

## Section D



D





**VA01 Vacuum Control Valves for Centralized Vacuum Systems**

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# PSV23



For Vacuum Control

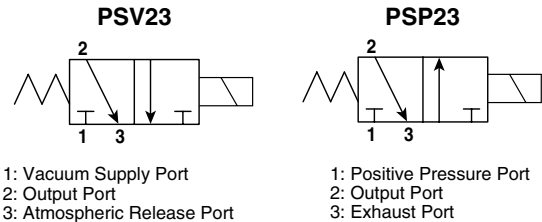
# PSP23



For Blow-off Control (Positive Pressure)

## Features

- **Lightweight, Compact, Direct Acting, 10mm Wide Solenoid Valve**
- **PSV23 Normally Closed, 3-Way for Centralized Vacuum Systems**
- **PSP23 Normally Closed, 3-Way for Blow-off Control**
- **Vacuum Leakage is Reduced to Less Than .6 inHg / min (At 26.5 inHg, 1.22 cu. in.)**
- **5 ms Response Time**
- **Manifolds up to 20 Stations are Available**

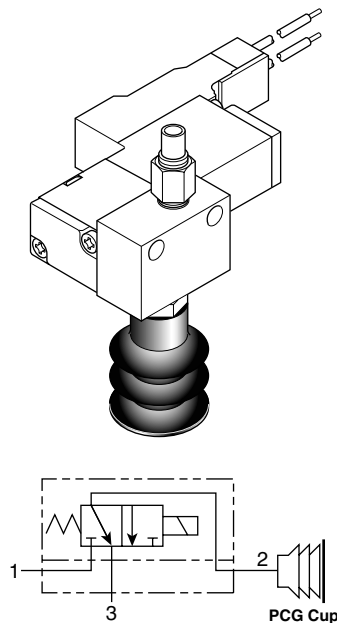


## Applications

The PSV23 valve can be used for vacuum applications where a central vacuum system is used for creating the negative pressure for vacuum. The 10mm wide valve can be mounted on a single subbase for point of use applications or manifolds for a centralized control. As shown, the single subbase can be used to mount the valve and vacuum cup together reducing overall mounting space.

The PSP23 valve can be used for positive pressure applications up to 72.5 PSI. This valve can be used for blow-off functions to break the vacuum pressure.

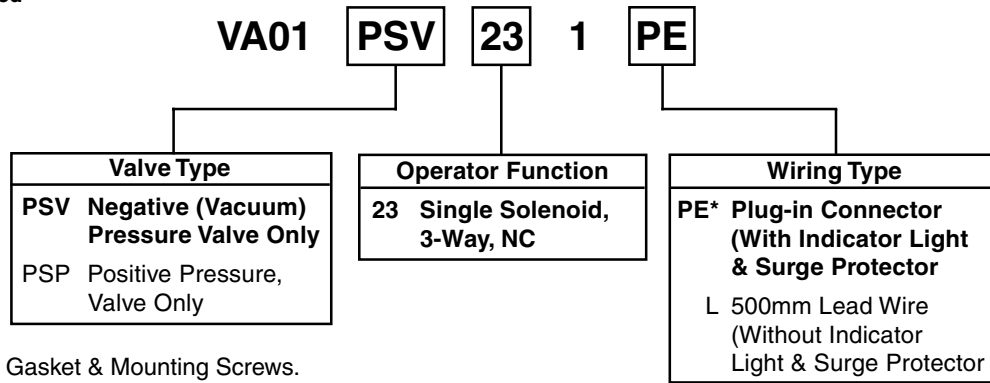
Applying positive pressure to PSV23 or negative pressure to PSP23 will cause air leakage or operational failure.





## Valve Model Number Index

Bold Items Are Stocked



**Note:** Valve includes Gasket & Mounting Screws.

\* Includes 500mm Connector

## Specifications

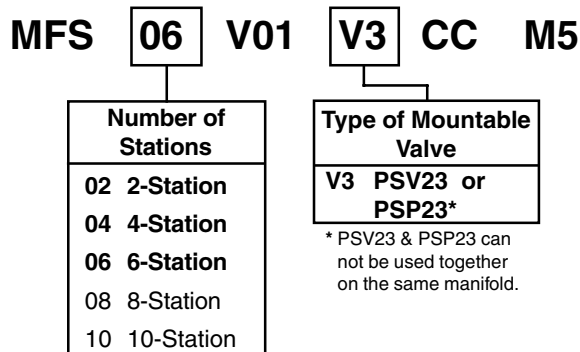
Model Number	VA01PSV23	VA01PSP23
<b>Media</b>	Air	
<b>Port Size</b>	M5 Female	
<b>Flow</b>	<b>Vacuum</b>	.78 SCFM@29.5 inHg
	<b>Vacuum Break</b>	—
		1.4 SCFM@72.5 PSI
<b>Pressure Range</b>	0 to 29.5 inHg	0 to 72.5 PSI
<b>Proof Pressure</b>	.3 mPa (43.5 PSI)	.75 mPa (108.7 PSI)
<b>Ambient Temperature</b>	14 to 122°F (-10 to 50°C)	
<b>Response Time</b>	<b>ON</b>	5 ms or Less
	<b>Off</b>	5 (10) ms or Less
<b>Rated Voltage</b>	24VDC	
<b>Permissible Voltage Fluctuation</b>	± 10%	
<b>Heat Resistance Grade</b>	Grade B	
<b>Power Consumption</b>	2W	
<b>Wiring</b>	Lead Wire, Connector with Lead Wire	
<b>Vibration Resistance</b>	150 m/s <sup>2</sup>	
<b>Shock Resistance</b>	50 m/s <sup>2</sup>	
<b>Mass</b>	.88 oz. (25 g.)	

**Note:** When using the valve for vacuum break at less than 41°F (5°C) by supplying compressed air, use dry air passing through an air dryer to prevent dew condensation and freezing.

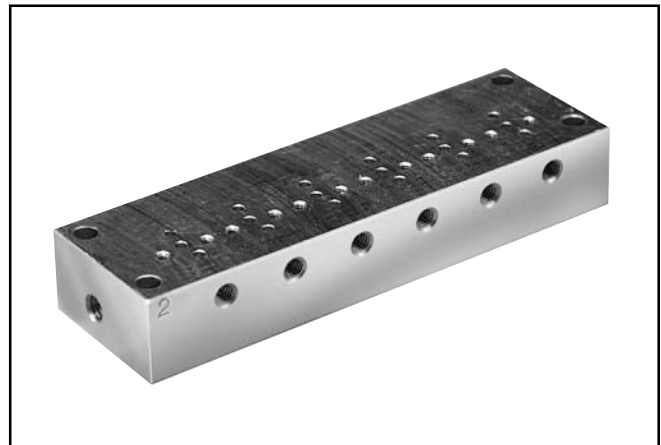
Response time in bracket ( ) shows with surge suppressor.

