Compressed Air and Vacuum Systems

ISO 9001 Certified
For over 90 years, Gast Manufacturing has been providing innovative air solutions to a broad breadth of customers. With the relatively recent addition of JUN-AIR, we have expanded our capabilities and formed, “The Gast Group.” Together, our diverse engineering background and pneumatic experience allow us to provide both component and system solutions to meet all of your pneumatic needs...backed by our strong commitment to quality and customer support.

Products for Almost Any Application – Worldwide

We offer an extensive and versatile line of air-moving products, including vacuum pumps, compressors, air motors, gearmotors, vacuum generators, and regenerative blowers. We design and build these components for original equipment manufacturers worldwide, but we also develop complete pneumatic solutions to solve tough customer challenges.

To ensure fast, efficient delivery of products, Gast has a vast network of sales representatives/distributors throughout the United States and the world. Plus, we maintain direct sales and service facilities in Europe, Hong Kong, and Shanghai, China.

Unparalleled Design Expertise

Unlike other manufacturers, who might expect you to modify your pneumatic system to fit their available product(s), Gast is committed to finding the right product to meet your specific needs. If we don’t have a high-quality, off-the-shelf product to fit your existing application or meet your anticipated needs, we’ll propose customized cost-effective design options that will serve your special requirements. We can even develop and produce your complete pneumatic system for you.

Our experienced Research and Development engineers and Product engineers work together to analyze customer needs and use computer-aided design to generate timely solutions for air-handling problems. The design team has one goal: to create problem-solving solutions that capitalize on the latest available technology, meet all application requirements, and benefit from cost-effective production methods. The end result: products and solutions that are the best value in the marketplace for our customers.

A Lasting Commitment to Quality

We invest heavily in both equipment and people to maintain the consistent quality for which our products are known worldwide, and we have done so since day one. As early as 1983, we implemented a total quality process designed to ensure the quality of our products. In keeping with that tradition, Gast has achieved ISO 9001 certification, making us a member of the elite group of manufacturing companies in the world to receive that certification.

European Community Directives

With extensive sales outside the United States, Gast has pledged to conform to the European Community Directives. These directives contain essential requirements concerning health, safety, environment, and consumer protection for all products targeted for the European Community market. Currently, all Gast products available for sale in the European Community are in compliance with the Machinery, Low Voltage, and Electromagnetic Compatibility Directives.

Pictorial and dimensional data is subject to change without notice. The information presented is based on technical data and test results of nominal units. It is believed to be accurate and is offered as an aid in the selection of Gast products. It is the user's responsibility to determine suitability of the product for intended use and the user assumes all risk and liability whatsoever in connection therewith. Environmental and application conditions may affect advertised life.
Many find it difficult to decide whether to use stand-alone pumps or complete tank packages for their applications. The tank system offers many advantages, which satisfy:

<table>
<thead>
<tr>
<th>Advantage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Volumes</td>
<td>If your application requires an instantaneous supply of high pressure or vacuum, then the reservoir provided by a tank system is essential. Even the largest of pumps has to start at atmospheric pressure and therefore will not be able to give that instantaneous supply of pressure/vacuum.</td>
</tr>
<tr>
<td>Longer Pump Life</td>
<td>A tank system makes it possible to utilize two pumps on one tank. Add a pressure switch and alternator control to start/stop the pump(s) only when needed. This allows the pump to cool down and “rest” between cycles to prolong operating life.</td>
</tr>
<tr>
<td>Cost Savings</td>
<td>Using a tank system can reduce initial maintenance and replacement costs. Here’s why: Applications that require high volumes of air in intermittent cycles can use relatively small pumps. The longer the interval between cycles, the more applicable a tank system can be. For example, a 1 HP compressor on a tank can supply the same amount of flow for one minute as a stand alone 10 HP compressor.</td>
</tr>
<tr>
<td>Quiet Operation</td>
<td>In a tank system the pump runs on demand, which means that it is not operating a good part of the time. No operation, no operating noise.</td>
</tr>
<tr>
<td>Pulse Free</td>
<td>Pulse-free air is required by many pneumatic systems for proper operation of pneumatic tools or components. A tank provides pulsation-free air from the reciprocating compressor.</td>
</tr>
<tr>
<td>Central System</td>
<td>Small industrial shops where different tools are required at different times find tank systems ideal, since one tank system can supply air to multiple locations.</td>
</tr>
</tbody>
</table>

Your Gast distributor has a complete line of complementary products to satisfy most of your requirements for pneumatic systems of all kinds. If your application requires modification of an existing system or a new design, your Gast distributor will be glad to assist you. Gast tank systems, just as all Gast products, can be modified or customized to satisfy the needs of quantity users. A list of distributors, both domestic and international, are listed on our website at www.gastmfg.com or call us at 269-926-6171 for the stocking distributor in your area.
### 2 Gallon Compressed Air Systems

