

HYGENAIR™

A+H Hygienic Air Handling Unit





COLMAC COIL MANUFACTURING, INC



Manufacturing Factory - Colville, WA

“ The Heat Transfer Experts ”

Who We Are

Founded in 1971, Colmac Coil Manufacturing initially supplied heating and cooling coils to OEM customers and the HVAC industry. By the early 1980's Colmac Coil had expanded their refrigeration product line to include industrial air coolers and condensers for the ammonia refrigeration industry, developing a reputation for high quality products and the ability to engineer a wide range of heating and cooling solutions using their in-house developed heat and mass transfer modeling software.

Our Mission

The mission of Colmac Coil is to provide heat transfer markets worldwide with innovative, cost effective products that are configured, manufactured, and shipped with the shortest lead times in the industry, with fast, friendly service, for the mutual benefit of our employees, customers, and shareholders.

Our Products

- Refrigeration Evaporators
- Fluid Coolers & Condensers
- **Hygienic Air Handlers**
- Heating & Cooling Coils
- Heat Pipes



Manufacturing Factory - Paxton, IL

Our Customers

Colmac Coil serves a wide variety of markets and customers with an emphasis in the following industries:

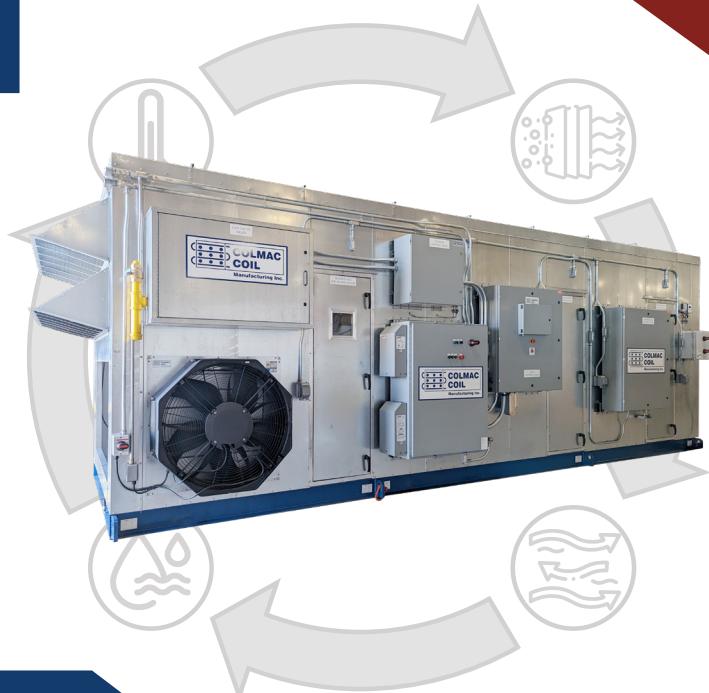
- **Industrial Refrigeration**
- HVAC
- Power Generation
- Process Cooling

HygenAir™

A+H Hygienic Air Handler Unit

Colmac Coil's Hygienic Air Handlers are custom engineered to help food processors maintain high quality and to meet the strict requirements of the USDA. A high level of food quality and safety can be achieved by controlling the process room air temperature, pressure, humidity, and cleanliness.

Colmac Coil's Hygienic Air Handlers help manage these conditions by providing adequate cooling (and optional reheat for dehumidification), limiting air migration, managing condensation, and filtering out contaminants to deliver clean, sanitary air to the processing room environment.



Management of the Processing Environment

Temperature Management

Controlling the room air temperature is a key function of the hygienic air handler. Colmac Coil has an extensive history of being the premier manufacturer of evaporator coils for the industrial refrigeration markets. Manufacturing their own evaporator coils allows Colmac to offer a wide range of options when it comes to selecting the best evaporator for the Hygienic Air Handler. Inline tube patterns, staggered tube patterns, various tube diameters and fin thicknesses, as well as a full offering of special fin materials such as epoxy coated aluminum, anti-microbial fin, or even stainless-steel fins are available for the evaporator coil construction.

