## Air Preparation Products

### Bulk Liquid Separators

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3TF</td>
<td>L2-L5</td>
</tr>
</tbody>
</table>
**P3TF Bulk Liquid Separators**

- Tested in accordance with ISO 8573.9
- High liquid removal efficiencies at all flow conditions
- Low pressure losses for low operational costs
- Suitable for variable flow compressors
- Low maintenance
- External surface epoxy painted for maximum corrosion resistance
- 1/4” to 3” ports (NPT, BSPP)

**Applications**

- Bulk liquid removal at any point in a compressed air system
- Protection of refrigeration and heatless regenerative desiccant dryers
- Liquid removal from compressor Inter-coolers / after-coolers
- Liquid separation within refrigeration dryers
- Pre-filtration

**Ordering information:**

<table>
<thead>
<tr>
<th>Pipe size</th>
<th>Part number (NPT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot;</td>
<td>P3TFA92WAAN</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>P3TFA93WBAN</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>P3TFA94WCAN</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>P3TFA96WDAN</td>
</tr>
<tr>
<td>1&quot;</td>
<td>P3TFA98WEAN</td>
</tr>
<tr>
<td>1-1/2&quot;</td>
<td>P3TFA9BWGAN</td>
</tr>
<tr>
<td>2&quot;</td>
<td>P3TFA9CWHAN</td>
</tr>
<tr>
<td>3&quot;</td>
<td>P3TFA9EWKAN</td>
</tr>
</tbody>
</table>

Pressure differential at rated flow: 1.0 psid (0.07 bar)

Stated flows are for operation at 102 psig (7 bar) with reference to 68°F (20°C), 1 bar (a), 0% relative water vapor pressure.

**Operating information**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure (max)</td>
<td>232 psig (16 bar)</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>35°F to 176°F (1.5°C to 80°C)</td>
</tr>
<tr>
<td>Pressure differential at rated flow</td>
<td>1.0 psid (0.07 bar)</td>
</tr>
<tr>
<td>Flow: 1/4&quot;</td>
<td>21 scfm (10 L/s)</td>
</tr>
<tr>
<td>3/8&quot;, 1/2&quot;</td>
<td>85 scfm (40 L/s)</td>
</tr>
<tr>
<td>3/4&quot;, 1&quot;</td>
<td>233 scfm (110 L/s)</td>
</tr>
<tr>
<td>1-1/2&quot;, 2&quot;</td>
<td>742 scfm (350 L/s)</td>
</tr>
<tr>
<td>3&quot;</td>
<td>1695 scfm (800 L/s)</td>
</tr>
<tr>
<td>Weight: 1/4&quot;</td>
<td>1.3 lb (0.6 kg)</td>
</tr>
<tr>
<td>3/8&quot;, 1/2&quot;</td>
<td>2.4 lb (1.1 kg)</td>
</tr>
<tr>
<td>3/4&quot;, 1&quot;</td>
<td>4.8 lb (2.2 kg)</td>
</tr>
<tr>
<td>1-1/2&quot;, 2&quot;</td>
<td>11.2 lb (5.1 kg)</td>
</tr>
<tr>
<td>3&quot;</td>
<td>22.0 lb (10.0 kg)</td>
</tr>
</tbody>
</table>

Catalog 0700P-8

Bulk Liquid Separators

Air Preparation Products

Bulk Liquid Separator

For inventory, lead times, and kit lookup, visit www.pdnplu.com

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics
For inventory, lead time, and kit lookup, visit www.pdnplu.com

**Inlet air pressure correction**

<table>
<thead>
<tr>
<th>psi</th>
<th>15</th>
<th>29</th>
<th>44</th>
<th>58</th>
<th>73</th>
<th>87</th>
<th>100</th>
<th>116</th>
<th>131</th>
<th>145</th>
<th>160</th>
<th>174</th>
<th>189</th>
<th>203</th>
<th>218</th>
<th>232</th>
</tr>
</thead>
<tbody>
<tr>
<td>bar</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>Factor</td>
<td>4.00</td>
<td>2.63</td>
<td>2.00</td>
<td>1.59</td>
<td>1.33</td>
<td>1.14</td>
<td>1.00</td>
<td>0.94</td>
<td>0.89</td>
<td>0.85</td>
<td>0.82</td>
<td>0.79</td>
<td>0.76</td>
<td>0.73</td>
<td>0.71</td>
<td>0.68</td>
</tr>
</tbody>
</table>

