Cyclone Direct Acting Solenoid Valves

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• 2 & 3-Way, 2-Position.

• Cv = .02 to .73 depending on orifice structure and flow path.

• Inline or surface mounted.

• Used with inert liquids and gases. (Consult factory for compatibility.)

• 1/8 and 1/4 inch Ports.

• Standard class “F” coil (Class “H” optional) rated for continuous duty in a variety of voltages.

• Grommet or Conduit housings with 18 inch leads.

• Rotatable housings for ease of installation.

• NEMA 4 enclosures available.

• Copper shading ring standard.

• Self compensating seals increase valve life.

• Approved to be CE marked.

• CSA Standard.

• Stainless steel body (standard) Brass (optional).

• Proven extended life reliability.
## Multi-Purpose Valve Functions

The basic 3-Way multi-purpose valve can be field converted to perform as any one of the following:

1. **2-Way Normally Open** – Plug Port 1 / use Port 2 as the inlet.
   
   ![2-Way Normally Open Diagram](image)

2. **2-Way Normally Closed** – Plug Port 3 / use Port 2 as the inlet.
   
   ![2-Way Normally Closed Diagram](image)

3. **3-Way Normally Open** – Use Port 3 as the inlet / use Port 1 as the exhaust / use Port 2 as the working line.
   
   ![3-Way Normally Open Diagram](image)

4. **3-Way Normally Closed** – Use Port 1 as the inlet / use Port 3 as the exhaust / use Port 2 as the working line.
   
   ![3-Way Normally Closed Diagram](image)

5. **Directional Control Valve** – Use Port 2 as inlet / use Port 3 as the normally open working line / use Port 1 as the normally closed working line.
   
   ![Directional Control Valve Diagram](image)

6. **Selector Valve** – Use Ports 1 and 3 as the inlets / use Port 2 as the working line.
   
   ![Selector Valve Diagram](image)
Cyclone Series
2-Way, 2-Position

Direct Acting Solenoid Valves

Application
These valves provide on-off control of inert liquids and gases.

Mounting
These valves may be oriented in any position and can be mounted inline or surface mounted using the two #10-32 x 3/8" holes provided in the bottom of the valve body. The solenoid housing rotates for ease of electrical connections.

Operation
De-energized position – Pressure at inlet Port 2 is blocked, preventing flow to Port 1.
Energized position – Flow is permitted from inlet Port 2 through the valve body to Port 1.

Model Selection
(Listed for 120V/60Hz.)*

<table>
<thead>
<tr>
<th>Orifice / Cv</th>
<th>Conduit Housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8&quot; Ports</td>
<td>1/4&quot; Ports</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M.O.P.D. (PSIG)</th>
<th>Orifice / Cv</th>
<th>Conduit Housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>1/32&quot; .02</td>
<td>74000 0115 B</td>
</tr>
<tr>
<td>200</td>
<td>3/64&quot; .06</td>
<td>74001 0115 B</td>
</tr>
<tr>
<td>150</td>
<td>1/16&quot; .12</td>
<td>74002 0115 B</td>
</tr>
<tr>
<td>125</td>
<td>3/32&quot; .21</td>
<td>74004 0115 B</td>
</tr>
</tbody>
</table>

Note: For GROMMET HOUSING change the second digit in the model number from 4 to 5.
* See Valve Model Number System for other voltages.
† (Maximum Operating Pressure Differential)
### Application
These valves are used to provide pilot signals for larger valves, operate single acting cylinders, or are used in pairs to operate double acting cylinders.

### Mounting
These valves may be oriented in any position and can be mounted inline or surface mounted using the two #10-32 x 3/8” holes provided in the bottom of the valve body. The solenoid housing rotates for ease of electrical connections.

### Operation
**De-energized position** – Flow is permitted from inlet Port 3 at the top of the valve out Port 2 in the valve body. Exhaust Port 1 is blocked.

**Energized position** – Inlet Port 3 at the top of the valve is blocked. Port 2 is exhausted through the valve body to Port 1.

