Truelok®

[THE MEASURABLE DIFFERENCE]

UHP VALVES

SPRINGLESS DIAPHRAGM VALVES

(DV-Series for High Performance)

HIGH FLOW MANUAL DIAPHRAGM VALVES

(DVNHF Series)

ULTRA HIGH FLOW MANUAL DIAPHRAGM VALVES

(DVNUHF Series)

CHECK VALVES

(HIGH PURITY APPLICATION)

SPRINGLESS DIAPHRAGM VALVES

(DV-Series for High Performance)

Low Pressure & High Pressure Valves:

- Designed for Ultrahigh Purity Applications
- SS316L and SS316L VAR Body
- Electropolished Wetted Surfaces
- Face Seal & Tube Butt Weld Connections
- Manual or Pneumatic Actuation

FEATURES:

Low Pressure Model

Seat	Diaphragm	Body
Fully contained PCTFE seat design provides • Outstanding Resistance to Swelling and Contamination • Improved Helium Leak Test Performance • Minimal Particle Generation • Long Cycle Life	• Excellent in Strength and Corrosion Resistance • Optimal Design for Long Cycle Life	• SS316L & SS316L VAR Body Material for Ultrahigh Purity Applications • Fully Swept Flow Path Minimizes Entrapment Areas and Maximizes Flow Capacity

Critical Specifications:	Low-Pressure Models	
	Manual Actuators	Pneumatic Actuators
Cv Value	0.27	0.27
Orifice Size	0.16 in. (4.0mm)	0.16 in. (4.0mm)
Max. Working Pressure	Vacuum to 250psig (17bar)	
Actuation Pressure	–	60-120psig (4.1~8.2bar)
Burst Pressure	3200 psig (220psig)	
Max. Working Temp.	-10°F~150°F(-23°C~65°C)	
Internal Leakage Allowance (He) Test Pressure ≤1x10-2 Torr	≤ 1X10-9 std•cc/sec	
External Leakage Allowance (He) Test Pressure ≤1x10-2 Torr	≤ 1X10-9 std•cc/sec	
Particle Inspection (Non EP & EP) Pressure:60psi~80psi N2 Gas Sample Volume: 1 CFM 0.1μm and Larger	No count	

FEATURES:

High Pressure Model

Seat	Diaphragm	Body
Fully contained PCTFE seat design provides • Outstanding Resistance to Swelling and Contamination • Improved Helium Leak Test Performance • Minimal Particle Generation • Long Cycle Life	• Excellent in Strength and Corrosion Resistance • Optimal Design for Long Cycle Life	• SS316L Et SS316L VAR Body Material for Ultrahigh Purity Applications • Fully Swept Flow Path Minimizes Entrapment Areas and Maximizes Flow Capacity

Critical Specifications:	High-Pressure Models	
	Manual Actuators	Pneumatic Actuators
Cv Value	0.20	0.20
Orifice Size	0.16 in. (4.0mm)	0.16 in. (4.0mm)
Max. Working Pressure	Vacuum to 3,045psig (210bar)	
Actuation Pressure	–	70-120psig (4.8~8.2bar)
Burst Pressure	12,200 psig (840psig)	
Max. Working Temp.	-10°F~150°F(-23°C~65°C)	
Internal Leakage Allowance (He) Test Pressure ≤1x10-2 Torr	≤ 1X10-9 std•cc/sec	
External Leakage Allowance (He) Test Pressure ≤1x10-2 Torr	≤ 1X10-9 std•cc/sec	
Particle Inspection (Non EP & EP) Pressure:60psi~80psi N2 Gas Sample Volume: 1 CFM 0.1μm and Larger	No count	

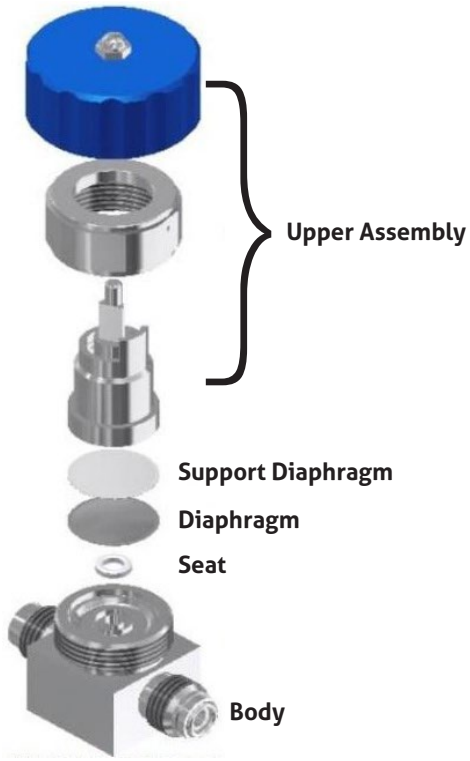
MANUAL ACTUATORS (DIRECTIONAL)