Air Migration Management

Air movement between adjacent rooms can result in unwanted airborne contaminants in the processing areas. Colmac Coil's Hygienic Air Handlers have the ability to control the amount of outside, filtered air introduced into the space. With the ability to control the processing room air pressures to be slightly higher than adjacent rooms, the possibility of airborne cross-contamination is reduced.

Humidity Management

Moisture in airstreams can result in condensation when the airstream comes into contact with cold surfaces. Condensation droplets are generally known to be possible sources of pathogen contamination and therefore it is important to minimize or eliminate these droplets. Controlling the dew point of the air in processing rooms will reduce the possibility of condensation occurring. With optional re-heat coils just downstream of the evaporator coils, Colmac Coil's Hygienic Air Handler allows for proper humidity management in the processing area.

Airborne Contaminate Management

Proper filtration of the air in processing rooms is necessary to control airborne contaminants. Colmac Coil's Hygienic Air Handler is supplied with high efficiency extended surface filters with various filter efficiency ratings from MERV 8 up to HEPA H13.



HygenAir™ Features

A+H Hygienic Air Handler Unit

Designed to improve the process and packaging room environment, the Colmac Coil Hygienic Air Handler is manufactured with hygienic welds and coil construction materials.

Colmac Coil proprietary selection software gives you the ability to select custom sizes and options that's optimal for the system type and processing environment conditions.

- Available For All System Types
- Customized Configurations
- Hygienic Design
- Low Maintenance



01 Exhaust Air Fans

- Electronically commuted, direct drive fans are standard, for units up to 40,000 cfm
- Built in fan speed control
- Ingress protection rating of IP55
- Corrosion resistant construction
- High reliability and long life
- Extremely low sound levels
- Large airflow capacities
- Plug & play fan-motor bell mouth assembly

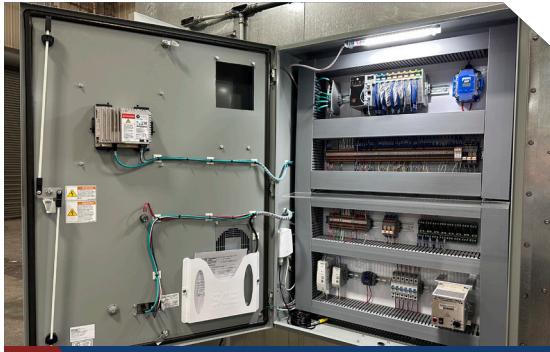


02 Direct Fire Burner Controls

- Includes burner startup, shutdown, and safety monitoring
- Local temperature control and operator interface
- RTD inputs for control and high temperature limit

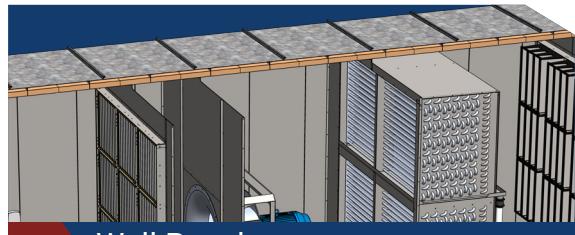


Hygienic Air Handler Design



03 Controls

- Allen Bradley Compact Logix PLC System with Ethernet Communication
- Panel View Plus 7 with 6-inch display mounted on face of main control panel
- VFD controls for both supply and exhaust fans
- Fused disconnects(s)
- Outside air and re-circulated air controls for a fixed amount of outside air
- Optional economizer mode
- Optional room pressure control



04 Wall Panels

- Standard G235 galvanized steel interior and exterior walls
- Optional 304 stainless steel interior
- All wall joints are sealed with food grade sealant
- Standard 2" thick fiberglass insulation enclosed in wall panels



05 Unit Access

- Access doors are included for easy access to all compartments



06 Base

- Fully welded steel frame
- Fully insulated floor/base with polyurethane spray foam for thermal / vapor barrier
- Fiberglass insulation enclosed in wall panels
- Lifting lugs for crane rigging



The Colmac Advantage

Manufacturing our own evaporator coils allows us to offer a wide range of options when it comes to selecting the best evaporator for the hygienic air handler.