## Manifold Model Number Index

Bold Items Are Standard



**Note:** Valve manifolds available up to 20 stations and in odd or even numbers. Consult Factory for availability.



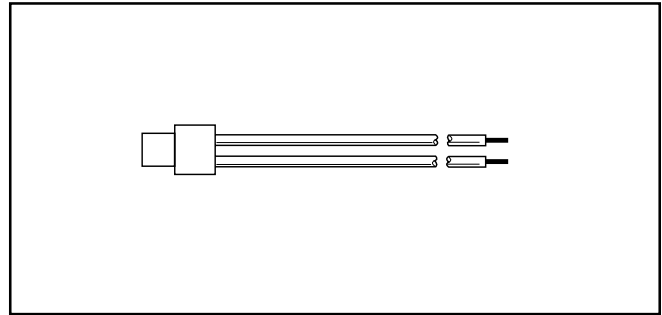


## Individual Wired Connectors

Size	Voltage	Length	Part Number
PSV23	DC	.5 meter	<b>PC2D23CL5*</b>
PSP23		1 meter	<b>PC2D23CL10</b>

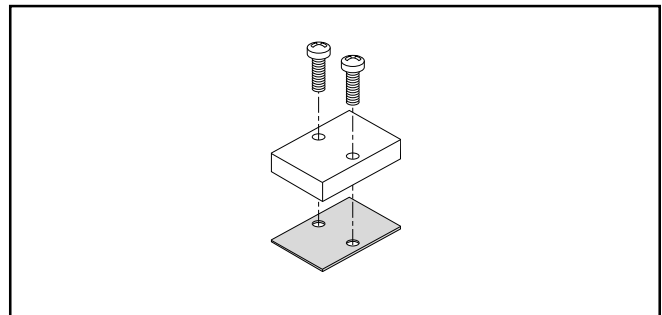
DC Voltage: Positive "+" (Red Wire)  
 Negative "-" (Black Wire)

\* PC2D23CL5 Connector included with valve.



## Blanking Plate

Size	Type	Part Number
PSV23 PSP23	Manifold	<b>V23BP</b>



## Subbase

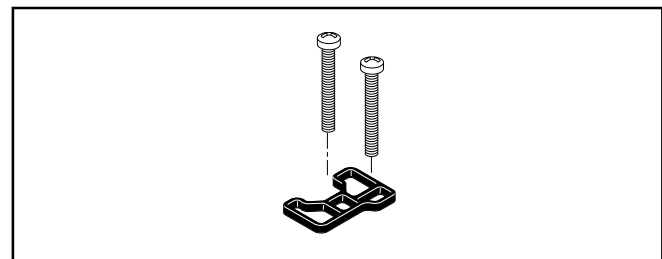
Model Number	All Ports
<b>V33SBM5</b>	M5

Mounting screws and gaskets included with valve.



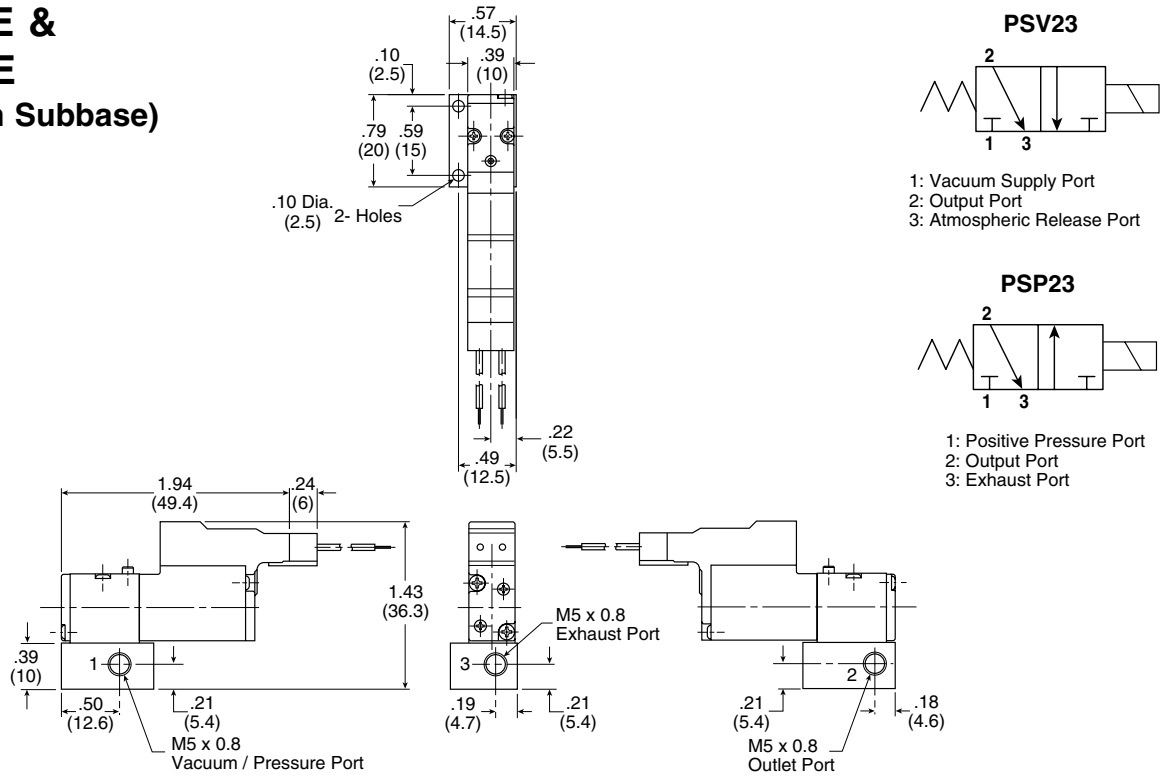
## Base Gasket Kits (Included with Valve)

