

Two-Step Pneumatic Diaphragm Valves

DPT Series

Introduction

DPT series two-step pneumatic diaphragm valves, designed for high purity and ultra high purity applications, provide a “soft start” for equipment by rapidly switching between low and high flow modes. This prevents pressure surges in the cavity and avoids scattering of particles that could contaminate the process equipment cavity as a result of the rapid flow of media into the process equipment cavity.

Features

- Fast switching between low and high flow rates
- Minimal particle generation and minimal dead space
- Cobalt alloy diaphragm with high strength and corrosion resistance to ensure long cycle life
- No internally wetted threads or springs which minimizes particle generation and particle entrapment for high purity
- Valve Cv values in low-flow mode can be preset at the factory according to customer specifications or adjusted by customers themselves

Technical Data

Port Size			1/4"
Flow Coefficient (Cv)			High-Flow (HF) Port: 0.27 Low-Flow (LF) Port: 0.02 ~ 0.12 ^①
Orifice Size			0.16 in. (4.1 mm)
Working Pressure			Vacuum to 145 psig (10 bar)
Pneumatic Actuator Working Pressure			60 ~ 90 psig (4.2 ~ 6.2 bar)
Working Temperature			PFA: 14 ~ 302 °F (-10 ~ 150 °C) PCTFE: 14 ~ 176 °F (-10 ~ 80 °C)
Leak Rate (Helium)	Internal	≤1×10 ⁻⁹ std cm ³ /s	
	External	≤1×10 ⁻⁹ std cm ³ /s	

① Note: Valve Cv values in low-flow mode can be preset at the factory according to customer specifications or adjusted by customers themselves. For detailed operating instructions, please refer to page V-41.

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

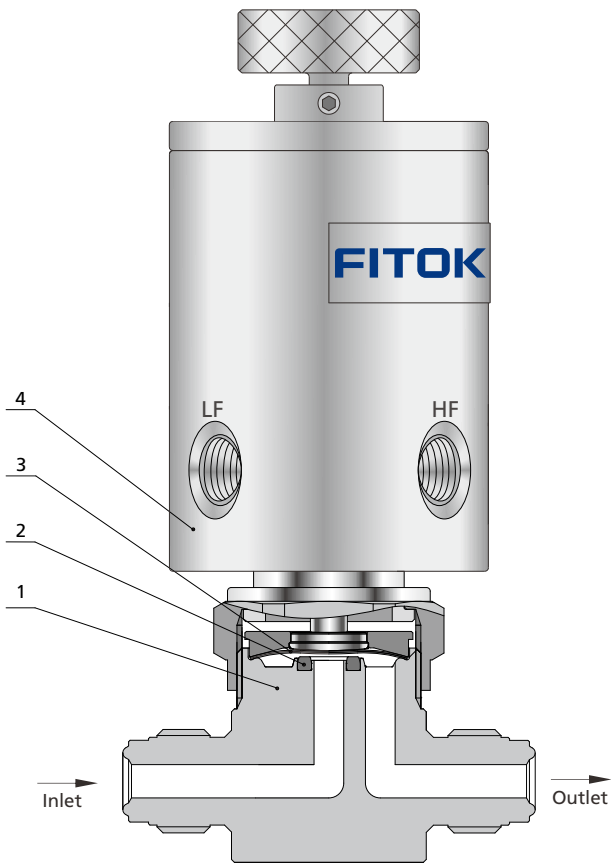


Process Specification

Item	Process Specification	Ultra High Purity Process (FC-03)
Material		316L SS or 316L SS VAR
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, packaged in the cleanroom

Notes: Refer to page P-01 for a detailed description of Process Specification.