#### Applications
- Beverage dispensing
- Lab use
- Portable displays
- Commercial door actuation
- Portable - off site use

#### Includes
- Pressure switch
- Manual drain
- Pressure safety valve (ASME)
- Pressure gauge
- Unloading capability
- Globe valve
- 100% oilless operation

### Table

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Tank Size Gallons</th>
<th>CFM @ psig (0 10 30 50 70 100)</th>
<th>ON/OFF psig</th>
<th>0 to 100 Setting</th>
<th>Standard Setting</th>
<th>Recovery of Motor Voltage</th>
<th>HP</th>
<th>Shipping Weight lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA-P206T-AA</td>
<td>2</td>
<td>0:50</td>
<td>150</td>
<td>2:50</td>
<td>0:50</td>
<td>115-50-1</td>
<td>1/8</td>
<td>29</td>
</tr>
<tr>
<td>DOA-P706T-AA</td>
<td>2</td>
<td>0:50</td>
<td>150</td>
<td>2:50</td>
<td>0:50</td>
<td>115-50-1</td>
<td>1/8</td>
<td>29</td>
</tr>
<tr>
<td>1HAB-11T-M100X</td>
<td>2</td>
<td>0:50</td>
<td>150</td>
<td>2:50</td>
<td>0:50</td>
<td>115-50-1</td>
<td>1/8</td>
<td>29</td>
</tr>
<tr>
<td>IHAE-11T-M104X</td>
<td>2</td>
<td>0:50</td>
<td>150</td>
<td>2:50</td>
<td>0:50</td>
<td>115-50-1</td>
<td>1/8</td>
<td>29</td>
</tr>
<tr>
<td>1LAA-11T-M100X</td>
<td>2</td>
<td>0:50</td>
<td>150</td>
<td>2:50</td>
<td>0:50</td>
<td>115-50-1</td>
<td>1/8</td>
<td>29</td>
</tr>
<tr>
<td>2HAH-11T-M200X</td>
<td>2</td>
<td>0:50</td>
<td>150</td>
<td>2:50</td>
<td>0:50</td>
<td>115-50-1</td>
<td>1/8</td>
<td>29</td>
</tr>
<tr>
<td>71R142-P075T-D300X</td>
<td>2</td>
<td>0:50</td>
<td>150</td>
<td>2:50</td>
<td>0:50</td>
<td>115-50-1</td>
<td>1/8</td>
<td>29</td>
</tr>
</tbody>
</table>
# 12, 20, 30 Gallon Compressed Air Systems

**Applications**
- Beverage dispensing
- Cylinder actuation
- Pneumatic temperature control
- Photo processing
- Spray painting
- Pneumatic logic
- Small to medium shops and filling stations

**Includes**
- ASME coded tank
- Pressure switch
- Manual drain
- Pressure safety valve (ASME)
- Pressure gauge
- Globe valve
- Magnetic starter (6HCA, 7HDD, 8LDF and 8HDM not shown in picture)
- 100% oilless operation (auto drain assembly K602 optional)

