Miniature Proportional Valves
Precision Fluidics

- aerospace
- climate control
- electromechanical
- filtration
- fluid & gas handling
- hydraulics
- pneumatics
- process control
- sealing & shielding
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.
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**VSO® Miniature Proportional Valve**

Thermally Compensated Proportional Valve

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**

<table>
<thead>
<tr>
<th>Valve Type:</th>
<th>2-Way Normally Closed</th>
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<tbody>
<tr>
<td>Media:</td>
<td>Air, argon, helium, hydrogen, methane, nitrogen, oxygen, &amp; others</td>
</tr>
<tr>
<td>Operating Environment:</td>
<td>32 to 131°F (0 to 55°C)</td>
</tr>
<tr>
<td>Storage Temperature:</td>
<td>-40 to 158°F (-40 to 70°C)</td>
</tr>
<tr>
<td>Length:</td>
<td>1.785 in (45.34 mm)</td>
</tr>
<tr>
<td>Width:</td>
<td>0.625 in (16.51 mm)</td>
</tr>
<tr>
<td>Height:</td>
<td>0.67 in (17.02 mm)</td>
</tr>
<tr>
<td>Porting:</td>
<td>Barbs or 10-32 female; manifold mount with screens</td>
</tr>
<tr>
<td>Weight:</td>
<td>2.2 oz (62.86 grams)</td>
</tr>
<tr>
<td>Internal Volume:</td>
<td>0.031 in³ (.508 cm³)</td>
</tr>
<tr>
<td>Filtration:</td>
<td>(Suggested and Available)</td>
</tr>
<tr>
<td>Models 1 &amp; 2:</td>
<td>17 micron</td>
</tr>
<tr>
<td>Models 3, 4, 5, &amp; 6:</td>
<td>40 micron</td>
</tr>
<tr>
<td>Oxygen and Analytically Clean:</td>
<td>Standard</td>
</tr>
</tbody>
</table>

**Wetted Materials**

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

**Electrical**

- **Power:** 2.0 Watts maximum
- **Voltage:** See Ordering Information
- **Electrical Termination:** 18" Wire Leads PC Mount, Spade Lugs

**Performance Characteristics**

- **Leak Rate:** <0.2 sccm of helium (bubble tight)
- **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)
- **Vacuum:** 0-27 in Hg (0.09 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)

**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

**Typical Air Flow with 20VDC coil (25 psig)**

![Typical Air Flow Graph](image)

VSO is a registered trademark of Parker Hannifin Corporation.
VSO® Thermally Compensated Proportional Valve

Dimensions

**BASIC VALVE DIMENSIONS**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>-055</td>
<td>1.40</td>
</tr>
<tr>
<td>2x 0.125</td>
<td>3.18</td>
</tr>
<tr>
<td>2x 0.123</td>
<td>3.12</td>
</tr>
<tr>
<td>.305</td>
<td>7.75</td>
</tr>
<tr>
<td>.625</td>
<td>15.88</td>
</tr>
</tbody>
</table>

**PNEUMATIC INTERFACE OPTIONS**

- **D** - No Barbs (Face Seal to Manifold)
- **E** - No Barbs (Face Seal to Manifold with Screen)
- **F** - 10-32 Threaded Female
- **G** - 3/16" x 3/16" tubing, 1/4 OD. Max (3.17 mm)

**PORT AND MOUNTING HOLE DIAGRAMS**

**ELECTRICAL INTERFACE OPTIONS**

- **F** - Wire Leads, 18"
- **P** - PC Board Mount, 4 PC Pins
- **Q** - Quick Connect Spade

