AIR HANDLING UNITS

Precision-Engineered For Sanitary Food Processing

AcuAir®
AcuAir provides temperature, pressure and humidity control

We have been in the refrigeration industry for nearly 150 years and have been engineering and building environmental control technology used by the food and beverage industry for decades. We are experts in providing accurate temperature control to maintain product consistency and eliminate humidity-control guesswork.

We have the experience and expertise to:
- Select refrigeration systems to comply with room loads
- Incorporate your individual psychrometric demands
- Integrate state-of-the-art controls to comply with increasingly stringent regulatory safeguards
- Link your AcuAir system to your plantwide control

Sanitation mode

The AcuAir hygienic air handler can be configured to bring in 100% fresh air and exhaust an equivalent amount during the wash-down cycles. This sanitation mode immediately rejects the free-floating moisture particles, which may have become contaminated by dislodged bacteria to the outside. The 100% fresh air mode after wash-down operations helps to dry out the room. The fresh airflow absorbs evaporating moisture and carries it outside faster and less expensively than mechanical cooling of recirculated room air.

AcuAir clean is process room clean

Cleanliness and safety in the food processing industry are of paramount importance. Sanitary conditions, compliance with regulations and the demand to deliver a quality product are all part of the success equation. Frick AcuAir® systems are precision-engineered and painstakingly built to the high sanitary standards of food processors and will help you meet United States Department of Agriculture standards.

AcuAir air handling systems can be designed for any specific food processing application, including:

Low Room Temperatures
- Beef
- Pork
- Chicken
- Duck
- Turkey

Higher Room Air Changes

Higher Room Temperatures
- Milk
- Cheese
- Yogurt
- Ice Cream
- Bread
- Dough
- Snacks

Low Humidity

Meets HACCP Requirements for Safe Food Processing
Manage the variables

AcuAir® puts the power to control and regulate the food processing environment in your hands. Lock your setpoints or vary them according to your facility’s operational demands with our Quantum™MLX controls.

Temperature
AcuAir systems precisely control both temperature and humidity conditions to the required specifications of the processing room.

Condensation
AcuAir systems supply sanitary and properly conditioned air to food processing work areas. They are utilized to prevent ceiling condensation, which can form into droplets that may fall and potentially contaminate food products, utensils or processing areas. The systems are constructed with flat and smooth surfaces to drain condensation and to prevent reproduction of mold, bacteria and other pathogens.

Airborne Contaminants
As necessary, outdoor air is mixed with air supplied from the processing rooms. AcuAir systems ensure that both indoor and outdoor air is filtered to a level that improves product quality by filtering out free-floating organic material.

Air Migration
AcuAir systems are designed to keep processing rooms pressurized with conditioned air, eliminating problems stemming from uncontrolled air infiltration from unconditioned areas.
The walls of the AcuAir® air handler are constructed of inner and outer metallic skins held together with interior wall stiffeners and expanded foam insulation. The result is enclosure panels with overall insulation values of R-12.5 (for 2") and a maximum deflection of L/240, ensuring efficient handling of your process air under demanding conditions.

**Tightly controlled casing leakage**

In food processing applications, unfiltered, mechanical-equipment room air must not leak into the supply airstream. That's why leakage is tightly controlled in the casing design. The foam-injected wall panels help to seal and maintain the leakage to 0.5% at +/-10” wg static pressure. Additionally, the walls are 20% more rigid (L/240 deflection) than typical fiberglass or rigid foam board AHU walls (L/200 deflection) to maintain our superior leakage rate over the life of the unit. Door leakage is also minimized with a handle that operates a roller cam to tightly compress the door gasket.

**Foam-in-place insulation**

AcuAir unit doors are constructed with foam-in-place insulation and include thermal breaks in both the door and the jam. Handles and latches are made of noncorrosive materials. Windows are typically provided only for direct-fired heating sections. Doors are installed to open against air pressure for safety and efficiency.

**Designed for internal wash-down**

Floor drains are provided throughout the unit and are piped to the exterior of the unit base. Under the cooling coil and downstream, the unit is provided with recessed stainless steel drain pans that are double-sloped for positive water drainage. Internal wiring and motors are also engineered for wash-down duty.

