NEWARK

FLUID & AIR HANDLING
TECHNOLOGIES

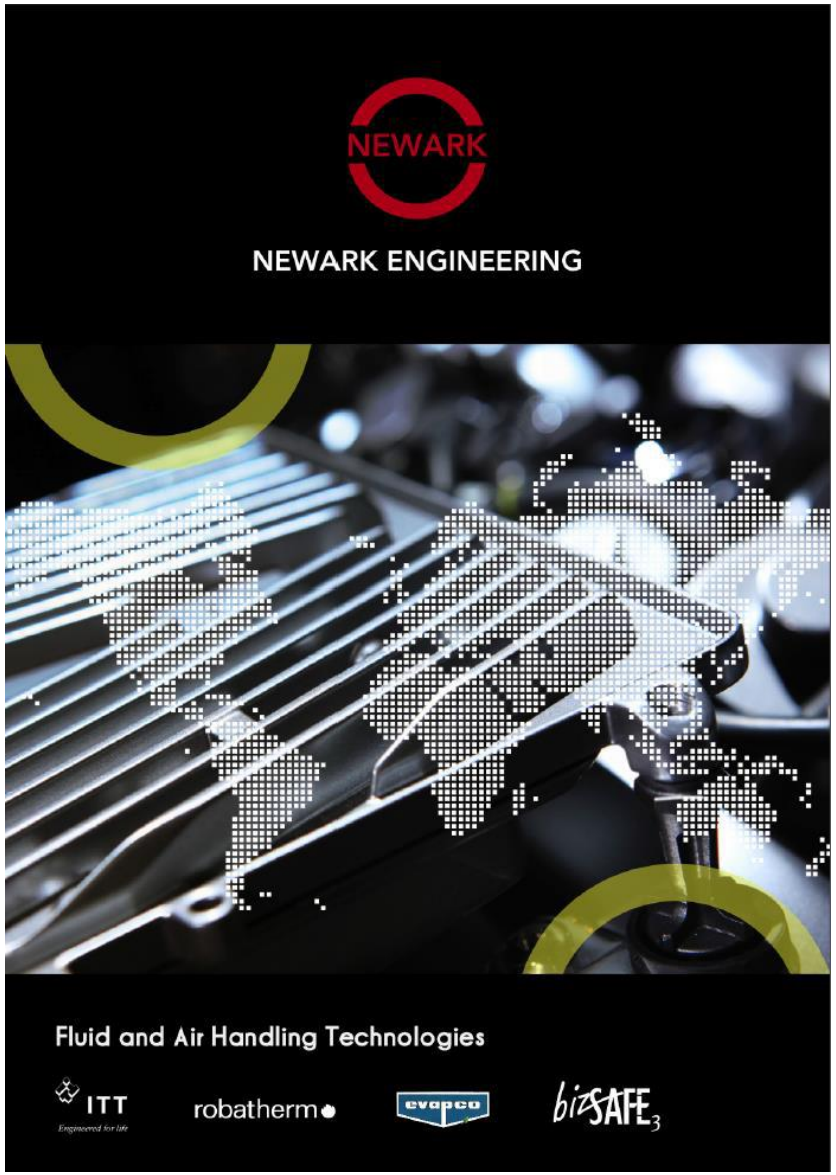
NEWARK ENGINEERING PTE LTD



evapco

ARMSTRONG

robatherm
the air handling company



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Since 1992…

25 years of experience in Fluid & Air Handling…

