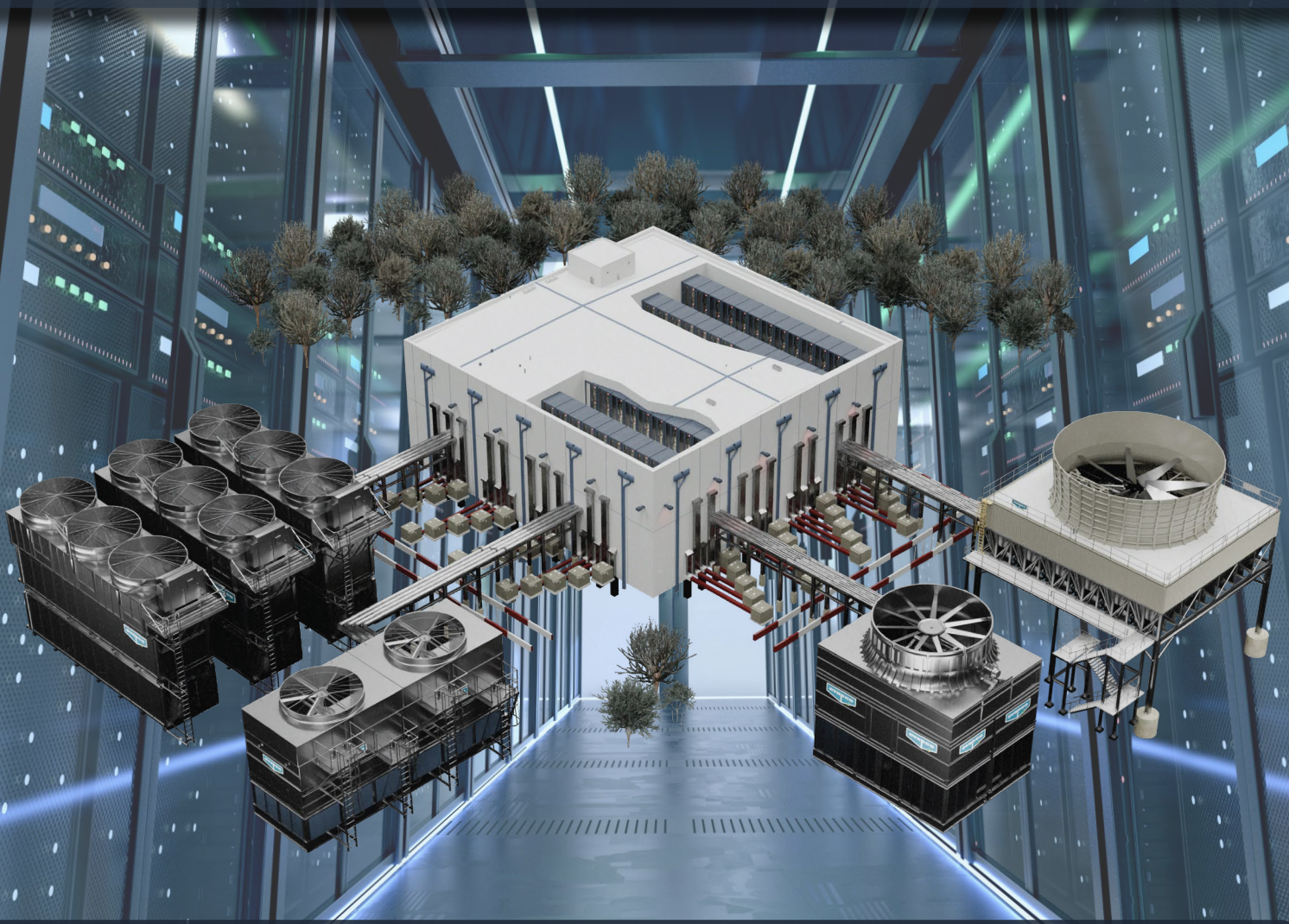


COOLING THE NEXT GENERATION OF HIGH-DENSITY DATA CENTERS



THE FULL SPECTRUM OF DATA CENTER COOLING SOLUTIONS
Evaporative • Hybrid • Adiabatic • Dry
Engineered for Performance, Reliability & Sustainability



VALUE PROPOSITION



EVAPCO COMPANY PROFILE

EVAPCO, Inc. is an industry-leading manufacturing company with global resources and solutions for worldwide heat transfer applications. We are dedicated to designing and manufacturing the highest quality products for the commercial HVAC, industrial refrigeration, power generation, industrial process and data center markets around the globe.

