CLOSED CIRCUIT COOLERS

eco-Air™ Series

environmentally
Conscious
Operation

Providing Maximum Water Savings

EAW-VD

EAW-VA

EAW-FD

evapco for LIFE

U.S. GREEN BUILDING COUNCIL MEMBER

CTI CERTIFIED †

EAW-Models

† Mark owned by the Cooling Technology Institute

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
- 26 engineering & manufacturing facilities in 14 countries
- More than 200 sales offices worldwide

Learn More Now

Visit evapcoasia.com to download product catalogs, view complete product specifications, and more.

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 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 to find groundbreaking solutions that transform the way the world works for the better. It's why we have more than 200 active patents worldwide.

We craft exceptionally built solutions.

As an employee-owned company, we take pride in our work. We are proud to be one of the most experienced teams of engineers and craftsmen in the industry. This translates into solutions that are always exceptionally built. EVAPCO has an unwavering commitment to provide "best in class" heat transfer solutions and services.

We guarantee performance.

Every EVAPCO solution is put through rigorous research and testing to ensure maximum efficiency and reliability. But we don't stop there. EVAPCO is an industry leader 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. Our industrial heat transfer equipment not only conserves natural resources and helps reduce noise pollution, but also features recycled steel content in construction. EVAPCO's stainless steel units are constructed of panels that contain up to 75% of recycled content, and our galvanized units contain over 80%. From sound reduction to water conservation to chemical elimination, we are continuously developing new technologies that deliver the ultimate operating advantages to our clients—while protecting the planet for every generation to come.

FULL SPECTRUM GLOBAL SOLUTIONS

EVAPCO provides a full spectrum of global product solutions for the Commercial HVAC, Process Cooling, Industrial Refrigeration and Power Generation markets.

From the smallest factory assembled cooling tower to the largest field erected air-cooled steam condenser, we offer heat transfer products designed to meet the water and energy requirements for any project. We are committed to providing solutions that are energy efficient and conserve water.

Certified Performance

EVAPCO's eco-Air Series of dry coolers is now CTI certified for thermal performance per Standard 201. The Cooling Technology Institute (CTI) is an independent third-party organization who validates the thermal performance of evaporative and dry heat rejection equipment. CTI Standard 201 was expanded to include dry coolers in 2022. CTI certification provides credibility to EVAPCO's published thermal performance ratings, ensuring every customer has peace of mind when purchasing EVAPCO products.

The eco-Air Series completes our successful eco-family of closed circuit coolers and condensers with water-saving dry and hybrid technology.

As an industry leader in independent, third-party performance certifications, our fully-rated products enable you to operate your cooling systems efficiently and with complete peace of mind.

The eco-Air Series coolers offers unparalleled flexibility in a wide range of capacities, footprints, motor types, and control options.

