COOLING TOWERS

evapco®

About EVAPCO

EVAPCO for LIFE

EVAPCO is more than a name. We are the global innovator in heat transfer solutions for the commercial HVAC, industrial refrigeration, power, and industrial process markets. We pledge to make everyday life easier, more comfortable, more reliable, and more sustainable for people everywhere.

OUR COMMITMENT

We never stop innovating. We set out to find groundbreaking solutions that transform the way the world works for the better. It's why we have more than 50 active U.S. patents and nearly 200 foreign counterparts. We also guarantee performance by putting every solution through rigorous research and testing to ensure maximum efficiency and reliability.

PROTECTING 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. Our 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 developing new technologies that deliver ultimate operating advantages to our clients while protecting the planet for every generation to come.

THROUGH THE YEARS

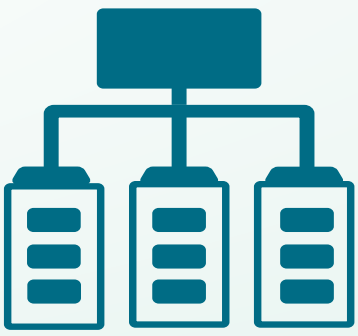
Since the beginning,
we have never stopped
INNOVATING.

EVAPCO's cooling tower solutions are highly engineered with quality components and manufactured to exacting standards. The durable materials of construction ensure the longevity expected of EVAPCO products. EVAPCO offers an extensive selection of cooling towers for new construction and replacement projects. Our cooling tower products are:

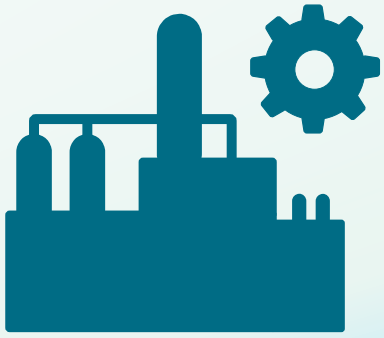
CTI CERTIFIED* IBC COMPLIANT DESIGNS ASHRAE® †

CTI certified, IBC compliant and ASHRAE 90.1 compliant

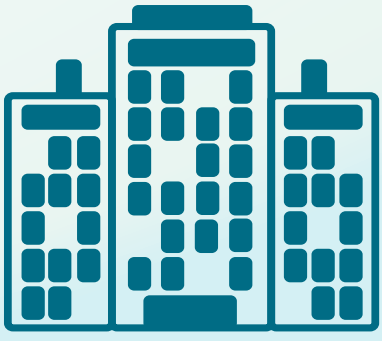
With customer satisfaction as our number one priority, we strive to provide you with the best solution for every project.



DATA CENTERS



INDUSTRIAL PROCESS

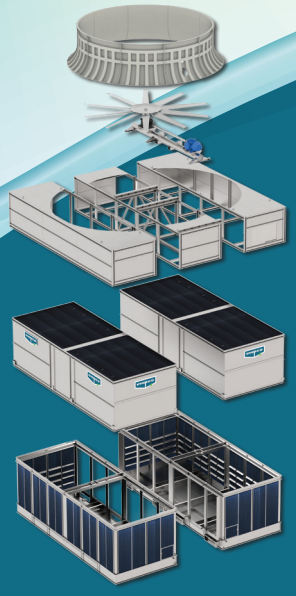


COMFORT COOLING

** Mark owned by the Cooling Technology Institute*
†Mark owned by ASHRAE

KNOW YOUR OPTIONS

As the leader in evaporative technology, EVAPCO offers a number of open cooling tower solutions, including induced draft, forced draft, counterflow, and crossflow options. Allow us to optimize our state-of-the-art equipment to meet the needs of your application, all while maintaining the latest industry standards.



ATLAS

The AT Atlas is a modular, induced draft, counterflow cooling tower. It is specifically designed to match the capacity and efficiency of a field-erected cooling tower with a factory-assembled approach. The Atlas features the same high efficiency EVAPAK® fill as the reliable AT, as well as our pressurized, corrosion-free PVC water distribution system and maintenance-free EvapJet™ nozzles. All Atlas units come standard with our Water and Sight Tight (WST) air inlet louvers, plus an industrial gear drive with external motor mount.

*When compared to other factory-assembled single cell towers.

Experience a cooling capacity increase of up to 60% per cell and fan power reduction up to 40%.*

AT

The AT is an induced draft, counterflow cooling tower, designed to take full advantage of the space around the tower by drawing in air on all sides. EVAPCO's high efficiency, bottom-supported EVAPAK® fill maximizes cooling capacity while doubling as an internal working platform. The clog-resistant EvapJet™ nozzles, the hardware-free Water and Sight Tight (WST) air inlet louvers, pressurized and non-corrosive PVC water distribution system, extended bearing lubrication lines, and many other innovative features simplify routine maintenance on the AT unit.

AXS

The AXS is an induced draft, crossflow cooling tower, ideal for easy system expansion and high tonnage applications. EVAPCO's modular hot water basins allow for simple change-out and the open plenum section allows for easy access to the drive system and basin through the large access doors. The AXS's innovative bottom-supported fill design allows for easier maintenance of the cold water basin.

KNOW YOUR

Shorten lead time by up to 60%†

Benefit large tonnage applications > 4,000 tons

Maximize available space
by arriving in pre-assembled modules to reduce the need for assembly area onsite

Reduce installation costs†

† When compared to field-erected cooling towers

Reduce operating weight and lifting guidelines
the stepped basin design provides lower operating weight; reducing weight of heaviest section with option to lift in 3 pieces

Accommodate compact plan area(s)
air intake on all 4 sides allows ATs to be used in tight layouts

Reduce power consumption with high efficiency operation

Offer flexibility in connection and accessory locations

Boost freeze protection
encasing fill completely in steel lowers chance of ice formation; optional drip angles, internal wind baffle, and basin heaters can further decrease freeze potential

Maximize plan area
multi-cell AXS selections can be stacked side-by-side with little to no impact on capacity

Reduce power consumption with high efficiency operation

Secure large tonnage applications with limited footprint

Facilitate interior maintenance with large plenum

Replace existing crossflow installations

FEATURES AND APPLICATIONS

SUN

Gain opportunity for LEED points
additional deductions and credits possible from federal and state governments

Increase efficiency with direct drive design of Electronically Commutated (EC) motors

Meet reduced energy consumption requirements

Achieve alternate energy source requirements

Experience all the benefits of the AT cooling tower with the added energy efficiency of permanently affixed solar panels! The SUN tower is capable of Net-Zero annual energy consumption with a custom SUN control panel. Take advantage of the leading eco-friendly technology in the industry.

