

# High Pressure Springless Diaphragm Valves

## DH Series

### Introduction

DH Series High Pressure Springless Diaphragm Valves are suitable for high purity and ultra high purity applications. Featuring an internally springless flow path, these valves ensure high cleanliness and offer multiple flow path options, providing exceptional versatility.



### Features

- Cobalt alloy diaphragm with high strength and corrosion resistance to ensure long cycle life
- Manual and pneumatic actuators available
- Pneumatic actuators available in both standard and compact designs, configurable with optional NC/NO position sensors

### Technical Data

Port Size	1/4" to 3/8" or 6 mm to 8 mm	
Flow Coefficient (Cv)	0.20	
Orifice Size	0.16 in. (4.1 mm)	
Max. Working Pressure	3000 psig (207 bar)	
Pneumatic Actuator Operating Pressure	Standard: 75 to 105 psig (5.2 to 7.2 bar)	
	Compact: 60 to 90 psig (4.2 to 6.2 bar)	
Temperature	PTFE: -10 ~ 150 °F (-23 ~ 65 °C)	
	Polyimide: 50 ~ 302 °F (10 ~ 150 °C)	
Leak Rate (Helium)	Internal	$\leq 1 \times 10^{-9}$ std-cm <sup>3</sup> /s
	External	$\leq 1 \times 10^{-9}$ std-cm <sup>3</sup> /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)	64	2.4
50 (3.4)	170	5.4
100 (6.8)	300	7.6

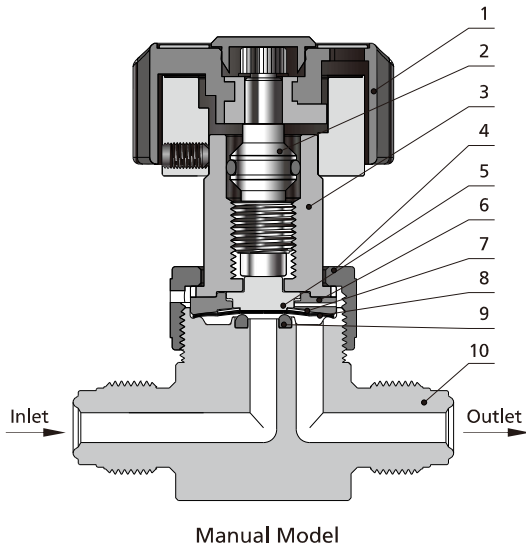
### Process Specification

Item	Process Specification	Standard Cleaning and Packaging Process (FC-01) Special Cleaning and Packaging Process (FC-02)	Ultra High Purity Process (FC-03)
	Material		316L SS
Wetted Surface Roughness		Ra 10 μin. (0.25 μm)	Ra 5 μin. (0.13 μm)
Polishing Process		Machine finished	Electropolished

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

① Wetted surface roughness of valves with FR Series metal gasket face seal connections and tube butt weld connections.

## Major Materials of Construction



Item	Component	Material/Specification
1	Handle	ABS
2	Stem	316 SS/ASTM A479
3	Bonnet Retainer	S17400/ASTM A564
4	Bonnet Nut	316 SS/ASTM A479
5	Button	316 SS/ASTM A479
6	Bonnet	S17400/ASTM A564
7	Seal	S17700
8	Diaphragm (3)	Cobalt Alloy /AMS 5876
9	Seat	PCTFE/ASTM D1430 or Polyimide
10	Body	316L SS or 316L SS VAR

## Handles and 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 actuator
- ⦿ Normally closed, "N.C." marked on the top of the actuator



### Compact Pneumatic

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



Fittings

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Regulators

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Tubing

Integrated Systems

Other Products

Technical Information

# V-45 Diaphragm Valves

## Position Sensors

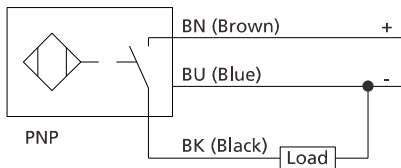
Transmit a signal to an electrical device indicating the open and closed position of pneumatically actuated valves

### Technical Information

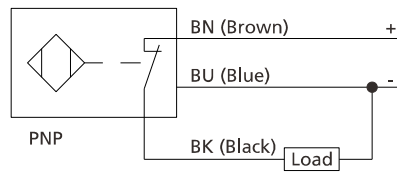
<b>Output</b>	3-wire V (dc), PNP
<b>Output Function</b>	Normally open or normally closed
<b>Voltage</b>	10 ~ 30 V (dc)
<b>Working Temperature</b>	-13 ~ 158 °F (-25 ~ 70 °C)

### Wiring Diagram

Normally open position sensors



Normally closed position sensors



#### Notes:

Pneumatic, Normally Open (NO):

1. Standard Model:

With NO sensor: signal output, indicator ON when valve closes

With NC sensor: signal output, indicator ON when valve opens

2. Compact Model

With NO sensor: signal output, indicator ON when valve opens

With NC sensor: signal output, indicator ON when valve closes

Pneumatic, Normally Closed (NC):

With NO sensor: signal output, indicator ON when valve opens

With NC sensor: signal output, indicator ON when valve closes

## Explosion-proof Position Sensors

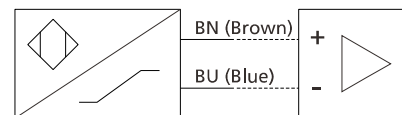
Transmit a signal to an electrical device, indicating the open and closed positions of pneumatically actuated valves.