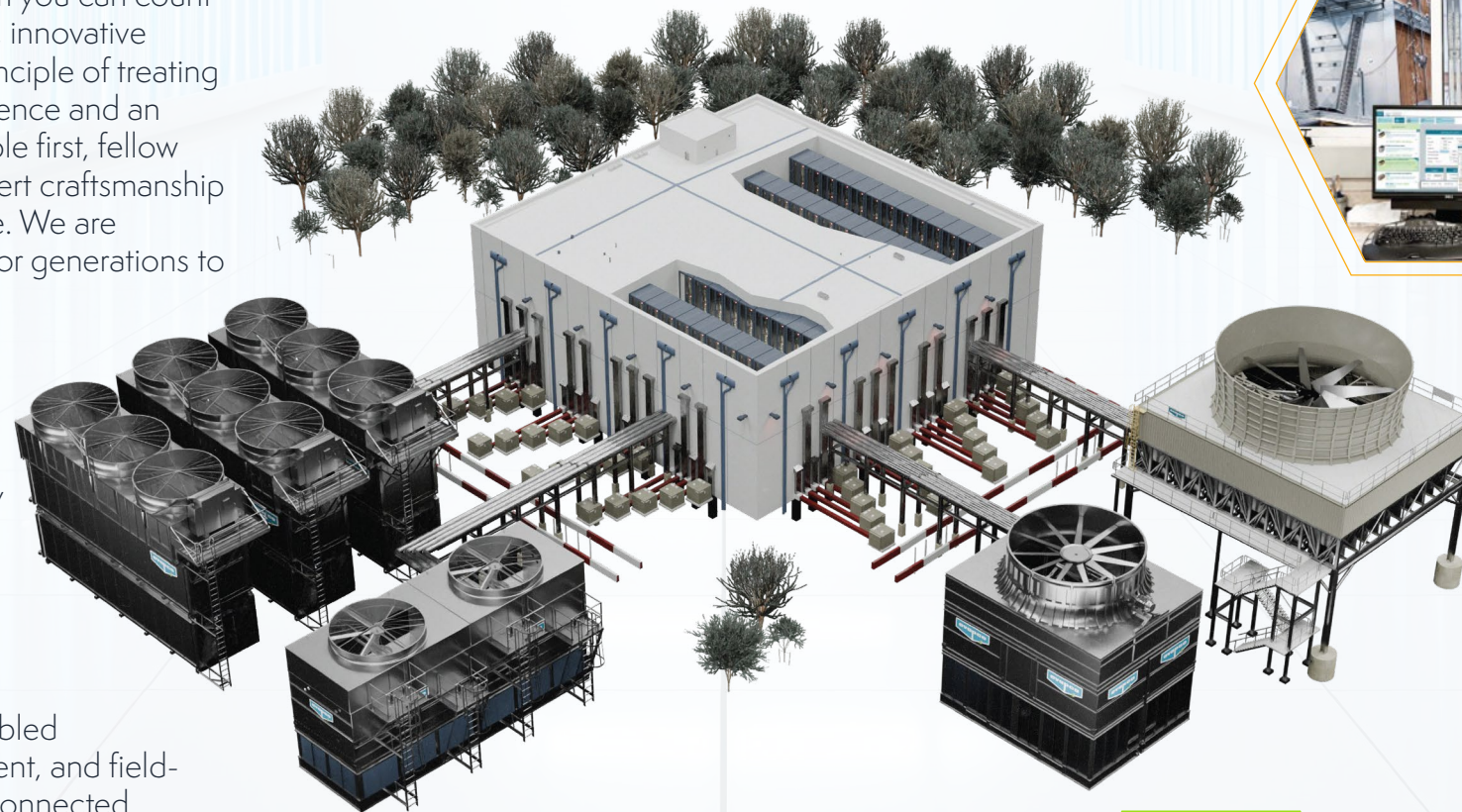


EVAPCO is more than a company name – it is the team you can count on for a lifetime. We are a manufacturer of high-quality, innovative products and services that thrives through our core principle of treating people right. We are empowered by a culture of excellence and an environment of continuous improvement. We put people first, fellow employees and customers alike. We shine through expert craftsmanship and passionate dedication to fanatical customer service. We are EVAPCO - we are your team not just for a lifetime but for generations to come.

FULL SPECTRUM

Site conditions such as water availability, energy costs, climate, and footprint greatly influence cooling strategy selection. EVAPCO offers the full spectrum of heat rejection solutions—from fully evaporative open-loop cooling towers, to hybrid systems, to fully dry cooling technologies—supporting all data center applications.

These technologies are available in both factory-assembled configurations for scalable phasing and rapid deployment, and field-erected solutions for reduced plot size and optimized connected power.



TESTED & CERTIFIED PERFORMANCE

Located at EVAPCO headquarters in Taneytown, Maryland, the Wilson E. Bradley Research & Development Center provides full-scale testing and verification of products and components to validate real-world performance.

EVAPCO provides a 100% thermal performance guarantee backed by third-party, CTI-certified performance, ensuring confidence that systems will meet setpoint conditions on design day when reliability matters most.



ADVANCED ANALYSIS CAPABILITIES

As water and energy consumption requirements become more stringent, EVAPCO's analysis tools help predict utility usage, evaluate partial PUE and WUE, measure free cooling performance, and support informed system optimization.

