

# 708DP Series With Double Packing

## Fractional Flow Control Valves

CRN Registration Number Available

### FRACTIONAL FLOW CONTROL VALVES

The Mark 708DP with Double Packing is an alternative to a bellows stem seal, and is used when standard packing will not adequately contain the controlled media. The optional bonnet features a double packing arrangement separated by a lantern ring. With a double packed bonnet, lubricant is pumped into the packing sets, supplying a tight seal similar to that provided by a bellows stem seal. The double packed bonnet is an excellent choice when service conditions could cause damage to a bellows assembly.

#### Features:

- Ideal for applications where service conditions can damage a bellows assembly
- Features standard bonnet port for use in lubricating the packing for added protection against leakage, or for use as a detection port for monitoring potential fugitive emissions
- For use in R & D, pilot plants 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

- Standard – 14M (14 in<sup>2</sup>) multi-spring
- Optional – 35M (35 in<sup>2</sup>) multi-spring on 3/4" (DN20) size

#### Body/Bonnet Materials

- Carbon Steel
- Stainless Steel
- Hastelloy C
- Hastelloy B
- Alloy 20
- Monel
- Titanium

#### Trim Materials

- Standard trim – 17-4 plug, 316 SST stem and seat
- Optional Trim – 17-4 plug, 416 SST seat, Stellite plug and seat; 316 SST stem, plug and seat



**MK708DP SERIES DOUBLE PACKED**

**Actuator Material:** Aluminum (14M); Steel (35M)

**Diaphragm Material**

- 14M Actuator: Nylon/Nitrile
- Optional 35M Actuator: Buna-N fabric reinforced

**Stem Packing Materials**

- Standard – 2 sets of adjustable TFE/Chevron (to 450°F/232°C)
- Optional – 2 sets of braided or Graphite/Grafoil with positioner on 14M

**Bonnet/Body Seal Materials:** Teflon or Grafoil (matches packing material unless specified)

**Lantern Ring Material:** Stainless Steel

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

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

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

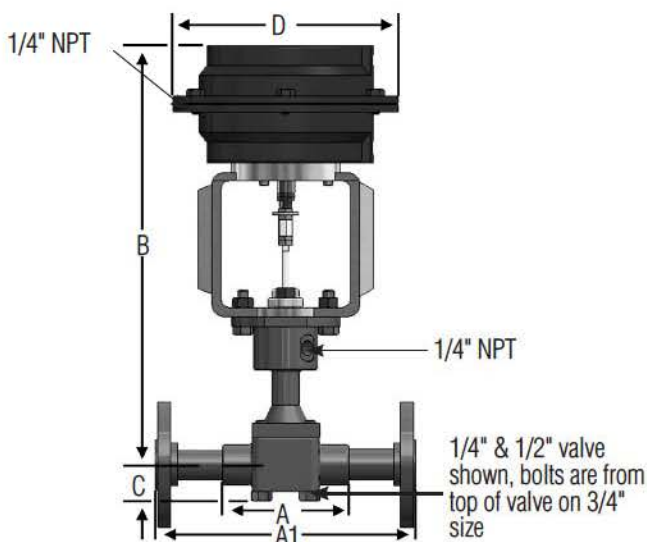
**Valve Action**

- Direct (ATC)
- Reverse (ATO)

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

**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)


**Standard 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 (0,043)

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

\*\* Available in 3/4" size (DN20) only

Consult factory for lower Cv (Kv) values

**Maximum Allowable ΔP Ratings**

- Standard 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)	1994 (137)
2.0 (1,7)	400 (26)	800 (55)	800 (55)	650 (45)	1300 (90)	3000 (207)
1.25 (1,1)	400 (26)	800 (55)	800 (55)	650 (45)	1300 (90)	3000 (207)
0.32-1.0 (0,3-0,9)	1275 (88)	2350 (162)	2350 (162)	2065 (142)	4100 (283)	5000 (345)
0.05-0.2 (0,04-0,2)	2700 (186)	5000 (345)	5000 (345)	5000 (345)	5000 (345)	5000 (345)

- Optional 35M 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)	440 (30)	880 (61)	880 (61)	704 (49)	1460 (101)	3600 (248)

Note: ATO ratings determined at nominal bench seat and 0 psig in actuator

- Mark 708DP Series Double Packed Threaded & FSU Ends

VALVE SIZE	ACTUATOR	DIMENSIONS, INCHES				WEIGHT LBS
		A	B	C	D	
1/4"	14M	3.50	12.04	0.9	6.3	7.0
1/2"	14M	3.50	12.04	0.9	6.3	7.0
3/4"	14M	4.38	12.07	1.2	6.3	9.0
3/4"	35M	4.38	14.11	1.2	9.5	18.0

- Mark 708DP Series Double Packed Flanged Ends

VALVE SIZE	ANSI FLANGE	DIMENSIONS, INCHES				WEIGHT LBS
		A1	B	C	D	
1/2" (14M)	150#	7.25	12.04	0.9	6.3	10.5
	300#	7.50				11.5
3/4" (14M)	150#	7.25	12.07	1.2	6.3	13.5
	300#	7.62				15.5
3/4" (35M)	150#	7.25	14.11	1.2	9.5	22.5
	300#	7.62				24.5

**MK708DP 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	
708DP	Double Packing

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 CONNECTIONS	
PT	NPT
SW	FSW
F5	150# FE
F3	300# FE
TN	Integral Tube Nuts
ZZ	Non-standard

3 & 4 TRIM	
D6	316SS/ DBL Tef.
R6	316SS/ DBL Graph
ZZ	Non-standard

5 & 6 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
		T	3.0
ZZ	Non-standard		

7,8,9,10,11,12 ACTUATOR		Diaphragm	Actuator
N4Q4N4	3-15 DIR	Nylon/Nitrile	14M
Q4Q4N4	3-15 REV		
G4T4D4	6-30 DIR		
H4T4R4	6-30 REV		
A3B3D3	3-15 DIR	Buna-N	35M
B3B3R3	3-15 REV		
G3B3D3	6-30 DIR		
H3B3R3	6-30 REV		
ZZ	Non-standard		

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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 for 14M Actuator
A5	Air Regulator for 35M Actuator
G2	Two Gages on TMP
SH	304SS Strain Hardened
S2	3-way Solenoid Energize to Open
S3	3-way Solenoid Energize to Close
ZZ	Non-standard

16	I/P
0	None
4	I/P 14M Act. 4-20Ma/3-15 psi
3	I/P 35M Act. 4-20Ma/3-15 psi
9	I/P 14M Act. 4-20Ma/6-30 psi
Z	Non-standard

15	ACTION
D	Air-to-close
R	Air-to-open