

Diaphragm Valves

DS Series High Pressure Compact Diaphragm Valves

Features

- ⦿ Reduced inner volume
- ⦿ Packless diaphragm seal to ensure high purity
- ⦿ Minimized number of components
- ⦿ Manual and pneumatic actuators available
- ⦿ Aluminum piston to increase operation speed

Technical Data

Port Size			1/4" to 3/8" or 6 mm to 8 mm
Flow Coefficient (Cv)			0.17
Orifice Size			0.12 in. (3.0 mm)
Max. Working Pressure	Manual	4500 psig (310 bar)	
	Pneumatic	3000 psig (206 bar)	
Pneumatic Actuator Operating Pressure			60 to 90 psig (4.2 to 6.2 bar)
Temperature			PCTFE: -10~150°F (-23~65°C) Vespel: -10~250°F (-23~121°C)
Leak Rate (Helium)	Internal	≤1x10 ⁻⁹ mbar l/s	
	External	≤1x10 ⁻⁹ mbar l/s	

Flow Data

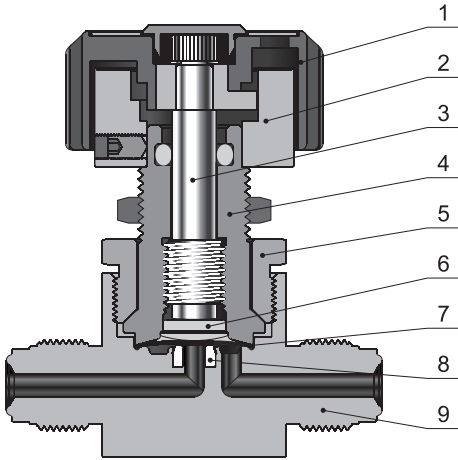
Air @ 70°F (21°C)
Water @ 60°F (16°C)

Pressure Drop to Atmosphere psi (bar)	Air (l/min)	Water (l/min)
10 (0.68)	55	1.9
50 (3.4)	150	4.5
100 (6.8)	260	6.4

Product Technology Grade

Product Grade	General Purpose	Special Cleaning and Packaging (F2)	Ultra High Purity (F3)
Material/Specification	316 SS/ASTM A479 316L SS/ASTM A479		316L VAR/SEMI F20 316L VIM-VAR /SEMI F20
Wetted Surface Roughness	Ra 20 µin. (0.51 µm)		Ra 10 µin. (0.25 µm)
Polishing Process	Machine finished		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

Major Materials of Construction



Round Handle Model

Item	Component	Material/Specification
1	Handle	ABS
2	Actuator	Aluminum
3	Stem	316 SS/ASTM A479
4	Bonnet	S17400/ASTM A564
5	Bonnet Nut	316 SS/ASTM A479
6	Button	C36000/B16
7	Diaphragm (5)	Elgiloy (3) /AMS 5876 + C17200 (2) /ASTM B194
8	Seat	PCTFE/ASTM D1430 or Vespel
9	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

