

# Diaphragm Valves

## DH Series High Pressure Springless Diaphragm Valves

### Features

- ⊙ Metal-to-metal diaphragm seal
- ⊙ Elgiloy diaphragm to provide high strength and corrosion resistance
- ⊙ Long cycle life in high pressure application
- ⊙ Manual and pneumatic actuators available
- ⊙ Indicator switch available assembled on pneumatic valves, transmitting a signal to an electrical device to indicated either the open or closed position of the valves
- ⊙ Normally open and normally closed indicator switches optional

### Technical Data

<b>Port Size</b>	1/4" to 3/8" or 6 mm to 8 mm	
<b>Flow Coefficient (Cv)</b>	0.20	
<b>Orifice Size</b>	0.16 in. (4.1 mm)	
<b>Max. Working Pressure</b>	3000 psig (206 bar)	
<b>Pneumatic Actuator Operating Pressure</b>	60 to 90 psig (4.2 to 6.2 bar)	
<b>Temperature</b>	PCTFE: -10~150°F (-23~65°C)	
<b>Leak rate (Helium)</b>	<b>Internal</b>	≤1x10 <sup>-9</sup> mbar l/s
	<b>External</b>	≤1x10 <sup>-9</sup> mbar l/s

### Flow Data

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

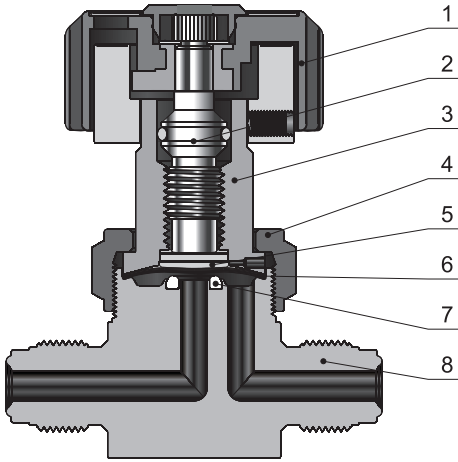
Pressure Drop to Atmosphere psi (bar)	Air (l/min)	Water (l/min)
10 (0.68)	64	2.4
50 (3.4)	170	5.4
100 (6.8)	300	7.6

### Product Technology Grade

Product Grade Technology	General Purpose	Special Cleaning and Packaging (F2)	Ultra High Purity (F3)
<b>Material/Specification</b>	316L SS/ASTM A479		316L VAR/SEMI F20 316L VIM-VAR /SEMI F20
<b>Wetted Surface Roughness</b>	Ra 10 μin. (0.25 μm) <sup>①</sup>		Ra 5 μin. (0.13 μm)
<b>Polishing Process</b>	Machine finished <sup>①</sup>		Electropolished
<b>Process Specification</b>	FC-01 Standard Cleaning and Packaging	FC-02 Special Cleaning and Packaging	FC-03 Ultra High Purity Process Specification
<b>Cleaning</b>	Thrice degreasing ultrasonic cleaning	Special cleaning with non-ozone-depleting chemicals	Ultra high purity cleaning in continuously monitored ultrasonic cleaning system with deionized water
<b>Assembly Environment</b>	At atmosphere	In specially cleaned areas	In ISO Class 5/Federal Class 100 cleanroom
<b>Packaging</b>	Individually bagged	Double bagged	Double bagged and vacuum sealed in cleanroom

① For FR connections and tube butt connections, the standard polishing process is electropolishing and the internal surface roughness is finished to an average of Ra 5 μin. (0.13 μm).

## Major Materials of Construction



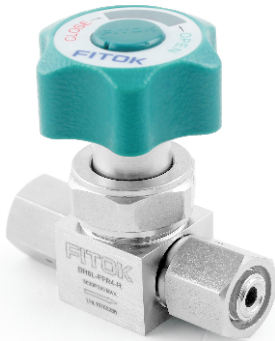
Round Handle Model

Item	Component	Material/Specification
1	Handle	ABS
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 (5)	Elgiloy(3)/AMS 5876 + C17200(2)/ASTM B194
7	Seat	PCTFE/ASTM D1430
8	Body	316 SS/ASTM A479 or 316L SS/ASTM A479 or 316L VIM-VAR/SEMI F20

## Actuators

### Manual - Round Handle

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



### Pneumatic

- ⦿ Normally open, "N.O." marked on the top of the cylinder
- ⦿ Normally closed, "N.C." marked on the top of the cylinder



