

Model DFN Valve Actuator

Technical Sales Bulletin



Figure 1 Model DFN Actuator

The Model DFN actuator is a bracket-mounted, direct acting, spring and diaphragm actuator. Common applications include operation of butterfly valves, chokes, and louvers. DFN actuators can be used in either throttling or on/off service.

FEATURES

Mounting Versatility - Four holes in the actuator base permit bracket or plate mounting.

Square Yoke - A square yoke provides a versatile mounting surface for accessories.

Long Actuator Travel - Deep casings provide up to 4-1/8 inches (105 mm) of travel for a size 156 actuator.

Easy Installation - The actuator may be installed in any position. Dimensions are shown in Figure 3.

Rugged Design - Steel welded design provides necessary stability and reliability under extreme working conditions.

SPECIFICATIONS

Recommended Casing Operating Pressure
35 Psig (241 kPag).

Maximum Allowable Casing Pressure
If this pressure is exceeded, damage may be caused to the diaphragm, diaphragm casing or other parts.

Actuator Size	Maximum Casing Rating Psig (kPag)
069	65 (448)
156	40 (276)

Net Stem Force Output
See Table 3.

Spring Commonly used with Rotary Valves
See Table 4.

Actuator Size	Maximum Travel	
	Maximum Rated Stem Travel inches (mm)	
	Standard Travel Stop	Optional Travel Stop
069	3-1/2 (89)	3 (76)
156	4-1/8 (105)	3-13/16 (97)

Actuator Size	Actuator Weight
	Shipping Weight Approximate lb (kg)
069	54 (24.5)
156	147 (67)

Construction Material - See Table 1 and Figure 2

Actuator Size	Effective Diaphragm Area (With Stem Fully Extended)
	Effective Area Inch ² (cm ²)
069	69 (445)
156	160 (1032)

Casing Connection - 1/4 inch NPT Female

Mounting and Stem Information
See Figure 2 and 3.



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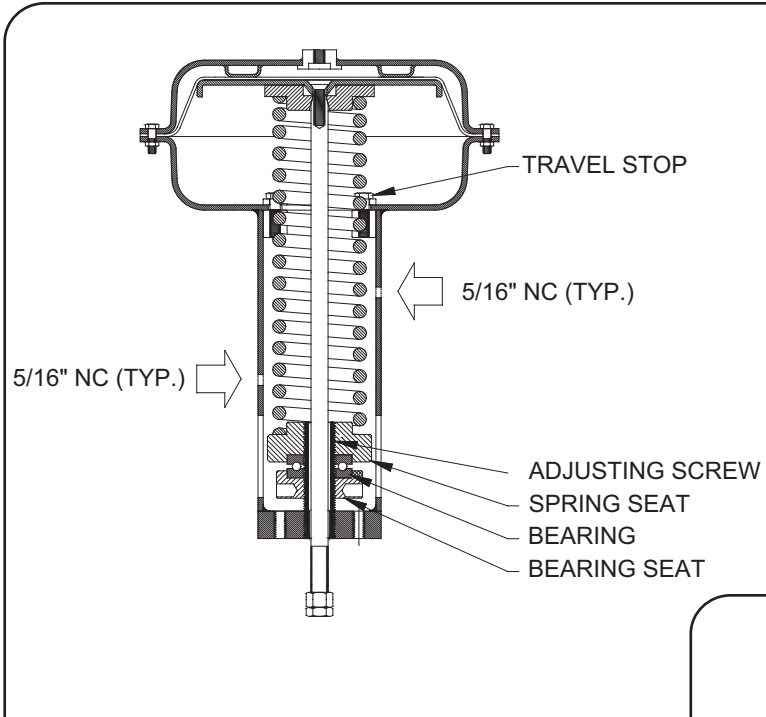


Figure 2 Typical Construction
(See Table 1 at right)

Figure 3 Dimensional Drawing
(See Table 2 below)

