HVAC PRODUCTS

Features & Applications Guide

Evapco® for LIFE

Employee owned since 1976
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
• 22 manufacturing facilities in 10 countries
• More than 170 sales offices worldwide

Learn More Now
Visit evapco.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 28 patents worldwide in the last 10 years alone.

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. EVAPCO’s industrial heat transfer equipment not only conserves natural resources and helps reduce noise pollution, they also feature recycled steel content in their construction. Our stainless steel units are constructed of panels that contain up to 75% recycled content; over 80% in galvanized units construction. 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.
Features and Applications at a Glance
EVAPCO offers an extensive selection of open cooling towers and closed circuit coolers for all types of applications. Use the chart below to help find the right EVAPCO unit for your next project.

<table>
<thead>
<tr>
<th>Induced-Draft Cooling Towers</th>
<th>Applications</th>
<th>Features</th>
<th>Principle of Operation</th>
</tr>
</thead>
</table>
| AT/UT/USS                    | AT: A compact, low-horsepower induced-draft, axial fan solution for all outdoor applications. | • 33 to 5,141 nominal tons.  
• Efficiently designed using counterflow operation.  
• The UT utilizes EVAPCO’s state-of-the-art super low sound fan for the lowest sound levels.  
• The USS is an all-stainless steel unit for superior corrosion resistance.  
• CTI certified, IBC compliant, ASHRAE 90.1 compliant. | ![AT/UT/USS](AT_UT_USS_Diagram) |
|                             | UT: All of the benefits of the AT plus EVAPCO’s super-low-sound fan for sound sensitive applications. | ![UT Diagram](UT_Diagram) |
|                             | USS: Suitable for high corrosion areas subject to saltspray and other corrosive chemicals. Available in Type 304 or Type 316 stainless steel. | ![USS Diagram](USS_Diagram) |

| AXS                          | Low energy consumption, induced-draft axial fan solution for all outdoor applications. Available tonnages are ideal for multiple cell projects with footprint restrictions. | • 312 to 1,357 nominal tons.  
• 12’ wide or 14’ wide boxes, in single and double-stack configurations.  
• Integral inlet louvers, block fill and drift eliminators.  
• Available low-sound solutions including super-low-sound fan.  
• Bottom-supported bonded block fill.  
• CTI certified, IBC compliant, ASHRAE 90.1 compliant. | ![AXS Diagram](AXS_Diagram) |

<table>
<thead>
<tr>
<th>Forced-Draft Cooling Towers</th>
<th>Applications</th>
<th>Features</th>
<th>Principle of Operation</th>
</tr>
</thead>
</table>
| LSTE                         | Low-sound, centrifugal fan, forced draft unit suitable for both indoor and outdoor applications. Especially suited for indoor and ducted layouts. This classic design is also ideal for exact replacement projects. | • 33 to 1,349 nominal tons.  
• Optional sound attenuation can reduce sound levels even further.  
• CTI certified, IBC compliant, ASHRAE 90.1 compliant. | ![LSTE Diagram](LSTE_Diagram) |

| LPT                          | Low-profile, low-sound, centrifugal fan, forced-draft unit suitable for both indoor and outdoor applications. Minimal height design allows for placement in height restricted areas. Provides a compact and versatile option for tight layouts. | • 27 to 333 nominal tons.  
• 304 stainless steel cold water basin is standard.  
• Compact design allows for units to be shipped and rigged in one piece.  
• CTI certified, IBC compliant, ASHRAE 90.1 compliant. | ![LPT Diagram](LPT_Diagram) |

| PMTQ                         | Low-horsepower, low-sound, forced-draft unit suitable for outdoor applications. Perfect for centrifugal fan replacement projects and projects requiring low horsepower or directional sound. | • 176 to 1,228 nominal tons.  
• Super-low-sound fans and man-sized access doors are standard on every model.  
• Individual fan drive systems are standard.  
• CTI certified, IBC compliant, ASHRAE 90.1 compliant. | ![PMTQ Diagram](PMTQ_Diagram) |

