The choice for desiccant dehumidification

Typical Unit Specification

Bry-Air VFB

A. SCOPE OF WORK

Contractor shall furnish, install and place in operation, acceptable to the engineer, all dehumidifier units with flexible connectors, filters, volume dampers, control panel, and all necessary controls for proper operation of the system, as shown on contract drawings and as specified herein.

The dehumidifier unit shall be arranged to provide continuous dehumidification with constant outlet temperature and humidity for a given inlet condition. The unit shall be a two compartment type using Brysorb Plus fluted desiccant media with process and regenerative sections.

Dehumidifier unit shall be as manufactured by Bry-Air Inc.

VFB Series "Model VFB_____" as shown on the plans.

B. DEHUMIDIFIER

Unit shall be capable of sustained operation of either process or react fan without energized reactivation heat for prolonged periods of operation without damage to the humidity transfer media.

The dehumidifier shall be a fully automatic factory assembled package unit, complete with desiccant rotor, desiccant rotor drive assembly, reactivation heat source, filters, motors, fans, access panels, volume dampers, _____ (dust-tight or weatherproof) electrical enclosure, and all component auxiliaries as recommended by the manufacturer for safe, unattended automatic operation.

Unit casing shall be constructed of continuously welded 0.125" thick aluminum to insure air and vapor tight construction. Air plenums and ducts shall be constructed of .080 or .125 solid welded aluminum. Easy-to-remove 0.125" thick aluminum access panels with vapor proof gasketing shall allow for simple service and inspection. Process insulation to be foil faced polyisocyanurate foam with an insulating R-value of not less than 6.5 per inch of thickness. Reactivation insulation shall be high temperature glass fiber with foil liner.

The unit shall have weather and U.V. resistant paint over the exterior for corrosion protection. Independent pressure gauges for indication of process and reactivation air flow rates shall be included. Gauges shall have the normal operating range of the unit at approximately the midpoint of the gauge scale.

Unit shall not require field piping, desiccant charging, pneumatics, or field erection of fans unless specifically requested by the engineer. Field connection of the utilities shall be performed by the installation contractor.

The dehumidifier rotor shall consist of high efficiency Brysorb Plus desiccant media mounted on a horizontal fixed shaft arrangement. The rotor media shall be comprised of "in situation formed" silica gel with fiberglass substrate. Asbestos or ceramic paper substrates and loose desiccant are not acceptable. The media shall be adsorbent, non-toxic, non-corrosive and non-flammable with the desiccant uniformly and permanently dispersed throughout the matrix structure to create a homogenous media. The desiccant media shall not be coated or bonded to the substrate.

The Brysorb Plus desiccant media shall rotate on integral long life sealed bearings supported by a secure fixed center shaft for simplified removal. The center shaft shall be held captive to, and supported by, a rigid horizontal support member to assure straight and true rotation of the desiccant media. Mounting of the desiccant media by any means other than center shaft support shall not be acceptable. No lubrication shall be required during the life of the rotor.

An observation window shall be provided to permit visual inspection of the rotor and the drive system while the unit is in operation. Both reactivation air fan and process air fan shall be factory mounted on the dehumidifier. The reactivation and process air fans shall be arranged so as to provide counter flow process and reactivation air streams.

The process and reactivation sections shall be divided by seals designed for long life. The positive sealing arrangement between process and reactivation sections shall permit independent airflow and shall not require balancing of process and reactivation airflows within the unit. High quality silicone rubber bulb seals shall be utilized to positively seal airstreams at up to 8" w.c. differential pressure. Seals shall be high temperature silicone rubber extrusions with PTFE composition coated face for low friction, durability, and long life. Seals shall be removable without the use of any tools and access shall be provided to facilitate inspections. Any system that requires the use of tools for seal removal shall not be acceptable. The perimeter seal shall not come into contact with the face of the media for extended life.

Starting and stopping of the unit or performance modulation shall be accomplished by a _____ (wall or duct mounted humidistat or other recommended control) furnished by the dehumidifier manufacturer with provisions made for its connection on the terminal strip of the control panel, or termination as specified by the engineer.

Reactivation heat for the dehumidifier shall be supplied by _____ (direct fired gas, direct fired propane, electricity, or steam) and installed with filters as detailed in the plans.

The dehumidifier shall have _____CFM process air capacity. Reactivation air capacity shall be _____ CFM. Both process air fan and reactivation air fan shall have external static pressure of _____ " of W.G. and _____ " of W.G. respectively. Dehumidifier shall be capable of removing _____ lbs/hr of moisture per hour with inlet air condition of _____ degree F, dry bulb temperature with _____ grains of moisture per pound of dry air.

C. FILTERS

All air entering the dehumidifier must be filtered. Unless otherwise specified, filters shall be 2" deep disposable with minimum 30% efficiency and of a size and capacity as recommended for air volumes shown. Filters shall be installed for removal from side of ductwork.

D. VOLUME DAMPERS

All volume dampers on belt driven fans on the dehumidifier shall be single blade or opposed multi-blade type with locking quadrants. Dampers shall be factory installed at the outlets of both process

and reactivation air fans. The damper shaft exposed at the quadrant shall be notched to indicate position of damper blades.

E. ELECTRICAL

Electrical characteristics of all dehumidifiers shall be as shown in the schedule on the contract drawings. Unit shall operate on _____volts, ___ phase, _____ hertz. The control panel shall be factory mounted and pre-wired for the system operation and shall be supplied with panel mounted, through-the-door rotary type main disconnect switch, fuses or circuit breaker branch circuit protection, contactors, starters, control transformer, overload protection, and all necessary components to insure continuous automatic operation. A factory mounted and wired terminal strip shall be supplied within the control panel. Manual hand-off-auto switch shall be provided on dehumidifier panel.

F. FANS

Both process and reactivation air fans and motor assemblies shall be factory mounted on a structural base common with the dehumidifier.

G. COOLING

All cooling coils provided as part of the dehumidification package shall be 5/8 inch diameter copper tube with a minimum wall thickness of 0.035 inches, aluminum fin with a minimum thickness of 0.090 inch. Coil casing to be galvanized steel, minimum of 14 gauge. Coils shall be mounted in a 3 inch deep stainless steel drain pan. The coil is to be mounted on supports that result in double slope to the condensate drain. Coil shall not require complete disassembly of water piping for coil removal.

H. OPTIONS

1. Mixing plenums
2. Room or duct mounted humidistat
3. PLC controls
4. High efficiency filters
5. Process air heaters
6. Bypass duct
7. External bypass
8. Variable frequency drives for fans

Note: This document is subject to change without notice.