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Tank Size</th>
<th>CFM @ psig</th>
<th>Recovery of ON/OFF</th>
<th>Pressure Switch</th>
<th>Voltage</th>
<th>HP</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>2LAF-11T-M200X</td>
<td>12</td>
<td>2.10</td>
<td>1.80</td>
<td>1.70</td>
<td>1.50</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>3HEB-11T-M345X</td>
<td>12</td>
<td>2.40</td>
<td>2.20</td>
<td>1.85</td>
<td>1.50</td>
<td>1.30</td>
<td>1.15</td>
</tr>
<tr>
<td>3HBE-11T-M303X</td>
<td>12</td>
<td>2.9</td>
<td>2.70</td>
<td>2.20</td>
<td>2.00</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>3LEM-11T-M345X</td>
<td>12</td>
<td>3.1</td>
<td>2.70</td>
<td>2.20</td>
<td>1.80</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>3LBA-11T-M300X</td>
<td>12</td>
<td>3.50</td>
<td>3.15</td>
<td>2.65</td>
<td>2.20</td>
<td>1.85</td>
<td>1.46</td>
</tr>
<tr>
<td>*71R640-P64T-D500X</td>
<td>12</td>
<td>3.50</td>
<td>3.15</td>
<td>2.65</td>
<td>2.20</td>
<td>1.85</td>
<td>1.46</td>
</tr>
<tr>
<td>*71R640-P67T-D500X</td>
<td>12</td>
<td>3.50</td>
<td>3.15</td>
<td>2.65</td>
<td>2.20</td>
<td>1.85</td>
<td>1.46</td>
</tr>
<tr>
<td>4HCC-11T-M450X</td>
<td>20</td>
<td>4.70</td>
<td>4.40</td>
<td>3.90</td>
<td>3.40</td>
<td>2.90</td>
<td>2.40</td>
</tr>
<tr>
<td>4LCB-11T-M450X</td>
<td>20</td>
<td>4.70</td>
<td>4.40</td>
<td>3.90</td>
<td>3.40</td>
<td>2.90</td>
<td>2.40</td>
</tr>
<tr>
<td>5HCD-11T-M550NGX</td>
<td>20</td>
<td>7.00</td>
<td>6.30</td>
<td>5.30</td>
<td>4.40</td>
<td>3.70</td>
<td>2.92</td>
</tr>
<tr>
<td>6HCA-11T-M616X</td>
<td>30</td>
<td>5.40</td>
<td>5.20</td>
<td>4.70</td>
<td>4.30</td>
<td>3.90</td>
<td>3.20</td>
</tr>
<tr>
<td>6HCA-11T-M617</td>
<td>30</td>
<td>5.40</td>
<td>5.20</td>
<td>4.70</td>
<td>4.30</td>
<td>3.90</td>
<td>3.20</td>
</tr>
<tr>
<td>6LCF-11T-M616X</td>
<td>30</td>
<td>6.30</td>
<td>6.00</td>
<td>5.50</td>
<td>5.00</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>7HDD-11T-M750X</td>
<td>30</td>
<td>9.00</td>
<td>8.40</td>
<td>7.25</td>
<td>6.50</td>
<td>5.75</td>
<td>5.00</td>
</tr>
<tr>
<td>7HDD-11T-M750X</td>
<td>30</td>
<td>9.00</td>
<td>8.40</td>
<td>7.25</td>
<td>6.50</td>
<td>5.75</td>
<td>5.00</td>
</tr>
<tr>
<td>7HDD-11T-M853</td>
<td>30</td>
<td>9.00</td>
<td>8.40</td>
<td>7.25</td>
<td>6.50</td>
<td>5.75</td>
<td>5.00</td>
</tr>
<tr>
<td>8HDM-11T-M853</td>
<td>30</td>
<td>11.00</td>
<td>10.25</td>
<td>9.25</td>
<td>8.50</td>
<td>7.50</td>
<td>7.00</td>
</tr>
<tr>
<td>8HDM-11T-M853</td>
<td>30</td>
<td>11.00</td>
<td>10.25</td>
<td>9.25</td>
<td>8.50</td>
<td>7.50</td>
<td>7.00</td>
</tr>
<tr>
<td>8LDF-11T-M850X</td>
<td>30</td>
<td>12.50</td>
<td>12.00</td>
<td>10.60</td>
<td>9.3</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

* These units also include
- UL 1450 listed
- Enhanced design to start under any conditions
- Fully enclosed compressor design for safe operation
- All inclusive, fully assembled system
- Easy to install and maintain
- Automatic drain (optional)
- Pressure switch with on/off toggle switch, cord, and plug

www.gastmfg.com

Gast Compressed Air and Vacuum Systems 5
Applications

- Hospitals
- Medical/dental clinics
- Pneumatic temperature control
- Small to medium shops and filling stations
- Pneumatic logic
- Clean room environment

Includes

- ASME coded tank
- Easy-to-use electric panel (see page 10)
- Manual drain
- Pressure safety valve (ASME)
- Pressure gauge
- Globe valve
- 100% oilless operation (auto drain assembly K602 optional)

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Tank Size Gallons</th>
<th>Total CFM of both Units @ psig</th>
<th>Pump Up Time in Minutes: Seconds (Approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>#1 Pressure Setting On/Off psig On-Off Setting or 0-90 psig</td>
<td>Recovery of 1 Pump 80-100</td>
</tr>
<tr>
<td>6HCA-15DTA-M616X</td>
<td>60</td>
<td>10.80 10.40 9.40 8.60 7.80 7.00</td>
<td>80/100 70/90</td>
</tr>
<tr>
<td>6HCA-15DTC-M617</td>
<td>60</td>
<td>10.80 10.40 9.40 8.60 7.80 7.00</td>
<td>80/100 70/90</td>
</tr>
<tr>
<td>6HCA-15DTD-M617</td>
<td>60</td>
<td>10.80 10.40 9.40 8.60 7.80 7.00</td>
<td>80/100 70/90</td>
</tr>
<tr>
<td>7HDD-69DTA-M750X</td>
<td>60</td>
<td>18.00 16.80 14.50 13.00 11.50 10.50</td>
<td>80/100 70/90</td>
</tr>
<tr>
<td>7HDD-69DTD-M853</td>
<td>60</td>
<td>18.00 16.80 14.50 13.00 11.50 10.50</td>
<td>80/100 70/90</td>
</tr>
<tr>
<td>8HDM-30DTC-M853</td>
<td>60</td>
<td>22.00 20.50 18.50 17.00 15.00 14.50</td>
<td>80/100 70/90</td>
</tr>
<tr>
<td>8HDM-30DTD-M853</td>
<td>60</td>
<td>22.00 20.50 18.50 17.00 15.00 14.50</td>
<td>80/100 70/90</td>
</tr>
</tbody>
</table>
Vacuum Tank Systems (Simplex and Duplex)