**Material Specifications**

- Automatic float drain: Plastic
- Housing / bowl: Aluminum
- Seals: Fluorocarbon

**Repair and Service Kits**

- Drain kit: EFI

**Operation**

- Air enters the bulk liquid separator inlet and turns into the separator module.
- The inlet of the separator module contains a set of fixed vanes which the air must pass through.
- The vanes force the air to spin inside the vessel.
- The spinning air is then forced to change direction as it passes the impeller.
- A vortex is created which, due to the design of the separator module, narrows and intensifies as it reaches the lower part of the separator module.
- Bulk liquid is removed from the airstream due to:
  - directional changes of the airstream
  - velocity changes
  - centrifugal action of the vortex
- As the vortex reaches the bottom of the module, air is forced through the center of the vortex.
- Aerospace turning vanes, located in the outlet of the separator module, turn an inefficient corner into a number of more efficient corners.
- Turning vanes reduce turbulence, minimizing pressure loss and cost of ownership.
- The number of vanes required is dependent upon the conduit diameter.

**Flow**

- **Average P3TF Efficiency**

<table>
<thead>
<tr>
<th>% of Rated Flow</th>
<th>25</th>
<th>50</th>
<th>75</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separation Efficiency % (Average for all models)</td>
<td>100.00</td>
<td>90.00</td>
<td>80.00</td>
<td>70.00</td>
</tr>
</tbody>
</table>

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- psi
- bar
- Factor

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### P3TF (Bulk Liquid Separator)

#### Dimensions

<table>
<thead>
<tr>
<th>Part number</th>
<th>Pipe size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>BSPP F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>Wall mounting bracket kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3TFA92WAAN</td>
<td>1/4&quot;</td>
<td>3.00</td>
<td>1.12</td>
<td>6.02</td>
<td>1.58</td>
<td>7.15</td>
<td>1/2</td>
<td>2.05</td>
<td>1.18</td>
<td>0.71</td>
<td>0.96</td>
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<tr>
<td></td>
<td></td>
<td>(76)</td>
<td>(28.5)</td>
<td>(153)</td>
<td>(40)</td>
<td>(181.5)</td>
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<td>(50)</td>
<td>(30)</td>
<td>(18)</td>
<td>(24.5)</td>
<td></td>
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<tr>
<td>P3TFA93WBAN</td>
<td>3/8&quot;</td>
<td>3.83</td>
<td>1.34</td>
<td>7.91</td>
<td>1.97</td>
<td>9.25</td>
<td>1/2</td>
<td>2.36</td>
<td>1.57</td>
<td>0.81</td>
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<tr>
<td></td>
<td></td>
<td>(97.5)</td>
<td>(34)</td>
<td>(201)</td>
<td>(50)</td>
<td>(235)</td>
<td></td>
<td>(60)</td>
<td>(40)</td>
<td>(20.5)</td>
<td>(25.5)</td>
<td></td>
</tr>
<tr>
<td>P3TFA94WCAN</td>
<td>1/2&quot;</td>
<td>3.83</td>
<td>1.34</td>
<td>7.91</td>
<td>1.97</td>
<td>9.25</td>
<td>1/2</td>
<td>2.36</td>
<td>1.57</td>
<td>0.81</td>
<td>1.00</td>
<td>P3TKA00MWB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(97.5)</td>
<td>(34)</td>
<td>(201)</td>
<td>(50)</td>
<td>(235)</td>
<td></td>
<td>(60)</td>
<td>(40)</td>
<td>(20.5)</td>
<td>(25.5)</td>
<td></td>
</tr>
<tr>
<td>P3TFA96WDAN</td>
<td>3/4&quot;</td>
<td>5.07</td>
<td>1.67</td>
<td>9.20</td>
<td>2.76</td>
<td>10.80</td>
<td>1/2</td>
<td>2.68</td>
<td>2.36</td>
<td>0.91</td>
<td>1.10</td>
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<td></td>
<td>(68)</td>
<td>(60)</td>
<td>(23)</td>
<td>(28)</td>
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<td>14.35</td>
<td>1/2</td>
<td>2.68</td>
<td>2.36</td>
<td>0.91</td>
<td>1.10</td>
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<td>(42.5)</td>
<td>(322)</td>
<td>(70)</td>
<td>(364.5)</td>
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<td>(68)</td>
<td>(60)</td>
<td>(23)</td>
<td>(28)</td>
<td></td>
</tr>
<tr>
<td>P3TFA9BWGAN</td>
<td>1-1/2&quot;</td>
<td>6.70</td>
<td>1.97</td>
<td>18.68</td>
<td>3.94</td>
<td>20.64</td>
<td>1/2</td>
<td>3.62</td>
<td>3.31</td>
<td>1.26</td>
<td>1.54</td>
<td>P3TKA00MWF</td>
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<tr>
<td></td>
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<td>(170)</td>
<td>(50)</td>
<td>(474.5)</td>
<td>(100)</td>
<td>(524.5)</td>
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<td>(92)</td>
<td>(84)</td>
<td>(32)</td>
<td>(39)</td>
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<tr>
<td>P3TFA9CWAN</td>
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<td>6.70</td>
<td>1.97</td>
<td>18.68</td>
<td>3.94</td>
<td>20.64</td>
<td>1/2</td>
<td>3.62</td>
<td>3.31</td>
<td>1.26</td>
<td>1.54</td>
<td>P3TKA00MWF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(170)</td>
<td>(50)</td>
<td>(474.5)</td>
<td>(100)</td>
<td>(524.5)</td>
<td></td>
<td>(92)</td>
<td>(84)</td>
<td>(32)</td>
<td>(39)</td>
<td></td>
</tr>
<tr>
<td>P3TFA9EWKAN</td>
<td>3&quot;</td>
<td>8.07</td>
<td>2.36</td>
<td>30.39</td>
<td>4.72</td>
<td>32.76</td>
<td>1/2</td>
<td>5.31</td>
<td>3.94</td>
<td>1.40</td>
<td>1.67</td>
<td>P3TKA00MWJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(205)</td>
<td>(60)</td>
<td>(772)</td>
<td>(120)</td>
<td>(832)</td>
<td></td>
<td>(135)</td>
<td>(100)</td>
<td>(35.5)</td>
<td>(42.5)</td>
<td></td>
</tr>
</tbody>
</table>