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ARMSTRONG

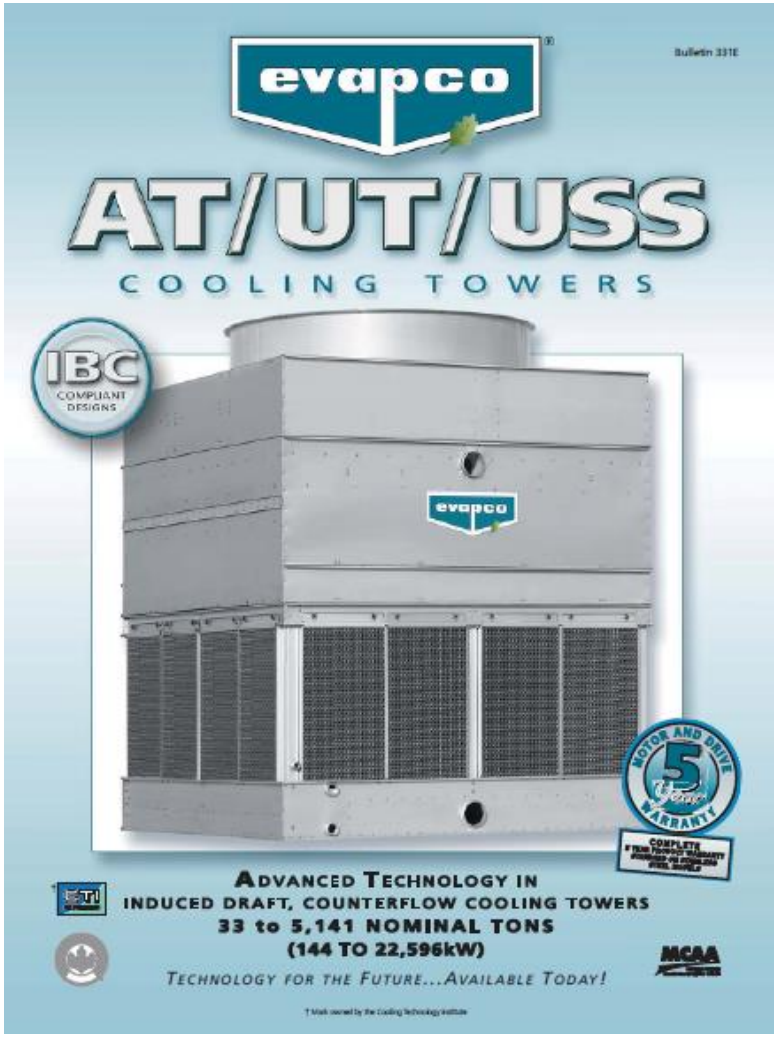
robatherm
the air handling company

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EVAPCO COOLING TOWER

INDUCED DRAFT COUNTER FLOW

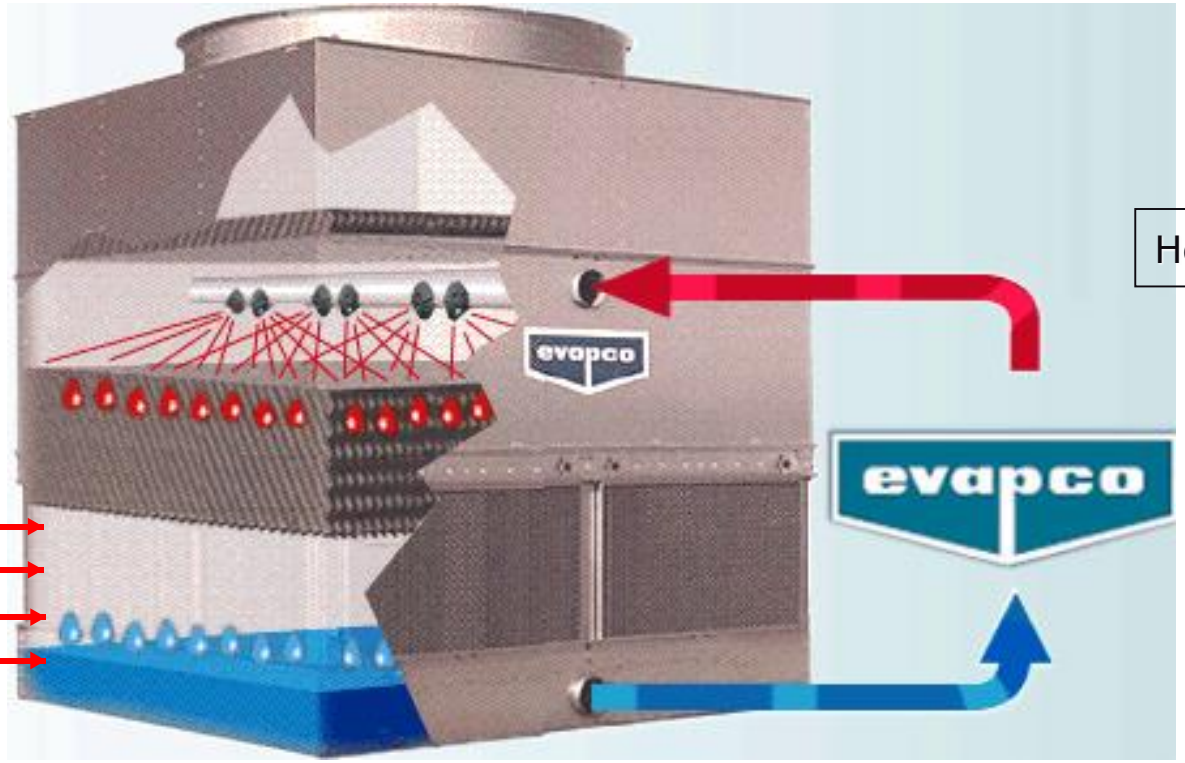


