VES Value

Why consider a VES cycling dryer for your compressed air system?

ENERGY SAVINGS!

Non-cycling refrigerated air dryers operate with the refrigeration compressor running continuously, regardless of inlet load. Minimal energy savings is realized from 100% down to 0% inlet air load.

The VES Series air dryer automatically cycles the refrigeration compressor on and off in response to inlet load conditions. As the inlet air load is reduced, the refrigeration compressor cycles off, providing you with savings.

_The load matching design saves energy and reduces your costs._

Harness Energy Savings with hypervane VES

- Non-Cycling
- VES
How does the **hydrovane VES** cycling dryer compare?

**Built-in air filtration unmatched in the industry**

1 – The standard dryer is equipped with a Grade B filter/separator
   - ISO Quality Class 3: Remaining solid particulate
   - ISO Quality Class 5: Remaining oil concentration
   - ISO Quality Class 5: Pressure dew point

2 – Optional Grade E high efficiency coalescing filters are available
   - ISO Quality Class 1: Remaining solid particulate
   - ISO Quality Class 1: Remaining oil concentration
   - ISO Quality Class 5: Pressure dew point

**Benefits of Built-in Filtration**

- Ease of installation
- Smaller total footprint
- Lower total installed cost

**No-air-loss condensate drain standard**

**Rebate eligibility**

---

**saving** [sey-ving]

- **noun**
  1. a reduction or lessening of expenditure or outlay: a saving of 10 percent.
  2. something that is saved.
  3. savings, sums of money saved by economy and laid away.

**energy** [en-er-jee]

- **noun**
  1. any source of usable power, as fossil fuel, electricity, or solar radiation.
  2. the capacity for vigorous activity; available power.
  3. Physics. the capacity to do work.
  Symbol: E

---

Contact your local distributor for more details.
The Drying Process

**Compressed Air Circuit**

1. Warm, saturated compressed air enters the dryer through the inlet pipe connection.
2. Air travels through the air-to-air heat exchanger and the glycol-to-air heat exchanger. Propylene glycol surrounds the passages and cools the air to the desired pressure dew point.
3. Moisture, solid particulates and oil aerosols are removed by the filter/separator. A no-air-loss condensate drain discharges contaminants from the system.
4. Dry, filtered air exits the dryer for use.

The Cooling Process

**Glycol Circuit**

5. Glycol exits the air-to-glycol heat exchanger and then enters the glycol storage tank.
6. A circulation pump continuously moves the thermal medium throughout the circuit.
7. A thermal sensor monitors the glycol temperature and turns the refrigeration compressor off whenever the glycol is cooled to its lowest temperature. The cooling medium continues to dry the air. After the medium warms up, the thermal sensor restarts the refrigeration compressor.
8. The glycol-to-refrigerant heat exchanger chills the thermal media and travels back to the air-to-glycol heat exchanger.
Features

**Optimized Cabinet Design**
- Promotes ease of access from all four sides
- Certified to CSA C22.2 No. 236-05/UL 1995

**Stainless Steel Brazed Plate Heat Exchangers**
- Compact, thermally efficient
- Ensures delivery of an ISO 8573.1: 2009 Air Quality Class 5 pressure dew point

**Integral Filtration**
- Standard Filter/Separator removes solids down to 3.0 microns and oil aerosols to 5.0 mg/m³
- Optional Cold Coalescer removes solids down to 0.01 microns and oil aerosols to < 0.01 mg/m³

**No Air Loss Condensate Drains**
*Standard on all models*
- Mechanical float drain are standard on models 90–140 scfm (153–238 nm³/h)
- Electric demand drain are standard on models 190–675 scfm (323–1148 nm³/h)

**Hermetically Sealed Refrigerant Compressor**
- Environmentally friendly R-134a refrigerant
- High reliability, long service life

**Rugged Glycol Reservoir**
- Stores food-grade propylene glycol cooling media
- Leak-free, rotational molded construction

**Reliable Thermal Media Circulation Pump**
- Continuously moves cooling medium through the dryer
- Cartridge design promotes reliability and ease of service
VES Specifications

### VES Series Options

- Level II Advanced Electronic Controls (models 190–675 scfm)
- Cold coalescing separator elements
- Water-cooled condensing unit (models 190–675 scfm)
- 3 valve block and by-pass
- Four gauge package (panel mounted)