LPT

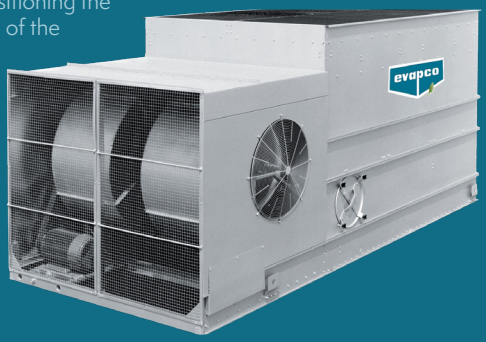
Accommodate height restricted applications

Satisfy sound requirements
multiple sound attenuation options are available

Adapt to ducted and/or high external static pressure applications

Provide freeze protection
with fill completely encased in steel, there's a lower chance of ice formation

The LPT is a forced draft, counterflow cooling tower, designed for indoor and ducted applications. Positioning the centrifugal fan on the end of the basin and casing sections allows for the lowest profile design of all our open towers, making the LPT ideal for height restricted applications. The LPT features a first stage sound attenuating casing around the fan section.



TARGET APPLICATIONS/ ADVANTAGES

Adapt to ducted and/or high external static pressure applications

Satisfy sound requirements
multiple sound attenuation options are available

Provide freeze protection
with fill completely encased in steel, there's a lower chance of ice formation

Accommodate indoor applications with space restrictions

LSTE

The LSTE is a forced draft, counterflow cooling tower, especially suited for indoor and ducted layouts due to its use of centrifugal fans. With inherently lower sound levels and its integrated fan and basin section, the LSTE is ideal for replacements and tight layouts.

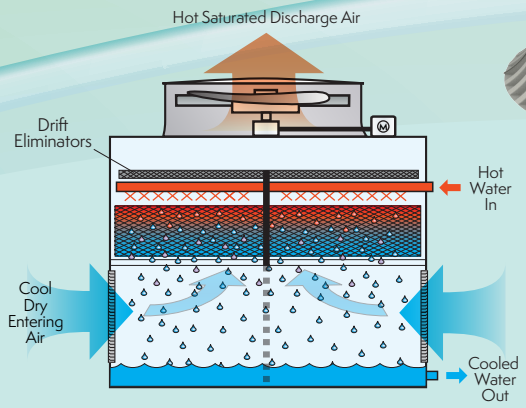
Have questions? Read on to learn more about each of these innovative options or visit **evapco.com** to find your local EVAPCO representative now.

evapco® for **LIFE**

THE AT ATLAS SERIES

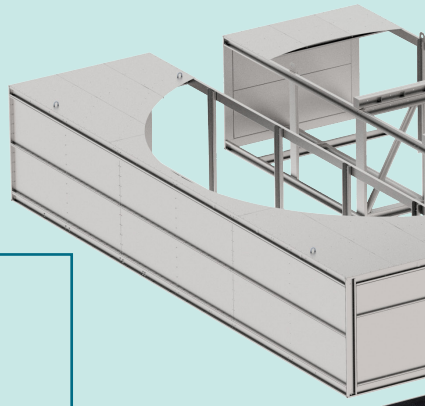
Principle of Operation

This cutaway graphic of the AT Atlas illustrates the basic functionality of our modular, induced draft, counterflow cooling tower. Hot water from the heat source is pumped to the water distribution system at the top of the tower. The water is distributed over the wet deck fill by means of our EvapJet™ nozzles. Simultaneously, air is drawn in through the air inlet louvers at the base of the tower on all four sides and travels upward through the wet deck fill **opposite** the water flow. The cooled water drains to the basin at the bottom of the tower and is returned to the heat source.



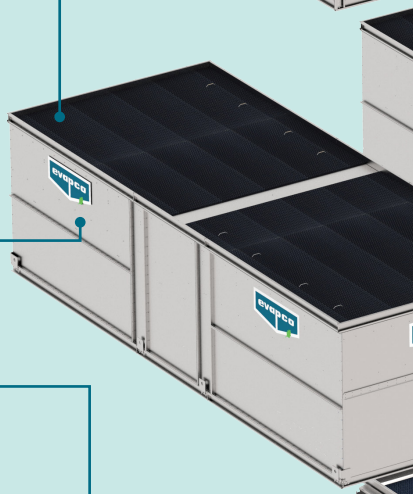
High-Efficiency Drift Eliminators

- Limit the drift rate down to 0.0005% of the recirculating water rate
- Assembled in easily removable sections
- Constructed of inert PVC, effectively eliminating corrosion



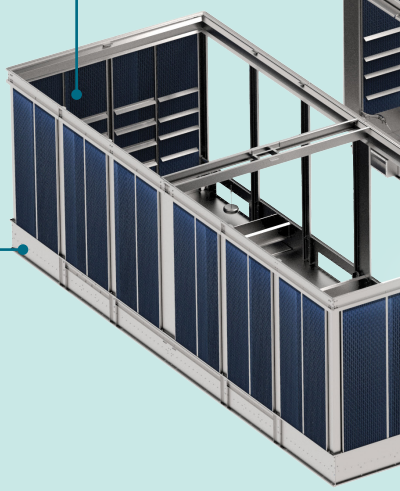
EVAPAK® Fill

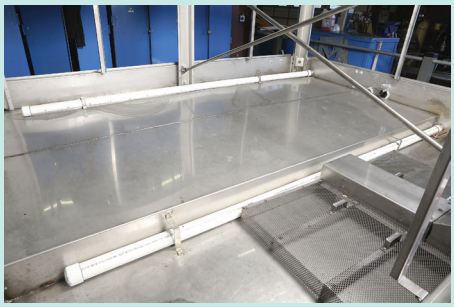
- Specially designed to induce a highly turbulent mix of air and water for superior heat transfer
- Special drainage tips allow high water loadings without excessive pressure drops
- Bottom-supported cross-fluted sheets are bonded together to enhance its structural integrity
- Usable as a working platform for internal access to the fan and drive system



Water and Sight Tight (WST) Air Inlet Louvers

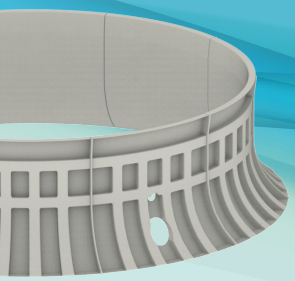
- Framed in same material as tower basin
- Improved design to keep sunlight out—preventing algae growth
- Keeps water in while keeping dirt and debris out
- Hardware free, easily removable
- 360 degree access to basin