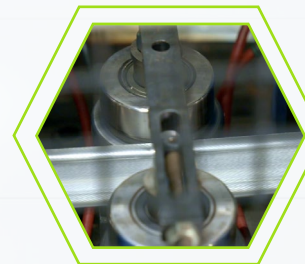


ENGINEERED SOLUTIONS

Complex projects require tailored solutions. EVAPCO's dedicated engineering teams work closely with customers to develop custom strategies for challenging applications, maximizing both operational and economic value.

VERTICAL INTEGRATION

EVAPCO manufactures heat rejection equipment primarily from raw materials, allowing for quality control throughout the entire production process. Purchased components are rigorously tested and qualified before integration.



AFTERMARKET SUPPORT

With a global sales representative network and dedicated support teams, EVAPCO provides responsive service, technical troubleshooting, and on-site field assistance throughout the project lifecycle.



Mr. GoodTower®

DATA CENTER DESIGN EVOLUTION

WHAT'S CHANGING IN THE DATA CENTER LANDSCAPE

HOW HEAT REJECTION NEEDS TO RESPOND

SHIFT TO HIGH DENSITY COMPUTE

Driven by rapid advancements in AI compute and next-generation chip technology, data centers are experiencing a significant increase in power density. These innovations are accelerating the transition from traditional air-cooled data center architectures to hybrid and fully liquid-cooled designs, constrained by space, water & power availability - requiring more sophisticated considerations for high efficiency and high density heat rejection technologies.

As compute loads increase, cooling solutions must become more flexible, scalable, and efficient. Dry cooling has become especially valuable where water access is limited, or infrastructure must be designed for long-term resiliency.

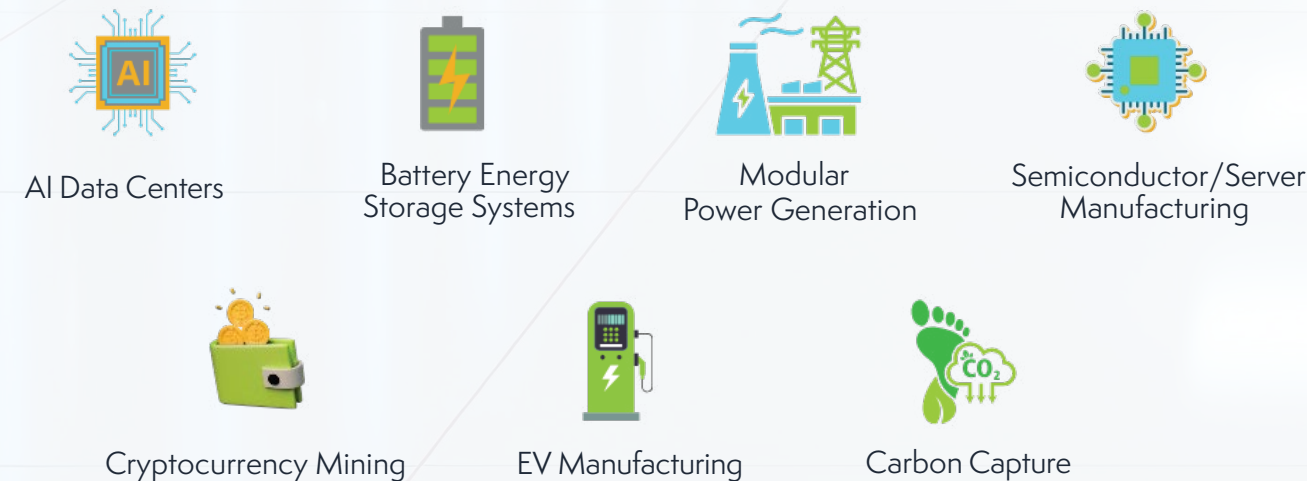


CONVERGENCE OF POWER-INTENSIVE MARKETS

The push to improve AI efficiency is accelerating a broader “new economy” — one built around electrified, high-density, power-intensive infrastructure. Data centers, battery storage, hydrogen electrolysis, advanced manufacturing, and grid modernization are becoming increasingly connected.

At the center of these systems is one constant: heat. Every megawatt of power becomes heat that must be managed efficiently, reliably, and sustainably.

Emerging compute and energy markets are reshaping the cooling demand.



KEY DESIGN CONSIDERATIONS

As data centers evolve, so do the constraints that shape them—driving the need for future ready designs that deliver longevity, robustness, and scalable performance.

FUTURE-PROOF DESIGNS ▶ Heat Entrainment ▶ Recirculation Potential ▶ Reliability & Uptime ▶ Extreme Ambient Conditions		COMMUNITY & COMPLIANCE ▶ Sustainability Targets ▶ Acoustic Restrictions ▶ Regulatory Compliance ▶ Proactive 'Good Neighbor' Policies
BUSINESS & OPERATIONS ▶ CAPEX versus OPEX ▶ Installation & Commissioning Speed ▶ Maintenance ▶ Water Quality Management		SITE & INFRASTRUCTURE ▶ Available Plot Area ▶ Water Availability ▶ Water Distribution Infrastructure ▶ Power Consumption

EVAPCO'S FULL SPECTRUM OF HEAT REJECTION SOLUTIONS

Data center cooling strategies must balance efficiency, water use, footprint, sound, speed of deployment, and long-term reliability. EVAPCO offers a full spectrum of heat rejection solutions — from evaporative and hybrid systems to dry, in factory-assembled, modular, and field-erected configurations to align with site-specific constraints and project goals.



