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www.parker.com/accessories

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Tank Valves
For tanks, steel barrels, compressors and other pneumatic containers where a dependable automatic air valve is needed. Equipped with standard valve core and sealing cap. Maximum operating pressure is 185 PSIG. Temperature range is -40°F to 220°F.

Model No. 09166 0060
Has a 1/8" pipe thread at bottom for minimum protrusion. N/P finish, dome shaped cap. Packed 25 to a box.

Model No. 00645 0060
A 1/8" pipe thread at bottom permits maximum protrusion. N/P finish, screwdriver type cap. Packed 25 to a box.

Model No. 01468 0006
Has a 1/8" pipe thread part way up the stem which allows for minimum protrusion. N/P finish, has screwdriver type cap. Packed 25 to a box.

Air Chucks
For regular airlines.

Model No. 05499 0000
Ball-foot air chuck, 1/4" female port. Packed 25 to a box.

Model No. 06739 0000
Ball-foot air chuck with clip. Fits standard valve mouth. Saves holding on by hand. Has 1/4" port for connecting to hose. Packed 10 to a box.
EM Series – Sintered Bronze Muffler / Filters

General Description
Muffler / filters effectively reduce air exhaust noises to an industry accepted level with minimum flow restriction. They protect valves, impact wrenches, screw drivers and other air tools by preventing dirt and other foreign matter from entering the system. Non-corrosive. Can be cleaned with many common solvents.

Specifications
Maximum Operating Pressure ..................... 250 PSIG (Air)
Operating Temperature ............................. 0° to 300°F*
* Ambient temperatures below freezing require moisture-free air. Ambient temperatures below freezing and above 180° require lubricants especially selected for suitability at these temperatures. Pneumatic valves should be used with filtered and lubricated air.

<table>
<thead>
<tr>
<th>Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMM5</td>
</tr>
<tr>
<td>EM12</td>
</tr>
<tr>
<td>EM25</td>
</tr>
<tr>
<td>EM37</td>
</tr>
<tr>
<td>EM50</td>
</tr>
<tr>
<td>EM75</td>
</tr>
<tr>
<td>EM100</td>
</tr>
<tr>
<td>EM125</td>
</tr>
<tr>
<td>EM150</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>04502 0002</td>
</tr>
<tr>
<td>04504 0004</td>
</tr>
<tr>
<td>04506 0060</td>
</tr>
<tr>
<td>04508 0080</td>
</tr>
<tr>
<td>04512 0012</td>
</tr>
<tr>
<td>04516 0016</td>
</tr>
</tbody>
</table>

Muffler / Flow Controls

General Description
Muffler / flow controls provide an acceptable exhaust noise level and effectively meter exhaust. Installed in valve exhaust ports, they control cylinder piston speeds throughout a wide range. The adjusting screw cannot be accidentally blown out, can be locked to maintain setting. Brass and bronze construction. Clean with commonly used solvents.

Specifications
Maximum Operating Pressure ..................... 250 PSIG (Air)
Operating Temperature ............................. 0° to 300°F*
* Ambient temperatures below freezing require moisture-free air. Ambient temperatures below freezing and above 180° require lubricants especially selected for suitability at these temperatures. Pneumatic valves should be used with filtered and lubricated air.
Breather Vents

**General Description**

These low silhouette versions of the muffler / filter are useful where space is a problem and / or to prevent contamination. Use for vacuum relief or pressure equalization in gear boxes, oil tanks, reservoirs, etc. Non-corrosive.

**Specifications**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Pipe Thread</th>
<th>Overall Length</th>
<th>Hex Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>04702 0002</td>
<td>1/8&quot;</td>
<td>0.44</td>
<td>7/16&quot;</td>
</tr>
<tr>
<td>04704 0004</td>
<td>1/4&quot;</td>
<td>0.63</td>
<td>9/16&quot;</td>
</tr>
<tr>
<td>04706 0006</td>
<td>3/8&quot;</td>
<td>0.75</td>
<td>11/16&quot;</td>
</tr>
<tr>
<td>04708 0008</td>
<td>1/2&quot;</td>
<td>0.88</td>
<td>7/8&quot;</td>
</tr>
<tr>
<td>04712 0012</td>
<td>3/4&quot;</td>
<td>1.00</td>
<td>1-1/6&quot;</td>
</tr>
<tr>
<td>04716 0016</td>
<td>1&quot;</td>
<td>1.31</td>
<td>1-5/16&quot;</td>
</tr>
<tr>
<td>04720 0020</td>
<td>1-1/4&quot;</td>
<td>1.41</td>
<td>1-11/16&quot;</td>
</tr>
<tr>
<td>04724 0024</td>
<td>1-1/2&quot;</td>
<td>1.50</td>
<td>2&quot;</td>
</tr>
</tbody>
</table>

ES Series – Silencer

**General Description**

The silencer is designed to give superior performance in noise control with a minimum effect on air efficiency. "Trimline" design allows location in the tightest places without extra plumbing and fitting. Fits directly into the exhaust port of more than 90% of present commercial valves. Slotted body permits rapid discharge of air without undesirable back pressure. Unique nylon screen element resists dirt buildup or clogging.