**Make interior surfaces washable**

Microorganisms can flourish on moist interior surfaces and drain pans. That's why AcuAir drain pans use a multi-sloped design to ensure positive drainage of condensate. They are also fully accessible to allow visual inspection and periodic cleaning with a hose or pressure gun. Wash-down construction allows the entire interior surface of the unit to be sanitized.
Hygienic quality cooling coils

For cleanliness and safety in food processing rooms, AcuAir provides stainless steel tube/aluminum fin cooling coils for ammonia refrigeration applications.

- Stainless tube construction eliminates the coarse exterior finish common to zinc-coated carbon steel coils and is lightweight
- Aluminum fins provide efficient heat transfer with the air
- Floating-coil technology reduces stress and wear on the cooling circuit tubes due to repetitive thermal changes

Galvanized-steel cooling coils as well as copper/aluminum coils are available when these alternate materials are better suited.

Delivers clean air

Because air handler performance as well as the quality of the air delivered to the process room is critical, AcuAir hygienic air handlers typically incorporate two banks of air filters.

Pre-filters
- Protect the critical components inside the air handler
- Help extend the service life of the final filters
- Are generally 30% (Merv 8)

Final filters
- Assure the quality of the air ultimately delivered to the conditioned space
- Commonly 95% (Merv 14)
- HEPA filters are available for 99.97% capture of .3 micron particles
Controls
Standard Quantum™ LX computer-based controls are factory-wired to the unit starter/disconnect and VFD panel. A NEMA 4X remote mode selection panel and optional operator interface touch screen panel are supplied shipped loose. The QuantumLX controller comes standard with Ethernet communications ready to be integrated into the site network.

Unit Panels
Walls are galvanized, interior and exterior sandwich-style panels. Two-inch cabinet enclosure has foam-in-place insulation. Panel joints are sealed with USDA-approved caulking to ensure a watertight and airtight system suitable for wash-down. Optional stainless steel interior and four-inch insulated panels are available.

Heating Options
Heating options include steam, hot water, hot-gas refrigerant, direct-fired and indirect-fired gas. Heaters are controlled with a high turndown ratio to help assure accurate temperature control.

Desiccant Wheel
AcuAir® desiccant technology allows quick control of high-moisture conditions during peak operations and cleanup.
Cooling Coils
Cooling options include recirculated glycol, flooded refrigerant, recirculated refrigerant or DX refrigerant. Common materials are stainless steel tube and aluminum fin, galvanized tube and fin, or copper tube with aluminum fin. Coil materials of construction and circuit design are custom for each application. Intermediate drain pans are provided for stacked coils.

Final Filters
Filter options include high efficiency 95% (@ 1 micron) filters or HEPA filtration system that can remove up to 99.97% of particles as small as 0.3 microns. Standard differential pressure gauge monitors filter life. Final section access door provides easy filter maintenance.

Mixing Box
Mixing box lowers outside air velocities to minimize water carryover and helps ensure blending of outside and return air.

Pre-Filters
Pre-filters have an outside access door to ease maintenance. The typical 2” MERV8 filters protect the interior of the AcuAir unit and extend the life of the final filters.

Internal Exhaust Fans
Direct-drive axial fans mounted directly in return air section for cleanup and economizer cycles. Fans can provide up to 100% exhaust of the system airflow. Fans are factory-mounted, wired and controlled.

Fan Motor and Drives
Centrifugal, backward-inclined blower, with premium efficiency TEFC motor, and industrial drives are standard for long life and ease of maintenance.

Unit Frame
Fully foamed-in-place drain pans and floors provide a vapor seal and thermal break. The rigid, fully welded and factory-painted steel frame has lifting lugs positioned for safe lifting. The underside of each section is protected with a galvanized sheet metal panel.

Unit Floors
Each section of the AcuAir unit has a floor drain for wash-down duty. Drains are factory piped to the side of the unit base and the underside is spray coated with insulation to minimize condensation.

Dampers
Low-leak galvanized dampers have opposing blades for accurate mixed air control. Stainless steel construction and double-walled, insulated construction are available.