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OPERATING PRINCIPLE

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Hot Saturated Discharge Air



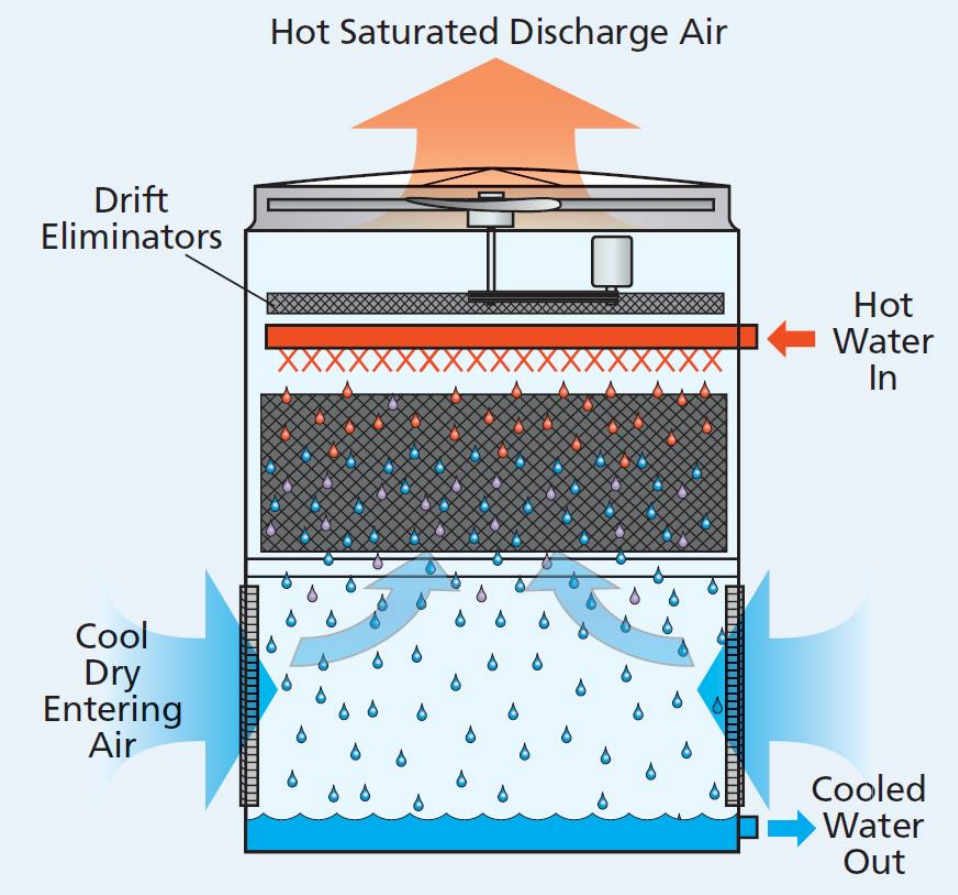
Hot Water In

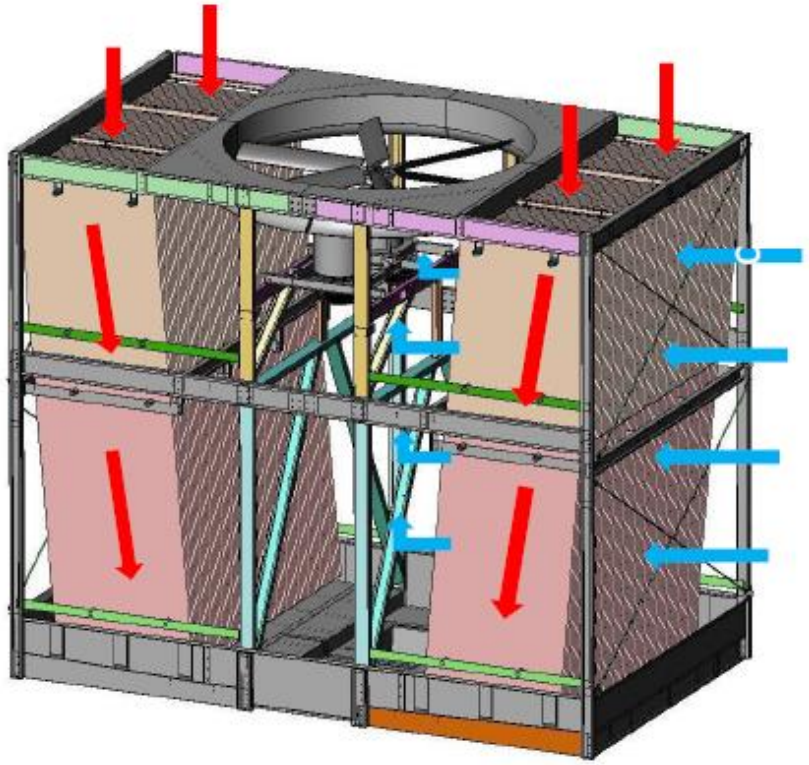
Cool, Dry Air In (All Four Sides)

