Partek
PFA/PTFE Valves
Catalog 4182/USA

aerospace
climate control
electromechanical filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

ENGINEERING YOUR SUCCESS.
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Overview
Partek produces products that are made from only the finest Fluoropolymers available. These Fluoropolymers are resistant to numerous chemicals and solvents. This information provides only a brief technical overview. For more comprehensive technical and chemical compatibility information, please ask for Technical Bulletin 0002-T1/USA.

Fluorinated Polymers

**Chemical Properties**
- Resistivity to corrosive agents
- Non-solubility
- Long term weatherability
- Non-adhesiveness
- Nonflammability

**Electrical Properties**
- Low dielectric constant
- Low dissipation factor
- High arc resistance
- High surface resistance
- High volume resistivity

**Mechanical Properties**
- Flexibility at low temperatures
- Low coefficient of friction
- Stability at high temperatures

PTFE is a fluorocarbon resin that is isostatically compression molded into various shapes and configurations. It is chemically resistant to all chemicals and solvents with the exception of some molten alkali metals, molten sodium hydroxide, elemental fluorine and certain fluorinating agents. At Partek we use PTFE for machining the bodies and components of various valves and manifolds. It offers chemical resistance and stability at high temperatures.

**Modified PTFE** material is used primarily for diaphragms and bellows in our products. This material has the same processing and chemically resistant characteristics as the standard product but offers superior cycle life and integrity in diaphragm products.

PFA is a copolymer of tetrafluoroethylene and perfluoroalkyl vinyl ether. The resultant polymer contains the carbon-fluorine backbone chain typical of PTFE, but unlike PTFE, does not require special fabricating techniques. PFA pellets have good melt flow characteristics that allow for processing via extrusion, compression, blow, transfer and injection molding methods. It has outstanding chemical and solvent resistant characteristics over a temperature range even greater than PTFE. PFA is offered in various grades of purity and cleanliness making it the material of choice for the semiconductor market.

**Cv and Kv Formulas**

\[
Q = C_v \sqrt{\frac{\Delta P}{SG}} \\
Q = \text{Flow (GPM)} \\
\Delta P = \text{Pressure Drop (PSIG)} \\
SG = \text{Specific Gravity}
\]

\[
Q = K_v \sqrt{\frac{\Delta P}{Y}} \\
Q = \text{Flow (LPM)} \\
\Delta P = \text{Pressure Drop (BAR)} \\
Y = \text{Specific Gravity (kg/cm}^3)\]

\[1 \text{ } K_v = 14.26 \text{ } C_v\]

“Cv” flow factor is the number of gallons of fluid that pass through a given orifice area in one minute, at a pressure drop of 1 PSIG.

“Kv” flow factor is the number of liters of fluid that pass through a given orifice area in one minute, at a pressure drop of 1 bar.

For operation at temperatures above ambient conditions, please refer to the chart above for reduced pressure ratings.
MV-1 Manual Stop Cock Valve

Product Overview
The MV-1 PTFE Stop Cock Valve is designed for use in high purity semiconductor fluid applications, and is also ideally suited for ultra-pure water and aggressive chemicals. A precision-machined PTFE body with a straight through flowpath is combined with a PTFE full flow orifice stem for maximum flow, minimum pressure drop and 1/4" turn operation. The MV-1 is offered for inline and panel mounted applications.

Features
- Full flow orifice.
- The precision machined stem and body provide tight shut off and 1/4 turn operation.
- Parofluor O-Ring stem seals.

Benefits
- Maximum flow at the desired size.
- Minimum pressure drop.
- High cycle life.
- Positive body to stem seal.

Specifications
Materials of Construction
- Wetted: PTFE, Parker Parofluor™
- Non-wetted: HDPE, PFA, PVC, PVDF, Titanate

Pressure Ranges
0 to 60 PSIG (4.1 bar)
Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
- Ambient: -60° - 212° F (-51° - 100° C)
- Fluid: -60° - 400° F (-51° - 204° C)
Parker Hannifin Corporation
Partek Operation
Tucson, AZ

MV-1 Manual Stop Cock Valve

Parflare model numbers are supplied with PVDF nuts. For PFA nuts add -T to model number.

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Orifice</th>
<th>Flow Config.</th>
<th>Port Config.</th>
<th>Dimensions in [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>MV-1-1414</td>
<td>1.95</td>
<td>27.8</td>
<td>.250</td>
<td>2 WAY</td>
<td>1/4&quot; FNPT</td>
<td>A: 1.78 [45.21]</td>
</tr>
<tr>
<td>MV-1-1424</td>
<td>1.95</td>
<td>27.8</td>
<td>.250</td>
<td>3 WAY L</td>
<td>1/4&quot; FNPT</td>
<td>B: .61 [15.49]</td>
</tr>
<tr>
<td>MV-1-1434</td>
<td>1.95</td>
<td>27.8</td>
<td>.250</td>
<td>3 WAY T</td>
<td>1/4&quot; FNPT</td>
<td>C: 1.25 [31.75]</td>
</tr>
<tr>
<td>MV-1-6214</td>
<td>.36</td>
<td>5.1</td>
<td>.125</td>
<td>2 WAY</td>
<td>1/4&quot; Parflare</td>
<td>D: .25 [6.35]</td>
</tr>
<tr>
<td>MV-1-6224</td>
<td>.36</td>
<td>5.1</td>
<td>.125</td>
<td>3 WAY L</td>
<td>1/4&quot; Parflare</td>
<td>E: 1.31 [33.27]</td>
</tr>
<tr>
<td>MV-1-6234</td>
<td>.36</td>
<td>5.1</td>
<td>.125</td>
<td>3 WAY T</td>
<td>1/4&quot; Parflare</td>
<td>F: .14 [3.56]</td>
</tr>
<tr>
<td>MV-1-1616</td>
<td>3.00</td>
<td>42.8</td>
<td>.375</td>
<td>2 WAY</td>
<td>3/8&quot; FNPT</td>
<td>G: .01 [5.08]</td>
</tr>
<tr>
<td>MV-1-1626</td>
<td>3.00</td>
<td>42.8</td>
<td>.375</td>
<td>3 WAY L</td>
<td>3/8&quot; FNPT</td>
<td>H: .14 [36.58]</td>
</tr>
<tr>
<td>MV-1-1636</td>
<td>3.00</td>
<td>42.8</td>
<td>.375</td>
<td>3 WAY T</td>
<td>3/8&quot; FNPT</td>
<td></td>
</tr>
<tr>
<td>MV-1-6416</td>
<td>1.95</td>
<td>27.8</td>
<td>.250</td>
<td>2 WAY</td>
<td>3/8&quot; Parflare</td>
<td></td>
</tr>
<tr>
<td>MV-1-6426</td>
<td>1.95</td>
<td>27.8</td>
<td>.250</td>
<td>3 WAY L</td>
<td>3/8&quot; Parflare</td>
<td></td>
</tr>
<tr>
<td>MV-1-6436</td>
<td>1.95</td>
<td>27.8</td>
<td>.250</td>
<td>3 WAY T</td>
<td>3/8&quot; Parflare</td>
<td></td>
</tr>
<tr>
<td>MV-1-1818</td>
<td>.65</td>
<td>93.4</td>
<td>.438</td>
<td>2 WAY</td>
<td>1/2&quot; FNPT</td>
<td></td>
</tr>
<tr>
<td>MV-1-1828</td>
<td>.65</td>
<td>93.4</td>
<td>.438</td>
<td>3 WAY L</td>
<td>1/2&quot; FNPT</td>
<td></td>
</tr>
<tr>
<td>MV-1-1838</td>
<td>.65</td>
<td>93.4</td>
<td>.438</td>
<td>3 WAY T</td>
<td>1/2&quot; FNPT</td>
<td></td>
</tr>
<tr>
<td>MV-1-6618</td>
<td>.65</td>
<td>93.4</td>
<td>.438</td>
<td>2 WAY</td>
<td>1/2&quot; Parflare</td>
<td></td>
</tr>
<tr>
<td>MV-1-6628</td>
<td>.65</td>
<td>93.4</td>
<td>.438</td>
<td>3 WAY L</td>
<td>1/2&quot; Parflare</td>
<td></td>
</tr>
<tr>
<td>MV-1-6638</td>
<td>.65</td>
<td>93.4</td>
<td>.438</td>
<td>3 WAY T</td>
<td>1/2&quot; Parflare</td>
<td></td>
</tr>
</tbody>
</table>

Parflare model numbers are supplied with PVDF nuts. For PFA nuts add -T to model number.

**PRESSURE DROP VS. FLOW RATE**

**FLOW RATE (lpm)**

**DELTA-P (psi)**

- .125 Orifice
- .188 Orifice
- .250 Orifice
- .313 Orifice
- .375 Orifice
- .438 Orifice

**DELTA-P (bar)**

- .125 Orifice
- .188 Orifice
- .250 Orifice
- .313 Orifice
- .375 Orifice
- .438 Orifice

**FLOW RATE (gpm)**

- .125 Orifice
- .188 Orifice
- .250 Orifice
- .313 Orifice
- .375 Orifice
- .438 Orifice

**BRACKETED DIMENSIONS ARE IN mm.**
MV-6 Manual Ball Valve

Product Overview
The MV-6 PTFE Ball Valves are designed for use in high purity semiconductor applications, and are also ideally suited for use in ultra-pure water and aggressive chemicals. All sizes have wetted parts made entirely of PTFE. All valves are designed full port for minimal flow restrictions and are operated 1/4 turn with minimal torque.

Features
- Floating ball design without o-rings ensures bubble tight sealing at high pressure.
- Full port design; 1/4 turn operation with low torque tee handle.
- Panel mounting is an option on all sizes.

Benefits
- Bidirectional flow to 120 psi liquid or gas; High cycle life.
- Ideal for quick shut-off in contamination-free applications.
- Ideal for process instrumentation applications.