HygenAir™ Features

A+H Hygienic Air Handling Unit



02 Cooling Coils

- Standard stainless-steel tube/ aluminum fin construction. Other fin/ tube materials are available to meet the requirements of every application
- Optional epoxy coated fins
- Optional inline tube coils for ease of cleaning / sanitation
- Coils are designed and manufactured by Colmac Coil, as per the requirements of ASME B31.5



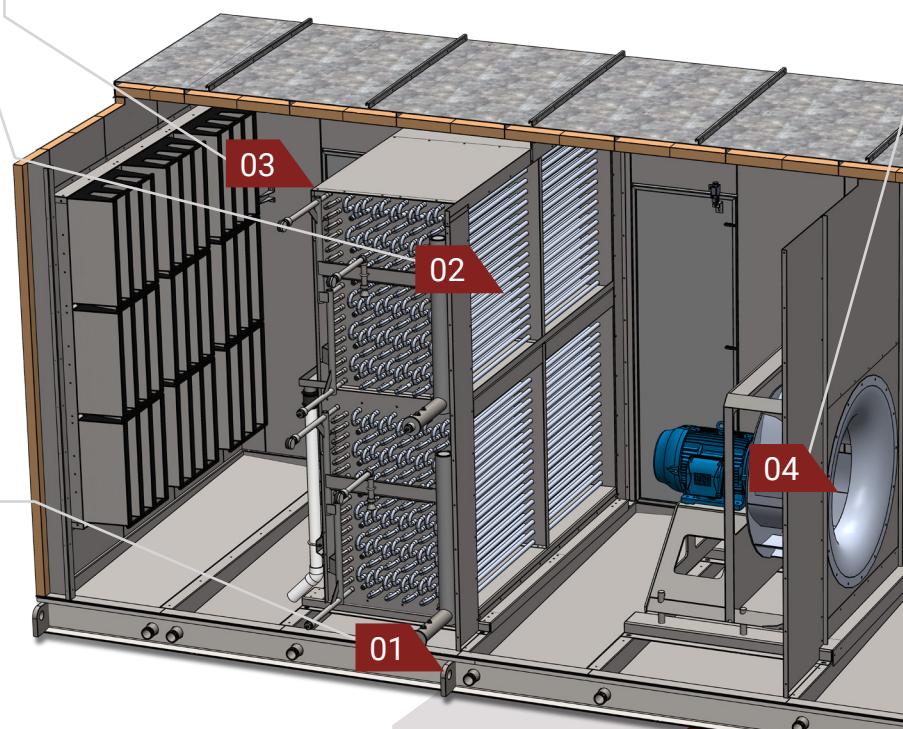
01 Drain pan

- Dual pitch drain pan ensures complete liquid drainage
- Full coverage drain pans for entire unit interior
- Standard construction is 304 stainless steel
- Fully welded drain pans with hygienic weld finish options



03 Final Filters

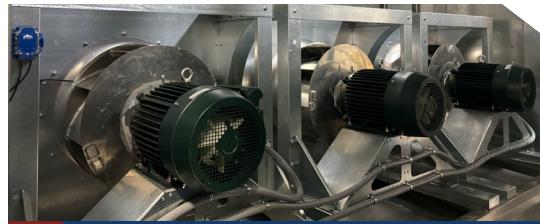
- Available in various ratings from MERV 11 to HEPA H13
- MERV 11 to 16 are AAF VariCel, High Efficiency Supported Pleat Filters
- Excellent performance in difficult operating conditions
- Lightweight and easy to install
- Fully resistant to corrosive environments
- Optional extra set of final filters



Start up Support

Our commitment to your project goes beyond the design, value engineering, custom manufacturing, and other project support we provide. Upon request, a Colmac Coil technician is sent to each jobsite to program the controls ensuring the hygienic unit is optimized to each application.