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COUNTER FLOW VS CROSS FLOW

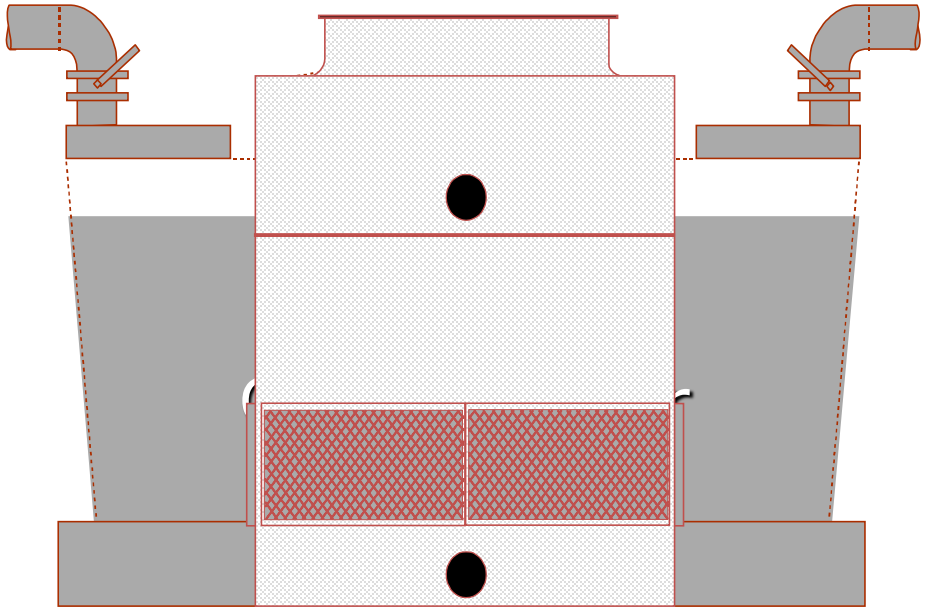




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SIZE & AREA OF COOLING TOWER

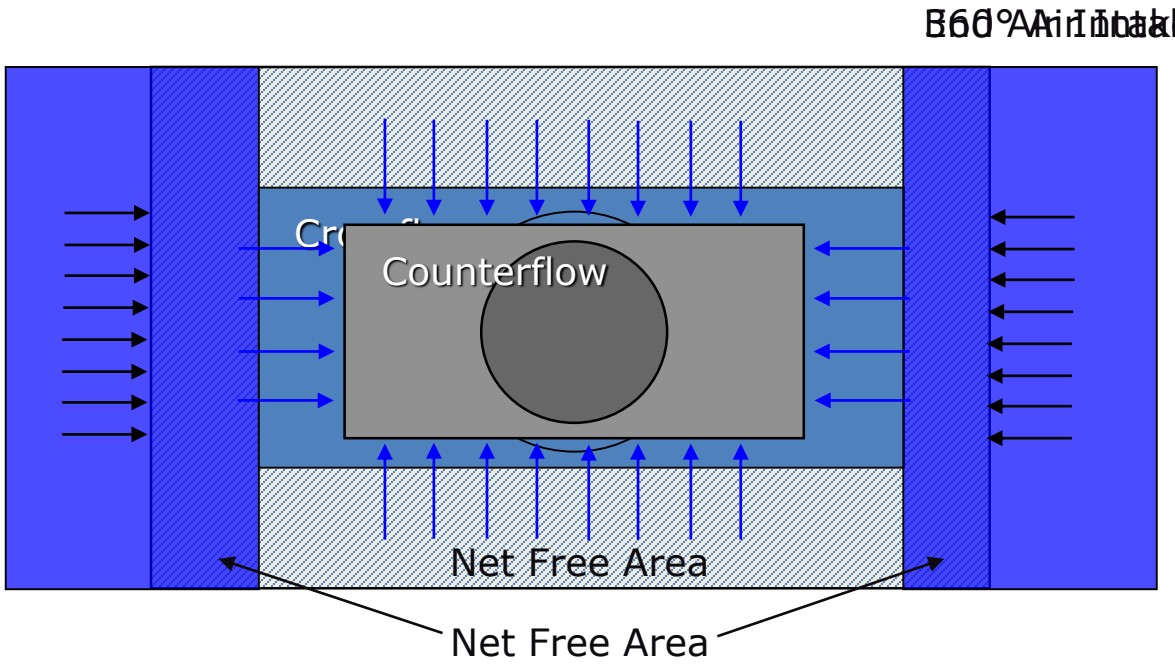


35% LESS Cooling Tower Area Compared to Equivalent Capacity of Crossflow Cooling Tower

