

# Diaphragm Valves

DV4 Serie



- ❖ All-metal containment, packless
- ❖ Maximum working pressure: 3500 psig (241 bar)
- ❖ Working temperature: -100°F to 250°F (-73°C to 121°C)
- ❖ Variety of end connections

## Features

- ❖ Maximum working pressure: 3500 psig (241 bar)
- ❖ Working temperature: -100°F to 250°F (-73°C to 121°C)
- ❖ Repetitive shutoff with fully contained softseat stem tip
- ❖ Position indicator ring for lever handle
- ❖ Manual or pneumatic actuation
- ❖ Aluminum piston accelerated open/close speed
- ❖ Helium leak tested, maximum leak rate of  $4^{-9} \times 10$  std cm<sup>3</sup>/s
- ❖ Different handle types and colors are available
- ❖ Can be used in vacuum applications

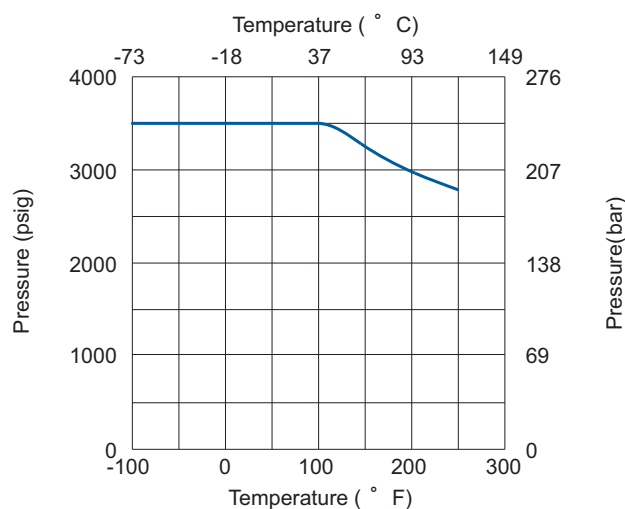
## Technical Data

Sort	Max. Working Pressure psig (bar)	Working Temperature Range °C(°F)	Flow Coefficient (Cv)	Orifice in. (mm)	Operating/Operating Pressure psig (bar)
Lever handle	3500 (241)	-73 to 121 (-100 to 250)	0.14	0.156 (4.0)	Approximately one quarter turn to operate from fully open to closed
Round handle			0.30		Approximately one and one-half turns to operate from fully open to closed
Pneumatic actuator			0.20		70 to 120 (4.9 to 8.2)

