

Diaphragm Valves

DP Series Low Pressure Pneumatic Diaphragm Valves

Features

- ⦿ Minimum particle generation and dead space
- ⦿ Fully contained seat to provide excellent resistance to swelling and contamination
- ⦿ Elgiloy diaphragm to provide high strength and corrosion resistance
- ⦿ Long cycle life with high speed actuation
- ⦿ Internally threadless and springless
- ⦿ Fully functional under vacuum conditions
- ⦿ Indicator switch available assembled on normally closed valves, transmitting a signal to an electrical device to indicated either the open or closed position of the valves

Technical Data

Port Size	1/4" to 3/8" or 6 mm to 8 mm	
Flow Coefficient (Cv)	0.27	
Orifice Size	0.16 in. (4.1 mm)	
Max. Working Pressure	250 psig (17.2 bar)	
Pneumatic Actuator Operating Pressure	60 to 90 psig (4.2 to 6.2 bar)	
	70 psig (4.8 bar) for actuator with indicator switch	
Temperature	PCTFE: -10~150°F (-23~65°C) PFA: -10~302°F (-23~150°C)	
Leak Rate (Helium)	Internal	≤ 1x10 ⁻⁹ mbar l/s
	External	≤ 1x10 ⁻⁹ mbar l/s

Flow Data

Air @ 70°F (21°C)
Water @ 60°F (16°C)

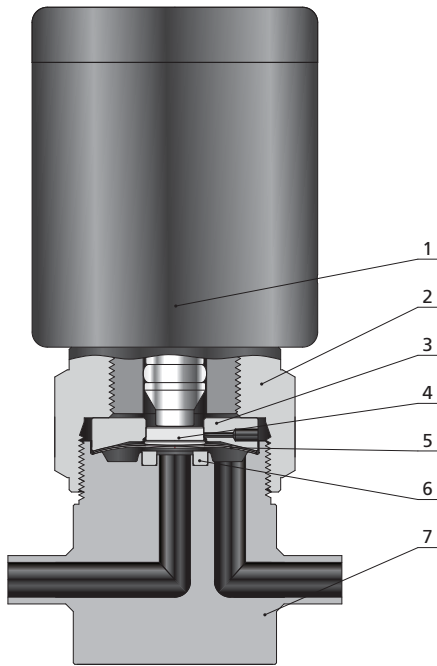
Pressure Drop to Atmosphere psi (bar)	Air (l/min)	Water (l/min)
10 (0.68)	86	3.2
50 (3.4)	230	7.2
100 (6.8)	410	10.2

Product Technology Grade

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



Normally Closed Model

Item	Component	Material/Specification
1	Actuator	Aluminum
2	Bonnet Nut	316 SS/ASTM A479
3	Bonnet	S17400/ASTM A564
4	Button	316 SS/ASTM A479
5	Diaphragm (2)	Elgiloy/AMS 5876
6	Seat	PCTFE/ASTM D1430 or PFA/ASTM D3307
7	Body	316 SS/ASTM A479 or 316L SS/ASTM A479 or 316L VIM-VAR/SEMI F20