EC Motor Option

AC Motor Option

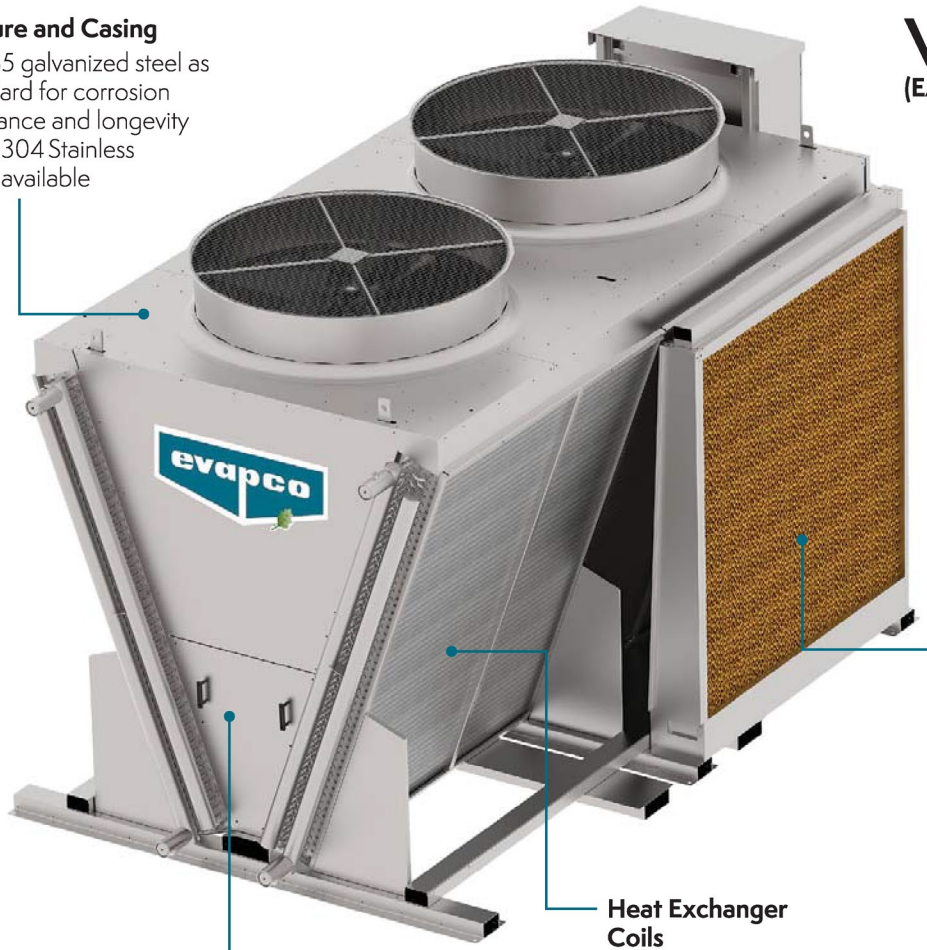
EC & AC Motor Options Available on
Flat (EAW-FD), V Coil Dry (EAW-VD)
and V Coil Adiabatic (EAW-VA) Models

eco-Air Series Design & Construction Features

Available in fully dry & adiabatic designs, the eco-Air Series maximizes heat rejection with minimal or no water use. The eco-Air Series is another chapter in EVAPCO's ongoing commitment to high quality, environmentally friendly products.

Structure and Casing

- G-235 galvanized steel as standard for corrosion resistance and longevity
- Type 304 Stainless Steel available



V Coil Models

(EAW-VD, EAW-VA)

- Maximum surface area per footprint
- Optimized coil angle for heat rejection and air flow
- Compact plan area and layout

Epoxy Coated Fins (Optional)

- Available for both Dry & Adiabatic Models
- Increased corrosion resistance
- No impact on unit capacity

Adiabatic Pre-Cooling System (Optional)

- Wetted pads can be utilized to pre-cool entering air, resulting in greater energy savings, and increased capacity, with minimal water use
- Great for high dry bulb climates and high temperature applications
- Once through design
- No water treatment required
- No cold water basin or pump
- No drift
- V coil models only

Heat Exchanger Coils

- Type 304 Stainless Steel tubes with aluminum fins
- Multiple tube configurations
- Upgraded fin thickness

Inspection Panel (V Coil Models)

- Easily removable for interior inspection and access to coils and fan motors

Coil Return Bend Covers

- Protects the coil return bends during handling and operation

Internal Step Deck (Optional-V Coil Models)

- Platform and grab rail for access to elevated fan section components (2.4m wide V Coil Models only)

eco-Air Series Design & Construction Features

Advanced Motor Technology – Electronically Commutated (EC) or Alternating Current (AC) fan motor designs