Applications
- Vacuum thermo-forming
- Food processing
- Impregnation and degassing
- Avionics
- Transfer/handling equipment

Includes
- Swing type check valve
- Vacuum switch
- Large inline filter/exhaust muffler
- Easy-to-use electrical panel (Duplex only - See page 11)
- Vacuum gauge
- Pre-tank filter AV460C optional

<table>
<thead>
<tr>
<th>Tank Size</th>
<th>Simplex</th>
<th>Approximate Pump Down Switch Setting inHg</th>
<th>Speed (minutes: seconds)</th>
<th>System Voltage</th>
<th>Shipping Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Number</td>
<td>Off</td>
<td>On</td>
<td>0-25 inHg</td>
<td>20-25 inHg</td>
<td>L = Lubricated</td>
</tr>
<tr>
<td>0523-V81T-SG588DX</td>
<td>2</td>
<td>25&quot;</td>
<td>20&quot;</td>
<td>0:15</td>
<td>0:09</td>
</tr>
<tr>
<td>0523-V184T-G588DX</td>
<td>2</td>
<td>25&quot;</td>
<td>20&quot;</td>
<td>0:15</td>
<td>0:09</td>
</tr>
<tr>
<td>1023-V17TA-SG608X</td>
<td>30</td>
<td>25&quot;</td>
<td>20&quot;</td>
<td>1:30</td>
<td>0:45</td>
</tr>
<tr>
<td>1023-V126T-SG608X</td>
<td>30</td>
<td>25&quot;</td>
<td>20&quot;</td>
<td>1:30</td>
<td>0:50</td>
</tr>
<tr>
<td>1023-V126TA-SG608X</td>
<td>30</td>
<td>25&quot;</td>
<td>20&quot;</td>
<td>1:30</td>
<td>0:50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duplex</th>
<th>Tank Size</th>
<th>Approximate Pump Down Switch Setting inHg</th>
<th>Speed (minutes:seconds)</th>
<th>System Voltage</th>
<th>Shipping Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Number</td>
<td>Off</td>
<td>On</td>
<td>Off</td>
<td>On</td>
<td>(2 pumps)</td>
</tr>
<tr>
<td>2565-V93DTC-T336</td>
<td>60</td>
<td>25&quot;</td>
<td>20&quot;</td>
<td>17&quot;</td>
<td>0:30</td>
</tr>
<tr>
<td>6066-V113DTC-T339</td>
<td>60</td>
<td>25&quot;</td>
<td>20&quot;</td>
<td>17&quot;</td>
<td>0:29*</td>
</tr>
<tr>
<td>6066-V113DTD-T339</td>
<td>60</td>
<td>25&quot;</td>
<td>20&quot;</td>
<td>17&quot;</td>
<td>0:29*</td>
</tr>
</tbody>
</table>

