**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 scm 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
- **Oxygen and Analytically Clean:** Standard

**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 scm 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)

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

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

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

### Dimensions

#### BASIC VALVE DIMENSIONS

- **.055 [1.40]**
- **.305 [7.75]**
- **.500 [12.7]**
- **.055 [1.40]**
- **1.785 [45.34]**
- **.305 [7.75]**
- **2X ø125 [3.18]**
- **2X ø123 [3.12] (I.D.)**

#### PNEUMATIC INTERFACE OPTIONS

- **-Q- NO BARBS (FACE SEAL TO MANIFOLD)**
- **-Q- NO BARBS (FACE SEAL TO MANIFOLD WITH SCREEN)**
- **.125 BARBS (1/8" O.D. TUBING (.317mm))**
- **.125 BARBS (1/4" O.D. MAX (.317mm))**

#### PORT AND MOUNTING HOLE DIAGRAMS

- **PORT 2**
- **PORT 1**

#### ELECTRICAL INTERFACE OPTIONS

- **WIRE LEADS NO TERMINALS**
- **PC MOUNT 4 PC PINS**

### Ordering Information

<table>
<thead>
<tr>
<th>Sample Part ID Description</th>
<th>VSO/NC</th>
<th>1</th>
<th>25</th>
<th>11</th>
<th>S</th>
<th>T1</th>
<th>Y</th>
<th>A</th>
<th>F</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Model Number</td>
<td>Series</td>
<td>Body Series</td>
<td>Elastomer</td>
<td>Coil Selection</td>
<td>Electrical Interface</td>
<td>Pneumatic Interface</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Options</td>
<td>4: Max. Operating Pressure/Orifice Size</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1: 150 psi/0.010”</td>
<td>2: 150 psi/0.020”</td>
<td>3: 150 psi/0.030”</td>
<td>4: 75 psi/0.060”</td>
<td>5: 100 psi/0.050”</td>
<td>6: 50 psi/0.065”</td>
<td>11: Series 11</td>
<td>25: Series 25</td>
<td>FKM/Brass</td>
<td>FKM/Stainless Steel</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