

Economic Diaphragm Valves

DE Series

Introduction

DE series economic diaphragm valves are typical products for ultra high purity gas fluid systems. 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

- Minimal particle generation and minimal 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 (10.3 bar)	
Pneumatic Actuator Operating Pressure	60 ~ 90 psig (4.2 ~ 6.2 bar)	
Working Temperature	-10 ~ 176 °F (-23 ~ 80 °C)	
Leak Rate (Helium)	Internal	≤1×10 ⁻⁹ std·cm ³ /s
	External	≤1×10 ⁻⁹ std·cm ³ /s

Flow Data

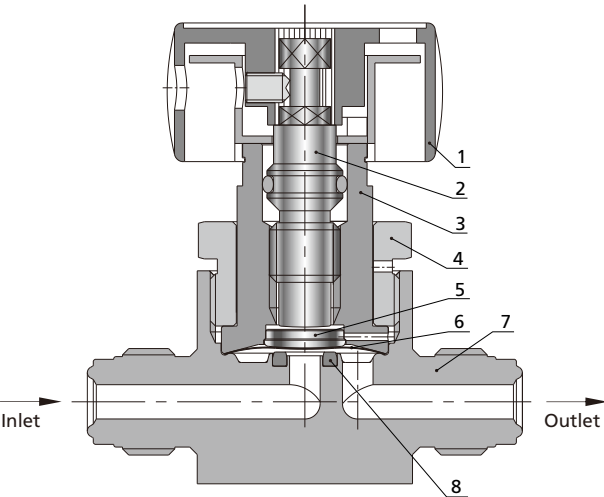
Air @ 70 °F (21 °C)
Water @ 60 °F (16 °C)

Pressure Drop to Atmosphere psig (bar)	Air (l/min)	Water (l/min)
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 Process (FC-03)
Item		
Material		316L SS
Wetted Surface Roughness		Ra 5 μin. (0.13 μm)
Polishing Process		Electropolished
Cleaning		Ultra high purity cleaning in continuously monitored ultrasonic cleaning system with deionized water
Assembly Environment		ISO Class 4 (FS 209E Class 10 equivalent) cleanroom
Packaging		Double bagged in cleanroom

Major Materials of Construction



Item	Component	Material / Specification
1	Handle	Aluminum
2	Stem	316 SS/ASTM A479
3	Bonnet	S17400/ASTM A564
4	Bonnet Nut	316 SS/ASTM A479
5	Button	316 SS/ASTM A479
6	Diaphragm	Cobalt Alloy/AMS 5876
7	Body	316L SS
8	Seat	PCTFE/ASTM D1430

Handles and Actuators

Manual - Round Handle

- Quick, half-turn actuation
- Handle with window to visually indicate open and closed states



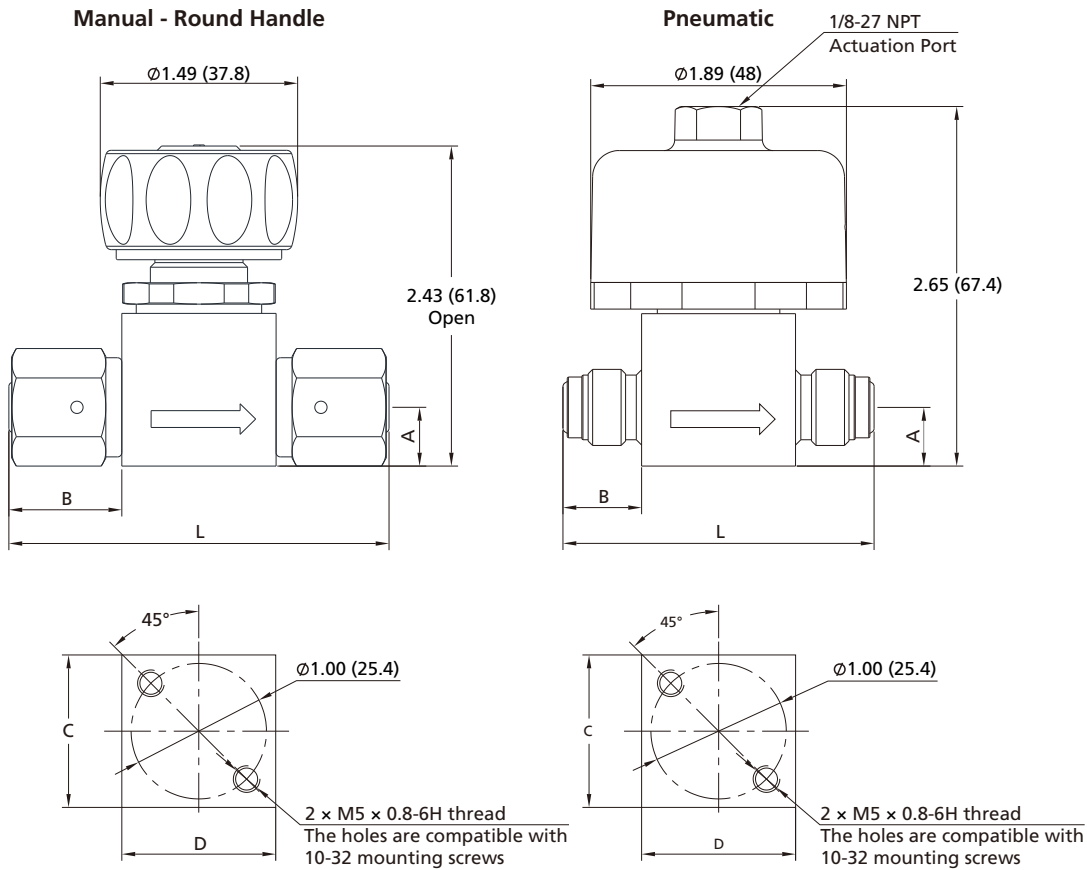
Normally Closed Pneumatic

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



Dimensions and Ordering Information

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



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

Part Number Description

DE6L - FFR4 - CF3 - CE											
Body Material		Port Type		Port Size		Handle and Actuator		Process Specification		Product Certification	
6L	316L SS	FR	Integral Male FR Fitting	4	1/4"	R	Manual - Round Handle	F3	FC-03		None
		FFR	Rotatable Female FR Fitting			C	Normally Closed Pneumatic			CE	CE Certification
										AX	ATEX Certification

Notes:

- Notes:
- "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available; Should you have any questions, please contact FITOK or our authorized distributors.
 - For the -CE or AX options, the valve conforms to ATEX certification, with "CE" marking and explosion protection "EX" marking. For position sensor selections, the -CE option includes a 3-wire position sensor compliant with CE certification, while the -AX option includes a 2-wire explosion-proof position sensor compliant with ATEX certification. The 2-wire explosion-proof position sensor requires use with an isolating switch amplifier.