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Catalog No. H-DV100
Jan. 2023



Diaphragm Valves

DV Series



Design & Engineering

- 316L Stainless Steel (Single & Double Melt)
- Low and High Pressure Model
- ZCR, Tube Butt Weld, and Hy-Lok Tube End Connections
- Manual Handle or Pneumatic Actuator
- 100% Helium Leak Tested

Application

- Ultrahigh Purity Process
- Semiconductor
- Biotech
- Pharmaceutical

HY-LOK CORPORATION

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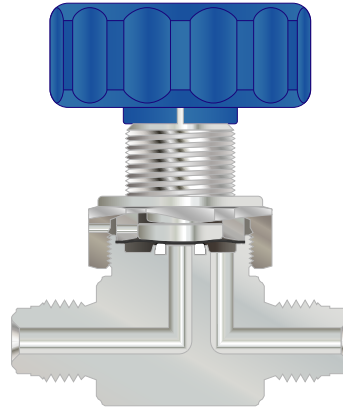
Features

Body

- 316L Stainless Steel (Single & Double Melt)
- Minimum dead space
- Maximum flow capacity
- Electro polishing processing

Diaphragm

- Elgiloy® material
- Excellent corrosion resistance
- Electro polishing processing
- Long cycle life



Seat

- Excellent chemical resistance
- Low coefficient for thermal expansion
- Minimum particle of contamination
- Long cycle life

Manual Handle and Pneumatic Actuators

Manual Handle

- ABS(100) type handle rotate 180°
- Visually OPEN and CLOSE positions confirm by handle window
- This handle are available on low and high pressure model



Round Handle



Directional Handle



Locking Handle

Pneumatic Actuator

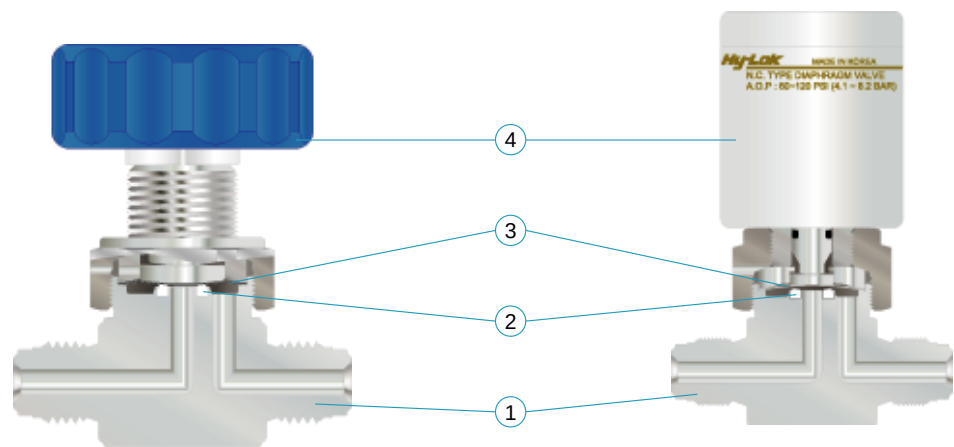
- Low pressure model
- Max. working pressure: 250 psig (17.2 barg)
- Flow coefficient : 0.3
- Actuation pressure : 60~120psig(4.2~8.2barg)



- High pressure model
- Max. working pressure: 3,400 psig (234 barg)
- Flow coefficient : 0.1
- Actuation pressure : 70~120psig(4.9~8.2barg)



Materials of Construction



No.	Parts	Material /ASTM Specification	
		DV Series	
		Manual	Pneumatic
1*	Body	A182 Type F316L (Single & Double Melt) / A479 Type 316L (Single & Double Melt)	
2*	Seat	PCTFE (D1430)	
3*	Diaphragm	Elgiloy® (F1058, AMS5876)	
4	Actuation	ABS(100)	Aluminum

"*" marked are wetted parts.
ABS(100) Handle are manual actuation and Low pressure only.

Specification

Model	Size	Pressure Rating (psig)	Temp. Rating °C (°F)	Flow Coefficient Cv	Orifice (mm)
Low Pressure	1/4"	250 (17.2barg)	-23 ~ 65 (-10 ~ 150)	0.3	4.1
	3/8"			0.7	7.0
	1/2"				
	3/4"				
High Pressure	1/4"	3,400 (234barg)		0.1	2.5

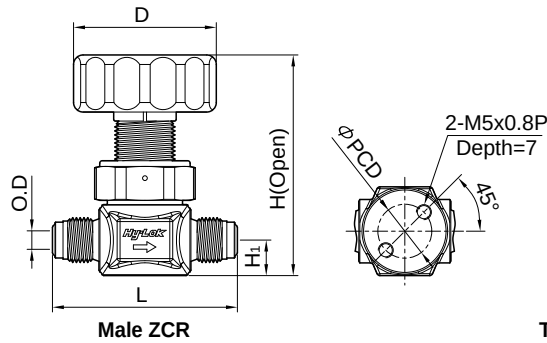
Dimensions

All dimensions are in millimeters and for reference only. In case of the end connection for Hy-Lok tube fitting, dimensions shown with Hy-Lok nuts in finger-tight position, where applicable.