**Specifications**

<table>
<thead>
<tr>
<th>Model Numbers</th>
<th>Pipe Thread</th>
<th>Flow SCFM @ 100 PSIG Inlet</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NPTF BSPT (R)</td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>ES12MC</td>
<td>ESB12MC</td>
<td>1/8&quot;</td>
<td>115</td>
</tr>
<tr>
<td>ES25MC</td>
<td>ESB25MC</td>
<td>1/4&quot;</td>
<td>129</td>
</tr>
<tr>
<td>ES37MC</td>
<td>ESB37MC</td>
<td>3/8&quot;</td>
<td>219</td>
</tr>
<tr>
<td>ES50MC</td>
<td>ESB50MC</td>
<td>1/2&quot;</td>
<td>549</td>
</tr>
<tr>
<td>ES75MC</td>
<td>ESB75MC</td>
<td>3/4&quot;</td>
<td>893</td>
</tr>
<tr>
<td>ES100MC</td>
<td>ESB100MC</td>
<td>1&quot;</td>
<td>1,013</td>
</tr>
<tr>
<td>ES125MC</td>
<td>ESB125MC</td>
<td>1-1/4&quot;</td>
<td>1,486</td>
</tr>
<tr>
<td>ES150MC</td>
<td>ESB150MC</td>
<td>1-1/2&quot;</td>
<td>1,580</td>
</tr>
</tbody>
</table>
Air Line Silencer – Plastic

**Features**
- Compact
- Lightweight
- Easy to Install
- Excellent Noise Reduction
- Protects Components from Contamination
- NPT and BSPT Threads Available

### Specifications

- **Pressure Rating**: 0 to 150 PSIG (0 to 10 bar, 0 to 1034 kPa)
- **Temperature Rating**: 14°F to 140°F (-10°C to 60°C)
- **Body**: Acetal (Plastic)
- **Element**: Polyethylene

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Thread Size</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>Maximum Flow (SCFM)</th>
<th>Sound Pressure Level (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS-5</td>
<td>M5</td>
<td>0.43 (11)</td>
<td>0.32 (8)</td>
<td>15</td>
<td>69</td>
</tr>
<tr>
<td>ASN-6</td>
<td>1/8&quot;</td>
<td>1.57 (40)</td>
<td>0.63 (16)</td>
<td>51</td>
<td>69</td>
</tr>
<tr>
<td>ASN-8</td>
<td>1/4&quot;</td>
<td>2.56 (65)</td>
<td>0.83 (21)</td>
<td>124</td>
<td>67</td>
</tr>
<tr>
<td>ASN-10</td>
<td>3/8&quot;</td>
<td>3.35 (85)</td>
<td>0.98 (25)</td>
<td>247</td>
<td>83</td>
</tr>
<tr>
<td>ASN-15</td>
<td>1/2&quot;</td>
<td>3.74 (95)</td>
<td>1.18 (30)</td>
<td>370</td>
<td>69</td>
</tr>
</tbody>
</table>

**Application**
The plastic silencer is designed to give excellent noise reduction with a minimum effect on air efficiency. The "Trimline" design allows for locating the silencer in the tightest places without extra plumbing or fitting. Fits directly into the exhaust port of most commercial valves. Open surface area of element allows for rapid discharge of air without undesirable back pressure.
Features

- All Plastic Ultra Light Weight Versions
- High Noise Level Reduction
- Low Back Pressure Generation

Application

The plastic silencer is designed to give excellent noise reduction with a minimum effect on air efficiency. The “Trimline” design allows for locating the silencer in the tightest places without extra plumbing or fitting. Fits directly into the exhaust port of most commercial valves. Open surface area of element allows for rapid discharge of air without undesirable back pressure.

Specifications

Pressure Rating ................................................. 0 to 246 PSIG
(0 to 17 bar, 0 to 1700 kPa)

Temperature Rating

Plastic .................................................. 14°F to 176 °F (-10°C to 80°C)
Metal ................................................... 14°F to 165 °F (-10°C to 74°C)

Efficiency ................................................................. 92%

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Port Thread</th>
<th>A</th>
<th>Diameter B</th>
<th>C</th>
<th>Weight (grams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P6M-PAC5</td>
<td>M5</td>
<td>0.91 (23)</td>
<td>0.26 (6.5)</td>
<td>0.16 (4)</td>
<td>0.01</td>
</tr>
<tr>
<td>P6M-PAB1</td>
<td>G1/8</td>
<td>1.14 (29)</td>
<td>0.55 (14)</td>
<td>0.24 (6)</td>
<td>0.02</td>
</tr>
<tr>
<td>P6M-PAB2</td>
<td>G1/4</td>
<td>1.34 (34)</td>
<td>0.67 (17)</td>
<td>0.24 (6)</td>
<td>0.04</td>
</tr>
<tr>
<td>P6M-PAB3</td>
<td>G3/8</td>
<td>2.36 (60)</td>
<td>0.98 (25)</td>
<td>0.35 (9)</td>
<td>0.06</td>
</tr>
<tr>
<td>P6M-PAB4</td>
<td>G1/2</td>
<td>2.52 (64)</td>
<td>0.98 (25)</td>
<td>0.43 (11)</td>
<td>0.10</td>
</tr>
<tr>
<td>P6M-PAB6</td>
<td>G3/4</td>
<td>5.51 (140)</td>
<td>1.50 (38)</td>
<td>0.55 (14)</td>
<td>0.50</td>
</tr>
<tr>
<td>P6M-PAB8</td>
<td>G1</td>
<td>6.30 (160)</td>
<td>1.89 (48)</td>
<td>0.79 (20)</td>
<td>0.62</td>
</tr>
</tbody>
</table>
Accessories
ECS Series – 1/2" & 1"

Features
The ECS (Muffler-Reclassifier) eliminates unwanted oil mist and reduces exhaust noise from pneumatic valves, cylinders and air motors.

- 99.97% Oil Removal Efficiency
- 25 dBA Noise Attenuation
- 1/2" NPT and 1" NPT
- Disposable Units
- Continuous or Plugged Drain Option
- Metal Retained Construction
- Fast Exhaust Time

Improve Overall Plant Environment
Exhaust oil mist and noise pollution have a direct impact on worker productivity.

Oil aerosol mist from lubricators and compressors is pervasive and enters the industrial plant environment through the exhaust ports of valves, cylinders and air motors. This rapidly expanding exhaust also produces sudden and excessive noise.

The ECS (Muffler-Reclassifier) is 99.97% efficient at removing the oil aerosols. The ECS also acts as a silencer to lower the dBA levels below O.S.H.A. requirements.

The result is a cleaner, quieter environment which equates to greater work productivity and safety.