**Wall Mounting Bracket Kit**

Mounting brackets provide additional support to filters installed in flexible piping systems or OEM equipment.
P3TF Bulk Liquid Separators

- Designed in accordance with ASME and CRN
- High liquid removal efficiencies at all flow conditions
- Suitable for variable flow compressors
- Works with all types of compressor and compressor condensate
- External surface epoxy painted for maximum corrosion resistance
- 4" & 6" flange
- Auto float drain standard, shipped loose

**Port size** | **Part number**
---|---
4" Flange | P3TFAFFW2AN
6" Flange | P3TFAFGW3AN

* 150# Flange

<table>
<thead>
<tr>
<th><strong>Material specifications</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Baffle</td>
<td>Plated steel</td>
</tr>
<tr>
<td>Body</td>
<td>Steel</td>
</tr>
<tr>
<td>Deflector</td>
<td>Plated steel</td>
</tr>
<tr>
<td>Seals</td>
<td>Fluorocarbon</td>
</tr>
<tr>
<td>Stud</td>
<td>Plated steel</td>
</tr>
</tbody>
</table>

**Operating information**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Pressure:</td>
<td>15 to 232 psi (1 to 232 bar)</td>
</tr>
<tr>
<td>Operating Temperature:</td>
<td>35°F to 140°F (1.5°C to 60°C)</td>
</tr>
<tr>
<td>Flow capacity: 4&quot;</td>
<td>2100 scfm (991.1 dm³/s, ANR)</td>
</tr>
<tr>
<td>Flow capacity: 6&quot;</td>
<td>3780 scfm (1783.9 dm³/s, ANR)</td>
</tr>
<tr>
<td>Weight: 4&quot;</td>
<td>180 lb (81.6 kg)</td>
</tr>
<tr>
<td>Weight: 6&quot;</td>
<td>257 lb (116.6 kg)</td>
</tr>
</tbody>
</table>

1 Stated flows at 100 psi (7 bar), 68°F (20°C), 0% relative water vapor pressure.

**Repair and Service Kits**

Auto float drain kit - 1/2" NPT  HDF-120-NPT-A

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For inventory, lead time, and kit lookup, visit www.pdnplu.com
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.
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 to Buyer.

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

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

Seller: means Parker-Hannifin Corporation, including all divisions and business entities.

