

Economic Diaphragm Valves

DE Series

Introduction

DE series economic diaphragm valves are typical products for ultra high purity gas fluid systems. Reliability and economy are achieved by reducing the number of components, optimizing machining methods and mass production, while maintaining the same basic performance by using the same materials, cleaning and packaging processes as the other series of FITOK diaphragm valves. FITOK's advance manufacturing processes and stringent quality control ensure the products meet the application needs of ultra high purity gas fluid systems for the semiconductor industry.



Features

- ⦿ Minimum particle generation and dead space
- ⦿ Cobalt alloy diaphragm with high strength and corrosion resistance to ensure long cycle life
- ⦿ No springs or threads in wetted areas improves cleanliness

Technical Data

Port Size	1/4"	
Flow Coefficient (Cv)	0.27	
Orifice Size	0.16 in. (4.1 mm)	
Working Pressure	Vacuum to 150 psig (10 bar)	
Pneumatic Actuator Operating Pressure	60 ~ 90 psig (4.2 ~ 6.2 bar)	
Temperature	-10 ~ 176 °F (-23 ~ 80 °C)	
Leak Rate (Helium)	Internal	≤ 1x10 ⁻⁹ std cm ³ /s
	External	≤ 1x10 ⁻⁹ std cm ³ /s

Flow Data

Air @ 70 °F (21 °C)

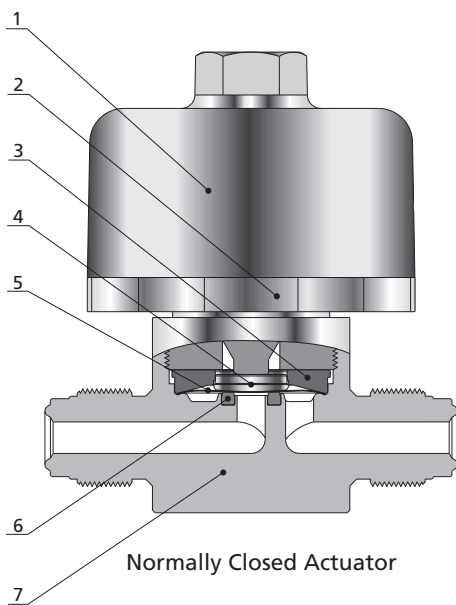
Water @ 60 °F (16 °C)

Orifice in. (mm)	Pressure Drop to Atmosphere psig (bar)	Air (l/min)	Water (l/min)
0.16 (4.1)	10 (0.68)	86	3.2
	50 (3.4)	230	7.2
	100 (6.8)	410	10.2

Process Specification

Process Specification	Ultra High Purity (F3)
Technology	
Material/Specification	316L SS/SEMI F20
Wetted Surface Roughness	Ra 5 µin. (0.13 µm)
Polishing Process	Electropolished
Assembly Environment	Cleanroom
Packaging	Double bagged and vacuum sealed in cleanroom

Major Materials of Construction

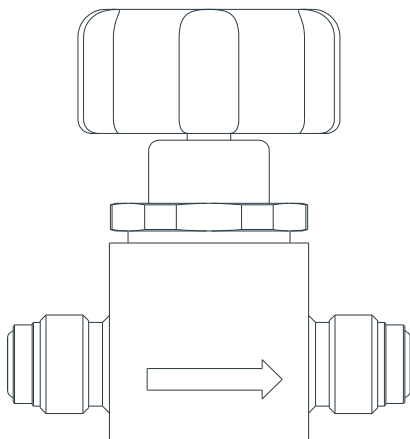


Item	Component	Material / Specification
1	Actuator	Aluminum
2	Actuator Nut	304 SS/ASTM A479
3	Bonnet	S17400/ASTM A564
4	Button	316 SS/ASTM A479
5	Diaphragm	Cobalt alloy/AMS 5876
6	Seat	PCTFE/ASTM D1430
7	Body	316L SS/SEMI F20

Actuator

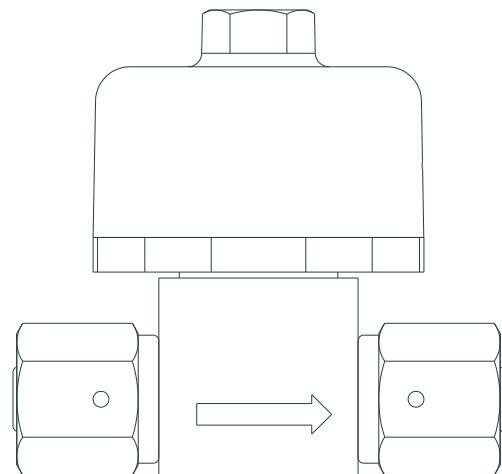
Manual - Round Handle

- ⦿ Quick, quarter-turn actuation



Normally Closed Pneumatic

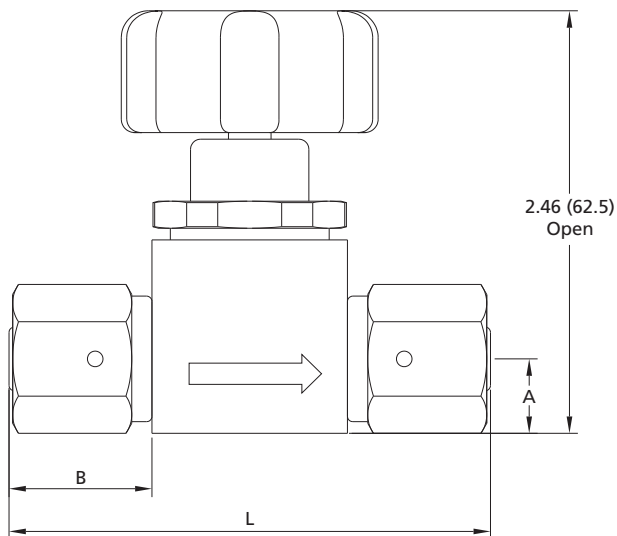
- ⦿ Normally Closed, "N.C." marked on the top of the actuator