Hygienic Air Handler Design



04 Supply Air Fans

- Plenum fans with direct drive motors
- Non-overloading, single thickness, airfoil type impeller
- Motor base is upgradeable to fully welded, hygienic design
- TEFC, premium efficiency motors are standard
- Full VFD control is included



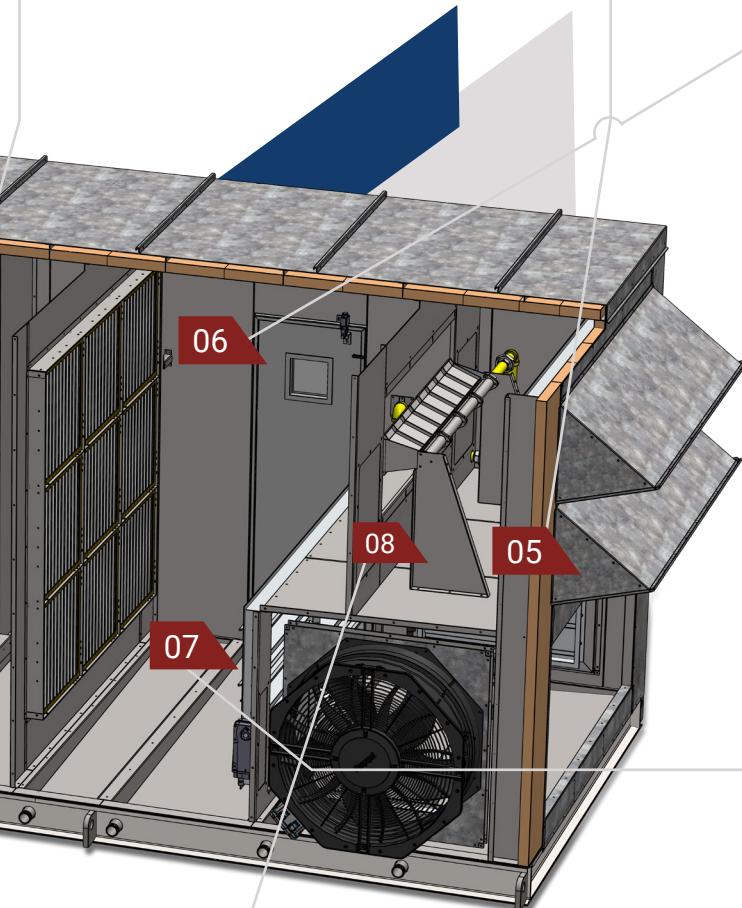
05 Fresh Air Dampers

- Low leakage air-foil control damper
- All dampers available in multiple materials
- Standard modulating NEMA 4 actuators with position feedback



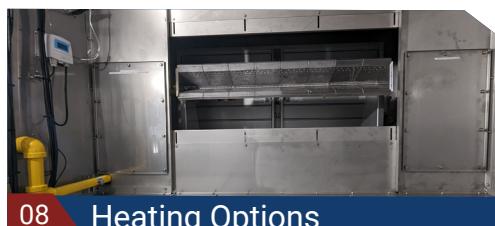
06 Pre Filters

- AAF PerfectPleat, MERV 8, Extended Surface Pleated Panel Filter
- Mechanical efficiency – does not rely on electric charge technology
- Self-supporting media made from virgin fiber – no wire support needed
- Consistent media with controlled fiber size and blend
- Environmentally friendly – no dyes, no metal, full incinerable
- Optional extra set of pre filters



07 Return Air Dampers

- Low leakage air-foil control damper
- All dampers available in multiple materials
- Standard modulating NEMA 4 actuators with position feedback



08 Heating Options

- Direct fired propane or natural gas burner designed for 60-100 degree F temperature rise
- Optional steam or hot water heating coils

Optional Features

Economizer

During certain times of the year, outside air temperatures are low enough to where the mechanical cooling functions can be reduced or eliminated, thereby saving compressor energy. Colmac Coil's Hygienic Air Handlers, when equipped with the optional economizer function, can automatically transition to economizer mode.