Drain Pans
Each section under the cooling coil and downstream has a stainless steel double-stowing drain pan to remove condensation and prevent standing water in the airstream.
Environmental technology to meet your requirements

Integrated systems and service
Our team of application professionals evaluate your food processing environment and can recommend the equipment that best suits your air handling or refrigeration needs. We offer off-the-shelf packages or we tailor our system to your situation. Our systems approach to design makes us unique in the cooling industry.

AcuAir® Quantum™LX controls
QuantumLX controls are computerized control panels that give you complete command of your air handling system. QuantumLX controls have user-friendly menus and fast-access functions so you can get systemwide information quickly or adjust program settings according to demand or situation. QuantumLX controls also allow operators to access AcuAir systems remotely via a computer or smartphone.

Makeup air handlers
Whether your application requires simple fresh-filtered air with little temperature conditioning, or specific volumes of tempered air, the AcuAir applications team knows just the questions to ask in order to provide you with your most economical solution.

Sequential defrost technology
For process rooms operating in the mid- to lower 30s F where cooling-coil frost tends to affect efficiency, AcuAir has technology that maximizes your cooling potential to keep you running your entire processing shift in the most cost-effective manner.

Energy recovery
Conditioned space requiring significant amounts of fresh air to control the buildup of gas concentrations such as CO2 is well suited for energy recovery technology. AcuAir has several styles of this technology available to maximize the service in your specific application.

Accessories: roof curbs, diffusers, return air boxes and exhaust fans.
When your process needs include a clean and conditioned air supply, we've got the complete package.
Dehumidification and dry air applications
Some applications require humidity control beyond simple condensation control.
In those cases, AcuAir has the ability to provide full or partial desiccant air-conditioning. The AcuAir application engineers can design a unit in light of the most economical operating costs.

Air filtration
Custom-engineered air handling and filtration are easy to integrate with the refrigeration and controls of Frick food and beverage equipment. AcuAir systems are also designed to facilitate rooftop installation and easy unit cleaning.

Blowers
Belt drive, direct drive, multiple fan strategy
Within air handling units, the blower is the largest energy consumer. We offer a range of energy-saving options. These include premium high-efficiency motors and direct drive to eliminate losses from belts and pulleys. Critical applications such as process operations often demand efficient, redundant air handling operations. We meet this need by offering fan arrays from 2 to 6 fans. When the fan array is optimized, the design can also increase efficiency by operating the fans at their most efficient point.

Optional Heating
Indirect-fired gas, direct-fired gas, steam or hot gas refrigerant.
AIR HANDLING UNITS

We make smart even smarter

AcuAir® Quantum™LX controls

The QuantumLX AcuAir controller employs the most powerful hygienic air handling control logic in the industry. The combination of innovative technology, powerful software and reliable performance maximizes the efficiency of your air handler, providing the best control value for your sensitive air handling needs.

AcuAir QuantumLX controls are:
- Built to recognized standards including cUL
- Factory-tested prior to shipment
- Proven control software
- Compatible with new installations or existing equipment
- Accessible anywhere there is Internet access.

System interface panel

The optional system interface panel provides both local and remote access to your AcuAir hygienic air handlers as well as any other QuantumLX panel on the network (Q-Net). It features an industrial touch screen panel to put control right at your fingertips.

Get connected

All QuantumLX controls offer the connectivity you have come to expect from cutting-edge products. Whether you are connected at the unit with your laptop, in your office with a network-connected computer or remotely via the Internet, you are always in control of your processes.
Installation, support and maintenance

Proper installation, start-up and operation of the AcuAir air handler are required to achieve the maximum benefit for your process room. AcuAir factory start-up technicians are available for installation, training and to assist with the first critical hours of operation.

Technicians:
- Review electrical and utility connections
- Verify the proper operation of the AcuAir controls and instrumentation
- Verify all control parameters and unit safeties
- Review operating and general maintenance requirements with site personnel

Units include factory-backed aftermarket support.

Regular maintenance is critical for continued efficient operation of your hygienic air handler. AcuAir has original equipment parts available through the Frick Factor network of refrigeration contractors.
Single-Source Industrial Refrigeration Solutions!

- Heat Exchangers
- Packaged Equipment
- Air Handlers
- Vessels
- Controls
- Evaporators
- Compressors
- Condensers