

# HYGIENIC AIR HANDLING UNITS

## CPA Critical Process Air Systems™



### THE IDEAL SOLUTION

For Precise Control of Temperature, Humidity,  
Airborne Contaminants & Room Pressurization





## Get to Know EVAPCO

- The global innovator in heat transfer solutions
- Serving the commercial HVAC, industrial refrigeration, power generation, and industrial processing markets
- Founded in 1976
- Employee-owned
- 25 manufacturing facilities in 10 countries
- More than 200 sales offices in 51 countries

**Find your EVAPCO representative now at [evapco.com](http://evapco.com).**

## EVAPCO is more than a name.

It's a pledge to make everyday life easier, more comfortable, more reliable, and more sustainable for people everywhere. How do we fulfill on that promise? It's simple.

### **We never stop innovating.**

At EVAPCO, we don't just talk about innovation. It's ingrained in our workflow. Guided by our annually developed R&D plans, we set out every day to find groundbreaking solutions that transform the way the world works for the better. It's why we have more than 25 patents worldwide in the last 10 years alone.

### **We craft exceptionally built solutions.**

As an employee-owned company, we are loyal. We demand excellence of one another. And we take pride in our work. Together, we make up one of the most experienced teams of engineers and craftsmen in the industry. This translates into solutions that are always exceptionally built. No one will deliver higher quality for you.

### **We guarantee performance.**

Every EVAPCO solution is put through rigorous research and testing to deliver maximum efficiency and reliability. But we don't stop there. We also lead the industry in independent, third-party performance certifications. These certifications guarantee our performance metrics—so that you can plan your projects with complete peace of mind.

### **We protect the environment.**

Innovation and environmental sustainability go hand-in-hand at EVAPCO. From sound reduction to water conservation to chemical elimination, we are constantly developing new technologies that deliver the ultimate operating advantages for our clients—and protect the planet for every generation that comes after us.

### **We are EVAPCO—the team you can count on for life.**

# CPA Systems – The Ideal Solution

## Superior Hygiene and Performance Through Innovative Design

### EVAPCO CAPABILITIES

- Unmatched standard unit sizes to cover a wide variety of applications, ranging from as little as 1,000 CFM to over 150,000 CFM
- Custom configurations with a wide range of accessories to meet the most demanding applications
- Custom unit sizes available to meet site layout requirements or existing structural steel
- Trained sales and service team dedicated to helping you find the best rooftop solution

### Superior Cleanliness

- Industry leading sanitary enclosure design that minimizes fastener heads on the interior walls and ceiling
- The “100% free flow” drain pan eliminates stagnant water
- Optional 304 stainless steel interior enclosure panel construction
- For optional Ultra Hygienic CPA design package, see Page 9

### Standard Construction Features

- G235 galvanized steel exterior
- Double-wall, wash-down construction with all casing fasteners internal to the unit casing
- G235 galvanized steel interior liner completely sealed water-tight with food grade sealant to allow for interior cleaning and sanitizing
- Multiple insulation types and thickness available to match the application

### Evaporator Design Features & Benefits

- Heavy wall tube manufactured by EVAPCO resulting in consistent tube quality and availability
- 5/8” or 1.05” diameter stainless steel tubing featuring CROSSCOOL™ Internal Tube Enhancement
- Various fin spacings for maximum performance and superior hygiene
- EVAPCO stainless steel tube, aluminum fin, industrial evaporator coils manufactured per ASME/ANSI B31.5 and factory charged with nitrogen



Stainless Steel Tube, Aluminum Fin Evaporator Coil

# CPA SYSTEM™ INNOVATIVE DESIGN • SUPERIOR PERFORMANCE

The CPA System is engineered to deliver conditioned, purified air to critical food preparation, production and packaging areas in your facility. The CPA System includes patented technology to provide maximum thermal efficiencies, air purification/filtration to meet stringent air quality standards, and control packages to monitor and actuate the functions of the critical process unit.

