12-20mA
V5	0-5V
V1	0-10V
ZZ	Non-Standard

9 & 10 DIAPHRAGM	
00	None

11 & 12 ACTUATOR	
M2*	MV1020
M4*	MV1010
N2*	MV1020 On-Off
N4*	MV1010 On-Off

* Standard factory setting is 120 VAC. Use accessory option 04 for 240 VAC.

13 & 14 ACCESSORIES	
00	None
XC	Oxygen Clean
04	Set Motor for 240 VAC

15 ACTION	
D	Direct
R	Reverse