VNC Series
Refrigerated Air Dryers
10–750 CFM
**VNC Value**

*hydrovane leads the way in providing value to our customers*

We looked beyond the typical refrigerated air dryer and designed a...

**Compressed Air Treatment System!**

The flexibility engineered into every VNC Series dryer allows you to satisfy your air quality requirements with a single package. Enlist us to deliver the dew point stability, air quality, energy efficiency, and product reliability that you expect from hydrovane.

**ISO 8573.1 Air Quality Classes**

1992 earmarked the year the International Organization for Standardization (ISO) established ISO 8573.1 as the global benchmark for evaluating the quality of compressed air. Thus, providing engineers with a universally accepted unit of measure for quantifying compressed air stream contaminants, namely solid particulates, moisture, and oil.

**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>0</td>
<td>as specified</td>
<td>as specified</td>
<td>as specified</td>
</tr>
<tr>
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<td>38</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>40</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>25</td>
</tr>
<tr>
<td>6</td>
<td>–</td>
<td>50</td>
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</tr>
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</table>

**VNC Series Packages Deliver:**

<table>
<thead>
<tr>
<th>ISO 8573.1 Quality Class Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>VNC Series</td>
</tr>
<tr>
<td>As Standard, Grade B</td>
</tr>
<tr>
<td>with Cold Coalescer Option</td>
</tr>
<tr>
<td>with an optional external Grade G VAF Filter</td>
</tr>
</tbody>
</table>

* Select models 100–750 scfm deliver Class 4 dew points. VNC25–75 deliver 43–44°F dew points, Class 5. Class 4-5 accounts for all flow models.

**Quality Class 0 reflects “as specified” level of cleanliness. The addition of an optional external Grade G Filter achieves 0.003 ppm w/w for technically Oil-Free air.
Durability Delivered

How does the hydrovane VNC refrigerated dryer compare?

• Rugged, proven, high quality components

• Superior dew point performance

• 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 4-5: 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 4-5: Pressure dew point

• Benefits of built-in filtration
   » Ease of installation
   » Smaller total footprint
   » Lower total installed cost

• No-air-loss condensate drain standard

ISO 8573.1 air quality built in

Premium Warranty
2 Years–Standard
3 Years–Extended
5 Years–Total

Parts and labor included. Contact your local distributor for more details.
Package Design

At first glance, the ruggedness and ease of serviceability engineered into VNC Series becomes apparent. Fabricated from solid steel, the corrosion resistant epoxy powder paint and the fit and finish of the cabinet, foretell of the quality to be found within. Easy interior access and user-friendly serviceability translate to reduced maintenance costs.

Proven Performance

All models use reliable refrigeration compressors and environmentally friendly refrigerants. Models through VNC500 use proven reciprocating refrigeration compressors. VNC600 through VNC750 incorporate rugged scroll compressors. You benefit from long component life, and exceptional around-the-clock performance.

High Performance Separator/Filter

Effective moisture removal at all flow rates is the key to maintain dew point stability. VNC25 and larger includes Grade B two-stage cold filtration to ensure maximum water removal even under low flow conditions. Stage one separation, with dual stainless steel orifice tubes, removes bulk liquids and solids greater than 10 micron. Stage two utilizes in-depth fiber media to coalesce water droplets and captures solid particles 3 microns and larger.

Get Connected

The extended inlet/outlet connections on VNC dryers (VNC25–VNC750) were engineered with foresight to readily accept all VAF Series Filters without the need for cumbersome adaptors and fittings. Gain the installation flexibility needed today preparing you for the changes of tomorrow.

Effective Heat Transfer

VNC 10–15 models have the patented static condenser technology that eliminates the need for a cooling fan. These models include an on/off switch, longer power cord (8 ft), and pneumatically operated float drain.

VNC Series models 25–750 incorporate heat exchangers crafted from multiple offset layers of press formed AISI 316 stainless steel. Press forming creates peaks and valleys that form media channels that optimize fluid turbulence. This prevents fouling and maximizes energy efficiency.
VNC 25–750

VNC Series dryers enlist proven components and modern materials to deliver the durability you expect from hydrovane. Hot, moist incoming compressed air enters the Precooler/Reheater (1) where it is precooled by the cold dehydrated airstream. Environmentally friendly low-pressure refrigerant gas is pressurized in the refrigeration compressor (2). Once compressed into a high-pressure gas, it then flows through the condenser (3) and changes to a cold 35° F liquid. The thermal expansion valve (4) precisely meters the cold liquid refrigerant into the evaporator (5) where the work is done. Hot, saturated compressed air enters the evaporator at the end opposite the incoming liquid refrigerant. The compressed air is chilled as they cross paths. Water is condensed out of the cold exiting air and is efficiently removed in the Separator/3 micron Filter (6). The cold air stream then flows through (7) the Cold Coalescing Oil Removal Filter (optional on models VNC25–VNC750) where oil droplets and aerosols to 0.008 ppm w/w are captured and removed. The exiting cold, dry compressed air then reenters the Precooler/Reheater (1) where it is reheated by the hot incoming air to prevent pipe sweating in your plant. Finally, the warm refrigerant is now a low-pressure gas and returns to the suction-side (8) of the refrigeration compressor to continue the process.