## COOLING COILS

- Cooling coil performance rated in accordance with AHRI Standard 420
- Standard stainless steel tube/aluminum fin construction, with options for epoxy-coated aluminum fin or stainless steel fins to meet the requirements of every application
- Cooling coils are designed and built by EVAPCO
- Cooling coils meet the requirements of B31.5

## DAMPERS

- Galvanized steel construction or optional stainless steel or aluminum construction
- Direct-drive, low-leakage
- Standard modulating NEMA 4 actuators with position feedback

## UNIT BASE

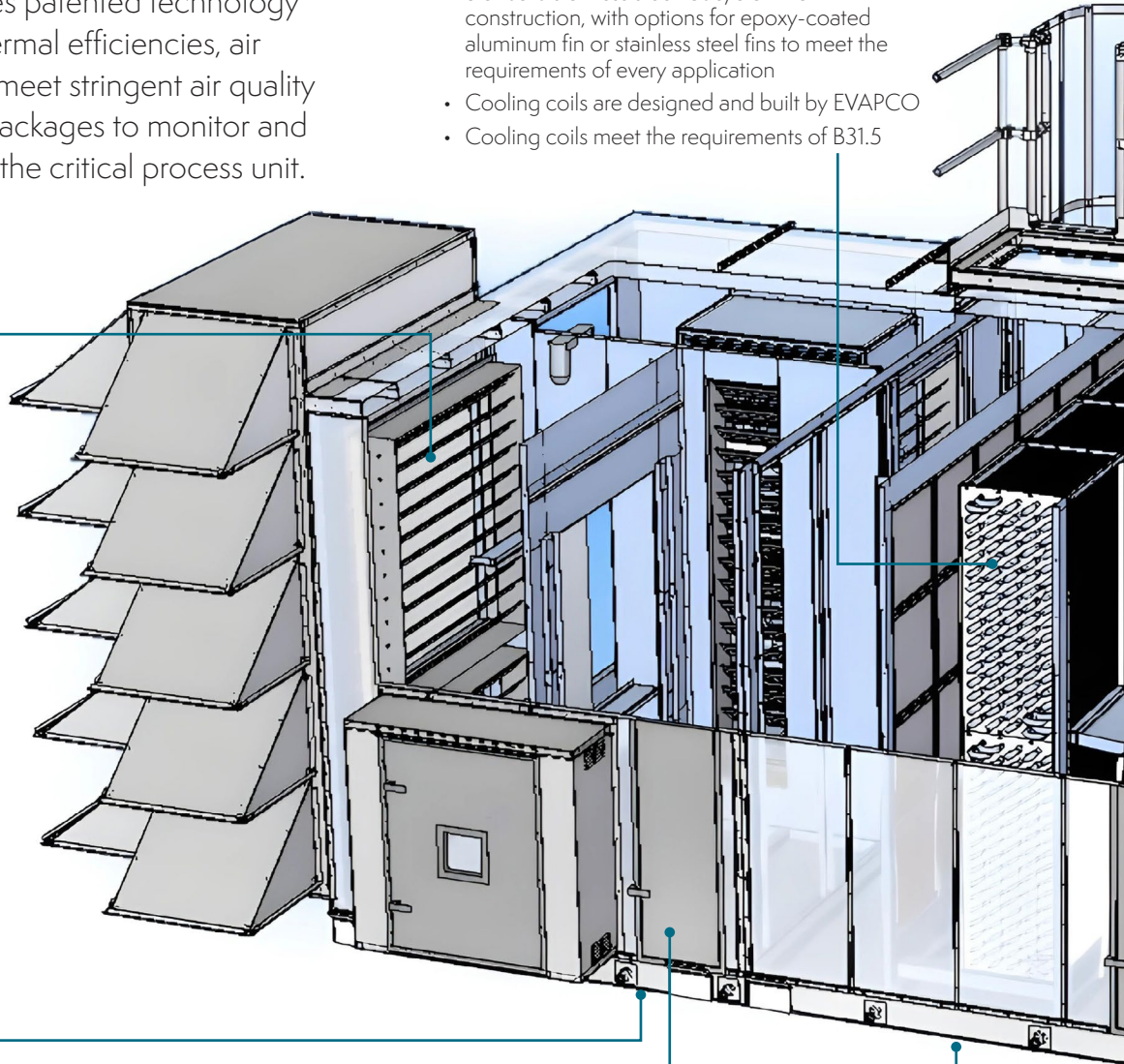
- Fully-welded G235 galvanized steel or optional 304 stainless steel
- Pour-foam insulation with standard G235 galvanized steel base material to enclose the insulation