Specifications
- Materials of Construction
  - Wetted: PTFE
  - Non-wetted: HDPE, PVDF and PVC
- Pressure Ranges
  25” HG vacuum (846 mbar) to 120 PSIG (8.3 bar)
  Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.
- Temperature Ranges
  - Ambient: 41° - 104° F (5° - 40° C)
  - Fluid: 41° - 104° F (5° - 40° C)
MV-6 Manual Ball Valve

PRESSURE DROP VS. FLOW RATE

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Flow Config.</th>
<th>Port Config.</th>
<th>Dimensions in [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
</tr>
<tr>
<td>MV-6-1414-0</td>
<td>1.88</td>
<td>26.81</td>
<td>ON/OFF</td>
<td>1/4&quot; FNPT</td>
<td>Ø 1.98 [50.29]</td>
</tr>
<tr>
<td>MV-6-1818-0</td>
<td>6.59</td>
<td>93.97</td>
<td></td>
<td>1/2&quot; FNPT</td>
<td>Ø 2.72 [69.08]</td>
</tr>
<tr>
<td>MV-6-116116-0</td>
<td>28.06</td>
<td>400.14</td>
<td></td>
<td>1&quot; FNPT</td>
<td>Ø 4.40 [111.76]</td>
</tr>
</tbody>
</table>

BRACKETED DIMENSIONS ARE IN mm.
MV-8 Manual Sampling Valve

Product Overview
The MV-8 PTFE Sampling Valve is designed for use in high purity semiconductor applications, and is also ideally suited for ultra-pure water or aggressive chemicals. The design utilizes a machined PTFE body with precision machined seat and diaphragm sealing areas. A one piece machined modified PTFE diaphragm is also utilized for excellent flexibility and life. The valve incorporates a full flow through port with a low dead volume down leg. The purge port option makes this the valve of choice for valve manifold boxes and distribution systems.

Features
One piece precision machined diaphragm manufactured from the latest technology modified PTFE, provides over five times the flex- ural life as compared to conventional PTFE.

Benefits
Higher cycle life resulting in less downtime and lower replacement costs.

Specifications
Materials of Construction
Wetted: PTFE, Modified PTFE
Non-wetted: PVDF

Pressure Ranges
27” HG vacuum (913 mbar) to 120 PSIG (8.3 bar)

Temperature Ranges
Ambient: 0° - 212° F (17° -100° C)
Fluid: 0° - 400° F (17° - 204° C)
Parflare model numbers are supplied with PVDF nuts. For PFA nuts add -T to model number.
Product Overview
The MV-10 PFA 2 Way Diaphragm Valve is designed for use in high purity semiconductor applications. It is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined sealing areas. A one piece machined modified PTFE diaphragm is also utilized for excellent flexibility and life. A full 1/4” orifice provides maximum flow capability in a compact package.

Features
One piece precision machined diaphragms manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE. Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal.

PVDF coated stainless steel spring.

Quarter turn operation with removable handle for tamper resistance.

Benefits
High cycle life.

Lower replacement costs.

Less downtime.

Reduces effects of corrosive environments.

Eliminates need for separate lockout device.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PFA, PVDF, 18-8 SS, Viton seals, PTFE coated SS springs

Pressure Ranges
Forward: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar)
Backward: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (17° - 66° C)
Fluid: 0° - 266° F (17° - 130° C)
Pargrip models are supplied with PFA nuts. Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.

### Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVDF Snap-in Mounting Base. For use with MV-10-XXXX-00 and MV-10-XXXX-10 models only. (Sold separately)</td>
<td>SB-10</td>
</tr>
</tbody>
</table>
MV-10 1/4” Manual 3 Way Valve

Product Overview
The MV-10 PFA 3 Way Diaphragm Valve is designed for use in high purity semiconductor applications. It is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined sealing areas. A one piece machined modified PTFE diaphragm is also utilized for excellent flexibility and life. A full 1/4” orifice provides maximum flow capability in a compact package.

Features
One piece precision machined diaphragms manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE. Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal. PVDF coated stainless steel spring. Quarter turn operation with removable handle for tamper resistance.

Benefits

Specifications

Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PFA, PVDF, 18-8 SS, Viton seals, PTFE coated SS springs

Pressure Ranges
Forward: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar)
Backward: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (17° - 66° C)
Fluid: 0° - 266° F (17° - 130° C)
MV-10 1/4” Manual 3 Way Valve

Pargrip models are supplied with PFA nuts. Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Flow Configuration</th>
<th>Port Configuration</th>
<th>Mounting Configuration-XX (Depicted Above)</th>
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</thead>
<tbody>
<tr>
<td>MV-10-1344-XX</td>
<td>.60</td>
<td>8.6</td>
<td>3 WAY</td>
<td>1/4” FNPT</td>
<td></td>
</tr>
<tr>
<td>MV-10-2334-XX</td>
<td>.24</td>
<td>3.4</td>
<td>3 WAY</td>
<td>1/4” Pargrip</td>
<td></td>
</tr>
<tr>
<td>MV-10-2346-XX</td>
<td>.62</td>
<td>8.8</td>
<td>3 WAY</td>
<td>3/8” Pargrip</td>
<td></td>
</tr>
<tr>
<td>MV-10-6324-XX</td>
<td>.20</td>
<td>2.8</td>
<td>3 WAY</td>
<td>1/4” Parflare</td>
<td></td>
</tr>
<tr>
<td>MV-10-6346-XX</td>
<td>.62</td>
<td>8.8</td>
<td>3 WAY</td>
<td>3/8” Parflare</td>
<td></td>
</tr>
</tbody>
</table>

Pargrip models are supplied with PFA nuts. Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.

**Pressure Drop vs. Flow Rate**

<table>
<thead>
<tr>
<th>Flow Rate (lpm)</th>
<th>Delta-P (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.9</td>
<td>1.72</td>
</tr>
<tr>
<td>3.8</td>
<td>1.38</td>
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<tr>
<td>5.7</td>
<td>1.03</td>
</tr>
<tr>
<td>7.6</td>
<td>.69</td>
</tr>
<tr>
<td>9.5</td>
<td>.34</td>
</tr>
<tr>
<td>11.3</td>
<td>1/4” Parflare</td>
</tr>
<tr>
<td></td>
<td>1/4” Pargrip</td>
</tr>
<tr>
<td></td>
<td>3/8” Parflare&amp; Pargrip</td>
</tr>
</tbody>
</table>

**Accessories**

<table>
<thead>
<tr>
<th>Description</th>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVDF Snap-in Mounting Base. For use with MV-10-XXXX-00 and MV-10-XXXX-10 models only. (Sold separately)</td>
<td>SB-10</td>
</tr>
</tbody>
</table>
Product Overview
The MV-11 PFA 2 Way Diaphragm Valve is designed for use in high purity semiconductor applications. It is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined sealing areas. A one piece machined modified PTFE diaphragm is also utilized for excellent flexibility and life. A full 1/2" orifice provides maximum flow capability in a compact package.

Features
One piece precision machined diaphragm manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE. Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal.

PVDF coated stainless steel spring.
Submersible option isolates all valve components from the external environment.

Benefits
High cycle life.
Lower replacement costs.
Less downtime.

Reduces effects of corrosive environments.
Valve remains functional while operating in wet or gaseous corrosive environments.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PFA, PVDF, Viton seals, PTFE coated SS springs

Pressure Ranges
Forward: 27" HG vacuum (913 mbar) to 100 PSIG (7 bar)
Backward: 27" HG vacuum (913 mbar) to 100 PSIG (7 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (17° - 66° C)
Fluid: 0° - 266° F (17° - 130° C)
MV-11 1/2” Manual 2 Way Valve

BRACKETED DIMENSIONS ARE IN mm.

TEST PORT CONNECTION, 1/4-28 UNF

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Flow Configuration</th>
<th>Port Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>MV-11-001</td>
<td>2.3</td>
<td>32.8</td>
<td>ON/OFF</td>
<td>1/2&quot; Parflare</td>
</tr>
<tr>
<td>MV-11-002</td>
<td>3.7</td>
<td>52.8</td>
<td></td>
<td>3/4&quot; Parflare</td>
</tr>
<tr>
<td>MV-11-003</td>
<td>3.7</td>
<td>52.8</td>
<td></td>
<td>1/2&quot; Parbond</td>
</tr>
<tr>
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<td>3.7</td>
<td>52.8</td>
<td></td>
<td>3/4&quot; Parbond</td>
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<td>MV-11-005</td>
<td>3.7</td>
<td>52.8</td>
<td></td>
<td>1/2&quot; FNPT</td>
</tr>
</tbody>
</table>

Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.

PRESSURE DROP VS. FLOW RATE

FLOW RATE (lpm)

DELTA-P (psi)
Product Overview
The MV-11 PFA 3 Way Diaphragm Valve is designed for use in high purity semiconductor applications. It is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined sealing areas. One piece machined modified PTFE diaphragms are also utilized for excellent flexibility and life. A full 1/2" orifice provides maximum flow capability in a compact package.

Features
- One piece precision machined diaphragm manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE.
- Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal.
- PVDF coated stainless steel spring.
- Submersible option isolates all valve components from the external environment.

Benefits
- High cycle life.
- Lower replacement costs.
- Less downtime.
- Reduces effects of corrosive environments.
- Valve remains functional while operating in wet or gaseous corrosive environments.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PFA, PVDF, Viton seals, PTFE coated SS springs

Pressure Ranges
COM to NO: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar)
COM to NC: 27” HG vacuum (913 mbar) to 25 PSIG (1.7 bar) minimum
NC to COM: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar) with 50 PSIG (3.4 bar) maximum back pressure

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (17° - 66° C)
Fluid: 0° - 266° F (17° - 130° C)
MV-11 1/2" Manual 3 Way Valve

Test Port Connections, 1/4-28 UNF

Panel Hole Detail

Mounting Detail

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Flow Configuration</th>
<th>Port Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>MV-11-021</td>
<td>1.9</td>
<td>27.1</td>
<td>3 WAY</td>
<td>1/2&quot; Parflare</td>
</tr>
<tr>
<td>MV-11-022</td>
<td>2.8</td>
<td>40.0</td>
<td></td>
<td>3/4&quot; Parflare</td>
</tr>
<tr>
<td>MV-11-023</td>
<td>2.8</td>
<td>40.0</td>
<td></td>
<td>1/2&quot; Parbond</td>
</tr>
<tr>
<td>MV-11-024</td>
<td>2.8</td>
<td>40.0</td>
<td></td>
<td>3/4&quot; Parbond</td>
</tr>
<tr>
<td>MV-11-025</td>
<td>2.8</td>
<td>40.0</td>
<td></td>
<td>1/2&quot; FNPT</td>
</tr>
</tbody>
</table>

Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.