### Model Selection
**Cyclone Series**

<table>
<thead>
<tr>
<th>Model Selection</th>
<th>Orifice / Cv</th>
<th>Conduit Housing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct Acting Solenoid Valves</strong></td>
<td>Orifice / Cv</td>
<td>AC &amp; DC Body Cv Stop Cv 1/8&quot; Ports 1/4&quot; Ports</td>
</tr>
<tr>
<td>Normally Open</td>
<td>200</td>
<td>1/32&quot; .02 1/32&quot; .02 74200 0115 B 74210 0115 B</td>
</tr>
<tr>
<td></td>
<td>150</td>
<td>1/16&quot; .11 3/64&quot; .06 74201 0115 B 74211 0115 B</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>1/8&quot; .34 1/16&quot; .10 74205 0115 B 74215 0115 B</td>
</tr>
<tr>
<td></td>
<td>75</td>
<td>1/8&quot; .34 3/32&quot; .18 74206 0115 B 74216 0115 B</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>5/32&quot; .37 3/32&quot; .18 74207 0115 B 74217 0115 B</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>3/16&quot; .52 3/32&quot; .18 74208 0115 B 74218 0115 B</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>7/32&quot; .62 3/32&quot; .18 74209 0115 B 74219 0115 B</td>
</tr>
</tbody>
</table>

Note: For GROMMET HOUSING change the second digit in the model number from 4 to 5.

* See Valve Model Number System for other voltages.

Maximum Operating Pressure Differential

<table>
<thead>
<tr>
<th>Model Selection</th>
<th>Orifice / Cv</th>
<th>Conduit Housing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3-Way, 2-Position</strong></td>
<td>Orifice / Cv</td>
<td>AC &amp; DC Body Cv Stop Cv 1/8&quot; Ports 1/4&quot; Ports</td>
</tr>
<tr>
<td>Normally Closed Pipe Exhaust</td>
<td>200</td>
<td>1/32&quot; .02 1/32&quot; .02 74400 0115 B 74410 0115 B</td>
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<tr>
<td></td>
<td>175</td>
<td>3/64&quot; .06 1/16&quot; .12 74402 0115 B 74412 0115 B</td>
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<tr>
<td></td>
<td>125</td>
<td>1/16&quot; .10 1/16&quot; .12 74403 0115 B 74413 0115 B</td>
</tr>
<tr>
<td></td>
<td>90</td>
<td>3/32&quot; .20 3/32&quot; .21 74404 0115 B 74414 0115 B</td>
</tr>
<tr>
<td></td>
<td>65</td>
<td>1/8&quot; .32 3/32&quot; .21 74406 0115 B 74416 0115 B</td>
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<td></td>
<td>40</td>
<td>5/32&quot; .42 3/32&quot; .21 74407 0115 B 74417 0115 B</td>
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<tr>
<td></td>
<td>20</td>
<td>3/16&quot; .52 3/32&quot; .21 74408 0115 B 74418 0115 B</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>7/32&quot; .62 3/32&quot; .21 74409 0115 B 74419 0115 B</td>
</tr>
</tbody>
</table>

Note: For GROMMET HOUSING change the second digit in the model number from 4 to 5.

* See Valve Model Number System for other voltages.

Maximum Operating Pressure Differential
Application
These valves are used to select the directional flow of inert liquids and gases out either of two working ports.

Mounting
These valves may be oriented in any position and can be mounted inline or surface mounted using the two #10-32 x 3/8" holes provided in the bottom of the valve body. The solenoid housing rotates for ease of electrical connections.

Operation
De-energized position – Flow is permitted from inlet Port 2 in the valve body out Port 3 at the top of the valve. Port 1 in the valve body is blocked.

Energized position - Flow is permitted from inlet Port 2 through the valve body to Port 1. Port 3 at the top of the valve is blocked.

Model Selection

<table>
<thead>
<tr>
<th>M.O.P.D. (PSIG)</th>
<th>Orifice / Cv</th>
<th>Conduit Housing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AC &amp; DC</td>
<td>Body</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
<td>-------</td>
</tr>
<tr>
<td>300</td>
<td>1/32&quot; .02</td>
<td>.2</td>
</tr>
<tr>
<td>200</td>
<td>3/32&quot; .06</td>
<td>.3</td>
</tr>
<tr>
<td>150</td>
<td>1/16&quot; .11</td>
<td>.12</td>
</tr>
<tr>
<td>125</td>
<td>3/32&quot; .21</td>
<td>.2</td>
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<tr>
<td>100</td>
<td>1/8&quot; .34</td>
<td>.32</td>
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<tr>
<td>75</td>
<td>5/32&quot; .37</td>
<td>.32</td>
</tr>
<tr>
<td>50</td>
<td>3/16&quot; .52</td>
<td>.32</td>
</tr>
</tbody>
</table>