Sequential Defrost

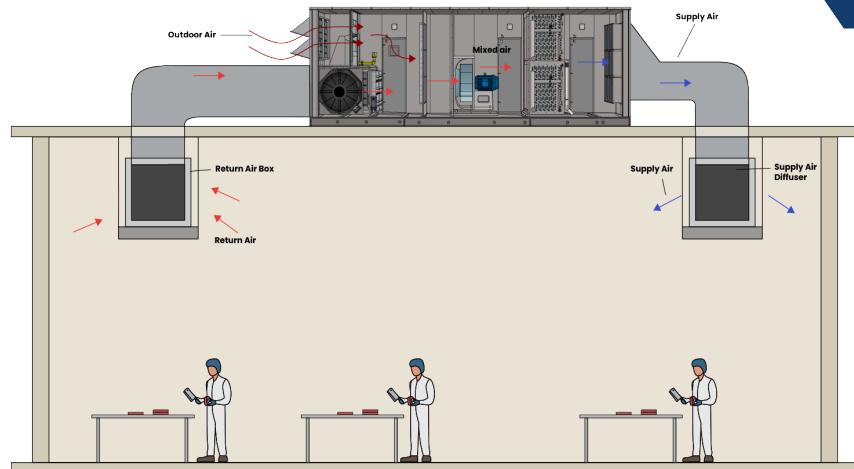
When process room temperatures are low enough to result in frosted fins on the evaporator coil, Colmac Coil's Hygienic Air Handler can be provided with sequentially defrosted evaporator coils. To defrost, the suction pressure of one evaporator is raised, where the process air melts the accumulated frost.

Additional Options

- Return-air drop boxes and return drip pans
- Hygienic motor mounts
- Upgrade to 10" display for Allen Bradley Panel View Plus
- Supply-Air Diffusers
- SS NEMA 4X remote panel with panel view (6")
- Room pressure control
- Shrink wrap packaging on select unit models
- SST interior with caulked joints
- Unit mounted smoke detector
- Sequential defrost
- Motor service rails
- Flooded-surge vessels
- HEPA filters
- Reheat coils
- UV lights

