



8000 Series Bellows Stem Seal

Fractional Flow Control Valves

CRN Registration Number Available

FRACTIONAL FLOW CONTROL VALVES

Bellows stem seals eliminate fugitive emissions by surrounding the valve stem with a pressure-tight barrier, isolating the stem from the process fluid and preventing leakage to the atmosphere. For an extra measure of protection, the bellows stem seal option provides a back-up seal of Teflon, braided or Graphite/Grafoil packing.

Features:

- Full compliance with the most stringent requirements of the Clean Air Act
- Secondary packing chamber with a bellows leak monitoring port for additional security
- Two-piece stem allows stem adjustment without breaking the bellows bonnet extension seal
- Barstock, not cast, construction to avoid potential porosity issues

SPECIFICATIONS

Sizes: 1/2", 3/4", 1", 1-1/4" (DN15, DN20, DN25, DN32)

End Connections

- Threaded – NPT, BSPT, SAE
- Raised-face flanges (300#, 600#, 900#), DIN, JIS
- Ring-type joint flanges (150#, 300#, 600#)
- Socket weld – (schedule 40, 80, or 160)
- Special connections upon request

Actuator (*Positioner required with all actuators*)

- Standard – 35M (35 in²) multi-spring
- Optional – 55M (55 in²). See Maximum Allowable ΔP Ratings Chart

Body Style

- 2-way globe
- 2-way angle



A Division of
Richards Industrials
3170 Wasson Road
Cincinnati, OH 45209

513.533.5600
lowflow@richardsind.com

www.lowflowvalve.com

MK8000 SERIES BELLOWS STEM SEAL SPECIFICATIONS (CON'T)

Body Material

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

Trim Material

- 316SST
- Monel
- Hastelloy C
- Hastelloy B
- Alloy 20
- 17-4 ph Stainless Steel
- Stellite
- 316SS/Stellite

Bellows Material

- Standard – 316T
- Optional – Hastelloy C

Actuator Material: steel, epoxy coated

Back-Up Stem Packing Material

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

Bonnet/Body Gasket: Grafoil

Bellows Performance: 1500 psi (103 bar) maximum at 100°F (38°C); 1200 cycles for 316L & 1600 cycles for Hastelloy C at 1500 psi (103 bar)

Cv (Kv) Selection

Valve Size	Standard Cv (Kv)
1/2"/DN15	0.05; 0.1; 0.2; 0.5; 1.0; 1.8 (0,04; 0,09; 0,17; 0,43; 0,86; 1,6)
3/4"/DN20	1.0; 2.0; 3.0 (0,86; 1,7; 2,6)
1"/DN25	2.0; 3.5; 4.0; 4.3 (1,7; 3,0; 3,4; 3,7)
1-1/4"/DN32	2.0; 3.5; 4.0; 6.5; 7.1 (1,7; 3,0; 3,4; 5,6; 6,2)