## UNIT ACCESS

- Doors are standard in all unit sections and between all components, including the cooling and reheat coils, for easier maintenance, service & inspection
- Doors include stainless steel hinges, polycarbonate latches and are operable from both the interior and exterior of the unit

## DRAIN PANS

- Unit includes G235 galvanized steel drain pans (optional 304 stainless steel) in all unit sections with 304 stainless drain pans under the cooling coil
- All drain pans are fully-welded, double sloped and include a recessed drain to allow for complete drainage and NO standing water



## HEATING

- Various options available including direct fired gas/propane, indirect fired gas/propane, steam, glycol/water, refrigerant hot gas and electric

## FAN SELECTIONS

- Low-sound, high efficiency plenum fan design
- TEFC, premium efficient, VFD-ready motors with sealed bearings and grounding rings for direct-drive applications
- Optional fan-array designs
- Optional EC-type fan/motor

## FILTERS

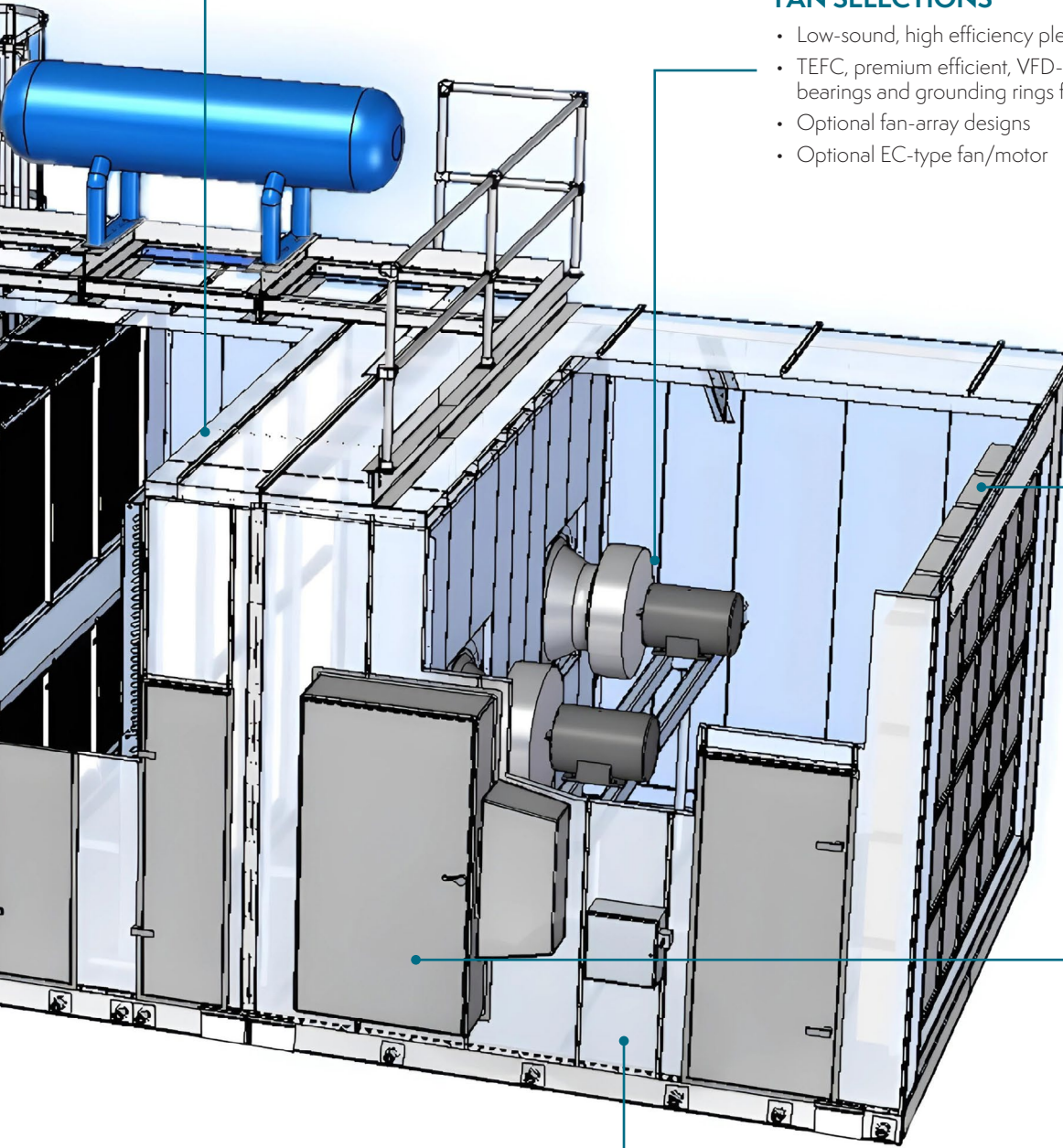
- 304 stainless steel Sani-Clean pre-filter & final filter frames
- Pre-filter is 4" thick, MERV 10
- Final filter is 12" thick, MERV 15
- Optional HEPA filtration