Low Pressure Models

Manual Round Handle

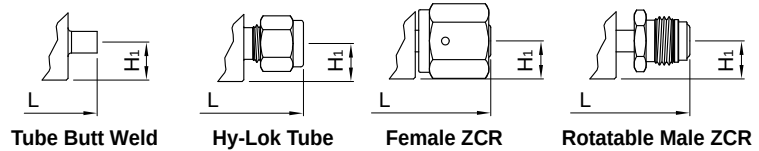
Upper (Handle Operating)



Open Position



Close Position

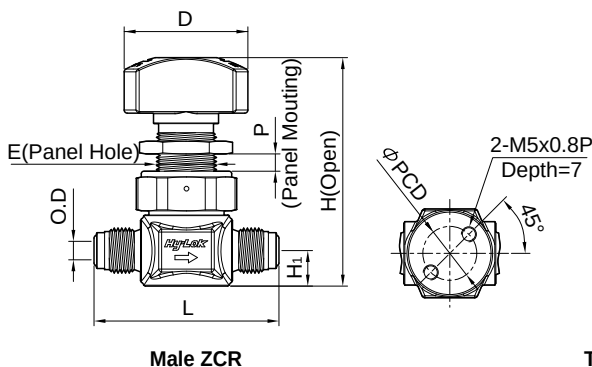


End Connection	Ordering No.	O.D	L	H ₁	H	D	PCD
Male ZCR Fitting	DVVM-4-AH	1/4"	58.4	11.2	70.6	40.0	17.0
	DVVM-8-AH	1/2"	76.0	16.0	78.2		28.0
	DVVM-12-AH	3/4"	88.0	22.0	91.7		
Rotatable Male ZCR Fitting	DVRM-4-AH	1/4"	89.2	11.2	70.6	40.0	17.0
	DVRM-8-AH	1/2"	107.4	16.0	78.2		28.0
	DVRM-12-AH	3/4"	140.0	22.0	91.7		
Female ZCR Fitting	DVVF-4-AH	1/4"	70.6	11.2	70.6	40.0	17.0
	DVVF-8-AH	1/2"	83.0	16.0	78.2		28.0
	DVVF-12-AH	3/4"	106.0	22.0	91.7		
Hy-Lok Tube Fitting	DVH-4-AH	1/4"	64.4	11.2	70.6	40.0	17.0
	DVH-8-AH	1/2"	81.8	16.0	78.2		28.0
	DVH-12-AH	3/4"	80.8	22.0	91.7		
Tube Butt Weld	DVBW-4-AH	1/4"	44.2	11.2	70.6	40.0	17.0
	DVBW-8-AH	1/2"	68.0	16.0	78.2		28.0
	DVBW-12-AH	3/4"	73.6	22.0	91.7		

Handle color for Low pressure model is Blue.

Manual Directional Handle

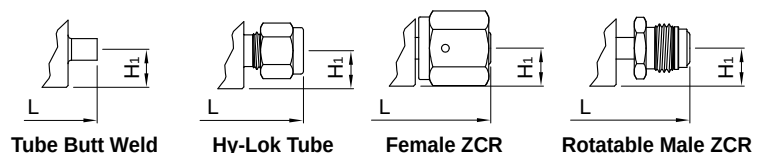
Upper (Handle Operating)



Open Position



Close Position



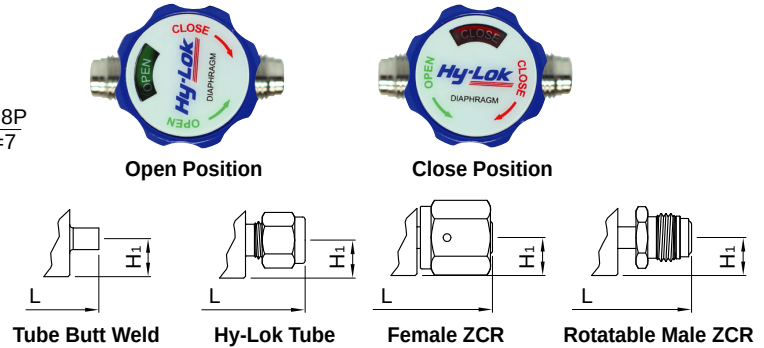
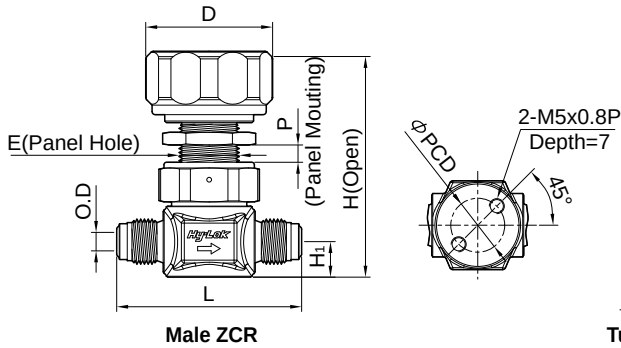
End Connection	Ordering No.	O.D	L	H ₁	H	D	E	P	PCD
Male ZCR Fitting	DVVM-4-DR	1/4"	58.4	11.2	73.0	39.0	20.0	6.0	17.0
Rotatable Male ZCR Fitting	DVRM-4-DR		89.2						
Female ZCR Fitting	DVVF-4-DR		70.6						
Hy-Lok Tube Fitting	DVH-4-DR		64.4						
Tube Butt Weld	DVBW-4-DR		44.2						