Operation
Compressor oils and lubricating oils are exhausted from valves, cylinders and air motors into the ECS. Oil aerosols are "coalesced" into larger droplets and gravity pulls them into the attached drain sump. The sump can then be drained manually or by using a 1/4" ID plastic tube drain. The air flowing into the ECS is also muffled or silenced as it enters the inside of the ECS and passes through the filter media into the atmosphere.

Proven Technology
The ECS units are constructed from the same materials that go into our oil removal coalescing filter element. The seamless design insures media uniformity and strength. This proven technology provides high coalescing efficiency with low pressure drop.

The filter media is supported by cylindrical perforated steel retainers both inside and out. These retainers, fully plated for excellent corrosion resistance, give the ECS units high rupture strength in either flow direction. These filters can also be used as high efficiency inlet or bypass filters or vacuum pumps, or breather elements to protect the air above critical process liquids.

ECS3 / ECS5
The ECS solves two problems inherent in compressed air exhaust from valves, cylinders and air motors - oil mist removal and noise abatement.

The ECS will improve your industrial plant environment, thereby improving worker productivity.

Specifications
Maximum Operating Temperature ............... 125°F (52°C)
Maximum Line Pressure ......................... 100 PSIG (6.8 bar)

Ordering Information
ECS 3 *

Size
3 1/2 inch
5 1 inch

Engineering Level
* Will be entered at factory.
Automatic Drip Leg Drain

Features
- Auto Drain Ported 1/8" to Pipe Away Liquid.
- Drain has Manual Override
- Easily Serviced without Tool
- 20-250 PSIG Range
- Compact Size

Specifications
| Housing & Cap | Aluminum |
| Port Threads | 1/4" - 1/2" Top |
|              | 1/8" Drain |

Pressure and Temperature Ratings:
- Metal Bowl: 20 to 250 PSIG (0 to 17.2 bar) 32°F to 175°F (0°C to 80°C)
- Seals: Buna N

Ordering Information
Consists of Drip Leg Drain Housing WITH Auto Drain.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>06D1NA</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>06D3NA</td>
<td>1/2&quot;</td>
</tr>
</tbody>
</table>

Relief Valve

Features
- Large Relief Capacity (70.39 SCFM @ 150 PSI when fully opened) in a Compact Size
- Lightweight Aluminum Construction with Resilient Seat

Application
The RV01A1N Pop Off Relief Valve is designed to protect against excessive pressure buildup in a pneumatic circuit or system.

Operation*
With the relief valve mounted in a reservoir or system, the force of system pressure at (A) is offset by the force of spring (C) acting on poppet seat (B). At pressures lower than the setting, the poppet seat (B) is held against the body at (A) effecting a seal. As pressure approaches set point, the poppet begins to vent until set point is reached, at which time the poppet seat (B) lifts off the body at (A) allowing the excess pressure to vent to atmosphere at (F). When the excess pressure has been vented, the spring (C) acts on the poppet seat (B) forcing it to seat on the body at (A), sealing off the flow of air.

Specification
| Body & Adjusting Screw | Aluminum |
| Locking Nut | Steel |
| Seat | Nitrile |
| Spring | Steel |
| Poppet | Plastic |
| Operating Temperature† | 0°F to 200°F (-17°C to 93°C) |
| Port Threads | 1/4 Inch Male |
| Relief Range | 10 to 200 PSIG (.7 to 14 bar) |

Ordering Information

<table>
<thead>
<tr>
<th>RV01A1N</th>
<th>XXX</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 - 200 PSI</td>
<td>Blank BUNA Flurocarbon</td>
</tr>
</tbody>
</table>

† Only if using dry air for temperatures below 32°F (0°C)
130 Relief Valve

Features
- Compact, Sensitive Diaphragm-type Relief Valve
- Push-pull, Locking Knob
- Knob and Top Work the Same as a Miniature Regulator
- 130 has Lightweight Aluminum Construction
- 134 has a brass body, captured exhaust and is an Inline Type with 3 Inlet Ports and 1 Outlet Port

Applications
- Designed to Protect Against Excessive Pressure Buildup in a Pneumatic Circuit or System
- For Use where Gradual Proportional Relief is Required

Operation
- Turn relief valve knob clockwise for maximum pressure.
- Set pressure going into relief valve at desired pressure.
- Turn relief valve knob counter-clockwise until exhaust starts to bleed.
- Turn relief valve knob clockwise until exhaust stops bleeding. Push to lock knob.

Ordering Information

<table>
<thead>
<tr>
<th>Relief Valve</th>
<th>Spring Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-15 PSIG</td>
</tr>
<tr>
<td>130</td>
<td>130-02AA</td>
</tr>
<tr>
<td></td>
<td>130-02AP*</td>
</tr>
<tr>
<td>134</td>
<td>134-02AA</td>
</tr>
<tr>
<td></td>
<td>134-02AP*</td>
</tr>
</tbody>
</table>

* Panel mount nut included.

Relief Valve Kits
- Bonnet Assembly Kit: PCKR364Y
- Panel Mount Nut: PR05X51

Specifications
- Relief Range: 0 to 100 PSIG (0 to 6.9 bar)
- Maximum Inlet Pressure: 300 PSIG (20.7 bar)
- Operating Temperature: 40°F to 120°F (4°C to 49°C)

Port Threads:
- 130: Inlet Port – Two 1/8" & One 1/4" Pipe
- 134: Inlet Port – Two 1/8" & One 1/4" Pipe
- Outlet Port – 1/4" Pipe

Materials of Construction
- Adjusting Knob: Polypropylene
- Adjusting Screw: Zinc-plated Steel
- Body: Aluminum (130); Brass (134)
- Diaphragm / Disc: Buna-N
- Nut: Chromated Steel
- Spring Cage: Acetal
- Spring: Zinc-plated Steel

Dimensions

Accessories
130 & 134 Series

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics
Quick Exhaust & Shuttle Valves

**General Information**

Quick exhaust valves provide rapid exhaust of control air when placed between control valve and actuator. They can also be used as shuttle valves. Diaphragm materials are available in urethane, Nitrile, Fluorocarbon, and PTFE to meet a wide variety of operating conditions.