## CONTROLS

- Complete, custom-built, project specific control systems to meet the requirements of each customer
- NEMA 4 control panel(s) with air conditioning and heating to maintain optimum panel conditions to prolong the life of the internal components
- All electrical panels built and labeled in UL Panel Shop
- Allen Bradley Compact Logix PLC system with Allen Bradley Panel View on the face of the unit control panel
- Allen Bradley Power Flex VFD's for each individual motor

## UNIT CASING

- G235 galvanized steel or optional 304 stainless steel exterior for superior corrosion resistance
- Double-wall, wash-down construction with all casing fasteners internal to the unit casing
- G235 galvanized steel or optional 304 stainless steel interior liner completely sealed water-tight with food grade sealant to allow for interior cleaning and sanitizing
- Multiple insulation types and thickness available to match the application



# Standard CPA Options

## EVAPCO INTEGRAL EXHAUST SECTION

EVAPCO's Integral exhaust section is designed for optimal performance and maintenance. This section can be used for cleanup cycle, exhaust, and pressurization controls.



Direct Fired Burner

### Integral Exhaust Features

Direct Drive exhaust fans located within the casing of the CPA Unit with double gravity backdraft damper to limit infiltration while fans are off.

Full-sized walk-in access doors to accommodate service (no internal hatches shall be allowed).

Allows for cleanup cycle – 100% Outside Air and 100% exhaust to purge the room of steam and moisture. This creates safer working conditions for cleanup crews and allows faster drying times between cleanup and production.

Fans with VFD's can be utilized to relieve over pressurized spaces.

Direct Fired burner for winter cleanup and production modes. Gas trains are designed in accordance with Factory Mutual (FM) insurance guidelines and complete with all safety devices and controls. (Other heat sources also available)

## EVAPCO ENERGY RECOVERY OPTIONS

Energy efficiency has become a focal point of system design. With certain areas of food plants requiring exhaust as part of the process, EVAPCO can add energy recovery technology to the CPA unit to heat or cool the required makeup air. EVAPCO offers three different energy recovery systems, including enthalpy wheels, air-to-air heat exchangers, and pump run around loops. Our trained sales team will help you decide which technology is the best fit for the project's specific application.

### Enthalpy Wheels

Most efficient and effective heat recovery option  
Requires maintenance and power to operate the wheel

### Air to air heat exchanger



- No moving parts
- Limited maintenance & cleaning
- Always operating (Summer & Winter)

Air to Air Heat Exchanger  
Photo credit to Heatex

### Pump Run Around Loops

Two coils piped together in series with a pump in between. The pump circulates glycol back and forth between the coils to transfer energy.

