An Important Part of Your Air System

An air dryer is an important part of your total compressed air system. Properly cooled, dry air will improve the efficiency and life of your tools. A refrigerated air dryer removes unwanted moisture, and when installed with a filter, the filter removes additional contaminants and oil from the line. These Industrial Air refrigerated non-cycling air dryers and high efficiency filters allow spray guns to run free of moisture and extend the life of your air tools.

A Must for Cool, Dry Air

- Protect your equipment and tools from harmful moisture in the line
- Necessary in auto body repair and paint shops
- Effectively remove large amounts of water from the air compressor system
- Eliminate troublesome water droplets and fish eyes when painting
- Reduce rusting of air tools and equipment

Air Dryer Operation

1. The refrigerated air dryer cools the incoming warm moist compressed air in an air-to-air heat exchanger.
2. The incoming air enters an air-to-freon refrigerated exchanger/evaporator where the liquid refrigerant is released into the evaporator, and the air is cooled to 50°F by the liquid refrigerant (Freon).
3. Through this air to refrigerant process, the moisture is condensed into liquid water and drained away by the automatic drain.
4. All of the cooled air re-enters the air-to-air heat exchanger again and is warmed up by the incoming hot air as it exits the dryer. (The warmer air will keep the outside of the pipes in your shop from sweating). As the cooled air is leaving the dryer it also helps to pre-cool the hot incoming air.
Components

1. Heat Exchanger / Moisture Separator
   - Air enters and exits the dryer here
2. Refrigeration Compressor
   - Cools the air
3. Condenser
   - Removes moisture from the air
4. Fan Motor
   - Provides additional cooling for the condenser
5. Hot Gas Bypass Valve
   - The automatic expansion valve is set and designed to maintain proper pressure on the evaporator. The expansion valve acts as a preset refrigerant regulator.
6. Refrigerant Pressure Gauge
   - Indicates the suction pressure of the coolant within the system
7. Controller
   - Quick access on / off, LED dewpoint reading
8. Steel Cabinet Panels
   - Durable powder coat paint
9. Air Inlet / Outlet Ports
   - 1/2" NPT
10. Automatic Moisture Drain
    - Includes clean out valve and drain tube

Additional Features

- Non-cycling type dryer provides for minimal dewpoint swings and the refrigerant compressor operates continuously unless in freeze mode protection
- Corrosion resistant heat exchanger
- Low 2.9 PSI pressure drop has minimal effect on system operation
- Electronic automatic drain valve is easily accessible and includes drain tube
- ISO Class 6 Dryer (50°F Dewpoint)
- Uses R134A refrigerant
- 6’ power cord
- Durable powder coat painted enclosure panels
- Easy to install
- Leaves a small footprint, needing only 115 volts of power
- ETL-UL/CSA Certified
- 1-Year Limited Warranty

- Large refrigerant pressure gauge
- Carel controller - large LED dewpoint reading, quick access on / off
**Typical Installation**

![Typical Installation Diagram](image)

**Correction Factors**

If your dryer application needs to be sized for conditions other than the standard 100/100/100 conditions*, you must apply Correction Factors to properly size your dryer, using the formula of Air Compressor SCFM x Inlet Pressure x Inlet Temperature x Ambient Temperature x Dew Point = the Required Dryer SCFM

<table>
<thead>
<tr>
<th>Pressure (PSI)</th>
<th>58</th>
<th>72</th>
<th>87</th>
<th>100</th>
<th>115</th>
<th>130</th>
<th>145</th>
<th>160</th>
<th>175</th>
<th>190</th>
<th>204</th>
<th>218</th>
<th>232</th>
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</thead>
<tbody>
<tr>
<td>0.72</td>
<td>0.82</td>
<td>0.92</td>
<td>1.0</td>
<td>1.06</td>
<td>1.09</td>
<td>1.11</td>
<td>1.15</td>
<td>1.18</td>
<td>1.19</td>
<td>1.21</td>
<td>1.23</td>
<td>1.26</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ambient (°F)</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
<th>105</th>
<th>110</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.18</td>
<td>1.16</td>
<td>1.06</td>
<td>1.0</td>
<td>0.96</td>
<td>0.9</td>
<td></td>
</tr>
</tbody>
</table>

| Inlet (°F)   | 85 | 90 | 95 | 100 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 |
|--------------|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1.27         | 1.19| 1.09| 1.0| 0.91| 0.78| 0.71| 0.63| 0.54| 0.52| 0.48| 0.44| 0.4 | 0.36| 0.33|     |

<table>
<thead>
<tr>
<th>Dew Point (°F)</th>
<th>37.4</th>
<th>39.2</th>
<th>41</th>
<th>42.8</th>
<th>44.6</th>
<th>46.4</th>
<th>48.2</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>1.04</td>
<td>1.11</td>
<td>1.14</td>
<td>1.17</td>
<td>1.19</td>
<td>1.21</td>
<td>1.23</td>
<td></td>
</tr>
</tbody>
</table>

**EXAMPLE:**

Air Compressor SCFM of 17.0 x Inlet Pressure of 175 PSI x Inlet Temperature of 138°F x Ambient Air Temp of 80°F x Dew Point of 50 = Required Dryer SCFM

Thus: 17.0 x 1.18 x 0.44 x 1.16 x 1.23 = 12.59 SCFM

In this case select the IAD15 Dryer.

