Miniature Proportional Valves
Precision Fluidics
When you partner with the global leader in motion and control technologies, expect to move your business and the world forward. From miniature solenoid valves to highly integrated automation systems, our innovations are critical to life-saving medical devices and scientific instruments used for drug discovery and pathogen detection. Not to mention, critical to decreasing time to market and lowering your overall cost of ownership. So partner with Parker, and get ready to move, well, anything.
The VSO®, Voltage Sensitive Orifice, is a miniature solenoid valve that controls the flow of gas in proportion to input current. You can drive the valve with either DC current or pulse width modulation and use closed loop feedback to deliver optimal system performance. Medical and analytical OEMs worldwide choose VSO as their preferred miniature proportional valve.

**Features**
- Offers operating pressure up to 150 psig and a range of orifice sizes.
- Satisfies a 0.2 sccm leakage specification of He for 100 million life cycles and offers high repeatability.
- Provides computer-automated calibrations and full calibration traceability.
- Uses either DC current or pulse width modulation with closed loop feedback to deliver optimal system performance.
- Maintains ideal flow through thermal compensation.
- ROHS compliant

**Physical Properties**
- Valve Type: 2-Way Normally Closed
- Media: Air, argon, helium, hydrogen, methane, nitrogen, oxygen, & others
- Operating Environment: 32 to 131°F (0 to 55°C)
- Storage Temperature: -40 to 158°F (-40 to 70°C)
- Length: 1.785 in (45.34 mm)
- Width: 0.625 in (16.51 mm)
- Height: 0.67 in (17.02 mm)
- Porting: Barbs or 10-32 female; manifold mount with screens
- Weight: 2.2 oz (62.86 grams)
- Internal Volume: 0.031 in³ (0.508 cm³)
- Filtration: (Suggested and Available) Models 1 & 2: 17 micron Models 3, 4, 5, & 6: 40 micron

**Performance Characteristics**
- Power: 2.0 Watts maximum
- Voltage: See Ordering Information
- Electrical Termination: 18” Wire Leads PC Mount, Spade Lugs
- Pressure: 0 to 50 psi (0.34 MPa) 0 to 75 psi (0.52 MPa) 0 to 100 psi (0.69 MPa) 0 to 150 psi (1.03 MPa) 0-27 in Hg (0.09 MPa)
- Vacuum: 0 to 50 psi (0.34 MPa) 0 to 75 psi (0.52 MPa) 0 to 100 psi (0.69 MPa) 0 to 150 psi (1.03 MPa)
- Orifice Sizes: 0.010” (0.245 mm) 0.020” (0.510 mm) 0.030” (0.762 mm) 0.040” (1.016 mm) 0.050” (1.270 mm) 0.065” (1.651 mm)

**Orders**
- VSO is a registered trademark of Parker Hannifin Corporation.
**VSO® Low Flow**  
Low Flow Miniature Proportional Valve

The VSO® LF (Low Flow) offers the same benefits as the VSO® valve with enhanced flow control for applications where control is critical or flow is required below 600 sccm. This miniature solenoid-operated valve automates the flow of gas in proportion to the input current.

**Features**
- Uses either DC current or pulse width modulation; closed loop feedback delivers optimal system performance.
- Offers computer automated calibrations and full calibration traceability.
- Rated for 10 million life cycles.
- Maintains ideal flow through thermal compensation.
- Highly repeatable.
- ROHS compliant

**Valve Type:**
- 2-Way Normally Closed

**Media:**
- Air, argon, helium, hydrogen, methane, nitrogen, oxygen, & others

**Operating Environment:**
- 32 to 131°F (0 to 55°C)

**Storage Temperature:**
- -40 to 158°F (-40 to 70°C)

**Length:**
- 1.785 in (45.34 mm)

**Width:**
- 0.625 in (16.51 mm)

**Height:**
- 0.67 in (17.02 mm)

**Porting:**
- Manifold mount

**Weight:**
- 2.2 oz (62.86 grams)

**Internal Volume:**
- 0.031 in³ (.508 cm³)

**Filtration:**
- (Suggested and Available)
  - 17 micron
- Oxygen and Analytically Clean:
  - Standard

**Electrical**
- Power: 2.0 Watts maximum
- Voltage: See Ordering Information
- Electrical Termination: 18” Wire Leads

**Performance Characteristics**
- Leak Rate: <0.2 sccm of helium
- Pressure: 0 - 150 psi (1.03 MPa)
- Orifice Size: 0.003” (0.076 mm)

**Wetted Materials**
- Body: 360 HO2 Brass
- Stem Base: 430 FR Stainless Steel and Brass 360 HT
- All Others: FKM, 430 FR Stainless Steel, 300 Series Stainless Steel