- Low-pressure valves have blue handles as standard.
- Quick quarter-turn actuation
- Handle Shape provides visual identification of OPEN and CLOSED positions

PNEUMATIC ACTUATORS

- Normally Open Pneumatic Actuators are marked with N.O. on top of the cylinder
- Normally Closed Pneumatic Actuators are market with N.C. on top of the cylinder

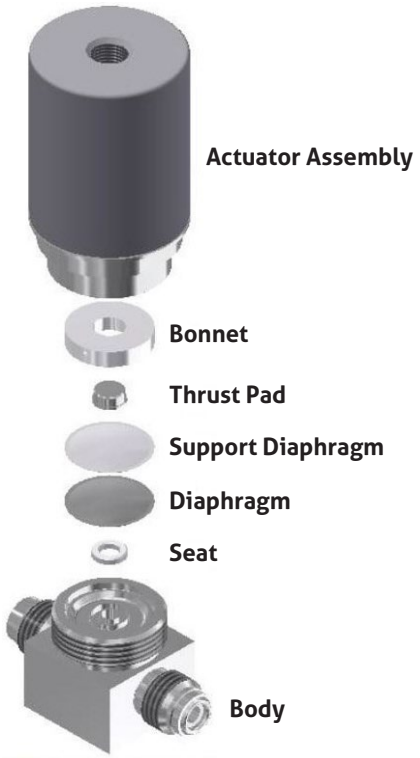
MATERIALS OF CONSTRUCTION:



MANUAL DIAPHRAGM VALVE (DV-SERIES)

Manual Diaphragm Valve (DV-Series)

Name	Material
Body	316L Stainless Steel
Seat	PCTFE
Diaphragm	Elgiloy
Support Diaphragm	Elgiloy
Upper Assembly	
Stem	304 Stainless Steel
O-Ring	FKM
Bonnet	304 Stainless Steel
Bonnet	304 Stainless Steel
Handle	Aluminum



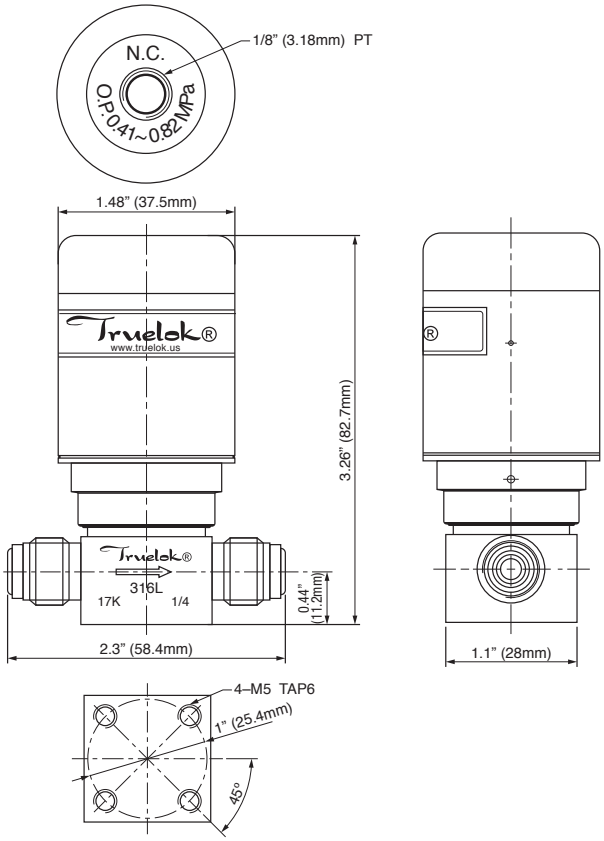
PNEUMATIC DIAPHRAGM VALVE (DV-SERIES)

Pneumatic Diaphragm Valve (DV-Series)