Maximum Allowable ΔP Ratings

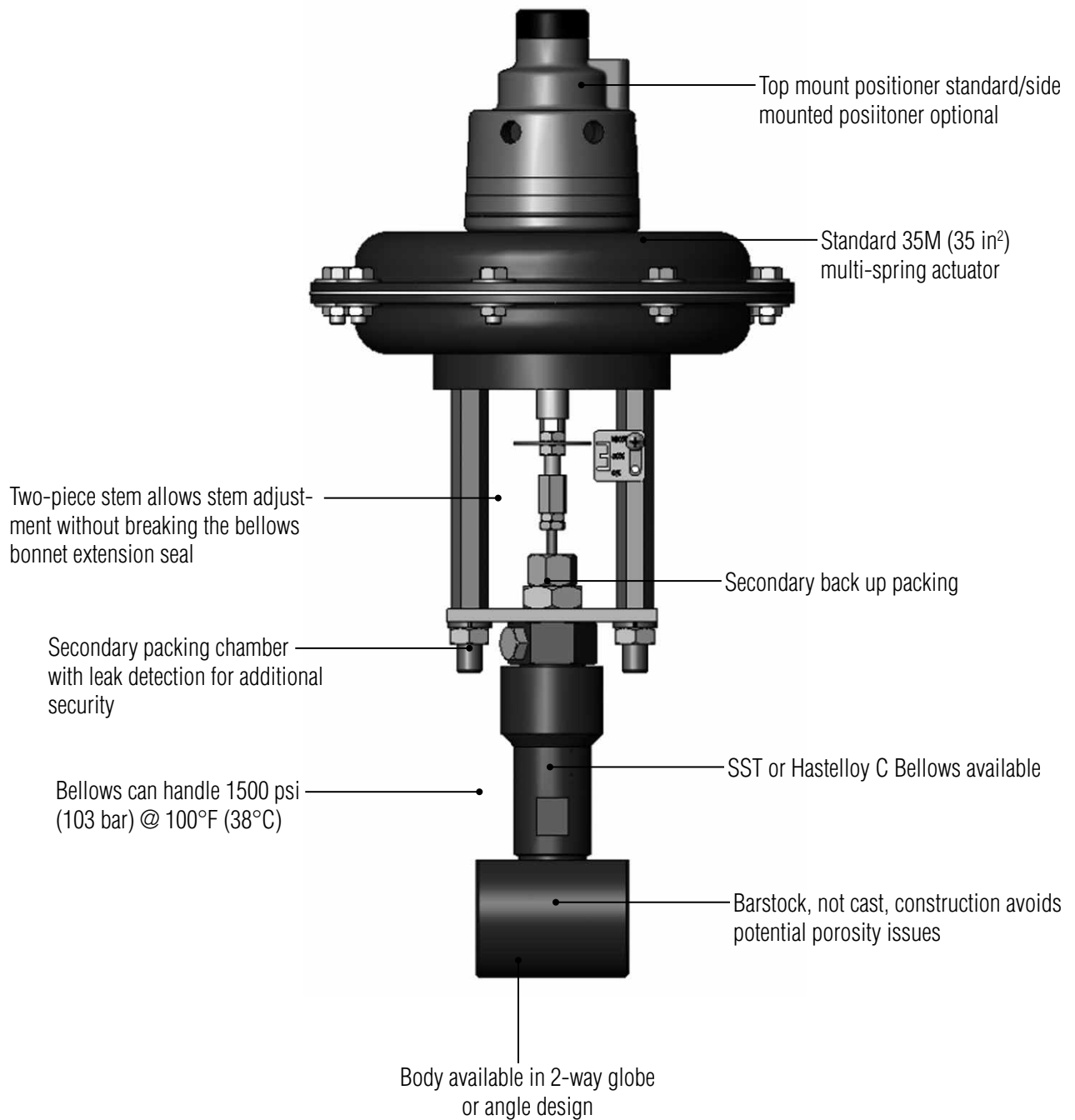
Cv	ATO with positioner at 40 psi			ATC with positioner at 40 psi		
	35M	55M	85M	35M	55M	85M
0.05-0.2	1500	N/A	N/A	1500	N/A	N/A
0.5-1.0	1500	N/A	N/A	1500	N/A	N/A
1.25-2.0	1500	N/A	N/A	1500	N/A	N/A
3.0-4.0	1300	N/A	N/A	1500	N/A	N/A
4.3-6.5	800	1100	1500	1500	1500	1500
7.1	550	750	1150	1500	1500	1500

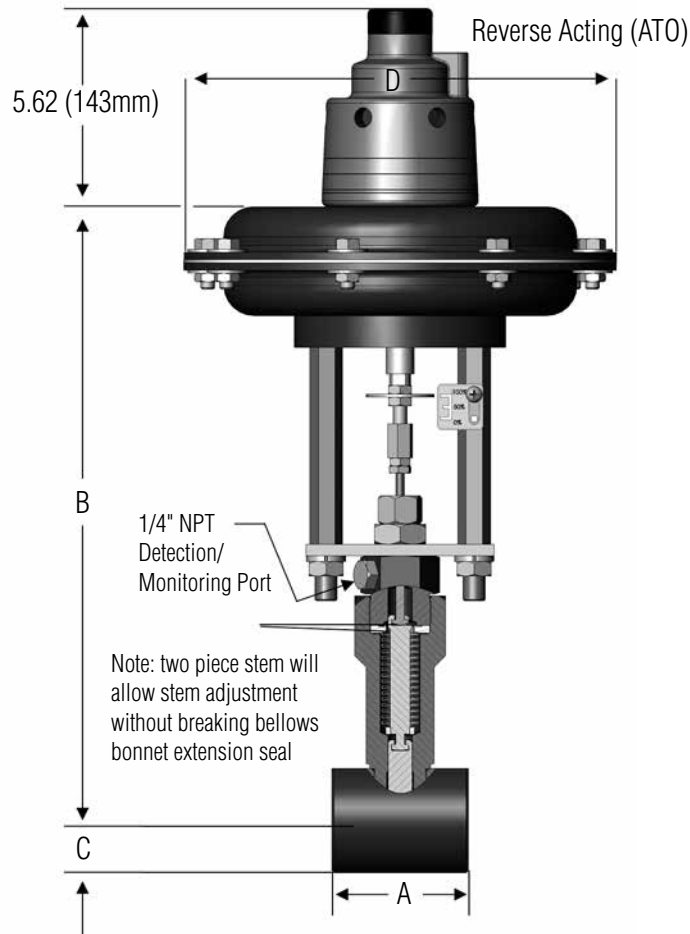
Note: listed ΔP's based on downstream pressure (P2) of zero.