**Physical Properties**

**Electrical Power:**
- 2.0 Watts maximum

**Voltage:**
- See Ordering Information

**Electrical Termination:**
- 18” Wire Leads

**Filtration:**
- (Suggested and Available)
  - 17 micron
- Oxygen and Analytically Clean:
  - Standard

**Typical Air Flow with 12 VDC coil**

**Sample Part ID**
- 910 _ 000200 _ 001

**Description Series _ Model Number _ Coil Selection**
- Options
  - 001: 6.5 VDC
  - 002: 8 VDC
  - 003: 12 VDC
  - 004: 18 VDC

* Max Voltage for continuous full flow, ambient Temp 55°C.

**For more information call 1.800.525.2857 or email ppinfo@parker.com**

Visit www.parker.com/precisionfluidics
Lone Wolf

**Thermally Compensated Proportional Valve**

With its patented technology, the Lone Wolf valve has the highest performance characteristics of any Normally Open proportional valve available on the market. This VSO® valve offers silent operation, provides repeatable high-speed performance, and ensures maximum accuracy.

**Features**
- Achieves rapid, stable performance.
- Enhances system control and patient comfort.
- Maintains ideal flow through Normally Open valve with thermal compensation.
- Extremely reliable.
- ROHS compliant

**Performance Characteristics**

<table>
<thead>
<tr>
<th>Leak Rate</th>
<th>Pressure</th>
<th>Orifice Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal: 0.2 sccm</td>
<td>0-10 psi (0.06 MPa)</td>
<td>0.024&quot; (0.609 mm)</td>
</tr>
<tr>
<td>External: 0.016 sccm</td>
<td>0-20 psi (0.13 MPa)</td>
<td>0.028&quot; (0.762 mm)</td>
</tr>
<tr>
<td></td>
<td>0-25 psi (0.17 MPa)</td>
<td>0.036&quot; (0.914 mm)</td>
</tr>
</tbody>
</table>

**Electrical**

- Power: 2.0 Watts maximum
- Voltage: 3-60 VDC
- Electrical Termination: 18" Wire Leads; PC Mount; Spade Lugs

**Wetted Materials**

- Body: 360 HO2 Brass
- Stem Base: 430 FR Stainless Steel and Brass 360 HT
- All Others: Fluorocarbon, 430 FR Stainless Steel, 300 Series Stainless Steel

**Physical Properties**

- Valve Type: 2-Way Normally Open
- Media: Air, argon, helium, hydrogen, methane, nitrogen, oxygen, & others
- Operating Environment: 32 to 122°F (0 to 50°C)
- Storage Temperature: -40 to 158°F (-40 to 70°C)
- Length: 1.785 in (45.34 mm)
- Width: 0.625 in (16.51 mm)
- Height: 0.67 in (17.02 mm)
- Porting: Manifold mount; 1/8" Barbs, 5/64" Barbs
- Weight: 2.2 oz (62.86 grams)
- Internal Volume: 0.031 in³ (0.508 cm³)
- Filtration: (Suggested and Available) 40 micron
- Oxygen and Analytically Clean: Available

**Ordering Information**

<table>
<thead>
<tr>
<th>Sample Part ID</th>
<th>Description</th>
<th>LW</th>
<th>Model Number</th>
<th>Material</th>
<th>Connector</th>
<th>Electrical Interface</th>
<th>Pneumatic Interface</th>
</tr>
</thead>
</table>

**NOTE:** Please consult Parker Precision Fluidics for other considerations. For more detailed information, visit us on the Web, or call and refer to Performance Spec. #790-002130-001 and Drawing #890-003079-001.
MD PRO Miniature Proportional Valve
Non-Thermally Compensated Proportional Valve

The MD Pro is a miniature solenoid-operated valve that controls gas flow proportionally to input current. This non-thermally compensated VSO® valve is the economical solution for precise flow control.

Features
- Provides repeatability across its operating range.
- Offers a superior combination of value and performance.
- Rated for 10 million life cycles.
- ROHS compliant.