EC

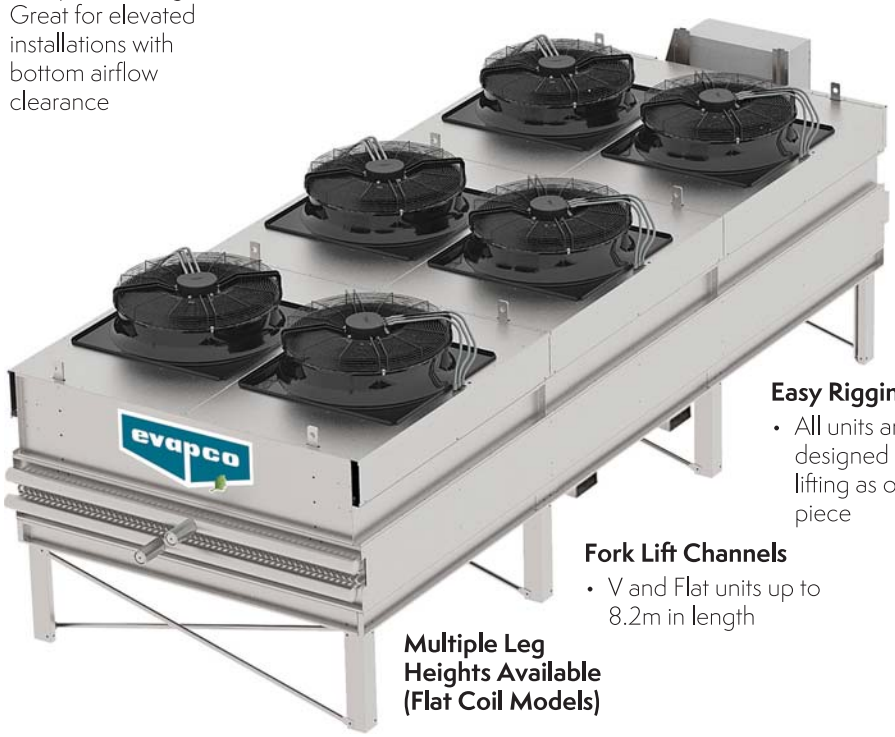
- High Efficiency
- Zero Maintenance
- Integral Speed Control
- Inherently Low Sound

AC

- Highly efficient direct drive
- VFD ready
- Severe Duty

Flat Coil Models (EAW-FD)

- Low profile design
- Great for elevated installations with bottom airflow clearance



Easy Rigging
- All units are designed for lifting as once piece

Fork Lift Channels
- V and Flat units up to 8.2m in length

Multiple Leg Heights Available (Flat Coil Models)

Coils Pressurized with Nitrogen
- Limits internal corrosion potential during transport and storage

Warranty
- 2 years complete unit
- 2 years adiabatic pads (if equipped)
- 1 year EVAPCO Controller and other electrical components (if equipped)

Common Terminal Box
- All motors factory wired
- Saves time in the field

Factory Mounted & Wired Controls
- EVAPCO PLC Panel (EC Motors)
- EVAPCO PLC/VFD Panel (AC Motors)
- Single point power connection
- IEC IP55 Rated

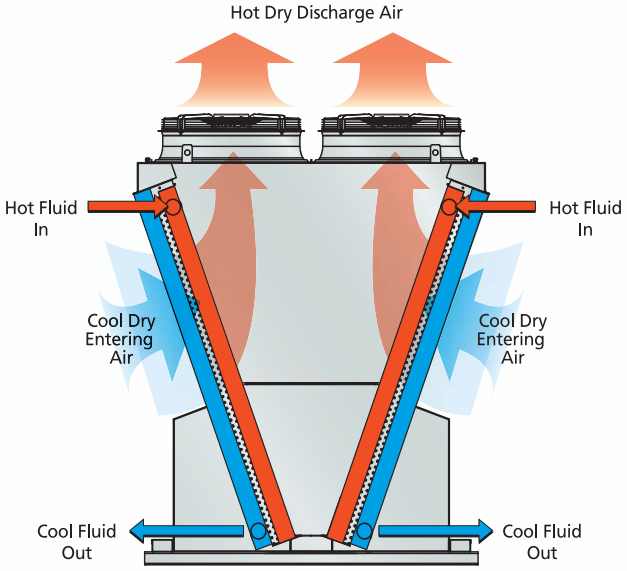
eco-Air Series Dry Cooler Thermal Performance is CTI certified per STD-201.

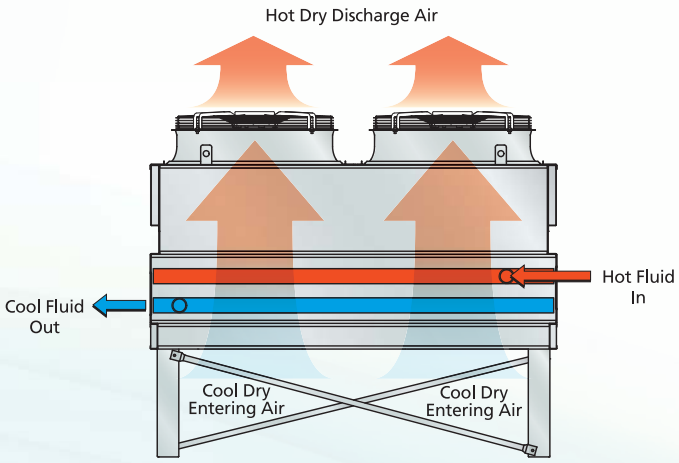
† Mark owned by the Cooling Technology Institute

Dry Principles of Operation

eco-Air Series V Coil (EAW-VD) & Flat Coil (EAW-FD) Dry Cooler

Hot process fluid enters the inlet header connection, shown in red. Heat from the fluid dissipates through the coil tubes surface and out to the fins. Ambient air is drawn in over the coil surface by the fan located at the top of the unit. Heat from the process fluid transfers to the air and discharges to the atmosphere. Cool process fluid exits the unit through the connections shown in blue.