Pressure Drop vs. Flow Rate

Flow Rate (lpm)

DELTA-P (psi)

DELTA-P (bar)

Flow Rate (gpm)

1/2" Parflare

All Other Configurations
Product Overview
The MV-11 PFA Adjustable Diaphragm Valve is designed for use in high purity semiconductor applications. It is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined sealing areas. A one piece machined modified PTFE diaphragm is also utilized for excellent flexibility and life. Multi-turn capability allows precise flow adjustment. A full 1/2” orifice provides maximum flow capability in a compact package.

Features
- One piece precision machined diaphragm manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE. Tongue and groove diaphragm to body seal assures leak free operation.
- PVDF coated stainless steel spring.
- Multi-turn operation.
- Removable handle.

Benefits
- High cycle life.
- Lower replacement costs.
- Less downtime.
- Reduces effects of corrosive environments.
- Precise flow adjustment.
- Eliminates need for separate lockout device.

Specifications
Materials of Construction
- Wetted: PFA, Modified PTFE
- Non-wetted: PFA, PVDF, Viton seals, PTFE coated SS springs

Pressure Ranges
- Forward: 27” HG vacuum (913 mbar) to 100 PSIG (7 bar)
- Backward: 27” HG vacuum (913 mbar) to 100 PSIG (7 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
- Ambient: 0° - 150° F (17° - 66° C)
- Fluid: 0° - 266° F (17° - 130° C)
MV-11 1/2” Manual 2 Way Adjustable Valve

BRACKETED DIMENSIONS ARE IN mm.

TEST PORT CONNECTION, 1/4-28 UNF

Model Number | Cv | Kv | Flow Configuration | Port Configuration
---|---|---|---|---
MV-11-201 | 2.3 | 32.8 | ADJ. | 1/2” Parflare
MV-11-202 | 3.7 | 52.8 | 3/4” Parflare
MV-11-203 | 3.7 | 52.8 | 1/2” Parbold
MV-11-204 | 3.7 | 52.8 | 3/4” Parbold
MV-11-205 | 3.7 | 52.8 | 1/2” FNPT

Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.

PRESSURE DROP VS. FLOW RATE

FLOW RATE (lpm) | DELTA-P (psi) | DELTA-P (bar)
---|---|---
0 | 0 | 0
15 | 1.65 | 1.15
30 | 2.20 | 1.50
45 | 2.75 | 1.90
60 | 3.30 | 2.30
75 | 3.85 | 2.70
90 | 4.40 | 3.10
105 | 4.95 | 3.50
120 | 5.50 | 3.90

FLOW RATE (gpm) | DELTA-P (psi) | DELTA-P (bar)
---|---|---
0 | 0 | 0
10 | 1.20 | 0.80
20 | 2.40 | 1.60
30 | 3.60 | 2.40
40 | 4.80 | 3.20
50 | 6.00 | 4.00
60 | 7.20 | 4.80
70 | 8.40 | 5.60
80 | 9.60 | 6.40
90 | 10.80 | 7.20
100 | 12.00 | 8.00

MV-11-201
MV-11-202
MV-11-203
MV-11-204
MV-11-205

Parker Hannifin Corporation
Partek Operation
Tucson, AZ
MV-12 1” Manual 2 Way Valve

Product Overview
The MV-12 PFA Diaphragm Valve is designed for use in high purity semiconductor applications, and is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined seat and diaphragm sealing areas. A one piece machined modified PTFE diaphragm is also utilized for excellent flexibility and life. The valve requires three full turns from the fully closed to fully open position. A full 1” orifice provides maximum flow capability in a compact package.

Features
One piece precision machined diaphragm manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE. Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal.

PVDF coated stainless steel spring.

Submergible option isolates all valve components from the external environment.

Benefits
High cycle life.

Lower replacement costs.

Less downtime.

Reduces effects of corrosive environments.

Valve remains functional while operating in wet or gaseous corrosive environments.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PFA, PVDF, Viton seals, PTFE coated SS springs

Pressure Ranges
Forward: 27” Hg vacuum (913 mbar) to 100 PSIG (7 bar)
Backward: 27” Hg vacuum (913 mbar) to 100 PSIG (7 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (-17° - 66° C)
Fluid: 0° - 266° F (-17° - 130° C)
MV-12 1” Manual 2 Way Valve

Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Flow Configuration</th>
<th>Port Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>MV-12-001</td>
<td>15.7</td>
<td>224.2</td>
<td>ON/OFF</td>
<td>1&quot; Parbond</td>
</tr>
<tr>
<td>MV-12-002</td>
<td>13.3</td>
<td>189.9</td>
<td></td>
<td>1&quot; Parflare</td>
</tr>
<tr>
<td>MV-12-003</td>
<td>9.6</td>
<td>142.8</td>
<td></td>
<td>3/4&quot; Parbond</td>
</tr>
<tr>
<td>MV-12-004</td>
<td>6.8</td>
<td>142.8</td>
<td></td>
<td>3/4&quot; Parflare</td>
</tr>
</tbody>
</table>

PRESSURE DROP VS. FLOW RATE

FLOW RATE (gpm) | 0 | 10 | 20 | 30 | 40 | 50 | 60
---|---|---|---|---|---|---|---
DELTA-P (psi)   | 0 | 10 | 20 | 30 | 40 | 50 | 60
---|---|---|---|---|---|---|---
FLOW RATE (lpm) | 38 | 76 | 113| 151| 189| 227| 267
---|---|---|---|---|---|---|---
DELTA-P (bar)   | 0 | 0.7| 1.4| 2.1| 2.8| 3.5| 4.2
---|---|---|---|---|---|---|---

- --- 3/4” Parflare
- --- 3/4” Parbond
- --- 1” Parflare
- --- 1” Parbond
Product Overview
The MV-13 PFA Needle Valve is designed for high purity or aggressive chemical and gas applications. The design utilizes a molded high purity PFA body and stem as the only wetted components. The stem sealing area is precision machined for smooth, consistent flow. A PTFE ferrule assures a leak tight seal between stem and body. A PFA stem stop prevents removal of stem from body during operation. The MV-13 is available in straight through and angle configurations, several orifice sizes, and numerous end connections.

Features
One piece PFA stem/handle and bodies.

PFA stem stop.

Angle and straight through configurations, with numerous end configurations including Parflare available.

Benefits
High strength and corrosion resistance.

Safer operation.

Reduces connections, mounting space, and overall cost.

Specifications
Materials of Construction
Wetted: PFA, PTFE
Non-wetted: PFA, ETFE, PVDF

Pressure Ranges
27” HG vacuum (913 mbar) to 100 PSIG (7 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 212° F (17° - 100° C)
Fluid: 0° - 266° F (17° - 130° C)
Parfl are and Pargrip model numbers are supplied with PFA nuts.
**Product Overview**
The MV-14 PFA 2 Way Stop Cock Valve is designed for use in high purity semiconductor applications. The design utilizes a molded high purity PFA body, and a machined PTFE stem. The press-fit stem assures a leak tight seal between it and the body during operation. Valve operates with a quick 90° turn operation and has a full 1/8” orifice.

**Features**
One piece precision machined stem and molded high purity PFA body.
All components made of chemical resistant materials.
Numerous end configurations, including Parflare available.

**Benefits**
maintains system purity.
Suitable for use in corrosive environments.
Allows direct installation, minimizing additional connections, reducing cost.

**Specifications**

**Materials of Construction**
Wetted: PFA, PTFE
Non-wetted: PFA, PVDF

**Pressure Ranges**
0 to 60 PSIG (4.1 bar)
Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

**Temperature Ranges**
Ambient: 0° - 150° F (17° - 66° C)
Fluid: 0° - 266° F (17° - 130° C)
PVDF models are supplied with PVDF nuts. For PVDF nuts add -T to model number.

**PRESSURE DROP VS. FLOW RATE**

**FLOW RATE (lpm)**

- 1.9
- 3.8
- 5.7
- 7.5
- 9.5
- 11.3

**DELTA-P (ps)**

- 25
- 20
- 15
- 10
- 5

**DELTA-P (bar)**

- 1.72
- 1.38
- 1.03
- 0.69
- 0.34

All Configurations
Product Overview

The MV-16 PFA diaphragm valve is designed for use in high purity semiconductor applications, and is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined seat and diaphragm sealing areas. A one piece machined modified PTFE diaphragm is also utilized for excellent flexibility and life. The MV-16’s multi-turn capability allows precise flow adjustment. A full 3/4” orifice provides maximum flow capability in a compact package.

Features

- One piece precision machined diaphragm manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE.
- Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal.
- Halar coated stainless steel spring.

Benefits

- High cycle life.
- Lower replacement costs.
- Less downtime.

- Reduces effects of corrosive environments.

Specifications

Materials of Construction

- Wetted: PFA, Modified PTFE
- Non-wetted: PVDF, Viton, PTFE coated SS spring

Pressure Ranges

0 - 120 PSIG (8.3 bar) See Cracking Pressure Chart on next page.

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges

- Ambient: 0° - 150° F (-17° - 66° C)
- Fluid: 0° - 266° F (-17° - 130° C)
MV-16 3/4” Manual PFA 2 Way Valve

Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.
*Ends are fused on.