**Valve Specifications**

**Operating Pressure (Air)**
- **Maximum:**
  - 150 PSIG
  - 200 PSIG for Model No. 0R37TB (PTFE diaphragm)
- **Minimum:**
  - 3 PSIG
  - 50 PSIG for Model No. 0R37TB (PTFE diaphragm)

**Operating Temperature:**
- Urethane: 0°F to 180°F* (-18°C to 80°C)
- Nitrile: 0°F to 180°F* (-18°C to 80°C)
- Fluorocarbon: 0°F to 400°F* (-18°C to 205°C)
- PTFE: 0°F to 500°F* (-18°C to 260°C)

* Ambient temperatures below freezing require moisture-free air. Ambient temperatures below freezing and above 180°F require lubricants especially selected for suitability at these temperatures. Pneumatic valves should be used with filtered and lubricated air.

**Component Materials**

- **Body Material:** Die cast aluminum
- **Static Seals:** Nitrile standard with urethane (Others see below)
- **Diaphragm:** Standard – Urethane
  - Optional – Fluorocarbon, PTFE, or Nitrile (Depending on size)

**Mounting Bracket Kit – No. 03640 8100**

(Including body screws)

For “0R12” and “0R25” sizes with 7/8” “A” Dimension.

**Model Selection, Performance Data and Dimensions**

<table>
<thead>
<tr>
<th>Port Flow (SCFM†)</th>
<th>Model Number A B C Service Kit No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STANDARD URETHANE DIAPHRAGMS (Nitrile static seals)</strong></td>
<td></td>
</tr>
<tr>
<td>1/4” 1/4” 3/8”</td>
<td>150 0R25NB 0RB25NB 1” Hex 2.06 2.44 03340 0105</td>
</tr>
<tr>
<td>3/8” 3/8” 3/8”</td>
<td>240 0R25PB 0RB25PB 1” Hex 2.06 2.44 03340 0105</td>
</tr>
<tr>
<td>3/4” 3/4” 3/4”</td>
<td>550 0R75B 0RB75B 1-1/2” Hex 2.88 3.38 03475 0109</td>
</tr>
<tr>
<td><strong>NITRILE DIAPHRAGMS (Nitrile static seals)</strong></td>
<td></td>
</tr>
<tr>
<td>1/8” 1/8” 1/8”</td>
<td>70 0R12B 0RB12B 7/8” Sq. 1.75 1.88 03640 8000</td>
</tr>
<tr>
<td>1/8” 1/4” 3/8”</td>
<td>70 0R12NB 0RB12NB 7/8” Sq. 1.75 1.88 03640 8000</td>
</tr>
<tr>
<td>3/8” 3/8” 3/8”</td>
<td>240 0R25NB 0RB25FB 1” Hex 2.06 2.44 03340 8000</td>
</tr>
<tr>
<td><strong>FLUOROCARBON DIAPHRAGMS for extended temperature operation (Fluorocarbon static seals)</strong></td>
<td></td>
</tr>
<tr>
<td>1/8” 1/8” 1/8”</td>
<td>70 0R12VB 0RB12VB 7/8” Sq. 1.75 1.88 03650 8000</td>
</tr>
<tr>
<td>3/8” 3/8” 3/8”</td>
<td>240 0R37FB 0RB37FB 1” Hex 2.06 2.44 03340 0120</td>
</tr>
<tr>
<td><strong>PTFE DIAPHRAGMS for higher pressure and temperature (Fibre static seals)</strong></td>
<td></td>
</tr>
<tr>
<td>3/8” 3/8” 3/8”</td>
<td>240 0R37TB 0RB37TB 1” Hex 2.06 2.44 03340 0504</td>
</tr>
</tbody>
</table>

† At 100 PSIG inlet pressure with full pressure drop.

**BOLD ITEMS ARE MOST POPULAR.**
Shuttle Valve

General Information
Shuttle valves determine a single pneumatic output from two separate inputs. If pressure is applied to both ports simultaneously, the valve will select the port with the higher pressure.

Valve Specifications
Maximum Operating Pressure............200 PSIG Maximum
3 PSIG Minimum: Differential Pressure
Operating Temperature..............................0° to 160°F*
* Ambient temperatures below freezing require moisture-free air. Ambient temperatures below freezing and above 180° require lubricants especially selected for suitability at these temperatures. Pneumatic valves should be used with filtered and lubricated air.

Component Materials
Body Material...........................................Aluminum
Internal Components..............................Aluminum
Seals.....................................................Nitrile

Model Selection and Dimensions

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Port Size</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>A1</td>
</tr>
<tr>
<td>N164 1001</td>
<td>1/8&quot;</td>
<td>N/A</td>
</tr>
<tr>
<td>N164 2003</td>
<td>1/4&quot;</td>
<td>2.50</td>
</tr>
<tr>
<td>N164 3003</td>
<td>3/8&quot;</td>
<td>2.50</td>
</tr>
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</table>

Performance Data – Flow

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Port Size</th>
<th>Flow (Cv)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N164 1001</td>
<td>1/8&quot;</td>
<td>0.32</td>
</tr>
<tr>
<td>N164 2003</td>
<td>1/4&quot;</td>
<td>1.65</td>
</tr>
<tr>
<td>N164 3003</td>
<td>3/8&quot;</td>
<td>2.02</td>
</tr>
</tbody>
</table>
**Typical “Quick Exhaust Valve” Applications**

**Rapid Retraction – Double Acting Cylinder**
In this circuit, air is exhausted through a Quick Exhaust Valve that is **close coupled** to the cap end of the cylinder. Because the Quick Exhaust Valve has a greater exhaust capacity than the four-way Control Valve, increased cylinder speed can be accomplished with a smaller and less expensive control valve.