Handle color for low pressure model is Blue.

Low Pressure Models

Manual Round Handle

Upper (Handle Operating)

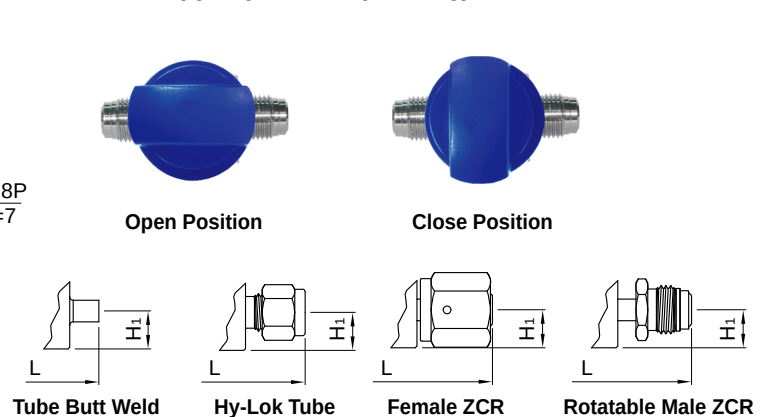
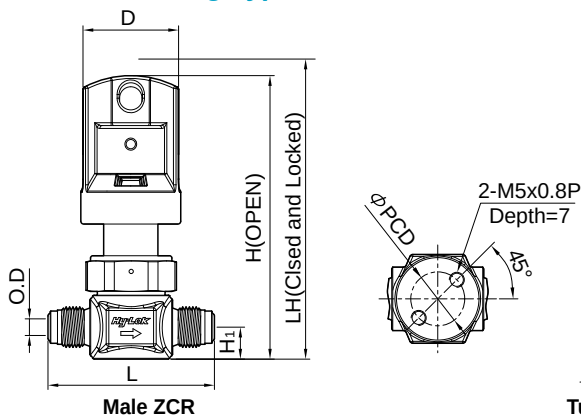


End Connection	Ordering No.	O.D	L	H ₁	H	D	E	P	PCD
Male ZCR Fitting	DVVM-4	1/4"	58.4	11.2	72.1	40.0	20.0	6.0	17.0
	DVVM-8	1/2"	76.0	16.0	80.2		23.1	7.0	28.0
	DVVM-12	3/4"	88.0	22.0	93.1		23.1	7.0	28.0
Rotatable Male ZCR Fitting	DVRM-4	1/4"	89.2	11.2	72.1	40.0	20.0	6.0	17.0
	DVRM-8	1/2"	107.4	16.0	80.2		23.1	7.0	28.0
	DVRM-12	3/4"	140.0	22.0	93.1		23.1	7.0	28.0
Female ZCR Fitting	DVVF-4	1/4"	70.6	11.2	72.1	40.0	20.0	6.0	17.0
	DVVF-8	1/2"	83.0	16.0	80.2		23.1	7.0	28.0
	DVVF-12	3/4"	106.0	22.0	93.1		23.1	7.0	28.0
Hy-Lok Tube Fitting	DVH-4	1/4"	64.4	11.2	72.1	40.0	20.0	6.0	17.0
	DVH-8	1/2"	81.8	16.0	80.2		23.1	7.0	28.0
	DVH-12	3/4"	80.8	22.0	93.1		23.1	7.0	28.0
Tube Butt Weld	DVBW-4	1/4"	44.2	11.2	72.1	40.0	20.0	6.0	17.0
	DVBW-8	1/2"	68.0	16.0	80.2		23.1	7.0	28.0
	DVBW-12	3/4"	73.6	22.0	93.1		23.1	7.0	28.0

Handle color for Low pressure model is Blue.