Need assistance? Visit [evapco.com](http://evapco.com) to find your local EVAPCO representative now.
<table>
<thead>
<tr>
<th>Net-Zero Cooling Towers</th>
<th>Applications</th>
<th>Features</th>
<th>Principle of Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUN</strong></td>
<td>An energy-efficient, induced-draft, axial fan unit using solar panel technology with the capability of net zero annual fan energy consumption.</td>
<td>• 241 and 383 nominal tons. • Efficiently designed using counterflow technology. • EC low-sound direct drive fan motors. • Polycrystalline solar cell technology. • Provided with a control panel for solar panel integration. • CTI certified, IBC compliant, ASHRAE 90.1 compliant.</td>
<td><img src="image" alt="SUN Diagram" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Induced-Draft Closed Circuit Coolers</th>
<th>Applications</th>
<th>Features</th>
<th>Principle of Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESWA/B</strong></td>
<td>A low-horsepower, induced-draft, axial fan solution for all outdoor applications. Innovative design combining both fill and a closed circuit coil makes this unit ideal for wet cooling applications where thermal and energy efficiency is the utmost concern.</td>
<td>• CROSSCOOL™ internally enhanced Sensi-Coil® technology provides increased surface area for additional heat transfer capability. • The coil is out of the air stream for reduced scaling potential, and winter heat loss. • CTI certified, IBC compliant, ASHRAE 90.1 compliant.</td>
<td><img src="image" alt="ESWA/B Diagram" /></td>
</tr>
</tbody>
</table>

| **ATWB** | The original induced-draft, axial fan solution available for a broad range of outdoor cooling capacities. This unit is available in a wide selection of box sizes making it ideal for almost any layout including centrifugal unit replacement projects. | • Available with optional super-low-sound fan and stainless steel construction. • CTI certified, IBC compliant, ASHRAE 90.1 compliant. | ![ATWB Diagram](image) |

| **eco-ATWB** | The groundbreaking induced-draft, axial fan solution for all outdoor applications where energy and/or water savings is a primary concern. Perfect for tight layouts and projects focused on energy efficiency. | • Extended surface Ellipti-fin® coil provides the option to operate either wet or dry. • Available with Sage Water and Energy Conservation Control System. • CTI certified, IBC compliant, ASHRAE 90.1 compliant. | ![eco-ATWB Diagram](image) |

| **eco-ATWB-E** | The groundbreaking induced-draft, axial fan solution for all outdoor applications where energy and/or water savings is a primary concern. The design allows for three modes of operation: 100% wet, 100% dry, or a hybrid wet/dry mode for increased dry performance and water efficiency. | • Extended surface Ellipti-fin® coil provides the option to operate either wet or dry. • Available with Sage Water and Energy Conservation Control System. • CTI certified, IBC compliant, ASHRAE 90.1 compliant. | ![eco-ATWB-E Diagram](image) |
### Induced-Draft Closed Circuit Coolers

<table>
<thead>
<tr>
<th>Applications</th>
<th>Features</th>
<th>Principle of Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>eco-ATWB-H</td>
<td>An induced-draft, axial fan solution for all outdoor applications to maximize water savings. The design uses an Arid-fin Pak™ coil to conserve water even when running in evaporative mode.</td>
<td>• Arid-fin Pak™ dry cooling coil maximizes sensible heat transfer. • Extended surface Ellipti-fin® coils provide enhanced wet and dry operation. • Sage Water and Energy Conservation Control System is standard with every unit. • CTI certified, IBC compliant, ASHRAE 90.1 compliant.</td>
</tr>
</tbody>
</table>

### Forced-Draft Closed Circuit Coolers

<table>
<thead>
<tr>
<th>Applications</th>
<th>Features</th>
<th>Principle of Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSWE</td>
<td>Low-sound, centrifugal fan, forced-draft unit suitable for both indoor and outdoor applications. Especially suited for indoor and ducted layouts. This classic design is also ideal for exact replacement projects.</td>
<td>• Optional sound attenuation can reduce sound levels even further. • CTI certified, FM approved, IBC compliant, ASHRAE 90.1 compliant.</td>
</tr>
<tr>
<td>LRWB</td>
<td>Low-profile, low-sound, centrifugal fan, forced-draft unit suitable for both indoor and outdoor applications. Minimal height design allows for placement in height restricted areas. Provides a compact and versatile option for tight layouts.</td>
<td>• Standard with 304 stainless steel cold water basin. • Compact design allows for units to be shipped from the factory and rigged in one piece. • CTI certified, IBC compliant, ASHRAE 90.1 compliant.</td>
</tr>
<tr>
<td>PMWQ</td>
<td>Low-horsepower, low-sound, axial fan, forced-draft unit suitable for outdoor applications. Perfect for centrifugal fan replacement projects and projects requiring low horsepower or directional sound.</td>
<td>• Standard with super-low-sound fans. • Individual fan drive systems. • CTI certified, IBC compliant, ASHRAE 90.1 compliant.</td>
</tr>
</tbody>
</table>

### Thermal Ice Storage

<table>
<thead>
<tr>
<th>Applications</th>
<th>Features</th>
<th>Principle of Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ice Coil</td>
<td>Designed for large thermal storage systems. Available for full and partial storage. Operation in conjunction with chiller or refrigeration system.</td>
<td>• EXTRA-PAK Coil. • Internal and external melt systems. • Heavy wall elliptical tube circuit. • Available Ellipti-fin® ice coil.</td>
</tr>
</tbody>
</table>
Innovative Design Features

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 and forced draft cooling towers, as well as the ESWA/B, 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 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 5 per ASTM-E84-81a.