VNC 10–15

Warm saturated air enters the Evaporator (A), where it is cooled by an air-to-refrigerant process. Water vapor condenses into a liquid for removal at the moisture separator (B) by an Automatic Drain (C). The cold, dry air is reheated as it passes through the Reheater (D) while the patented Static Condenser (E) radiates waste heat to ambient. This eliminates the need for a cooling fan and prevents pipeline sweating at the air outlet.

A Constant Pressure (F) Expansion Valve (CPEV) modulates the flow of liquid refrigeration to the Evaporator (A). This eliminates freeze-ups and assures continuous, automatic dew point control. The CPEV responds to pressure changes as the refrigerant leaves the Evaporator. This maintains the proper cooling rate under all load conditions. The CPEV is adjusted at the factory to deliver automatic operation.
**Option Feature Overview**

**Oil Removal**... this option integrates our factory installed Grade E Cold Coalescing Oil Removal Filter. Oil droplets and aerosols are extracted from the air stream in cleaning it down to 0.008 ppm w/w and solids are retained down to 0.01 micron. VNC Series dryers that include the Cold Coalescing Oil Removal Filter option are also equipped with a dedicated drain trap. Available on models VNC25–VNC750.

**Gauges**... four panel mounted gauges: air inlet temperature, air outlet pressure, refrigerant suction pressure and refrigerant head pressure.

**Dry Contacts**... remote bulb temperature switch with "C"-Form contacts; mounted inside cabinet.

**Air-Bypass Piping**... three valve block and bypass; mounts to inlet/outlet connections; shipped loose. MWP 200 psig.

**NEMA 4 Construction**... enhanced environmental and weather protection.
VNC Series dryers are equipped with control schemes that are designed to provide you with the most value delivered within each flow range. Engineered with industry leading features, each I-Controller package provides just the right level of benefits to appeal to the most challenging applications and demanding customers.

**Instrumentation**

Power-on LED and 8 foot grounded power cord are standard on all single-phase 115-volt units. Easy view angular instrumentation panels prominently display all I-Controllers instrumentation packages.

**I-Controller Level 1**

Standard equipment on models VNC10 through VNC750 includes: On/Off rocker switch, green power on light, temperature indicator. Easy to monitor display panel.

**I-Controller Level 4**

Optional equipment on the VNC200–VNC750 includes: manual mode, schedule mode to synchronize operation to your workday, auto restart, text display window that displays current time, operating mode, total operating hours, hours to service, dew point bar graph LED display, compressor-on light, power-on light, temperature indicator, alarm/service light, reset button, set/run button, programming buttons, on/off button, drain push-to-test button, English, Spanish, German, French and Italian language selectable, RS-232 communication capable, fault condition diagnostics with text display, dry contacts for high dewpoint remote alarm at 55˚ F. Easy view angular panel.

<table>
<thead>
<tr>
<th>Inlet Pressure (PSIG)</th>
<th>Inlet Temperature</th>
<th>80° F (27° C)</th>
<th>90° F (32° C)</th>
<th>100° F (38° C)</th>
<th>110° F (43° C)</th>
<th>130° F (54° C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td>1.35</td>
<td>1.05</td>
<td>0.84</td>
<td>0.69</td>
<td>.44</td>
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<td>200</td>
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<td>1.22</td>
<td>1.03</td>
<td>.72</td>
</tr>
</tbody>
</table>

### Correction Factors for Inlet Air Temperature & Pressure

**Table 1** — Correction Factors (Multipliers) for Inlet Air Temperature & Pressure

<table>
<thead>
<tr>
<th>Ambient Temperature</th>
<th>80° F (27° C)</th>
<th>90° F (32° C)</th>
<th>100° F (38° C)</th>
<th>110° F (43° C)</th>
<th>130° F (54° C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiplier</td>
<td>1.12</td>
<td>1.06</td>
<td>1.00</td>
<td>0.94</td>
<td></td>
</tr>
</tbody>
</table>

**CAPACITY CORRECTION FACTORS**

To adjust dryer capacity for conditions other than rated, use Correction Factors (multipliers) from Tables 1 and 2.

Example: What is the capacity of a 1,000 scfm model when the compressed air at the inlet to the dryer is 150 psig and 100° F (38° C), and the ambient temperature is 90° F (32° C)?

Answer: 2,000 scfm (rated flow from Specifications Table) x 1.13 (correction factor for inlet temperature and pressure from Table 1) x 1.06 (correction factor for ambient temperature from Table 2) = 2,327.80 scfm

50 Hz operation: Deregulate for 50 Hz operation. Apply the correction factor of .8333 to flow temperature and pressure.
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.