For P2>0, determine ΔP with formula:

$$\Delta P = (\text{value from chart above}) - (0.32)(P2)$$

MK8000 SERIES BELLOWS STEM SEAL FEATURES & BENEFITS



MK8000 SERIES BELLOWS STEM DIMENSIONS


- Mark 8000BSS Series**

VALVE SIZE	DIMENSIONS, INCHES				WEIGHT LBS
	A	B	C	D	
1/2"	3.00	19.62	1.25	9.50	24
3/4"	3.00	19.62	1.25	9.50	24
1"	3.75	19.62	1.50	9.50	26
1-1/4"	5.00	20.00	1.65	9.50	30

- Mark 8000BSS Series, Metric**

VALVE SIZE	DIMENSIONS				WEIGHT KGS
	A	B	C	D	
DN15	76	498	32	241	11
DN20	76	498	32	241	11
DN25	95	498	38	241	11
DN32	127	508	42	241	14

SPECIFICATIONS



MK8000 SERIES BELLOWS STEM SEAL ORDERING SCHEMATIC

Model No.	Size	Body Mat'l	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

MODEL	
8000GTP	with Top Mounted Positioner
8000GSP	with Side Mounted Positioner
8000TTP	with Top Mounted Positioner
8000TSP	with Side Mounted Positioner

SIZE	
050	1/2" (DN15)
075	3/4" (DN20)
100	1" (DN25)
125	1-1/4" (DN32)

BODY MATERIAL	
CB	Carbon Steel
SB	316SS
BR	Brass
MN	Monel
HC	Hastelloy C
A2	Alloy 20
KN	Kynar
PV	PVC
ZZ	Non-Standard

1 & 2 END CONNECTIONS	
PT	FNPT
BT	BSPT
BP	BSPP
SW	FSW
R5	150# RF
J5	150# RTJ
R3	300# RF
J3	300# RTJ
R6	600# RF
J6	600# RTJ
R9	900# RF
J9	900# RTJ
R1	1500# RF
J1	1500# RTJ
R2	2500# RF
J2	2500# RTJ
B4	BWE Sch 40
B8	BWE Sch 80
B6	BWE Sch 160
ZZ	Non-standard

3 & 4 BONNET/PACKING METAL BODIES	
BT	Multi-ply Bellows/TFE
BH*	Multi-ply Bellows/High Temperature
ZZ	Non-standard