By matching the right technology to each application, EVAPCO helps data centers optimize performance, reduce infrastructure impacts, and support scalable, resilient growth.

OPTIMIZED POWER USAGE EFFECTIVENESS (PUE)



EVAPORATIVE

EVAPORATIVE HEAT REJECTION

Evaporative heat rejection has been relied on for decades by utilizing the latent heat of water to efficiently reject process heat.

- ▶ Highest Efficiency
- ▶ Lower Connected Power
- ▶ Tight Footprint
- ▶ Reduced CAPEX

CONSIDERATIONS

Evaporative cooling offers strong efficiency and footprint advantages, while consuming water as part of the heat rejection process.

GENERAL INDUSTRY BENCHMARK:	3 gallons per minute water consumption 100 tons of cooling
EXAMPLE:	10 MW (2,270 cooling tons) data center 35 million gallons of water consumption annually

- ▶ Water Consumption
- ▶ Water Quality Management
- ▶ Routine Maintenance
- ▶ Winterization Considerations

POWER USAGE EFFECTIVENESS

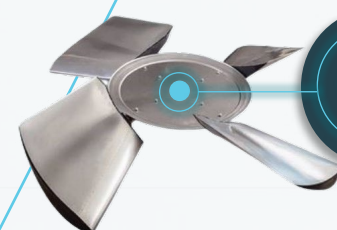
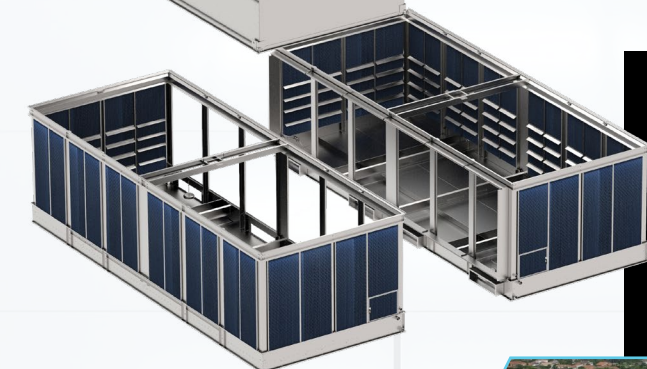
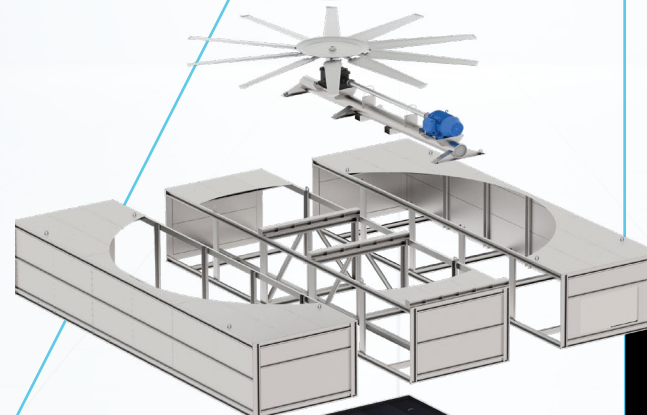
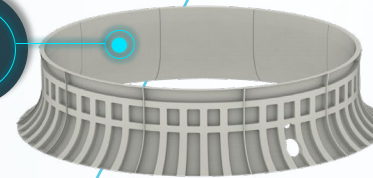
$$PUE = \frac{\text{Total Facility Power}}{\text{IT Equipment Power}}$$

Evaporative systems optimize PUE by utilizing water and latent heat rejection efficiency to reduce power consumption required for cooling, significantly improving PUE, reducing parasitic load and therefore making more power available for compute.

SOUND MITIGATION

EVAPCO evaporative solutions can be equipped with sound-reducing accessories, including Super Low Sound Fans, inlet and outlet sound attenuation, and water silencers to help meet site-specific acoustic requirements.

AT ATLAS
Modular Open
Cooling Tower

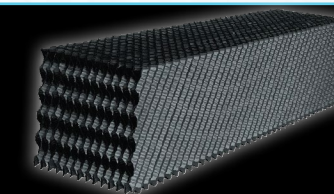


SUPER LOW
SOUND FAN
9-15 dB(A)
Sound Level Reduction

Open-loop cooling towers use direct heat transfer, making them one of the most efficient methods of heat rejection.

- ▶ Reduced footprint, connected power & first cost
- ▶ Increased considerations for water quality management & winter operation
- ▶ Intermediate heat exchanger, impacting overall cost and efficiency

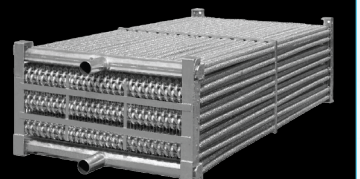
PVC
FILL
MEDIA



Closed-loop fluid coolers use evaporative cooling while keeping process fluid contained within a clean internal coil.