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INSTALLATION LAYOUT

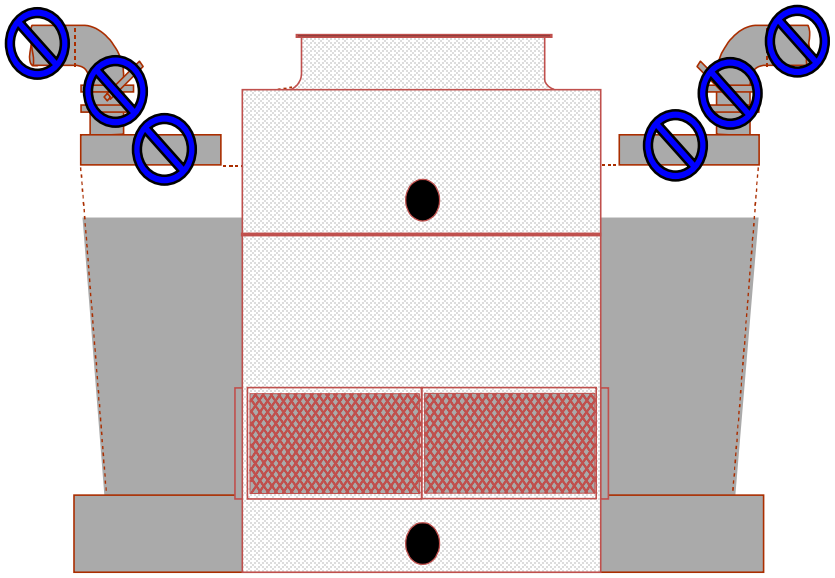


Less Tower Area + Less Air = Smaller Plan Area

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HOT WATER DISTRIBUTION SYSTEM

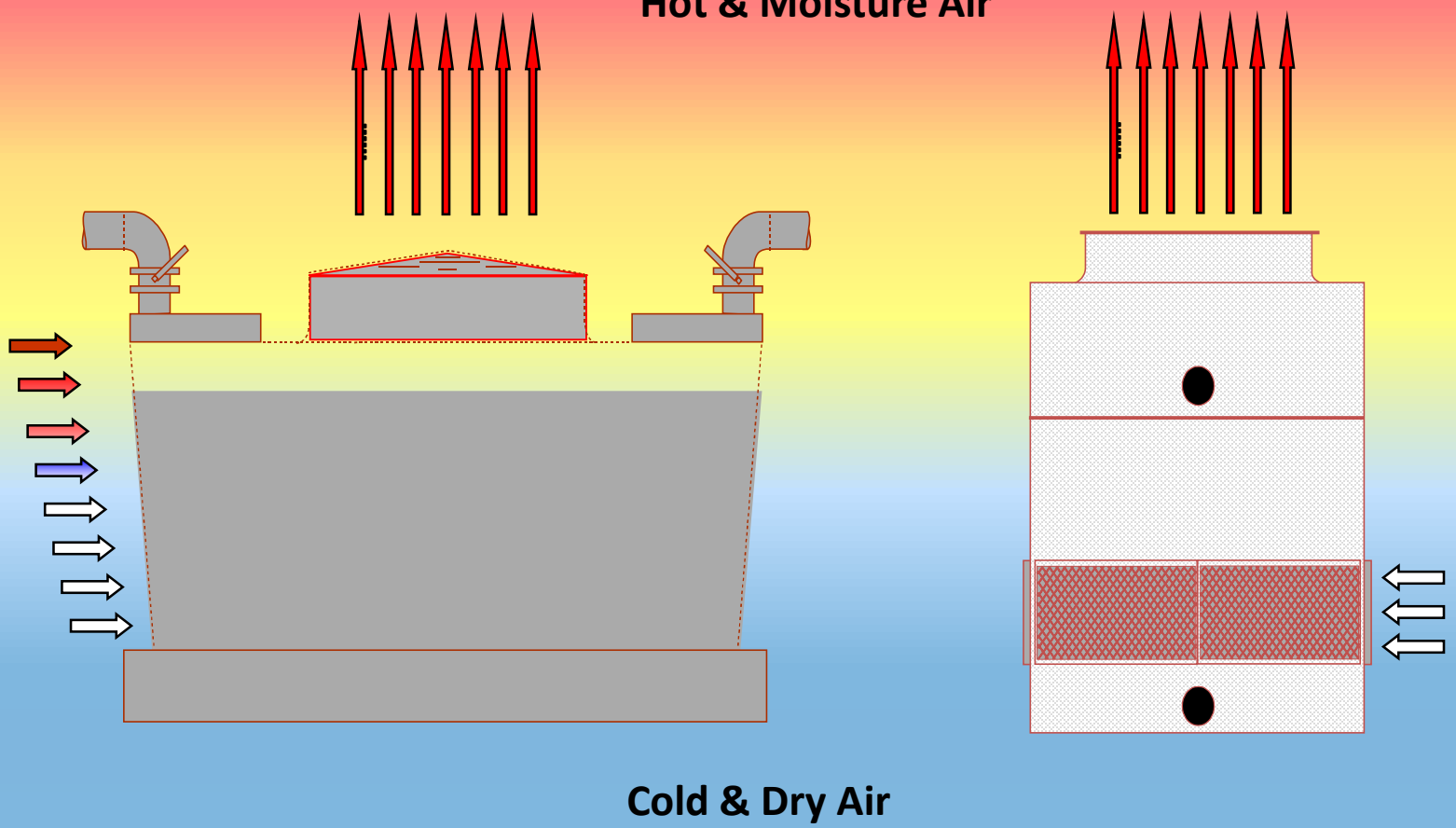


- Pressurized Water Distribution
- Single Inlet Piping
- No Valves Require (Self-Balancing)
- No Hot Water Distribution Pans