Pneumatic Actuators

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

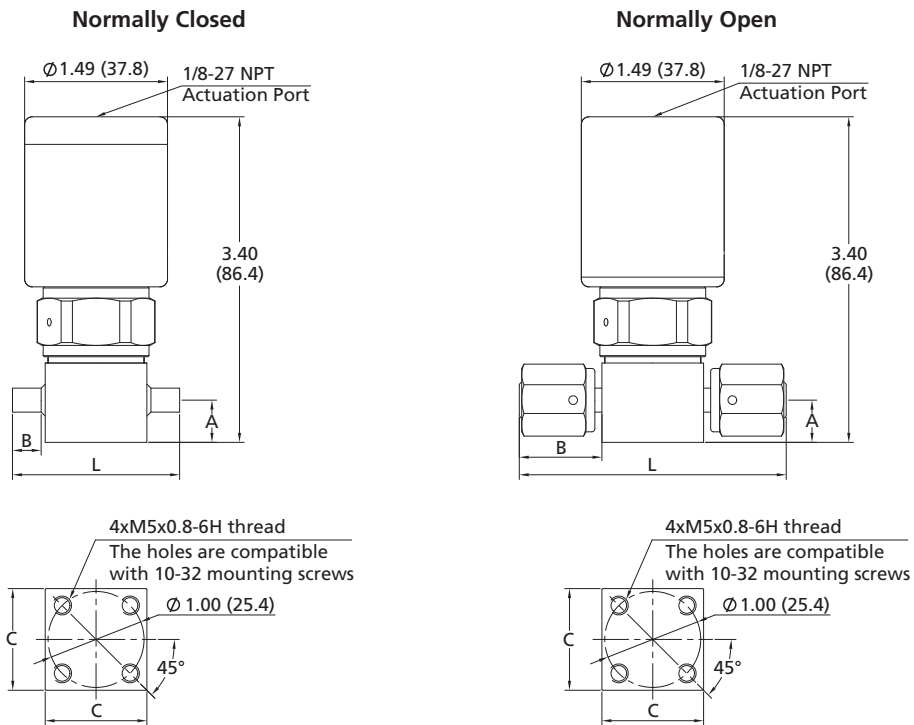


Dimensions and Ordering Information

Straight Type

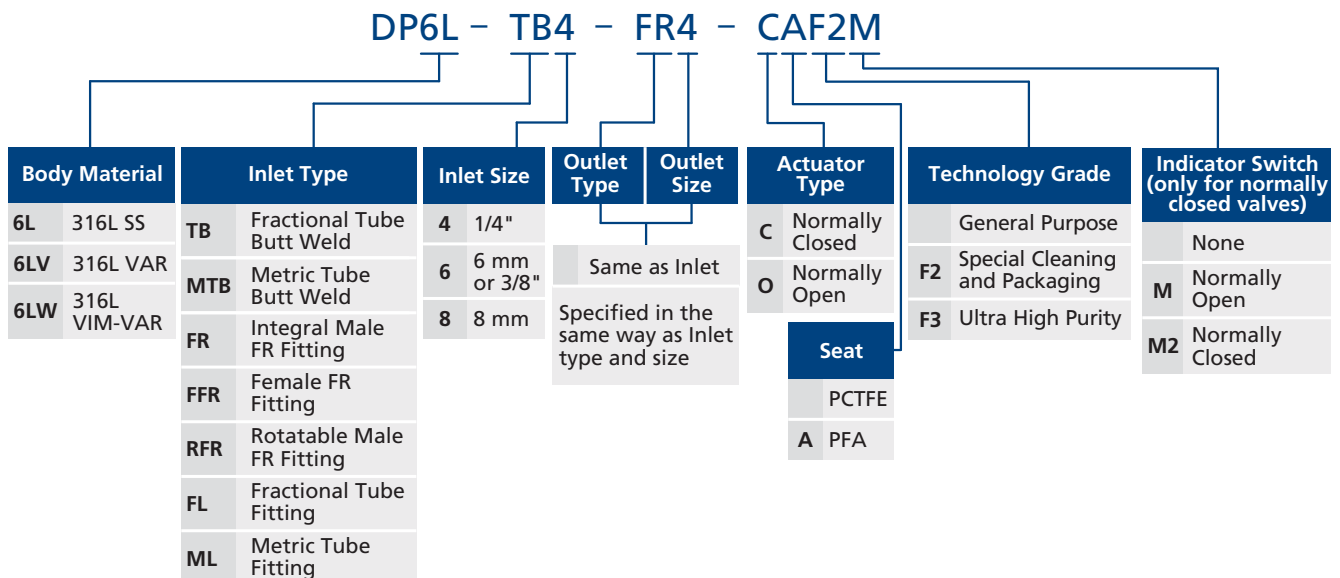
Dimensions

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