Equipment Group II under ATEX Certification. The output complies with DIN EN 6094 7-5-6 (NAMUR) and the sensor should be used with an isolation amplifier.

### Technical Information

<b>Output</b>	2 Wires DC
<b>Voltage</b>	8.2 V (dc)
<b>Working Temperature</b>	-13 ~ 158 °F (-25 ~ 70 °C)

### Wiring Diagram



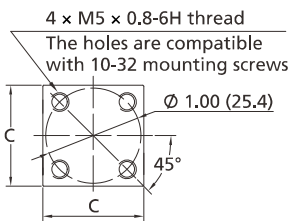
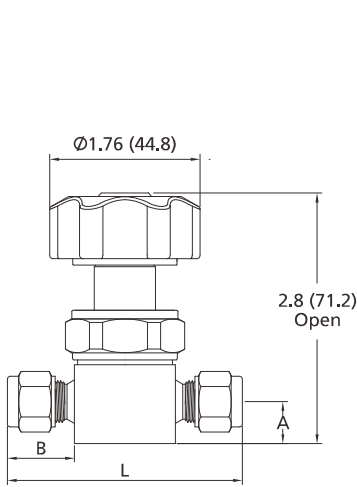
# Dimensions and Ordering Information

## Straight Type

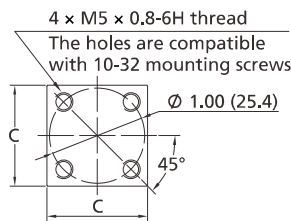
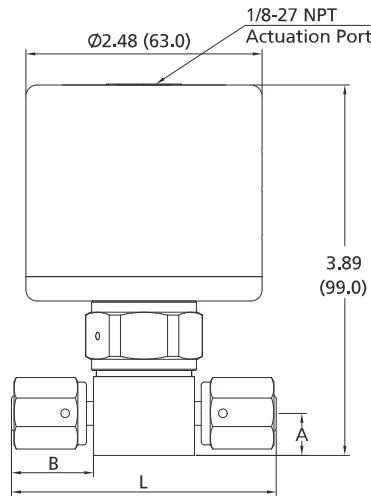
### Dimensions

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

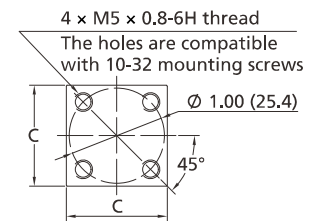
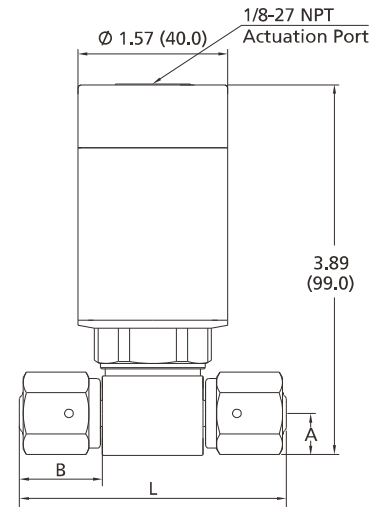
#### Manual - Round Handle



#### Pneumatic



#### Compact Pneumatic



Basic Ordering Number	Connection Type and Size	Dimensions in. (mm)			
		A	B	C	L
DH□□-TB4-	1/4" x 0.035" Tube Butt Weld	0.44 (11.2)	0.30 (7.6)	1.06 (26.9)	1.74 (44.2)
DH□□-TB6-	3/8" x 0.035" Tube Butt Weld		0.26 (6.6)		
DH□□-FFR4-	1/4" Rotatable Female FR Metal Gasket Face Seal Fitting		0.86 (21.8)		2.78 (70.6)
DH□□-RFR4-	1/4" Rotatable Male FR Metal Gasket Face Seal Fitting		0.62 (15.7)		
DH□□-FR4-	1/4" Integral Male FR Metal Gasket Face Seal Fitting		0.70 (17.9)		2.30 (58.4)
DH□□-ML6-	6 mm FITOK Tube Fitting		2.47 (62.7)		

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