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RECIRCULATION OF DISCHARGE AIR

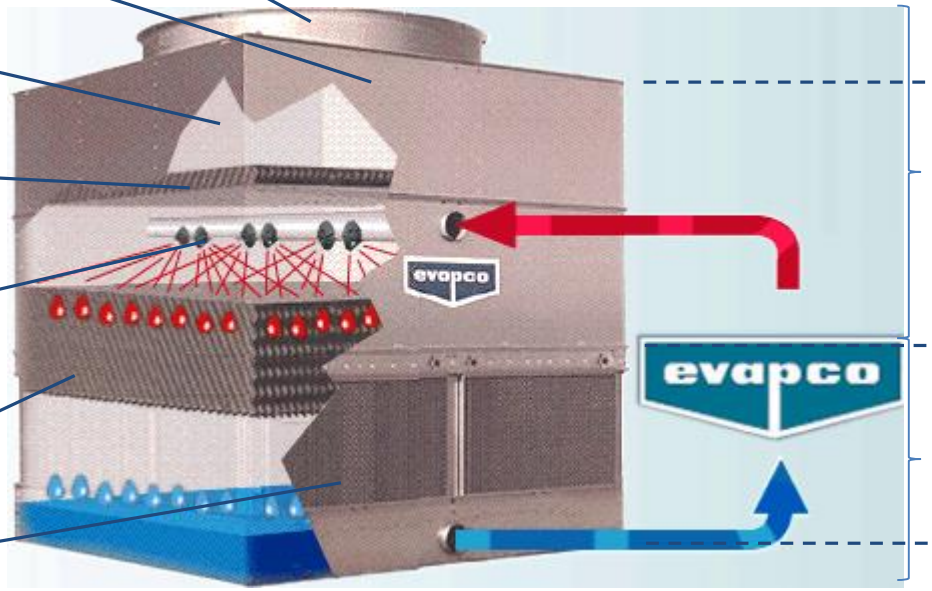


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INDUCED DRAFT COUNTER FLOW

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Evapco Cooling Tower AT/UT/USS Model



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Deliver to jobsite in two sections (Basin & Casing)

- **Minimize installation time**
- **Avoid missing parts at jobsite (CKD installation)**

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FEATURES & MAINTAINABILITY

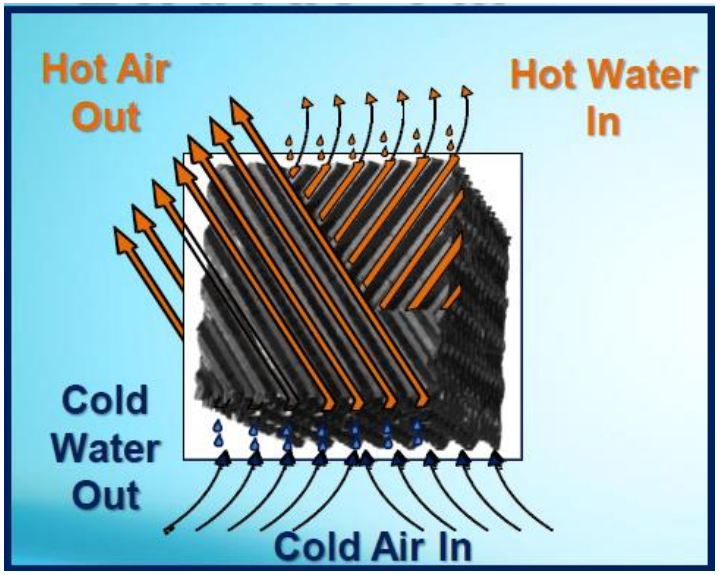
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ADVANCED TECHNOLOGY IN COOLING TOWER

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EVAPAK FILL - INFILL

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- **Unique cross-fluted design**
- **Maximize air & water contact for superior heat transfer**
- **Innovative "Alternativing Tips" on bottom of fill – reduces airside pressure drop**
- **Flame spread rating of 5 per ASTM E84-81a**
- **Can be used as an internal working platform**





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EVAPCO DRIFT ELIMINATORS



- **Limit the drift rate to less than 0.001% of the recirculating water rate**
- **Saves valuable water**
- **Non-corrosive PVC**
- **Easy removal for inspection of the water distribution system**

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HOT WATER DISTRIBUTION SYSTEM

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- **Non-corrosive PVC construction with EvapJet™ nozzles**
- **Large orifice nozzles prevent clogging and are threaded for easy removal and positive positioning.**
- **Each nozzle provides a large uniform spray pattern**
- **No service necessary from fan deck**
- **Fill provides safe work area for maintenance of water distribution system**

