

Dry Rooms

Our dry rooms are designed and constructed to support applications—such as battery, medical device, and electronics manufacturing, drug storage, and archival storage—at temperatures from +20°C to +40°C and can help you achieve and maintain RH levels as low as < 1%, with ZERO dust particles and contaminants.

STANDARD FEATURES AND OPTIONS

- 4" urethane insulated cam-lock panel construction (R-29) for ease of assembly, disassembly, and expansion. A panel thickness of 4" and urethane composition provides superior heat transfer performance and structural rigidity over common 3" and 2" panels and foamboard systems. Panel construction materials and colors will be provided to match particular application. Panels are all carefully silicone sealed for minimal vapor transmission. Standard panels are FM Approved. Optional 4-hour fire rating and fire-retardant construction, explosion panels and seismic panel clips are available.
- Personnel and equipment doors with view windows, and spring auto closers or electric slide rails. All doors feature dual wiper floor and edge sweeps as required for low air leakage in low dewpoint dry room applications.
- Airlock to minimize moisture migration into the low dewpoint dry room. The standard airlock is provided with troffer light(s) and ceiling system consistent with the dry room, and motion detector for energy efficient switching of the lights. The airlock can also serve as a gowning area for cleanroom designed dry rooms.
- Third party listings (UL, MET Labs) of all major sub-components, including wall panel systems, dehumidifier systems, refrigeration systems, ceiling systems, control panels, electrical panels, and light fixtures.
- Ceiling air and light distribution system comprised of troffer lights, sound absorbing acoustical tiles, and perforated panels. Light fixtures are LED for maximum light spread. Sound absorbing acoustical / fissured tiles mimic the sound and visual characteristics of typical office and general work areas. Perforated panels are carefully spaced to provide even, low velocity/low noise distribution of air downwards and throughout the work area, in lieu of large high velocity/ high noise supply ducts or wall supply systems. Return air flows through a segregate ceiling section, or via wall systems, as an alternative. OPTIONAL ceiling HEPA filter modules are available.
- High-efficiency HFC (non-CFC) direct expansion* refrigeration systems, either air cooled or water cooled. Typical refrigerants include R-404A, R-407C, and R-448A. Typical systems include multiple scroll compressor stages for energy efficient operation during times of low heat load, and fully proportioning control valves to eliminate cycling solenoids.

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Precise.
Ultimately
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 **Bahnsen**
Environmental Specialties
An EMCOR Company

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- Each condensing unit features high and low pressure controls, water regulating valve (as applicable), head pressure control valves (as applicable), fusible plug or pressure relief valve, vibration absorbers on suction and discharge lines, vibration isolating compressor mounts, suction line filter, liquid line filter/drier, hot gas bypass valve, and site glasses. All interconnection piping between the dehumidification skid and refrigeration system is hard drawn copper with optimal sizing for best oil return, low noise, and low pressure drop. (*Note that DX systems are not applicable with usage of building chilled water).
- Dehumidification skid system, including local PLC controls, pre and post cooling coils, regenerative desiccant wheel, reactivation heat section, reactivation blower, process fan/blower, pre-filtration, post-filtration, and bypass/purge section as required for ultra-low dewpoint applications. Cooling coils are copper tube / aluminum optimally designed for heat transfer and low velocity/pressure drop. Process fans are belt driven airfoil type and chosen at low RPM's for lowest vibration and noise. OPTIONAL heat reclaim coils are available, for process air stream post-heating and/or for reactivation pre-heating. (*Note that some items above are not applicable in all applications).
 - Touchscreen control system with 7" screen size, mounted within a control enclosure type of NEMA 1, NEMA 12, or NEMA 4X.
 - PLC controls and monitors dry room temperature and humidity of room space air, and all parameters have real time trending and data logging available. Ethernet output is available for remote monitoring (only) as standard. High quality aluminum oxide current sensors with built-in temperature elements provide sensing of the dehumidification skid supply conditions. For control of humidity (if applicable), the PLC modulates a face bypass damper in the dehumidification skid system. For control of temperature, the PLC modulates a hot gas bypass valve (i.e. 3-pipe) for efficient coil temperature modulation without need for electric heat. OPTIONAL Ethernet communication module is available for remote monitoring and control access to the PLC. OPTIONAL LEL sensing is available for explosion safe applications.
 - Full documentation support including information for approval and owner's records. The Project Submittal, for client approval, includes general arrangement drawings and detailed component information. The Owner's Manual includes all information above and additional electrical wiring diagrams, refrigeration schematics, detailed site testing reports, mechanical and electrical spare parts list, warranty documentation, and service contact information.