Manual Locking Type Handle

Upper (Handle Operating)



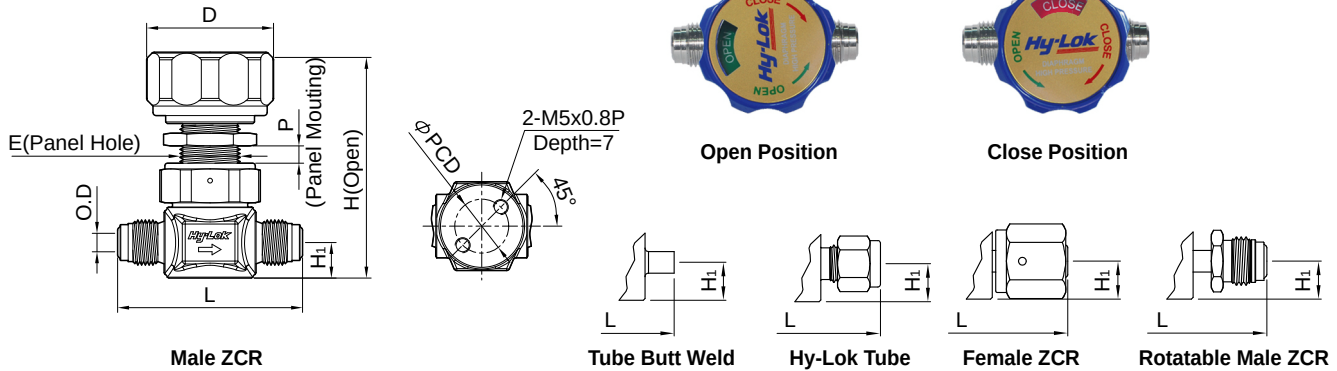
End Connection	Ordering No.	O.D	L	H ₁	H	D	PCD
Male ZCR Fitting	DVVM-4-LK	1/4"	58.4	11.2	73.0	39.0	17.0
Rotatable Male ZCR Fitting	DVRM-4-LK		89.2				
Female ZCR Fitting	DVVF-4-LK		70.6				
Hy-Lok Tube Fitting	DVH-4-LK		64.4				
Tube Butt Weld	DVBW-4-LK		44.2				

Handle color for low pressure model is Blue.

High Pressure Models

Manual Round Handle

Upper (Handle Operating)

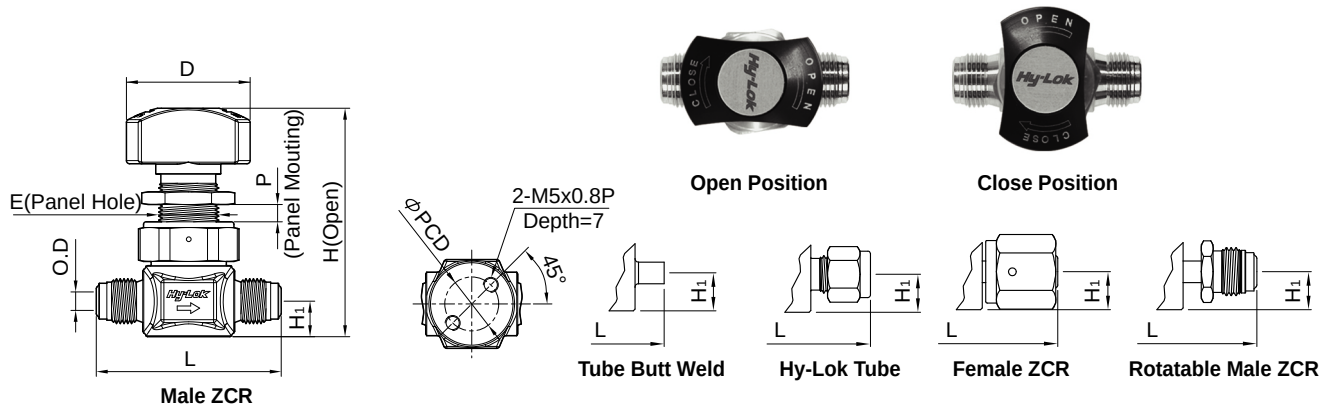


End Connection	Ordering No.	O.D	L	H ₁	H	D	E	P	PCD
Male ZCR Fitting	DVHPVM-4	1/4"	58.4	11.2	72.1	45.0	20.0	6.0	17.0
Rotatable Male ZCR Fitting	DVHPRM-4		89.2						
Female ZCR Fitting	DVHPVF-4		70.6						
Hy-Lok Tube Fitting	DVHPH-4		64.4						
Tube Butt Weld	DVHPBW-4		44.2						

Handle cap color for high pressure model is Gold.