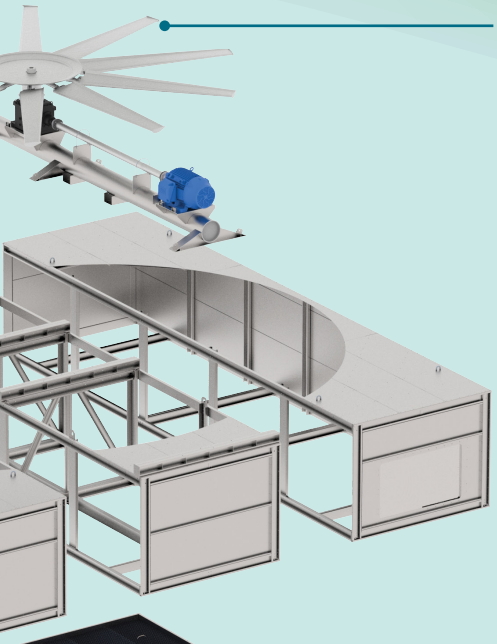


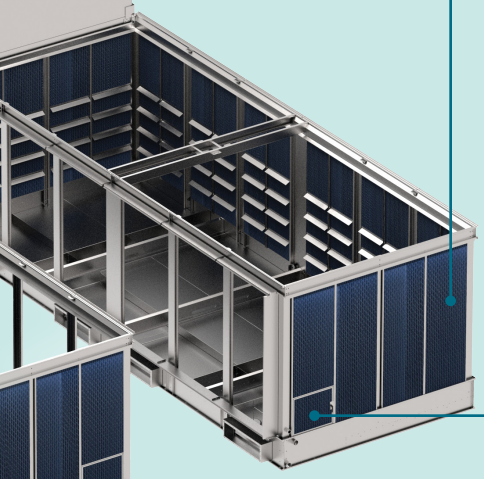


Clean Pan Sloped Basin Design

- Designed to completely drain the cold water basin
- Helps prevent buildup of sediment and biological film
- Eliminates standing water after drain down







Exclusive 5 Year Motor and Drive Warranty

Mechanical Equipment

- Only select suppliers specializing in cooling tower products chosen to provide associated fans, gearboxes, drive shafts, etc.
- Must meet strict quality control requirements
- Produces airflow necessary for peak thermal performance

Robust Design and Materials

Built with industrial-grade materials and engineered to withstand the demands of HVAC and industrial applications

- Heavy-gauge steel structure, galvanized or stainless steel
- 5-year mechanical component warranty
- Energy-efficient PVC heat exchange fill media
- Standard motor outside airstream

Pressurized Water Distribution System

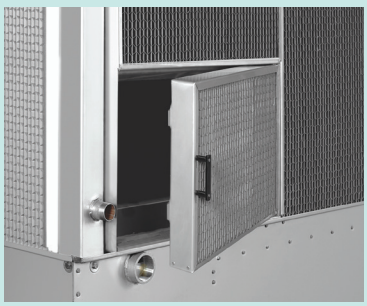
- EvapJet™ nozzles provide thermal performance gain
- Non-corrosive PVC construction
- Large orifice nozzles prevent clogging and are threaded for easy removal and positive positioning
- Each nozzle provides a large uniform spray pattern

Access

- Removable louvers offer 360 degree basin access for easy inspection and maintenance

Louver Access Door

- Hinged access panel with quick-release mechanism
- Allows easy access to perform routine maintenance and inspection of the makeup assembly, strainer screen, and basin



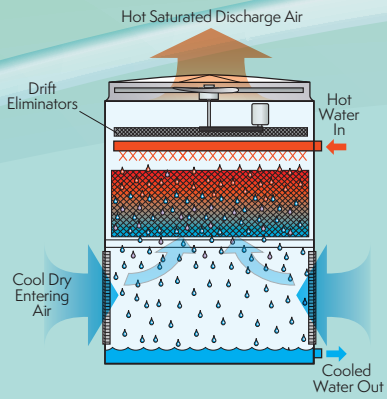
Certified Thermal Performance*

*Mark owned by the Cooling Technology Institute

THE AT SERIES

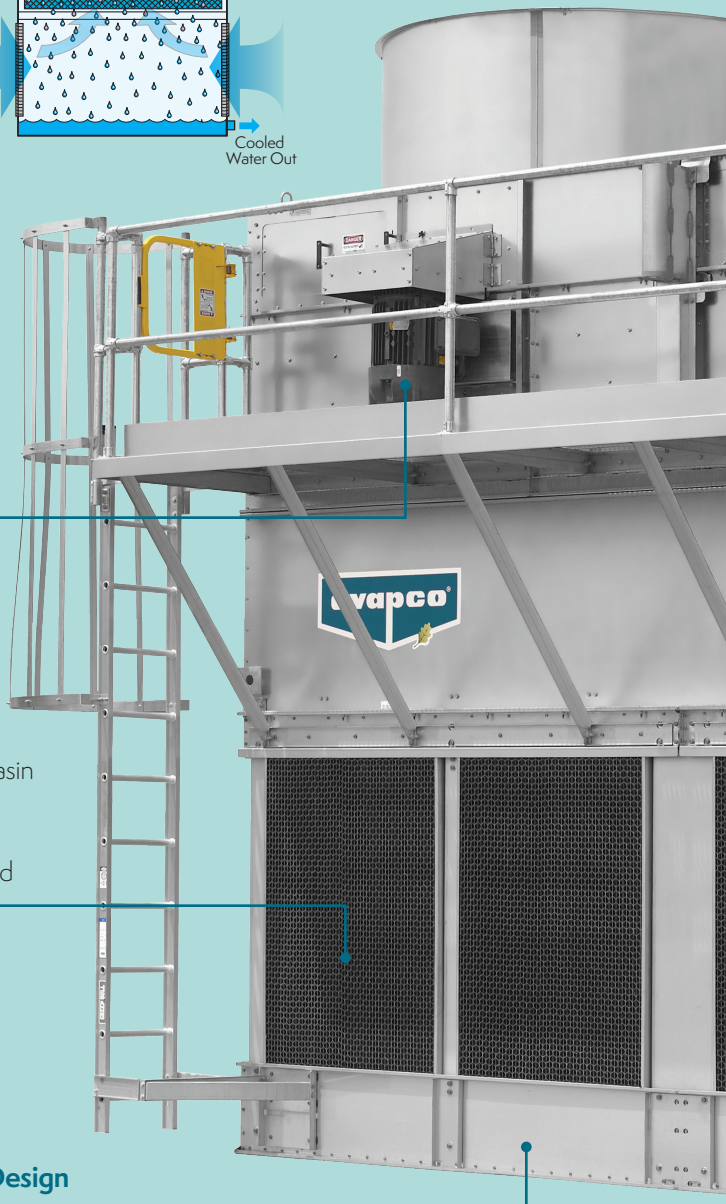
Principle of Operation

Like the Atlas, the AT shares the functionality of an induced draft, counterflow cooling tower. Hot water from the heat source is pumped to the water distribution system at the top of the tower. The water is distributed over the wet deck fill by means of our Evapjet™ nozzles. Simultaneously, air is drawn in through the air inlet louvers at the base of the tower on all four sides and travels upward through the wet deck fill **opposite** the water flow. The cooled water drains to the basin at the bottom of the tower and is returned to the heat source.