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**Air Dryer Specifications**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>CFM Capacity</th>
<th>Maximum PSI</th>
<th>Max Inlet Temperature</th>
<th>Comparable Compressor HP</th>
<th>Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IAD15</td>
<td>13</td>
<td>232</td>
<td>158°F</td>
<td>5 RHP</td>
<td>60</td>
</tr>
<tr>
<td>IAD20</td>
<td>19</td>
<td>232</td>
<td>158°F</td>
<td>5 RHP</td>
<td>61</td>
</tr>
<tr>
<td>IAD30</td>
<td>27</td>
<td>232</td>
<td>158°F</td>
<td>7.5 RHP</td>
<td>63</td>
</tr>
<tr>
<td>IAD45</td>
<td>43</td>
<td>232</td>
<td>158°F</td>
<td>10 RHP</td>
<td>65</td>
</tr>
</tbody>
</table>

*Capacity based on CAGI Standard ADF100. Inlet Temp 100°F, Inlet Pressure 100°F, Ambient Temp 100°F.

All air dryer models listed in the chart above also have the following specifications:

- **Unit dimensions of 15.1” x 17.7” x 17.0”**
- **1/2” NPT inlet/outlet connection size**
- **115 Voltage / 1 Phase / 60 Hertz**
Tips for Selecting the Right Air Dryer

- The maximum pressure of the dryer must be the same or higher than that of your compressor.
- The maximum air flow that can flow through your dryer (SCFM) must be higher than tool needs.
- If you choose a too small dryer, it will result in a large pressure drop because the air does not easily pass through the dryer. And your dryer may not be able to reach the desired dew point.
- Confirm the exhaust temperature of the compressor air does not exceed the inlet temperature rating of the dryer.
- Be conscious of the ambient temperature (room temperature) of where the dryer will be installed to be sure the dryer can operate in that environment.

What is Inside this Filter Element?

1. Unique Push-Fit, Double O-Ring Seal
2. Stainless Steel Support
3. Fiberglass Support
4. Deep Bed Multi-Wrap Borosilicate Glass Microfiber
5. Fiberglass Support
6. Polyester Needle Felt Sleeve
7. End Cap

High Efficiency Filters

Protect your air dryer with a high efficiency filter. A compressed air filter must be installed between the compressor and the dryer to remove oil and other contaminants that may damage the air dryer heat exchanger. These high efficiency filters provide for a lower pressure drop when compared to comparable competitive filters, allowing your air system to run as efficiently as possible.
Additional Features

- Differential Pressure Gauge - When the needle indication is above 6 PSI and in the red, this indicates too much pressure drop is occurring due to the element being fully saturated. Time to replace the element!
- Double o-ring seal between the head and filter element prevents leaking
- O-ring sealed threaded bowl for ease of removal
- High quality aluminum constructed body
- Automatic internal float drain
- Pressure drop - clean and dry 1.0 PSI
- Pressure drop - saturated 2.0 PSI
- Only a 4-7” clearance is required for element removal
- Open / close drain valve with threaded connection for drain tube

Filter Specifications

<table>
<thead>
<tr>
<th>Model Number</th>
<th>SCFM Flow</th>
<th>Maximum Inlet Pressure</th>
<th>Maximum* Inlet Temperature °F</th>
<th>Maximum PSI</th>
<th>Micron Rating</th>
<th>Max Carryover at 68°F</th>
<th>Inlet / Outlet Connection Size</th>
<th>Unit Dimensions L x D x H (in)</th>
<th>Unit Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>019-0331X</td>
<td>65</td>
<td>232 PSI</td>
<td>248°F</td>
<td>232</td>
<td>1.0</td>
<td>0.1 ppm</td>
<td>1/2” NPT</td>
<td>4.375 x 4.125 x 14.5</td>
<td>5.5</td>
</tr>
<tr>
<td>019-0354</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Filter Element of Borosilicate Glass Microfiber for use with 019-0331X</td>
<td>2.625 x 2.625 x 5.5</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>019-0330X</td>
<td>75</td>
<td>232 PSI</td>
<td>248°F</td>
<td>232</td>
<td>1.0</td>
<td>0.1 ppm</td>
<td>3/4” NPT</td>
<td>4.375 x 4.125 x 14.5</td>
<td>5.25</td>
</tr>
<tr>
<td>019-0353</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Filter Element of Borosilicate Glass Microfiber for use with 019-0330X</td>
<td>2.625 x 2.625 x 5.5</td>
<td>0.4</td>
<td></td>
</tr>
</tbody>
</table>

*Maximum recommended working temp = 100°F

NOTE: For optimum performance and filtration, install a second high efficiency filter after the dryer