Manual Directional Handle

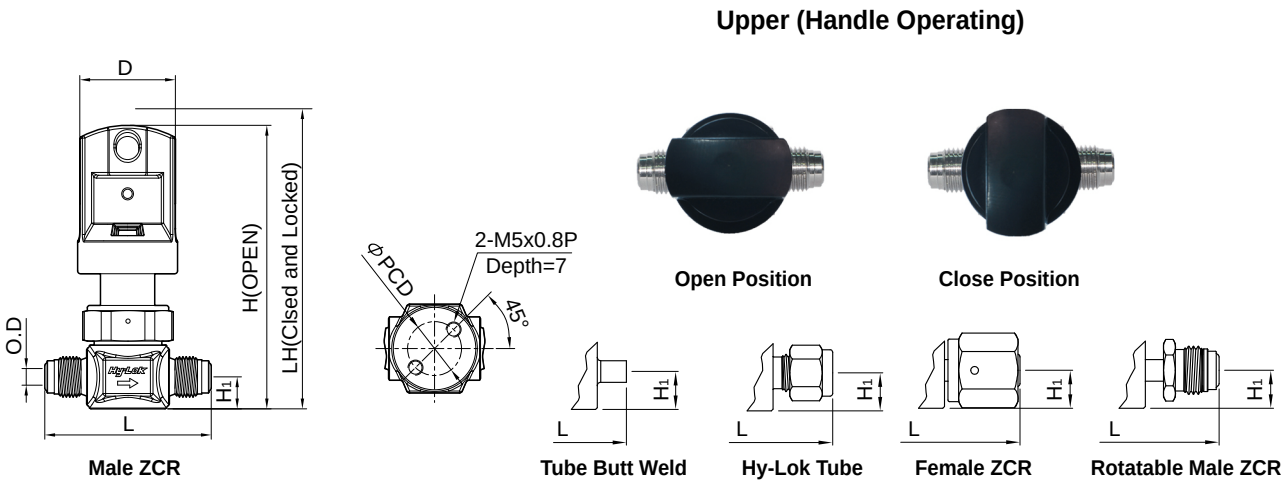
Upper (Handle Operating)



End Connection	Ordering No.	O.D	L	H ₁	H	D	E	P	PCD
Male ZCR Fitting	DVHPVM-4-DR	1/4"	58.4	11.2	73.0	39.0	20.0	6.0	17.0
Rotatable Male ZCR Fitting	DVHPRM-4-DR		89.2						
Female ZCR Fitting	DVHPVF-4-DR		70.6						
Hy-Lok Tube Fitting	DVHPH-4-DR		64.4						
Tube Butt Weld	DVHPBW-4-DR		44.2						

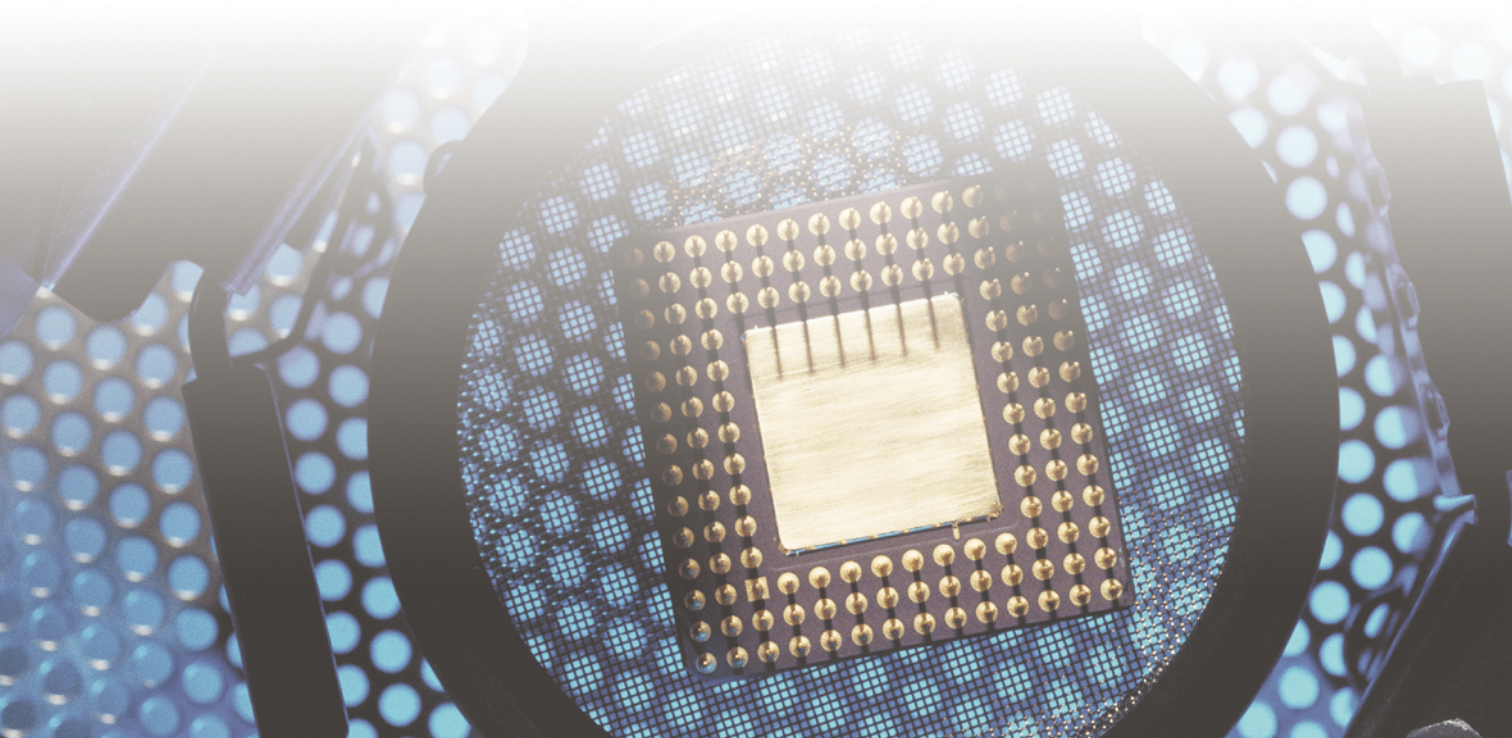
Handle cap color for high pressure model is Gold.