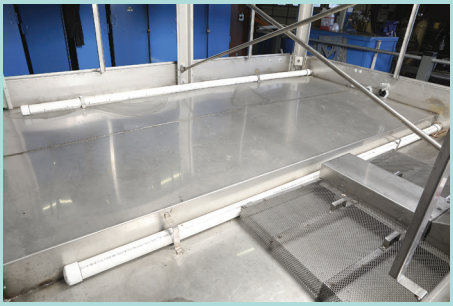
EVAPCO Power-Band Drive System

- Easy maintenance, heavy-duty drive system
- Standard heavy-duty pillow-block bearings with a minimum L_{10} life of 100,000 hours
- Extended lube lines
- External motor/belt adjustment
- Solid-back multi-groove belts and totally enclosed motors are standard
- Belts constructed of neoprene and polyester cords, sized for 150% of the motor nameplate horsepower to ensure long, trouble-free operation
- Gear drive optional



Water and Sight Tight (WST) Air Inlet Louvers

- Easily removable for access
- Framed in same material as tower basin
- Designed to keep sunlight out—preventing algae growth
- Keeps water in while keeping dirt and debris out



Clean Pan Sloped Basin Design

- Designed to completely drain the cold water basin
- Helps prevent buildup of sediment and biological film
- Eliminates standing water after drain down

IBC* Compliant & OSHPD† Designs

- All standard models meet IBC requirements
- Upgraded designs for high seismic and wind load areas
- Upgraded designs can also be used for projects requiring OSHPD approval

IBC COMPLIANT DESIGNS

*International Building Code

†Office of Statewide Health Planning and Development

Exclusive 5 Year Motor and Drive Warranty

Optional Motor Davit & Working Platform

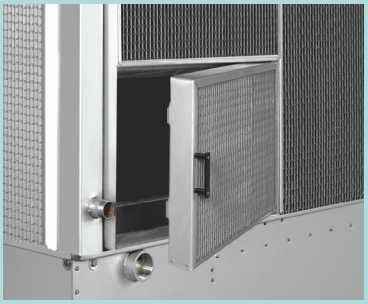
- Motor davit and bracket option for easy motor and fan removal
- Also available for gearbox removal
- Custom platform and ladder arrangements available
- Provides a robust self-supporting working surface for the service mechanic
- Motors positioned to be easily accessible and serviceable

Water Distribution System

- EvapJet™ nozzles provide thermal performance gain
- Non-corrosive PVC construction
- Large orifice nozzles prevent clogging and are threaded for easy removal and positive positioning
- Each nozzle provides a large uniform spray pattern

EVAPAK® Fill

- Specially designed to induce a highly turbulent mix of air and water for superior heat transfer
- Special drainage tips allow high water loadings without excessive pressure drops
- Bottom-supported cross-fluted sheets are bonded together to enhance its structural integrity
- Usable as a working platform for internal access to the fan and drive system



Louver Access Door

- Hinged access panel with quick-release mechanism
- Allows easy access to perform routine maintenance and inspection of the makeup assembly, strainer screen, and basin
- Standard on models with louvers 5 feet and taller

CTI CERTIFIED**

Certified Thermal Performance

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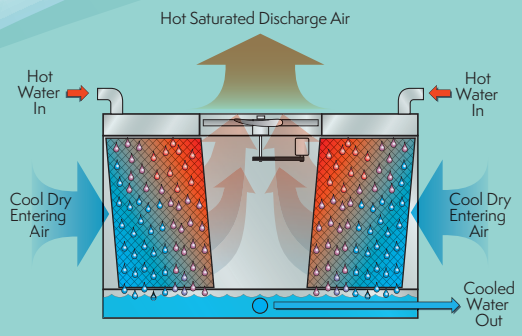
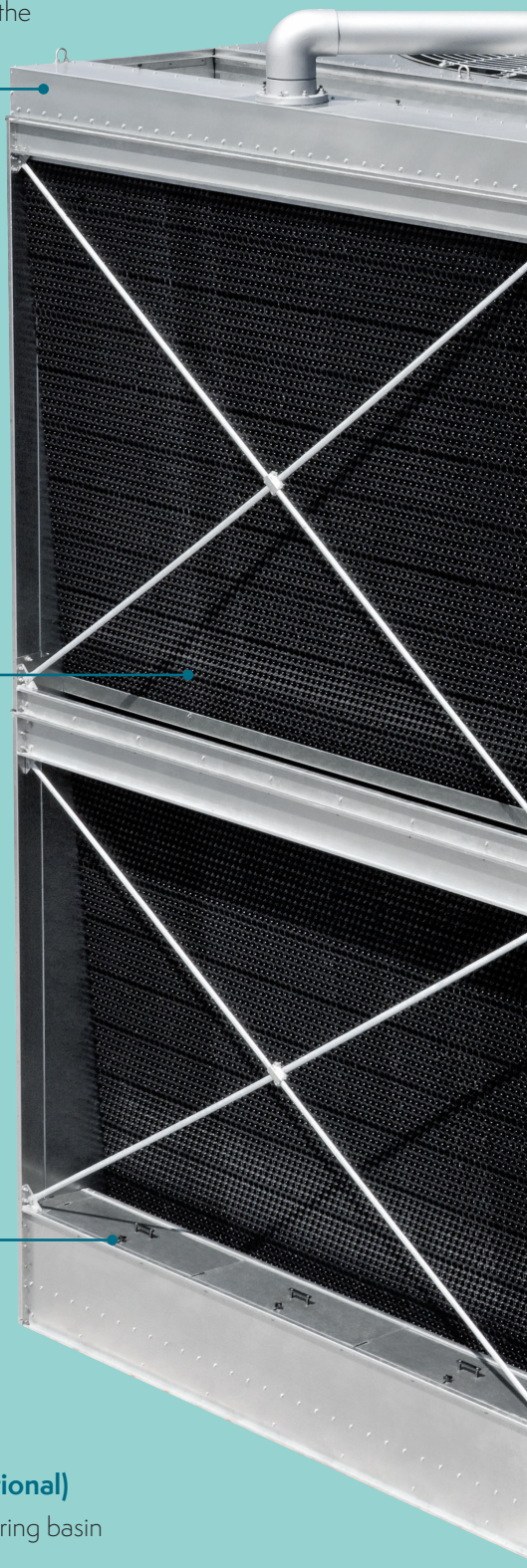
THE AXS SERIES

Principle of Operation

The induced draft, crossflow AXS collects warm water from the heat source in the water distribution system at the top of the tower. The water is distributed over the wet deck fill through large orifice nozzles. Simultaneously, air is drawn in through the air inlet louvers at the ends of the tower and travels **horizontally** through the wet deck fill across the water flow. The cooled water drains to the basin at the bottom of the tower and is returned to the heat source.