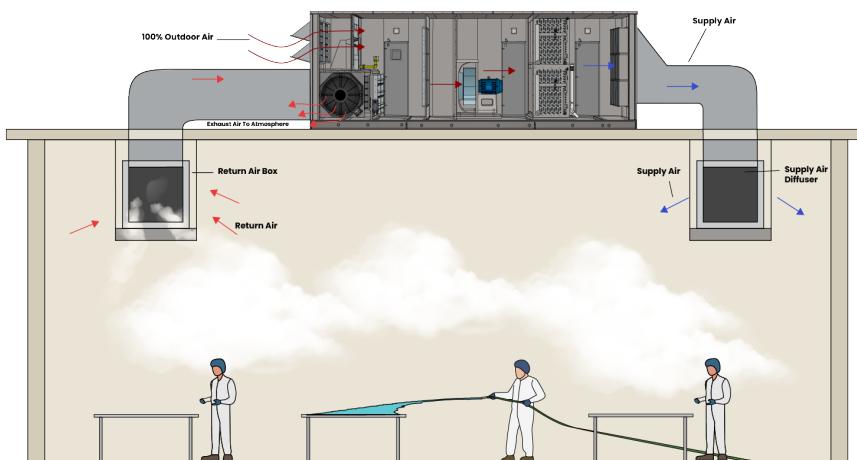


Modes of Operation



Production Mode

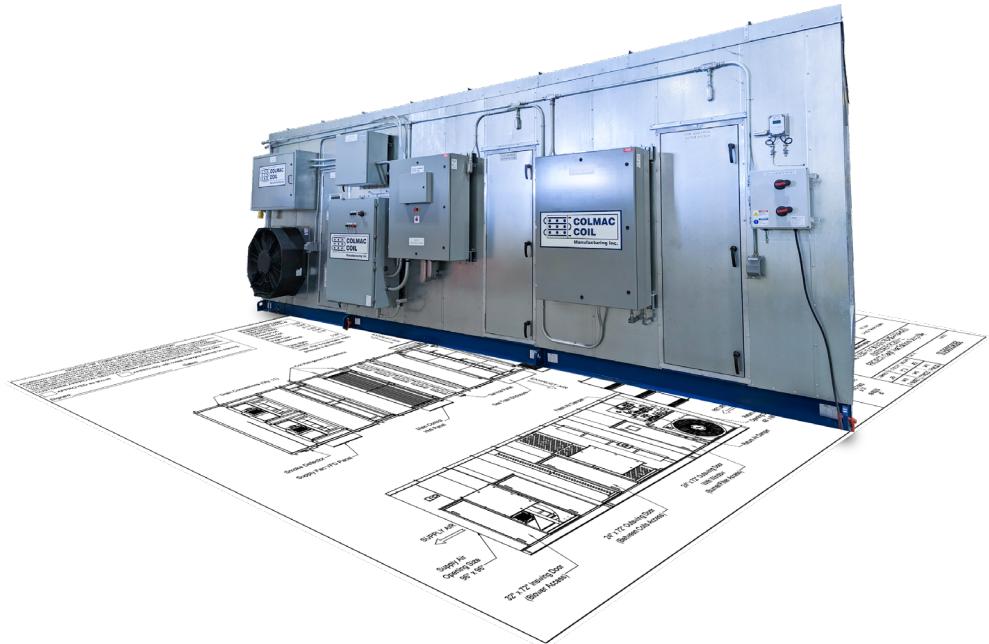
During production mode, Colmac Coil's Hygienic Air Handler mixes fresh air in small quantities with the process room air to provide positive air pressure in the space. This additional air makes up for the air that is spilling from the processing space through doors, openings, or exhaust fans. Providing outside air allows users to control the air migration movement between rooms. The mixed air is filtered to capture airborne contaminants, before entering the fan section where plenum fans are utilized to circulate the process room air. Each plenum fan is a VFD controlled direct drive, backward curved, high efficiency airfoil impeller, that quietly and efficiently delivers the necessary air volume at high static pressures. A hygienic design is accomplished with an optional, completely cleanable, fully welded motor base. Final filters capture particles as small as 0.3 microns before the Hygienic Air Handler delivers high quality air to the production space via diffusers or ductwork. Exhaust fans positioned in the return airstream allow for precise control of the room air pressure, which allows for effective air migration management. Colmac Coil's Hygienic Air Handlers are controlled via an Allen Bradley Compact Logix PLC system with ethernet communication. A Panel View Plus 7 display mounted on the face of the main control panel allows for control of the process room environment.



Sanitation Mode

During sanitation mode, Colmac Coil's Hygienic Air Handler draws 100% fresh air from outside, where it is conditioned (dried) in order to maximize moisture collection from the room environment. Upon returning to the Hygienic Air Handler, powerful exhaust fans expel the moisture laden air to the outdoors. Depending on the outside air temperature and humidity, either mechanical cooling or heating is automatically utilized in order to provide quick moisture removal from the processing space.

Selection Software



Colmac Coil's Hygienic Air Handler selection software is a web-based program that allows you to design a customized unit to the specifications needed for your project. The software guides the design based off the room inputs of the processing room environment. As you make the equipment selections, the software instantly provides the engineer unit specifications, a price summary report, a design data sheet, and pricing details for the the hygienic air handler unit.

Selection Software Features:

- Web based program
- Generate project reports in a variety of file formats
- Unit specification documents
 - Price summaries
 - Engineering schedules
 - Engineering specifications

We look forward to finding a solution with you. To learn more, receive a quote, or sign up for selection