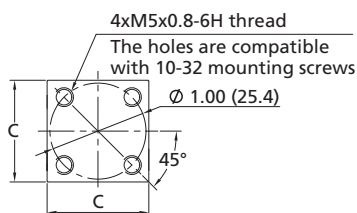
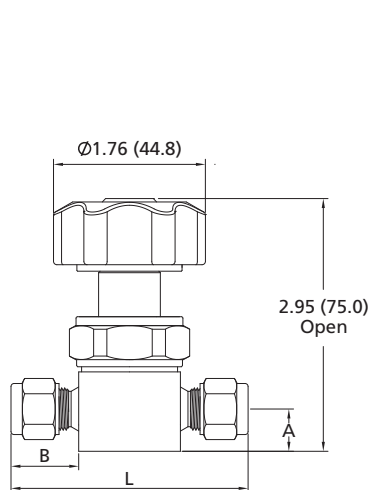
## Dimensions and Ordering Information

### Straight Type

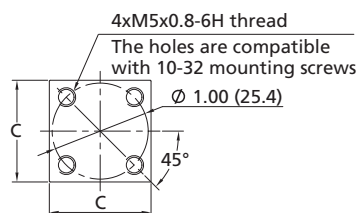
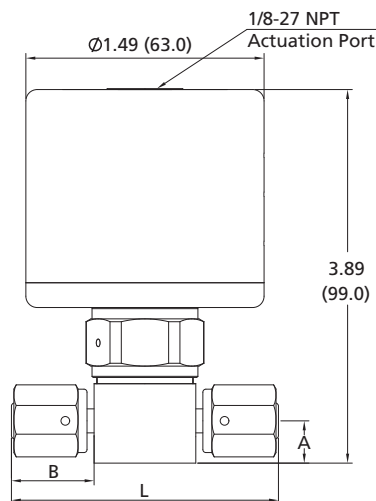
#### Dimensions

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

Manual - Round Handle



Pneumatic



Basic Ordering Number	Connection Type and Size	Dimensions in. (mm)			
		A	B	C	L
DH□□-TB4-	1/4" Tube Butt Weld	0.44 (11.2)	0.30 (7.6)	1.06 (26.9)	1.74 (44.2)
DH□□-TB6-	3/8" Tube Butt Weld	0.44 (11.2)	0.26 (6.6)	1.06 (26.9)	1.74 (44.2)
DH□□-FFR4-	1/4" Female FR	0.44 (11.2)	0.86 (21.8)	1.06 (26.9)	2.78 (70.6)
DH□□-RFR4-	1/4" Rotatable Male FR	0.44 (11.2)	0.86 (21.8)	1.06 (26.9)	2.78 (70.6)
DH□□-FR4-	1/4" Integral Male FR	0.44 (11.2)	0.62 (15.7)	1.06 (26.9)	2.30 (58.4)
DH□□-ML6-	6 mm FITOK Tube Fitting	0.44 (11.2)	0.70 (17.9)	1.06 (26.9)	2.47 (62.7)

#### Ordering Number Description

### DH6L - FL4 - ML6 - CF2M

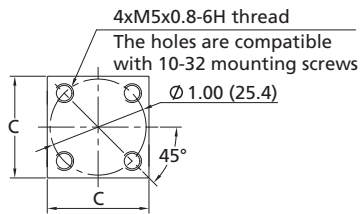
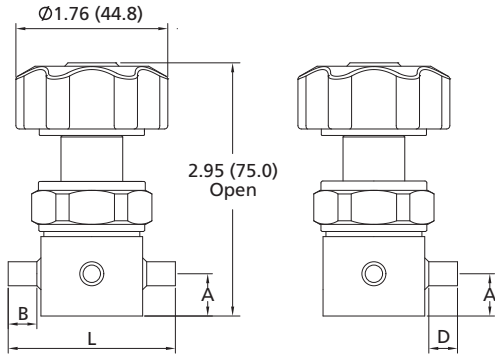
Body Material		Inlet Type		Inlet Size		Outlet Type	Outlet Size	Actuator Type		Technology Grade	
6L	316L SS	TB	Fractional Tube Butt Weld	4	1/4"	Same as Inlet	Specified in the same way as Inlet type and size	R	Handle	General Purpose	
6LV	316L VAR	MTB	Metric Tube Butt Weld	6	6 mm or 3/8"			C	Pneumatic Normally Closed	F2	Special Cleaning and Packaging
6LW	316L VIM-VAR	FR	Integral Male FR Fitting	8	8 mm	Same as Inlet	Specified in the same way as Inlet type and size	O	Pneumatic Normally Open	F3	Ultra High Purity
		FFR	Female FR Fitting					Note: For butt weld connection, pneumatic actuator is not recommended unless it causes no interference to welding.		Indicator Switch (only for pneumatic valves)	
		RFR	Rotatable Male FR Fitting							None	
		FL	Fractional Tube Fitting							M	
		ML	Metric Tube Fitting							M2	Normally Closed