- ▶ Increased fluid cleanliness, reduced maintenance and winterization
- ▶ Increased footprint, connected power & first cost
- ▶ Added flexibility with extended dry operation in low ambient conditions

HEAT
TRANSFER
COIL



FACTORY-ASSEMBLED, MODULAR & FIELD-ERECTED

EVAPCO evaporative solutions are available in multiple configurations to align with project priorities such as speed of deployment, site labor, installed footprint, and connected power.

FACTORY-ASSEMBLED

- ▶ Fastest path to installation
- ▶ Reduced on-site labor
- ▶ Larger footprint & higher connected power

FIELD-ERECTED

- ▶ Optimized for large-scale applications
- ▶ Reduced footprint & connected power
- ▶ Customizable configurations for site constraints
- ▶ Longer lead time/greater field labor

MODULAR

- ▶ Balanced deployment strategy
- ▶ Scalable configuration
- ▶ Intermediate footprint, power, and labor requirements



SENSIBLE HEAT REJECTION FOR WATER CONSTRAINTS



AIR-COOLED

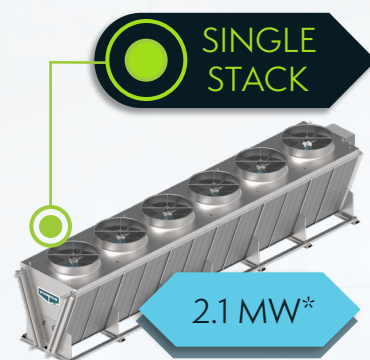
DRY COOLING RISING IN PREVALENCE

As chip temperatures rise and water availability becomes more constrained, dry cooling is becoming an increasingly viable, and sometimes required, solution for data centers.

- ▶ Remote sites that lack access to water and/or water distribution infrastructure
- ▶ Aggressive water regulations or WUE targets
- ▶ Simplified operation & maintenance requirements
- ▶ Future-proofing for potential lack of water availability
- ▶ Good-neighbor policies



FACTORY-ASSEMBLED ECO-AIR



SINGLE STACK

2.1 MW*

- ▶ Lower MW Requirements
- ▶ Scalability
- ▶ Elevated Installations
- ▶ Single Piece Shipment
- ▶ EC & Direct Drive NEMA Motors
- ▶ Factory-Mounted Control Panel

DOUBLE STACK



3.9 MW*

- ▶ Increased Capacity
- ▶ Elevated Installations
- ▶ Two Shipping Sections
- ▶ EC & Belt Drive NEMA Motor
- ▶ Internal Drive Access Platform
- ▶ Remote-Mounted Control



APEX

5.0 MW*

- ▶ Highest Capacity Factory Assembled Dry Cooler
- ▶ Lower Coil, Upper Coil & Fan Section Shipments
- ▶ Belt Drive NEMA Motor Options
- ▶ Internal Drive Access Platform
- ▶ Factory-Mounted Control Panel

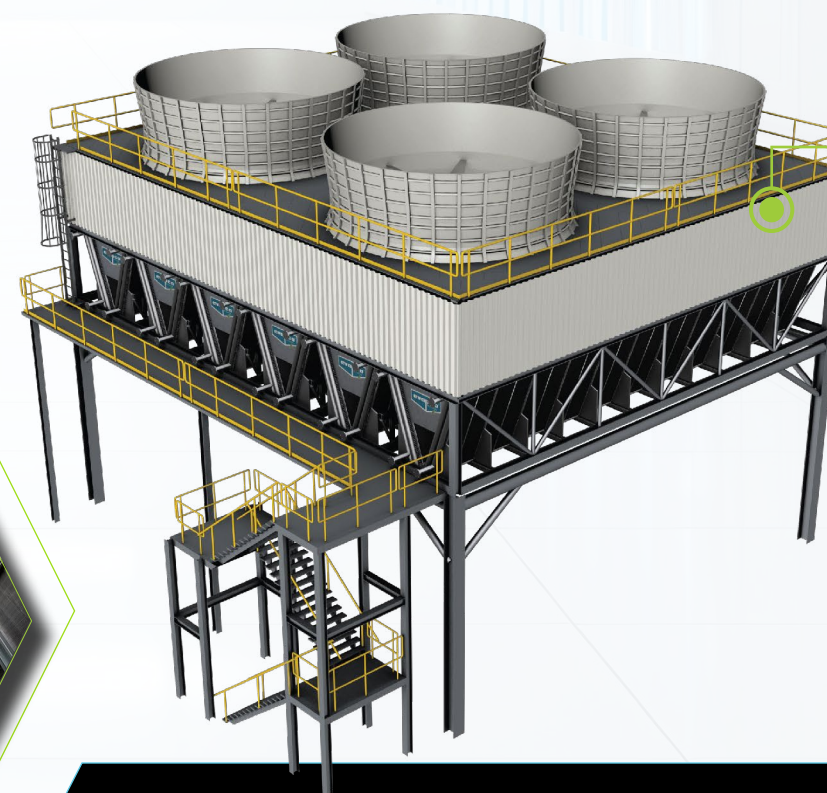


CONSIDERATIONS

Dry cooling can require higher capital cost, larger footprint, more units, and increased connected power compared to evaporative solutions. The eco-Air TITAN helps offset these challenges with an optimized field-erected design for large-scale applications.