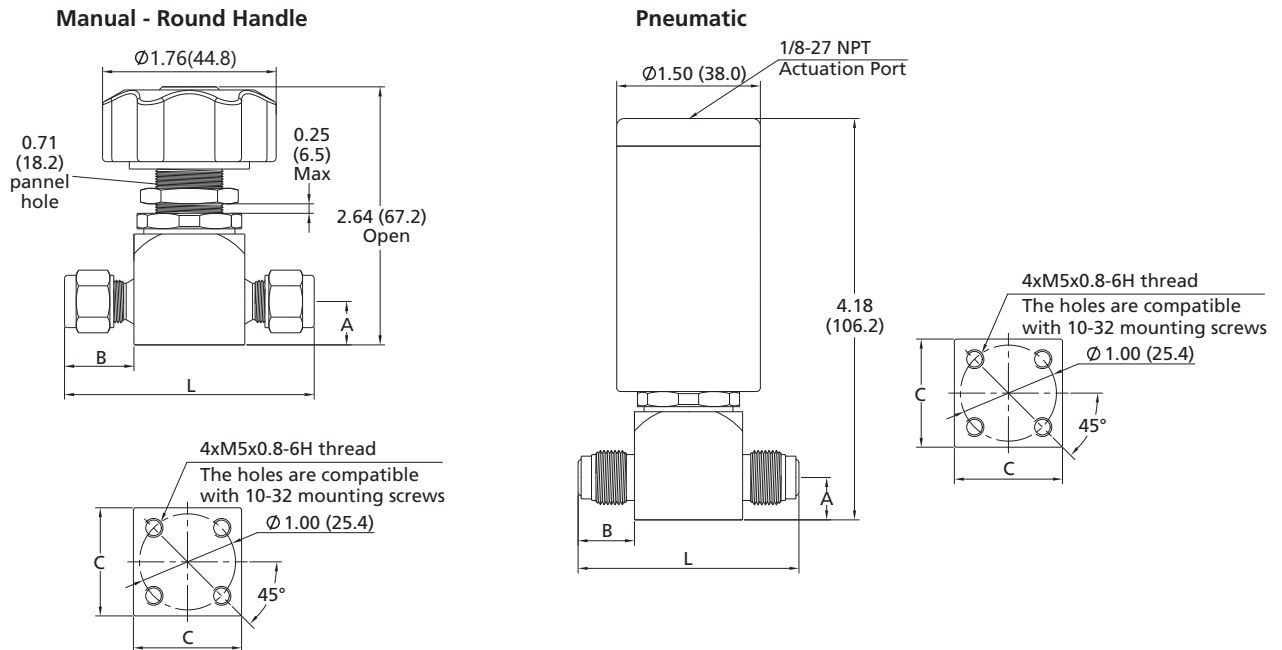


Dimensions and Ordering Information

Straight Type

Dimensions

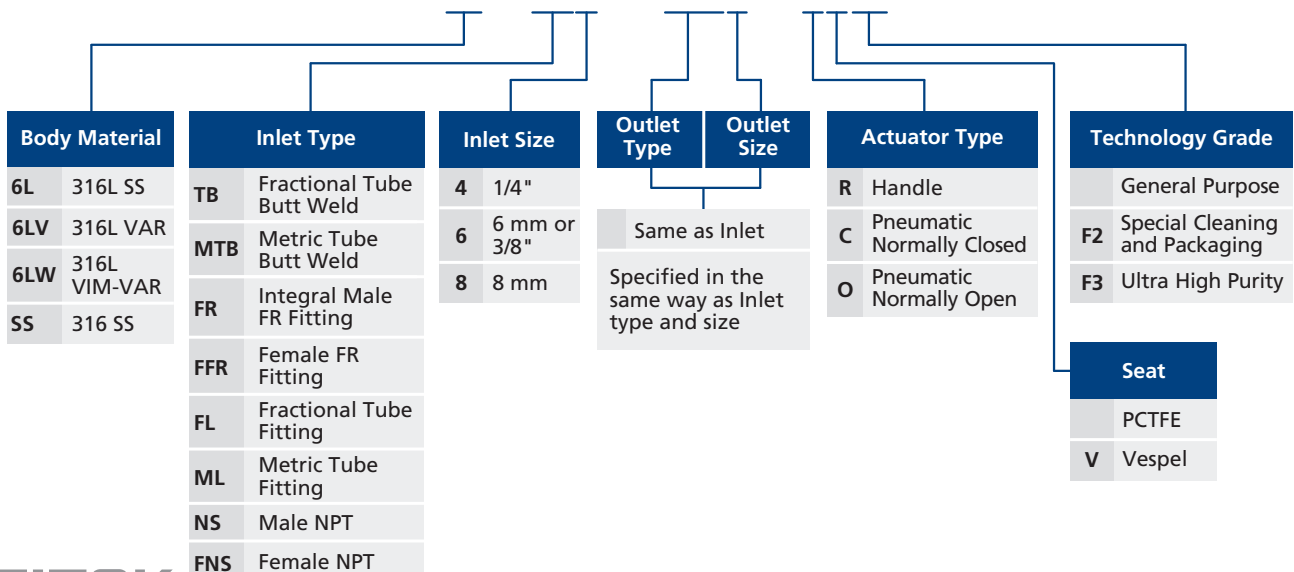
Dimensions, in inches (millimeters), are for reference only.