Manual Locking Type Handle



End Connection	Ordering No.	O.D	L	H ₁	H	D	PCD
Male ZCR Fitting	DVHPVM-4-LK	1/4"	58.4	11.2	99.5	39.0	17.0
Rotatable Male ZCR Fitting	DVHPRM-4-LK		89.2				
Female ZCR Fitting	DVHPVF-4-LK		70.6				
Hy-Lok Tube Fitting	DVHPH-4-LK		64.4				
Tube Butt Weld	DVHPBW-4-LK		44.2				

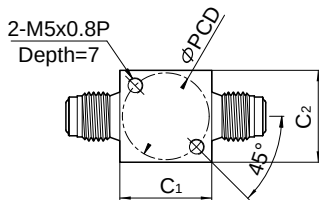
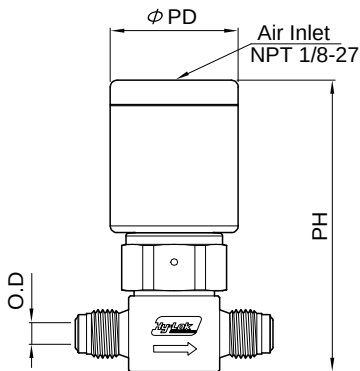
Handle cap color for high pressure model is Gold.



Dimensions

All dimensions are in millimeters and for reference only. In case of the end connection for Hy-Lok tube fitting, dimensions shown with Hy-Lok nuts in finger-tight position, where applicable.

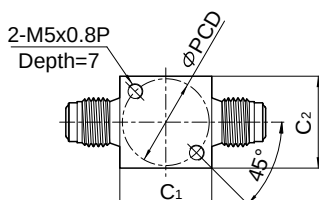
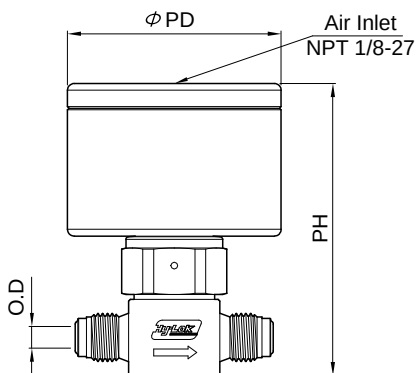
Low Pressure Models Pneumatic Actuator



Ordering No.	O.D	Description	PH	PD
DVVM - 4 - PC	1/4"	Normally Close	86	38
DVVM - 8 - PC	1/2"		94	45
DVVM - 12 - PC	3/4"		104	
DVVM - 4 - PO	1/4"	Normally Open	86	38
DVVM - 8 - PO	1/2"		94	45
DVVM - 12 - PO	3/4"		104	

For end connection types and dimensions are same as manual Handle.

High Pressure Models Pneumatic Actuator



Ordering No.	O.D	Description	PH	PD
DVHPVM - 4 - PC	1/4"	Normally Close	98.8	63
DVHPVM - 4 - PO		Normally Open		

For end connection types and dimensions are same as manual Handle.

Multiport Diaphragm Valves

To customize this model to meet your system requirements, select designators for :

- multiport flow path
- end connector for each port
- internal surface grade
- manual handle or pneumatic actuator

Multiport Flow Path

Ports No.	Designator	Schematic	Flow Path	
			Close	Open
4	L			
	N			
3	C			
	E			
	R			
	T			
	Y			
	J			
2	Q			
	U			

- The flow path is shown as viewed from the top of the valve body.
- The "a" next to the port number indicate that a port is above the valve seat.
- The "b" next to the port number indicate that a port is below the valve seat.

Example Ordering Information

Ordering No.	DVLMFMF-4-H	DVHPCFWF-4-H	DVJWW-4-PC-H
Material	316L Stainless Steel (Single & Double Melt)		
Model Series	Low Pressure, 1/4"	High Pressure, 1/4"	Low Pressure, 1/4"
Flow Path	4 ports, L	3 ports, C	2 ports, J
Port No. 1 End Connection	Rotatable Male ZCR Fitting	Female ZCR Fitting	Tube Butt Weld
Port No. 2 End Connection	Female ZCR Fitting	Tube Butt Weld	-
Port No. 3 End Connection	Rotatable Male ZCR Fitting	Female ZCR Fitting	-
Port No. 4 End Connection	Female ZCR Fitting	-	Tube Butt Weld
Actuation Method	Manual Handle, Color Blue	Manual Handle, Color White	Normally Close