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

Terms: means the terms and conditions of this Offer of Sale or any newer version of the same as published by Seller electronically at www.parker.com/offer_of_sale or in a document signed by Seller.

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 whether communicated to Seller verbally, in writing, by electronic data interface or otherwise shall be subject to these Terms and is only binding upon Seller if and only if these Terms are incorporated into any written order from Buyer to Seller. Buyer may not alter these Terms in any way, either orally or by contract, and 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 from the date of issuance and do not include any taxes, duties or other levies, any 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’s receipt and acceptance of each order for the Products at the prices stated therein. Buyer acknowledges and agrees that Buyer will be responsible for all shipping charges incurred by Buyer due to Buyer’s acts or omissions.

4. Delivery; Title to Goods. All delivery dates are approximate. Seller shall deliver the Products at Buyer’s place of business. All title to Goods shall pass to Buyer at the time and place of delivery. Seller shall be excused from performance of its obligations under these Terms to the extent that Seller is prevented to perform such obligations by any action or omission of Buyer, or any act of God, strikes or labor disputes, acts of any government or government agency, acts of nature, delays or failure in delivery by carriers or suppliers, shortages of materials, or any other cause beyond Seller’s reasonable control.

5. Warranty. The warranty related to the Products is as follows: (i) Goods are warranted against defects in material and 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 by a skilled and careful manufacturer in the industry; and (iii) Software is warranted to be warranted for a period of ninety (90) days from the date of delivery. Such warranties extend only to Buyer and may be claimed by Buyer directly with Seller. All warranties are non-transferable. All warranties are limited to Seller’s obligation to repair or replace (at Seller’s option) any such Goods or Services which prove to be defective. Seller shall have the ultimate determination of whether any Goods or Services are defective. Seller’s obligation to repair or replace any such Goods is conditioned upon Buyer notifying Seller in writing of any claim of defect within ten (10) days after Buyer’s discovery of such defect in Goods or Services. Buyer shall promptly inspect all Products upon receipt. No claims for shortages shall be allowed unless reported to 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-conforming Product is, or should have been, discovered by the Buyer. Any claims for shortages 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 the non-conforming Product, re-perform the services, or Refund the Purchase Price Paid 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, services, repair or replacement of the Products, or Seller’s misuse, non-use, or inability to use the products or any part thereof, loss of data, identity, privacy, or confidentiality, or for any charges or expenses of any nature incurred without the written consent of Seller. In no event will Seller’s liability for any direct, indirect, special, incidental, or consequential loss or damage, including lost profits, be greater than the amount paid by Buyer to Seller for the Products. In no event shall Seller be liable to Buyer for any loss of data, information, programs or other items furnished by Buyer; (d) damage to the Products from an external cause, repair or attempted repair by anyone other than Seller; failure to follow instructions, and specifications provided by Seller; or (e) Buyer’s use or misuse of the Products or any part thereof.

7. Use of Products, Indemnity by Buyer. Seller is not liable for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights ("Intellectual Property Rights") except as provided in this Section. Seller will defend and hold Buyer harmless against all loss and additional expense. Buyer shall be responsible for any additional costs incurred by Buyer due to Buyer’s acts or omissions.

8. Software. In the event the Buyer is not the end-user, Buyer will ensure such end-user is a skilled and careful manufacturer in the industry and professional standards, including those of the United States of America, and the country within which the Products are to be used, of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to the sale and delivery of the Products. Buyer will not indemnify Seller under any circumstance except as otherwise provided in these Terms.

9. Indemnity for Infringement of Intellectual Property Rights. Buyer is not liable for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights ("Intellectual Property Rights") except as provided in this Section. Buyer and Seller agree that any payment or give anything of value, directly or indirectly, to any government official for the benefit of any other person.

10. Governing Law. These Terms and the sale and delivery of all Products are deemed to have taken place in the location where Seller has its principal place of business and shall be governed and construed in accordance with the laws of the State of Ohio, as applicable to contracts executed and performed wholly therein and without regard to conflicts of laws principles. Buyer revocably agrees and consents to the jurisdiction and venue of the courts of Cuyahoga County, Ohio, or any other court having jurisdiction thereof, over any dispute, controversy or claim arising out of or relating to the sale and delivery of the Products.