Modular Hot Water Basins

- Steel covers in easy to handle sections
- Large orifice, non-clog nozzles
- Integral weir dams to accommodate at least 50% design flow

XPak™ Crossflow Fill

- High efficiency bonded block fill
- Polyvinyl Chloride (PVC)
- Impervious to rot, decay and biological attack
- Integral louvers and drift eliminators
- Easy to handle
- Flame spread rating of <25 per ASTM E84

Certified Thermal Performance

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Cold Water Basin End Covers (Optional)

- Prevents sunlight and debris from entering basin
- Easy lift-off with handles

Exclusive 5 Year Motor and Drive Warranty

EVAPCO Power-Band Drive System

- Easy maintenance, heavy-duty drive system
- Standard heavy-duty pillow-block bearings with a minimum L_{10} life of 100,000 hours
- Extended lube lines
- Solid-back multi-groove belts and totally enclosed motors are standard
- Belts constructed of neoprene and polyester cords, sized for 150% of the motor nameplate horsepower to ensure long, trouble-free operation
- Gear drive optional

Single Side Inlet (Optional)

- Self-balancing
- Includes all interior piping (factory installed)
- Includes all exterior piping (ships loose for field installation)

Two (2) Oversized Access Doors

- Swing-in doors on each side wall
- Easy access to interior of unit

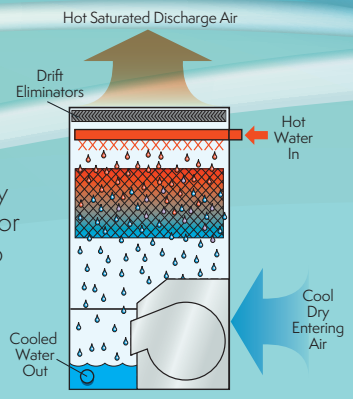
Bottom-Supported Fill

- Non-sagging
- Minimum 3" above basin floor
- Easy to clean under
- Allows room for optional sump sweeper piping

THE LSTE SERIES

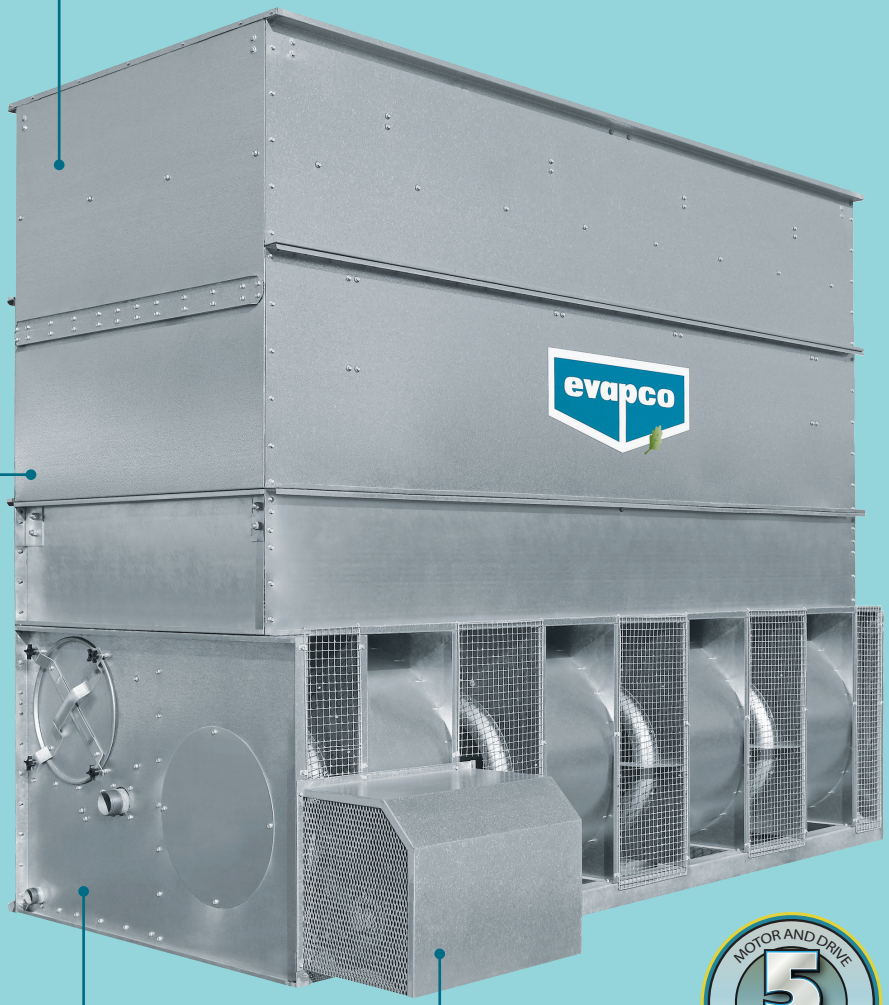
Principle of Operation

The forced draft, counterflow LSTE distributes water over the wet deck fill while simultaneously forcing air through the air inlet at the base of the tower. This tower is especially suited to indoor or ducted layouts due to its ability to handle external static pressure. This classic design is also ideal for exact replacement projects.



EVAPAK® Fill

- Specially designed to induce a highly turbulent mix of air and water for superior heat transfer
- Special drainage tips allow high water loadings without excessive pressure drops
- Bottom-supported cross-fluted sheets are bonded together to enhance its structural integrity



Easy Field Assembly

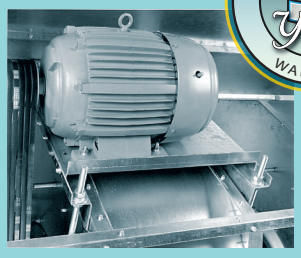
- Ensures easy assembly and fewer fasteners
- Incorporates self-guiding channels to guide the casing section into position improving the quality of the field seam

Certified Thermal Performance

**Mark owned by the Cooling Technology Institute*

Clean Pan Design

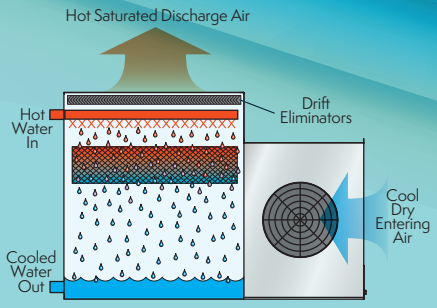
- Sloped design allows water to drain completely from cold water basin
- Easier removal of dirt and debris



Totally Enclosed Fan Motors & Superior Drive System

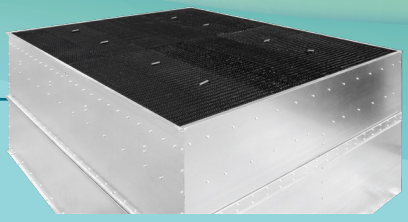
- Located in dry, incoming air-stream, allowing normal maintenance to be done from the outside of the unit
- Premium efficient, inverter rated NEMA motors
- Double sealed bearings
- Double dipped & baked treatment of windings with a polyester varnish
- Standard with space heaters to eliminate condensation while idle
- Covered under standard 5-year motor and drive warranty

THE LPT SERIES



Principle of Operation

The forced draft, counterflow LPT follows the same principle of operation as the LSTE, but with slight reconfiguration to better suit low profile applications.