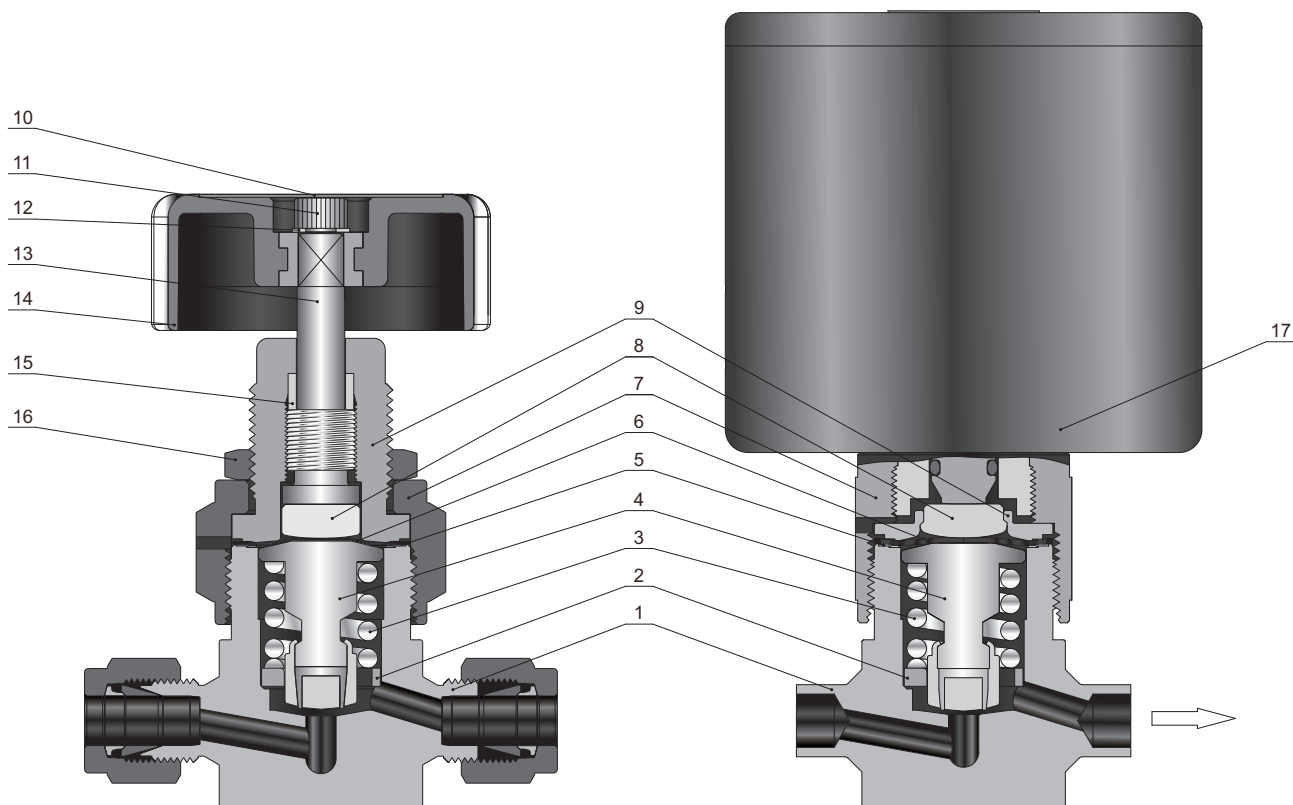
## Flow Data

Pressure Drop to Atmosphere $\Delta P$ (bar)	Lever handle Cv=0.14		Round handle Cv=0.30		Pneumatic actuator Cv=0.20	
	Air std L/min	Water L/min	Air std L/min	Water L/min	Air std L/min	Water L/min
0.68	49	1.6	100	3.5	64	2.4
3.4	130	3.9	270	8.0	170	5.4
6.8	240	5.4	490	11.4	300	7.6