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Flow Configuration</th>
<th>Port Configuration</th>
<th>Dimension in [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>MV-16-0612</td>
<td>5.8</td>
<td>82.7</td>
<td>ON/OFF</td>
<td>3/4&quot; Parflare</td>
<td>5.54 [140.72]</td>
</tr>
<tr>
<td>MV-16-0612-01</td>
<td>5.8</td>
<td>82.7</td>
<td></td>
<td>3/4&quot; Parflare Long</td>
<td>6.48 [164.59]</td>
</tr>
<tr>
<td>MV-16-0616</td>
<td>7.9</td>
<td>112.6</td>
<td></td>
<td>1” Parflare*</td>
<td>9.12 [231.65]</td>
</tr>
<tr>
<td>MV-16-0712</td>
<td>7.9</td>
<td>112.6</td>
<td></td>
<td>3/4” Parbond</td>
<td>5.90 [149.86]</td>
</tr>
</tbody>
</table>

CRACKING PRESSURE

PRESSURE TO INLET PORT (bar)

PRESSURE DROP VS. FLOW RATE

FLOW RATE (lpm)

PRESSURE TO INLET PORT (psi)

DELTA-P (psi)

DELTA-P (bar)

SPECIFIED SEALING AREA

PRESSURE TO OUTLET PORT (psi)

PRESSURE TO OUTLET PORT (bar)
Product Overview
The MV-16 PFA diaphragm valve is designed for use in high purity semiconductor applications, and is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined seat and diaphragm sealing areas. A one piece machined modified PTFE diaphragm is also utilized for excellent flexibility and life. The MV-16’s multi-turn capability allows precise flow adjustment. A full 3/4” orifice provides maximum flow capability in a compact package.

Features
One piece precision machined diaphragm manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE. Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal.

Benefits
High cycle life.
Lower replacement costs.
Less downtime.

Halar coated stainless steel spring.

Reduces effects of corrosive environments.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PVDF, Viton, PTFE coated SS spring

Pressure Ranges
0 - 120 PSIG (8.3 bar) See Cracking Pressure Chart on next page.

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (-17° - 66° C)
Fluid: 0° - 266° F (-17° - 130° C)
MV-16 3/4” Manual PFA 3 Way Valve

**Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.**

*Ends are fused on.*

**Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.**

*Ends are fused on.*
Product Overview
The MV-16 PFA sampling valve is designed for use in high purity semiconductor applications, and is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined seat and diaphragm sealing areas. A one piece machined modified PTFE diaphragm is also utilized for excellent flexibility and life. The MV-16’s multi-turn capability allows precise flow adjustment. The valve incorporates a full flow through port with a low dead volume down leg.

Features
One piece precision machined diaphragm manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE.
Halar coated stainless steel spring.
Full flow through port.

Benefits
High cycle life.
Lower replacement costs.
Less downtime.
Reduces effects of corrosive environments.
Reduced pressure drop.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PVDF, Viton, PTFE coated SS spring

Pressure Ranges
0 - 120 PSIG (8.3 bar) See Cracking Pressure Chart on next page.
Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (-17° - 66° C)
Fluid: 0° - 266° F (-17° - 130° C)
MV-16 3/4” Manual PFA Sampling Valve

AIR PORT CONNECTION, 1/8” FNPT
TEST PORT CONNECTION, 1/4-28 UNF

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Through Port</th>
<th>Sample Port</th>
<th>Through Port</th>
<th>Sample Port</th>
<th>Dimensions in [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cv</td>
<td>Kv</td>
<td>Cv</td>
<td>Kk</td>
<td></td>
</tr>
<tr>
<td>MV-16-5612-608</td>
<td>13.0</td>
<td>185.4</td>
<td>2.3</td>
<td>32.8</td>
<td>3/4” Parflare</td>
</tr>
<tr>
<td>MV-16-5612-612</td>
<td>13.0</td>
<td>185.4</td>
<td>4.6</td>
<td>65.6</td>
<td>3/4” Parflare</td>
</tr>
<tr>
<td>MV-16-5612-712</td>
<td>13.0</td>
<td>185.4</td>
<td>6.9</td>
<td>98.7</td>
<td>3/4” Parflare</td>
</tr>
<tr>
<td>MV-16-5712-608</td>
<td>25.2</td>
<td>359.92</td>
<td>2.3</td>
<td>32.8</td>
<td>3/4” Parbond</td>
</tr>
<tr>
<td>MV-16-5712-612</td>
<td>25.2</td>
<td>359.92</td>
<td>4.6</td>
<td>65.6</td>
<td>3/4” Parbond</td>
</tr>
<tr>
<td>MV-16-5712-712</td>
<td>25.2</td>
<td>359.92</td>
<td>6.9</td>
<td>98.7</td>
<td>3/4” Parbond</td>
</tr>
</tbody>
</table>

Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.

CRACKING PRESSURE

<table>
<thead>
<tr>
<th>PRESSURE TO THROUGH PORT (bar)</th>
<th>PRESSURE TO SAMPLE PORT (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.7</td>
<td>24</td>
</tr>
<tr>
<td>3.3</td>
<td>48</td>
</tr>
<tr>
<td>5.0</td>
<td>72</td>
</tr>
<tr>
<td>6.6</td>
<td>96</td>
</tr>
<tr>
<td>8.3</td>
<td>120</td>
</tr>
<tr>
<td>8.9</td>
<td>144</td>
</tr>
</tbody>
</table>

SPECIFIED SEALING AREA
Product Overview

The MV-20 slurry valve is designed for use slurry applications, and is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a machined PTFE body with precision machined seat and diaphragm sealing areas. The valve is offered in 3 orifice sizes (1/4”, 1/2” and 1”) and port sizes ranging from 1/4” to 1 1/4”.

Features

- Fully swept open bowl diaphragm seat area.
- Self draining design.
- High load point seat seal.
- Angled and rounded internal flow path.
- One piece precision machined diaphragm manufactured from modified PTFE.
- Evenly distributed seat sealing forces.
- Maximized diaphragm thickness.

Benefits

- Minimizes fluid shear and smooth flow transition.
- Minimizes area for entrapment and stagnation of media.
- Improves sealing mechanism for aggressive chemicals, deionized water and abrasive slurry media.
- Minimizes particle contribution of valve.
- Provides faster purging and cleaning of valve.
- Less pressure drop allows for lower pressure requirements upstream.
- Improves fluid flow dynamics.
- Improves cycle life, less shear than standard PTFE material, lower replacement costs, less downtime.
- Minimized diaphragm and valve seat strain.
- Stabilizes valve back pressure capability.
- Minimizes potential for permeation while maximizing cycle life.

Specifications

Materials of Construction

- Wetted: PTFE, Modified PTFE
- Non-wetted: PVDF, Viton, PTFE coated SS spring

Pressure Ranges

<table>
<thead>
<tr>
<th>Orifice Size</th>
<th>Vacuum</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4”</td>
<td>27” HG</td>
<td>80 PSIG</td>
</tr>
<tr>
<td>1/2”</td>
<td>27” HG</td>
<td>100 PSIG</td>
</tr>
<tr>
<td>1”</td>
<td>27” HG</td>
<td>100 PSIG</td>
</tr>
</tbody>
</table>

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges

- Ambient: 0° - 150° F (-17° - 66° C)
- Fluid: 0° - 266° F (-17° - 130° C)
MV-20 1/4” - 1” Manual PTFE Slurry Valve

Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number. Contact factory for Pillar end connections.

**Part Number** | **Cv** | **Kv** | **Body Size** | **Valve Type** | **Port Configuration** | **A** | **B** | **C** | **D** | **E** | **F**
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
MV-20-04-0604 | .20 | 2.8 | 1/4” | 1/4 TURN | LOTO | 3.80 | 96.52 | 1.50 | 38.10 | 1.15 | 29.21 | 2.91 | 73.91 | 1.25 | 31.75 | 0.50 | 12.70
MV-20-04-0606 | .76 | 10.8 | 1/4” | | | 3.96 | 100.58 | 1.50 | 38.10 | 1.15 | 29.21 | 2.91 | 73.91 | 1.25 | 31.75 | 0.50 | 12.70
MV-20-08-0608 | 2.4 | 34.2 | 1/2” | | | 5.20 | 132.08 | 2.50 | 63.50 | 1.80 | 45.72 | 5.04 | 128.02 | 2.00 | 50.80 | 0.78 | 19.81
MV-20-08-0612 | 3.9 | 55.8 | 1/2” | | | 5.35 | 135.89 | 2.50 | 63.50 | 2.00 | 50.80 | 5.24 | 133.10 | 2.00 | 50.80 | 0.83 | 20.96
MV-20-16-0612 | 6.4 | 91.5 | 1” | | | 6.22 | 157.99 | 3.38 | 85.85 | 2.88 | 73.15 | 7.05 | 179.07 | 3.00 | 76.20 | 1.00 | 25.40
MV-20-16-0616 | 10.9 | 155.4 | 1” | | | 6.98 | 177.29 | 3.38 | 85.85 | 2.88 | 73.15 | 7.05 | 179.07 | 3.00 | 76.20 | 1.00 | 25.40
MV-20-16-0620 | 13.5 | 192.9 | 1” | | | 8.07 | 204.98 | 3.75 | 95.25 | 3.25 | 82.55 | 7.43 | 188.72 | 3.00 | 76.20 | 1.25 | 31.75

**Bracketed Dimensions**

ARE IN mm.

1/4” ORIFICE: 2X Ø.17 THRU, C.B. Ø.28 X .40
1/2” ORIFICE: 2X Ø.19 THRU, C.B. Ø.31 X .50
1” ORIFICE: 2X Ø.28 THRU, C.B. Ø.44 X 1.00

PRESSURE DROP VS. FLOW RATE

FLOW RATE (lpm) | DELTA-P (psi) | DELTA-P (bar)
--- | --- | ---
MV-20-04-0604 | 3.8 | 0.34 | 25.0
MV-20-04-0606 | 7.6 | 0.69 | 50.0
MV-20-08-0608 | 11.3 | 1.0 | 75.0
MV-20-08-0612 | 15.1 | 1.34 | 100.0
MV-20-16-0612 | 18.9 | 1.68 | 125.0
MV-20-16-0616 | 22.7 | 2.02 | 150.0
MV-20-16-0620 | 30.0 | 2.36 | 200.0

FLOW RATE (gpm) | DELTA-P (psi) | DELTA-P (bar)
--- | --- | ---
MV-20-04-0604 | 38.0 | 2.1 | 140.0
MV-20-04-0606 | 76.0 | 4.2 | 280.0
MV-20-08-0608 | 113.0 | 6.3 | 420.0
MV-20-08-0612 | 151.0 | 8.4 | 560.0
MV-20-16-0612 | 189.0 | 10.5 | 700.0
MV-20-16-0616 | 227.0 | 12.6 | 840.0
MV-20-16-0620 | 330.0 | 14.7 | 1080.0
PV-1 Miniature Pneumatic Valve

Product Overview
The PV-1 PTFE Miniature Diaphragm Valve is designed for use in high purity semiconductor applications, and is also ideally suited for ultra-pure water and aggressive chemical systems. The design utilizes a machined modified PTFE body, seat and diaphragm ensuring excellent flexibility and long life. The valve is available in 2 and 3 way configurations. It is ideal for low flow and small dose injection applications.