**Dual Pressure Actuation of Double Acting Cylinder**
This circuit utilizes a Quick Exhaust Valve and a three-way Control Valve to permit rapid extension of the cylinder at a high pressure. **NOTE:** Line pressure must be 3 or 4 times greater than rod end pressure. Effective working pressure is the differential between the cap and rod end.

**Bi-Directional Control of Two Double Acting Cylinders**
This circuit provides maximum control with a minimum of valving. A large four-way Control Valve is not needed to permit the rapid retraction of Cylinder A, as the Quick Exhaust Valve performs this function. The extension of Cylinders A and B and retraction of Cylinder B are controlled by Speed Control Valves.

---

**Typical “Shuttle Valve” Applications**

**“OR” Circuit**
The most common application of the Shuttle Valve is the “OR” Circuit. Here a cylinder or other work device can be actuated by either control valve. The valves can be manually or electrically actuated and located in any position.

**Memory Circuit**
This circuit enables continuous operation once initiated. Pressure is delivered to the circuit when Valve A is actuated. This allows pressure to pass through the shuttle valve actuating Valve B. Pressure then flows through Valve B and also the other side of the shuttle valve which holds Valve B open for continuous operation. To unlock the circuit, Valve C must be opened to exhaust the circuit and allow Valve B to return to its normally closed position.

**Interlock**
This circuit prevents the occurrence of a specific operation while one or another operation takes place. When either Valve A or B is actuated to perform operation 1 or 2, Valve D is shifted to the closed position and prevents operation 3 from occurring.
Pressure Switch – PPS1

Features:
- Long life elastomer diaphragm
- High quality snap action switch
- Field adjustable
- Compact design
- Easily customized
- Quick delivery
- NEMA 4, 13

Operation
The pressure switch monitors the air pressure in your pneumatic system. When the pressure in your system either drops below or exceeds the set point pressure, an electrical output is given.

Definitions and Terminology
Repeatability — Accuracy is the maximum allowable set point deviation of a single pressure or temperature switch under one given set of environmental and operational conditions.

Single Pole Double Throw (SPDT) Switching element — A SPDT switching element has one normally open, one normally closed and one common terminal. Three terminals mean that the switch can be wired with the circuit either normally open (NO), or normally closed (NC), or both.

Dead Band — The dead band, sometimes referred to as "differential" or "hysteresis", is the change in pressure between actuation and deactuation set points.

Specifications
Set Point Tolerance…………………………………………±1 PSI or 5% (.07 bar)
Temperature Range ……………..-40°F to 220°F (-40°C to 105°C)
Max. Operating Pressure (Ranges 1, 2, 3) …………………….250 PSI (17.2 bar)
Max. Operating Pressure (Range 4)……………………………….2000 PSI (137.9 bar)
Deadband ……………………….10 - 20% of set pressure
Current Rating ………………………………………3A @ 125 VAC
……………………………………2A @ 30 VDC (Resistive)
Circuit Form ………………………………………SPDT Standard
Cycle Life ………………………………………..1 Million
Materials of Construction
Adjustment Knob ……………………Anodized Aluminum
Body …………………………………………Brass
Diaphragm …………………………………Nitrile

Ordering Information

<table>
<thead>
<tr>
<th>Thread</th>
<th>Circuit</th>
<th>Range*</th>
<th>Set Point Direction</th>
<th>Electrical Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; NPT Male</td>
<td>C</td>
<td>1</td>
<td>3-10 PSI</td>
<td>HM DIN 9.4mm WL Wire Leads 18&quot;</td>
</tr>
<tr>
<td>1/8&quot; NPT Male</td>
<td>C</td>
<td>2</td>
<td>6-30 PSI</td>
<td></td>
</tr>
<tr>
<td>1/4&quot; BSPP Male</td>
<td>C</td>
<td>3</td>
<td>20-120 PSI</td>
<td></td>
</tr>
<tr>
<td>1/8&quot; BSPP Male</td>
<td>C</td>
<td>4</td>
<td>100-400 PSI!</td>
<td></td>
</tr>
</tbody>
</table>

Note: Switch is field adjustable.

*Factory setting for calibration purposes
Range 1 = 6 PSI
Range 2 = 18 PSI
Range 3 = 70 PSI
Range 4 = 250 PSI
AirGuard Protection System

Product Features:

- **Maintenance Friendly**
  Repair possible while plant is still operating.
- **Economic**
  Competitive pricing.
- **Complies with EU Standard**
  EN 983 - § 5.3.4.3.2.
- **Reliable and Tamperproof**
  No adjustment necessary.
- **Complies with ISO Standard**
  4414 - § 5.4.5.11.1
- **Complies with MSHA Regulation**
  30CFR 56.13021, 57.13021 and 57.1730
- **Lightweight**
  Compact size.
- **Compatible with all Pneumatic Systems**
- **Can be used as a Flow Blocker**
- **TUV Approval**
  No. 01-02-0145
- **EU Registered Utility**
  Model No. 0025 73 525
- **Complies with OSHA Regulation Standard**
  29CFR 1926.302 (Partial)

Protect your most important assets: your employees and their equipment!

The AirGuard offers simple but efficient protection of a broken compressed-air hose. The air supply is immediately shut off by the AirGuard, should the volume of air exceed a set value. This “value” is factory preset and is set to allow normal air consumption when using air tools.

Should the air consumption exceeds the set value, e.g. the air line is severed, then the internal piston instantly shuts off the main flow. An integral bleed hole allows some air to flow though. This enables the line pressure to automatically reset the AirGuard once the main line break is repaired.