11. Entire Agreement. These Terms, along with any terms set forth in the main body of a Quote and these Terms, the terms set forth in the main body of the Quote and these Terms; the terms set forth in the main body of the Quote shall prevail. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter hereof shall have been merged into these Terms. These Terms may not be modified unless in writing and signed by an authorized representative of Seller.

12. Compliance with Laws. Buyer agrees to comply with all applicable laws, regulations, and industry standards, including those of the industry and professional standards. Buyer agrees that all of Buyer’s acts and activities in connection with the purchase of the Products or use of the Products by or on behalf of Buyer or any of Buyer’s affiliates, agents, or contractors, are performed in a manner that is consistent with all applicable laws, regulations, and industry standards. Seller will cooperate with Buyer in responding to any requests for information or other requests or actions related to compliance with applicable laws, regulations, and industry standards. Buyer agrees that Buyer will not make any payment or give anything of value, directly or indirectly, to any government official for the benefit of any other person.

13. Security Interest. To secure payment of all sums due, Seller retains a security interest in all Products delivered to Buyer and, Buyer’s acceptance of these Terms is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer’s behalf all documents Seller deems necessary to perfect its security interest.

14. Limitation on Assignment. Buyer may not assign its rights or obligations without the prior written consent of Seller.

15. Force Majeure. Seller does not assume the risk and is not liable for delay or failure to perform any of Seller’s obligations by reason of events or circumstances beyond its reasonable control (“Events of Force Majeure”). Events of Force Majeure shall include without limitation: accidents, acts of God, war, civil commotion or strikes or labor disputes, acts of any government or government agency, acts of nature, delays or failure in delivery by carriers or suppliers, shortages of materials, or any other cause beyond Seller’s control.

16. Waiver and Severability. Failure to enforce any provision of these Terms will not invalidate that provision; nor will any such failure prejudice Seller’s right to enforce that provision in the future. If any provision of these Terms shall be held invalid or unenforceable, the remaining provisions of these Terms shall remain in full force and effect and shall be interpreted as if the invalid or unenforceable provision has been omitted.

17. Termination. Seller may terminate any agreement governed by or arising from these Terms for any reason and at any time by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate, in writing, if Buyer (a) breaches any provision of these Terms or (b) appoints a trustee, receiver or custodian for all or any part of Buyer’s property or (c) files a petition for relief in bankruptcy, or (d) Seller, in its judgment, will be required to take reasonable action in the best interest of creditors; or (e) dissolves its business or liquidates all or a majority of its assets.

18. Ownership of Software. Seller retains ownership of all Software supplied to Buyer hereunder. In no event shall Buyer obtain any greater right in and to the Software than a right in the nature of a license to use the thereof subject to and consistent with any other terms provided with the Software.

19. Indemnity for Infringement of Intellectual Property Rights. Seller is not liable for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights ("Intellectual Property Rights") except as provided in this Section. Seller will defend and hold Buyer harmless against all loss and additional expense. Buyer shall be responsible for any additional costs incurred by Buyer due to Buyer’s acts or omissions.

20. Governing Law. These Terms and the sale and delivery of all Products are deemed to have taken place in the location where Seller has its principal place of business and shall be governed and construed in accordance with the laws of the State of Ohio, as applicable to contracts executed and performed wholly therein and without regard to conflicts of laws principles. Buyer revocably agrees and consents to the jurisdiction and venue of the courts of Cuyahoga County, Ohio, or any other court having jurisdiction thereof, over any dispute, controversy or claim arising out of or relating to the sale and delivery of the Products.

21. Entire Agreement. These Terms, along with any terms set forth in the main body of a Quote and these Terms, the terms set forth in the main body of the Quote and these Terms; the terms set forth in the main body of the Quote shall prevail. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter hereof shall have been merged into these Terms. These Terms may not be modified unless in writing and signed by an authorized representative of Seller.

22. Compliance with Laws. Buyer agrees to comply with all applicable laws, regulations, and industry standards, including those of the industry and professional standards. Buyer agrees that all of Buyer’s acts and activities in connection with the purchase of the Products or use of the Products by or on behalf of Buyer or any of Buyer’s affiliates, agents, or contractors, are performed in a manner that is consistent with all applicable laws, regulations, and industry standards. Seller will cooperate with Buyer in responding to any requests for information or other requests or actions related to compliance with applicable laws, regulations, and industry standards. Buyer agrees that Buyer will not make any payment or give anything of value, directly or indirectly, to any government official for the benefit of any other person.