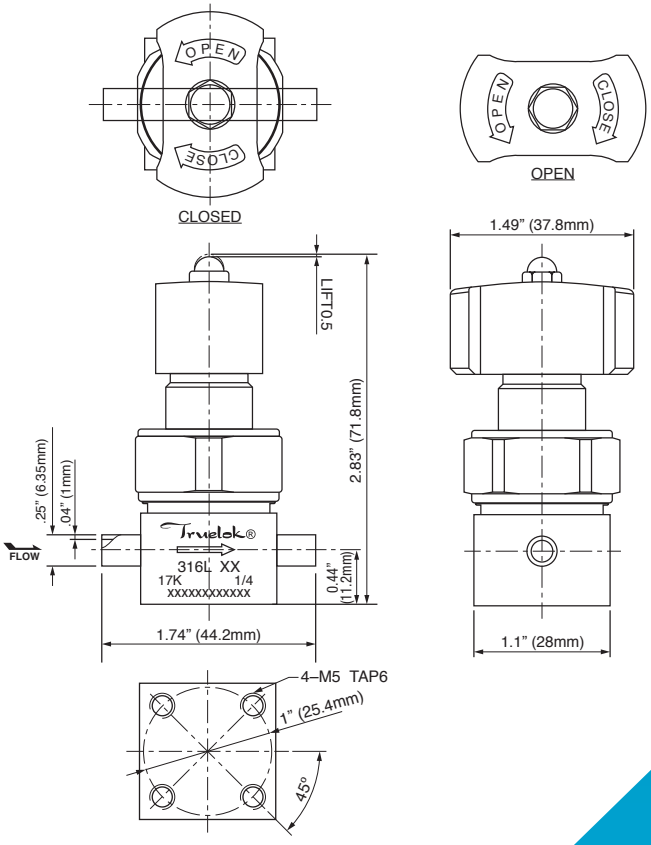
Name	Material
Body	316L Stainless Steel
Seat	PCTFE
Diaphragm	Elgiloy
Support Diaphragm	Elgiloy
Thrust Pad	304 Stainless Steel
Bonnet	304 Stainless Steel
Actuator Assembly	
Bonnet Nut	304 Stainless Steel
Piston	Aluminum
O-Ring	FKM
Cylinder	Aluminum
Coil Spring	304 Stainless Steel
Cylinder Cap	Aluminum

DIMENSIONS:

Pneumatic Actuator (Normally Closed) DV-S-mm-LPP-C

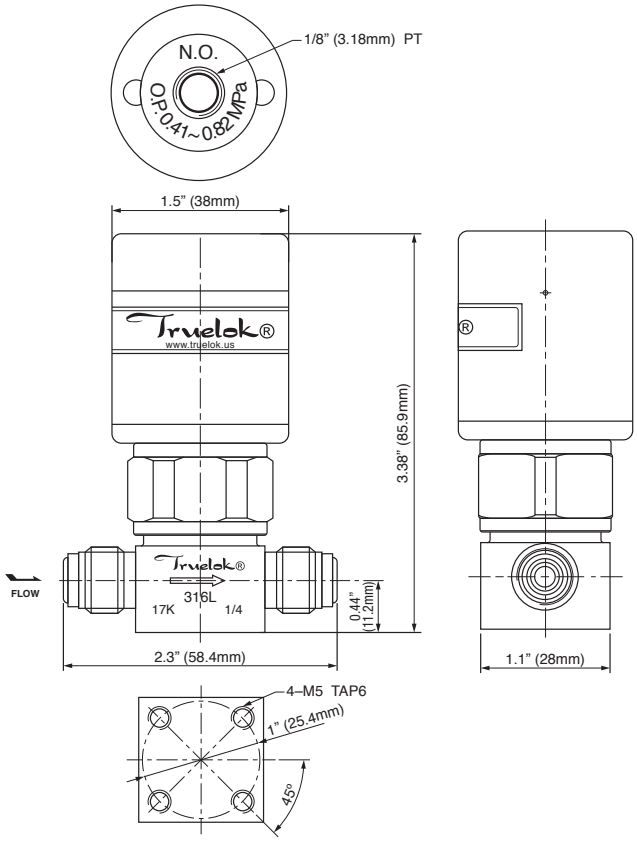


Manual Actuator DV-S-tt-LPM

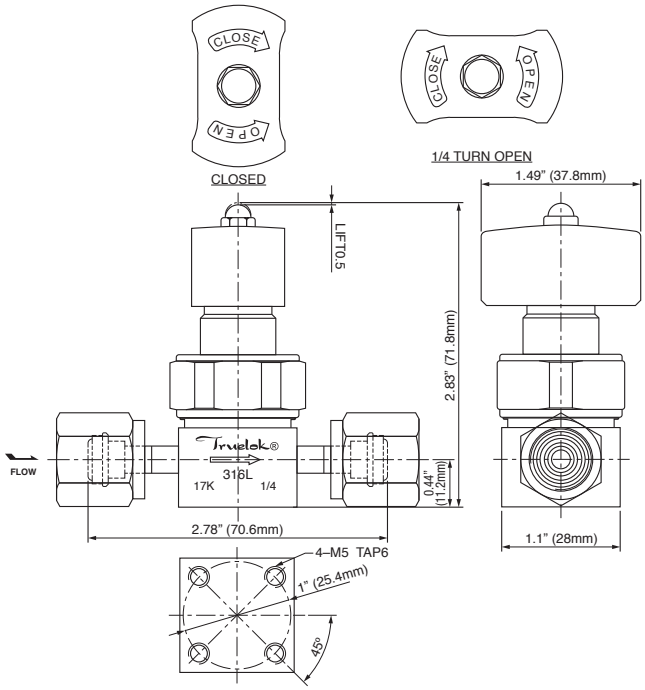


DIMENSIONS:

Pneumatic Actuator (Normally Open) DV-S-mm-LPP-O

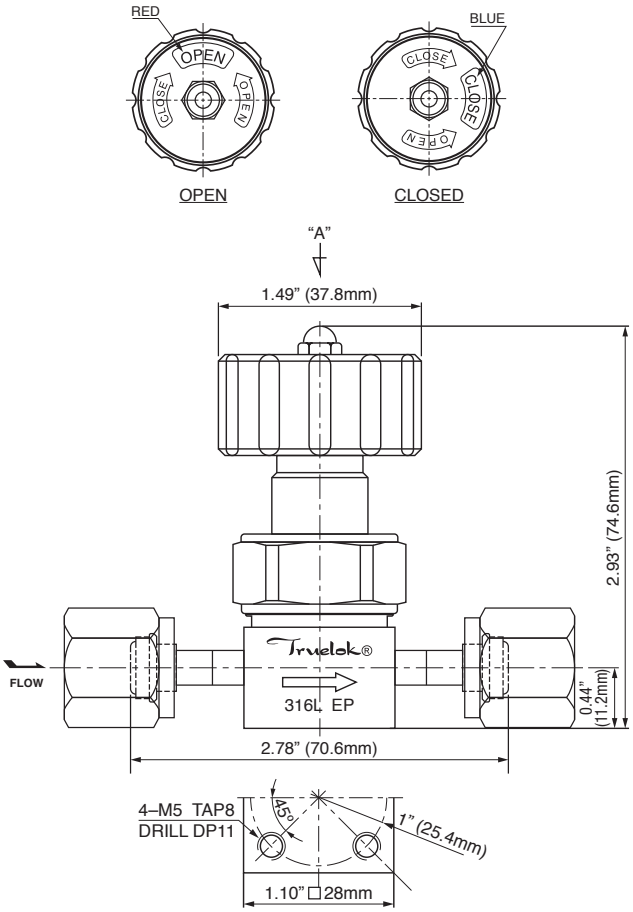


Manual Actuator DV-S-ff-LPM



DIMENSIONS:

Manual Actuator
(High Pressure)
DV-S-ff-HPM



Cleaning, Assembling and Packaging

- UHP valves are cleaned, assembled and packaged in accordance with Truelok standard specification of cleaning & packing procedure, P1004 & P1007.

ORDERING INFORMATION:

Material	End Connection	Series	Pneumatic
S=Stainless Steel 316L	m=1/4" Male Face Seal	LP= Low Pressure	NC= Normally Closed
	f=1/4" Female Face Seal	HP= High Pressure	
D= Stainless Steel 316L VAR	t=1/4" Tube Butt Weld	M=Manual Diaphragm P= Pneumatic Diaphragm	NO= Normally Opent

Examples of Ordering Number:

- DV-S-ff-LPM [Diaphragm Valve, SS, ¼" Female Face Seal Connection, Low Pressure Manual.]
- DV-S-tt-LPP-NC [Diagram Valve, SS, ¼" Tube Butt Weld Connection, Low Pressure, Pneumatic, Normally Closed]
- DV-S-ff-HPM [Diagram Valve, SS, ¼" Female Face Seal Connection, High Pressure, Manual]

HIGH FLOW MANUAL DIAPHRAGM VALVES

(DVNHF Series)

High Flow Manual Diaphragm Valves:

- Internally Threadless and Springless
- Working Pressure: up to 270 psig (18.61 Bar)
- Working Temperature: up to 14ºF to 176ºF(-10ºC to 80ºC)
- Flow Coefficient Cv = 2.8 & 3.5

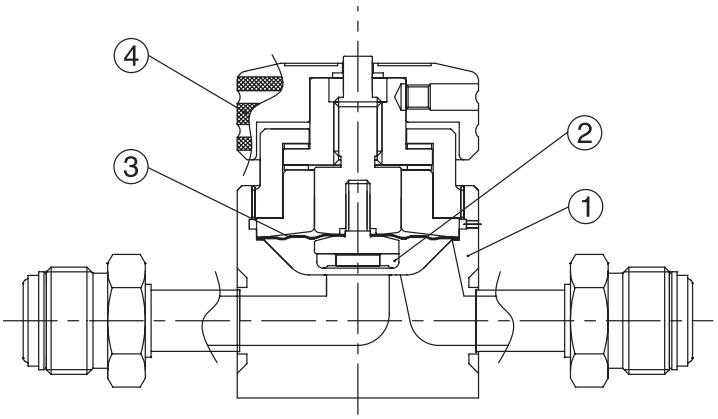
FEATURES:

- Internally threadless and springless
- Fully functional from vacuum to 270 PSIG
- Aerodynamic, fully swept flow passages
- Minimum particle generation and particle areas
- 100% helium leak tested
- 1-1/4'' turn round knob with pop up pin indicating open position

CRITICAL SPECIFICATIONS:

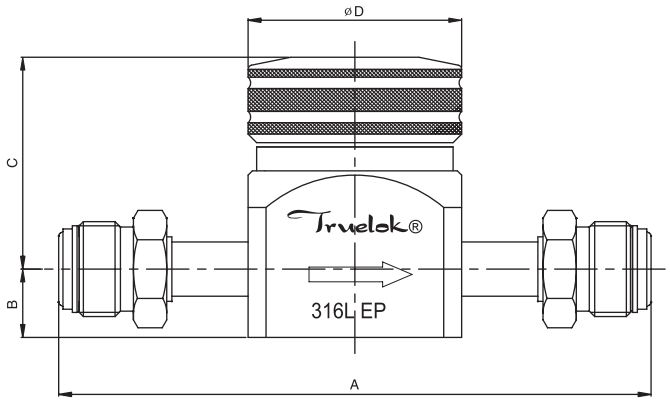
Size	1/2"	3/4" , 1"
Flow Coefficient (Cv)	2.8	3.5
Max Working Pressure	270 PSIG (18.61 bar)	
Design Pressure	295 PSIG(20.33 bar)	
Hydrostatic Proof Pressure	404 PSIG(27.85 bar)	
Working Temperature	14ºF - 176ºF (-10ºC to 80ºC)	
He Leak Rate	**Method of Inspection**	**Criterion**
External Leakage Allowance	Test Pressure ≤$1x10^{-2}$ Torr	≤$1x10^{-9}$ atm.cc/sec
	Holding Time ≥ 1 min.	
Internal Leakage Allowance	Test Pressure ≤$1x10^{-2}$ Torr	≤$1x10^{-9}$ atm.cc/sec
	Holding time ≥ 30 sec.	
Particle Inspection (EP Only) Pressure: 60-80 psi N2 Gas Sample Volume: 1 CFM 0.1 μm and larger	No Count	

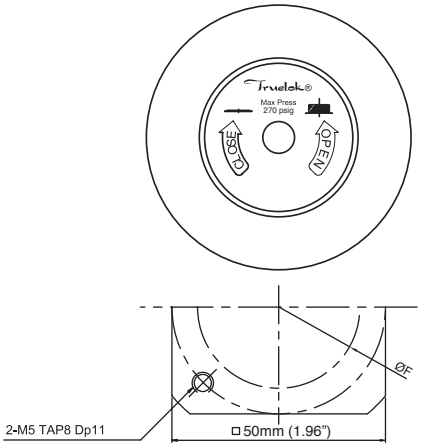
MATERIALS OF CONSTRUCTION:



1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	Disk	PCTFE
3	Diaphragm	316L Stainless Steel
4	Handle	Aluminum

DIMENSIONS:





Size	Connection	A	B	C	D
1/2"	MFS	5.46" (138.7mm)	0.62" (16mm)	2.10" (53.5mm)	1.96" (50mm)
	FFS	5.46" (138.7mm)	0.62" (16mm)	2.10" (53.5mm)	1.96" (50mm)
	TW	5.90" (150mm)	0.62" (16mm)	2.10" (53.5mm)	1.96" (50mm)
3/4"	MFS	6.18" (157.0mm)	0.68" (17.5mm)	2.22" (56.5mm)	1.96" (50mm)
	FFS	6.18" (157.0mm)	0.68" (17.5mm)	2.22" (56.5mm)	1.96" (50mm)
	TW	5.90" (150mm)	0.68" (17.5mm)	2.22" (56.5mm)	1.96" (50mm)
1"	MFS	6.53" (166mm)	0.68" (17.5mm)	2.22" (56.5mm)	1.96" (50mm)
	FFS	6.53" (166mm)	0.68" (17.5mm)	2.22" (56.5mm)	1.96" (50mm)
	TW	5.90" (150mm)	0.68" (17.5mm)	2.22" (56.5mm)	1.96" (50mm)

ORDERING INFORMATION:

DVNHF-S-8MFS8MFS-LPM-2.8

Diaphragm Valve, SS, 1/2'' Male Face Seal, Low Pressure Manual, Cv 2.8

Material		Size		Connection	
S	316L Stainless Steel	8	1/2"	MFS	Male Face Seal
D	316L Stainless Steel VAR	12	3/4"	FFS	Female Face Seal
		16	1"	TW	Butt Weld

Purge Port Location		Purge Port Connections		Grade	
P0	Outlet Side	PMFS	1/4" Male	Blank	Non EP Grade
P1	Inlet and Outlet				
P2	Inlet Side				
Blank	No Purge Port	PFFS	1/4" Female	E	EP Grade

ULTRA HIGH FLOW MANUAL DIAPHRAGM VALVES

(DVNUHF Series)

Ultra High Flow Manual Diaphragm Valves:

- Internally Threadless and Springless
- Working Pressure: Vacuum to 270 psig (18.61 Bar)
- Working Temperature: up to 14ºF to 176ºF (-10ºC to 80ºC)
- Flow Coefficient Cv = 10

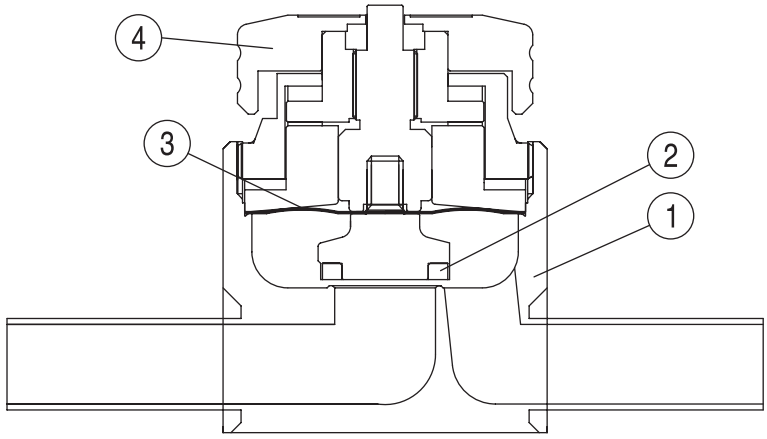
FEATURES:

- Internally threadless and springless
- Fully functional from vacuum to 270 PSIG (18.61 Bar)
- Aerodynamic, fully swept flow passages
- Minimum particle generation and particle areas
- 100% helium leak tested
- 1-1/4'' turn round knob with pop up pin indicating open position

CRITICAL SPECIFICATIONS:

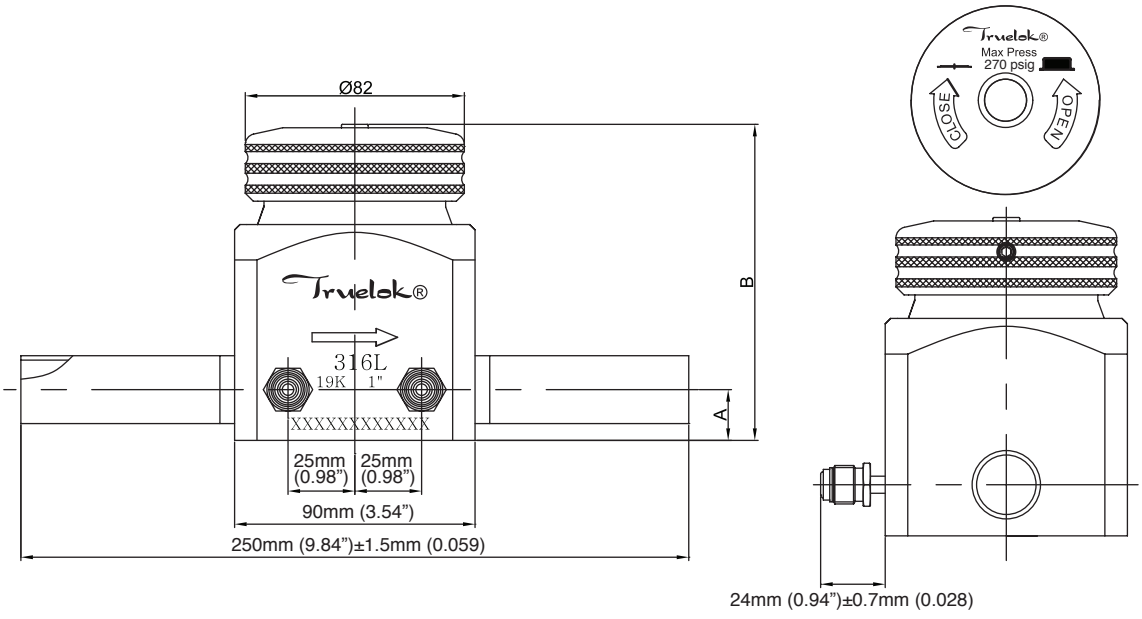
Size	3/4'' , 1'', 1-1/2'', 2''	
Flow Coefficient (Cv)	10	
Max Working Pressure	270 PSIG (18.61 bar)	
Design Pressure	295 PSIG(20.33 bar)	
Hydrostatic Pfroof Pressure	404 PSIG(27.85 bar)	
Working Temperature	14ºF - 176ºF (-10ºC to 80ºC)	
He Leak Rate	**Method of Inspection**	**Criterion**
External Leakage Allowance	Test Pressure ≤1x10^{-2} Torr Holding Time ≥ 1 min.	≤1x10^{-9} atm.cc/sec
Internal Leakage Allowance	Test Pressure ≤1x10^{-2} Torr Holding time ≥ 30 sec	≤1x10^{-9} atm.cc/sec
Particle Inspection (EP Only) Pressure: 60-80 psi N2 Gas Sample Volume: 1 CFM 0.1 μm and larger	No Count	