* Pump running cold
**Pump operating at stabilized
## Accessories

### Pressure and Vacuum Tank Assemblies (Complete Package Minus Pump)

<table>
<thead>
<tr>
<th>ACCESSORY</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>USED ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF599D</td>
<td>2 Gallon Tank Assembly for RoA &amp; DoA Series (Pressure)</td>
<td>DoA-706T-AA, RoA-P206T-AA</td>
<td></td>
</tr>
<tr>
<td>AF599</td>
<td>2 Gallon Tank Assembly for 48 Frame Piston (Pressure)</td>
<td>1HAB, 2HAH</td>
<td></td>
</tr>
<tr>
<td>AF599A</td>
<td>2 Gallon Tank Assembly for 56 Frame Piston (Pressure)</td>
<td>4HCC, 5HCD</td>
<td></td>
</tr>
<tr>
<td>AF600</td>
<td>12 Gallon Tank Assembly for 48 Frame Piston (Pressure)</td>
<td>1HAB, 2HAH, 3HBB</td>
<td></td>
</tr>
<tr>
<td>AF600B</td>
<td>12 Gallon Tank Assembly for 56 Frame Piston (Pressure)</td>
<td>4HCC, 5HCD, 6HCA</td>
<td></td>
</tr>
<tr>
<td>AF601</td>
<td>20 Gallon Tank Assembly for 2 Cylinder 56 Frame Piston (Pressure)</td>
<td>4HCC, 5HCD, 6HCA</td>
<td></td>
</tr>
<tr>
<td>AF606</td>
<td>30 Gallon Tank Assembly for 56 Frame Piston (Pressure)</td>
<td>5HCD, 6HCA, 7HDD, 8HDM</td>
<td></td>
</tr>
<tr>
<td>AF599H</td>
<td>2 Gallon Tank Assembly for 48 Frame Rotary Vane (Vacuum)</td>
<td>0523</td>
<td></td>
</tr>
<tr>
<td>AH318</td>
<td>30 Gallon Tank Assembly for 56 Frame Rotary Vane (Vacuum)</td>
<td>1023 (Oilless &amp; Lube)</td>
<td></td>
</tr>
<tr>
<td>AH333</td>
<td>30 Gallon Tank Assembly for “65 Series” Rotary Vane (Vacuum), Does not include magnetic starter</td>
<td>2565, 2567</td>
<td></td>
</tr>
<tr>
<td>AH336</td>
<td>60 Gallon Tank Assembly for “65 Series” Rotary Vane (Vacuum), Does not include magnetic starter</td>
<td>2565, 6066</td>
<td></td>
</tr>
</tbody>
</table>

### Pressure and Vacuum Switches

<table>
<thead>
<tr>
<th>ACCESSORY</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>USED ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF265</td>
<td>Diaphragm-Type Unloading Pressure Switch 10-100 psi Range, 20-30 lb Differential</td>
<td>RoA-DOA</td>
<td></td>
</tr>
<tr>
<td>AF564</td>
<td>Diaphragm-Type Pressure Switch 10-100 psi Range, 20-30 lb Differential (No Unloader)</td>
<td>All Simplex Systems</td>
<td></td>
</tr>
<tr>
<td>AE265</td>
<td>Diaphragm-Type Vacuum Switch, Cutout 5-25 inHg, Differential 4-12 inHg</td>
<td>All Simplex Systems</td>
<td></td>
</tr>
</tbody>
</table>

### Check Valves

<table>
<thead>
<tr>
<th>ACCESSORY</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>USED ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE238</td>
<td>Spring-Loaded Check Valve, 1/4” NPTM Threaded at Both Ends</td>
<td>RoA (Pressure) 0523 (Vacuum)</td>
<td></td>
</tr>
<tr>
<td>AJ550</td>
<td>Compression-Type Check Valve, 1/4” NPTM Threaded at Both Ends</td>
<td>DoA, 1HAB-6HCA (Pressure)</td>
<td></td>
</tr>
<tr>
<td>AJ550A</td>
<td>Compression-Type Check Valve, 3/8” NPTM Threaded at Ends</td>
<td>7HDD (Pressure)</td>
<td></td>
</tr>
<tr>
<td>AJ824</td>
<td>Spring-Loaded Check Valve, 3/8” NPTM Threaded at Both Ends</td>
<td>1023 (Vacuum)</td>
<td></td>
</tr>
<tr>
<td>AH326A</td>
<td>Swing Check Valve, 3/4” NPTM Threaded at Both Ends</td>
<td>2565 (Vacuum)</td>
<td></td>
</tr>
<tr>
<td>AH326B</td>
<td>Swing Check Valve, 1” NPTM Threaded At Both Ends</td>
<td>6066 (Vacuum)</td>
<td></td>
</tr>
<tr>
<td>AK430</td>
<td>Spring-Loaded Check Valve, 3/8” NPTM Hose Connection (Inside Tank)</td>
<td>4HCC-8HDM</td>
<td></td>
</tr>
</tbody>
</table>

