

708ME Series Motor Valve

Fractional Flow Control Valves

FRACTIONAL FLOW CONTROL VALVES

The Mark 708ME offers many advantages including extreme accuracy, high turndown ratios and repeatability. The features of this high resolution, low hysteresis digitally controlled motor makes the MK708ME a premier 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 MK708ME include 120 VAC or 240 VAC capability and a stowable hand operator for manual operation. The MK708ME provides analog input signals of 0-10VDC, 0(4)-20 mA or split range current input signal, or fieldbus systems. Upon loss of command signal, 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 stowable hand crank
- Output shaft with soft seating mechanism
- Optional 4-20mA position feedback (requires customer supplied external 12-36 power supply and a load connected in series with one lead from power supply)



MK708ME SERIES SPECIFICATIONS

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

End Connections

- Threaded – NPT, BSPT, BSPP
- Socket weld
- Integral tube ends (max Cv 0.2)
- 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 matches body material unless specified otherwise

Trim Materials for Carbon and Stainless Steel

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

Optional Trim Materials

- 17-4 plug, 416SST seat
- Stellite plug and Stellite seat (hard seat only)
- 316SST stem/plug & seat
- Contact factory for other trim materials

Stem Packing

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

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)
psi (bar)	500 (35)	800 (55)	3000 (207)	5000 (345)	5000 (345)

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)	

* 3/4" & 1/2" only

** 3/4" only

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)	—

MK708ME SERIES SPECIFICATIONS
Body Rating Tables

Valve pressure rating based on body/bonnet material and bolting material. Units in psi (bar)

 • **1/4" – 1/2" (DN8 – DN15)**

Bolting Material	Body/Bonnet Material				
	At 100°F/38°		At Maximum Temperature		
	CF8M	A105	CF8M	A105	Max °F/°C
ASTM A193, Gr. B7	— 5000 (345)	5000 (345) —	3083 (189) 3440 (237)	3625 (250) 4160 (287)	650(343) 450 (232)

 • **3/4" (DN20)**

Bolting Material	Body/Bonnet Material				
	At 100°F/38°		At Maximum Temperature		
	CF8M	A105	CF8M	A105	Max °F/°C
ASTM A193, Gr. B7	— 4000 (276)	4000 (276) —	— 2400 (165)	2224 (153) —	800 (427) 700 (371)

MK708ME SERIES MOTOR SPECIFICATIONS
Electrical

- Line Voltage: 120 or 240 VAC (contact factory for others)
- Connection: (3) M16 x 1.5 cable entry
- Frequency: 50/60 Hz
- Current: 0.017A/ 230VAC
- Command Signal Input (programmable)
 - Current: 0 (4)- 20 mA
 - Voltage: 0-10VDC

Mechanical

- Thrust: 135 lb
- Speed: 0.32 in/min (8mm/min)
- Action: direct or reverse (programmable)
- Mounting Position: Any, except with actuator hanging downwards

Environmental

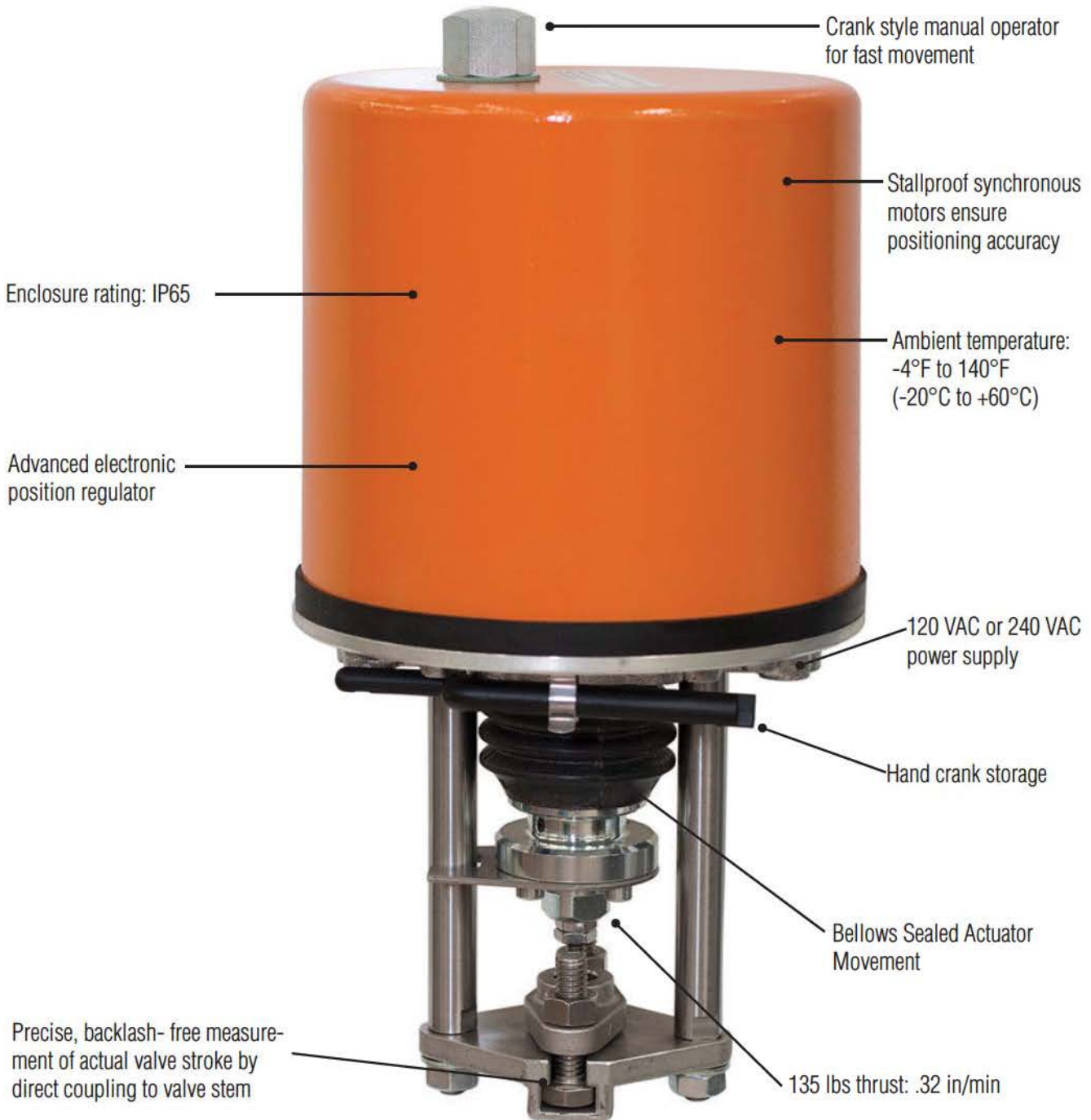
- Temperature Limits: -4° F to 140° F (-20°C to 60°C)
- Enclosure: IP65