Part Number	Type
<b>V23SG</b>	Subbase & Manifold

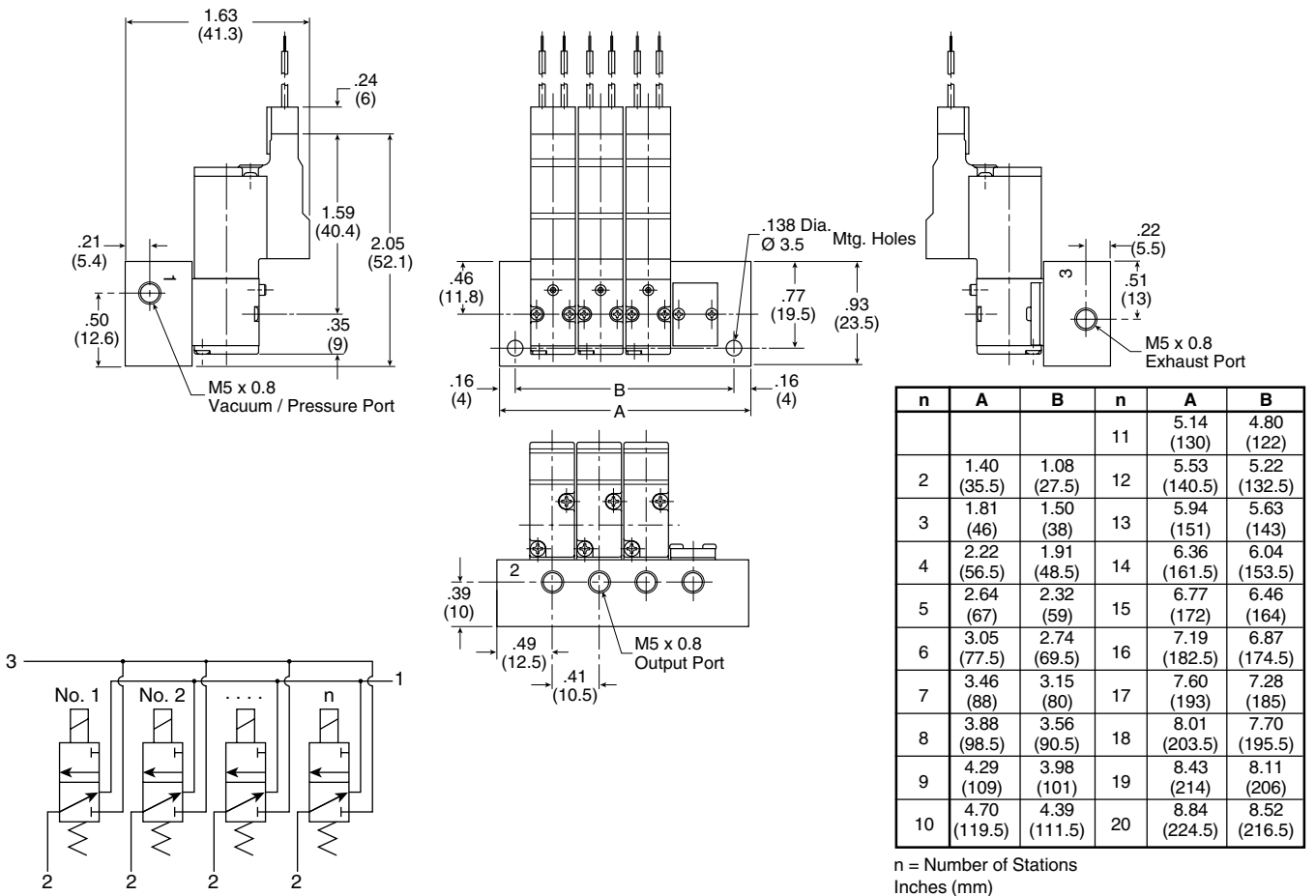




**PSV231PE &  
PSP231PE**  
(Shown with Subbase)



**Manifold Assembly**



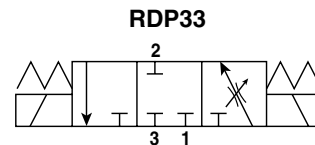


# RDP33



## Features

- **Lightweight, Compact, Direct Acting, 10mm Wide Solenoid Valve**
- **3-Way, 3-Position Blocked Center Valve for Use with Centralized Vacuum Systems**
- **One Valve for Both Vacuum Control and Blow-off Control**
- **5 ms Response Time**
- **Built-in Throttle Valve for Regulating Blow-off Adjustment**
- **Vacuum Leakage is Reduced to Less Than .6 inHg / min (At 26.5 inHg, 1.22 cu. in.)**
- **Inline Mount or Manifolds up to 20 Stations are Available**

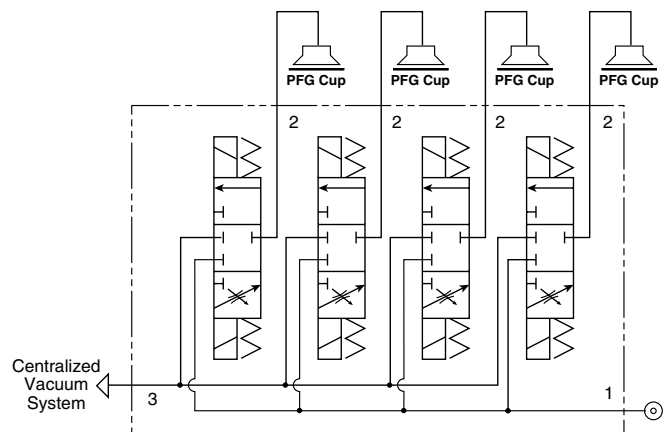


1: Positive Pressure Supply Port  
 2: Output Port  
 3: Vacuum Supply Port

## Applications

The PEP33 3-Way, 3-Position Poppet valve, is used for vacuum applications with centralized vacuum system and blow-off functions in one valve body. This valve eliminates the need for 2 separate 3-Way valves.

A built in Blow-off Throttle Valve allows the blow-off flow to be regulated at the valve for each application. The same 10mm wide valve can be mounted as an inline valve close the application or on a manifold for centralized control. The working port is blocked in the center condition keeping vacuum leakage to a minimum.