Function:

(P) is the inlet. Air passes the piston (1) and continues through the seat (3). The air flow, passing the piston, is slowed down by means of length wise grooves on the outer side of the piston. If the flow is too high, the air cannot pass the piston quickly enough, and the piston is forced against the spring (2) and towards the seat. The maximum flow is shown in the graph. If the value indicated is exceeded e.g. if the hose suddenly breaks - the air supply is automatically shut off. An integral bleed hole allows some air to flow though. This enables the line pressure to automatically reset the AirGuard once the main line break is repaired.
How to Select the Optimal Size of an AirGuard

Information based on an inlet pressure of 7 bar (100 PSIG)

a. Determine the internal diameter of the hose, tube or pipe being used (1) (see specification Hose-internal Diameter, diagonal line).
b. Determine the length of the hose, tube or pipe (2) (Hose length in meters).
c. Define the intersection of point a and , and mark a vertical line downwards. - 4  In the example chart (dot ) and the dashed line (4).
d. The next vertical black line, left of the intersection line (4) tells the correct AirGuard size (in inches).
e. Important: Every flow value to the right of the respective vertical line (black) would activate the AirGuard in case of a bursting hose, pipe or tube. All AirGuard sizes right of the intersection line (4) are too big and will not close up.
f. Example: Which air fuse should be used for a hose, pipe or tube bearing 8 mm inner diameter and 10 meters of length - follow the 10 meter line ( ) to the intersection point (dot ). Now the next left black line marks the correct size.
g. Result: The correct size in our example is the AirGuard 3/8"
The WDV3 Electrical Drain is designed to remove condensate from compressors, compressed air dryers and receivers up to any size, type or manufacturer.

The WDV3 offers true installation simplicity and it is recognized as the most reliable and best performing condensate drain worldwide. The large orifice in the direct acting valve, combined with its sophisticated timer module ensure many years of trouble-free draining of condensate.

Benefits
- Does Not Air-Lock During Operation
- Compressed Air Systems Up to Any Size
- Also Available In Stainless Steel
- The Direct Acting Valve Is Serviceable
- Suitable for All Types of Compressors
- TEST (Micro-Switch) Feature
- High Time Cycle Accuracy
- Large (4.5mm) Valve Orifice

Ordering Information

<table>
<thead>
<tr>
<th>WDV3</th>
<th>G</th>
<th>1</th>
<th>2</th>
<th>B</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family</td>
<td>General</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td></td>
<td>120V AC</td>
<td>230V AC</td>
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<td></td>
</tr>
<tr>
<td>Pipe Size</td>
<td></td>
<td>1/4&quot; General</td>
<td>3/8&quot; General</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valves Material</td>
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<td>Brass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure</td>
<td></td>
<td>230 PSIG (16 bar)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Available in 1/2" Only**

---

## Specifications

- **Operating Pressure**: 230 PSIG (15.9 bar)
- **Ambient Operating Range Temperature**: 34° to 130°F (1.1° to 54°C)
- **Coil Insulation**: Class H 340°F (171.1°C)
- **Voltages**: AC 115, 230/50-60
- **Timer**: Open Time: .5 to 10 sec., Adjustable Cycle Time: .5 sec. to 45 min., Adjustable
- **Maximum Current Rating**: 4mA Max.
- **Port Size**: 1/4, 3/8, 1/2 NPT
- **Weight**: 1.8 lb. (0.8 kg)

## Materials of Construction

- **Valve Body**: Brass / Stainless Steel
- **Enclosure (NEMA 4)**: ABS Plastic
- **Internal Parts**: Brass / Stainless Steel
- **Sealing Material**: FPM (Fluorocarbon)

## Model Selection and Dimensions

<table>
<thead>
<tr>
<th>Model Number</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>WDV3-G**BL</td>
<td>1.73</td>
<td>4.53</td>
<td>3.46</td>
</tr>
</tbody>
</table>

*Available in 1/2" Only*
Zero Air Loss Condensate Drains

<table>
<thead>
<tr>
<th>Port size (NPT)</th>
<th>Compressor Aftercooler (SCFM)*</th>
<th>Capacity Refrigeration Dryer (SCFM)**</th>
<th>Filter (SCFM)</th>
<th>Drain Capacity per Day (gal/liter)</th>
<th>Model Number</th>
<th>Service Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 @ 3/8 (in), 1 @ 3/8 (out)</td>
<td>—</td>
<td>282</td>
<td>424</td>
<td>6 (22.7)</td>
<td>ED3002N115-K</td>
<td>SKED3000N115</td>
</tr>
<tr>
<td>1 @ 1/2 (in), 1 @ 3/8 (out)</td>
<td>141</td>
<td>282</td>
<td>1,413</td>
<td>13 (49.2)</td>
<td>ED3004N115-K</td>
<td>SKED3000N115</td>
</tr>
<tr>
<td>2 @ 1/2 (in), 1 @ 3/8 (out)</td>
<td>247</td>
<td>494</td>
<td>2,472</td>
<td>23 (87.1)</td>
<td>ED3007N115-K</td>
<td>SKED3000N115</td>
</tr>
<tr>
<td>2 @ 1/2 (in), 1 @ 3/8 (out)</td>
<td>1,059</td>
<td>2,119</td>
<td>10,594</td>
<td>100 (378.5)</td>
<td>ED3030N115-K</td>
<td>SKED3000N115</td>
</tr>
<tr>
<td>2 @ 1/2 (in), 1 @ 3/8 (out)</td>
<td>3,532</td>
<td>7,063</td>
<td>35,315</td>
<td>330 (1,249.2)</td>
<td>ED3100N115-K</td>
<td>SKED3000N115</td>
</tr>
</tbody>
</table>

* Based on 100 PSI working pressure, air compressor inlet at 77°F (25°C) at 60% RH, air discharge temperature od 95°F (35°C) following the aftercooler, pressure dewpoint of 37°F (2.8°C) after the refrigerated dryer.

** Condensate from aftercooler or refrigerated dryer to be drained upstream – only for residual oil content or small quantities of condensate.

Note: A 6 ft. line cord will be included with each drain.

Where are condensate drains used?