### Gauges

<table>
<thead>
<tr>
<th>ACCESSORY</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>USED ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA806</td>
<td>2” Dial Face Pressure Gauge, 0-160 PSI (0-11 Bar), 1/4” NPTM Mounting</td>
<td>All Simplex</td>
<td></td>
</tr>
<tr>
<td>AE362</td>
<td>2” Dial Face Pressure Gauge, 0-100 PSI (0-7 Bar) 1/4” NPTM Bottom Mounting</td>
<td>All Duplex Pressure Systems</td>
<td></td>
</tr>
<tr>
<td>AE136</td>
<td>2” Dial Face Vacuum Gauge, 0-30 HG (0-76mm HG) 1/4” NPTM Back Mounting</td>
<td>All Simplex Vacuum Systems</td>
<td></td>
</tr>
<tr>
<td>AA640</td>
<td>2” Dial Face Vacuum Gauge, 0-30 HG (0-76mm HG) 1/4” NPTM Bottom Mounting</td>
<td>All Duplex Vacuum Systems</td>
<td></td>
</tr>
<tr>
<td>ACCESSORY</td>
<td>PART NO.</td>
<td>DESCRIPTION</td>
<td>USED ON</td>
</tr>
<tr>
<td>--------------</td>
<td>----------</td>
<td>--------------------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Drains</td>
<td>AE248</td>
<td>Manual Drain Cock, 1/4&quot; NPTM</td>
<td>All Systems</td>
</tr>
<tr>
<td></td>
<td>AK602</td>
<td>Auto Tank Drain, 1/4&quot; NPT</td>
<td>Pressure Systems</td>
</tr>
<tr>
<td></td>
<td>B300A</td>
<td>1/4&quot; NPTM, Plastic with Internal Felts</td>
<td>1HAB-7HDD</td>
</tr>
<tr>
<td></td>
<td>B300F</td>
<td>3/8&quot; NPTM, Plastic with Internal Felts</td>
<td>8HDM</td>
</tr>
<tr>
<td></td>
<td>AA900D</td>
<td>Jar-Type, 3/4&quot; NPTF Ports</td>
<td>2565</td>
</tr>
<tr>
<td></td>
<td>AV460C</td>
<td>Catch Pot with Vacuum Bag Element and Cloth Sack, 1 1/4&quot; NPTF Ports (Install Before Tank)</td>
<td>6066</td>
</tr>
<tr>
<td></td>
<td>V400G</td>
<td>Jar-Type, 3/4&quot; NPTF Ports</td>
<td>0523 (Oilless &amp; Lubricated)</td>
</tr>
<tr>
<td></td>
<td>AB599</td>
<td>Jar-Type, 3/8&quot; NPTF Ports</td>
<td>1023 (Oilless &amp; Lubricated)</td>
</tr>
<tr>
<td></td>
<td>V425L</td>
<td>Jar-Type, 1/4&quot; NPTF with Deflector in Exhaust Port</td>
<td>0523 (Oilless &amp; Lubricated)</td>
</tr>
<tr>
<td></td>
<td>AB599B</td>
<td>Jar-Type, 3/8&quot; NPTF with Deflector in Exhaust Port</td>
<td>1023 (Oilless &amp; Lubricated)</td>
</tr>
<tr>
<td></td>
<td>AA900E</td>
<td>Jar-Type, 3/4&quot; NPTF with Deflector in Exhaust Port</td>
<td>2565 Simplex and Duplex</td>
</tr>
<tr>
<td></td>
<td>AD560B</td>
<td>Jar-Type, 1&quot; NPTF with Deflector in Exhaust Port</td>
<td>6066</td>
</tr>
<tr>
<td></td>
<td>AF631</td>
<td>1&quot; Diameter, 3/4&quot; Thickness, 1/4 X 20 Threading 1/2&quot; Long</td>
<td>Optional</td>
</tr>
<tr>
<td></td>
<td>AF633</td>
<td>1 1/2&quot; Diameter, 1&quot; Thickness, 5/16 X 18 Threading 5/8&quot; Long</td>
<td>All Systems Except ROA and DOA</td>
</tr>
<tr>
<td></td>
<td>AE614B</td>
<td>12 1/2&quot; L. Plastic Tubing (Needs AG427 Male Connector)</td>
<td>ROA, DOA</td>
</tr>
<tr>
<td></td>
<td>AF634</td>
<td>14&quot; L. Teflon Core, 1/4&quot; NPTM Fittings</td>
<td>1HAB-5HCD</td>
</tr>
<tr>
<td></td>
<td>AH332</td>
<td>16&quot; L. Teflon Core, 3/8&quot; NPTM Fittings</td>
<td>6HCA-8HDM</td>
</tr>
<tr>
<td></td>
<td>AH325F</td>
<td>16&quot; L. Plastic Tubing (Needs 2-AH138E Clamps)</td>
<td>0523 (Oilless &amp; Lubricated)</td>
</tr>
<tr>
<td></td>
<td>AH307C</td>
<td>25 1/2&quot; L. Plastic Tubing (Needs 2-AH138D Clamps)</td>
<td>6066</td>
</tr>
<tr>
<td></td>
<td>AB322E</td>
<td>Base For Duplex Vacuum System (Need 2)</td>
<td>6066</td>
</tr>
<tr>
<td></td>
<td>AD220</td>
<td>1 Quart High Detergent 10 Weight Lubricating Oil</td>
<td>0523, 1023, 2565</td>
</tr>
<tr>
<td></td>
<td>AH255B</td>
<td>14 Ounces of Aerosol Can Nonflammable Flushing Solvent</td>
<td>Vacuum Systems</td>
</tr>
</tbody>
</table>
Compressed Air Systems

Moisture When air is compressed in a tank system, water accumulates in the tank. To understand how this works, think of a stack of sponges saturated with water. Exert pressure on the sponges and water comes out. Compressing volumes of air has the same effect. The humidity in the air accumulates in the tank, which will require draining. If you are considering a tank system for an application that requires moisture-free air, the design should include a refrigera ted, or desiccant type air dryer. Consult your Gast Distributor for more information.