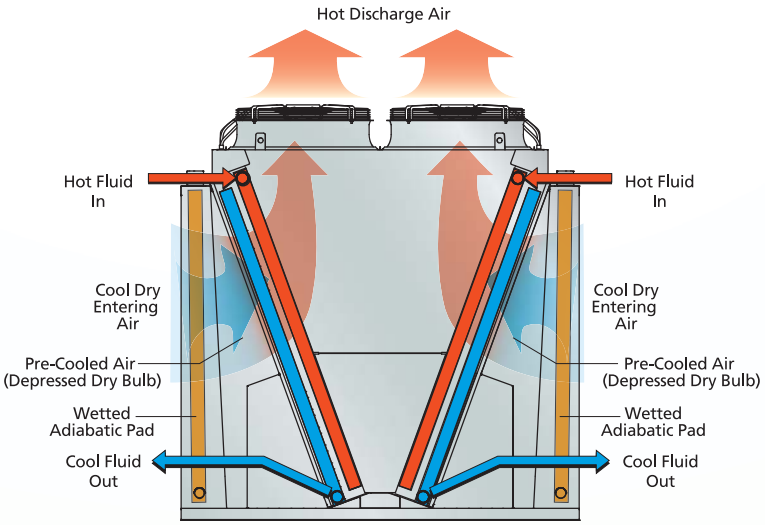




Adiabatic Principle of Operation

eco-Air Series V Coil (EAW-VA) Adiabatic Cooler

Hot process fluid enters the inlet header connection, shown in red. Heat from the process fluid dissipates through the coil tubes surface and out to the fins. The adiabatic system involves fully wetting a fibrous pad located in front of the coil. Ambient air is drawn through the adiabatic pre-cooling pad by the fans located on top of the unit. The air is saturated as it passes through the adiabatic pad, decreasing the dry bulb temperature within a few degrees of the wet bulb temperature. This new air temperature is referred to as the depressed dry bulb. This pre-cooled air is then drawn through the tube and fin surface, offering a substantial increase in heat rejection capability. Heat from the process fluid transfers to the air and discharged to the atmosphere. Cool process fluid exits the unit through the connections shown in blue.



Advanced Coil Technology

EVAPCO has long been the industry innovator in heat exchanger coil technology starting in the early 1990's with the introduction of Thermal-Pak® coils which revolutionized the industry. Soon after, EVAPCO became the benchmark in industrial evaporator design, standardizing on stainless steel tubes and aluminum fins. The eco-Air Series coil design builds upon this past success. The coil tube diameter, geometry, and circuiting have been optimized through thousands of hours of theoretical modeling and laboratory testing. The result is optimal heat transfer efficiency with low airside pressure drop and low motor kW per ton.

Coil Design

Through the use of 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 state of the art research laboratories.

Superior Stainless Steel Technology

eco-Air Series dry coolers are constructed with 16mm diameter high-grade Type 304 stainless steel tubes as standard. The stainless steel tubing is in compliance with GB/T14296. The tubing is roll formed, continuously welded, and annealed.

Tubes are expanded into continuous, enhanced 0.18mm thick high-grade aluminum fins. The fins have fully drawn collars completely covering the tubes for maximum heat transfer efficiency. The coil assembly is then strength tested in accordance with GB/T14296 and subsequently leak tested using air under water. Lastly, the coil is dried, evacuated, and charged with low-pressure nitrogen prior to shipment.

For applications where corrosion of the aluminum fin is a concern, EVAPCO offers pre-coated epoxy fin stock.

Benefits of eco-Air Series

Reduced Maintenance

Scaling, corrosion, and water born bacteria concerns are minimized or eliminated with dry and adiabatic cooling equipment. The eco-Air Series reduces the maintenance traditionally associated with fully evaporative systems.