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

Ordering Number Description

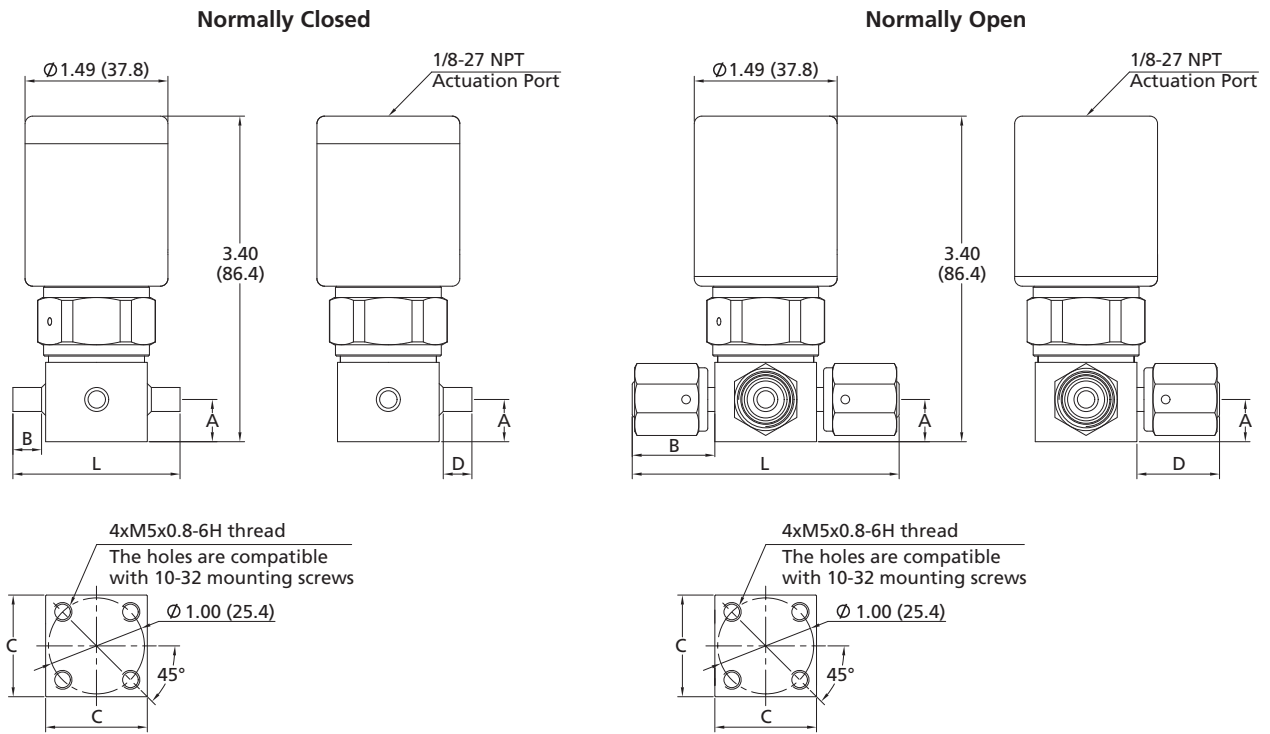


V-13 Diaphragm Valves

Branch Type

Dimensions

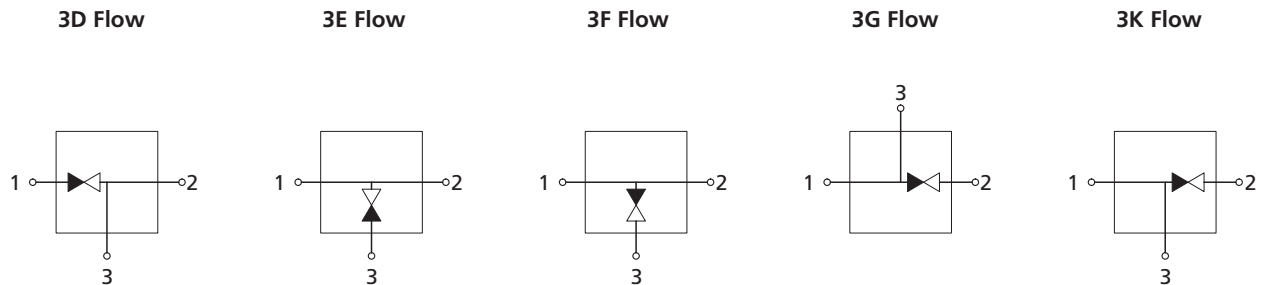
Dimensions, in inches (millimeters), are for reference only.