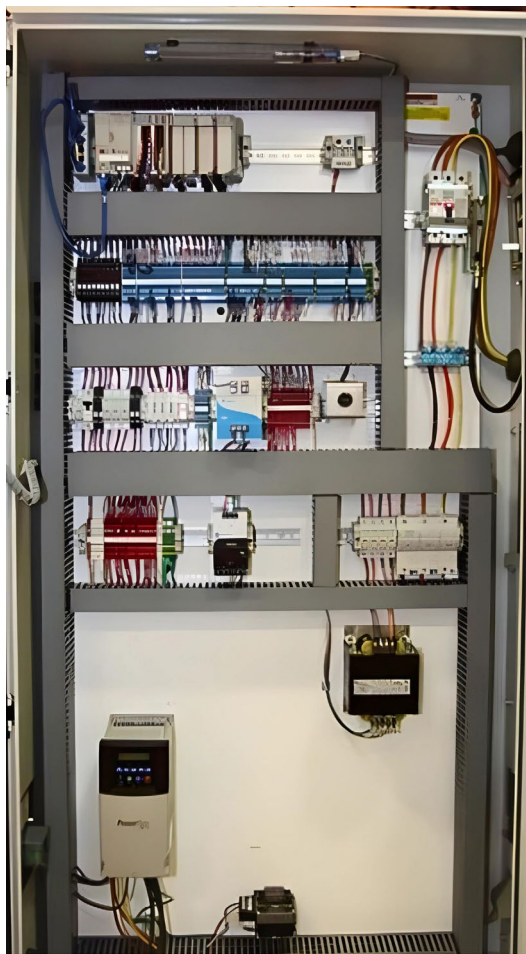
Offers pre-cooling to remove load off the system and gives reheat downstream.

Requires a pump and VFD to run the system.

# Electrical Controls and Options

## STANDARD EVAPCO CONTROLS PACKAGE

- Allen Bradley PLC control system with Ethernet communication provided and designed by Evapco
- Allen Bradley Panel View on main control panel for full control at the unit
- NEMA 4 control panel with fused arc-flash rated disconnect upstream of the main panel, factory mounted and wired on the exterior of the unit.
- All control panels are built and labeled in UL panel shop



Control Panel

## Control Options

- Dual control panels for voltage segregation
- Factory-mounted VFD's for main blower motor(s) and exhaust fan motor(s). VFD panels include panel conditioning to maintain proper panel temperatures.
- NH3 or CO2 detectors
- Smoke detectors

- LED service lights and receptacles

## Customizable Programming

EVAPCO's PLC code to control the units is completely customizable to meet any food process requirements. Some of these customizable modes of operation include:

- Production Mode
- Cleanup-Mode
- Recovery/Pull Down Mode
- Economizer Mode
- Room Pressure Control
- Dehumidify/Humidify Control

## Evapco Sanitizing Systems (ESS)

- UVC Lights
- Ionization Bar

ESS UVC lights use the latest high output UVC emitter technology to effectively eradicate mold and other contaminants right at the source. Properly installed and maintained ESS UVC lights will eliminate the need for coil sanitizing or cleaning.

The ESS Ionization bars utilize positive and negative ions to effectively reduce harmful micro-organisms, pollutants, and pathogens both in the airstream and on the coil. In certain applications it can also be used to neutralize odors.