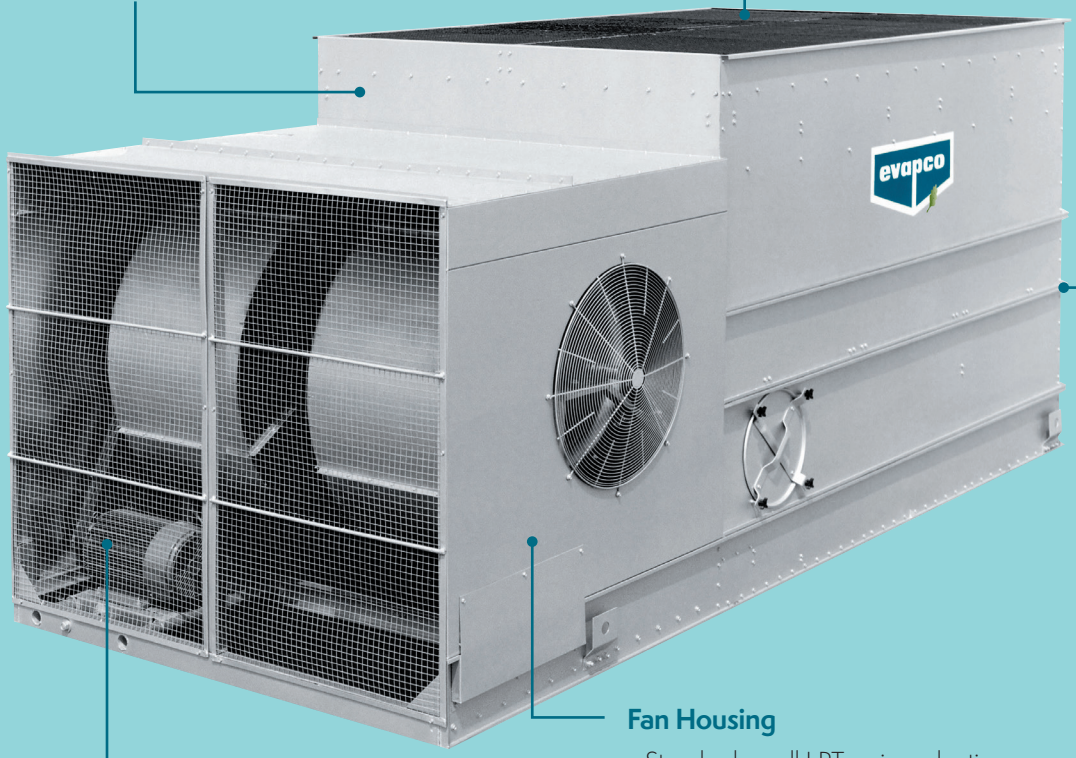


PVC Spray Distribution Header

- Nozzles are threaded into the header to ensure proper orientation
- Fixed position nozzles require little maintenance
- Large orifice nozzle with integral sludge ring to prevent clogging
- Threaded end-caps on distribution piping for ease of cleaning

High Efficiency Drift Eliminators

- Advanced design limits maximum drift rate to 0.001% of the recirculated water rate
- Corrosion resistant PVC for long life

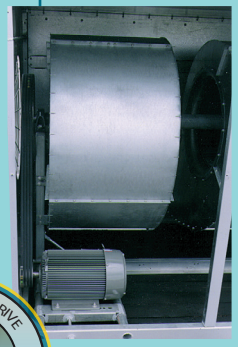


Double-Brake Flange Joints

- Stronger than single-brake designs by others
- Ships in single piece
- Greater structural integrity

Fan Housing

- Standard on all LPT series selections
- Drive system is completely enclosed in a protective housing
- First stage sound attenuation, providing sound reduction



Easy to Service Motor & Drive System

- Belt tensioning and bearing lubrication can be performed from outside the unit
- Locking mechanism can also be used as a wrench to adjust the belt tension
- Motor is fully accessible by removing one inlet screen
- Split fan housings allow removal of all mechanical equipment through the end of the unit

MOTOR AND DRIVE 5 Year WARRANTY

CTI CERTIFIED *

Certified Thermal Performance

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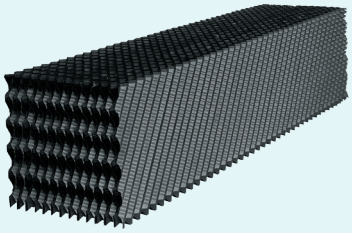
HEAT TRANSFER MEDIA

With EVAPCO, you get a partner you can count on to keep you at the cutting edge of your field. That's because we build innovation into every HVAC solution that we deliver to you. Here are just some of the game-changing features we've designed to make everyday life simpler for you and your clients.

EVAPAK® Counterflow Fill

Used inside all EVAPCO counterflow induced draft and forced draft cooling towers. Our EVAPAK® counterflow fill is specially designed to induce a highly turbulent mix of air and water for superior heat transfer. Special drainage tips allow high water loadings without excessive pressure drops.

EVAPAK® counterflow fill is constructed of inert polyvinyl chloride (PVC), so it will not rot or decay. It can also withstand water temperatures of 130° F/55° C. An option for higher water temperatures is also available. Consult your EVAPCO sales representative to learn more.



The bottom support of the fill section, combined with the unique way in which EVAPAK® counterflow fill's cross-fluted sheets are bonded together, greatly enhances the fill's structural integrity, making it usable as a working platform.

EVAPAK® is also self-extinguishing with a flame spread rating of <25 per ASTM-E84.

EVAPAK® Crossflow Fill

The AXS features bonded block fill with both integral louvers and drift eliminators. The EVAPAK® crossflow fill design prevents any air from bypassing the water. The fill is also bottom supported, preventing any sagging and allowing for easier routine basin maintenance. Flame spread rating of <25 per ASTM-E84.

Optional Fill Types

EVAPCO also offers alternate fills as an option on most cooling towers for special applications. Consult your local EVAPCO sales representative for further details.

Titan-Pak fill media comes in a cross-fluted design and is constructed entirely of stainless steel, making it noncombustible.

Wide-Pak cross-fluted fill is often used in dirty water applications. It has a lower surface area than EVAPAK® fill; therefore, towers need to be sized appropriately to account for the change in available capacity.

VERTICLEAN® vertical-fluted fill is often used in dirty water applications and can handle oil or greases in the system up to 5 ppm. VERTICLEAN® fill has a lower surface area than the Wide-Pak fill; therefore, towers need to be sized appropriately to account for the change in available capacity.

MATERIALS OF CONSTRUCTION

EVAPCO is committed to using only the highest quality, industrial grade materials in all our cooling towers ensuring absolute reliability and longevity.

Polyvinyl Chloride (PVC)

Schedule 40 piping is utilized for our pressurized water distribution for superior corrosion resistance and to minimize water distribution maintenance required. Fill media is constructed of PVC with a cross-fluted design and is resistant to rot, decay and biological attack.

G-235 Galvanized Steel

Our cooling towers utilize heavy gauge mill hot-dip galvanized steel. All galvanized steel is coated with a minimum of 2.35 ounces of zinc per square foot of area (G-235 Hot-Dip Galvanized Steel designation). During fabrication, all exposed galvanized steel panel edges are coated with 95% pure zinc-rich compound.