Features
Precision machined diaphragm manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE. Tongue and groove seal for positive diaphragm to body seal.

Benefits
High cycle life.
Lower replacement costs.
Less downtime.
Isolates media from actuator.
Ease of installation and maintenance.

Specifications

Materials of Construction
Wetted: PTFE, Modified PTFE
Non-wetted: Anodized Aluminum, SS, Nitrile

Pressure Ranges
Forward: 25" HG vacuum (846 mbar) to 20 PSIG (1.4 bar)
Back: 25" HG vacuum (846 mbar) to 20 PSIG (1.4 bar)
Actuator: 20 PSIG (1.4 bar) to 120 PSIG (8.3 bar)

Temperature Ranges
Ambient: -60° - 212° F (-51° - 100° C)
Fluid: -60° - 400° F (-51° - 204° C)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.
PV-1 Miniature Pneumatic Valve

BRACKETED DIMENSIONS ARE IN mm.

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Flow Configuration</th>
<th>Orifice Size</th>
<th>Port Configuration</th>
<th>Dimension B</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV-1-1134</td>
<td>.08</td>
<td>1.1</td>
<td>NC</td>
<td>.094</td>
<td>1/8&quot; FNPT</td>
<td>.38 [9.65]</td>
</tr>
<tr>
<td>PV-1-1334-03</td>
<td>.08</td>
<td>1.1</td>
<td>3 WAY</td>
<td>.094</td>
<td>1/8&quot; FNPT</td>
<td>.38 [9.65]</td>
</tr>
<tr>
<td>PV-1-2134</td>
<td>.08</td>
<td>1.1</td>
<td>NC</td>
<td>.094</td>
<td>1/8&quot; Pargrip</td>
<td>.32 [8.13]</td>
</tr>
<tr>
<td>PV-1-2334-03</td>
<td>.08</td>
<td>1.1</td>
<td>3 WAY</td>
<td>.094</td>
<td>1/8&quot; Pargrip</td>
<td>.32 [8.13]</td>
</tr>
</tbody>
</table>

PRESSURE DROP VS. FLOW RATE

FLOW RATE (lpm)

DELTA-P (psig)

DELTA-P (bar)

FLOW RATE (gpm)

All Configurations
PV-10 1/4” Pneumatic 2 Way Valve

Product Overview
The PV-10 PFA Diaphragm Valve is designed for use in high purity semiconductor applications. It is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined areas. A one piece machined modified PTFE diaphragm is also utilized for excellent flexibility and life. A full 1/4” orifice provides maximum flow capability in a compact package.

Features
One piece precision machined diaphragms manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE. Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal.

Benefits
High cycle life.
Lower replacement costs.
Less downtime.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PFA, PVDF, 18-8 SS, Viton seals, PTFE coated SS springs

Pressure Ranges
Forward: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar)
Back: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar)
Actuator: 20 PSIG (1.4 bar) to 120 PSIG (8.3 bar)

Temperature Ranges
Ambient: 0° - 150° F (-17° - 66° C)
Fluid: 0° - 266° F (-17° - 130° C)

PVDF coated stainless steel spring.
Reduces effects of corrosive environments.

Normally Closed shown
PV-10 1/4” Pneumatic 2 Way Valve

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Flow Configuration</th>
<th>Port Configuration</th>
<th>Mounting Configuration-XX (Depicted Above)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV-10-1144-XX</td>
<td>.60</td>
<td>8.6</td>
<td>NC</td>
<td>1/4” FNPT</td>
<td></td>
</tr>
<tr>
<td>PV-10-1244-XX</td>
<td>.60</td>
<td>8.6</td>
<td>NO</td>
<td>1/4” FNPT</td>
<td></td>
</tr>
<tr>
<td>PV-10-2134-XX</td>
<td>.24</td>
<td>3.4</td>
<td>NC</td>
<td>1/4” Pargrip</td>
<td></td>
</tr>
<tr>
<td>PV-10-2234-XX</td>
<td>.24</td>
<td>3.4</td>
<td>NO</td>
<td>1/4” Pargrip</td>
<td></td>
</tr>
<tr>
<td>PV-10-2146-XX</td>
<td>.62</td>
<td>8.8</td>
<td>NC</td>
<td>3/8” Pargrip</td>
<td></td>
</tr>
<tr>
<td>PV-10-2246-XX</td>
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<td>8.8</td>
<td>NO</td>
<td>3/8” Pargrip</td>
<td></td>
</tr>
<tr>
<td>PV-10-6124-XX</td>
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<td>NC</td>
<td>1/4” Parflare</td>
<td></td>
</tr>
<tr>
<td>PV-10-6224-XX</td>
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<td>2.8</td>
<td>NO</td>
<td>1/4” Parflare</td>
<td></td>
</tr>
<tr>
<td>PV-10-6146-XX</td>
<td>.62</td>
<td>8.8</td>
<td>NC</td>
<td>3/8” Parflare</td>
<td></td>
</tr>
<tr>
<td>PV-10-6246-XX</td>
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<td>8.8</td>
<td>NO</td>
<td>3/8” Parflare</td>
<td></td>
</tr>
</tbody>
</table>

Pargrip models are supplied with PFA nuts. Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.

PRESSURE DROP VS. FLOW RATE

FLOW RATE (lpm) 1.9 3.8 5.7 7.6 9.5 11.3
DELTA-P (psi) 1.72 1.38 1.03 .69 .34

FLOW RATE (gpm) 0.5 1.0 1.5 2.0 2.5 3.0

Accessories
- SB-10 PVDF Snap-in Mounting Base. For use with PV-10-XXXX-00 and PV-10-XXXX-10 models only. (Sold separately)
PV-10 1/4” Pneumatic 3 Way Valve

Product Overview
The PV-10 PFA 3 Way Diaphragm Valve is designed for use in high purity semiconductor applications. It is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined areas. One piece machined modified PTFE diaphragms are also utilized for excellent flexibility and life. A full 1/4” orifice provides maximum flow capability in a compact package.

Features
One piece precision machined diaphragms manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE. Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal.

PVDF coated stainless steel springs.

Benefits
High cycle life.
Lower replacement costs.
Less downtime.

Reduces effects of corrosive environments.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PFA, PVDF, 18-8 SS, Viton seals, PTFE coated SS springs

Pressure Ranges
Forward: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar)
Back: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar)
Actuator: 20 PSIG (1.4 bar) to 120 PSIG (8.3 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (-17° - 66° C)
Fluid: 0° - 266° F (-17° - 130° C)
PV-10 1/4” Pneumatic 3 Way Valve

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Flow Configuration</th>
<th>Port Configuration</th>
<th>Mounting Configuration-XX (Depicted Above)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV-10-1344-XX</td>
<td>.60</td>
<td>8.6</td>
<td>3 WAY</td>
<td>1/4&quot; FNPT</td>
<td>00 = Screw</td>
</tr>
<tr>
<td>PV-10-2334-XX</td>
<td>.24</td>
<td>3.4</td>
<td>3 WAY</td>
<td>1/4&quot; Pargrip</td>
<td>01 = Screw/Stud .80 Square</td>
</tr>
<tr>
<td>PV-10-2346-XX</td>
<td>.62</td>
<td>8.8</td>
<td>3 WAY</td>
<td>3/8&quot; Pargrip</td>
<td>02 = Screw/Stud Ø1.25 Bolt Circle</td>
</tr>
<tr>
<td>PV-10-6324-XX</td>
<td>.20</td>
<td>2.8</td>
<td>3 WAY</td>
<td>1/4&quot; Parflare</td>
<td>10 = PVDF Screw Covers</td>
</tr>
<tr>
<td>PV-10-6346-XX</td>
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<td>8.8</td>
<td>3 WAY</td>
<td>3/8&quot; Parflare</td>
<td></td>
</tr>
</tbody>
</table>

Pargrip models are supplied with PFA nuts. Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.

### Accessories

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB-10</td>
</tr>
</tbody>
</table>

PVDF Snap-in Mounting Base. For use with PV-10-XXXX-00 and PV-10-XXXX-10 models only. (Sold separately)
PV-11 1/2” Pneumatic 2 Way Valve

Features
One piece precision machined diaphragm manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE. Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal. PVDF coated stainless steel spring. Submersible option isolates all valve components from the external environment.

Benefits
High cycle life. Lower replacement costs. Less downtime. Reduces effects of corrosive environments. Valve remains functional while operating in wet or gaseous corrosive environments.

Product Overview
The PV-11 PFA Diaphragm Valve is designed for use in high purity semiconductor applications. It is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined areas. A one piece machined modified PTFE diaphragm is also utilized for excellent flexibility and life. A full 1/2” orifice provides maximum flow capability in a compact package.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PFA, PVDF, Viton seals, PTFE coated SS springs

Pressure Ranges
Forward: 27” HG vacuum (913 mbar) to 100 PSIG (7 bar)
Back: 80 PSIG (5.5 bar) with 80 PSIG (5.5 bar) inlet pressure
Actuator: 60 PSIG (4.2 bar) to 100 PSIG (7 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (-17° - 66° C)
Fluid: 0° - 266° F (-17° - 130° C)

Normaly Closed Shown
**PV-11 1/2” Pneumatic 2 Way Valve**

AIR PORT CONNECTION, 1/8’’ FNPT
TEST PORT CONNECTION, 1/4-28 UNF

**Bracketed Dimensions**

ARE IN mm.

Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Flow Config.</th>
<th>Port Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV-11-001</td>
<td>2.3</td>
<td>32.8</td>
<td></td>
<td>1/2’’ Parflare</td>
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<tr>
<td>PV-11-002</td>
<td>3.7</td>
<td>52.8</td>
<td></td>
<td>N C</td>
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<tr>
<td>PV-11-003</td>
<td>3.7</td>
<td>52.8</td>
<td></td>
<td>3/4’’ Parflare</td>
</tr>
<tr>
<td>PV-11-004</td>
<td>3.7</td>
<td>52.8</td>
<td></td>
<td>3/4’’ Parbond</td>
</tr>
<tr>
<td>PV-11-005</td>
<td>3.7</td>
<td>52.8</td>
<td></td>
<td>1/2’’ FNPT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Flow Config.</th>
<th>Port Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV-11-011</td>
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<td>32.8</td>
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<td>1/2’’ Parflare</td>
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<tr>
<td>PV-11-012</td>
<td>3.7</td>
<td>52.8</td>
<td></td>
<td>3/4’’ Parflare</td>
</tr>
<tr>
<td>PV-11-013</td>
<td>3.7</td>
<td>52.8</td>
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<td>1/2’’ Parbond</td>
</tr>
<tr>
<td>PV-11-014</td>
<td>3.7</td>
<td>52.8</td>
<td></td>
<td>3/4’’ Parbond</td>
</tr>
<tr>
<td>PV-11-015</td>
<td>3.7</td>
<td>52.8</td>
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<td>1/2’’ FNPT</td>
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</table>

**Cracking Pressure**

PRESSURE TO INLET PORT (bar)

<table>
<thead>
<tr>
<th>Pressure to Outlet Port (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESSURE TO INLET PORT (psi)</td>
</tr>
<tr>
<td>SPECIFIED SEALING AREA</td>
</tr>
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</table>

**Pressure Drop vs. Flow Rate**

FLOW RATE (lpm)

<table>
<thead>
<tr>
<th>FLOW RATE (gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DELTA-P (psi)</td>
</tr>
<tr>
<td>DELTA-P (bar)</td>
</tr>
</tbody>
</table>

1/2” Parflare
All Other Configurations

---

Parker Hannifin Corporation
Partek Operation
Tucson, AZ
PV-11 1/2” Pneumatic 3 Way Valve

Product Overview
The PV-11 PFA 3 Way Diaphragm Valve is designed for use in high purity semiconductor applications. It is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined areas. One piece machined modified PTFE diaphragms are also utilized for excellent flexibility and life. A full 1/2” orifice provides maximum flow capability in a compact package.

Features
One piece precision machined diaphragms manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE. Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal.

Benefits
High cycle life.
Lower replacement costs.
Less downtime.

PVDF coated stainless steel springs.
Submergible option isolates all valve components from the external environment.
Multi-position mounting base.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PFA, PVDF, Viton seals, PTFE coated SS springs

Pressure Ranges
COM to NO: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar)
NO to COM: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar)
COM to NC: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar) with 20 PSIG (1.4 bar) maximum back pressure
NC to COM: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar) with 50 PSIG (3.4 bar) maximum back pressure
Actuator: 60 PSIG (4.2 bar) to 100 PSIG (7 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (-17° - 66° C)
Fluid: 0° - 266° F (-17° - 130° C)
PV-11 1/2” Pneumatic 3 Way Valve

Parfl are models are supplied with PVDF nuts. For PFA nuts add -T to model number.

*To order part without mounting ring add -01 to model number.

### PRESSURE DROP VS. FLOW RATE

- **FLOW RATE (lpm)**
- **DELTA-P (ps)**
  - 0.28
  - 0.56
  - 0.84
  - 1.12
  - 1.40
  - 1.65

- **FLOW RATE (gpm)**
  - 0
  - 5
  - 10
  - 15
  - 20
  - 25
  - 30

---

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Flow Configuration</th>
<th>Port Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV-11-021</td>
<td>1.9</td>
<td>27.1</td>
<td>3 WAY</td>
<td>1/2&quot; Parflare</td>
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<tr>
<td>PV-11-022</td>
<td>2.8</td>
<td>40.0</td>
<td>3 WAY</td>
<td>3/4&quot; Parflare</td>
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<tr>
<td>PV-11-023</td>
<td>2.8</td>
<td>40.0</td>
<td>3 WAY</td>
<td>1/2&quot; Parbond</td>
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<tr>
<td>PV-11-024</td>
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<td>40.0</td>
<td>3 WAY</td>
<td>3/4&quot; Parbond</td>
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<tr>
<td>PV-11-025</td>
<td>2.8</td>
<td>40.0</td>
<td>3 WAY</td>
<td>1/2&quot; FNPT</td>
</tr>
</tbody>
</table>
PV-11 1/2” Pneumatic Adjustable Bypass Valve

Product Overview
The PV-11 Adjustable Bypass Valve is designed for use in ultra-pure water applications. The design utilizes a molded high purity PFA body with precision machined seats. A machined modified PTFE diaphragm is also utilized for excellent flexibility and life. The integral bypass valve prevents the stagnation and deadheading of media in an ultra-pure water system.

Features
- Precision machined diaphragm manufactured from the latest technology modified PTFE.
- Provides over five times the flexural life as compared to conventional PTFE.
- Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal.
- PVDF coated stainless steel spring.
- Bypass integral to valve body to prevent stagnation of ultra-pure water.
- Modified flow configurations with numerous end connections including Parflare available.

Benefits
- High cycle life.
- Lower replacement costs.
- Less downtime.
- Reduces effects of corrosive environment.
- Prevents contamination of media.
- Reduces connections, mounting space, and overall cost.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PFA, PVDF, Viton seals, PTFE coated SS springs

Pressure Ranges
Forward: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar) with 20 PSIG (1.4 bar) maximum back pressure
Backward: 27” HG vacuum (913 mbar) to 80 PSIG (5.5 bar) with 50 PSIG (3.4 bar) maximum back pressure
Actuator: 60 PSIG (4.2 bar) to 100 PSIG (7 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (-17° - 66° C)
Fluid: 0° - 266° F (-17° - 130° C)
PV-11 1/2” Pneumatic Adjustable Bypass Valve

AIR PORT CONNECTION, 1/8” FNPT
TEST PORT CONNECTIONS, 1/4-28 UNF

Bracketed dimensions are in mm.

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Flow Configuration</th>
<th>Port Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV-11-301</td>
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<td>27.1</td>
<td>NC</td>
<td>1/2&quot; Parflare</td>
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<tr>
<td>PV-11-302</td>
<td>2.8</td>
<td>40.0</td>
<td>NC</td>
<td>3/4&quot; Parflare</td>
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<tr>
<td>PV-11-305</td>
<td>2.8</td>
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<td>NC</td>
<td>1/2&quot; FNPT</td>
</tr>
</tbody>
</table>

Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.

**Pressure Drop vs. Flow Rate**

<table>
<thead>
<tr>
<th>Flow Rate (lpm)</th>
<th>DELTA-P (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>24</td>
</tr>
<tr>
<td>38</td>
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<td>57</td>
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<td>12</td>
</tr>
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<td>95</td>
<td>8</td>
</tr>
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<td>113</td>
<td>4</td>
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</table>

**Cv / Kv vs. Turns for Bypass Port**

<table>
<thead>
<tr>
<th>Turns</th>
<th>DELTA-P (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>1.2</td>
<td>0.02</td>
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<tr>
<td>1.8</td>
<td>0.04</td>
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<td>2.4</td>
<td>0.06</td>
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<tr>
<td>3.0</td>
<td>0.08</td>
</tr>
<tr>
<td>3.6</td>
<td>0.10</td>
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</table>

**Flow Rate (gpm)**

<table>
<thead>
<tr>
<th>Flow Rate (gpm)</th>
<th>DELTA-P (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>5</td>
<td>0.12</td>
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<tr>
<td>10</td>
<td>0.22</td>
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<td>15</td>
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<td>20</td>
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</tr>
<tr>
<td>25</td>
<td>0.52</td>
</tr>
<tr>
<td>30</td>
<td>0.62</td>
</tr>
</tbody>
</table>
PV-12 1” Pneumatic 2 Way Valve

Product Overview
The PV-12 Diaphragm Valve is designed for use in high purity semiconductor applications, and is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined seat and diaphragm sealing areas. A one piece machined modified PTFE diaphragm is also utilized for excellent flexibility and life. A full 1” orifice provides maximum flow capability in a compact package.

Features
One piece precision machined diaphragm manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE. Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal.

PVDF coated stainless steel spring.

Submergible option isolates all valve components from the external environment.

Benefits
High cycle life.

Lower replacement costs.

Less downtime.

Reduces effects of corrosive environments.

Valve remains functional while operating in wet or gaseous corrosive environments.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PFA, PVDF, Viton seals, PTFE coated SS springs

Pressure Ranges
Forward: 27” HG vacuum (913 mbar) to 100 PSIG (7 bar)
Backward: 80 PSIG (5.5 bar) with 100 PSIG (3.4 bar) inlet pressure
100 PSIG (7 bar) with 60 PSIG (4.2 bar) inlet pressure
Actuator: 60 PSIG (4.2 bar) to 100 PSIG (7 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (-17° - 66° C)
Fluid: 0° - 266° F (-17° - 130° C)
PV-12 1” Pneumatic 2 Way Valve

Parfl are models are supplied with PVDF nuts. For PFA nuts add -T to model number.

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kν</th>
<th>Flow Config.</th>
<th>Port Config.</th>
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<tbody>
<tr>
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<td>N C</td>
<td>1” Parbond</td>
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<td>PV-12-007</td>
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<td>3/4” Parbond</td>
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</tbody>
</table>

Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.

PRESSURE DROP VS. FLOW RATE

FLOW RATE (lpm) vs. DELTA-P (psi)

FLOW RATE (gpm) vs. DELTA-P (bar)
Product Overview
The PV-16 PFA diaphragm valve is designed for use in high purity semiconductor applications, and is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined seat and diaphragm sealing areas. A one piece machined modified PTFE diaphragm is also utilized for excellent flexibility and life. A full 3/4” orifice provides maximum flow capability in a compact package.

Features
One piece precision machined diaphragm manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE. Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal.