UVC Lights

# CPA Options & Sizes

## TYPICAL CPA OPTIONS

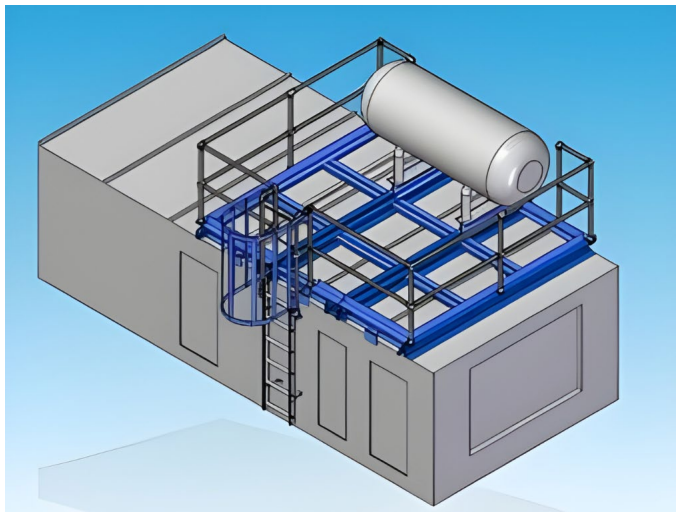
- Motor removal system
- Stainless steel duct flanges
- EVAPCO Service Platform
- EVAPCO Service Vestibule
- RVS Surge Drum and roof supports
- OSHA rated Surge Drum catwalk with ladder and handrails
- Dwyer 605 filter gauges with PLC communication
- Stainless Steel NEMA 4X remote panel with push buttons & indicating lights. Optional HMI
- Shrink wrap unit for shipping



Motor Removal System

**EVAPCO CPA models available to fit any Critical Process application:**

CPA Model	CFM
CPA-2	1,000 – 2,500 CFM
CPA-4	4,000 – 5,000 CFM
CPA-6	6,000 – 7,500 CFM
CPA-8	8,000 – 12,000 CFM
CPA-12	12,000 – 15,000 CFM
CPA-16	16,000 – 20,000 CFM
CPA-20	20,000 – 24,000 CFM
CPA-24	24,000 – 30,000 CFM
CPA-30	30,000 – 37,500 CFM
CPA-36	36,000 – 45,000 CFM
CPA-40	40,000 – 50,000 CFM
CPA-48	48,000 – 60,000 CFM
CPA-56	56,000 – 70,000 CFM
CPA-60	60,000 – 75,000 CFM
CPA-70	70,000 – 87,500 CFM
CPA-80	80,000 – 96,000 CFM
CPA-90	90,000 – 112,000 CFM
CPA-100	100,000 – 125,000 CFM
CPA-120	120,000 – 150,000 CFM



Surge Drum Catwalk System





# Ultra-Hygienic CPA

## Superior Cleanliness

EVAPCO's Ultra-Hygienic CPA is designed to meet the needs of today's most demanding food processing companies where hygiene and cleanliness is of the utmost importance.

The casing walls of the Ultra CPA are manufactured with heavy gauge double wall construction for long equipment life. Casing walls are foamed in place with close-cell insulation resulting in a single piece, unitary construction with no through metal design.



No Exposed Threads

The interior walls are designed to be flush with the edge of the drain pan to eliminate flat surfaces between the base of the interior walls and the top of the drain pan. The interior walls are designed

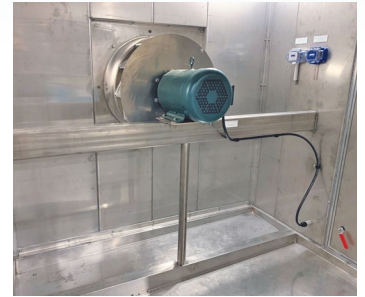
to eliminate all fasteners with exposed threads, even where the closures meet the wall. Typically, interior components of the air handler are supported and mounted in a manner which does not provide complete accessibility for cleaning.

The unit incorporates fully welded and pitched stainless steel drain pan systems. The welds are smooth and non-porous. The drain connections are fully recessed to facilitate complete drainage in all sections.



Fully Welded Drain Pan

Direct drive aluminum blowers are used in lieu of belt driven blower. This blower design eliminates belts and the associated cleaning, maintenance and dust issues. The use of Variable Frequency Drives results in efficient fan operation, precision balancing of the system and maximum energy savings. In addition, the "closed" structural support system completely eliminates the traditional support and framing around and under the blower, making cleaning and inspection simple and efficient.



Direct Drive Blower

The uniquely designed coil support system makes cleaning under the coil both easy and efficient. There are no longer "open" structural steel supports under the coil which obstruct the cleaning and inspection process. The new "closed" coil support system eliminates "hidden" areas, while providing full visibility and access to the coil supports and surrounding areas for maximum cleaning efficiency.