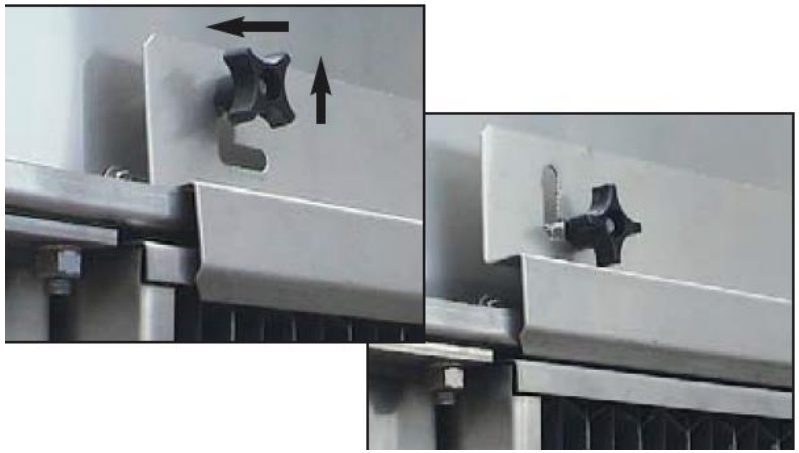


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AIR INLET LOUVERS





- **Easy Removal for Maintenance**
- **A new field assembly design which ensure easier assembly and reduced potential leaks**
- **Louver Access Door**
- **Hinged access panel with quick release mechanism**
- **Allows easy access to perform routine maintenance and inspection of makeup assembly, strainer screen and basin**



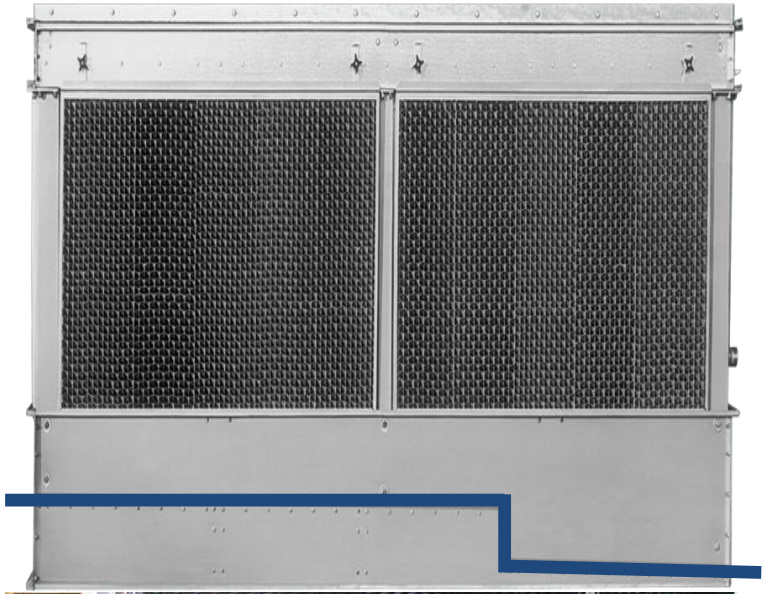




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COLD WATER BASIN

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- 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.
- Stainless Steel Strainers at the cooling tower basin outlet
- Ball float valve assembly for make up water inside cooling tower basin
- To adjust the operating level in the basin, adjust the location of the float arm on the threaded rod.
- The water level must always be above the strainer and pump suction.

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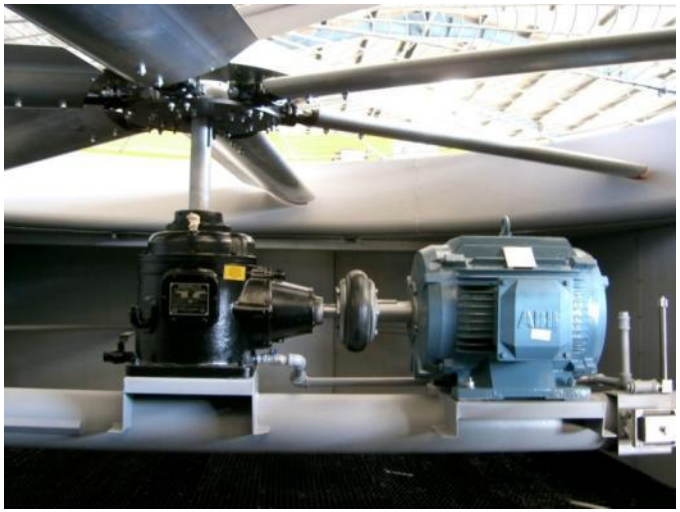
FAN & MOTOR ASSEMBLY