**Ordering Information**

<table>
<thead>
<tr>
<th>Sample Part ID</th>
<th>VS0NC</th>
<th>1</th>
<th>5</th>
<th>11</th>
<th>V</th>
<th>A</th>
<th>F</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Standard Model Number</td>
<td>Series Body Series</td>
<td>Elastomer</td>
<td>Coil Selection</td>
<td>Electrical Interface</td>
<td>Pneumatic Interface (Series 11 only except with Option 5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Options</td>
<td># Max. Operating Pressure/Orifice Size</td>
<td></td>
<td></td>
<td></td>
<td>X: Max Voltage*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1: 150 psid/0.010&quot;</td>
<td></td>
<td></td>
<td></td>
<td>A: 5.5 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2: 150 psid/0.020&quot;</td>
<td></td>
<td></td>
<td></td>
<td>B: 9 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3: 150 psid/0.030&quot;</td>
<td></td>
<td></td>
<td></td>
<td>C: 11.5 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4: 75 psid/0.040&quot;</td>
<td></td>
<td></td>
<td></td>
<td>D: 13.5 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5: 100 psid/0.060&quot;</td>
<td></td>
<td></td>
<td></td>
<td>E: 20 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6: 50 psid/0.065&quot;</td>
<td></td>
<td></td>
<td></td>
<td>F: 29 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25: Series 25 (available in nickel-plated brass only)</td>
<td></td>
<td></td>
<td></td>
<td>X: Max Voltage*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>V: FKM/Brass</td>
<td></td>
<td></td>
<td></td>
<td>A: 5.5 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C: FKM/Brass</td>
<td></td>
<td></td>
<td></td>
<td>B: 9 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>H: FKM/Stainless Steel</td>
<td></td>
<td></td>
<td></td>
<td>C: 11.5 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>W: FKM/Stainless Steel</td>
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<td></td>
<td></td>
<td>D: 13.5 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

1. Dimensions in [ ] are in mm.

**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. #790-002115-001 and Drawing #890-003022-001.

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

Visit www.parker.com/precisionfluidics
VSO® Low Flow Low Flow Miniature Proportional Valve Thermally Compensated 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

**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:** 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

![Typical Air Flow with 12 VDC coil](image)

VSO is a registered trademark of Parker Hannifin Corporation.
**VSO® Low Flow**  Thermally Compensated Proportional Valve

**Dimensions**

**BASIC VALVE DIMENSIONS**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>.055 [1.40]</td>
<td></td>
</tr>
<tr>
<td>2X .125 [3.18]</td>
<td></td>
</tr>
<tr>
<td>.500 [12.7]</td>
<td></td>
</tr>
<tr>
<td>.055 [1.40]</td>
<td></td>
</tr>
<tr>
<td>1.785 [45.34]</td>
<td></td>
</tr>
<tr>
<td>.305 [7.75]</td>
<td></td>
</tr>
</tbody>
</table>

**PNEUMATIC INTERFACE OPTIONS**

- 1- NO BARBS (FACE SEAL TO MANIFOLD WITH SCREEN)

**PORT AND MOUNTING HOLE DIAGRAMS**

**ELECTRICAL INTERFACE OPTIONS**

**Ordering Information**

<table>
<thead>
<tr>
<th>Sample Part ID</th>
<th>Description</th>
<th>Series</th>
<th>Model Number</th>
<th>Coil Selection</th>
</tr>
</thead>
</table>
| 910 _ 000200 _ 001 | VSO, Low Flow, 0.003" Orifice Size | - | - | X: Max Voltage*  
001: 6.5 VDC  
002: 8 VDC  
003: 12 VDC  
004: 18 VDC  
* Max Voltage for continuous full flow, ambient Temp 55°C, |

**Notes:**

1. DIMENSIONS IN [ ] ARE IN MM.

**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. #790-002160-002 and Drawing #890-003022-022.
Lone Wolf Normally Open Miniature Proportional Valve
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

Leak Rate:
- Internal: 0.2 sccm
- External: 0.016 sccm

Pressure:
- 0-10 psi (0.06 MPa)
- 0-20 psi (0.13 MPa)
- 0-25 psi (0.17 MPa)

Vacuum:
- 0-20 in Hg (0.06 MPa)

Orifice Sizes:
- 0.024” (0.609 mm)
- 0.030” (0.762 mm)
- 0.036” (0.914 mm)

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

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 (.508 cm³)

Filtration:
- Suggested and Available
  - 40 micron
- Oxygen and Analytically Clean:
  - Available

Electrical

Power:
- 2.0 Watts maximum

Voltage:
- 3-60 VDC

Electrical Termination:
- 18” Wire Leads; PC Mount; Spade Lugs

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

Typical Air Flow with 13.5 VDC coil (25 psig)

VSO is a registered trademark of Parker Hannifin Corporation.
Lone Wolf  Thermally Compensated Proportional Valve