SCALING TO GW-LEVEL DEPLOYMENTS

The eco-Air TITAN dry cooler utilizes robust stainless steel coils from the factory-assembled eco-Air product line, elevated on engineered steel structure and arranged in a high-density configuration beneath large gear-driven fans.



BENEFITS

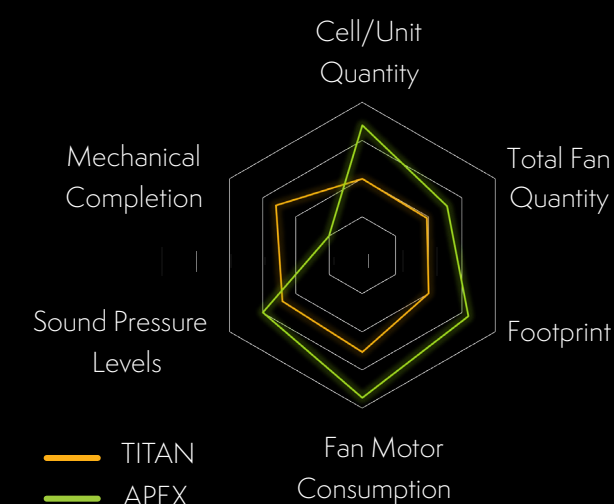
- ▶ Customization
- ▶ Tighter Layout
- ▶ Reduced Connected Power
- ▶ Lower Sound Levels
- ▶ Lower Recirculation & Heat

CONSIDERATIONS

- ▶ Installation Time & Labor
- ▶ Height Restrictions
- ▶ Redundancy

FACTORY ASSEMBLED VS. FIELD ERECTED

The comparison shown on the right is derived from a project considering the factory-assembled APEX and the field-erected TITAN for a 90 MW data center application.



STRATEGIC WATER USE FOR FLEXIBILITY

When water is limited, it can be used strategically to improve heat rejection performance. Hybrid and pre-cooling solutions help balance water use, energy, footprint, and system efficiency based on site-specific data center needs.

USE-CASES

REDUCE INFRASTRUCTURE SIZE

Strategic water use can reduce heat transfer surface area, lower connected power, decrease footprint, and optimize upfront CAPEX.

CHILLER-LESS OPERATION

For direct-to-CDU applications, pre-cooling can extend dry cooling capability and support improved overall system efficiency.

BRIDGE EXTREME AMBIENT CONDITIONS

Systems can be designed for typical dry operation, with water-assisted cooling used only during peak or extreme ambient conditions.

BOOST CHILLER EFFICIENCY

Pre-cooling and hybrid systems can lower leaving fluid temperatures, increase free cooling hours, and improve system efficiency.

PRE-COOLING SYSTEMS FOR AIR-COOLED EQUIPMENT

- ▶ Reduced water consumption relative to evaporative
- ▶ Reduced footprint & connected power relative to dry cooling
- ▶ Reduced water-related maintenance compared to evaporative systems
- ▶ Lenient water quality requirements

ADIABATIC PAD

- ▶ Reduces footprint, connected power, and unit quantity compared to dry cooling
- ▶ No direct water contact with the heat transfer coil
- ▶ Supports chiller-less operation where dry cooling alone may not be sufficient



ADIABATIC SPRAY

- ▶ Provides peak-load shaving during extreme ambient conditions
- ▶ Best for limited annual operation, typically less than 200 hours per year
- ▶ Allows dry systems to be sized around typical conditions while maintaining extreme weather coverage