304/304L Stainless Steel

Our cooling towers may be upgraded to 304/304L stainless steel. High levels of chromium and nickel allow stainless steel to form a renewable chromium-oxide layer. This ultra-thin layer protects wetted areas, such as the cold and hot water basins from general corrosion. The higher chromium and nickel content greatly impact corrosion resistance properties. Welded cold water basins and a five-year warranty come standard on our cooling towers with a 304/304L stainless steel cold-water basin.

316/316L Stainless Steel

316/316L stainless steel is the superior material choice for the cooling tower market. It is comprised of 2-3% molybdenum, which gives the surface film a high degree of protection against chloride attack. For coastal regions, high temperature applications, and/or areas with high chloride concentration in the makeup water, this advantage is ideal. Using this material can increase the longevity of your cooling tower and help protect the towers' integrity in harsh environments. Welded basins and a five-year warranty come standard on our cooling towers with a 316/316L stainless steel water basin.

The table below summarizes the metallurgy of common stainless-steel options.

Type	Chromium Content wt%	Nickel Content wt%	Molybdenum Content wt%	Carbon Content wt%
301L*	16.0 - 18.0	6.0 - 8.0	0.00	0.03
304	18.0 - 20.0	8.0 - 12.0	0.00	0.08
304L	18.0 - 20.0	8.0 - 12.0	0.00	0.03
316	16.0 - 18.0	10.0 - 14.0	2.0 - 3.0	0.08
316L	16.0 - 18.0	10.0 - 14.0	2.0 - 3.0	0.03

*301L is not sutiable for use in cooling towers

DRIVE SYSTEMS

Power-Band Drive System Design

EVAPCO Cooling Towers feature the highly efficient Power-Band drive system. The Power-Band drive system consistently performs with trouble-free operation in the most severe conditions. The reliability of the drive system is backed by a Five (5) Year complete drive system warranty.

Power-Band Belt

The Power-Band belt is a solid-backed multi-groove belt designed for cooling tower service. The drive belt is sized for 150 percent of the motor nameplate horsepower and constructed of neoprene with polyester chords. Band belts are field-proven with over 30 years of operation.

Drive System Sheaves

Drive system sheaves are constructed of an aluminum alloy for corrosion resistance in the humid cooling tower environment.

Fan Shaft Bearings

For ultimate reliability, EVAPCO cooling towers come equipped with heavy-duty, pillow block bearings. These fan shaft bearings feature extended lubrication lines to grease fittings located on the exterior of the unit for easy maintenance. Additionally, they offer a minimum 100,000 hrs. L_{10} life.

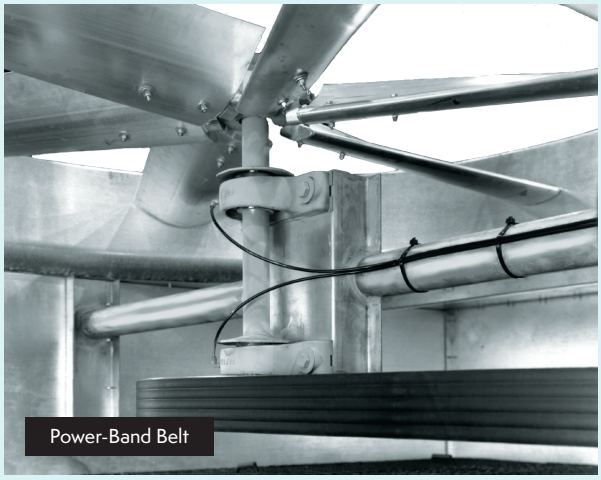
Fan Motors

All EVAPCO cooling towers utilize fan motors designed specifically for evaporative cooling applications, with space heaters as standard. **Premium efficient fan motors, which are compatible with variable frequency drive (VFD) systems, come standard on all cooling tower models. Alternative fan motor options are available as follows:**

- Two speed single winding
- Two speed two winding
- Mill and chemical duty
- Explosion proof

Gear Drive Systems (Optional)

Design features and ratings are in accordance with, or exceed, the minimum requirements of AGMA (American Gear Manufacturers Association) and CTI standards. Castings are rigidly designed and constructed to absorb internal and external loads. Our gear drive system has an industry leading L_{10} bearing life exceeding 100,000 hours. Both the couplings and the gear drive are selected with a 2.0 service factor per AGMA and CTI recommendations.



Power-Band Belt

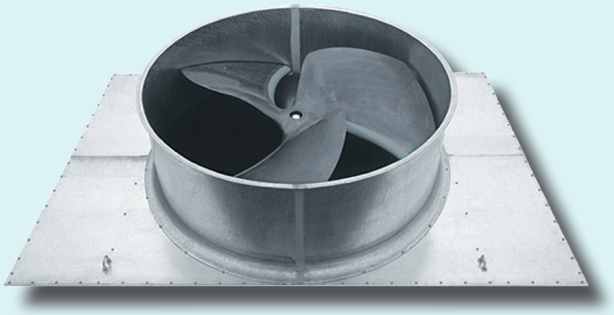
TEAO Fan Motor

Gear Drive System (Shown with Optional Super Low Sound Fan)

LOW SOUND SOLUTIONS

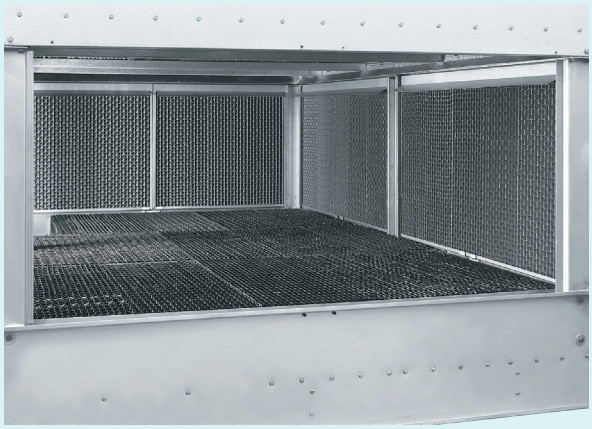
Super Low Sound Fan (Optional)

When you're tasked with achieving the lowest sound levels possible, there's only one choice: the EVAPCO Super Low Sound Fan. It's the quietest, most noise-efficient fan in the industry. Made of heavy-duty reinforced polyester, the ultra-wide chord blades have a forward swept design and rounded edges to minimize the sound caused by flow separation and vortex shedding. The end result is a sound pressure level 9 to 15 dB(A) lower than standard fans, depending on the specific unit selection and measurement location, with **no impact on thermal capacity**.