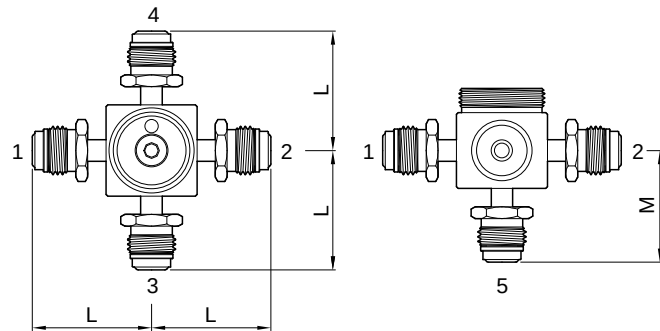
Handle cap color for low pressure model is Blue.



Dimension

All dimensions are in millimeters and for reference only.

In case of the end connection for Hy-Lok tube fitting, dimensions shown with Hy-Lok nuts in finger-tight position, where applicable.



End Connection	O.D	L	M
Tube Butt Weld (Tube wall, 0.035 in.)	1/4"	22.1	19.3
Female ZCR Fitting		36.5	34.2
Rotatable Male ZCR Fitting		36.5	34.2

The end connection designators are reference on page 8.
The dimension of four bottom mounting holes are same as standard 2 port valve body on page 4.
The flow path designator "Q" is no mounting holes.

Manifolds Diaphragm Valves

To customize this model to meet your system requirements, select designators for :
manifold flow path end connector for each port
internal surface grade manual handle or pneumatic actuator

Manifold Flow Path

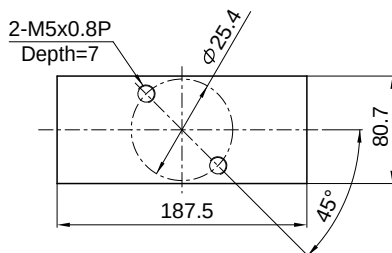
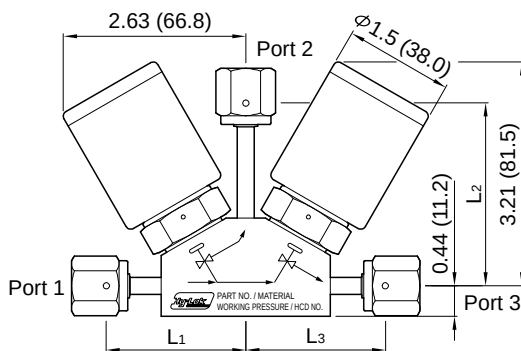
Manifold	Designator	Schematic	Flow Path
2 Valve & 3 Port Mono Block	M1		
	M2		
2 Valve & 3 Port Double Pattern	M3		



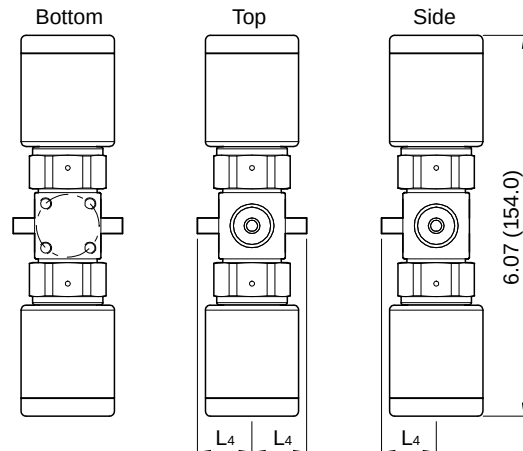
Dimension

All dimensions are in inches(millimeters) and for reference only. In case of the end connection for Hy-Lok tube fitting, dimensions shown with Hy-Lok nuts in finger-tight position, where applicable.

2 Valve & 3 Port Monoblock



2 Valve & 3 Port Double Pattern



End Connection	O.D	2 Valve & 3 Port Mono Block			2 Valve & 3 Port Double Pattern
		L1	L2	L3	L4
Tube Butt Weld (Tube wall, 0.035 in.)		46.0	70.9	46.0	22.1
Female ZCR Fitting	1/4"	51.6	67.6	51.6	35.3
Rotatable Male ZCR Fitting		61.2	85.1	61.2	35.3

The end connection designators are reference on next page.

Ordering No.	DVM1FMF-4-PCO-H	DVHPM2WWW-4-H	DVM3MFF-4-H
Material	316L Stainless Steel(Single & Double Melt)		
Model Series	Low Pressure, 1/4"	High Pressure, 1/4"	Low Pressure, 1/4"
Flow Path	2 Valve & 3 port	2 Valve & 3 port	2 Valve & 3 port
	Monoblock, M1	Monoblock, M2	Double Pattern, M3
Port No. 1 End Connection	Female ZCR Fitting	Tube Butt Weld	Rotatable Male ZCR Fitting
Port No. 2 End Connection	Rotatable Male ZCR Fitting	Tube Butt Weld	Female ZCR Fitting
Port No. 3 End Connection	Female ZCR Fitting	Tube Butt Weld	Female ZCR Fitting
Valve 1 Actuation Method	Normally Close	Manual Handle, Color White	Manual Handle, Color Blue
Valve 2 Actuation Method	Normally Open	Manual Handle, Color White	Manual Handle, Color Blue

To disassemble or assemble the maintenance kits, refer to the Hv-Lok Corporation document no. H-DV100-IM.