**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 leading to a decrease in capacity. The fill is also bottom supported, preventing any sagging and allowing for easier routine basin maintenance.

Optional Fill Types

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

**Titan-Pak** stainless steel fill is designed for corrosive and high temperature applications. It is constructed completely of stainless steel and is fire retardant. If properly maintained, this stainless steel fill will last the life of the cooling tower.

**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.
How Our Coils are Made

EVAPCO’s coils are manufactured under the most stringent quality control procedures. It all starts with our circuits, which are made of high quality steel tubing formed into a continuous serpentine circuit. Each circuit is then inspected and tested before being welded into a framed coil assembly. Once assembled, the entire coil is pneumatically tested under water at 400 psig to ensure its integrity, then hot-dip galvanized for industrial strength corrosion protection.

**Sensi-Coil® Technology** ([US Patent #7,296,620]
Available on the EVAPCO ESWB closed circuit cooler, Sensi-Coil’s® unique coil arrangement packs the maximum number of Thermal-Pak® elliptical tubes together to deliver over 20% more additional coil surface area.

**Ellipti-fin® Technology** (Patent Pending)
Featuring Elliptical Spiral Fin Coil Technology
Discover the industry’s most efficient closed circuit cooling coil ever. Unlike coils made with typical finned round tubes, Ellipti-fin® is made with our patented Thermal-Pak®, a finned elliptical tube design that lowers airflow resistance to increase your evaporative and dry cooling capacity and boost your energy and water savings.

**Thermal-Pak® Cooling Coil**
All EVAPCO closed circuit coolers utilize our patented Thermal-Pak® coil design which assures greater operating efficiency. The elliptical tube design allows for closer tube spacing, resulting in greater surface area per plan area than round-tube coil designs. In addition, the Thermal-Pak® design has lower resistance to airflow and also permits greater water loading, making it the most effective design available.

**ARID-fin Pak™ Dry Cooling Coil**
Installed inside the discharge airstream of the eco-ATWB-H is EVAPCO’s breakthrough ARID-fin™ Pak dry cooling coil. Piped in series with the unit’s evaporative cooling coil to deliver latent and sensible cooling simultaneously allowing for higher dry bulb switchover temperatures and maximum water savings.

The ARID-fin™ Pak coil is constructed of 304L stainless steel tubes with aluminum/manganese alloy fins separated by fully drawn collars to maintain consistent fin spacing and continuous surface contact over the entire tube for superior heat transfer and protection.

**CROSSCOOL™ Internal Tube Enhancement Technology**
Designed to make EVAPCO’s closed-circuit coolers even more efficient, this groundbreaking technology rifles the interior of your cooler’s full footprint coil to deliver more heat transfer per plan-area.

**TITAN COIL**
Manufactured from 304L stainless steel, the optional TITAN COIL is available in both the Thermal-Pak® and Sensi-Coil® designs. The TITAN COIL takes our patented elliptical tube design and upgrades it with additional durability, corrosion resistance and protection with five-year coil warranty.
Easy Maintenance Designs
Every EVAPCO solution is designed with worry-free maintenance in mind—starting with our smarter approach to cold water basins.

Pressurized Water Distribution System
EVAPCO’s induced-draft cooling tower water distribution system is made of schedule 40 PVC pipe and EvapJet™ ABS plastic water diffusers for central corrosion protection. The piping is easily removable for cleaning. The water diffusers have a 1-inch diameter (25mm) opening and are practically impossible to clog.

EvapJet™ Nozzle: The EvapJet’s™ large orifice nozzles prevent clogging and are threaded for easy removal and positive positioning. The large uniform spray pattern minimizes the amount of nozzles required for even greater flow ranges.

ZM®II Nozzle: Closed circuit coolers, which have a different spray pattern requirement than cooling towers, use the ZM®II nozzle. These nozzles are threaded into the PVC header pipe at the proper orientation and have a large orifice to prevent clogging.