HYBRID & PRE-COOLING



HYBRID COOLERS – LATENT & SENSIBLE

COMPARED TO EVAPORATIVE

- ▶ More dry operations hours
- ▶ Lower water usage

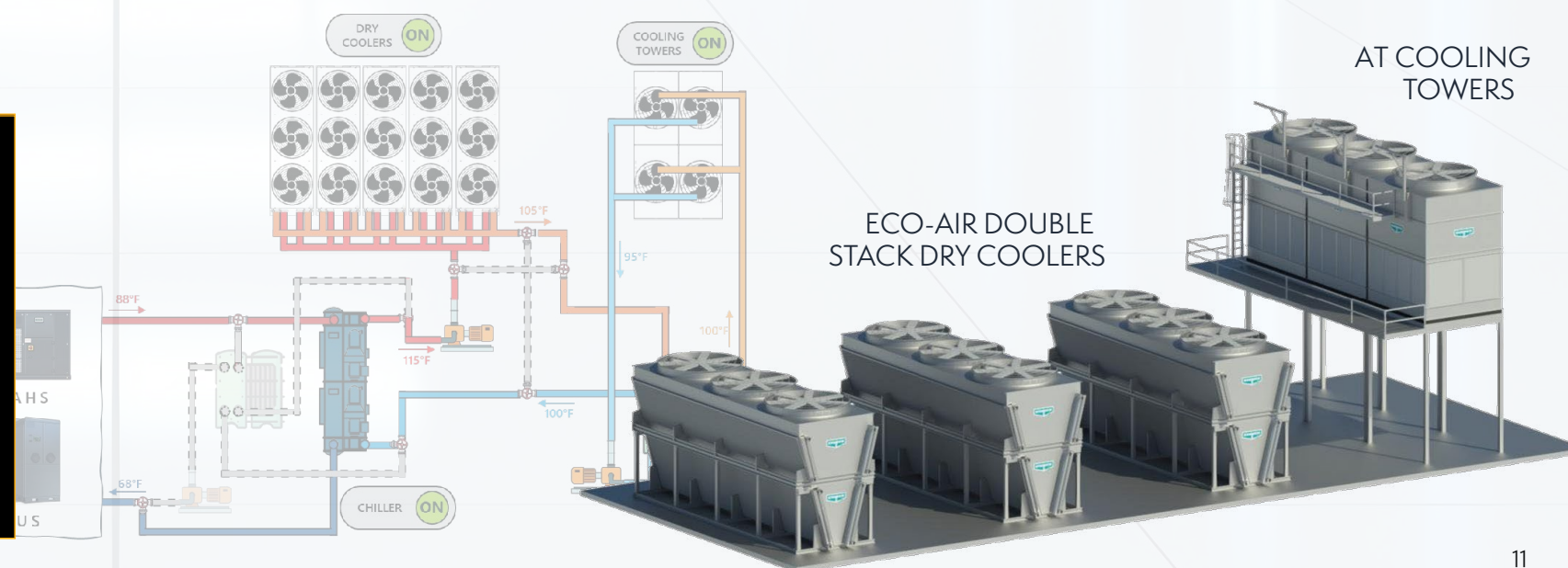
COMPARED TO AIR-COOLED

- ▶ Lower achievable leaving fluid temperatures
- ▶ Tighter installed footprint clearances

COMBINING TECHNOLOGIES

Stringent site constraints may require more than a single heat rejection technology. EVAPCO's full spectrum of solutions allows dry, adiabatic, hybrid, and evaporative systems to be combined to meet complex data center requirements.

- ▶ Supports low-water system designs tailored to project goals
- ▶ Balances water, energy, footprint, sound and redundancy
- ▶ Reduces evaporative maintenance by limiting evaporative operation to peak-load or extreme conditions
- ▶ Provides retrofit flexibility to pair dry capacity with evaporative technologies



SERVING THE MARKET

BEYOND HEAT REJECTION

EVAPCO supports the data center market with more than just a broad portfolio of heat rejection technologies. From water treatment and controls to thermal storage and field-erected execution, EVAPCO offers complementary solutions that help simplify design, installation, commissioning, operation, and long-term reliability.



WATER TREATMENT SOLUTIONS

Reliable evaporative performance starts with proper water treatment. EVAPCO offers factory-integrated water treatment solutions designed to help protect equipment, simplify field installation, and support long-term system operation.

Pulse~Pure® provides a non-chemical water treatment solution for evaporative cooling equipment, helping reduce the environmental impact associated with chemical production, shipping, handling, and storage.

Smart Shield® is a complete solid-chemistry water treatment system engineered specifically for evaporative systems and factory-mounted, piped, and wired for simplified implementation.

Pass-Protect® is a factory-assisted passivation and galvanized coil treatment that enhances the speed and effectiveness of proper field passivation, even for units needing immediate heat load.



Pulse~Pure®
Non-Chemical Treatment



Smart Shield®
Factory Mounted
Solid Chemistry
Water Treatment



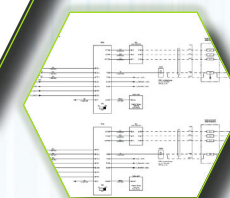
Factory Assisted Passivation
Galvanized Coil Treatment



