evapco Dry Cooling

Specialists in Air Cooled Condensers and Air Cooled Heat Exchangers

EVAPCO Dry Cooling

EVAPCO Dry Cooling, Inc. is a subsidiary of EVAPCO, Inc., specializing in the manufacturing of air cooled heat transfer products. With a keen focus on research and development, EVAPCO Dry Cooling is a world-class air cooled condenser (ACC) manufacturer that continues to drive the industry to the highest standards. With this focus, EVAPCO Dry Cooling offers the state-of-the-art Advanced Technology™ ACC that features the nuCore™ heat exchanger.

EVAPCO Dry Cooling specializes in the design and supply of ACCs and ACHEs for the power industry. Over 600 ACC cells have been executed, allowing EVAPCO Dry Cooling to be considered a premier ACC supplier for the global power market.

EVAPCO Dry Cooling also serves the Power Industry with EVAPCO's eco-Air Series™ air cooled heat exchangers which are manufactured in EVAPCO's wholly owned and operated manufacturing facilities in Taneytown, Maryland, Greenup, Illinois, Madera, California, and Jiaxing, China.

With a 100% US-based execution team and experience supplying ACCs and ACHEs globally, EVAPCO Dry Cooling has the knowledge of designing to the codes and regulations of any region in the world.

EVAPCO

Since its founding in 1976, EVAPCO has become an industry leader in the engineering and manufacturing of quality heat transfer products around the world.

EVAPCO's powerful combination of financial strength and technical expertise has established the company as a recognized manufacturer of market-leading products on a worldwide basis.

EVAPCO is an employee-owned company with a strong emphasis on research and development and modern manufacturing plants, and also provides the most advanced products and components in the industry.

Industries

- Power Generation
- Carbon Capture
- Data Centers
- Heavy Industrial
- Mining
- Aftermarket Services

Wilson E. Bradley Research & Development Center

EVAPCO's Wilson E. Bradley Research & Development Center has 10 test laboratories including eight environmental chambers, a sound test pad, and a water analytical lab. These facilities provide EVAPCO dedicated R&D space to produce industry-leading products in real-world conditions.

EVAPCO's laboratory is the only laboratory in the world with the capabilities to test full-size ACC heat exchangers in a controlled environment. This provides EVAPCO the unique advantage to optimize the ACC design with unprecedented precision and to fully understand phenomena such as freezing, air in-leakage, impingement, flow accelerated corrosion (FAC), and steam and air side pressure losses.

The latest addition to the Wilson E. Bradley Research & Development Center is the Advanced Technology™ ACC test cell. This test cell is a one-quarter scale ACC cell utilizing EVAPCO's nuCore™ heat exchangers which are installed in the same configuration as they would be in an operating power plant.

Proven Technology

Since their introduction in 2018, the EVAPCO Dry Cooling nuCore™ heat exchangers have been installed in combined cycle power plants with over a combined 7 GW of electrical generation capacity in North America.

The **Advanced Technology™ ACC**, featuring **nuCore™ Heat Exchanger** tube bundles provides two important benefits that make it the new standard in air cooled condensing:

- Superior Thermal Performance
- Significant Installation Cost Savings

The **Advanced Technology™ ACC** was engineered with three primary objectives:

- To reduce the amount of jobsite labor required
- To improve safety for site erection
- To reduce cost with improved heat transfer

Features and advantages of the **nuCore™ Heat Exchanger** include:

- Improved heat transfer
- Reduced fouling potential
- Improved freeze resistance
- Reduced sub-cooling
- Factory welded headers

  Shop QA/QC is more accurate, easier, and results in fewer leaks; reducing the need for field welding and/or troubleshooting.

The **AT ACC** is designed for **modular construction** to provide the following cost saving benefits:

- Factory preassembly reduces the number of parts to erect
- Individual cells preassembled at grade
- Improved labor efficiency
- Reduced overall site erection time

Features and advantages of **AT ACC** induced draft technology include:

- The lowest overall height in the market

  Provides less visual impact, while requiring less reach for cranes and maintenance crews during installation & servicing.

- Fans located above the heat exchanger module

  Lowers potential for warm air recirculation and fan vibrations during high winds; improves thermal performance during windy conditions

- Plenum section between fan and heat exchangers

  Encourages mature air flow across the heat exchanger's surface and lowers freezing risk.

- Steam fed from underneath

  Ideal for modular concepts with reduced subcooling and ducting materials; allows condensate to travel down the steam ducting, reducing the need for additional piping.