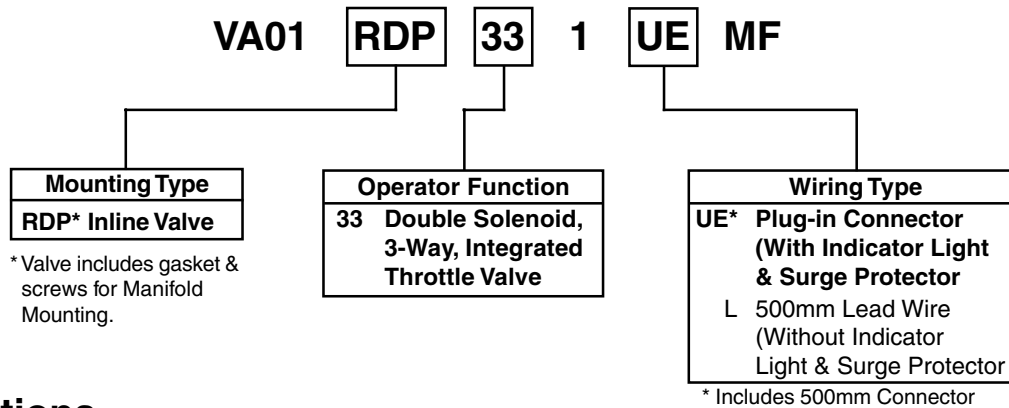






## Valve Model Number Index

Bold Items Are Standard



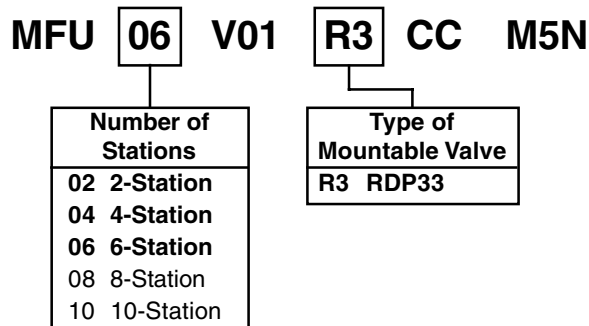
## Specifications

<b>Model Number</b>		<b>VA01RDP33</b>
<b>Media</b>		Air
<b>Port Size</b>		M5 Female
<b>Flow</b>	<b>Vacuum</b>	0.35 SCFM @ 29.5 inHg (Port 3 to 2)
	<b>Vacuum Break</b>	0.29 SCFM @ 72.5 PSI (Port 1 to 2)
<b>Pressure Range</b>		29.5 inHg to 72.5 PSI
<b>Proof Pressure</b>		.3 mPa (43.5 PSI)   .75 mPa (108.7 PSI)
<b>Ambient Temperature</b>		14 to 122°F (-10 to 50°C)
<b>Response Time</b>	<b>ON</b>	5 ms or Less
	<b>Off</b>	5 (20) ms or Less
<b>Rated Voltage</b>		24VDC
<b>Permissible Voltage Fluctuation</b>		± 10%
<b>Heat Resistance Grade</b>		Grade B, J154003
<b>Power Consumption</b>	<b>L Type</b>	0.5W
	<b>U Type</b>	0.55W
<b>Wiring</b>		Lead Wire, Connector with Lead Wire
<b>Vibration Resistance</b>		150 m/s <sup>2</sup>
<b>Shock Resistance</b>		50 m/s <sup>2</sup>
<b>Mass</b>		1.59 oz. (45 g.)

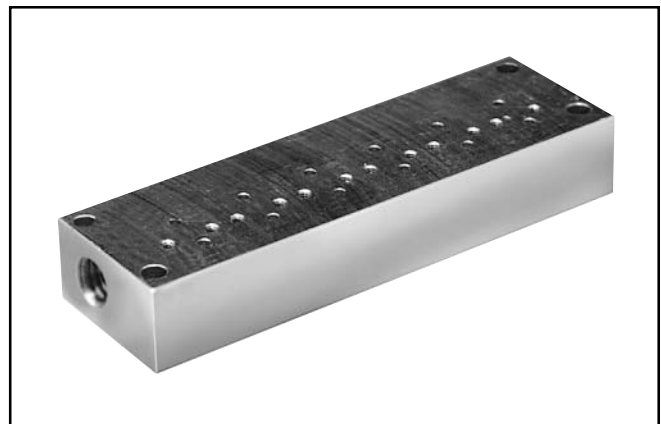
Note: When using the valve for vacuum break at less than 41°F (5°C) by supplying compressed air, use dry air passing through an air dryer to prevent dew condensation and freezing.  
 Response time in bracket ( ) shows with surge suppressor.

## Manifold Model Number Index

Bold Items Are Standard



NOTE: Valve manifolds available up to 20 stations and in even and odd numbers. Consult Factory for availability



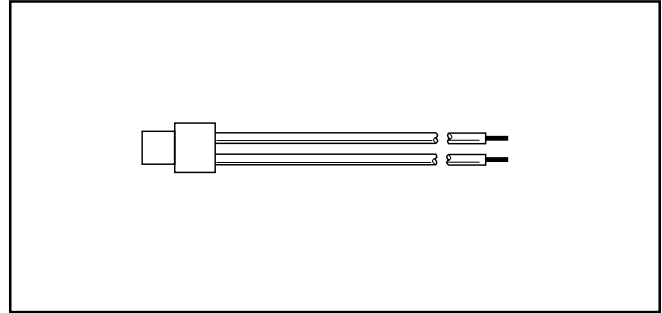


## Individual Wired Connectors

Size	Voltage	Length	Part Number
RDP33	DC	.5 meter	<b>PC2D23CL5*</b>
		1 meter	<b>PC2D23CL10</b>

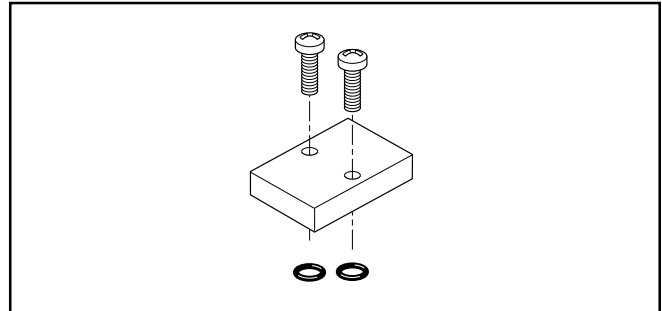
DC Voltage: Positive "+" (Red Wire)  
 Negative "-" (Black Wire)

\* PC2D23CL5 Connector included with valve.



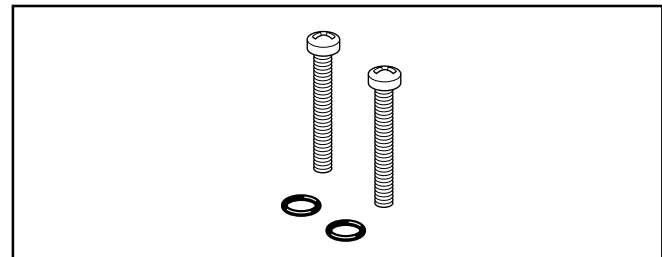
## Blanking Plate

Size	Type	Part Number
RDP33	Manifold	<b>V33BP</b>



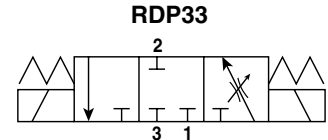
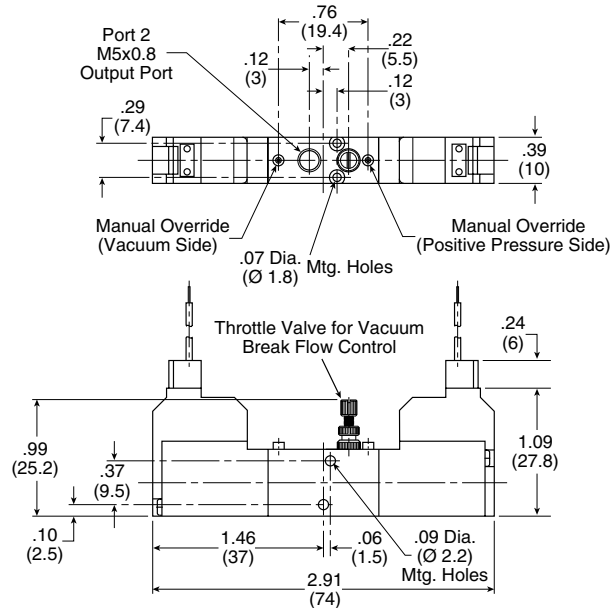
## Base Gasket Kits (Included with Valve)