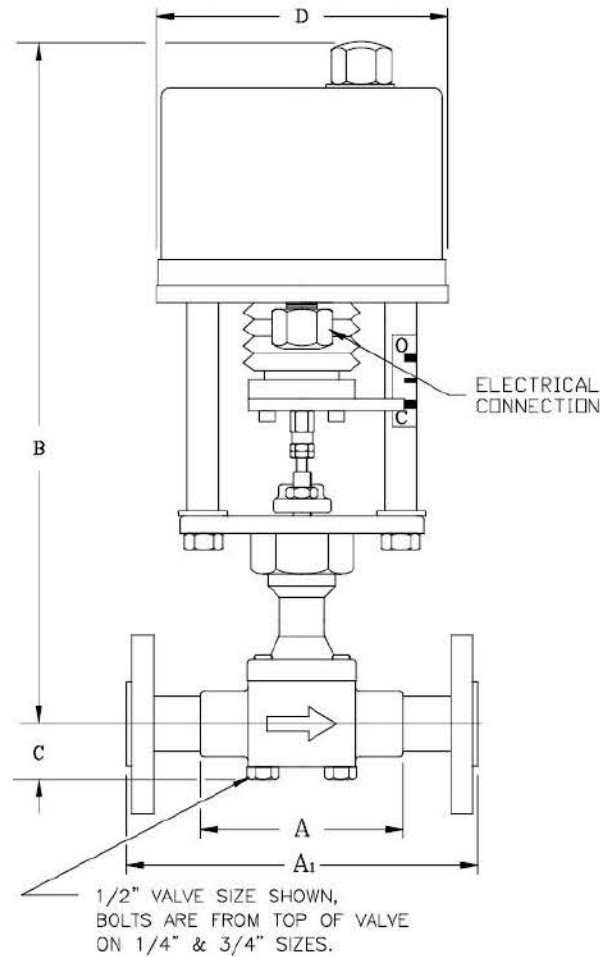
Performance: Unrestricted modulating duty

Features

- Manual operation by stowable hand crank
- Output shaft with soft seating mechanism
- Mechanical stroke indication via anti-rotation bar

MK70ME SERIES FEATURES AND BENEFITS



MK708ME SERIES DIMENSIONS

• Mark 708ME Series Threaded & FSW Ends, Inches

VALVE SIZE	DIMENSIONS, INCHES				WEIGHT LBS
	A	B*	C	D	
1/4"	2.06	13.35	0.9	5.40	5.75
1/2"	3.50	13.35	0.9	5.40	7.45
3/4"	4.38	13.45	1.2	5.40	9.50

• Mark 708ME Series Threaded & FSW Ends, Metric

VALVE SIZE	DIMENSIONS, MM				WEIGHT KGS
	A	B*	C	D	
DN8	52	339	23	137	2,6
DN15	89	339	23	137	3,4
DN20	111	342	30	137	4,3

• Mark 708ME Series Flanged Ends, Inches

VALVE SIZE	ANSI FLANGE	DIMENSIONS, INCHES				WEIGHT LBS
		A1	B*	C	D	
1/2"	150#	7.25	13.35	0.9	5.4	11
	300#	7.50				12
3/4"	150#	7.25	13.45	1.2	5.4	14
	300#	7.62				16

• Mark 708ME Series Flanged Ends, Metric

VALVE SIZE	ANSI FLANGE	DIMENSIONS, MM				WEIGHT KGS
		A1	B*	C	D	
DN15	10/16	130	339	23	137	5,0
	25/40	130				5,4
DN20	10/16	184	342	30	137	6,4
	25/40	184				7,3

* An additional 5.50" is needed to remove motor cover or manual operation

* An additional 140mm is needed to remove motor cover or manual operation

MK708ME 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	
708ME	Motor Valve

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

BODY MATERIAL	
CB*	A105 Carbon Steel Barstock
CS*	WCB Carbon Steel
SB*	316/316L Stainless Steel Barstock
S6*	CF8M Stainless Steel
HC*	Hastelloy C
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
ZZ	Non-Standard

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	
42	4-20mA
V1	0-10V

9 & 10 DIAPHRAGM	
00	None

11 & 12 ACTUATOR	
M4	120 VAC All Ranges
N4	240 VAC All Ranges
ZZ	Non-Standard

13 & 14 ACCESSORIES	
00	None
C4	Class IV Shutoff
XC	Oxygen Clean

15 ACTION	
D	Direct
R	Reverse