The eco-Air Series adiabatic coolers are designed as a once through systems, meaning no pump and no basin to hold water, reducing the time required for maintenance. Additionally on adiabatic units, the adiabatic pads filter the air before reaching the coil, limiting the exposure of dirt and debris to the tube and fin heat transfer surface.

Both AC and EC motor options are totally enclosed motors. There are no bearings to grease, belts to adjust, or fans to pitch and balance.

Adiabatic Pad Drip Pan

Totally Enclosed Motors

Reduced or Eliminated Water Consumption

Compared to traditional evaporative systems, the eco-Air Series will either eliminate or dramatically reduce water consumption. Adiabatic models only use water when the ambient conditions and load require it. Reducing water consumption also reduces the ongoing expenses related with the cooling equipment such as purchasing, treating, and disposing of water.

When the eco-Air Series adiabatic models are used in conjunction with the EVAPCO controls package, water conservation is maximized based on proprietary PLC logic.

Factory Mounted and Wired Controls

The motors on the eco-Air Series are pre-wired at the factory, reducing costs associated with field wiring. As standard, all units are wired to a common terminal box. Adding the EVAPCO controls package allows for both single point power supply and complete capacity control.

Installation Made Easy

All units are designed for lifting and staging in one piece.

Fork lift channels come standard on all eco-Air Series units up to 8.2m in length. On longer units, reference the eco-Air Series IO&M for lifting requirements from the fan deck lifting lugs.

Factory Wired Fan Motors

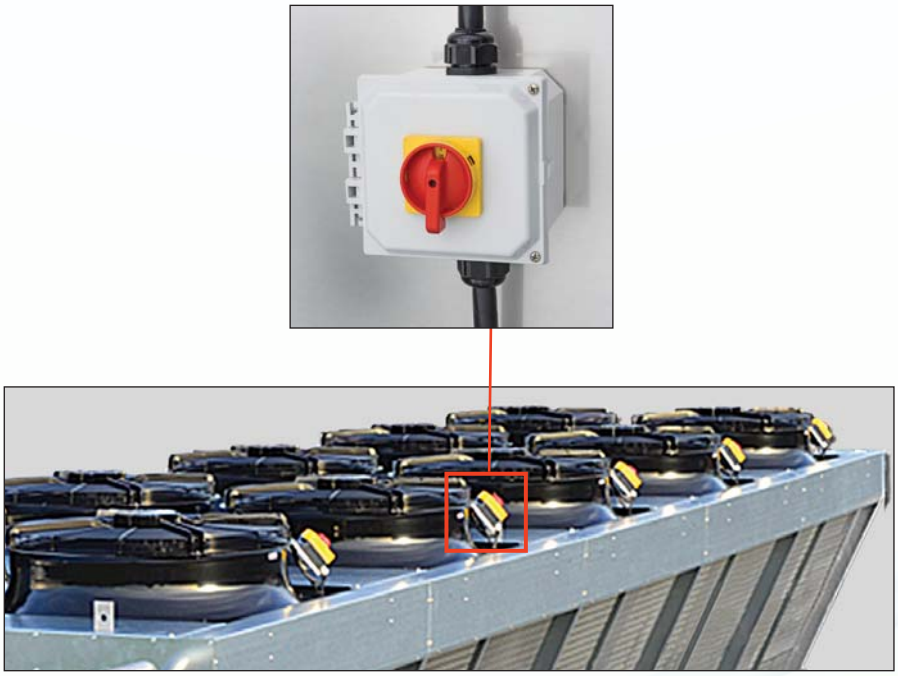
Factory Mounted Control Panel

Wiring and Control Options

Factory wiring and control options are available for all eco-Air Series coolers. Many eco-Air Series configurations allow for single point power and factory mounted components. Please consult your sales representative or EVAPCO Marketing for job specific details.

Common Terminal Box (standard) - All motors wired to a common terminal box located on the end panel opposite coil connections.

Individual Motor Safety Switches (optional) - Mounted at each fan motor to give the user the ability to isolate individual motor power feeds.