Compressor with aftercooler
Removes the condensate that is collected after the air cools in the aftercooler

Receiver tank
Removes the condensate that is collected when the air cools inside of the receiver tank

Filter
Removes the condensate that is collected in the filter bowl

Air dryer
Removes the condensate that is collected in the air dryer

Drip leg
Point-of-use applications: removes the condensate from compressed air pipes in a plant

Dimensions

ED3002N115-K
ED3004N115-K
ED3007N115-K
ED3030N115-K
ED3100N115-K

Zero Air Loss Condensate Drains are designed for economical removal of unwanted water, oil emulsions, and other liquids. These drains will only open when liquid is present and will not allow any compressed air to escape from the system.

Zero Air Loss Condensate Drains

Operating Information

Maximum pressure 232 PSIG (16 bar)
Ambient operating temperature 35°F to 140°F (1.6°C to 60°C)
Voltages NPT 115/50-60Hz, standard
Optional: BSPP ports 230/50-60Hz & 24VDC

Where are condensate drains used?

Compressor with aftercooler
Removes the condensate that is collected after the air cools in the aftercooler

Receiver tank
Removes the condensate that is collected when the air cools inside of the receiver tank

Filter
Removes the condensate that is collected in the filter bowl

Air dryer
Removes the condensate that is collected in the air dryer

Drip leg
Point-of-use applications: removes the condensate from compressed air pipes in a plant

Dimensions

ED3002N115-K
ED3004N115-K
ED3007N115-K
ED3030N115-K
ED3100N115-K

Zero Air Loss Condensate Drains are designed for economical removal of unwanted water, oil emulsions, and other liquids. These drains will only open when liquid is present and will not allow any compressed air to escape from the system.

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Maximum pressure 232 PSIG (16 bar)
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Voltages NPT 115/50-60Hz, standard
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Receiver tank
Removes the condensate that is collected when the air cools inside of the receiver tank

Filter
Removes the condensate that is collected in the filter bowl

Air dryer
Removes the condensate that is collected in the air dryer

Drip leg
Point-of-use applications: removes the condensate from compressed air pipes in a plant

Dimensions

ED3002N115-K
ED3004N115-K
ED3007N115-K
ED3030N115-K
ED3100N115-K

Zero Air Loss Condensate Drains are designed for economical removal of unwanted water, oil emulsions, and other liquids. These drains will only open when liquid is present and will not allow any compressed air to escape from the system.

Operating Information

Maximum pressure 232 PSIG (16 bar)
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Removes the condensate that is collected when the air cools inside of the receiver tank

Filter
Removes the condensate that is collected in the filter bowl

Air dryer
Removes the condensate that is collected in the air dryer

Drip leg
Point-of-use applications: removes the condensate from compressed air pipes in a plant

Dimensions

ED3002N115-K
ED3004N115-K
ED3007N115-K
ED3030N115-K
ED3100N115-K
Brass Nozzle Blow Guns
Contoured lever or button control both provide a natural, comfortable grip even when used with gloves. Finger guard and hang-up hook for finger protection and quick safe storage. Die cast zinc body, painted finish

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Inlet Port</th>
<th>SCFM Rating*</th>
</tr>
</thead>
<tbody>
<tr>
<td>00475 0010</td>
<td>1/4&quot;</td>
<td>20</td>
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</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Inlet Port</th>
<th>SCFM Rating*</th>
</tr>
</thead>
<tbody>
<tr>
<td>00470 0010</td>
<td>1/4&quot;</td>
<td>20</td>
</tr>
</tbody>
</table>

*Based on 100 PSIG inlet pressure.

Vortec FLO-GAIN Blow Guns
A quiet Vortec FLO-GAIN nozzle is combined with a high performance blow gun. Compressed air attains sonic velocity through an adjustable slot and attaches to the exterior surface of the cone shaped nozzle. Settings are shown on a micrometer dial. Sound level of 80 dBA with 80 PSIG inlet. Finger guard and hang-up hook offers desirable finger protection and quick secure storage. Die cast zinc body, painted finish

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Inlet Port</th>
<th>SCFM Rating*</th>
</tr>
</thead>
<tbody>
<tr>
<td>00475 0900</td>
<td>1/4&quot;</td>
<td>70+</td>
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</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Inlet Port</th>
<th>SCFM Rating*</th>
</tr>
</thead>
<tbody>
<tr>
<td>00470 0900</td>
<td>1/4&quot;</td>
<td>70+</td>
</tr>
</tbody>
</table>

*Based on 100 PSIG inlet pressure.
Self-Regulating Blow Gun

Designed with integral self-regulating pressure reducing valve for automatic shut-off when nozzle is blocked. Prevents air pressure buildup over 30 PSIG in compliance with U.S. Dept. of Labor standards.

Air shield aids in protecting the operator against blow back of flying chips of dust. Designed to operate at less than 90 dBA to comply with government regulations. Die cast zinc body, painted finish.

Lever Operated

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Inlet Port</th>
<th>SCFM Rating*</th>
</tr>
</thead>
<tbody>
<tr>
<td>00475 2900</td>
<td>1/4&quot;</td>
<td>10</td>
</tr>
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</table>

Performance Data

<table>
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<tr>
<th>Inlet Pressure</th>
<th>Blocked Pressure</th>
<th>Sound Level</th>
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</thead>
<tbody>
<tr>
<td>70 PSIG</td>
<td>17.0 PSIG</td>
<td>79 dBA</td>
</tr>
<tr>
<td>100 PSIG</td>
<td>21.0 PSIG</td>
<td>83 dBA</td>
</tr>
<tr>
<td>175 PSIG</td>
<td>28.0 PSIG</td>
<td>87 dBA</td>
</tr>
</tbody>
</table>

*Based on 100 PSIG inlet pressure.

Pistol Grip Blow Gun

Pistol grip is easy to aim for quick and efficient cleaning. Ideal for all shop housekeeping purposes. Lightweight and easy to handle. Easy trigger action features instant spring adjustment for controlled air. Get the amount of air where you want it with no restrictions, no cut-offs! Makes for a convenient connection for overhead or under bench floor air use.