## Branch Type

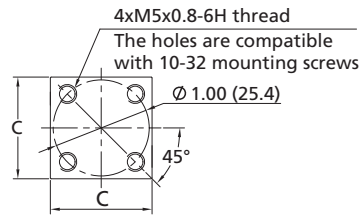
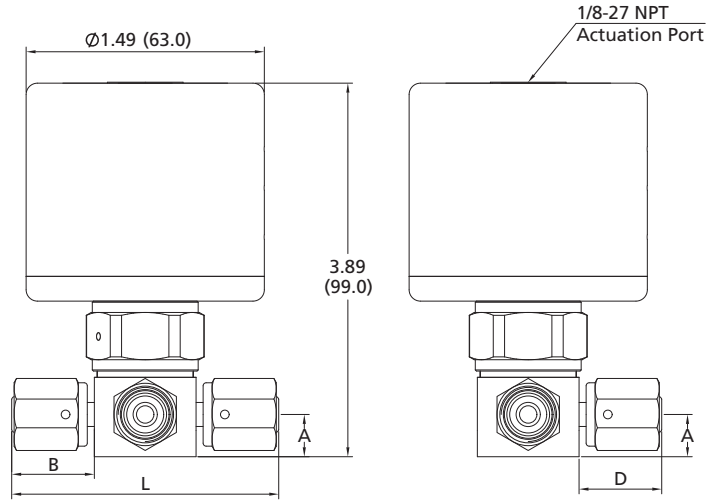
### Dimensions

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

#### Manual - Round Handle



#### Pneumatic

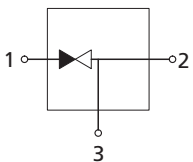


Basic Ordering Number	Connection Type and Size	Dimensions in. (mm)				
		A	B	C	D	L
DH□□-TB4-	1/4" Tube Butt Weld	0.44 (11.2)	0.30 (7.6)	1.06 (26.9)	0.30 (7.6)	1.74 (44.2)
DH□□-TB6-	3/8" Tube Butt Weld	0.44 (11.2)	0.26 (6.6)	1.06 (26.9)	0.26 (6.6)	1.74 (44.2)
DH□□-FFR4-	1/4" Female FR	0.44 (11.2)	0.86 (21.8)	1.06 (26.9)	0.86 (21.8)	2.78 (70.6)
DH□□-RFR4-	1/4" Rotatable Male FR	0.44 (11.2)	0.86 (21.8)	1.06 (26.9)	0.86 (21.8)	2.78 (70.6)
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DH□□-FL4-	1/4" FITOK Tube Fitting	0.44 (11.2)	0.70 (17.9)	1.06 (26.9)	0.70 (17.9)	2.47 (62.7)

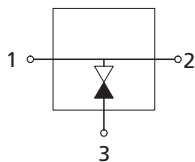
### Flow Paths

☉ Flow paths as viewed from the top

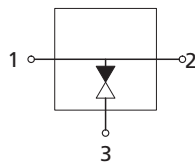
3D Flow



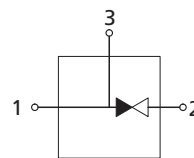
3E Flow



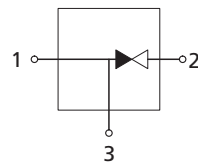
3F Flow



3G Flow



3K Flow



Ordering Number Description

DH6L - TB4 - TB4 - FR4 - 3F - CF2M

Body Material		Port 1 Type		Port 1 Size		Port 2/3 Type	Port 2/3 Size	Flow Path	Actuator Type		Technology Grade		
6L	316L SS	TB	Fractional Tube Butt Weld	4	1/4"	Same as Port 1	Specified in the same way as Port 1 type and size	3D	R	Handle	General Purpose		
6LV	316L VAR	MTB	Metric Tube Butt Weld	6	6 mm or 3/8"			3E	C	Pneumatic Normally Closed	F2	Special Cleaning and Packaging	
6LW	316L VIM-VAR	FR	Male FR Fitting	8	8 mm			3F	O	Pneumatic Normally Open	F3	Ultra High Purity	
		FFR	Female FR Fitting					3G	Note: For butt weld connection, pneumatic actuator is not recommended unless it causes no interference to welding.			<b>Indicator Switch (only for pneumatic valves)</b>	
		RFR	Rotatable Male FR Fitting					3K				None	
		FL	Fractional Tube Fitting					M				Normally Open	
		ML	Metric Tube Fitting							M2	Normally Closed		