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Flow</th>
<th>Volatges</th>
<th>Power</th>
<th>In/Out Connection</th>
<th>Dimensions</th>
<th>Weight</th>
<th>Std Dp</th>
<th>Opt Dp</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>scfm</td>
<td>nm³/h</td>
<td>V/ph/Hz</td>
<td>kW</td>
<td>NPT</td>
<td>H in</td>
<td>W mm</td>
<td>D mm</td>
</tr>
<tr>
<td>VES90</td>
<td>90</td>
<td>153</td>
<td>115/1/60</td>
<td>0.9</td>
<td>1.0</td>
<td>38</td>
<td>965</td>
<td>29</td>
</tr>
<tr>
<td>VES120</td>
<td>120</td>
<td>204</td>
<td>208-230/1/60</td>
<td>1.2</td>
<td>1.0</td>
<td>38</td>
<td>965</td>
<td>29</td>
</tr>
<tr>
<td>VES140</td>
<td>140</td>
<td>238</td>
<td>220-240/1/50</td>
<td>1.3</td>
<td>1.0</td>
<td>38</td>
<td>965</td>
<td>29</td>
</tr>
<tr>
<td>VES190</td>
<td>190</td>
<td>323</td>
<td>380-420/3/50</td>
<td>1.3</td>
<td>1.5</td>
<td>39</td>
<td>991</td>
<td>34</td>
</tr>
<tr>
<td>VES240</td>
<td>240</td>
<td>407</td>
<td>380-420/3/50</td>
<td>1.9</td>
<td>1.5</td>
<td>39</td>
<td>991</td>
<td>34</td>
</tr>
<tr>
<td>VES280</td>
<td>280</td>
<td>476</td>
<td>208-230/3/60</td>
<td>1.9</td>
<td>1.5</td>
<td>46</td>
<td>1168</td>
<td>35</td>
</tr>
<tr>
<td>VES360</td>
<td>360</td>
<td>612</td>
<td>380-420/3/50</td>
<td>2.0</td>
<td>2.0</td>
<td>46</td>
<td>1168</td>
<td>35</td>
</tr>
<tr>
<td>VES450</td>
<td>450</td>
<td>765</td>
<td>460/3/60</td>
<td>2.6</td>
<td>2.5</td>
<td>58</td>
<td>1473</td>
<td>32</td>
</tr>
<tr>
<td>VES540</td>
<td>540</td>
<td>917</td>
<td>460/3/60</td>
<td>3.0</td>
<td>2.5</td>
<td>58</td>
<td>1473</td>
<td>32</td>
</tr>
<tr>
<td>VES675</td>
<td>675</td>
<td>1147</td>
<td>575/3/60</td>
<td>4.3</td>
<td>2.5</td>
<td>58</td>
<td>1473</td>
<td>32</td>
</tr>
</tbody>
</table>

1. Rated Flow Capacity - Conditions for rating dryers are in accordance with ISO 7183 (option A2) working conditions: inlet air temperature 100° F (38° C), inlet air pressure 100 psig (6.9 bar), ambient air temperature 100° F (38° C), 100% saturated air, operating on 60 Hz power supply.
2. BSP connections available
3. Pressure drop inclusive of integral filtration
4. Cumulative pressure drop includes Grade B and Grade E filter/separator elements
Two Levels of Control

**Standard Level I (VES90–VES675)**

Easy to monitor controls provide dryer status
- Dryer on/off switch
- Dryer on light
- Thermal medium temperature
- Dryer energized (VES190–VES675)
- Compressor on light

**Optional Level II (VES190–VES675)**

VES Series Level II microprocessor controller
- Operator Interface Displays:
  » Date/time/operating status
  » Hours to service
  » Total compressor operating time
- Energy Savings Interface:
  » Daily average load
  » Monthly average load
  » Annualized energy savings in dollars or euros
  » Scheduler mode for automatic start/stop operation