MATERIALS OF CONSTRUCTION:



1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	Disk	PCTFE
3	Diaphragm	316L Stainless Steel
4	Handle	Aluminum

DIMENSIONS:



Dimensions		
	Port Sizes	
	3/4" , 1"	1-1/2" , 2"
A	0.74" (19mm)	1.15" (29.2mm)
B	4.68" (119mm)	5.15" (131mm)

ORDERING INFORMATION:

DVNUHF-S-8MFS8MFS-LPM-10

Diaphragm Valve, SS, 1/2'' Male Face Seal, Low Pressure Manual, Cv 10

Material		Size		Connection Available	
S	316L Stainless Steel	12	3/4"	TW	Butt Weld(3/4" ,1" ,1-1/2" ,2")
		16	1"	MFS	Male Face Seal (3/4" , 1")
D	316L Stainless Steel VAR	24	1-1/2"	FFS	Female Face Seal(3/4" , 1")
		32	2"		

Purge Port Location		Purge Port Connections		Grade	
P0	Outlet Side	PMFS	1/4" Male Face Seal	Blank	Non EP Grade
P1	Inlet and Outlet				
P2	Inlet Side				
Blank	No Purge Port	PFFS	1/4" Female Face Seal	E	EP Grade

CHECK VALVES (HIGH PURITY APPLICATION)

CV Series:

- Maximum Working Pressure: up to 3000 psi
- Cracking Pressure: less than 2 psi
- Nominal Reseal Pressure: 4 psi
- Maximum Working Temperature: -10ºC (14ºF) to 80C (176ºF)
- CV Valve: 0.55 for 1/4" valves & 0.7 for 1/2" valves

FEATURES:

- SS316L body material, for improved corrosion resistance.
- All-welded design provides reliable containment of system fluid.
- Conservative panel space
- Noise free operations

TECHNICAL DATA:

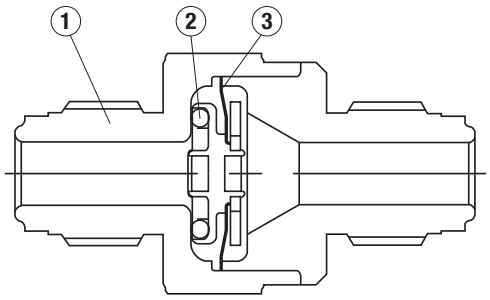
Temperature- Working Pressure Rating

Material Name	SS 316L
Temperature ºF(ºC)	Working pressure psig(bar)
14ºF (-10ºC) to 176ºF (80ºC)	3000(206)
200(93)	2530(174)
300(148)	2270(156)
400(204)	2065(142)

Flow Data at 70°F (20°C)

Pressure Drop	Air Flow Std ft3/min(std L/min)	
Psi(bar)	0.55 Cv	0.70 Cv
10(0.68)	6.2(170)	7.9(220)
50(3.4)	16(450)	21(590)
100(6.8)	29(820)	37(1040)

MATERIALS OF CONSTRUCTION:



No.	Name	Material
1	Body	316L Stainless Steel/316L Stainless Steel Remelted
2	Seal Ring	FKM
3	Spring	HASTELLOY C-22

Testing:

Every valve is factory tested for functionality at the relevant cracking and reseal pressure,
He leak test, Particle test, Average result, Confirmed below.

