

High Pressure Refrigerated Compressed Air Dryer

General

Vendor shall supply one fully assembled, piped, and wired refrigerated compressed air dryer packaged in an elevated, epoxy powder coated cabinet. Package shall be complete with: heat exchangers, moisture separator, automatic condensate drains, all interconnecting piping, an R404a refrigeration system, all wired, piped and mounted onto a structural steel frame, and ready for start-up after utility connections are made. Package shall be produced by an ISO 9001 registered manufacturer to ensure consistent quality of product. Product shall meet UL1995/CSA 22.2 No. 236-95 to ensure quality components are utilized in the final design.

Product shall operate automatically and continuously in producing a dehydrated gas stream at pressure while achieving a dew point of ISO 8573.1 Class 4-5 at 300-725 psig (20-50 bar) with site conditions of 100°F (37.8°C) ambient, 100°F (37.8°C) inlet air temperature, and inlet air relative humidity of 100%. Aqueous and particulate contaminant removal shall be integral and effective to 3 micron while attaining ISO 8573.1 quality Class 4-5 for moisture, Class 3 for solids and Class 5 for oil content without the need for extraneous filtration. Package pressure drop shall not exceed 5 PSI (.35 bar) under rated conditions.

Heat Exchangers

The compressed air stream shall be chilled to a temperature below the designed pressure dew point in corrosion resistant heat exchangers formed from multiple alternating layers of chevron embossed, 304 stainless steel plates. Large bore, sinusoidal flow paths shall provide non-fouling surfaces and ensure high heat transfer efficiency for the life of the dryer. No prefilter shall be required. Heat exchangers shall be fully encapsulated in non-degrading urethane foam insulation to retain maximum energy efficiency while minimizing the potential of cooling media temperature degradation. All components of the air and refrigeration circuits shall be insulated to prevent condensate.

Integral Filtration

Systems shall provide a cleanable, stainless steel separator core for the removal of bulk liquids on Stage One. Stage Two shall incorporate a 3-micron rated coalescing filter with a minimum void volume of 96% for high efficiency separation even under low flow conditions. Separator/Filters shall be mounted within the main cabinet with easy to open access doors to ensure speed and efficiency during routine filter element maintenance.

Systems shall incorporate high pressure separator housings equipped with threaded head to bowl connection. Separator/Filters for systems shall be provided in a single vessel arrangement. All Filter Elements listed within this specification shall incorporate a "thread-in" type of design utilizing captive O-rings to seal and secure said element. All seals shall be Fluoric-elastomer to ensure compatibility with all common air compressor lubricants.

Optional: Should specification) require oil removal capabilities down to .008 ppm (0.01 mg/m³.) integral ISO Class 1 Filters may be achieved with the PYR series dryers.

Automatic Condensate Drain

The Separator is equipped with an external, timed electric drain which automatically discharges collected condensate. The Timer Drain LED level has been pre-programmed at the factory for your specific dryer model. Programming is based upon a minimum of 400 psig saturated inlet air pressure and maximum energy efficiency. The drain open time is fixed at one second and a small amount of air will be exhausted with each cycle.

Refrigeration System

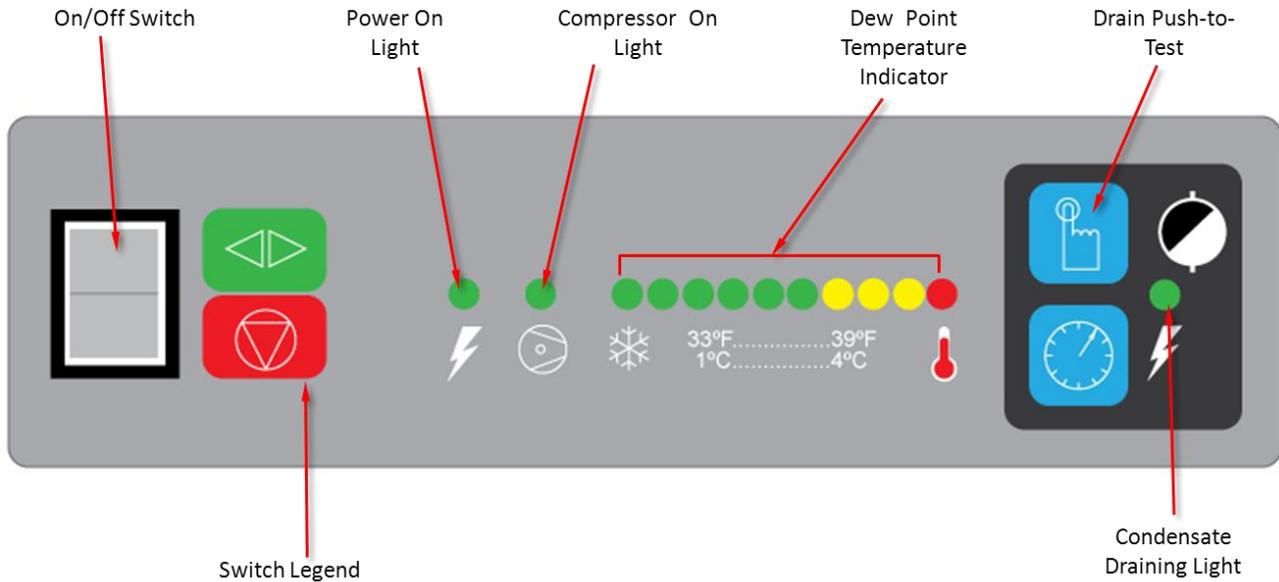
A non-cycling, direct expansion type refrigeration system shall be utilized to ensure dew point stability from zero to 100% of rated volumetric flow. At less than full rated flow conditions, a rapid response hot gas by-pass valve shall introduce high-pressure refrigerant gas *after* the refrigerant heat exchanger to prevent temperature variations that are detrimental to dew point stability throughout the entire range of operation. Air-cooled systems shall perform as specified throughout an ambient temperature range of 45 to 110°F (7 to 43°C,) water-cooled systems shall perform as specified throughout an ambient temperature range of 45 to 130°F, (7 to 54°C.) Control shall be automatic without the need for load or ambient adjustments. Specifically, the dryer will be capable of operating at all flow rates down to and including 0% load without a freezing condition in the air circuit. A liquid line filter/dryer shall be supplied. Refrigeration systems shall be cleaned, purged, and evacuated prior to being charged with refrigerant. Systems shall be charged with environmentally friendly R404a, then, leak checked and performance tested before shipment.

Electrical Construction

Electrical construction shall be certified to meet UL1995/CSA 22.2 No. 236-95. Compressor and fan motors shall be protected with overloads. Compressor protection shall include high and low refrigerant pressure cutout switches in addition to normal overload protection.

Instrumentation and Controls

Power-On light, On/Off switch, Compressor On-Light, and Dew Point temperature indicator shall be included as standard. Units shall include user programmable timed electric drain control drain valve open time and time between intervals.



Warranty

Quality coverage shall protect user from defects in materials and/or workmanship in covering all parts and labor for a period of no less than Two-Years on the complete assembly (less normal consumables such as the Air-Side Filter Element(s) and, Normal Drain Trap maintenance.) User accepts the responsibility of ensuring unit is properly applied, installed, and maintained in accordance with manufacturer’s written instructions.

System Specifications

- Dryer Model Number:
- Rated Capacity in scfm (nm³/h):
- Maximum working pressure in psig (bar):
- Electrical Requirements:
- NEMA (IP) rating:
- Cooling media (Air or Water):

Specified Refrigerated Air Dryer shall be Hankison Model # _____