## Pressure-Temperature Ratings



## Materials of Construction



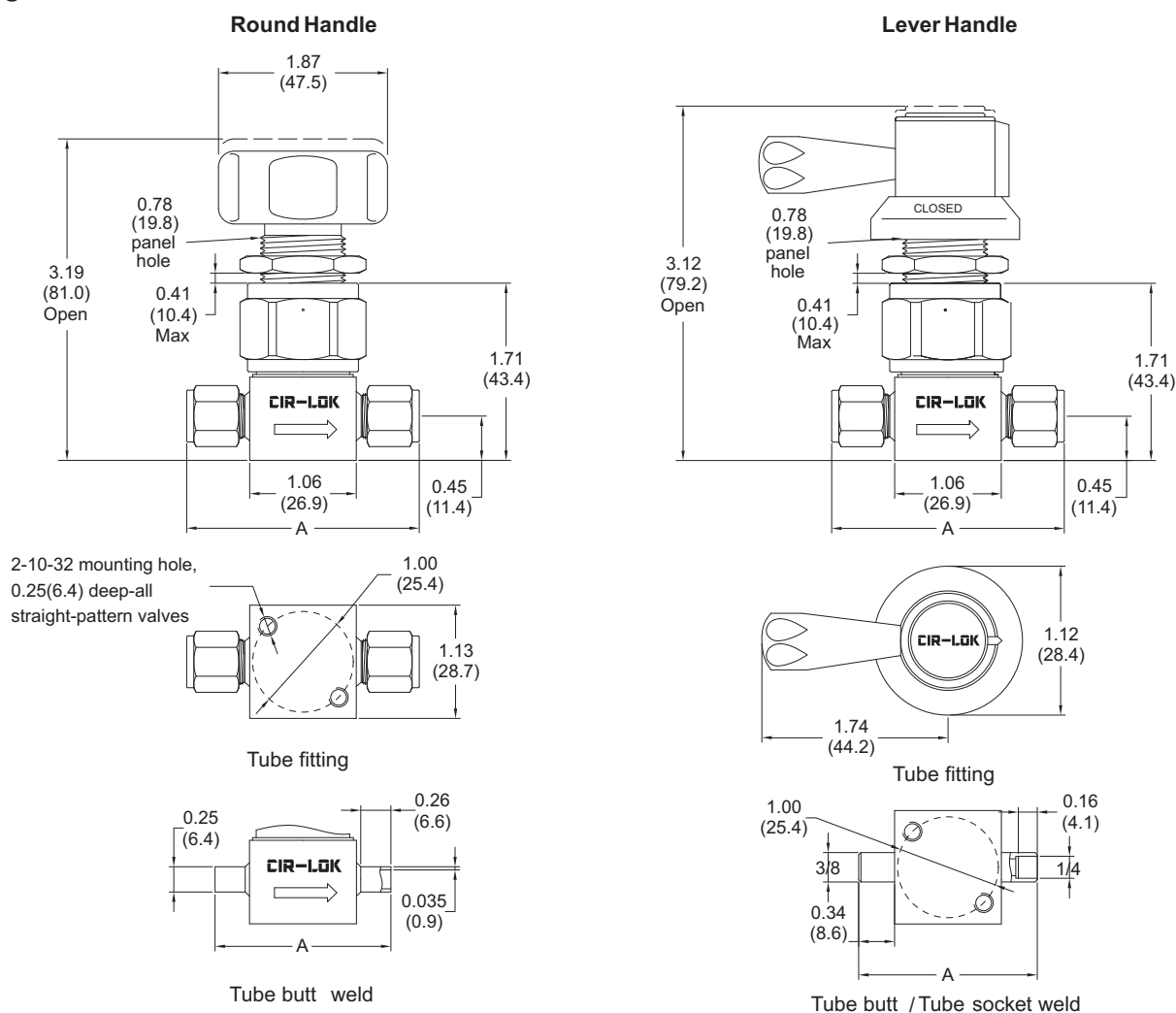
Item	Component	Material Grade/ASTM Specification	
		Manual	Pneumatic Actuation
1	Body	316 S.S./A479/316L SS/A479	
2	Guide	Electropolished 316 S.S./A479	
3	Spring	316 S.S./A313	
4	Stem assembly	Stem plug	316L S.S./A479
		Stem insert	PCTFE/D1430
		Stem container	316L S.S./A479
		Stem	316L S.S./A479
5	Gasket	PTFE-coated 316L S.S./A240	
6	Diaphragms	Elgiloy/AMS 5876	Elgiloy/AMS 5876 & C17200/B194
7	Bonnet nut	316 S.S./A479	
8	Actuator Button	C36000/B16	
9	Bonnet	316 S.S./A479	S17400/A564
10	Lable	PVC	—
11	Set Screw	304 S.S.	—
12	Gasket	65Mn	—
13	Actuator	416S.S./A582	—
14	Round Handle	ABS	—
15	Wipe Ring	PTFE	—
16	Panel mount nut	316 S.S./A479	—
17	Pneumatic Actuator	—	Aluminum 6061/B211

## Product technology grade

Grade	General purpose	Special Cleaning and Packaging	Ultrahigh-purity
Material	316 SS or 316L SS		
Wetted Surface Roughness	Ra 25 µin. (0.64 µm)	Ra 10 µin. (0.25 µm)	
Process	Machine finished	Electropolished	
Process Specification	FC-01 Standard Cleaning and Packaging	FC-02 Special Cleaning and Packaging	FC-03 Ultrahigh-Purity Process Specification
Cleaning	Thrice degreasing ultrasonic cleaning	Special cleaning with non-ozone-depleting chemicals	Ultrahigh-purity cleaning with a continuously monitored, deionized water, ultrasonic cleaning system
Assembly	At atmosphere	Performed in specially cleaned areas	Performed in ISO Class 4 work areas
Testing	Inboard helium leak tested to maximum leak rate of $4 \times 10^{-9}$ std cm <sup>3</sup> /s		
Packing	Individually bagged	Individually bagged	Valves are double bagged and vacuum sealed in cleanroom bags