Dimensions

<table>
<thead>
<tr>
<th>BASIC VALVE DIMENSIONS</th>
<th>PNEUMATIC INTERFACE OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>.055 [1.40]</td>
<td></td>
</tr>
<tr>
<td>.305 [7.75]</td>
<td></td>
</tr>
<tr>
<td>2X .125 [3.18]</td>
<td></td>
</tr>
<tr>
<td>2X .123 [3.12] (I.D.)</td>
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</tr>
<tr>
<td>.055 [1.40]</td>
<td></td>
</tr>
<tr>
<td>1.785 [45.54]</td>
<td></td>
</tr>
<tr>
<td>.305 [7.75]</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PORT AND MOUNTING HOLE DIAGRAMS</th>
<th>ELECTRICAL INTERFACE OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PORT 2</td>
<td></td>
</tr>
<tr>
<td>.27 [6.86]</td>
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<tr>
<td>.281 [7.14]</td>
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<td>.156 [3.97]</td>
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<td>.125 [3.18]</td>
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<tr>
<td>PORT 1</td>
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<td>.312 [7.92]</td>
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NOTES:
1. DIMENSIONS IN [ ] ARE IN MM.

Ordering Information

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<th>T</th>
<th>B</th>
<th>V</th>
<th>A</th>
<th>F</th>
<th>B</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>Series</th>
<th>Model Number</th>
<th>Material</th>
<th>Elastomer</th>
<th>Coil Selection</th>
<th>Electrical Interface</th>
<th>Pneumatic Interface</th>
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</thead>
<tbody>
<tr>
<td>#: Max Operating Pressure/Orifice Size</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1: 0-10 psi/0.024&quot;</td>
<td>6</td>
<td>Brass</td>
<td>FKM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2: 0-20 psi/0.030&quot;</td>
<td>6</td>
<td>Brass</td>
<td>FKM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3: 0-25 psi/0.036&quot;</td>
<td>6</td>
<td>Brass</td>
<td>FKM</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>X: Max Voltage*</th>
<th>A: 5 VDC</th>
<th>B: 8 VDC</th>
<th>C: 11.5 VDC</th>
<th>D: 13.5 VDC</th>
<th>F: 29 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Max Voltage for continuous full flow, ambient temperature 55°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>F: Wire Leads, 18&quot;, 19&quot;</th>
<th>P: PC Board Mount, 4 PC Pins</th>
</tr>
</thead>
<tbody>
<tr>
<td>0: Manifold Mount</td>
<td>1: Manifold Mount with Screens</td>
</tr>
<tr>
<td>E: 1/8&quot; Barbs</td>
<td></td>
</tr>
</tbody>
</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)
- Filtration (Suggested and Available): 43 micron
- Oxygen Clean: Available

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

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

Performance Characteristics
- Leak Rate: <0.2 sccm of air
- Pressure: 0 to 50 psi (0.34 MPa) 0 to 75 psi (0.52 MPa) 0 to 100 psi (0.69 MPa)
- Vacuum: 0-27 in Hg (0.09 MPa)
- Orifice Sizes: 0.040" (1.02 mm) 0.050" (1.27 mm) 0.065" (1.65 mm)

Typical Air Flow with 20VDC coil (25 psig)

VSO is a registered trademark of Parker Hannifin Corporation.
**MD PRO** Non-Thermally Compensated Proportional Valve

**Dimensions**

**BASIC VALVE DIMENSIONS**

- 0.055 [1.40]
- 0.500 [12.7]
- 0.055 [1.40]
- 0.305 [7.75]
- 0.125 [3.18]
- 0.281 [7.14]
- 0.156 [3.97]
- 0.312 [7.92]
- 0.125 [3.18]
- 0.67 [17.02]
- 0.625 MAX. [15.88]

**PORT AND MOUNTING HOLE DIAGRAMS**

- Port 1
- Port 2

**PNEUMATIC INTERFACE OPTIONS**

- 1: No Barb (Face Seal to Manifold with Screen)
- 2: 1/8" I.D. Tubing (1/4" O.D. Max)

**ELECTRICAL INTERFACE OPTIONS**

- 1: Manifold Mount with Screen*
- 2: 1/8" Barbs

**Ordering Information**

<table>
<thead>
<tr>
<th>Sample Part ID</th>
<th>Description</th>
<th>4</th>
<th>V</th>
<th>A</th>
<th>F</th>
<th>8</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDPRO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