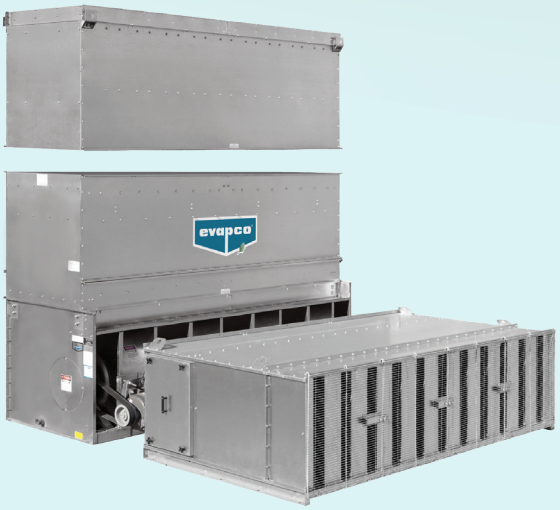
Water Silencer – Reduces Water Noise up to 7 dB(A) (Optional)

Located in the cold water basin, EVAPCO's water silencer reduces the high frequency noise associated with falling water and is capable of lowering overall sound levels 4 to 7 dB(A) when measured at 5 feet from the side or end of the unit. When water is circulated with fans off, the results are even greater: as much as 9 to 12 dB(A) lower at the same measured distance (depending on water loading and louver height). Constructed of lightweight PVC sections, the silencer can be easily removed for access to the basin area. It will have no impact on thermal performance and is CTI certified. *Note: Not available on 4-foot-wide models.*



Forced-Draft Sound Attenuation (Optional)

EVAPCO's forced-draft towers feature a centrifugal fan design that operates at lower sound levels, making the units ideal for installations where noise is a concern. The unit's design can be customized with a variety of intake stages and discharge attenuation packages to greatly reduce sound levels even further for extremely noise sensitive applications.



Offset Sound Attenuation Walls (Optional)

Add EVAPCO's CTI-certified offset sound attenuation walls to your super low sound fan and water silencer options for the ultimate sound control. Constructed of G-235 galvanized steel and lined inside with acoustical padding, the walls will typically reduce the 50-foot free-field sound level by an additional 3 dB(A). Stainless steel construction also available. Requires external support by others.

AT Fan Discharge Attenuation (Optional)

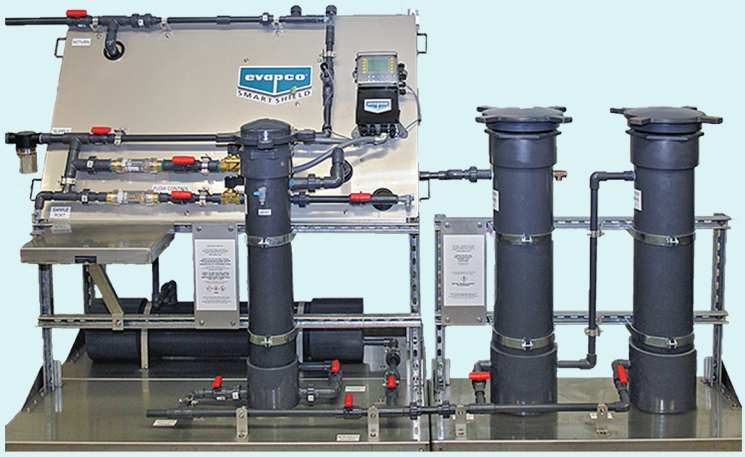
Up to 10 dB(A) Reduction

This options allows for further sound reduction of the unit. The attenuator can be used with the standard AT fan or in combination with the Low Sound or Super Low Sound Fan option. The discharge attenuator is a factory-assembled straight-sided discharge hood designed to reduce overall discharge sound levels at full fan speed by 5 dB(A) to 10 dB(A), depending on specific unit selection and measurement location with a minimal impact to thermal performance. It is constructed of G-235 galvanized steel as standard (options available for Type 304 stainless steel) and includes insulated walls and a low pressure drop baffling system that is acoustically lined with high density fiberglass. The discharge attenuator is self-supported by the unit and is shipped loose for field mounting. A heavy gauge, hot-dip galvanized steel fan guard covers the discharge attenuator to prevent debris from entering the attenuator.

WATER TREATMENT SOLUTIONS

Smart Shield®
Solid Chemical Water Treatment System

EVAPCO's product innovation continues with the introduction of Smart Shield® factory assembled solid chemistry water treatment for open cooling systems. Smart Shield® is available in two unique skid-mounted systems: **Controlled Release** and **Monitored Release**, to protect a broad range of evaporative cooling water applications. In addition, these new Smart Shield® systems incorporate a modular design to simplify installation and minimize the floor space required in the mechanical room for the water treatment of your evaporative cooling equipment.



The skid-mounted Smart Shield® feeders are designed to control the release of granular and solid water treatment chemicals. Taking the water out of liquid water treatment chemicals provides an easier and more sustainable treatment approach that reduces shipping, handling, and storage weights by up to 80%.

Contact your local EVAPCO representative to learn whether the Controlled Release or Monitored Release System is right for your open evaporative cooling application.

Learn more about Smart Shield® at **evapco.com.**

Pulse~Pure® Non-Chemical Water Treatment System

Pulse~Pure® from EVAPCO uses pulsed electric field technology to treat your water without chemicals. It's the environmentally responsible solution that also packs a powerful water-treating punch:

- Emits short, high frequency bursts of low energy electromagnetic fields to recirculating water.
- Delivers a guaranteed maximum bacterial count of 10,000 CFU/ml in the cooling water.
- Controls scale, corrosion, and microbiological growth with absolutely no chemicals required.
- Compact design eliminates moving parts and ensures low energy consumption.

Learn more about *Pulse*~Pure® at **evapco.com.**

Engineered to Improve Water Efficiency

EVAPCO Water Saver™ utilizes capacitive deionization technology to reduce dissolved ion concentration, thus lowering the makeup water conductivity prior to use in an evaporative cooling system. Makeup water entering the Water Saver™ passes through individual cylinders which contain oppositely charged supercapacitors. Dissolved ions (except silica) are removed from the water as they are absorbed onto the charged capacitors. A typical 50% ion reduction allows the operating cycles of concentration to be safely doubled without an increase in scale or corrosion potential.

The EVAPCO Water Saver™ is only available in conjunction with EVAPCO's *Pulse*~Pure® or Smart Shield® water treatments solutions.

Pre-Treatment System for Evaporative Cooling Equipment

Water Efficiency Potential for 1,000 Ton System:

Doubling Cycles of Concentration (COC) with the Water Saver™ increases your water efficiency and can save thousands of gallons per day (gpd).

2.0 to 4 COC = 23,000 gpd SAVED
2.5 to 5 COC = 13,000 gpd SAVED
3.0 to 6 COC = 7,000 gpd SAVED
4.0 to 8 COC = 5,200 gpd SAVED

Water Efficiency Equations

$$\text{Blowdown} = \frac{\text{Evaporation}}{\text{COC} - 1}$$

$$\text{Cycles of Concentration} = \frac{\text{Recirc Conductivity}}{\text{Makeup Conductivity}}$$
(Applies to Chemically Treated System only)

$$\text{Cycles of Concentration} = \frac{\text{Makeup Rate}}{\text{Blowdown Rate}}$$
(Applies to All Systems)

US 7,175,783
US 9,193,612
US 9,633,798
US 10,202,294

Learn more about the Water Saver at evapco.com.

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Bulletin CT22MRKT

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