



# 708CR Series Cryogenic Bonnet

## Fractional Flow Control Valves

CRN Registration Number Available

### FRACTIONAL FLOW CONTROL VALVES

The Mark 708CR for cryogenic service features a 9" bonnet extension (optional 14") that provides protection for the packing and actuator by preventing ice build-up, which can interfere with movement of the valve stem and affect valve performance. For cryogenic services with temperatures as low as -320°F (-195°C)

#### Features:

- Protects the packing and actuator by preventing ice build-up which can interfere with stem movement
- For services with temperatures as low as -320°F (-195°C)
- For precise fractional flow control in pilot plants, research facilities, and low flow process applications

#### SPECIFICATIONS

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

#### End Connections

- Threaded – NPT, BSPT, BSPP
- Socket weld
- Integral tube ends (max Cv of 0.2)
- Welded flange ends

**Actuator:** 14M standard (aluminum), 35M optional (steel)

**Body/Bonnet Materials:** Stainless Steel (standard); contact factory for others

#### Stem Packing Materials

- Standard – spring-loaded TFE/Chevron
- Optional – braided or Graphite/Grafoil with positioner

**Bonnet/Body Gasket Material:** Grafoil

**Service:** air, gas, chemical, oil, water

- Standard – Cv's 0.05 and greater: ANSI Class III (Class IV optional)



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## MK708CR SERIES CRYOGENIC BONNET

Ranges: 3-15 (0,2-1,0) or 6-30 (0,4-2,1) psi (bar) (split ranges are available with optional positioner)

Bolting: ASTM A-320, Gr B8, CL 2

Trim: standard: 316SS stem/plug/seat; contact factory for other materials; Plug is electroless-nickel plated for slidewear

### Valve Action

- Direct (ATC)
- Reverse (ATO)

Flow Characteristics: linear; equal percentage or quick opening for Cv's greater than or equal to 0.05 (0,04 Kv)

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)		

\* Available in 1/2" & 3/4" sizes (DN15 & DN20) only

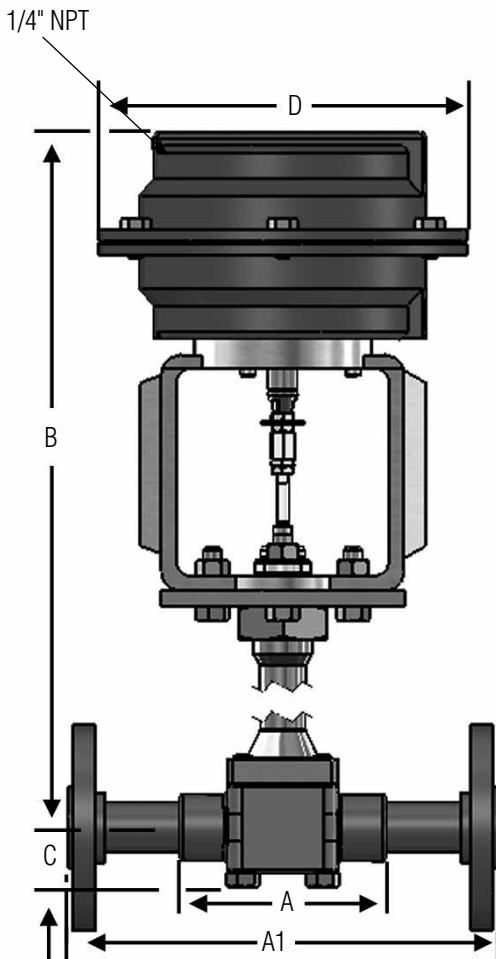
\*\* Available in 3/4" size (DN20) only; Consult factory for lower Cv (Kv) values

Shutoff: ANSI Class IV

Maximum Allowable  $\Delta P$  Ratings, 14M Actuator

Cv (Kv)	ATO 3-15	ATO 6-30	ATO w/pos. @ 40 psi (2,8 bar)	ATC3-15 @ 20 psi (1,4bar)	ATC 6-30 @ 40 psi (2,8 bar)	ATC w/pos. @ 40 psi (2,8 bar)
4.0 (3,4)	264 (18)	532 (37)	532 (37)	432 (30)	864 (60)	864 (60)
2.0 (1,7)	400 (26)	800 (55)	800 (55)	650 (45)	1300 (90)	1300 (90)
1.25 (1,1)	400 (26)	800 (55)	800 (55)	650 (45)	1300 (90)	1300 (90)
0.32-1.0 (0,3- 0,9)	1275 (88)	2350 (162)	2350 (162)	2065 (142)	4100 (283)	4100 (283)
0.05-0.2 (0,04-0,2)	2700 (186)	5000 (345)	5000 (345)	5000 (345)	5000 (345)	5000 (345)