### Capacity Correction Factors

<table>
<thead>
<tr>
<th>Inlet Pressure</th>
<th>Inlet Temperature</th>
<th>80° F</th>
<th>90° F</th>
<th>100° F</th>
<th>110° F</th>
<th>120° F</th>
<th>130° F</th>
</tr>
</thead>
<tbody>
<tr>
<td>psig</td>
<td>bar 27° C</td>
<td>32° C</td>
<td>38° C</td>
<td>43° C</td>
<td>49° C</td>
<td>54° C</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>2.1</td>
<td>1.24</td>
<td>0.92</td>
<td>0.71</td>
<td>0.56</td>
<td>0.44</td>
<td>0.35</td>
</tr>
<tr>
<td>50</td>
<td>3.4</td>
<td>1.40</td>
<td>1.07</td>
<td>0.83</td>
<td>0.66</td>
<td>0.54</td>
<td>0.44</td>
</tr>
<tr>
<td>80</td>
<td>5.6</td>
<td>1.55</td>
<td>1.19</td>
<td>0.95</td>
<td>0.77</td>
<td>0.63</td>
<td>0.52</td>
</tr>
<tr>
<td>100</td>
<td>6.9</td>
<td>1.61</td>
<td>1.25</td>
<td>1.00</td>
<td>0.82</td>
<td>0.68</td>
<td>0.56</td>
</tr>
<tr>
<td>125</td>
<td>8.6</td>
<td>1.67</td>
<td>1.30</td>
<td>1.05</td>
<td>0.86</td>
<td>0.72</td>
<td>0.61</td>
</tr>
<tr>
<td>150</td>
<td>10.3</td>
<td>1.71</td>
<td>1.34</td>
<td>1.08</td>
<td>0.90</td>
<td>0.75</td>
<td>0.64</td>
</tr>
<tr>
<td>175</td>
<td>12.1</td>
<td>1.75</td>
<td>1.37</td>
<td>1.11</td>
<td>0.92</td>
<td>0.78</td>
<td>0.66</td>
</tr>
<tr>
<td>200</td>
<td>13.8</td>
<td>1.77</td>
<td>1.39</td>
<td>1.14</td>
<td>0.95</td>
<td>0.80</td>
<td>0.68</td>
</tr>
<tr>
<td>250</td>
<td>17.2</td>
<td>1.81</td>
<td>1.43</td>
<td>1.17</td>
<td>0.98</td>
<td>0.83</td>
<td>0.72</td>
</tr>
</tbody>
</table>

### Standards per ISO 8573.1

<table>
<thead>
<tr>
<th>Quality Classes</th>
<th>Solid Contaminants (maximum particle size in microns)</th>
<th>Maximum Pressure Dew Points</th>
<th>Maximum Oil Content (droplets, aerosols, and vapor ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 as specified</td>
<td>as specified as specified as specified</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0.1 -94 -70</td>
<td>0.008 0.01</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1 -40 -40</td>
<td>0.08 0.1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>5 -4 -20</td>
<td>0.8 1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>15 38 3</td>
<td>4 5</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>40 45 7</td>
<td>21 25</td>
<td></td>
</tr>
</tbody>
</table>

### Correction Factors for Ambient Temperature*

<table>
<thead>
<tr>
<th>Ambient Temperature</th>
<th>80° F</th>
<th>90° F</th>
<th>100° F</th>
<th>110° F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>27° C</td>
<td>32° C</td>
<td>38° C</td>
<td>43° C</td>
</tr>
<tr>
<td>Multiplier</td>
<td>1.12</td>
<td>1.06</td>
<td>1.00</td>
<td>0.94</td>
</tr>
</tbody>
</table>

*Air-cooled models only. For water-cooled use a 1.15 multiplier if cooling water is less than 95° F (35° C).
Protect the investment in hydrovane
Regular maintenance and service of hydrovane product is critical to the performance and longevity of the equipment. Only hydrovane can provide the assurance that the investment will provide a lifetime of productivity.

Reliability
Only hydrovane can provide aftermarket parts and services that are engineered for use in hydrovane products. The parts and lubricant have been tested under rigorous conditions at the factory to the highest quality standards.

Performance
Only hydrovane can provide aftermarket parts designed specifically for the hydrovane product. Use of OEM parts ensures that the investment in hydrovane will continue to perform year in and year out with the same reliability and efficiency.

Ease of Doing Business
Only hydrovane can provide the peace of mind of turning to one supplier and one source for all aftermarket needs. hydrovane has the support network in place to handle all customer service, service and technical support needs.

Value
Only hydrovane can provide the high quality aftermarket parts and services for the life of the investment in hydrovane. Proper care of the hydrovane product is vital to the equipment’s performance and efficiency. Lean on a trusted source — hydrovane.