Note: For GROMMET HOUSING change the second digit in the model number from 4 to 5.
* See Valve Model Number System for other voltages.
† (Maximum Operating Pressure Differential)

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Application
These valves may be used in six different ways (see description on page 3). In the 2-Way configuration, valves provide on-off control of inert liquids and gases. In the 3-Way configuration, valves provide pilot signals to larger valves, operate single acting cylinders, or are used in pairs to operate double acting cylinders.

Mounting
These valves may be oriented in any position and can be mounted inline or surface mounted using the two #10-32 x 3/8" holes provided in the bottom of the valve body. The solenoid housing rotates for ease of electrical connections.

Operation

De-energized position – Port 2 in the valve body is connected to Port 3 at the top of the valve. Port 1 is blocked.

Energized position – Port 2 is connected through the valve body to Port 1. Port 3 at the top of the valve is blocked.

Model Selection

<table>
<thead>
<tr>
<th>M.O.P.D. (PSIG)</th>
<th>Orifice / Cv</th>
<th>Conduit Housing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AC &amp; DC</td>
<td>Body</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
<td>-------</td>
</tr>
<tr>
<td>250</td>
<td>1/32&quot; .02</td>
<td>.2</td>
</tr>
<tr>
<td>150</td>
<td>3/32&quot; .06</td>
<td>.3</td>
</tr>
<tr>
<td>100</td>
<td>1/16&quot; .10</td>
<td>.2</td>
</tr>
<tr>
<td>75</td>
<td>3/32&quot; .20</td>
<td>.3</td>
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<td>50</td>
<td>1/8&quot; .32</td>
<td>.32</td>
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<tr>
<td>30</td>
<td>5/32&quot; .42</td>
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<td>10</td>
<td>3/16&quot; .52</td>
<td>.32</td>
</tr>
<tr>
<td>10</td>
<td>7/32&quot; .73</td>
<td>.32</td>
</tr>
</tbody>
</table>

Note: For GROMMET HOUSING change the second digit in the model number from 4 to 5.
* See Valve Model Number System for other voltages.
† (Maximum Operating Pressure Differential)
Operating Pressure
Vacuum to the Maximum Operating Pressure Differential (M.O.P.D.) assigned to the orifice structure chosen from valve selection chart. M.O.P.D. is the maximum allowable difference between pressures recorded at any two working ports of the valve. If the M.O.P.D. is not known, regard the M.O.P.D. as the supply pressure.

Maximum Pressure: up to 500 PSIG

Temperature Range (Ambient)
Continuous Duty
Class “F” Coils -7°C to 52°C (20°F to 125°F)
Class “H” Coils, Fluorocarbon Seals -7°C to 82°C (20°F to 180°F)

Materials
Body: Stainless Steel Type 416F, Brass (optional)
Internal Components: Stainless Steel Type 302, 304 & 430F
Shading Ring: Copper
Seals: Buna N (standard); Fluorocarbon (optional)
Coil: Class “F” (standard), Class “H” (optional)
Epoxy Encapsulated

Service Kits
In addition to the kits configurable from the matrix below, the following kits are also provided.

<table>
<thead>
<tr>
<th>Kit Number</th>
<th>Description</th>
<th>Included Items</th>
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</thead>
<tbody>
<tr>
<td>PS3901P</td>
<td>1/8” Connector Kit</td>
<td>A &amp; K</td>
</tr>
<tr>
<td>PS3902P</td>
<td>1/4” Connector Kit</td>
<td>A &amp; K</td>
</tr>
<tr>
<td>740007100B</td>
<td>Assembly Wrench</td>
<td>Not Shown</td>
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</table>

General Purpose

Dimensions:

<table>
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<tr>
<th></th>
<th>inches</th>
<th>mm</th>
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<tbody>
<tr>
<td>A</td>
<td>1.55</td>
<td>39</td>
</tr>
<tr>
<td>B</td>
<td>3.12</td>
<td>79</td>
</tr>
<tr>
<td>C</td>
<td>3.67</td>
<td>93</td>
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<tr>
<td>D</td>
<td>.34</td>
<td>9</td>
</tr>
<tr>
<td>E</td>
<td>1.63</td>
<td>41</td>
</tr>
<tr>
<td>F</td>
<td>1.06</td>
<td>27</td>
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<tr>
<td>G</td>
<td>1.83</td>
<td>46</td>
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<td>H</td>
<td>1.95</td>
<td>50</td>
</tr>
<tr>
<td>J</td>
<td>.88</td>
<td>22</td>
</tr>
<tr>
<td>K</td>
<td>.44</td>
<td>11</td>
</tr>
<tr>
<td>L</td>
<td>2.76</td>
<td>70</td>
</tr>
<tr>
<td>M</td>
<td>.88</td>
<td>22</td>
</tr>
<tr>
<td>N</td>
<td>.44</td>
<td>11</td>
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</table>
## Service Index Kit (Standard)

<table>
<thead>
<tr>
<th>Basic Series</th>
<th>Kit Type</th>
<th>Solenoid Type</th>
<th>Valve Type</th>
<th>Orifice Diameter</th>
<th>Seals</th>
<th>Coil Class</th>
<th>Voltage</th>
<th>Parker</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS39</td>
<td>1</td>
<td>4</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>1</td>
<td>5</td>
<td>P</td>
</tr>
</tbody>
</table>

**Basic Series**
- PS39 Direct Solenoid Valve

**Kit Type (See Below)**
1. Solenoid Only*
2. Plunger / Stop Assy Only**
3. 1 + 2 (Solenoid with Plunger & Stop Assy)

* Includes Items B, C, D & K.
** Includes Items F, G, H, J & K.

**Engineering Level “B” valves can use Kit Types: 1, 2, or 3. All other valves ONLY use Kit Type 3.**

**Example:**
For Valve Model Number 745030115:
The Only Kit Is PS393453115P

**Example:**
For Valve Model Number 745030115B:
The Solenoid Assy. No. Is PS3914XXX15P
The Plunger Stop Assy. No. Is PS392X531XXP

**Valve Type**
- 0 2-Way Normally Open
- 1 2-Way Normally Closed
- 2 3-Way Normally Open
- 3 3-Way Normally Closed, Free Vent
- 4 3-Way Normally Closed, Piped Exhaust
- 5 3-Way Multi-Purpose
- 6 3-Way Directional Control
- X Solenoid Only

**Select X when Kit Type is 1 or 3. Select 0 thru 6 when Kit Type is 2 or 3.**

**Solenoid Type**
- 4 Conduit
- 5 Grommet
- X Plunger & Stop Assy Only

**Select only 4 or 5 when Kit Type is 1 or 3. Select X for Kit Type 2.**

**Orifice Diameter**
- Body Stop
- 0 1/32" 1/32"
- 1 3/64" 3/64"
- 1* 1/16" 3/64"
- 2 3/64" 1/16"
- 3 1/16" 1/16"
- 4 3/32" 3/32"
- 5 1/8" 1/16"
- 6 1/8" 3/32"
- 7 5/32" 3/32"
- 8 3/16" 3/32"
- 9 7/32" 3/32"
- X Solenoid Only

**Select X when Kit Type is 1 or 3. Select 0 thru 9 when Kit Type is 2 or 3.**

**Seals**
- 1 Buna N
- 2 Viton
- X Solenoid Only

**Select X when Kit Type is 1. Select 1 or 2 when Kit Type is 2 or 3.**

**Coil Class**
- Class Hertz
- 1 F 60
- 2 F DC
- 9 H 60
- 0 H DC
- X Plunger & Stop Assy Only

**Select X when Kit Type is 2. Select the other Options when Kit Type is 1 or 3.**

**Voltage**
- 2* 12
- 3 24
- 5** 120 (110)
- 6** 240 (220)
- X Plunger & Stop Assy Only

* Not available with Coil Class 1 or 9.
** Not available with Coil Class 2 or 0. Select X when Kit Type is 2. Select the other Options when Kit Type is 1 or 3.
Safety Guide For Selecting And Using Pneumatic Division Products And Related Accessories

![WARNING:]

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF PNEUMATIC DIVISION PRODUCTS, ASSEMBLIES OR RELATED ITEMS (“PRODUCTS”) CAN CAUSE DEATH, PERSONAL INJURY, AND PROPERTY DAMAGE. POSSIBLE CONSEQUENCES OF FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THESE PRODUCTS INCLUDE BUT ARE NOT LIMITED TO:

- Unintended or mistimed cycling or motion of machine members or failure to cycle
- Work pieces or component parts being thrown off at high speeds.
- Failure of a device to function properly for example, failure to clamp or unclamp an associated item or device.
- Explosion
- Suddenly moving or falling objects.
- Release of toxic or otherwise injurious liquids or gasses.