Basic Ordering Number	Connection Type and Size	Dimensions in. (mm)				
		A	B	C	D	L
DP□□-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)
DP□□-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)
DP□□-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)
DP□□-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)
DP□□-FR4-	1/4" Integral Male FR	0.44 (11.2)	0.62 (15.7)	1.06 (26.9)	0.62 (15.7)	2.30 (58.4)

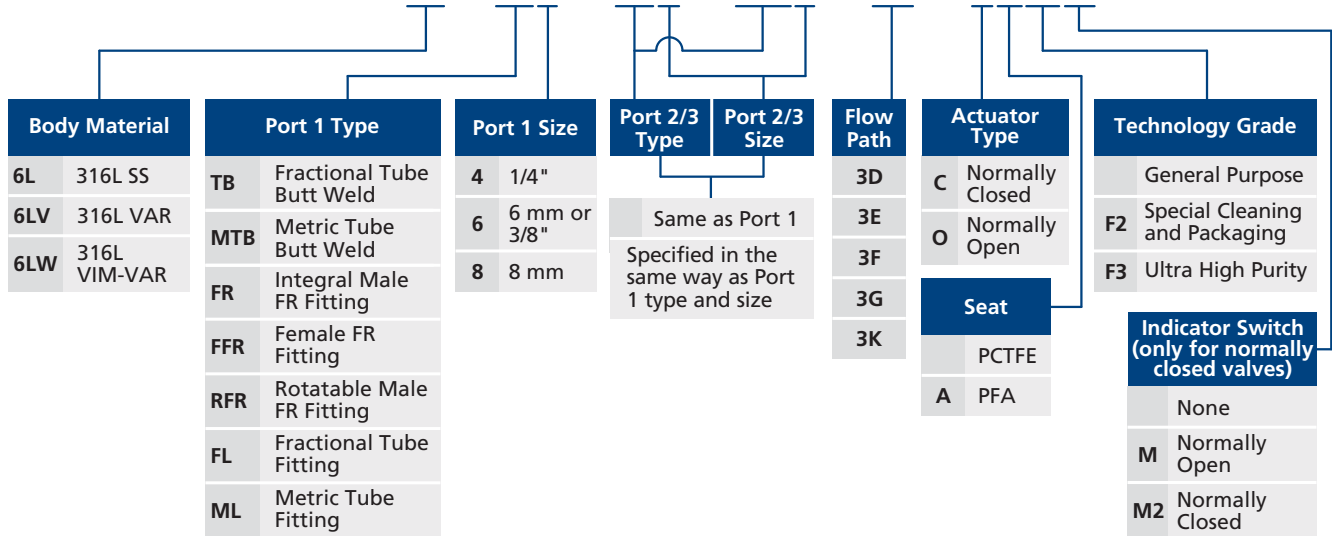
Flow Paths

☉ Flow paths as viewed from the top



Ordering Number Description

DP6L - TB4 - FR4 - FFR4 - 3G - CAF2M

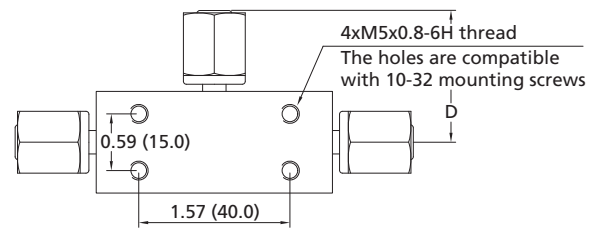
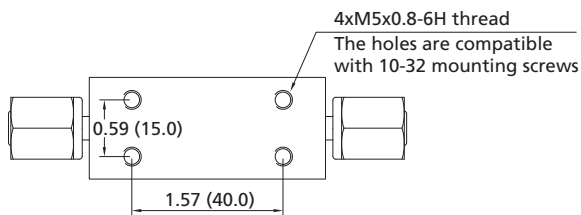
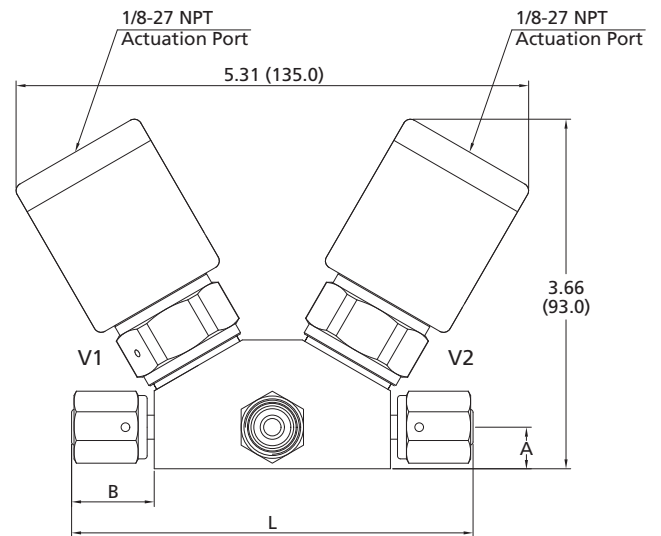
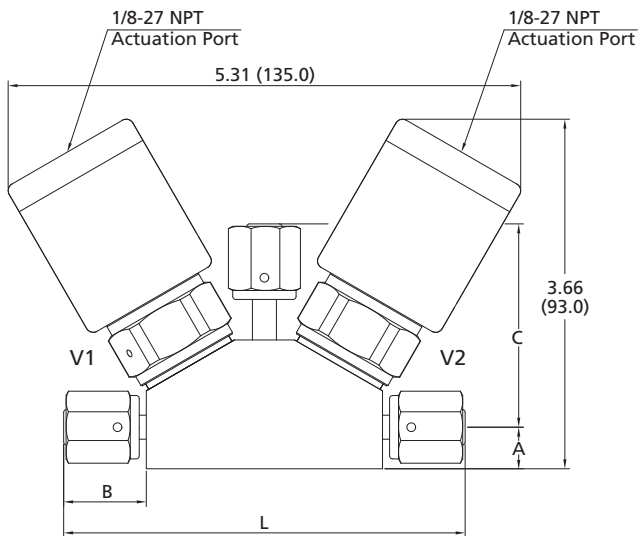