Benefits
High cycle life.
Lower replacement costs.
Less downtime.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PVDF, Viton, PTFE coated SS spring

Pressure Ranges
0 - 120 PSIG (8.3 bar) See Cracking Pressure Chart on next page.
Actuation: 60 PSIG (4.1 bar) - 120 PSIG (8.3 bar)
Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (-17° - 66° C)
Fluid: 0° - 266° F (-17° - 130° C)
PV-16 3/4” Pneumatic PFA 2 Way Valve

<table>
<thead>
<tr>
<th>Model Number</th>
<th>CV</th>
<th>Kv</th>
<th>Flow Configuration-X</th>
<th>Port Configuration</th>
<th>Dimension in [mm]</th>
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<td>PV-16-X612</td>
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<td>82.7</td>
<td></td>
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<td>6.48 [164.59]</td>
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<tr>
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<td>5.90 [149.86]</td>
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</tbody>
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Parflare model numbers are supplied with PVDF nuts. Also available with PFA (-T) nuts.

*Ends are fused on.

**CRACKING PRESSURE**

PRESSURE TO INLET PORT (bar)

<table>
<thead>
<tr>
<th>PRESSURE TO OUTLET PORT (ps)</th>
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</thead>
<tbody>
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<td>144</td>
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<td>72</td>
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<td>48</td>
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<td>24</td>
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**PRESSURE DROP VS. FLOW RATE**

FLOW RATE (lpm)

<table>
<thead>
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<th>FLOW RATE (gpm)</th>
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</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>20</td>
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<td>30</td>
</tr>
<tr>
<td>40</td>
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<td>50</td>
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DELTA-P (ps)

<table>
<thead>
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<th>DELTA-P (bar)</th>
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<td>2.8</td>
</tr>
<tr>
<td>3.5</td>
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<tr>
<td>4.2</td>
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**PRESSURE DROP VS. FLOW RATE**

FLOW RATE (gpm)

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<td>151</td>
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<td>227</td>
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DELTA-P (bar)

<table>
<thead>
<tr>
<th>DELTA-P (bar)</th>
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</thead>
<tbody>
<tr>
<td>0</td>
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<td>6.6</td>
</tr>
<tr>
<td>8.3</td>
</tr>
<tr>
<td>9.9</td>
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</table>

SPECIFIED SEALING AREA
Product Overview
The PV-16 PFA diaphragm valve is designed for use in high purity semiconductor applications, and is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined seat and diaphragm sealing areas. A one piece machined modified PTFE diaphragm is also utilized for excellent flexibility and life. A full 3/4” orifice provides maximum flow capability in a compact package.

Features
One piece precision machined diaphragm manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE. Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal.

Benefits
High cycle life.
Lower replacement costs.
Less downtime.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PVDF, Viton, PTFE coated SS spring

Pressure Ranges
0 - 120 PSIG (8.3 bar) See Cracking Pressure Chart on next page.
Actuation: 60 PSIG (4.1 bar) - 120 PSIG (8.3 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (-17° - 66° C)
Fluid: 0° - 266° F (-17° - 130° C)
PV-16 3/4” Pneumatic PFA 3 Way Valve

Model Number | Cv | Kv | Flow Configuration | Port Configuration | Dimensions |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>PV-16-3612</td>
<td>5.4</td>
<td>77.0</td>
<td></td>
<td>3/4 Parflare</td>
<td>A: 5.54 [140.72 mm] B: 2.81 [71.37 mm]</td>
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<tr>
<td>PV-16-3612-01</td>
<td>5.4</td>
<td>77.0</td>
<td></td>
<td>3/4 Parflare Long</td>
<td>A: 6.48 [164.59 mm] B: 2.81 [71.37 mm]</td>
</tr>
<tr>
<td>PV-16-3616</td>
<td>7.3</td>
<td>104.1</td>
<td></td>
<td>1” Parflare*</td>
<td>A: 9.12 [231.65 mm] B: 4.56 [115.82 mm]</td>
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<tr>
<td>PV-16-3712</td>
<td>7.3</td>
<td>104.1</td>
<td></td>
<td>3/4 Parbond</td>
<td>A: 5.90 [149.86 mm] B: 2.95 [74.93 mm]</td>
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<tr>
<td>PV-16-4612</td>
<td>5.4</td>
<td>77.0</td>
<td>3 WAY Reversed Ports</td>
<td>3/4 Parflare</td>
<td>A: 5.54 [140.72 mm] B: 2.81 [71.37 mm]</td>
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<tr>
<td>PV-16-4612-01</td>
<td>5.4</td>
<td>77.0</td>
<td></td>
<td>3/4 Parflare Long</td>
<td>A: 6.48 [164.59 mm] B: 2.81 [71.37 mm]</td>
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<tr>
<td>PV-16-4616</td>
<td>7.3</td>
<td>104.1</td>
<td></td>
<td>1” Parflare*</td>
<td>A: 9.12 [231.65 mm] B: 4.56 [115.82 mm]</td>
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<td>PV-16-4712</td>
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<td>104.1</td>
<td></td>
<td>3/4 Parbond</td>
<td>A: 5.90 [149.86 mm] B: 2.95 [74.93 mm]</td>
</tr>
</tbody>
</table>

Parflare model numbers are supplied with PVDF nuts. Also available with PFA (-T) nuts. 
*Ends are fused on.

CRACKING PRESSURE

PRESSURE TO INLET PORT (bar)

PRESSURE TO OUTLET PORT (bar)

SPECIFIED SEALING AREA

PRESSURE TO INLET PORT (psi)

PRESSURE DROP VS. FLOW RATE

FLOW RATE (lpm)

FLOW RATE (gpm)
Product Overview
The PV-16 PFA sampling valve is designed for use in high purity semiconductor applications, and is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a molded high purity PFA body with precision machined seat and diaphragm sealing areas. A one piece machined modified PTFE diaphragm is also utilized for excellent flexibility and life. The valve incorporates a full flow through port with a low dead volume down leg.

Features
- One piece precision machined diaphragm manufactured from the latest technology modified PTFE. Provides over five times the flexural life as compared to conventional PTFE.
- Halar coated stainless steel spring.
- Full flow through port.

Benefits
- High cycle life.
- Lower replacement costs.
- Less downtime.
- Reduces effects of corrosive environments.
- Reduced pressure drop.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PVDF, Viton, PTFE coated SS spring

Pressure Ranges
0 - 120 PSIG (8.3 bar) See Cracking Pressure Chart on next page.
Actuation: 60 PSIG (4.1 bar) - 120 PSIG (8.3 bar)
Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (-17° - 66° C)
Fluid: 0° - 266° F (-17° - 130° C)
PV-16 3/4” Pneumatic PFA Sampling Valve

PARALLEL PORT CONNECTION, 1/8” FNPT
TEST PORT CONNECTION, 1/4-28 UNF

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Through Port</th>
<th>Sample Port</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
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<td>Cv</td>
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<tr>
<td>PV-16-6612-608</td>
<td>13.0</td>
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<td>2.3</td>
</tr>
<tr>
<td>PV-16-6612-612</td>
<td>13.0</td>
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<td>4.6</td>
</tr>
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<td>PV-16-6612-712</td>
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<td>6.9</td>
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<td>PV-16-6712-608</td>
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<td>PV-16-6712-712</td>
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<td>359.92</td>
<td>6.9</td>
</tr>
</tbody>
</table>

Parflare model numbers are supplied with PVDF nuts. Also available with PFA (-T) nuts.

CRACKING PRESSURE
PRESSURE TO INLET PORT (bar) vs. PRESSURE TO OUTLET PORT (bar)
SPECIFIED SEALING AREA

Parker Hannifin Corporation
Partek Operation
Tucson, AZ
PV-20 1/4” - 1” Pneumatic PTFE Distribution Valve

Product Overview
The PV-20 distribution valve is designed for use in slurry applications, and is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes a machined PTFE body with precision machined seat and diaphragm sealing areas. The valve is offered in 3 orifice sizes (1/4”, 1/2” and 1”) and port sizes ranging from 1/4” to 1 1/4”.

Features
- Fully swept open bowl diaphragm seat area.
- Self draining design.
- High load point seat seal.
- Angled and rounded internal flow path.

Benefits
- Minimizes fluid shear and smooth flow transition.
- Minimizes area for entrapment and stagnation of media.
- Improves sealing mechanism for aggressive chemicals, deionized water and abrasive slurry media.
- Minimizes particle contribution of valve.
- Provides faster purging and cleaning of valve.
- Less pressure drop allows for lower pressure requirements upstream.
- Improves fluid flow dynamics.
- Improves cycle life, less shear than standard PTFE material, lower replacement costs, less downtime.
- Minimized diaphragm and valve seat strain.
- Stabilizes valve back pressure capability.
- Minimizes potential for permeation while maximizing cycle life.

Specifications
Materials of Construction
- Wetted: PTFE, Modified PTFE
- Non-wetted: PVDF, Viton, PTFE coated SS spring

Pressure Ranges
- 1/4” Orifice: 27” HG vacuum (913 mbar) - 80 PSIG (5.5 bar)
- 1/2” Orifice: 27” HG vacuum (913 mbar) - 100 PSIG (7 bar)
- 1” Orifice: 27” HG vacuum (913 mbar) - 100 PSIG (7 bar)
- Actuation: 60 PSIG (4.1 bar) - 80 PSIG (5.5 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
- Ambient: 0° - 150° F (-17° - 66° C)
- Fluid: 0° - 266° F (-17° - 130° C)

Materials of Construction
- Wetted: PTFE, Modified PTFE
- Non-wetted: PVDF, Viton, PTFE coated SS spring

Pressure Ranges
- 1/4” Orifice: 27” HG vacuum (913 mbar) - 80 PSIG (5.5 bar)
- 1/2” Orifice: 27” HG vacuum (913 mbar) - 100 PSIG (7 bar)
- 1” Orifice: 27” HG vacuum (913 mbar) - 100 PSIG (7 bar)
- Actuation: 60 PSIG (4.1 bar) - 80 PSIG (5.5 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
- Ambient: 0° - 150° F (-17° - 66° C)
- Fluid: 0° - 266° F (-17° - 130° C)
**PV-20 1/4” - 1” Pneumatic PTFE Distribution Valve**

Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number. Contact factory for Pillar end connections.