Part Number	Type
<b>V33SG</b>	Subbase & Manifold



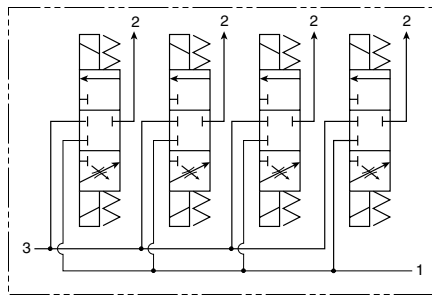
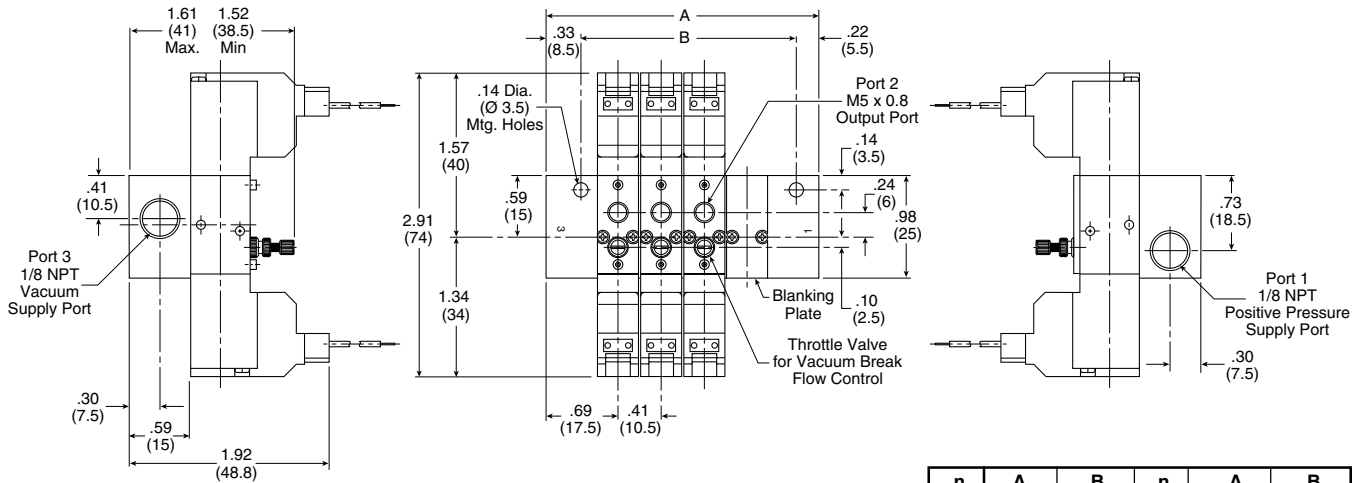


**RDP33**



1: Positive Pressure Supply Port  
 2: Output Port  
 3: Vacuum Supply Port

**Manifold Assembly**



n	A	B	n	A	B
			11	5.51 (140)	4.80 (123)
2	1.79 (45.5)	1.08 (28.5)	12	5.93 (150.5)	5.22 (133.5)
3	2.20 (56)	1.50 (39)	13	6.34 (161)	5.63 (144)
4	2.62 (66.5)	1.91 (49.5)	14	6.75 (171.5)	6.04 (154.5)
5	3.03 (77)	2.32 (60)	15	7.17 (182)	6.46 (165)
6	3.44 (87.5)	2.74 (70.5)	16	7.58 (192.5)	6.87 (175.5)
7	3.86 (98)	3.15 (81)	17	7.99 (203)	7.28 (186)
8	4.27 (108.5)	3.56 (91.5)	18	8.41 (213.5)	7.70 (196.5)
9	4.69 (119)	3.98 (102)	19	8.82 (224)	8.11 (207)
10	5.10 (129.5)	4.39 (112.5)	20	9.23 (234.5)	8.52 (217.5)

n = Number of Stations  
 Inches (mm)



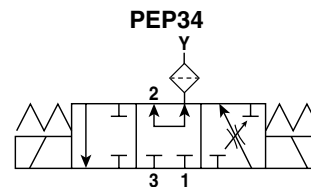


# PEP34



## Features

- **Lightweight, Compact, Direct Acting, 10mm Wide Solenoid Valve**
- **3-Way, 3-Position Exhaust Center Valve for Use with Centralized Vacuum Systems**
- **One Valve for Both Vacuum Control and Blow-off Control**
- **5 ms Response Time**
- **Built-in Throttle Valve for Regulating Blow-off Adjustment**
- **Manifolds up to 12 Stations are Available**
- **130 Micron Filter in Atmospheric Relief Port**



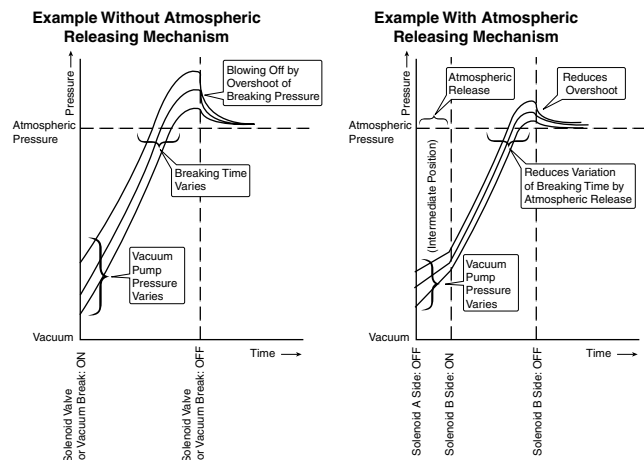
1: Positive Pressure Supply Port  
 2: Output Port  
 3: Vacuum Supply Port  
 Y: Atmospheric Release Port

## Applications

The PEP34 3-Way, 3-Position Poppet valve, is used for vacuum applications with centralized vacuum system and blow-off functions in one valve body. This valve eliminates the need for 2 separate 3-Way valves.

A built in Blow-off throttle valve allows the blow-off flow to be regulated at the valve for each application. The same 10mm wide valve can mounted as an inline valve close the application or on a manifold for centralized control.