Physical Properties
- Valve Type: 2-Way Normally Closed
- Media: Air, argon, helium, hydrogen, methane, nitrogen, oxygen, & others
- Operating Environment: 32 to 140°F (0 to 60°C)
- Storage Temperature: -40 to 158°F (-40 to 70°C)
- Length: 1.785 in (45.34 mm)
- Width: 0.625 in (16.51 mm)
- Height: 0.67 in (17.02 mm)
- Porting: 1/8" barbs; manifold mount
- Weight: 2.2 oz (62.86 grams)
- Internal Volume: 0.031 in³ (.508 cm³)
- Filteration (Suggested and Available): 43 micron

Wetted Materials
- Body: 360 HO2 Brass
- Stem Base: 430 FR Stainless Steel and 360 HT
- All Others: Fluorocarbon; 430 FR Stainless Steel; 300 Series Stainless Steel

Electrical
- Power: 2.0 Watts maximum
- Voltage: See ordering information
- Electrical Termination: 18" Wire Leads

Performance Characteristics
- Leak Rate: <0.2 sccm of air
- Pressure: 0 to 50 psi (0.34 MPa)
- Orifice Sizes: 0.040" (1.02 mm), 0.050" (1.27 mm), 0.065" (1.65 mm)

Flow
- Wetted Materials
  - Body: 360 HO2 Brass
  - Stem Base: 430 FR Stainless Steel and 360 HT
  - All Others: Fluorocarbon; 430 FR Stainless Steel; 300 Series Stainless Steel

Flow Chart

For more information call 1.800.525.2857 or email ppinfo@parker.com
Visit www.parker.com/precisionfluidics
**HF PRO**  High Flow Proportional Valve

**Non-Thermally Compensated Proportional Valve**

The HF Pro controls the flow of gas proportionally to input current. The valve may be driven with DC current or Pulse Width Modulation. HF Pro achieves optimal system performance when it uses closed loop feedback.

**Features**
- Capable of 60 lpm flow and pressures up to 50 psig.
- Face seal manifold mount or 5mm barbed body options.
- Proven performance to 35 million life cycles.
- Non-thermally compensated proportional valve.
- ROHS compliant

**Physical Properties**

**Valve Type:**  2-Way Normally Closed
**Media:**  Air, argon, helium, hydrogen, methane, nitrogen, oxygen, & others
**Operating Environment:**  32 to 122°F (0 to 50°C)
**Storage Temperature:**  -40 to 158°F (-40 to 70°C)
**Length:**  1.785 in (45.34 mm)
**Width:**  0.625 in (16.51 mm)
**Height:**  0.67 in (17.02 mm)
**Porting:**  1/8" barbs; manifold mount
**Weight:**  2.2 oz (62.86 grams)
**Internal Volume:**  0.031 in³ (0.508 cm³)
**Filtration:**  43 micron
**Oxygen and Analytically Clean:**  Available

**Electrical**

**Power:**  3.0 Watts maximum
**Voltage:**  See Ordering Information
**Electrical Termination:**  18" Wire Leads

**Performance Characteristics**

**Leak Rate:**  <0.5 sccm Max. N₂
**Pressure:**  0 to 50 psi (0.34 MPa)
**Vacuum:**  0-27 in Hg (0.09 MPa)
**Orifice Sizes:**  0.070" (1.8 mm)

**Wetted Materials**

**Body:**  360 HO2 Brass
**Stem Base:**  430 FR Stainless Steel and Brass 360 HT
**All Others:**  FKM; 430 FR Stainless Steel; 300 Series Stainless Steel

**Ordering Information**

**Sample Part ID:**  HFPRO 7 V A F 8 O

**Description Series Model Number Elastomer Coil Selection Electrical Interface Pneumatic Interface Cleaning**

**Options**

- Max. Operating Pressure/Orifice Size
- Max Voltage
- Barbed Body
- Oxygen Service

**NOTE:** Please consult Parker Precision Fluidics Division for other considerations. For more detailed info, visit us on the Web, or call and refer to Performance Spec. #790-002243-001 and Drawing #990-003192-001.

For more information call 1.800.525.2857 or email ppinfo@parker.com

Visit www.parker.com/precisionfluidics
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9. GOVERNMENT COobntractS: If the products to be furnished under this contract are to be used in

3. TERMS OF PAYMENT: Unless otherwise stated on Seller’s invoices, terms of payment shall be Net

5. TERMINATION OF CONTRACT: Orders accepted by the Seller may be cancelled by Buyer only with

11. LIMITATION OF LIABILITY: Seller shall have no liability for any damage to personal property or losses

13. CUSTOMER ORDER: Seller reserves the right to submit in writing to Buyer and may cancel, without

15. PRICE AND SPECIAL DISCOUNTS: Seller reserves the right to make price and special discount

17. PRICING AND LIST PRICES: Unless otherwise indicated, prices quoted are subject to change.

PARKER-HANNIFIN CORP., PRECISION FLUIDICS TERMS AND CONDITIONS OF SALE, ORDER POLICIES & PRODUCT WARRANTY INFORMATION

PARKER-HANNIFIN CORP., PRECISION FLUIDICS DIVISION

WARNING

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