Increase Hygiene In The Processing Space



Chicken Processing Room



Beef Processing Room

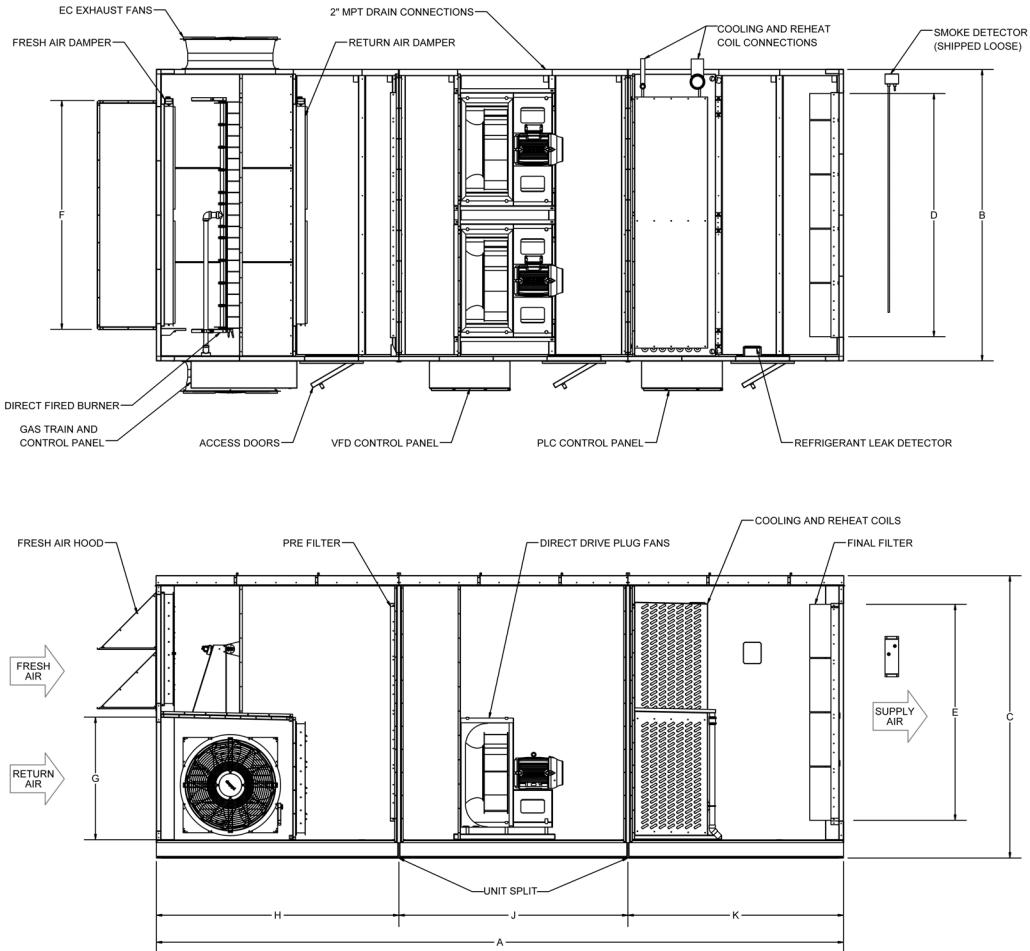


Ice Cream Processing Room



Pet Food Processing Room

Standard Unit Dimensions



MODEL	Airflow (CFM)	EST. Weight (LB)	A	B	C	D	E	F	G	H	J	K
A+H6	6000	10500	337	74	108	48	36	30	24	N/A	N/A	N/A
A+H12	12000	13000	337	84	108	72	60	60	24	N/A	N/A	N/A
A+H18	18000	15500	337	95	108	72	60	72	30	N/A	N/A	N/A
A+H22	22000	16500	337	95	108	72	72	72	36	N/A	N/A	N/A
A+H30	30000	23000	337	129	108	108	72	96	36	101	140	96
A+H40	40000	24000	337	129	126	108	96	96	48	101	140	96
A+H52	52000	31500	337	167	130	132	96	132	48	101	140	96
A+H70	65000	37500	337	188	137	156	96	140	48	101	140	96
A+H90	90000	47000	337	266	137	247	108	209	48	101	140	96

QUALITY PRODUCTS FROM COLMAC COIL



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"The Heat Transfer Experts"

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CRN



CSA

ASME Sec. VIII, Canadian Registration Number, UL508, Canadian Standards Association

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