Air Consumption/Air Delivery Before Pump Cycles This table shows the cubic feet of air in a tank between various duties. With this data, you can estimate how many cycles of your operation can be performed before the pressure switch starts compressor operation.

### CUBIC FEET OF AIR

<table>
<thead>
<tr>
<th>Pressure Setting</th>
<th>Tank Size in Gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td>0 PSI</td>
<td>.26</td>
</tr>
<tr>
<td>0-50 PSI</td>
<td>1.1</td>
</tr>
<tr>
<td>0-100 PSI</td>
<td>2</td>
</tr>
<tr>
<td>30-50 PSI</td>
<td>.3</td>
</tr>
<tr>
<td>80-100 PSI</td>
<td>.3</td>
</tr>
<tr>
<td>70-100 PSI</td>
<td>.5</td>
</tr>
</tbody>
</table>

The following example will assist in sizing a tank package based on a desired duty cycle.

Application Example:

**Determining Duty Cycle (compressor On vs. Off time)**

Given: Air requirement is .5 CFM continuous @ 70 psig. Refer to the above chart and based on the pressure switch setting, select one of the tank sizes based on the available/stored air. First choice could be a 20 gallon tank and a .5 HP compressor. The 4HCC-11T-M450x provides a starting point for you to consider.

**Determining Pump Operating Time:**

1. **Determine the average flow provided by the compressor between the cut in and cut out pressure settings for the pressure switch.** (The average pressure for a Simplex tank package is 85 psig and Duplex tank package is 90 psig). The flow at 85 psig for model 4HCC compressor is 1.9 CFM. (For this example .5 CFM is continuously being supplied to the application). The actual flow going into the receiver will be corrected to **1.4 CFM** (1.9 CFM - .5 CFM = 1.4 CFM).

2. **Determine the amount of time the receiver (alone) will supply the required flow before the pressure switch turns on the air compressor.** We selected a 20-gallon air receiver and referring to the above chart we can determine that 3.6 cubic feet of air is stored in the receiver between 70 psig - 100 psig. The amount of time the receiver satisfies the continuous flow of .5 CFM will be **3.6 cu ft / .5 CFM = 7.2 minutes or 7 minutes and 12 seconds.**

3. **Determine the amount of time the air compressor will operate to satisfy the pressure switch setting (70 psig - 100 psig).** We determined in step #1 the compressor delivers 1.4 CFM into the receiver. The required volume of air of 3.6 cu ft will return the receiver pressure to 100 psig. The amount of run time the compressor will operate will be **3.6 cu ft / 1.4 CFM = 2.6 minutes or 2 minutes and 36 seconds.**

**Conclusion:**

The 4HCC-11T-M450x will operate with a Duty Cycle of 27% Pump run time: 2.6 minutes per cycle or 15.9 min per hour or 2.12 hours (8 hour shift) or 10.6 hours (5 day week, 8 hour shift) or 551 hours per year. Pump off time: 7.2 minutes per cycle or 1.528 hours per year.

**Location of Tank System** Regardless of what system your application requires, its size, and the heat it generates, it is usually desirable to locate the tank system away from the work area. Operating noise, even when it is reduced by cycling, can still be a factor in determining location. However, a remote installation can cause problems in a pneumatic system. Some of these may be prevented by following these few simple rules.

1. Be sure the electrical hookup can supply proper voltage and amperage to the area selected for installation. Don’t run the system from an extension cord. Do have the system installed by a trained electrician.
2. Choose a location for the tank system which will be readily accessible for weekly maintenance, then establish and follow a regular maintenance schedule. Make copies of all tags and instructions for a permanent file, then return originals to the tank so they’re available for quick reference.
3. Use the largest size pipe practical when plumbing the system. The larger the pipe, the smaller the frictional losses. In other words, pipe that is too small will restrict air flow and prevent tools from operating properly regardless of compressor size. Large pipe also provides capacity for expansion of the system, should it become necessary.
4. In both vacuum and compressed air systems, the biggest problem that affects performance is leaks in plumbing. Be sure to use a sealant when setting up your system and periodically check all gaskets in filters.

It should be recognized that the performance in this catalog is based upon ambient conditions at sea level. Changes in altitude or barometric pressure will affect pumping speed for both compressors and vacuum pumps.
Sizing a Vacuum Receiver

To understand tank sizing for a desired level of vacuum, it is important to remember that the volume of the tank vs. the volume of the mold will determine your system vacuum.