**Options**

<table>
<thead>
<tr>
<th>4</th>
<th>V</th>
<th>A</th>
<th>F</th>
<th>8</th>
<th>S</th>
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<tbody>
<tr>
<td>R: Max. Operating Pressure/Orifice Size</td>
<td>F: Wire Leads, 18&quot;</td>
<td>X: Max Voltage*</td>
<td>E: Oxygen Service</td>
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</tr>
<tr>
<td>4: 75 psid/0.040&quot;</td>
<td>P: PC Board Mount 4 Pin</td>
<td>C: 11.5 VDC</td>
<td>6: 20 VDC</td>
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<td></td>
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<tr>
<td>5: 100 psid/0.050&quot;</td>
<td>Q: Quick Connect Spade</td>
<td>B: 8 VDC</td>
<td>F: 29 VDC</td>
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<td></td>
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<tr>
<td>6: 50 psid/0.065&quot;</td>
<td></td>
<td>A: 5.5 VDC</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**NOTES:**
1. DIMENSIONS IN [ ] ARE IN MM.

**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. #790-00206-001 and Drawing #890-003022-001.
**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 (.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

**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

**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)

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**Diagram:**
- **Typical Air Flow with 13.5 VDC coil**

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HF PRO  Non-Thermally Compensated Proportional Valve

Dimensions

Barbed Mount Option

Manifold Mount Option

Ordering Information

<table>
<thead>
<tr>
<th>Sample Part ID</th>
<th>HFPRO</th>
<th>7</th>
<th>V</th>
<th>A</th>
<th>F</th>
<th>B</th>
<th>O</th>
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<tbody>
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<td>Description</td>
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<tr>
<td>Options</td>
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</tr>
<tr>
<td>Series</td>
<td>Model Number</td>
<td>Elastomer</td>
<td>Coil Selection</td>
<td>Electrical Interface</td>
<td>Pneumatic Interface</td>
<td>Cleaning</td>
<td></td>
</tr>
<tr>
<td>R: Max. Operating Pressure/Orifice Size</td>
<td>7-50 psid/0.070&quot;</td>
<td>V: FKM</td>
<td>X: Max Voltage*</td>
<td>F: Wire Leads, 18&quot;</td>
<td>1: Manifold Mount</td>
<td>B: Barbed Body</td>
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</tr>
<tr>
<td>5 VDC</td>
<td>12 VDC</td>
<td>24 VDC</td>
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<td></td>
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</tr>
</tbody>
</table>

* Max Voltage for continuous full flow, ambient temperature 50°C

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 #890-003192-001.
Miniature Proportional Valves

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

Payment and Credit Terms: Terms are 10/30. 25 net 30 as noted below:

- For invoices dated between the 1st and 15th, payments must be received by the 15th of the following month.
- For invoices dated between the 16th and 31st, payments must be received by the 10th of the following month.

- The above payment terms and discounts are available to all customers with established credit.
- Otherwise, the following special terms exist:
  - Contact Name, Address & Phone Number
  - Customer Name, Address & Phone Number
  - Reason for Return & Failure Symptoms if Applicable
  - Part Number, Quantity & Date Code

- Minimum order/shipment is $250.00. Net.  All sales transactions totaling $2,500 or less will be processed on credit card only.
- Credit card sales will be accepted from customers with established credit.

Order Policies

- A hard copy Purchase Order confirmation must be provided for all orders. This copy may be sent via fax or Internet e-mail if signed by the authorized buyer.
- Minimum order/shipment is $250.00. Net.  All sales transactions totaling $2,500 or less will be processed on credit card only.
- Distributor/Contract Mfg. Orders: All distributors and contract manufacturers are required to report customer information at the time of order.  Orders will not be processed by Parker Precision Fluidics until such information is provided.
- Blanket Orders: Orders consisting of multiple releases must be completed within a twelve (12) month (A.R.1) period unless other terms and conditions are noted on the purchase order.

Warranty Items

- Warranty items costing less than $75 will no longer be repaired – credit will be issued upon receipt of RMA.
- Parker Precision Fluidics warrants its products against defective materials and workmanship under normal use for a period of one (1) year from date of shipment to the end customer.
- Warranty will remain in effect and no other warranty will be issued.
- Standard analysis which includes visual inspection, determination of cause, and failure analysis report end customer information at the time of order.  Orders will not be processed by Parker Precision Fluidics until such information is provided.
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  - Contact Name
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WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY, AND PROPERTY DAMAGE.

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The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.