*Positioner required for high temperature packing

MK8000 SERIES BELLOWS STEM SEAL ORDERING SCHEMATIC

5 PLUG & SEAT	
Stem/Plug/Seat Material	
8000G/GTP/GSP/GMV	
Metal Bodies	
A	Standard – Linear Hard
B	Standard – =% Hard
C	Standard – Q.O. Hard
D	Standard – Linear Soft (RPTFE)
E	Standard – =% Soft (RPTFE)
F	Standard – Q.O. Soft (RPTFE)
G	316/Stellite/Stell – Linear Hard
H	316/Stellite/Stell – =% Hard
I	316/Stellite/Stell – Q.O. Hard
M	Alloy 20/AL20/AL20 – Linear Hard
N	Alloy 20/AL20/AL20 – % Hard
P	Alloy 20/AL20/AL20 – Q.O. Hard
Q	Alloy 20/AL20/AL20 – Linear Soft (RPTFE)
R	Alloy 20/AL20/AL20 – % Soft (RPTFE)
S	Alloy 20/AL20/AL20 – Q.O. Soft (RPTFE)
T	Monel/Mon/Mon – Linear Hard
U	Monel/Mon/Mon – =% Hard
V	Monel/Mon/Mon – Q.O. Hard
W	Monel/Mon/Mon – Linear Soft (RPTFE)
X	Monel/Mon/Mon – =% Soft (RPTFE)
Y	Monel/Mon/Mon – Q.O. Soft (RPTFE)
1	Hastelloy C/H-C/H-C – Linear Hard
2	Hastelloy C/H-C/H-C =% Hard
3	Hastelloy C/H-C/H-C – Q.O. Hard
4	Hastelloy C/H-C/H-C – Linear Soft (RPTFE)
5	Hastelloy C/H-C/H-C =% Soft (RPTFE)
6	Hastelloy C/H-C/H-C – Q.O. Soft (RPTFE)
Z	Non-standard

6 CV (KV)	
A	0.05 (0,043)
B	0.1 (0,086)
C	0.2 (0,17)
D	0.5 (0,43)
E	1.0 (0,86)
F	2.0 (1,72)
G	4.0 (3,44)
H	6.5 (5,63)
I	9.0 (7,74)
J	16.0 (13,8)
K	25 (21,5)
M	1.5 (1,3)
N	1.8 (1,6)
P	3.0 (2,6)
R	4.3 (3,7)
S	7.1 (6,1)

7 & 8 ACTUATOR			
TYPE		SIZE	
ALL VALVES EXCEPT SP			
D	Air-to-Close	3	35M
R	Air-to-Open	5	55M
FOR SP		8	85M
S	W/SMP		
Z	Non-standard		
8000GMV			
N	On-Off	2	NEMA 12
M	Ma/Voltage	4	NEMA 4 & X-P
ZZ	Non-standard		

SPECIFICATIONS

MK8000BS/1219

MK8000 SERIES BELLOWS STEM SEAL ORDERING SCHEMATIC

9 & 10		RANGE	
RANGE		ACTUATOR	
A	3-15 DIR	3	35M
B	3-15 REV	5	55M
G	6-30 DIR	8	85M
H	6-30 REV		
Z	Non-standard		
8000GMV			
NF	On-Off		
42	4-20 mA		
41	4-12 mA		
12	12-20 mA		
V5	0-5V		
V1	0-10V		
ZZ	Non-standard		

11 & 12		LIMIT SWITCHES (2LS)	
ACTUATOR		ACTION/TYPE	
3	35M	D	Direct/Standard
5	55M	X	Direct/X-P
8	85M	R	Reverse/Standard
		P	Reverse/X-P
00	None		
ZZ	Non-standard		

13 & 14		SOLENOID & HARDWARE	
00	None		
SD	Standard Solenoid		
WT	Water-Tight Solenoid		
XP	X-Proof Solenoid		
H3	Handwheel 35M Dir		
H5	Handwheel 55M Dir		
H8	Handwheel 85M Dir		
R3	Handwheel 35M Rev		
R5	Handwheel 55MK Rev		
R8	Handwheel 85M Rev		
ZZ	Non-standard		

15		ACCESSORIES	
0	None		
A	Air Regulator		
B	I/P 35M Act. 4-20Ma/3-15 psi		
C	I/P 55M Act. 4-20Ma/3-15 psi		
D	I/P 85M Act. 4-20Ma/3-15 psi		
E	I/P 35M/55M/85M Act. 4-20Ma/6-30 psi		
1	1 Gauge for Tmp.		
2	2 Gauge for Tmp.		
3	3 Gauge for Tmp.		
X	Oxygen Clean		
Z	Non-standard		

16		ACTION	
D	Direct A-T-C		
R	Reverse A-T-O		

17		SMP	
0	None		
A	SMP Direct/Reverse 3-15		
D	SMP-IP Direct/Reverse 4-20		
G	SMP 16IQ-S Direct/Reverse		
H	SMP 16IQ-B Direct/Reverse		
Z	Non-standard		

18		PED COMPLIANCE	
0	Not Required		
F	CE Category 1		
Z	Non-standard		