Before selecting or using any of these Products, it is important that you read and follow the instructions below.

1. GENERAL INSTRUCTIONS

1.1. Scope: This safety guide is designed to cover general guidelines on the installation, use, and maintenance of Pneumatic Division Valves, FRLs (Filters, Pressure Regulators, and Lubricators), Vacuum products and related accessory components.

1.2. Fail-Safe: Valves, FRLs, Vacuum products and their related components can and do fail without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of associated valves, FRLs or Vacuum products will not endanger persons or property.

1.3 Relevant International Standards: For a good guide to the application of a broad spectrum of pneumatic fluid power devices see:

1.4. Distribution: Provide a copy of this safety guide to each person that is responsible for selection, installation, or use of Valves, FRLs or Vacuum products. Do not select, or use Parker valves, FRLs or vacuum products without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the products considered or selected.

1.5. User Responsibility: Due to the wide variety of operating conditions and applications for valves, FRLs, and vacuum products Parker and its distributors do not represent or warrant that any particular valve, FRL or vacuum product is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:
   - Making the final selection of the appropriate valve, FRL, Vacuum component, or accessory.
   - Assuring that all user’s performance, endurance, maintenance, safety, and warning requirements are met and that the application presents no health or safety hazards.
   - Complying with all existing warning labels and/or providing all appropriate health and safety warnings on the equipment on which the valves, FRLs or Vacuum products are used; and,
   - Assuring compliance with all applicable government and industry standards.

1.6. Safety Devices: Safety devices should not be removed, or defeated.

1.7. Warning Labels: Warning labels should not be removed, painted over or otherwise obscured.

1.8. Additional Questions: Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the product being considered or used, or call 1-800-CPARKER, or go to www.parker.com, for telephone numbers of the appropriate technical service department.

2. PRODUCT SELECTION INSTRUCTIONS

2.1. Flow Rate: The flow rate requirements of a system are frequently the primary consideration when designing any pneumatic system. System components need to be able to provide adequate flow and pressure for the desired application.

2.2. Pressure Rating: Never exceed the rated pressure of a product. Consult product labeling, Pneumatic Division catalogs or the instruction sheets supplied for maximum pressure ratings.

2.3. Temperature Rating: Never exceed the temperature rating of a product. Excessive heat can shorten the life expectancy of a product and result in complete product failure.

2.4. Environment: Many environmental conditions can affect the integrity and suitability of a product for a given application. Pneumatic Division products are designed for use in general purpose industrial applications. If these products are to be used in unusual circumstances such as direct sunlight and/or corrosive or caustic environments, such use can shorten the useful life and lead to premature failure of a product.

2.5. Lubrication and Compressor Carryover: Some modern synthetic oils can and will attack nitrile seals. If there is any possibility of synthetic oils or greases migrating into the pneumatic components check for compatibility with the seal materials used. Consult the factory or product literature for materials of construction.

2.6. Polycarbonate Bowls and Sight Glasses: To avoid potential polycarbonate bowl failures:
   - Do not locate polycarbonate bowls or sight glasses in areas where they could be subject to direct sunlight, impact blow, or temperatures outside of the rated range.
   - Do not expose or clean polycarbonate bowls with detergents, chlorinated hydro-carbons, keytones, esters or certain alcohols.
   - Do not use polycarbonate bowls or sight glasses in air systems where compressors are lubricated with fire resistant fluids such as phosphate ester and di-ester lubricants.
2.7. Chemical Compatibility: For more information on plastic component chemical compatibility see Pneumatic Division technical bulletins Tec-3, Tec-4, and Tec-5

2.8. Product Rupture: Product rupture can cause death, serious personal injury, and property damage. Do not exceed the maximum primary pressure rating of any pressure regulator or any system component. Consult product labeling or product literature for pressure rating limitations.