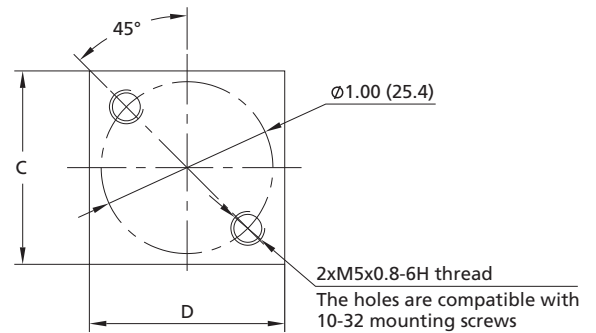
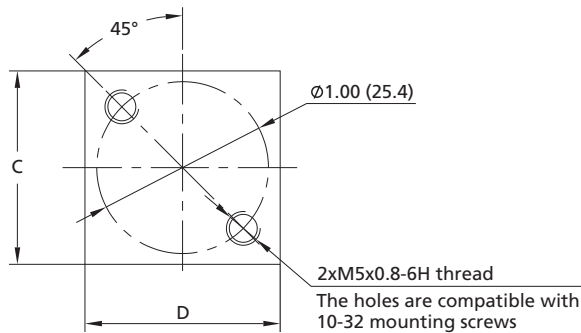
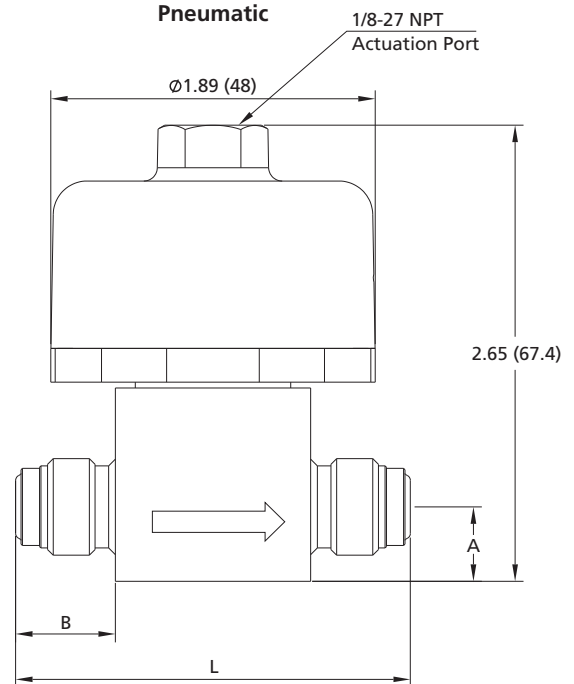
Dimensions and Ordering Information

Dimensions, in inches (millimeters), are for reference only.

Manual - Round Handle



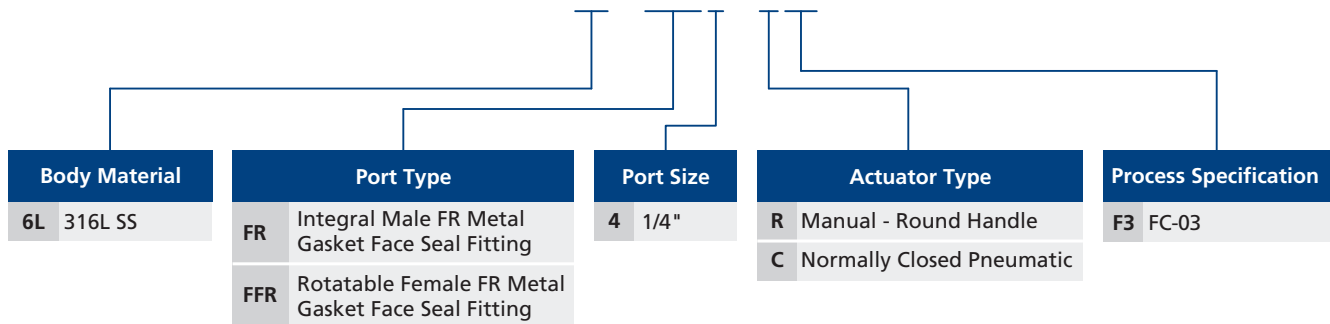
Pneumatic



Ordering Number	Connection Type and Size	Dimensions, in. (mm)				
		A	B	C	D	L
DE6L-FFR4-RF3	1/4" Rotatable Female FR Metal Gasket Face Seal Fitting	0.43 (11)	0.82 (20.9)	1.13 (28.6)	1.14 (28.9)	2.78 (70.6)
DE6L-FFR4-CF3						
DE6L-FR4-RF3	1/4" Integral Male FR Metal Gasket Face Seal Fitting	0.43 (11)	0.58 (14.7)	1.13 (28.6)	1.14 (28.9)	2.30 (58.4)
DE6L-FR4-CF3						

Part Number Description

DE6L - FFR4 - CF3



Note: Part Number Description is only for designator meaning explanation, please refer to the Ordering Number for the optional part numbers.