## Dimensions

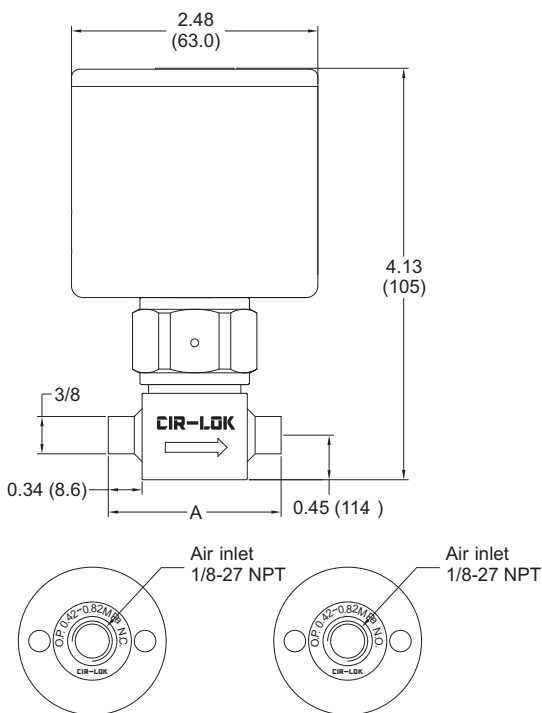
### Straight Patterns



Basic Ordering Number	Connection Type and Size	Dimension, in. (mm)	Orifice in. (mm)
		A	
DV4-F4-	1/4" CIR-LOK	2.46 (62.5)	
DV4-F6-	3/8" CIR-LOK	2.58 (65.5)	
DV4-M6-	6 mm CIR-LOK	2.46 (62.5)	
DV4-M8-	8 mm CIR-LOK	2.53 (64.3)	
DV4-FBW4-	1/4" Tube butt weld	1.74 (44.2)	
DV4-FBW6-	3/8" Tube butt weld	1.74 (44.2)	
DV4-FBW6-FSW4-	3/8" Tube butt weld to 1/4" tube socket weld	1.75 (44.4)	0.156(4.0)
DV4-FBW8-FSW6-	1/2" Tube butt weld to 3/8" tube socket weld	1.81 (46.0)	
DV4-NPT4-	1/4" Male NPT	2.46 (62.5)	
DV4-FNPT4-	1/4" Female NPT	2.46 (62.5)	
DV4-GFS4-	1/4" Male GFS	2.30 (58.4)	
DV4-FGFS4-	1/4" Female GFS	2.76 (70.1)	
DV4-FGFS4-GFS4-	1/4" Female GFS to 1/4" Male GFS	2.54 (64.5)	
DV4-GFS4-FGFS4-	1/4" Male GFS to 1/4" Female GFS	2.54 (64.5)	

## Straight Patterns

### Pneumatic Actuator

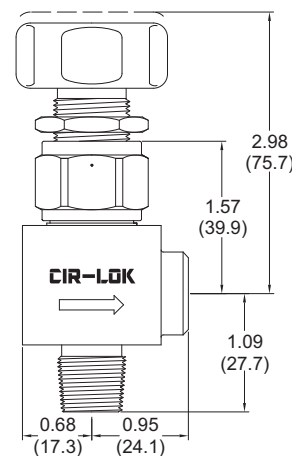


Pneumatic, Normally Closed (Top View)

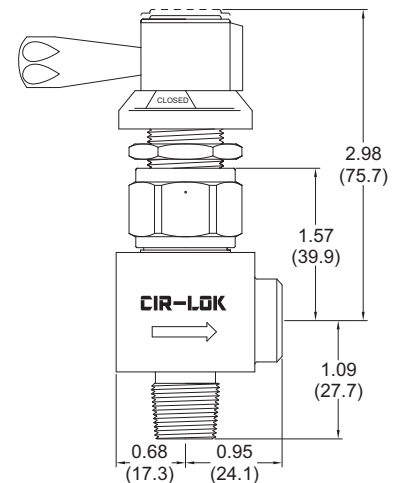
Pneumatic, Normally Open (Top View)

## Angle Patterns

### Round Handle



### Lever Handle



Basic Ordering Number	Connection Type and Size	
	Inlet	Outlet
DV4-NPT4-FNPT4-	1/4 NPT Male NPT	1/4 NPT Female NPT

## How to Order

**DV4** — **FGFS4** — **GFS4** — **T** — **EA** — **NC** — **316L**

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Stem Tip Material	Handle Color	Flow Pattern	Actuator	Body Material
DV4	F	Fractional Tube Fitting	Same as inlet type and inlet size		PCTFE	Blue	Straight	Round Handle	316 316 S.S.
		4 1/4"			T PTFE	C Red			A Angle
	M	Metric Tube Fitting	6 6 mm	If outlet and inlet are the same, eliminate the outlet designator	V Polyimide	G Gold		Pneumatic, Normally Closed	
		FBW Fractional Tube Butt Weld	8 1/2 -			E Green			
	MBW Metric Tube Butt Weld					B Black		Pneumatic, Normally Open	
	GFS Male GFS Fitting				P Purple				
	FGFS Female GFS Fitting					O Orange			
	NPT Male NPT					I Pink			
	FNPT Female NPT					R Brown			
					S Silver				
					W White				
					Y Yellow				