Brass Nozzle Model No. 00470 7020

General purpose nozzles are supplied as standard on 00470 0010, 00475 0010 and 07184 1000 blow guns. Conform to the requirements of the Williams Steiger Occupational Safety and Health Act of 1970, paragraph 1910.242 when fitted with low guns pressurized at the inlet to a maximum of 100 PSIG. Conform to O.S.H.A. Directive 100-1.

470 and 475 Series Blow Guns

* Contained in Service Kit No. 00470 0090

Part Number | Inlet Port | Rated Pressure | Temperature Range | OSHA Rated |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BG441-NBL</td>
<td>1/4&quot;</td>
<td>175 PSI</td>
<td>120° F</td>
<td>No</td>
</tr>
</tbody>
</table>
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.


1.4. 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 connect pressure regulators or other Pneumatic Division products to bottled gas cylinders.
- 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 products 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 4.9.

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 and 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 air 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.
The goods, services or work (referred to as the “Products”) offered by Parker-Hannifin Corporation, its subsidiaries, groups, divisions, and affiliated distributors (“Seller”) are offered for sale at prices indicated in the offer, or as may be established by a Security Agreement under the Uniform Commercial Code. If Buyer is not the majority of its assets.

for relief in bankruptcy on its own behalf, or one if filed by a third party (d) makes an

Buyer may not assign its rights or obligations under this agreement without the prior written consent of Seller.

Waiver and Severability. Failure to enforce any provision of this agreement will not invalidate that provision; nor will any such failure prejudice Seller’s right to enforce that provision or any other provision of this agreement. To the maximum extent permitted by law, no failure on the part of Seller to exercise any power, right, or remedy in any particular case will affect or limit Seller’s power, right, or remedy in any other case, nor will any delay or omission of Seller in exercising any such power, right, or remedy affect or limit Seller’s power, right, or remedy. Seller shall not be liable for any failure to perform or any delay in performance due to causes beyond Seller’s reasonable control. Seller shall not be liable for any damage to property or personal injury caused by or resulting from Buyer’s negligence or willful misconduct.

Buyer shall not assign its rights or obligations under this agreement without the prior written consent of Seller.

Buyer warrants that the Products sold hereunder shall be free from defects in material or workmanship for a period of twelve (12) months from the effective date of this Agreement, whichever occurs first. The deferral of shipment at Buyer’s request beyond the respective dates indicated will be at Seller’s option, and no claims for shortages will be allowed unless reported to the Seller within the following disclaimer: Di the date of delivery or 2,000 hours of normal use, whichever occurs first. All delivery dates are approximate.

The offer to sell the Products and acceptance of Seller’s offer by any customer (“Buyer”) is conditioned upon, and will be governed by all of the terms and conditions contained in this Offer of Sale. Seller’s order for any Products specified in Buyer’s purchase document or Seller’s offer, proposal or quote (“Quote”) attached to the purchase order, when communicated to Seller verbally, or in writing, shall constitute acceptance of this offer.

1. Terms and Conditions. Seller’s willingness to offer Products for sale or accept an offer for Products is subject to the terms and conditions contained in this Offer of Sale or any newer version of the same, published by Seller electronically at www.parker.com/sales/tools/standardagreements/ or any other additional terms or conditions of Buyer’s order or any other document or other communication issued by Buyer.

Prices stated on Seller’s Quote are valid for thirty (30) days, except as may be established by a Security Agreement under the Uniform Commercial Code. If Buyer is not the majority of its assets. Parker Hannifin Corporation

19. Entire Agreement. This Agreement contains the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter are hereby merged. The terms contained herein may not be modified unless in writing and signed by an authorized representative of Seller.

20. Compliance with Laws. Buyer agrees to comply with all applicable laws, regulations and professional standards of care, including applicable laws of the United States of America, and the country or countries in which Buyer may operate, including without limitation the U. K. Bidbey Act, the U. S. Foreign Corrupt Practices Act (“FCPA”), the U.S. Anti-Kickback Act ("Anti-Kickback Act"), the U.S. False Claims Act ("FCA"), the Drug and Cosmetic Act ("FDCA"),each as currently amended, and the rules and regulations promulgated by the U.S. Food and Drug Administration ("FDA"), and agrees to indemnify and hold harmless Seller from the consequences of any violation of such provisions by Buyer or any of Buyer’s employees or agents. Buyer agrees to indemnify and hold Seller harmless from and against any allegations or actions including all negotiations for settlement or compromise. If a Product is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller will defend Buyer against all suits, actions or claims of which Buyer is notified in writing and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that a Product sold pursuant to this agreement infringes the Intellectual Property Rights of a third party. Seller’s obligation to defend and indemnify Buyer is conditioned upon Buyer notifying Seller within ten (10) days after the date the defect is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or any other theory, including tort, negligence, or otherwise must be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

6. LIMITATION OF LIABILITY. IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE A DEFECTIVE PRODUCT, OR REFUND THE PURCHASE PRICE WITHIN A REASONABLE PERIOD OF TIME. IN NO EVENT IS SELLER LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, SERVICING, USE OR LOSS OF USE OF THE PRODUCT THEREOF, OR FOR ANY INJURY, LOSS OR DAMAGE TO PERSONS OR PROPERTY CAUSED BY ANY NATURE INCURRED WITHOUT SELLER’S WRITTEN CONSENT, WHETHER BASED IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER BE LIABLE UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE OF THE PRODUCTS.

7. User Responsibility. The user, through its own analysis and testing, is solely responsible for making the final selection of the system and Product and assuring that all appropriate preventive maintenance, service, safety and warning requirements of the application are met. The user must analyze all aspects of the application and follow applicable industry standards and Product information. If Seller provides Product or application are met. The user must analyze all aspects of the application and follow applicable industry standards and Product information. If Seller provides Product or systems options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products or systems.

8. Loss to Buyer’s Property. Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer’s property, will be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer ordering the items manufactured using such property. Seller shall not be responsible for any loss or damage to such property while in Seller’s possession or control.

9. Special Tooling. A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture Products.

Such special tooling shall be and remain Seller’s property notwithstanding payment of any tooling charge.