V-15 Diaphragm Valves

2-Valve 3-Way Block Type

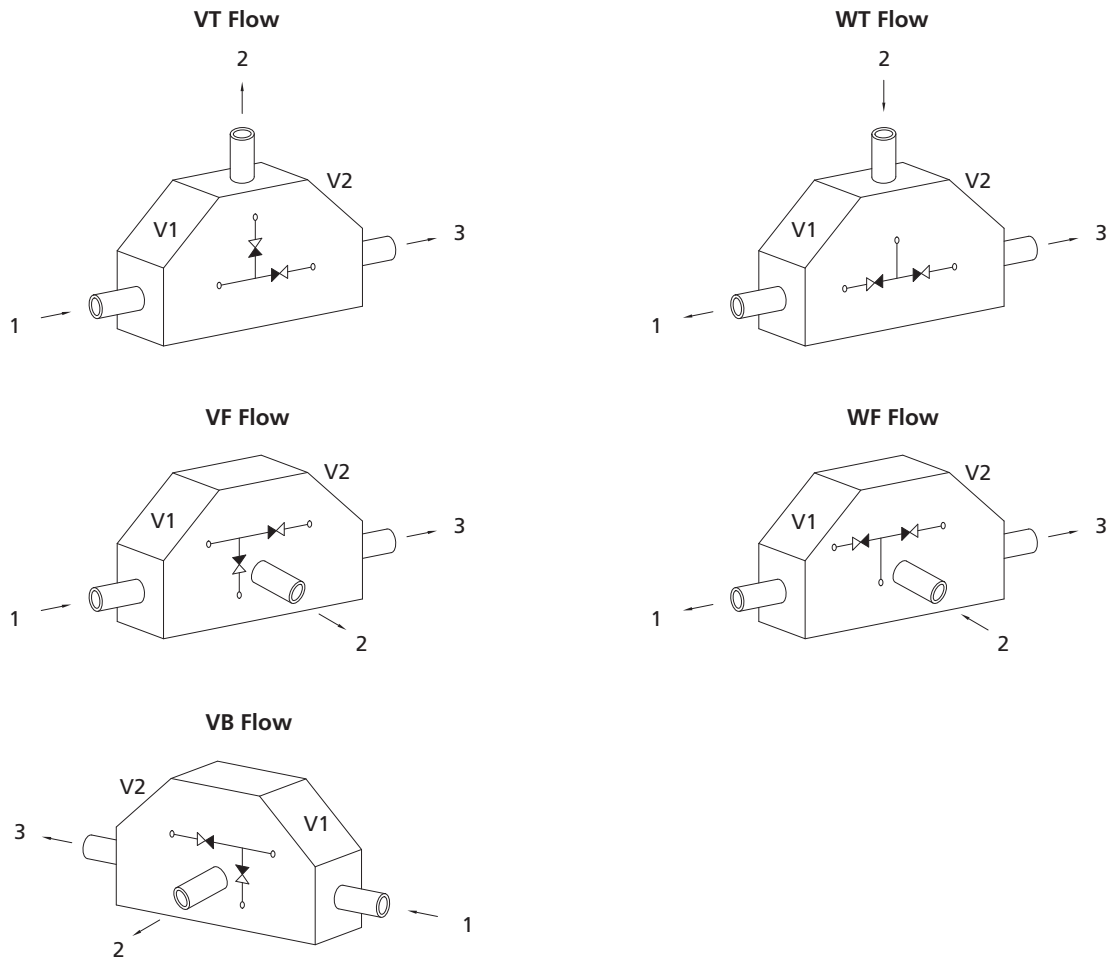
Dimensions

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



Basic Ordering Number	Connection Type and Size	Dimensions in. (mm)				
		A	B	C	D	L
DP23□□-FFR4-	1/4" Female FR	0.44 (11.2)	0.86 (21.8)	2.12 (53.8)	—	4.24 (107.6)
DP23□□-FFR4-	1/4" Female FR	0.44 (11.2)	0.86 (21.8)	—	1.37 (34.8)	4.24 (107.6)
DP23□□-RFR4-	1/4" Rotatable Male FR	0.44 (11.2)	0.86 (21.8)	2.12 (53.8)	—	4.24 (107.6)
DP23□□-RFR4-	1/4" Rotatable Male FR	0.44 (11.2)	0.86 (21.8)	—	1.37 (34.8)	4.24 (107.6)