- Duct & mechanical equipment designed to be thermally and dynamically independent

  Ensures that stresses seen from fan vibrations are not transposed onto duct/heat exchangers; allows for free thermal expansion since the heat exchangers are also thermally independent.

- Heat exchangers supported independently from support structure

  Provides freedom of movement due to thermal expansion; minimizes stress points on heat exchangers; simplifies installation with one nozzle connection per heat exchanger (HX).

Inspired by large power cooling applications, the all-new eco-Air Titan™ field-erected air cooled heat exchanger is an efficient and cost-effective solution for customers across all industries who require a large heat rejection duty. The eco-Air Titan takes EVAPCO's proven state-of-the-art finned tube bundles found in our commercially successful eco-Air Series™ product line and integrates them into a large fan, field-erected unit that leverages all the efficiencies found in EVAPCO's market leading Advanced Technology™ ACC. Combining these synergies in a power saving air cooler design that provides a substantial amount of cooling capacity in a small footprint.

SUPERIOR STAINLESS STEEL TECHNOLOGY

Like all eco-Air Series dry coolers, the eco-Air Titan is constructed with high-grade Type 304L stainless steel tubing and aluminum fins as standard. The SS tubing meets the requirements of ASME B31.5 piping code. The tubing is roll formed and continuously welded, annealed, and tested using an eddy current device. For applications where corrosion of the aluminum fin is a concern, a lacquered coating is available.

COIL DESIGN

Using computational fluid dynamics (CFD) modeling software, finite element heat transfer analysis, and proprietary coil performance calculation methods, EVAPCO engineers have identified significant design elements to improve the finned coil performance. The extensive computer modeling has been refined and verified through coil performance evaluation in EVAPCO's world-class research laboratories. The EVAPCO eco-Air Titan is configured with the same coil technology as our conventional eco-Air Series products, which enjoys a reference list of over 1,000 units since being introduced to the marketplace in 2017.

EVAPCO now has the capability to supply all air cooled heat transfer equipment required for heavy industry. Often, when an air cooled steam condenser is required for the steam cycle, an air cooled heat exchanger is also required for auxiliary cooling.

Available fully dry or with two air pre-cooling options (pads or spray), these modular Air Cooled Heat Exchangers (ACHEs) arrive to the site fully assembled on a flat bed truck or containerized ready to be lifted into place at grade level or raised on a support structure. The robust Type 304L coils provide a reliable and durable solution for any heavy industrial application.

Maximize heat rejection with minimal or no water usage and experience unparalleled flexibility with a wide range of capacities, footprints, motor types, and control options.

Air Cooled Heat Exchangers

V-COIL

Optimized coil angle for heat rejection and air flow; compact plan area & layout

FLAT

Low profile design; great for elevated installations with bottom airflow clearance

DOUBLE STACK

Maximum surface area per footprint; increase capacity; reduce overall number of units

EVAPCO Dry Cooling is the industry leader for aftermarket ACC service and support. From spare parts inquiries, to full-service maintenance agreements, EVAPCO Dry Cooling can support any size operator with a level of service that fits their organization.

EVAPCO Dry Cooling has industry experts on staff and works with innovative equipment suppliers to engineer options to optimize ACC performance and reliability, including:

DRY WELL GEARBOXES

Guaranteed leak free

AIRFLOW & FAN PERFORMANCE IMPROVEMENTS

Optimization of existing fan installations and replacements

SPARE PARTS

Supply and installation services available at lower costs

EVAPCO Dry Cooling has experienced field engineers and employs highly trained laborers from across to the country to perform ACC maintenance. Take comfort that the crews maintaining your ACC know what to look for and how to properly care for FRP & aluminum fan blades, gearboxes, and other vital ACC equipment.

Field Services Include:

1. Fan blade manufacturer required maintenance.
2. Major mechanical equipment service and replacement.
3. Performance monitoring and improvement.

Long-Term Service Agreements

EVAPCO Dry Cooling provides a solution to fully outsource ACC preventative maintenance to a qualified OEM to reduce the demand on plant personnel and ensure the ACC receives all required and recommended service on time, every time. Single-year or cost-effective, multi-year contracts provide operators peace of mind.

An ACC preventative maintenance schedule can be customized based on installed equipment and can be performed annually or biannually during spring and fall outage windows.

For more information on EVAPCO Dry Cooling's Aftermarket Services, download our Aftermarket Services brochure or contact your local EVAPCO sales representative.

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Committed to making life easier, more reliable and more sustainable for people everywhere