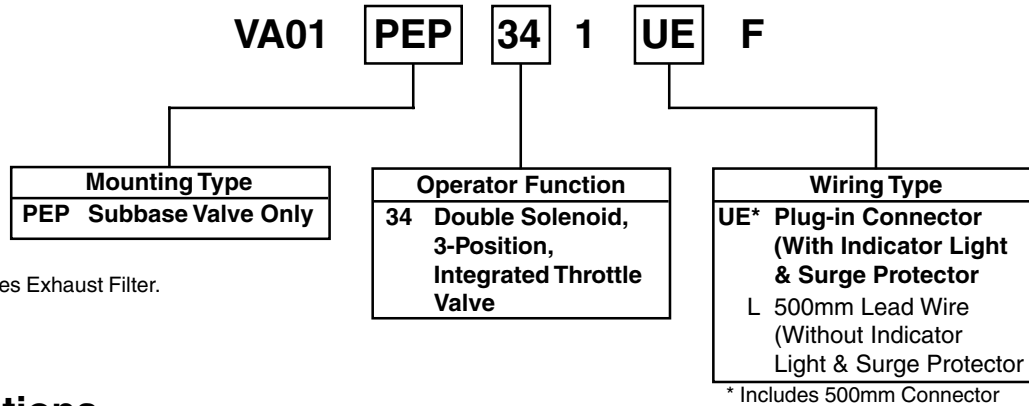
The working port is open to atmosphere in the center condition. In the transition from Vacuum to Blow-off, this atmospheric port helps reduce the time to break the seal of the part and reduces the possibility of parts around the blow-off from being moved. More consistent blow off times can be realized and when detaching the part, re-attraction after the vacuum seal is broken is eliminated.





## Valve Model Number Index

Bold Items Are Standard



Note: Valve includes Exhaust Filter.

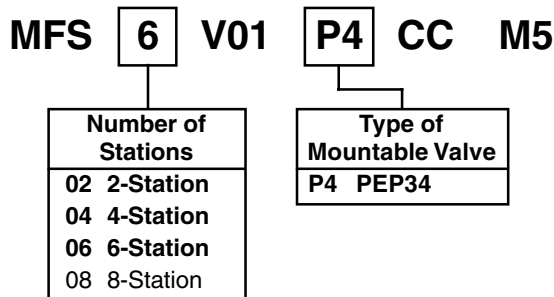
## Specifications

<b>Model Number</b>		<b>VA01PEP34</b>
<b>Media</b>		Air
<b>Port Size</b>		M5 Female
<b>Flow</b>	<b>Vacuum</b>	0.71 SCFM@29.5 inHg (Port 3 to 2)
	<b>Vacuum Break</b>	0.50 SCFM@72.5 PSI (Port 1 to 2)
<b>Pressure Range</b>		29.5 inHg to 72.5 PSI
<b>Proof Pressure</b>		.75 mPa (108.7 PSI)
<b>Ambient Temperature</b>		14 to 122°F (-10 to 50°C)
<b>Response Time</b>	<b>ON</b>	5 ms or Less
	<b>Off</b>	5 ms or Less
<b>Rated Voltage</b>		24VDC
<b>Permissible Voltage Fluctuation</b>		± 10%
<b>Heat Resistance Grade</b>		Grade B, J154003
<b>Power Consumption</b>	<b>Holding</b>	0.9W
	<b>Inrush</b>	4W
<b>Wiring</b>		Lead Wire, Connector with Lead Wire
<b>Vibration Resistance</b>		150 m/s <sup>2</sup>
<b>Shock Resistance</b>		50 m/s <sup>2</sup>
<b>Mass</b>		1.98 oz. (56 g.)

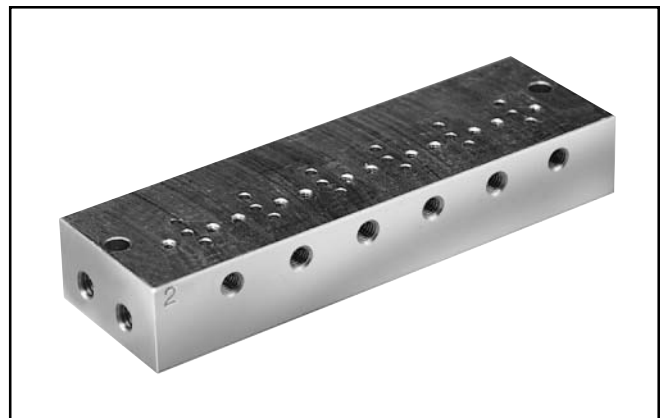
Note: When using the valve for vacuum break at less than 41°F (5°C) by supplying compressed air, use dry air passing through an air dryer to prevent dew condensation and freezing.

## Manifold Model Number Index

Bold Items Are Standard



NOTE: Valve manifolds available up to 12 stations and in even and odd numbers. Consult Factory for availability



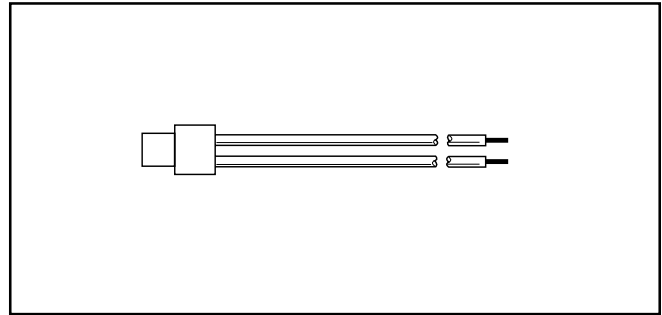


## Individual Wired Connectors

Size	Voltage	Length	Part Number
PEP34	DC	.5 meter	<b>PC2D23CL5*</b>
		1 meter	<b>PC2D23CL10</b>

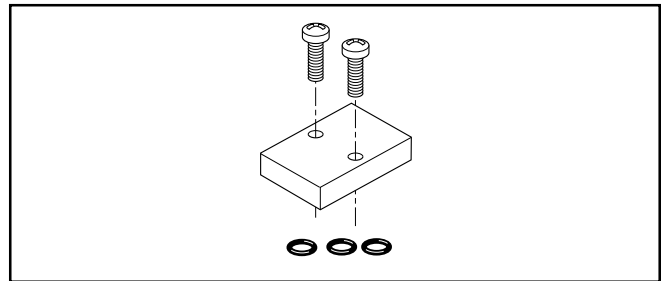
DC Voltage: Positive "+" (Red Wire)  
 Negative "-" (Black Wire)

\* PC2D23CL5 Connector included with valve.



## Blanking Plate

Size	Type	Part Number
PEP34	Manifold	<b>V34BP</b>



## Subbase

Model Number	All Ports
<b>V34SBM5</b>	M5

Mounting screws and gaskets included with valve.