Ultra-CPA System – Cleaning Under the Coil is Easy and Efficient

# Desiccant Dehumidification

With the integration of a desiccant dehumidifier, the EVAPCO CPA can meet the requirements of nearly any humidity and condensation control application.

EVAPCO offers complete flexibility in design, capacity and features to fulfill the most demanding applications. Every CPA is constructed with a comprehensive choice of quality components integrated together to create a state of the art, custom air handling unit backed by the industry's most experienced critical process product design and system application engineers.

Our desiccant wheel offers the most advanced design features including:

- Seals rated for the life of the unit, rather than maintenance intensive Silicone/Teflon Seals
- Maintenance free sealed, non-greasing, heavy duty bearings in place of light-duty cast supports

- Heavy-duty corrosion resistant nickel plated drive chain contacts the entire perimeter of the desiccant wheel sprocket, compared to a lighter duty timing belt drive with partial contact
- High capacity systems for a variety of application specific requirements
- Integrated desiccant system built into the CPA and protected from the elements; not a separate add-on module external to the frame or unit footprint
- Natural gas, steam, or electric reactivation options
- Optional integrated face/bypass dampers for precise humidity control
- Complete, project specific PLC controls for stand alone or networked applications
- Optional heat recovery on regeneration air stream utilizing heat pipe technology



Desiccant Wheel

# Diffusers & Drop Box Options

## EVAPCO SUPPLY AIR DIFFUSERS

EVAPCO's LD supply air diffuser line is designed to provide air circulation in a production space while maintaining superior hygienics. All diffusers are made from stainless steel and have the following features:

- 120-volt heating cable in separate drain pan wired to a junction box
- Two (2) way directional (up and down) stainless steel supply air blades without damper
- Minimal tool and fasteners for adjusting blade angels making it maintenance friendly
- Optional hinged register for cleaning access



Supply Air Diffuser

EVAPCO LD diffusers come in three different styles:

- Standard construction mechanically fastened together
- Drain pan is solid welded, box is standard construction
- Fully welded diffuser

Model	Max CFM
LD-2.5-HP-SB	2,500 CFM
LD-5-HP-SB	5,000 CFM
LD-7.5-HP-SB	7,500 CFM
LD-10-HP-SB	10,000 CFM
LD-15-HP-SB	15,000 CFM
LD-20-HP-SB	20,000 CFM
LD-25-HP-SB	25,000 CFM
LD-30-HP-SB	30,000 CFM
LD-40-HP-SB	40,000 CFM
LD-50-HP-SB	50,000 CFM
LD-60-HP-SB	60,000 CFM
LD-70-HP-SB	70,000 CFM
LD-80-HP-SB	80,000 CFM
LD-90-HP-SB	90,000 CFM

## EVAPCO RETURN AIR DROP BOXES

EVAPCO's DB return air drop box line is designed to provide hygienic air return from a production space. All drop boxes are made from stainless steel and have the following features:

- 120-volt heating cable in separate drain pan wired to a junction box
- Stainless steel screens
- Optional hinged register for cleaning access

EVAPCO DB drop boxes come in three different styles:

- Standard construction mechanically fastened together
- Drain pan is solid welded, box is standard construction
- Fully welded drop box

Model	Max CFM
DB-2.5-HP	2,500 CFM
DB-5-HP	5,000 CFM
DB-7.5-HP	7,500 CFM
DB-10-HP	10,000 CFM
DB-15-HP	15,000 CFM
DB-20-HP	20,000 CFM
DB-25-HP	25,000 CFM
DB-30-HP	30,000 CFM
DB-40-HP	40,000 CFM
DB-50-HP	50,000 CFM
DB-60-HP	60,000 CFM
DB-70-HP	70,000 CFM
DB-80-HP	80,000 CFM
DB-90-HP	90,000 CFM

\*\*\*Optional Return Air Pan only, no box with screens\*\*\*



Return Air Drop Box



# WORLDWIDE MANUFACTURING LOCATIONS



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