

Diaphragm Valves

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)

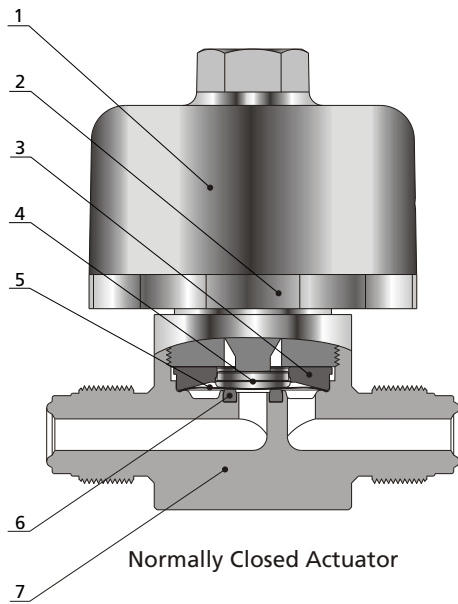
Water @ 60 °F (16 °C)

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

Technology	Process Specification	Ultra High Purity (F3)
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
- Handle with window to visually indicate open and closed states



OPEN



CLOSED

Normally Closed Pneumatic

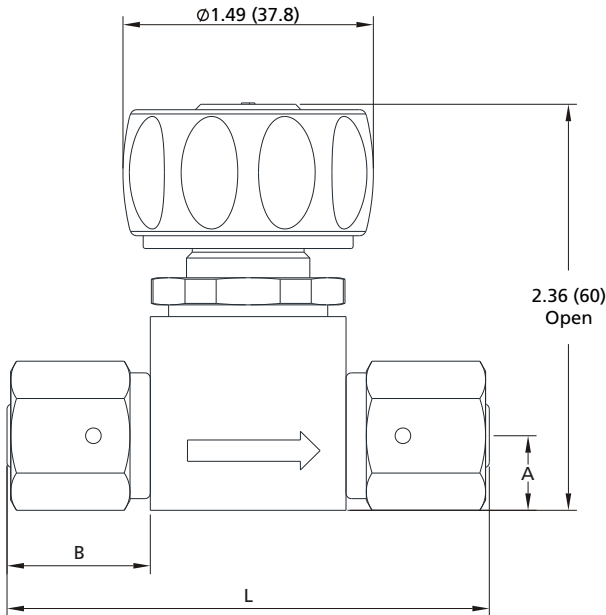
- Normally Closed, "N.C." marked on the top of the actuator



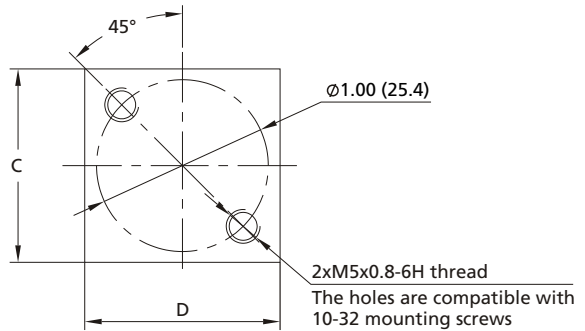
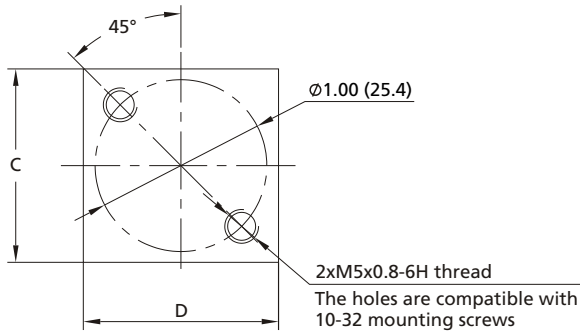
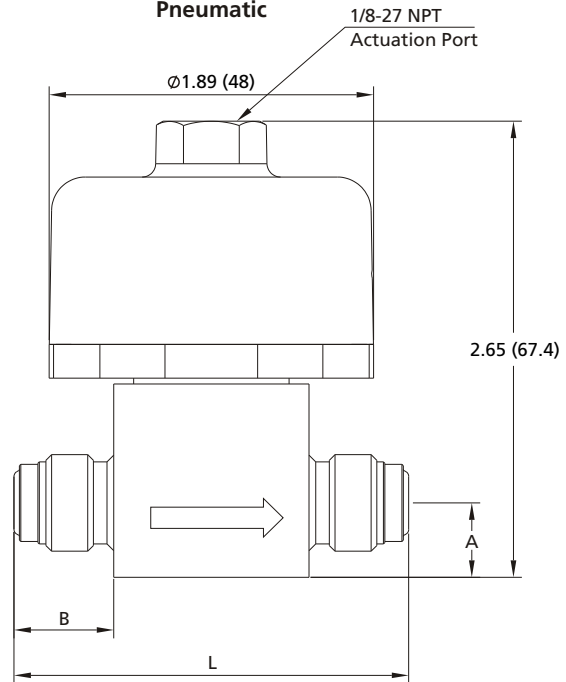
Dimensions and Ordering Information

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						2.30 (58.4)
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)	2.78 (70.6)
DE6L-FR4-CF3						2.30 (58.4)

Fittings

Valves

Pressure Gauges

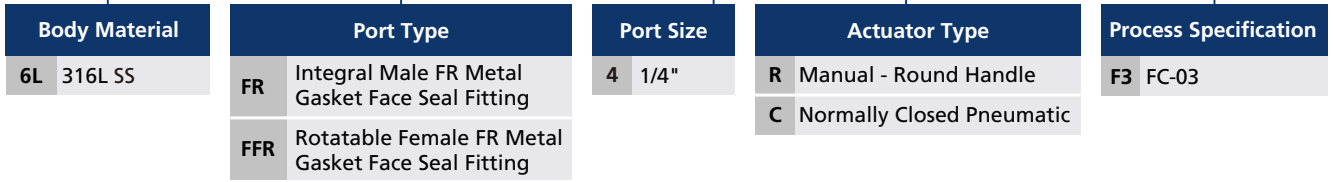
Integrated Systems and Others

Process Specification

Part Number Description

Fittings

DE6L - FFR4 - CF3



Valves

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

Pressure Gauges

Integrated Systems and Others

Process Specification