- [illegible]

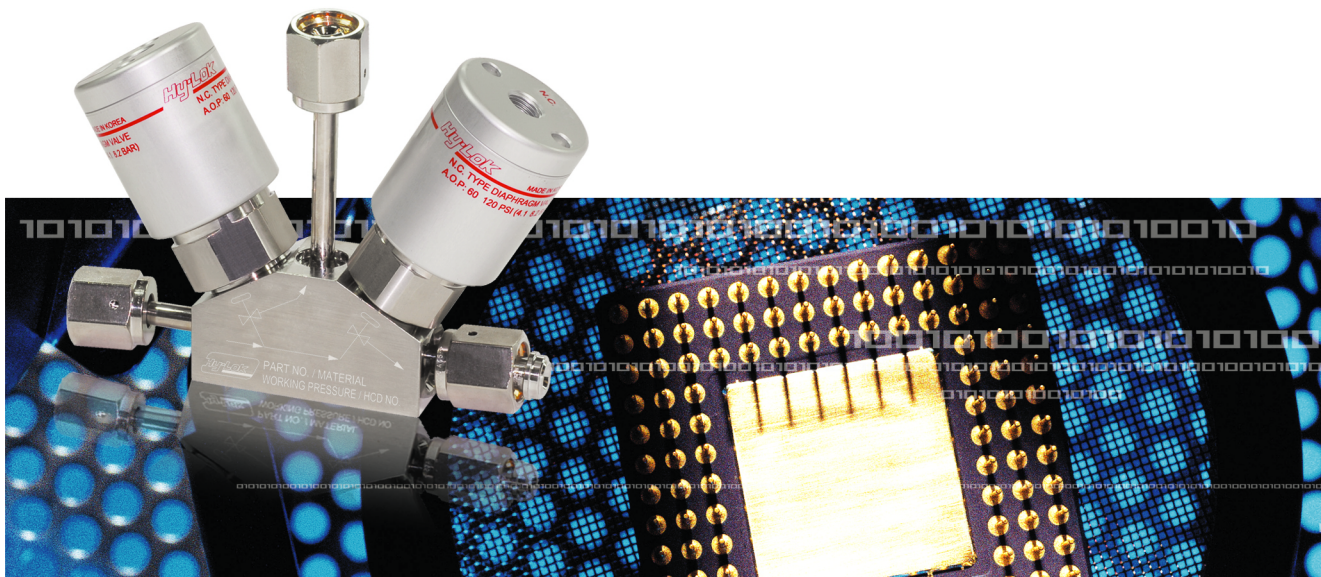
- Ordering number is the following.

Model	Ordering No.	O.D Size	Description
Low Pressure	DV-4-PO	1/4"	Normally Open
	DV-4-PC		Normally Close
	DV-8-PO	1/2", 3/4"	Normally Open
	DV-8-PC		Normally Close
High Pressure	DVH-4-PO	1/4"	Normally Open
	DVH-4-PC		Normally Close

 Do not interchange high pressure actuator and low pressure actuator.

The diagram illustrates the components of a valve model number, represented as **DV - HP - M1 - VFF - 4 - PCO - H - VV6L**. Each component is linked to a specific description:

- DV** - Valve Series Designator
 - DV - Forged Diaphragm Valve
 - DV2 - Square Diaphragm Valve
- HP** - Model
 - Nil - Low Pressure
 - HP - High Pressure
- M1** - Flow Path
 - Nil - Standard (page 3~8)
 - M1 - Multiport & Manifold flow path Designators are reference on page 9,10
- VFF** - Actuation
 - PO - Pneumatic Actuator (Normally Open)
 - PC - Pneumatic Actuator (Normally Close)
 - PCO - Valve 1: Normally Close, Valve 2: Normally Open
 - POC - Valve 1: Normally Open, Valve 2: Normally Close
 - DR - Directional Handle
 - LK - Locking Handle
 - AH - ABS(100) Handle
- 4** - Size
 - 4 - 1/4"
 - 6 - 3/8"
 - 8 - 1/2"
 - 12 - 3/4"
- PCO** - Port Configuration
 - VM - Male ZCR Fitting
 - BW - Tube Butt Weld
 - VF - Female ZCR Fitting
 - H - Hy-Lok Tube Fitting
 - RM - Rotatable Male ZCR
- H** - Surface Grade
 - Nil - B.A(Bright Anealing)
 - H - EP(Electro polishing)
- VV6L** - Body Material Designator
 - SM6L : Single Melting 316L
 - VV6L : Double Melting 316L



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