### PRESSURE DROP VS. FLOW RATE

**FLOW RATE** (lpm)  
DELTA-P (psi)  
DELTA-P (bar)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Size</th>
<th>Valve Type</th>
<th>Cv</th>
<th>Kv</th>
<th>Size</th>
<th>Cv</th>
<th>Kv</th>
<th>Size</th>
<th>Cv</th>
<th>Kv</th>
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<tbody>
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<td>Parflare</td>
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<td>.55</td>
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<td>3/4” Parflare</td>
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<td>.28</td>
<td>7.11</td>
<td>1.50</td>
<td>38.10</td>
<td>8.07</td>
<td>204.98</td>
<td>3.75</td>
<td>95.25</td>
<td>3.25</td>
</tr>
</tbody>
</table>
CV-1 Check Valve

Product Overview
The CV-1 PTFE Check Valve is designed for use in high purity semiconductor applications, and is also ideally suited for ultra-pure water and aggressive chemical or gas applications. The design utilizes machined PTFE components to provide superior chemical resistance and purity without requiring o-rings for sealing. The machined PTFE spring allows for low cracking pressure operation and minimal back pressure for resealing.

Features
- Polished sealing surfaces.
- Tongue and groove external seal.
- Machined PTFE spring.
- Numerous end configurations available including Parflare. Available with different configurations on either end.

Benefits
- Long life and superior sealing characteristics.
- Eliminates o-rings and compatibility problems.
- Low cracking pressure.
- Reduces connections, mounting space, and overall cost.

Specifications
Materials of Construction
Wetted: PTFE
Non-wetted: PFA, PVDF, ETFE

Cracking Pressure
0.25 PSIG (.017 bar) - 0.75 PSIG (.052 bar)

Back Check Sealing Pressure
5.0 PSIG (.35 bar)

Pressure Range
27” Hg vacuum (913 mbar) - 120 PSIG (8.3 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Style 1: 32° - 212° F (0° - 100° C) Ambient
32° - 266° F (0° - 130° C) Fluid
Style 2 & 3: 50° - 212° F (10° - 100° C) Ambient
50° - 266° F (10° - 130° C) Fluid
Style 4 & 5: 60° - 212° F (15° - 100° C) Ambient
60° - 266° F (15° - 130° C) Fluid
CV-1 Check Valve

BRACKETED DIMENSIONS ARE IN mm.

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Style</th>
<th>Port Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>CV-1-1122</td>
<td>0.61</td>
<td>8.78</td>
<td>1</td>
<td>1/8&quot; FNPT</td>
</tr>
<tr>
<td>CV-1-1144</td>
<td>1.51</td>
<td>21.74</td>
<td>1</td>
<td>1/4&quot; FNPT</td>
</tr>
<tr>
<td>CV-1-1166</td>
<td>2.43</td>
<td>35.00</td>
<td>2</td>
<td>3/8&quot; FNPT</td>
</tr>
<tr>
<td>CV-1-1198</td>
<td>4.22</td>
<td>60.77</td>
<td>3</td>
<td>1/2&quot; FNPT</td>
</tr>
<tr>
<td>CV-1-111616</td>
<td>14.00</td>
<td>201.6</td>
<td>5</td>
<td>1&quot; FNPT</td>
</tr>
<tr>
<td>CV-1-2222</td>
<td>0.02</td>
<td>0.29</td>
<td>1</td>
<td>1/8&quot; Pargrip</td>
</tr>
<tr>
<td>CV-1-2244</td>
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<td>4.90</td>
<td>1</td>
<td>1/4&quot; Pargrip</td>
</tr>
<tr>
<td>CV-1-2266</td>
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<td>14.11</td>
<td>1</td>
<td>3/8&quot; Pargrip</td>
</tr>
<tr>
<td>CV-1-2288</td>
<td>2.17</td>
<td>31.25</td>
<td>2</td>
<td>1/2&quot; Pargrip</td>
</tr>
<tr>
<td>CV-1-6644</td>
<td>.26</td>
<td>3.74</td>
<td>1</td>
<td>1/4&quot; Parflare</td>
</tr>
<tr>
<td>CV-1-6666</td>
<td>1.11</td>
<td>15.84</td>
<td>1</td>
<td>3/8&quot; Parflare</td>
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<tr>
<td>CV-1-6688</td>
<td>2.03</td>
<td>29.23</td>
<td>2</td>
<td>1/2&quot; Parflare</td>
</tr>
<tr>
<td>CV-1-661212</td>
<td>4.13</td>
<td>59.47</td>
<td>3</td>
<td>3/4&quot; Parflare</td>
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<tr>
<td>CV-1-661616</td>
<td>11.85</td>
<td>170.6</td>
<td>4</td>
<td>1&quot; Parflare</td>
</tr>
</tbody>
</table>

Pargrip models are supplied with PFA nuts. Parflare models are supplied with PVDF nuts. For PFA nuts add -T to model number.
RV Relief Valve

Product Overview
The RV Relief Valve is designed for use in high purity semiconductor applications, and is also ideally suited for ultra-pure water and aggressive chemicals. The design utilizes a molded PFA body with precision-machined PTFE seats and diaphragm poppet. When a field set relief pressure is reached, the valve opens and permits flow. The valve resets when 25% of original setpoint is reached.

Features
One piece precision machined diaphragm poppet manufactured from the latest technology modified PTFE.

Provides over five times the flexural life as compared to conventional PTFE.

Tongue and groove seat and diaphragm poppet for positive through flow shut off and diaphragm to body seal.

Field adjustable relief pressure.

Benefits
High cycle life.

Lower replacement costs.

Less downtime.

Isolates media from adjusting screw.

Prevent over pressurization in critical applications.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: PVDF, SS, Brass, ABS, HDPE

Pressure Ranges
15 PSIG (1.03 bar) - 120 PSIG (8.3 bar)

Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: 0° - 150° F (-17° - 66° C)
Fluid: 0° - 266° F (-17° - 130° C)

Note: The RV Series Relief Valves should only be used to protect Article 3, Paragraph 3 category equipment as defined in Pressure Equipment Directive 97/23/EC Dated 29, May 1997.
RV Relief Valve

BRACKETED DIMENSIONS
ARE IN mm.

Parfl are model numbers are supplied with PVDF nuts. Also available with PFA (-T) nuts.
SV-2 1/4” Solenoid Valve

Product Overview
The SV-2 Solenoid Valve is designed for use in high purity semiconductor applications, and is also ideally suited for ultra-pure water and aggressive chemicals. The design utilizes a molded high purity PFA body with precision machined areas. A one-piece machined modified PTFE diaphragm is also utilized for excellent flexibility and long life. The valve is offered in 2 and 3 way configurations, in 3 orifice sizes, and in 2 standard voltages.

Features
One piece precision machined diaphragm manufactured from the latest technology modified PTFE.
Provides over five times the flexural life as compared to conventional PTFE.
Tongue and groove seat and diaphragm for positive through flow shut off and diaphragm to body seal.

Benefits
High cycle life.
Lower replacement costs.
Less downtime.
Isolates media from solenoid.

Specifications
Materials of Construction
Wetted: PFA, Modified PTFE
Non-wetted: Coated Aluminum, Plated Steel, SS, PFA, PVDF, Titanate

Pressure Ranges
Forward: 0 - 80 PSIG (5.5 bar)
Pressure ranges for operation at ambient temperatures. For use at higher temperatures consult Pressure/Temperature chart on page 3.

Temperature Ranges
Ambient: -60° - 212° F (-51° - 100° C)
Fluid: -60° - 400° F (-51° - 204° C)

Solenoid Ratings
24 VDC, 115 VAC (Double Wire)
All models rated at 9 watts at 68°F (20°C)
Coil Duty Cycle: 100%, however, 100% continuous duty may affect performance of valve, therefore 50% continuous duty is recommended.

Orientation
All models must be mounted vertically as indicated by the label on the product.
SV-2 1/4” Solenoid Valve

BRACKETED DIMENSIONS ARE IN mm.

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Cv</th>
<th>Kv</th>
<th>Flow Configuration</th>
<th>Orifice Size</th>
<th>Port Configuration</th>
<th>Solenoid Voltage-X</th>
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</thead>
<tbody>
<tr>
<td>SV-2-1144-X</td>
<td>.60</td>
<td>8.6</td>
<td>NC</td>
<td>.250</td>
<td>1/4” FNPT</td>
<td>2 = 24 VDC</td>
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<tr>
<td>SV-2-1244-X</td>
<td>.60</td>
<td>8.6</td>
<td>NO</td>
<td>.250</td>
<td>1/4” FNPT</td>
<td>7 = 115 VAC</td>
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<tr>
<td>SV-2-1344-X</td>
<td>.60</td>
<td>8.6</td>
<td>3 WAY</td>
<td>.250</td>
<td>1/4” FNPT</td>
<td></td>
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</table>

PRESSURE DROP VS. FLOW RATE

FLOW RATE (lpm)

<table>
<thead>
<tr>
<th>FLOW RATE (lpm)</th>
<th>DELTA-P (ps)</th>
<th>DELTA-P (bar)</th>
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<tbody>
<tr>
<td>1.9</td>
<td>25</td>
<td>1.72</td>
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<td>3.8</td>
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<td>5.7</td>
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<td>7.6</td>
<td>10</td>
<td>.69</td>
</tr>
<tr>
<td>9.5</td>
<td>5</td>
<td>.34</td>
</tr>
</tbody>
</table>

FLOW RATE (gpm)

<table>
<thead>
<tr>
<th>FLOW RATE (gpm)</th>
<th>DELTA-P (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>All Configurations</td>
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<tr>
<td>1.0</td>
<td>.34</td>
</tr>
<tr>
<td>1.5</td>
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<td>2.0</td>
<td>1.03</td>
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<tr>
<td>2.5</td>
<td>1.38</td>
</tr>
<tr>
<td>3.0</td>
<td>1.72</td>
</tr>
</tbody>
</table>
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