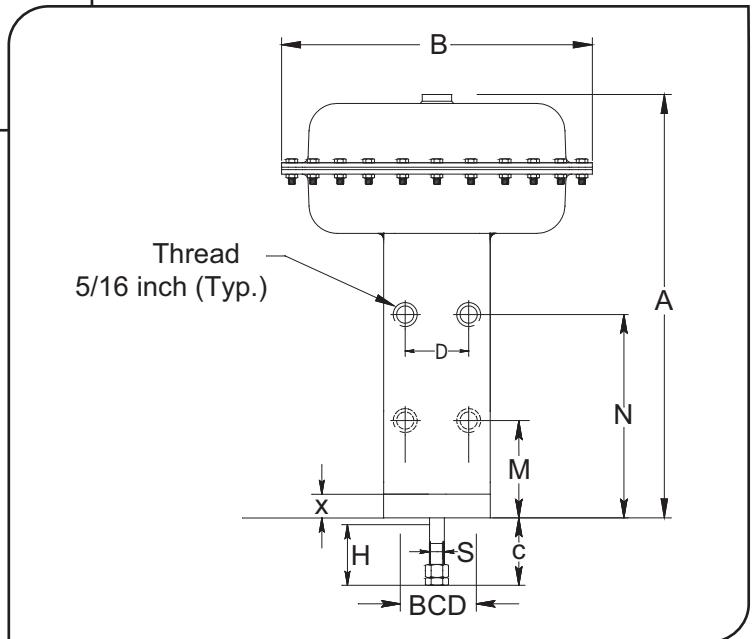


Table 1

Construction Materials

Part Description	Construction Materials
Diaphragm	Nitrile
Diaphragm Plate	Steel
Yoke	Steel
Casing	Steel
Spring Seats	Steel
Travel Stop	Steel
Stem	Steel
Bearing	Steel
Bearing Seat	Steel
Bearing Race	Steel
Adjustment Screw	Brass

Dimensions - Inch (mm)										Table 2	
Actuator Size	A	B	C	D	H	M	N	S	Bolt Circle Diameter		
									BCD	Thread	
069	17.875 (454)	13.125 (333)	3.125 (79)	2.25 (57)	2.25 (57)	3.25 (83)	6.5 (165)	0.75 (19)	2.875 (73)	3/8 inch 16 UNC	
156	27.25 (692)	18.625 (473)	3.125 (79)	2.25 (79)	2.5 (64)	3.25 (83)	8.5 (203)	0.75 (19)	3.875 (99)	1/2 inch 13 UNC	

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Table 3

Stem Force Output and Other Actuator Data

Actuator Size	Typical Springs ¹			Net Stem Force ²		
	Part Number	Color Code	Maximum Range	Stem Fully Retracted ³	Stem Fully Extended with Diaphragm Loading as Shown ⁴	
			Psig (kPag)	lbf (N)	lbf (N)	Psig (kPag)
069	1L21742704D	White	3.1 to 12.7 (21 to 88)	330 (1,468)	545 (1,205)	20 (138)
069	1L21732704D	Dark Green	6.0 to 27.4 (41 to 190)	630 (2,802)	270 (1,201)	30 (207)
156	1K16272708D	Part Number Stamped on Spring	3.7 to 13.1 (26 to 90)	796 (3,541)	1205 (5,360)	20 (140)
156	1K16282708D	Gold / Blue	7.1 to 27.0 (49 to 190)	1,462 (6,503)	682 (3,034)	30 (207)

Notes

- 1 Consult Dyna-Flo for other springs.
- 2 For maximum rated stem travel with standard travel stop.
- 3 Stem force equals initial spring compression with zero loading pressure.
- 4 Stem force equals loading pressure X diaphragm area with stem fully extended minus force at maximum compression.

Table 4

Spring Commonly Used With Rotary Valves

Actuator Size	Maximum Rated Travel Inches (mm)	Spring
069	3.50 (89)	1L21742704D ^{1,2}
069	3.50 (89)	1L21732704D ^{3,4}
156	4.13 (105)	1K16272708D ^{1,2}
156	4.13 (105)	1K16282708D ^{3,4}

Notes

- 1 With positioner input is 20 Psig (138 kPag)
- 2 Without positioner input is 3 to 15 Psig (21 to 103 kPag)
- 3 With positioner input is 35 Psig (241 kPag)
- 4 Without positioner input is 6 to 30 Psig (42 to 207 kPag)

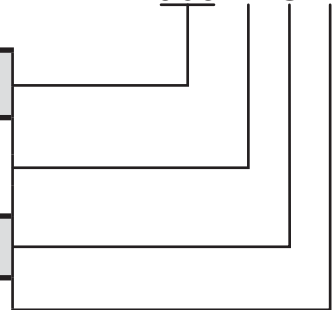


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MODEL NUMBERING SYSTEM

SAMPLE PART NUMBER: DFN-069-A-S-X

				ACTUATOR SIZE	069
069	69 INCHES ² (EFFECTIVE AREA)		156	160 INCHES ² (EFFECTIVE AREA)	
SPRING					
A	SIZE 069 - 20 PSIG (138 KPAG) - 1L21742704D		B	SIZE 069 - 35 PSIG (241 KPAG) - 1L21732704D	
C	SIZE 156 - 20 PSIG (138 KPAG) - 1K16272708D		D	SIZE 156 - 35 PSIG (241 KPAG) - 1K16282708D	
TRAVEL					
S	STANDARD (REFER TO PAGE 1)			O	OPTIONAL (REFER TO PAGE 1)
SPECIAL					
X	SPECIAL	H	TOP MOUNTED HANDWHEEL		X



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