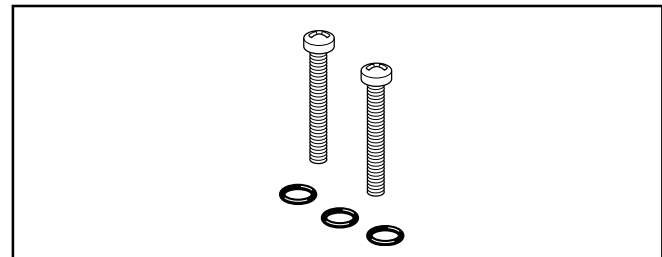
## Replacement Filter

Part Number	Type
<b>V34F</b>	130m Filter, Package of 10



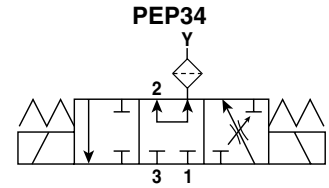
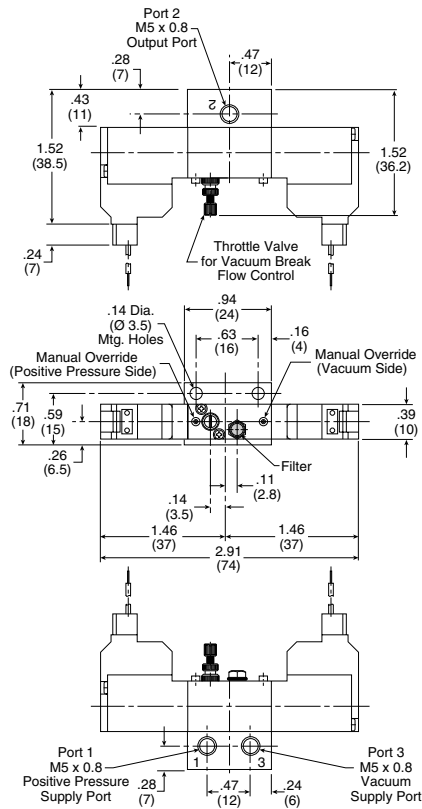
## Base Gasket Kits (Included with Valve)

Part Number	Type
<b>V34SG</b>	Subbase & Manifold



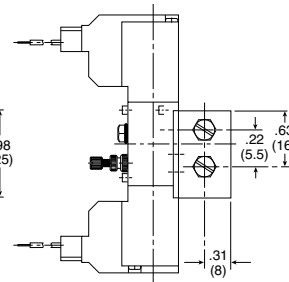
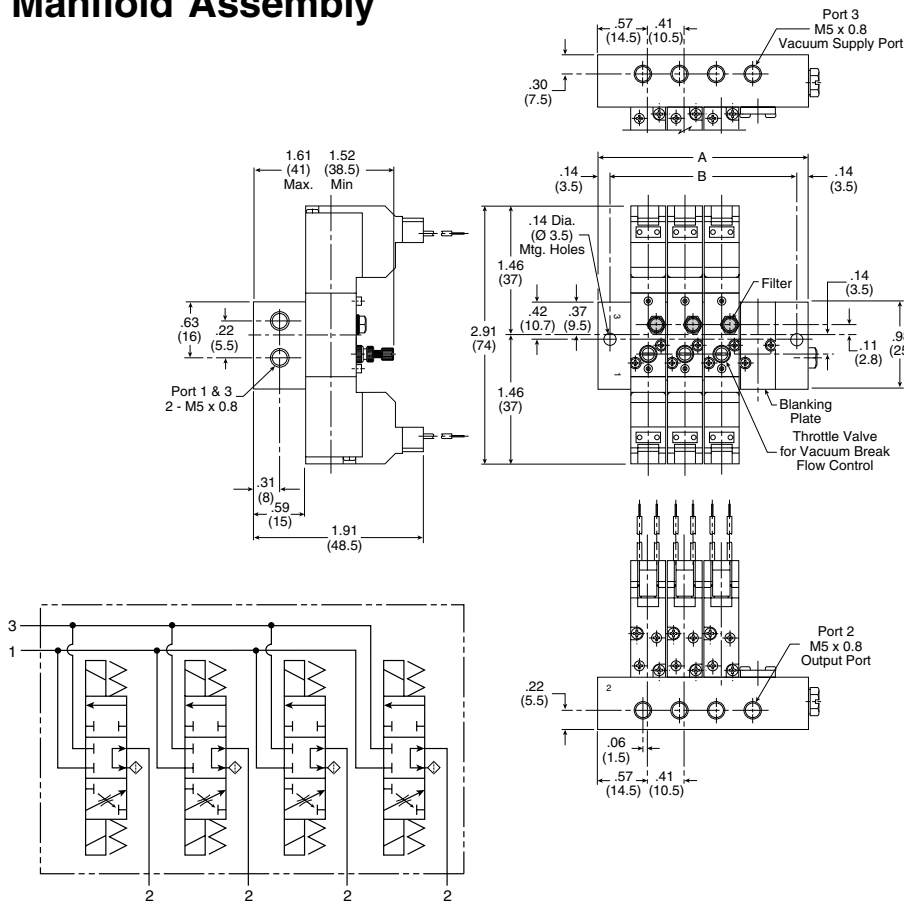


# PEP34 Subbase



1: Positive Pressure Supply Port  
 2: Output Port  
 3: Vacuum Supply Port  
 Y: Atmospheric Release Port

# Manifold Assembly



n	A	B	n	A	B
			7	3.62 (92)	3.35 (85)
2	1.56 (39.5)	1.28 (32.5)	8	4.04 (102.5)	3.76 (95.5)
3	1.97 (50)	1.69 (43)	9	4.45 (113)	4.17 (106)
4	2.38 (60.5)	2.11 (53.5)	10	4.86 (123.5)	4.59 (116.5)
5	2.80 (71)	2.52 (64)	11	5.28 (134)	5.00 (127)
6	3.21 (81.5)	2.93 (74.5)	12	5.69 (144.5)	5.41 (137.5)

n = Number of Stations  
 Inches (mm)

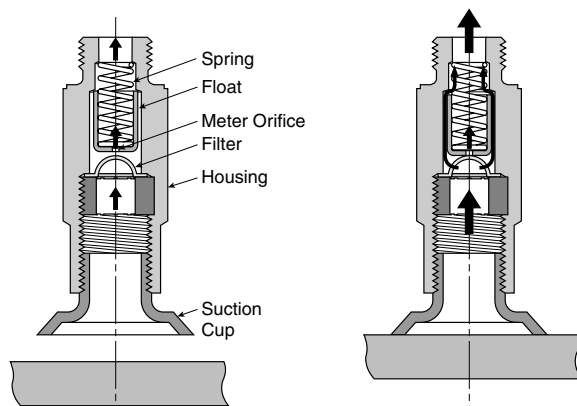




## Operation

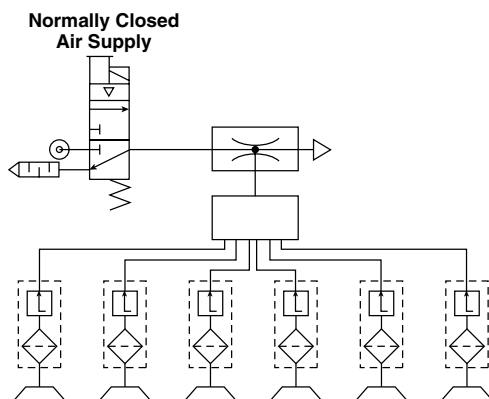
When the flow of air from the cup side to the generator side is greater than the switching flow rate of the valve, the float is drawn back against the spring and seals on the housing. In this state, flow passes through an orifice on the float. Vacuum flow is “Checked”. (See Figure 1).