Drive System Access
All EVAPCO cooling towers and closed circuit coolers come standard with premium efficient, inverter-ready fan motors that can be used with variable frequency drive (VFD) systems for precise capacity control.

The mechanical drive systems are easy to access and easy to maintain. Bearing lubrication and belt adjustment can be performed from outside the unit. All units with T.E.F.C. fan motors located outside of the unit are protected with a removable motor cover or fan screen. See figure 1.

T.E.A.O. motors located inside the fan casing are mounted on a swing-out motor mount on an adjustable base for easy removal. See figure 2.

Patented Efficient Drift Eliminators
[US Patent #6,315,804]
An extremely efficient drift eliminator system is standard on all EVAPCO cooling towers and closed circuit coolers. The system removes entrained water droplets from the airstream to limit the drift rate to less than 0.001% of the recirculating water rate in most instances.

With a low drift rate, EVAPCO units can be located in areas where minimum water carryover is critical, such as parking lots or building walls.

The drift eliminators are constructed of an inert polyvinyl chloride (PVC) plastic material which effectively eliminates corrosion of these vital components. They are assembled in sections to facilitate easy removal for inspection of the water distribution system.
Easy Maintenance Designs

Every EVAPCO solution is designed with worry-free maintenance in mind—starting with our smarter approach to cold water basins.

**Basin Access**
The cold water basin section on EVAPCO induced-draft units is easily accessible from ground level by simply loosening the two quick release fasteners on the inlet louver assemblies and lifting out the lightweight louver. The basin can be accessed from all four sides of the unit. This open basin design enables the unit to be easily cleaned.

**Clean Pan Design**
EVAPCO units feature a completely sloped basin from the upper to lower pan section. This “clean pan” design allows the water to be completely drained from the basin. The spray water will drain from the upper section to the depressed lower pan section where the dirt and debris can be easily flushed out through the drain. This design helps prevent buildup of sedimentary deposits and biological films, and minimizes standing water.

Note: On 4-foot-wide units, the pan is sloped without the step.

**Louver Access Door**
To aid in basin maintenance, many induced draft models can be equipped with an optional louver access door. This feature allows easy access to perform routine maintenance and inspection of the makeup assembly, strainer screen, and basin without removing an entire inlet louver. This feature is standard on models with 5-foot and taller louver sizes.

**WST Air Inlet Louver** (US Patent #7,929,196)
EVAPCO’s water and sight tight (WST) louvers keep water in and sunlight out of induced-draft products. The unique non-planar design is made from lightweight framed PVC sections which have no loose hardware, enabling easy unit access. The louver’s air channels are optimized to block all line-of-sight paths into the basin eliminating splash-out, even when the fans are off. And because all sunlight is blocked, algae growth is minimized.
CTI Certified-Standard 201

Every EVAPCO cooling tower and closed circuit cooler is independently certified by the Cooling Technology Institute (CTI). This certification guarantees that the unit will meet rated capacities, eliminating the necessity for costly field performance tests.

Exclusive Five (5)-Year Motor & Drive Warranty

EVAPCO provides each unit with a 5-year motor and drive warranty which covers the fan(s), bearings, sheaves, shafts, belts, gear reducer(s), drive shaft(s), drive couplings, electric fan motor(s), and mechanical equipment supports on both belt and gear drive units.

International Building Code (IBC) Compliant Designs

EVAPCO has independently certified its units to withstand seismic and wind loads in ALL geographic locations and installations in accordance with IBC 2015.

*Mark owned by the Cooling Technology Institute

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, 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.

Forced-Draft Sound Attenuation (Optional)

EVAPCO’s forced-draft coolers and towers feature a centrifugal fan design that operates at lower sound levels, making the units ideal for installations where noise is a concern. The fan’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.

Stainless Steel Options

All EVAPCO cooling towers and closed circuit coolers are constructed of G235 hot-dip galvanized steel as standard. A variety of stainless steel construction upgrade options are available in both 304 and 316 stainless steel, including stainless steel cold water basins and complete stainless steel units.
**Smart Shield® Solid Chemical Water Treatment System**

Proven solid chemistry. A revolutionary feed system. Together, these make Smart Shield®, the easiest and safest chemical water treatment system available today, featuring:

- A patented, controlled-release scale and corrosion inhibitor that is fed whenever your spray water pump is operating.
- A solid chemistry design that eliminates liquid chemical hazards—including spills—and the need for expensive feed pumps.
- ‘Bag in Bag’ no-touch chemical replenishments for easier, safer reloads.
- Reduced packaging, shipping, and handling for a lower carbon footprint than liquid chemical options.

Watch a short product video at smartshield.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.