Basic Ordering Number	Connection Type and Size	Dimensions in. (mm)			
		A	B	C	L
DS□□-TB4-	1/4" Tube Butt Weld	0.44 (11.2)	0.30 (7.6)	1.12 (28.6)	1.81 (45.9)
DS□□-TB6-	3/8" Tube Butt Weld	0.44 (11.2)	0.26 (6.6)	1.12 (28.6)	1.81 (45.9)
DS□□-FFR4-	1/4" Female FR	0.44 (11.2)	0.86 (21.8)	1.12 (28.6)	2.85 (72.3)
DS□□-FR4-	1/4" Integral Male FR	0.44 (11.2)	0.58 (14.9)	1.12 (28.6)	2.30 (58.4)
DS□□-FL4-	1/4" FITOK Tube Fitting	0.44 (11.2)	0.70 (17.9)	1.12 (28.6)	2.54 (64.4)
DS□□-NS4-	1/4" Male NPT	0.44 (11.2)	0.56 (14.2)	1.12 (28.6)	2.24 (57.0)
DS□□-FNS4-	1/4" Female NPT	0.44 (11.2)	—	1.12 (28.6)	2.36 (60.0)

Ordering Number Description

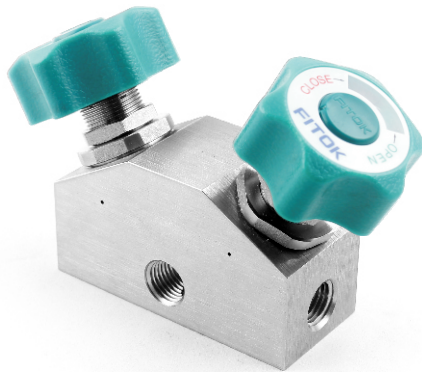
DS6L - NS4 - FNS4 - RVF2



2-Valve 3-Way Block Type

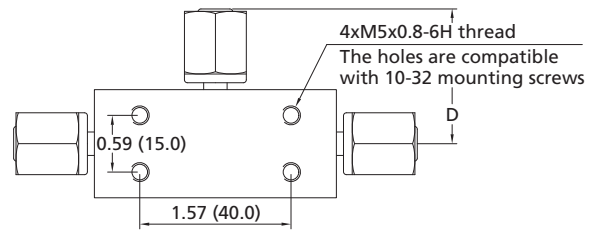
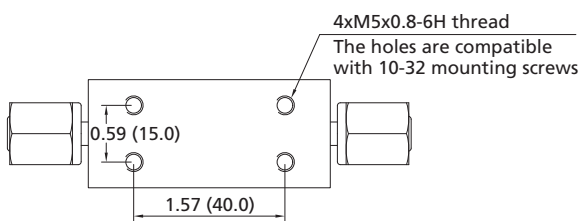
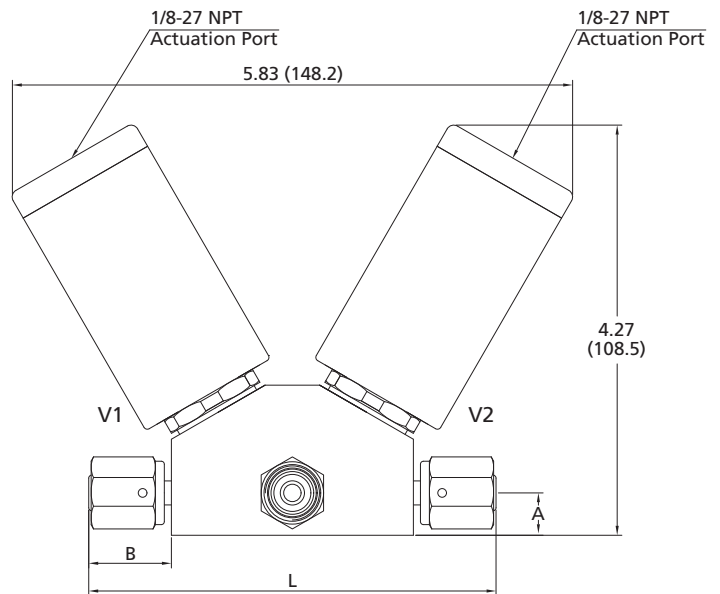
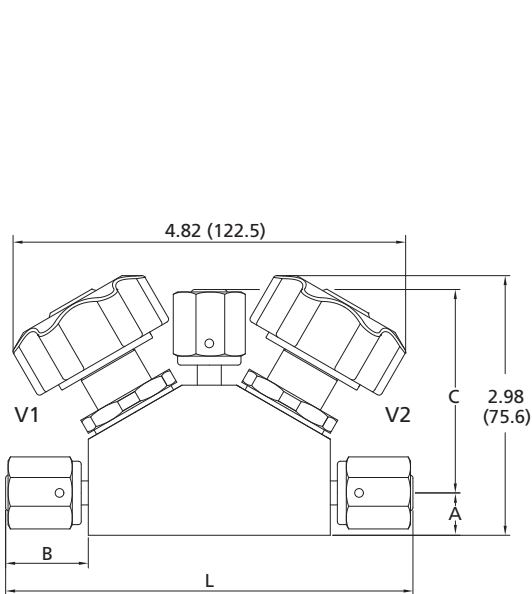
Dimensions