Flow Paths



Ordering Number Description

DP236L - FFR4 - RFR4 - FFR4 - VF - COAF2M

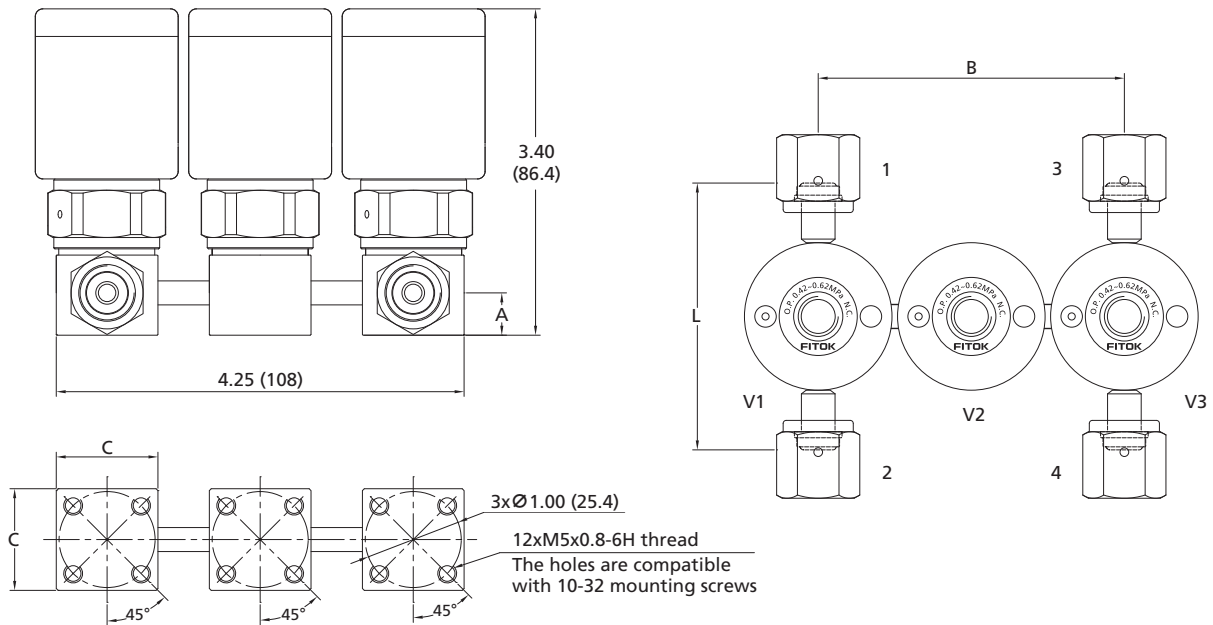
Type	Body Material	Port 1 Type	Port 2/3 Type	Port 2/3 Size	Flow Path	Actuator Type V1 and V2	Technology Grade
23 2 Valves and 3 Ports	6L 316L SS 6LV 316L VAR 6LW 316L VIM-VAR	FFR Female FR Fitting RFR Rotatable Male FR Fitting	Same as Port 1	Specified in the same way as Port 1 type and size	VT VF VB WT WF	C V1 Closed V2 Closed O V1 Open V2 Open CO V1 Closed V2 Open OC V1 Open V2 Closed	General Purpose F2 Special Cleaning and Packaging F3 Ultra High Purity
		Port 1 Size 4 1/4"				Seat PCTFE A PFA	Indicator Switch (only for normally closed valves) None M Normally Open M2 Normally Closed

V-17 Diaphragm Valves

3-Valve 4-Way Block Type

Dimensions

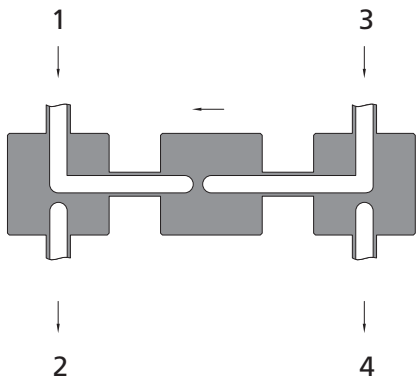
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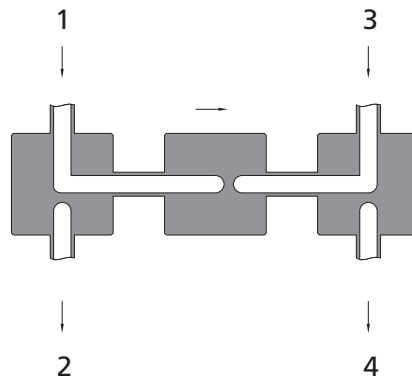
Basic Ordering Number	Connection Type and Size	Dimensions in. (mm)			
		A	B	C	L
DP34□□-FFR4-	1/4" Female FR	0.44 (11.2)	3.19 (81.0)	1.06 (26.9)	2.78 (70.6)
DP34□□-RFR4-	1/4" Rotatable Male FR	0.44 (11.2)	3.19 (81.0)	1.06 (26.9)	2.78 (70.6)

Flow Paths

☉ Flow paths as viewed from the top



GK Flow



KG Flow

Ordering Number Description

DP346L - FFR4 - RFR4 - FFR4 - FFR4 - GK - CAF3M