Example: Let’s assume that for each inch of mercury we have one “super molecule”, and we have a tank that is 1 cubic foot and a mold that is 1 cubic foot.

At sea level the barometric pressure is 29.92 inHg absolute (0 gauge). Due to variations in the atmospheric pressure, we can safely assume that 30 inHg is a good round number. So, at sea level we can say that the atmosphere has almost 30 “super molecules.”

Now, we open up the valve and what happens? It balances

Now, with an average of 20 molecules per cubic foot, our system vacuum is 30 - 20 = 10 inHg gauge vacuum.

If we double the size of the vacuum tank, we now have an average of 10 super molecules in two cubic feet and 30 super molecules in the one cubic foot mold, relating back to our new vacuum gauge reading, 30 - 17 = 13 inHg gauge vacuum.

Now that we understand this concept, here is a simple tank calculation based upon Boyles Law of $P_1V_1 = P_2V_2$. If we have a tank that we are going to pump down to 25 inHg and we need a total system vacuum of 20 inHg, we can do the following calculation:

$$\frac{D}{T} = R$$

So:

$$\frac{20}{25} = R, \quad \frac{20}{5} = R, \quad 4:1 = R$$

We need a 4:1 ratio between the tank volume and the mold volume. This means if the mold is 1 gallon, the tank must be at least 4 gallons to reach the level of 20 inHg instantaneously.

Other tank to mold volume ratios:

D = 15 inHg  D = 22 inHg
T = 25 inHg  T = 25 inHg
1.5:1  7.5:1

Vacuum Forming Work sheet

To set up a proper vacuum forming system we must:
1. Calculate the volume of the cavity(ies) to be evacuated.
2. Calculate the volume of the plumbing.
3. Determine the proper receiver (tank) size.
4. Determine the proper vacuum for the application.

All of these factors are interrelated and demand equal consideration in the final system design. This work sheet is designed to help you through these considerations in a step-by-step fashion.

The next step is usually easy for a vacuum former because they know the area of the mold. Some simple reminders for volume calculations are:

1. Volume is always surface area times depth (height).
2. Volume of squares or rectangles are calculated by multiplying length times height times width.
3. Surface area of a circle is $\pi r^2$ or 3.14 times radius squared.
4. Volume of a sphere is calculated by multiplying $\frac{4}{3} \pi r^3$ or in other words, 4.189 times Radius cubed.

Cubic Feet for 10-foot Section of Schedule 40 pipe

<table>
<thead>
<tr>
<th>Reference Dimensions (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
</tr>
<tr>
<td>ROA-P206T</td>
</tr>
<tr>
<td>DOA-P706T</td>
</tr>
<tr>
<td>1HAB-11T</td>
</tr>
<tr>
<td>1LAA-11T</td>
</tr>
<tr>
<td>2HAH-11T</td>
</tr>
<tr>
<td>3HEB-11T</td>
</tr>
<tr>
<td>4HCC-11T</td>
</tr>
<tr>
<td>5HCD-11T</td>
</tr>
<tr>
<td>6HCA-11T</td>
</tr>
<tr>
<td>7HDD-11T</td>
</tr>
<tr>
<td>8HDM-11T</td>
</tr>
<tr>
<td>0523-V</td>
</tr>
<tr>
<td>1023-V</td>
</tr>
<tr>
<td>2565-V90</td>
</tr>
<tr>
<td>4HCC-89</td>
</tr>
<tr>
<td>5HCD-95</td>
</tr>
<tr>
<td>6HCA-15</td>
</tr>
<tr>
<td>7HDD-69D</td>
</tr>
<tr>
<td>8HDM-30D</td>
</tr>
<tr>
<td>2565-V30</td>
</tr>
<tr>
<td>6066-V113</td>
</tr>
<tr>
<td>71R640-P64T</td>
</tr>
<tr>
<td>71R640-P67T</td>
</tr>
<tr>
<td>71R640-P65DT</td>
</tr>
</tbody>
</table>

Pipe Inside Size | Dia. | Volume |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8&quot;</td>
<td>.269</td>
<td>.004 cu ft</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>.364</td>
<td>.007 cu ft</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>.493</td>
<td>.013 cu ft</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>.62</td>
<td>.021 cu ft</td>
</tr>
</tbody>
</table>

Pipe Inside Size | Dia. | Volume |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot;</td>
<td>.824</td>
<td>.037 cu ft</td>
</tr>
<tr>
<td>1&quot;</td>
<td>1.049</td>
<td>.06 cu ft</td>
</tr>
<tr>
<td>1 1/2&quot;</td>
<td>1.610</td>
<td>.14 cu ft</td>
</tr>
<tr>
<td>2&quot;</td>
<td>2.067</td>
<td>.23 cu ft</td>
</tr>
</tbody>
</table>