3. PRODUCT ASSEMBLY AND INSTALLATION INSTRUCTIONS

3.1. Component Inspection: Prior to assembly or installation a careful examination of the valves, FRLs or vacuum components must be performed. All components must be checked for correct style, size, and catalog number. DO NOT use any component that displays any signs of nonconformance.

3.2. Installation Instructions: Parker published Installation Instructions must be followed for installation of Parker valves, FRLs and vacuum components. These instructions are provided with every Parker valve or FRL sold, or by calling 1-800-CPARKER, or at www.parker.com.

3.3. Air Supply: The air supply or control medium supplied to Valves, FRLs and Vacuum components must be moisture-free if ambient temperature can drop below freezing.

4. VALVE AND FRL MAINTENANCE AND REPLACEMENT INSTRUCTIONS

4.1. Maintenance: Even with proper selection and installation, valve, FRL and vacuum products service life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a component failure, and experience with any known failures in the application or in similar applications should determine the frequency of inspections and the servicing or replacement of Pneumatic Division products so that products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 4.2 through 4.10.

4.2. Installation and Service Instructions: Before attempting to service or replace any worn or damaged parts consult the appropriate Service Bulletin for the valve or FRL in question for the appropriate practices to service the unit in question. These Service and Installation Instructions are provided with every Parker valve or FRL sold, or are available by calling 1-800-CPARKER, or by accessing the Parker web site at www.parker.com.


4.4. Visual Inspection: Any of the following conditions requires immediate system shut down and replacement of worn or damaged components:
- Air leakage: Look and listen to see if there are any signs of visual damage to any of the components in the system. Leakage is an indication of worn or damaged components.
- Damaged or degraded components: Look to see if there are any visible signs of wear or component degradation.
- Kinked, crushed, or damaged hoses. Kinked hoses can result in restricted air flow and lead to unpredictable system behavior.
- Any observed improper system or component function: Immediately shut down the system and correct malfunction.
- Excessive dirt build-up: Dirt and clutter can mask potentially hazardous situations.

Caution: Leak detection solutions should be rinsed off after use.

4.5. Routine Maintenance Issues:
- Remove excessive dirt, grime and clutter from work areas.
- Make sure all required guards and shields are in place.

4.6. Functional Test: Before initiating automatic operation, operate the system manually to make sure all required functions operate properly and safely.

4.7. Service or Replacement Intervals: It is the user’s responsibility to establish appropriate service intervals. Valves, FRLs and vacuum products contain components that age, harden, wear, and otherwise deteriorate over time. Environmental conditions can significantly accelerate this process. Valves, FRLs and vacuum components need to be serviced or replaced on routine intervals. Service intervals need to be established based on:
- Previous performance experiences.
- Government and / or industrial standards.
- When failures could result in unacceptable down time, equipment damage or personal injury risk.

4.8. Servicing or Replacing of any Worn or Damaged Parts: To avoid unpredictable system behavior that can cause death, personal injury and property damage:
- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all lines connected to system and Pneumatic Division products before installation, service, or conversion.
- Installation, servicing, and / or conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversions air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or if the product does not operate properly, do not put product or system into use.
- Warnings and specifications on the product should not be covered or painted over. If masking is not possible, contact your local representative for replacement labels.

4.9. Putting Serviced System Back into Operation: Follow the guidelines above and all relevant Installation and Maintenance Instructions supplied with the valve FRL or vacuum component to insure proper function of the system.
1. Definitions. As used herein, the following terms have the meanings indicated.

Buyer: means any customer receiving a Quote for Products from Seller.

Goods: means any tangible part, system, or component to be supplied by Seller.

Products: means the Goods, Services and/or Software as described in a Quote provided by the Seller.

Price: means the offer or proposal made by Seller to Buyer for the supply of Products.

Seller: means Parker-Hannifin Corporation, including all divisions and businesses thereof.

Services: means any services to be supplied by the Seller.

Software: means any software related to the Products, whether embedded or separately identifiable.

Terms: means the terms and conditions of this Offer of Sale or any newer version of the same as published by Seller electrostatically at www.parker.com/saleterms.