## MK708CR SERIES CRYOGENIC BONNET DIMENSIONS



### Mark 708CR Series Extended Bonnet Threaded & FSY Ends

VALVE SIZE	ACTUATOR	DIMENSIONS, INCHES				WEIGHT LBS
		A	B	C	D	
1/4"	14M	3.50	18.6	0.9	6.3	8
1/2"	14M	3.50	18.6	0.9	6.3	8
3/4"	14M	4.38	18.7	1.2	6.3	10

### Mark 708CR Series Extended Bonnet Threaded & FSY Ends, Metric

VALVE SIZE	ACTUATOR	DIMENSIONS, INCHES				WEIGHT LBS
		A	B	C	D	
8	14M	89	472	23	160	3,6
15	14M	89	472	23	160	3,6
20	14M	111	475	30	160	4,5

### Mark 708CR Series Extended Bonnet Flanged Ends

VALVE SIZE	ANSI FLANGE	DIMENSIONS, INCHES				WEIGHT LBS
		A1	B	C	D	
1/2"	150#	7.25	18.6	0.9	6.3	10
	300#	7.50	18.6	0.9	6.3	12
3/4"	150#	7.25	18.7	1.2	6.3	14
	300#	7.62	18.7	1.2	6.3	16

### Mark 708CR Series Extended Bonnet Flanged Ends, Metric

VALVE SIZE	ANSI FLANGE	DIMENSIONS, INCHES				WEIGHT LBS
		A1	B	C	D	
1/2"	10/16	130	472	23	160	4,5
	25/40	150	472	23	160	5,4
3/4"	10/16	184	475	30	160	6,4
	25/40	194	475	30	160	7,3

## MK708CR SERIES ORDERING SCHEMATIC

Model No.	Size	Body Mat'l	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

MODEL	
708CR	Cryogenic Service
708CRSP	Side Mounted Position and Cryogenic Bonnet
708CRTP	Top Mounted Positioner with Cryogenic Bonnet

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

BODY MATERIAL	
S6*	Stainless Steel (CF8M)
SB*	SST Barstock (316)

1 & 2	END CONNECTIONS
PT	NPT
BT	BSPT
BP	BSPP
SW	FSW
F5	150#FE
F3	300#FE
F7	PN 10 DIN FE
F8	PN 16 DIN FE
F6	PN 25 DIN FE
F4	PN 40 DIN FE
TN	Integral Tube Nuts
ZZ	Non-Standard

3 & 4	TRIM
T6	316SS/Teflon Packing
G6	316SS/Graphite
ZZ	Non-standard

5 & 6	PLUG SEAT	
	Material of Stem/Plug/Seat	Cv
A	Standard - Linear Hard	L 0.05
B	Standard =% Hard	M 0.1
C	Standard Q.O. Hard	N 0.2
		P 0.5
		Q 1.0
		R 2.0
		S 4.0
		T 3.0
ZZ	Non-standard	

No soft seat options for Mark 708CR Series  
Freeze-break is not CL6

7 & 8	RANGE	
	Range	Actuator
A	3 - 15 DIR	4 14M
B	3 - 15 REV	3 35M
C	3 - 9 DIR	
D	3 - 9 REV	
E	9 - 15 DIR	
F	9 - 15 REV	
G	6 - 30 DIR	
H	6 - 30 REV	
ZZ	Non-standard	

9 & 10	DIAPHRAGM	
	Material	Size
T	Nylon/Nitrile	4 14M
B	Buna-N	3 35M

11 & 12	ACTUATOR	
	Type	Size
D	Air-to-Close	4 14M
R	Air-to-Open	3 35M
	708CRSP	
S	with SMP	
ZZ	Non-Standard	

## MK708CR SERIES ORDERING SCHEMATIC (CON'T)

Model No.	Size	Body Mat'l	/	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	

13 & 14	ACCESSORIES
00	None
A7	Air Regulator 14M
A5	Air Regulator 35M
S2	3-way Solenoid Energize to Open
S3	3-way Solenoid Energize to Close
X2	3-way Solenoid X-Proof Energize to Open
X3	3-way Solenoid X-Proof Energize to Close
G1	One Gage on TMP
G2	Two Gages on TMP
G3	Three Gages on TMP
SC	Oil-Free Clean
XC	Oxygen Clean
ZZ	Non-Standard

15	ACTION
D	Air-to-Close
R	Air-to-Open

16	I/P
00	None
4	I/P 14M Actuator 4-20Ma/3-15 psi
3	I/P 35M Actuator 4-20Ma/3-15 psi
9	I/P 14M Actuator 4-20Ma/6-30 psi
Z	Non-Standard

17	SMP (FOR 708CRSP ONLY)
0	None
A	SMP DIR/REV 3-15
B	SMP DIR/REV 3-9
C	SMP DIR/REV 9-15
D	SMP/IP DIR/REV 4-20
E	SMP/IP DIR/REV 4-12
F	SMP/IP DIR/REV 12-20
G	MK16IQ DIR/REV
H	MK16IQ-B DIR/REV
J	MK16IQ-FF DIR/REV
Z	Non-Standard