When the cup comes in contact and seals on a product, flow is reduced and the spring forces the float towards the cup side inlet. This breaks the seal at the float and the full open state is restored. (See Figure 2).



**Figure 1**  
(Closed, Metered Flow)

**Figure 2**  
(Open, Full Flow)



## Features

- **Pick and Place Randomly Placed Products**
- **Minimize Vacuum Loss when Cup Seal is Lost**
- **Direct Mounting to Cups**
- **M5 to G3/8 Connection**
- **Integrated Bronze Filter**

## Application

Maintaining an acceptable level of vacuum is critical to the performance of vacuum systems that have a single source vacuum generator with multiple cups. The Parker Flow Sensing Valve assists in maintaining an acceptable vacuum level if the vacuum cup does not make a proper seal. The valve will automatically close if the cup loses the seal with the product during a pick and place motion.

The Parker Flow Sensing Valve is a normally open valve that switches to a closed metered state when the vacuum flow rate from the cup side to the generator side is greater than the switching flow rate of the flow sensing valve. The Flow Sensing Valve “Checks” the vacuum flow. The vacuum flow rate of the generator must be more than the switching flow rate of the Flow Sensing Valve or it will not switch to a “Checked” position.

When using multiple Flow Sensing Valves per generator, the flow rate of the generator must be more than the combined switching flow rates of the flow valves and any other leak path. For Example, a CV20-HSN has a maximum flow rate of 3.88 SCFM and a 1/8 Flow Sensing Valve has a switching flow rate of 0.28 SCFM. Therefore 13 Flow Sensing Valves can be connected in parallel to a CV20-HSN.

Once a Flow Sensing Valve is “Checked”, a small amount of by-pass flow occurs. This leakage allows a generator to be turned on prior to the cup being in place on a product and is the flow path used to evacuate the cup volume. The by-pass flow will decrease the maximum degree of vacuum in a system and is considered a leak path when the cup is not sealed on a product. Blow off functions will still operate by forcing the Flow Sensing Valve to a full open position, allowing the part to be blown off.

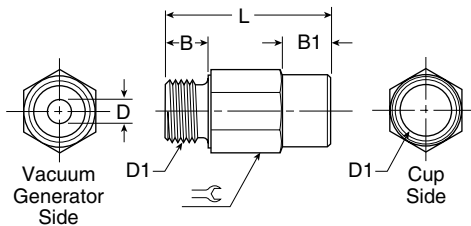


## Ordering Information

Part Number	Description
FSV-M5	M5
FSV-G1	1/8" BSPP
FSV-G2	1/4" BSPP
FSV-G3	3/8" BSPP

## Specifications

Part Number	FSV-M5	FSV-G1	FSV-G2	FSV-G3
Switching Flow Rate	0.18 SCFM	0.28 SCFM		0.875 SCFM
Nominal Size	2mm	4mm		
Housing Material	Galvanized Steel	Anodised Aluminum		
Filter Material	Sintered Bronze	Al-Niro Mesh		
Temperature Range	14° F to 140° F (-10° C to 60° C)			
Maximum Pressure	145 PSI			115 PSI
Media	Atmospheric Air			
Weight (grams)	0.005	0.009	0.016	0.029



## Dimensions

	B	B1	D	D1	L	☐
FSV-M5	.18 (4.5)	.22 (5.5)	.08 (2)	M5	.57 (14.5)	.31 (8)
FSV-G1	.26 (6.5)	.43 (11)	.16 (4)	G	1.42 (36)	.51 (13)
FSV-G2	.33 (8.5)	.43 (11)	.16 (4)	G1/4	1.50 (38)	.67 (17)
FSV-G3	.47 (12)	.51 (13)	.16 (4)	G3/8	1.65 (42)	.87 (22)



## Features

- Poppet Design
- Low Leakage
- Low Cracking Pressure

## Characteristics

The CH Check valve is used to hold a degree of vacuum downstream from the check valve when the vacuum generator upstream from the check valve is turned off. A separate blow-off connection downstream from the CH check valve is required to destroy the vacuum pressure and blow off the part.

This check valve is an open or passing flow path when there is a differential pressure from the pad side to the generator side.

## Specifications

**Operating Temperature Range:**

32°F to 140°F (0° to 60°C)

**Operating Vacuum Range:**

-4.25 to -13.89 PSIG (-8.7 to -.28.3 inHg)

**Port Size:**

Pad Side = 1/4", Generator Side = 1/8"

**Leakage Rate:**

0.2 PSI / Minute (0.4 inHg / Minute)

**Cracking Pressure:**

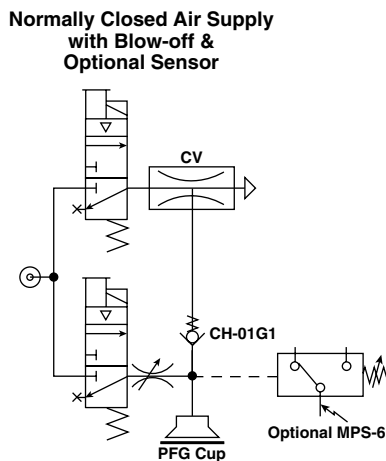
2.9 PSIG (5.9 inHg)

## Materials

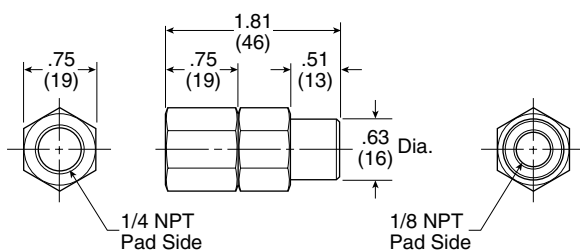
Valve Body / Fittings ..... Brass / Aluminum

Seals ..... BUNA

Spring ..... SUS



## Dimensions



## Ordering Information

Part Number	Description
CH-01G1	BSPP Ports
CH-01N1	NPT Ports