Major Materials of Construction



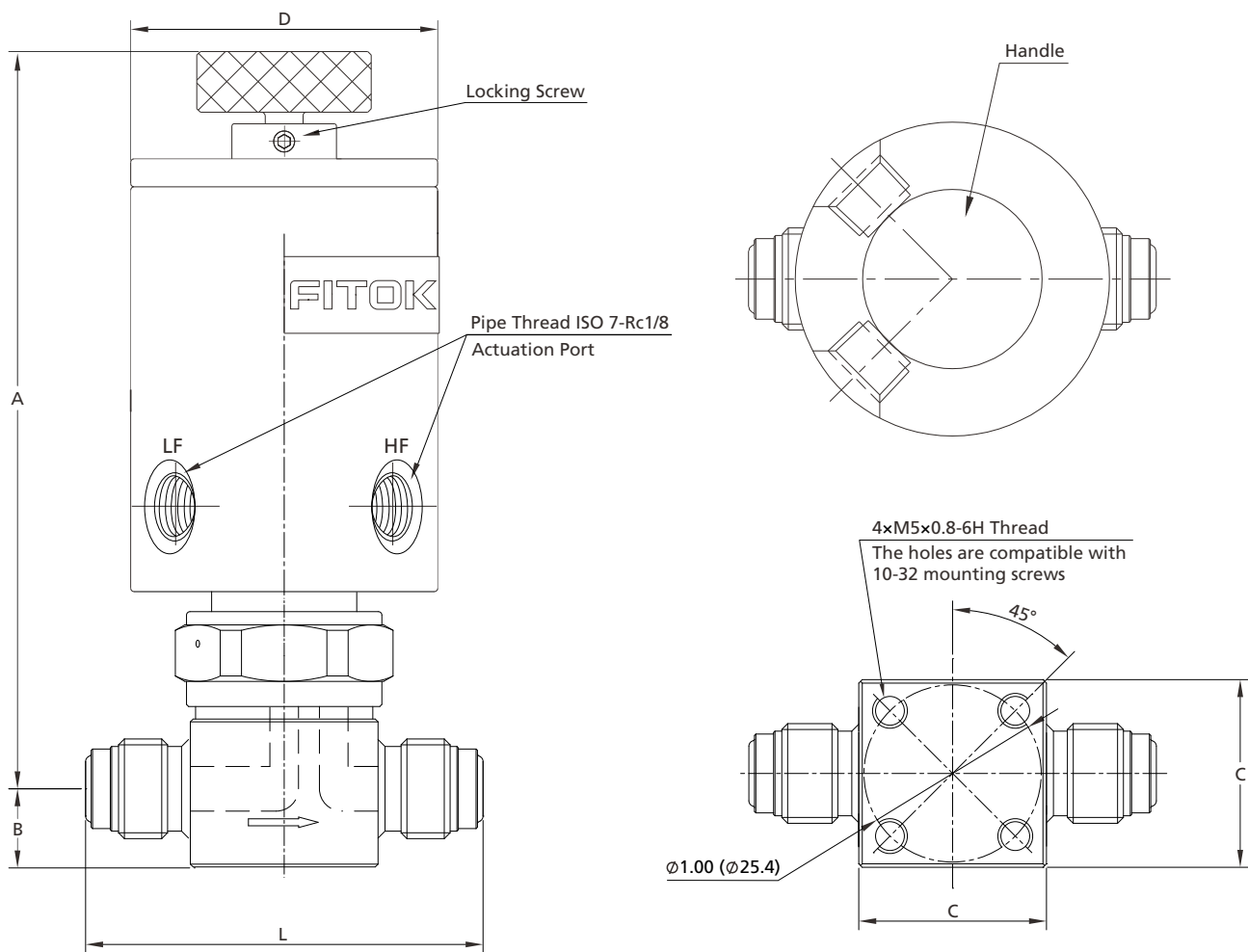
Nomally Closed Pneumatic Actuator

Item	Component	Material/Specification
1	Body	316L SS or 316L SS VAR
2	Seat	PCTFE/ASTM D1430 or PFA/ASTM D3307
3	Diaphragm	Cobalt Alloy/AMS 5876
4	Actuator	Aluminium

Fittings
Valves
Regulators
Filters
Tubing
Integrated Systems
Other Products
Technical Information