2. Terms. All sales of Products by Seller are contingent upon, and will be governed by, these Terms and, these Terms are incorporated into any Quote provided by Seller to any Buyer. Buyer’s order for any Products communicated to Seller verbally, in writing, by electronic data interface or other electronic means, will be subject to Buyer's written confirmation of these Terms. No modification to these Terms will be binding on Seller unless in writing and signed by an authorized representative of Seller.

3. Price; Payment. The Products set forth in Seller’s Quote are offered for sale at the prices indicated in Seller’s Quote. Unless otherwise specifically stated in Seller’s Quote, prices are valid for thirty (30) days and do not include any sales, use, or other taxes or duties. Seller reserves the right to modify prices at any time to adjust for any raw material price fluctuations. Unless otherwise specified by Seller, all prices are F.C.A. Seller’s facility (INCOTERMS 2010). All sales are contingent upon Seller delivering and Buyer accepting, payment for all Products. Buyer shall pay the full amount due, without regard to the date of discovery.

4. Warranty. The warranty related to the Products is as follows: (i) Goods are warranted against defect in material or workmanship for a period of twelve (12) months from the date of delivery or 2,000 hours of use, whichever occurs first; (ii) Services shall be performed in accordance with generally accepted practices and using the degree of care and skill that is ordinarily exercised and used for the purpose and nature of such Services, to the extent not otherwise specified in the completion of the Services by Seller; and (iii) Software is only warranted to perform in accordance with applicable specifications provided by Seller to Buyer for ninety (90) days from the date of delivery. Buyer acknowledges that a Quote does not constitute a Sale and Buyer may cancel or modify the Quote, in its discretion, prior to acceptance of the Quote by Buyer’s acknowledgment that Buyer accepts the Terms. All Products are priced upon the exclusive limited warranty stated above, and upon the following disclaimer:

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5. Claim; Commencement of Actions. Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to the Seller within ten (10) days of delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the non-conformance is or should have been discovered by Buyer. Any claim for damages must be commenced within twelve (12) months from the date of the alleged breach or other alleged event, or any other person, arising out of: (a) improper selection, application, design, specification or other misuse of Products provided by Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller’s use of any purchased equipment, packaging or other materials that are not designed or manufactured by Seller; or (d) damages to the Products from an external cause, repair or attempted repair by anyone other than Seller; failure to follow instructions, guides and specifications provided by Seller; or damage to the Products not provided by Seller or to products sold hereunder, and Buyer’s product or parts thereof being damaged by Seller or its agents or employees, or the purchase, sale or transfer of any Product for which any action has been commenced after the expiration of the applicable statute of limitations.

6. Loss to Buyer’s Property. Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items or materials provided in connection with the Products, shall remain the property of Buyer and shall not be used or disposed of without Buyer’s written consent.

11. User Responsibility. The Buyer through its own analysis and testing, is solely responsible for making the final selection of the Products and assuring that all performance, endurance, maintenance, safety and warning requirements of the application of the Products are met. The Buyer must analyze all aspects of the application and follow applicable industry standards, specifications, and codes. Parker-Hannifin Corporation does not represent or warrant the suitability of the Product in the end use even if all options based upon data or specifications provided by the Buyer, the Buyer is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products. In the event the Buyer is not the end-user, Buyer will ensure such end-user complies with this paragraph.

12. Use of Products, Indemnity by Buyer. Buyer shall comply with all instructions, guides and specifications for the Use of Products set forth in a Quote. Buyer may only resell the Products for any uses prohibited in Seller’s instructions, guides or specifications. Buyer otherwise fails to comply with Seller’s instructions, guides and specifications. Buyer acknowledges that any such failure, negligence, carelessness or misrepresentation of Buyer or other failure on the part of Buyer, or any other person, arising out of: (a) improper selection, application, design, specification or other misuse of Products provided by Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller’s use of any purchased equipment, packaging or other materials that are not designed or manufactured by Seller; or (d) damage to the Products from an external cause, repair or attempted repair by anyone other than Seller; failure to follow instructions, guides and specifications provided by Seller; or damage to the Products not provided by Seller or to products sold hereunder, and Buyer’s product or parts thereof being damaged by Seller or its agents or employees, or the purchase, sale or transfer of any Product for which any action has been commenced after the expiration of the applicable statute of limitations.