Smart Shield®
For Open Towers and
Remote Sump Applications

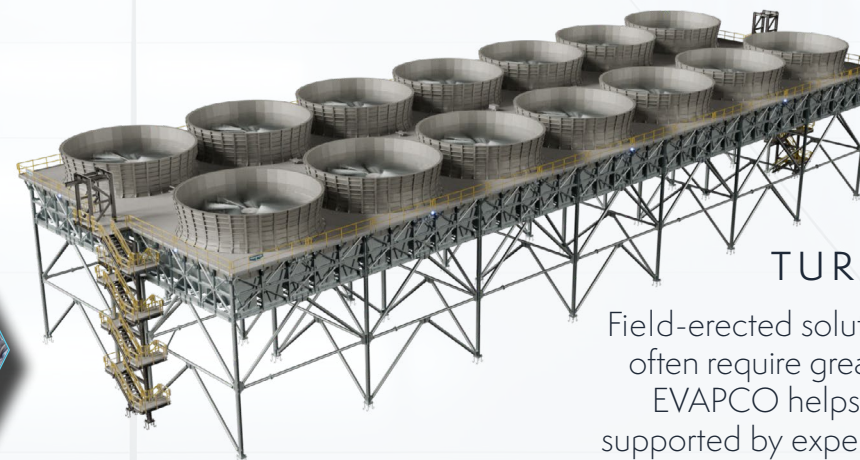
CONTROLS SYSTEMS

Efficient heat rejection systems depend on controls that are optimized for performance. EVAPCO offers factory-mounted and wired control solutions that help simplify installation, streamline commissioning, and support efficient system operation.



THERMAL ENERGY STORAGE

Reliability is central to data center design. For applications requiring chilled water thermal energy storage, RVS provides precision-built, high-performance vessels designed to support dependable cooling capacity and meet the demanding requirements of mission-critical facilities.



TURNKEY FIELD- ERECTED SOLUTIONS

Field-erected solutions can reduce footprint and connected power, but they often require greater on-site coordination, labor, and commissioning effort. EVAPCO helps simplify this process with turnkey field-erected execution, supported by experienced teams focused on installation efficiency, schedule certainty, and system performance.



Data center heat rejection is never one-size-fits-all. Site constraints, water availability, schedule, sound, power, and efficiency goals all influence the right solution. EVAPCO's full spectrum of heat rejection technologies allows each system to be tailored around the priorities of the project.



CASE STUDY

01

MODULAR EVAPORATIVE COOLING FOR SPEED & EFFICIENCY

CHALLENGE

A constrained footprint, available water source and aggressive installation timeline and low PUE target.

EVAPCO SOLUTION

Modular AT ATLAS Cooling Towers

A modular evaporative approach helped reduce footprint, support low PUE goals, and accelerate installation and commissioning.



CASE STUDY

02

HYBRID SYSTEM FOR WATER-LIMITED OPERATION

CHALLENGE

Strict limits on instantaneous and peak-day water consumption, with fluid temperatures that could not be achieved by a fully dry system.

EVAPCO SOLUTION

eco-Air Double Stack Dry Coolers paired with AT Cooling Towers

The hybrid system minimized water use while meeting thermal performance and layout requirements.



CASE STUDY

03

SPRAY-ASSISTED DRY COOLING FOR PEAK-DAY FLEXIBILITY

CHALLENGE

A large factory-assembled dry cooler site faced recirculation concerns, layout restrictions, and peak-day water limitations.

EVAPCO SOLUTION

eco-Air Double Stack Spray Coolers with RVS Water Storage Tanks

Spray-assisted cooling provided additional coverage during peak ambient and recirculation conditions, while storage tanks helped manage peak-day water limits.



CASE STUDY

04

FIELD-ERECTED DRY COOLING FOR SPACE, SOUND & POWER

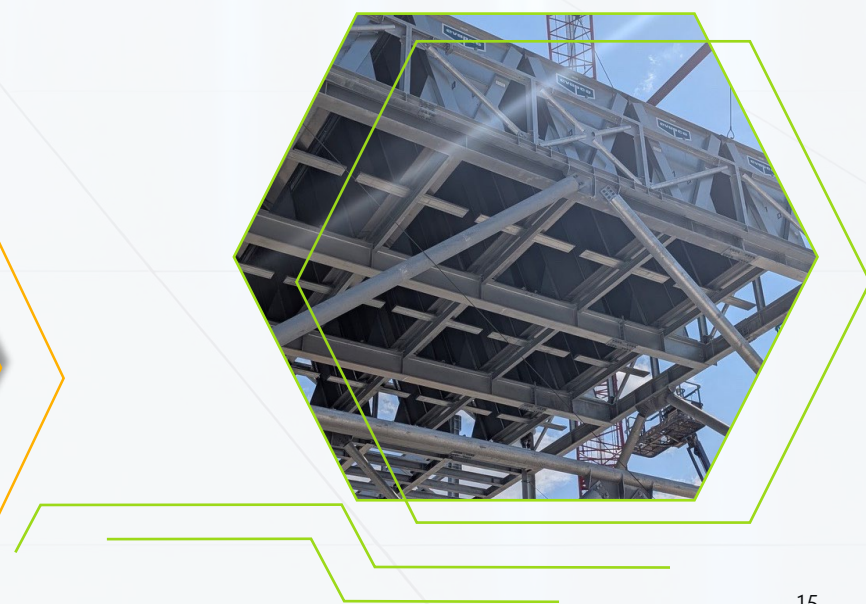
CHALLENGE

With water unavailable and strict site constraints, early design involvement enabled an optimized layout and performance-focused solution.

EVAPCO SOLUTION

eco-Air TITAN Dry Cooler

A field-erected dry solution helped optimize layout, reduce sound, lower connected power, and address recirculation risk.





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