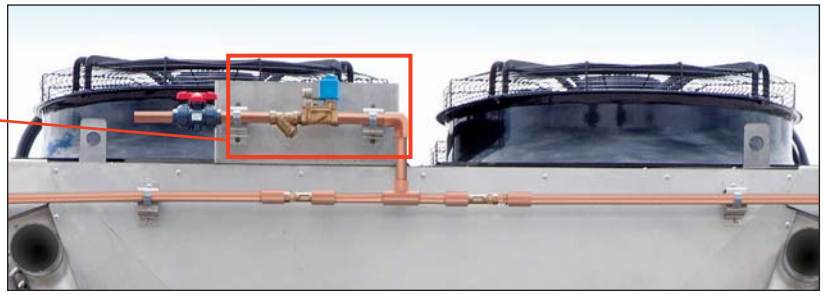


Wiring and Control Options

EVAPCO Control Package – Operating sequence and fan speed control based on real time heat loads and ambient conditions.

- EVAPCO PLC Controller
- Supervisory control system integration
- Fan speed control
  - EC Motor Option: Modbus control of EC fan
  - AC Motor Option: Packaged VFD fan speed control with bypass switch
- IEC IP55 Rated
- Thermal overload and short circuit protection of each motor
- Operate and fault indicator lights on outside of panel
- Fluid Temperature Sensor (shipped loose)
- Ambient Temperature Sensor
- Rain/Sun Protection Hood (optional)
- Solenoid control of adiabatic pre-cooling system (if equipped)

Solenoid Control of Adiabatic Pre-cooling System (if equipped)

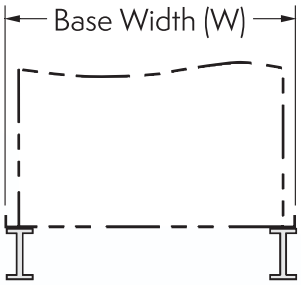


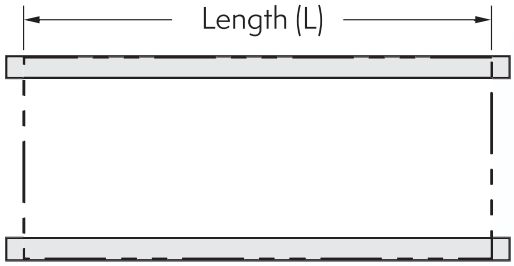
Water supply solenoid valve arrangement

The EVAPCO Control Package is factory mounted and wired when configuration and shipping limitations allow.

Structural Steel Support

eco-Air Series Supporting Steel Dimensions		
V Models	**Dry Unit Base Width (W)**	**Adiabatic Unit Base Width (W)**
1.3m Wide	1270mm	1778mm
2.4m Wide	2229mm	2762mm
F Models	**Base Width (W)**	–
2.4m Wide	2311mm	–





Length as shown on "unit length (L)" in catalog table

1. These are suggested arrangements for preliminary layout purposes. Consult your EVAPCO representative for factory certified steel support drawings.
2. The recommended support for the eco-Air Series coolers is structural I-beams running the entire length of the unit. Mounting holes, 19mm in diameter are provided for bolting to the structural steel.
3. Beams should be sized in accordance with accepted structural practices. Maximum deflection of beam under unit to be 1/360 of the unit length, not to exceed 13mm.
4. Beams should be level before setting the unit in place. Do not level the unit by shimming between it and the I-beams.
5. Support beams and Anchor bolts are to be furnished by others.
6. Dimensions, weights and data are subject to change without notice. Refer to the factory certified drawings for exact dimensions.

Staying at the forefront of technology is just as important to us as it is you. In addition to developing sustainable solutions in our state-of-the-art research facility, we've also produced analysis tools to assist you in creating a holistic view of your cooling system.

Our powerful software can optimize your design process by **calculating annualized performance data** for your location and site-specific requirements. We can provide design engineers with a comprehensive range of **water and energy consumption** data to help identify the best cooling solution for any project. You can expect the final analysis to include:

FREE COOLING POTENTIAL
WATER CONSUMPTION
COOLER POWER
CHILLER POWER
PUMP POWER
AND MORE

SPECTRUM by evapco

LEADING THE INDUSTRY WITH

RESEARCH AND DEVELOPMENT

Guided by our annually developed R&D plans, we set out to find groundbreaking solutions that transform the way the world works for the better.

With our tools, expertise, and global footprint, EVAPCO can help you reach your targets wherever your next project may be.

TECHNOLOGY

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