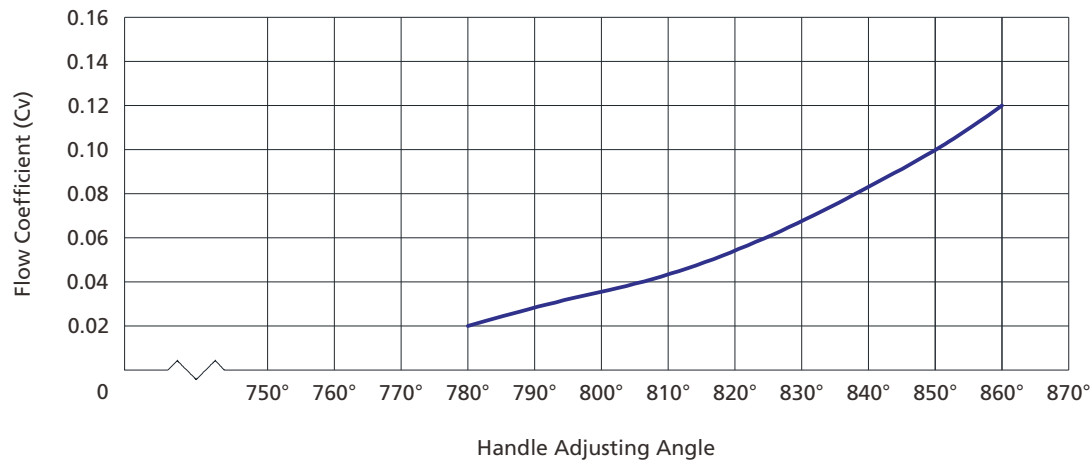
Dimensions and Ordering Information

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



Flow Adjustment Instructions for Low-Flow Mode:

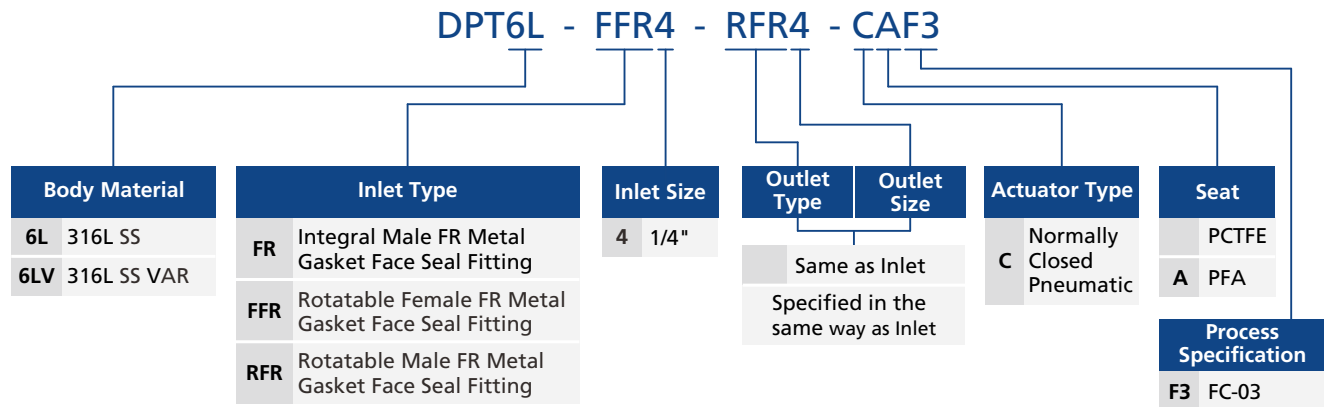
Loosen the locking screws and turn the handle clockwise to the end. Then, rotate the handle counterclockwise until the desired Cv value is reached (see below relationship between Cv and handle adjusting angle). Once the desired Cv is achieved, tighten the locking screws.



Note: The rotation angle for turning the handle counterclockwise by one complete turn is 360°. Consequently, two complete turns equal 720°, and this pattern continues accordingly for additional turns.

Basic Ordering Number	Connection Type and Size	Dimensions, in. (mm)				
		A	B	C	D	L
DPT6L-FR4-CAF3	1/4" Integral Male FR Metal Gasket Face Seal Fitting	4.15 (105.5)	0.44 (11.2)	1.06 (26.9)	1.73 (44.0)	2.24 (57.0)
DPT6L-FFR4-CAF3	1/4" Rotatable Female FR Metal Gasket Face Seal Fitting					2.78 (70.6)

Ordering Number Description



Note: "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 Group or our authorized distributors.