Test Results

Material	Spec.	Meet to JIS & ASTM for chemical contents and Mechanical properties.
	Result	Good
Visual Inspection	Spec.	No harmful damage on surface
	Result	Good
He Leak Test -10 as exponential	Spec.	≤1x10-9 atm cc/sec
	Result	Inboard: 5.x10-10 atm cc/sec
Particle Test -10 as exponential	Spec.	EP Grade: No count 0.1 μm and larger/ft3
	Result	Static: Dynamic: - Impact: 0
Operating Test	Spec.	Open and close certain, no faulty noise smoothly move
	Result	Good
Inner Surface Roughness	Spec.	EP Grade: ≤7Ra
	Result	Good
Welding Inspection	Spec.	Maintain even width and hight for welding bead (Welding Type) No Pit crack is allowed & No discoloration
	Result	Good

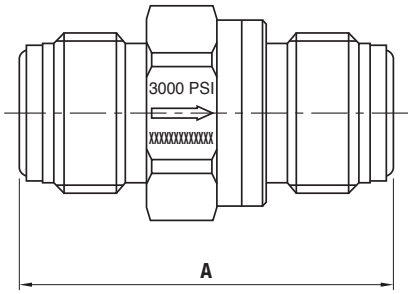
Cleaning and Packing:

Every valve is cleaned and packaged in accordance with Truelok standard specifications of cleaning and packaging procedures, P1004 & P1007.

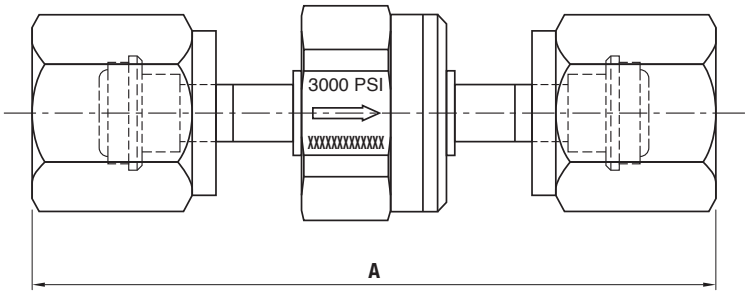
Caution:

For valves not actuated for a period of time, initial cracking pressure may be higher than the set cracking pressure
Truelok check valves are designed for direction flow control only. They should not be used as code safety relief devices.

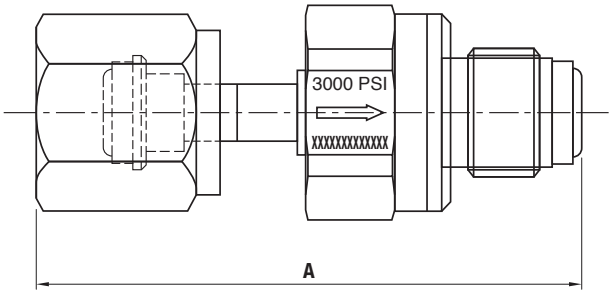
DIMENSIONS:



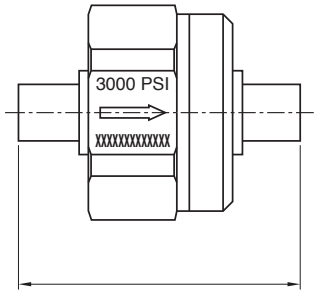
Male Face Seal



Female Face Seal



Male Female Face Seal



Tube Butt Weld

Ordering Number	End Connections		Dimensions inches (mm)	
	Inlet/Outlet	Size	A	B
CV-S-4BW	Tube Butt Weld	1/4"	1.24 (31.5)	7/8(22)
CV-S-6BW		3/8"		
CV-S-8BW		1/2"	1.22(31.2)	1(27)
CV-S-4FFS	Female Face Seal	1/4"	2.43(61.7)	7/8(22)
CV-S-8FFS		1/2"		1(27)
CV-S-4MFS	Male Face Seal	1/4"	1.80(45.7)	7/8(22)
CV-S-8MFS		1/2"	2.06(52.3)	1(27)
CV-S-4FFSMFS	Female/Male Face Seal	1/4"	2.19(53.8)	7/8(22)
CV-S-4TF	Tube Fitting	1/4"	2.05(52.2)	

ORDERING INFORMATION:

CV-S-4 MFS-E

CV = Valve Series, S= SS, 4= 1/4", MFS= Male Face Seal, E= EP

Series	Material	Connection Size	Connection Type	Surface Finish
CV	tStainless Steel 316	4=1/4" 8=1/2" 6=3/8"	MFS=Male Face Seal FFS=Female Face Seal BW=Butt Weld TF= Tube Fitting	E=Electropolished None= Non Electropolished

Truelok®

[THE MEASURABLE DIFFERENCE]

Truelok® Valves and Fittings
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