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Manual - Round Handle

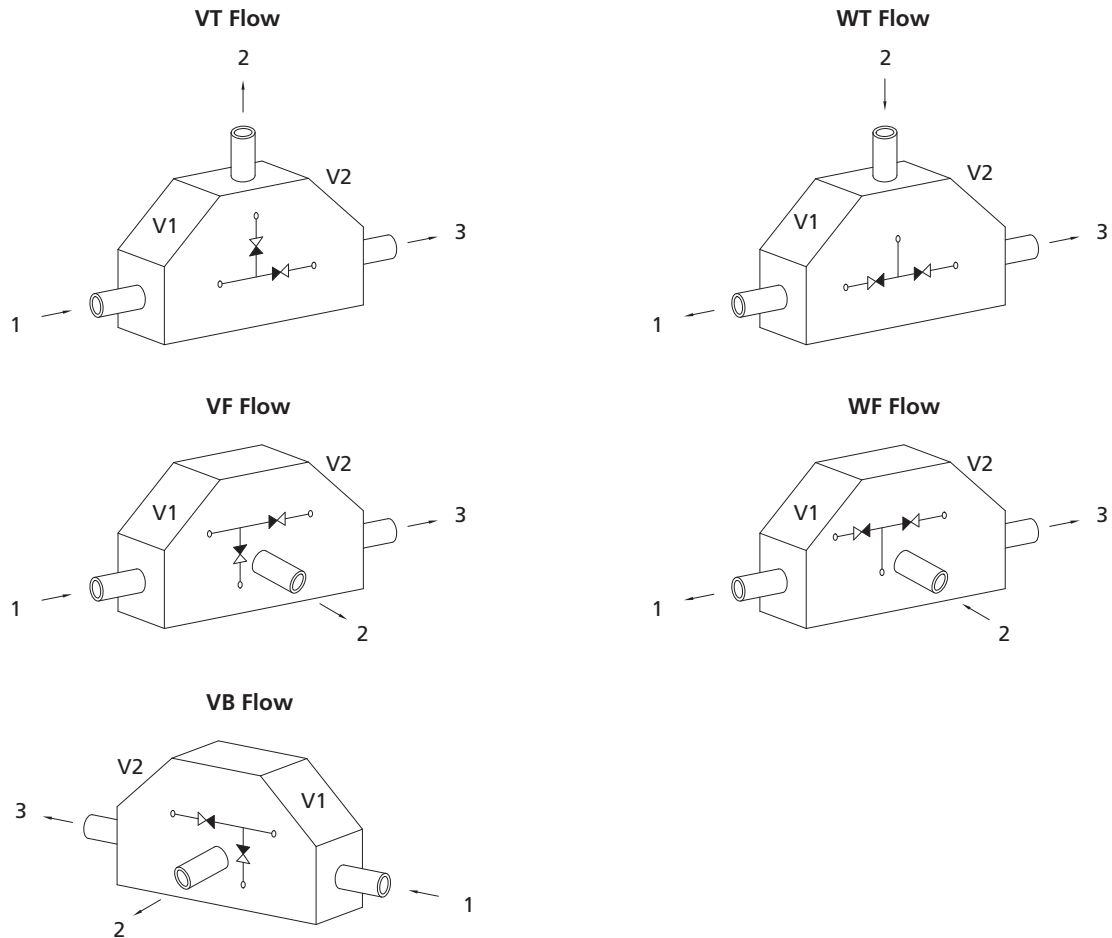
Pneumatic



Basic Ordering Number	Connection Type and Size	Dimensions in. (mm)				
		A	B	C	D	L
DS23□□-FFR4-	1/4" Female FR	0.44 (11.2)	0.86 (21.8)	2.59 (65.7)	—	4.24 (107.6)
DS23□□-FFR4-	1/4" Female FR	0.44 (11.2)	0.86 (21.8)	—	1.54 (39.1)	4.24 (107.6)
DS23□□-FNS4-	1/4" Female NPT	0.44 (11.2)	—	—	0.68 (17.3)	3.07 (78.0)

V-35 Diaphragm Valves

Flow Paths



Ordering Number Description

DS236L - FFR4RFR4 - FFR4 - VF - COVF2