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BELT DRIVEN

- **Motor is mounted on a rugged heavy duty motor base**
- **The motor base is designed to swing completely to the outside of the unit and greatly simplifying motor maintenance**
- **c/w extended lube line for bearings lubrication**



GEAR DRIVEN

- **Externally / Internally** mounted motor coupled to the gear box with a composite floating shaft coupling
- **Oil level sight glass (External / Internal)** to indicate gear box oil level

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TYPES OF FANS

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STANDARD FAN



- Standard fans are axial propeller-type
- Constructed of aluminium alloy
- Each fan is statically balanced and installed in a closely fitted cowl with venturi air inlet for maximum efficiency.
- Fan screens are galvanized steel or optional Type 304 stainless steel

SUPER LOW SOUND FAN



- Super Low Sound Fan 9 – 15 dB(A) Reduction
- The fan is two-piece molded heavy duty FRP construction
- No impact on unit thermal performance and is CTI certified.

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ADVANCED FEATURES

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- **Multi-groove Power Band Belt System constructed of neoprene & polyester cord.**
- **Single belt sized for 150% of motor nameplate horsepower & minimize slippery of belt.**
- **Heavy duty fan shaft bearing rated for minimum L-10 life of 75,000 hours.**



- **Vibration Switch is installed in Fan & Motor support Beam.**
- **When the Vibration Level Exceed the set point, Vibration Switch activated and send signal to monitoring system.**

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MAINTENANCE



- **Motor Davit for easy motor removal.**
- **External Service platform for servicing and maintenance of fan, drives, and motor**
- **Maintenance personnel do not require to climb above fan deck – minimizes safety issues**
- **Enclosed infill – prevent algae formation on infill & prevent UV-degradation**



- **Slopped Maintenance Ladder extended from base of unit to motor access door.**

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CERTIFICATION

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- **CTI Certified-Standard 201**
- **Global Third Party Independent Certification**
- **Yearly re-verification**
- **Eliminates necessity for costly field performance tests**
- **Mandatory Benchmark: 100 ± 5% of published performance**



FM APPROVED

Certificate of Compliance

This certificate is issued for the following:

COOLING TOWERS
Evapco Models ICT, AT, UT, USS, REP, UAT, LSTA, LSTB, LSTE, PMTA, PMTQ, ATW, ATWB, ATC-E, LSWB, LSCB, PMCB, PMCE, LSWE, LSC-E, PMWQ

Prepared for:

Evapco (Shanghai) Refrigeration Equipment Co., Ltd.
1159 Luoning Road
Baoshan Industrial Zone
Shanghai 200949 PRC

FM Approvals Class: 4930

Approval Identification: 0003021201 Approval Granted: September 11, 2009

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

To verify the availability of the Approved product, please refer to www.approvalguide.com or www.roofnav.com

Cynthia Frank
Group Manager - Materials -
FM Approvals
1151 Boston-Providence Turnpike
Norwood, MA 02062

May 28, 2013
Date

FM Approvals
Member of the FM Global Group

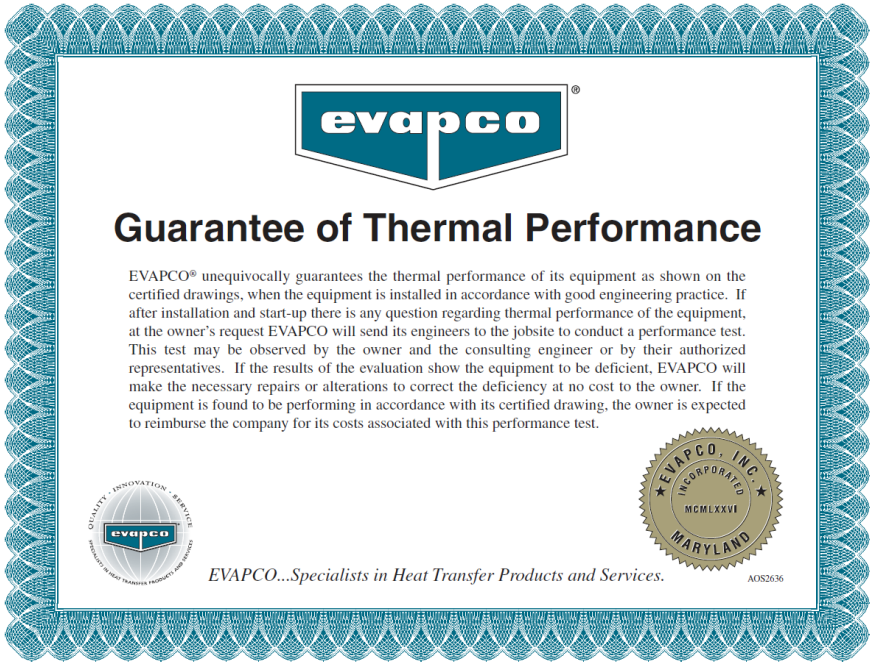
- **FM Approved Cooling Tower**

(available at additional cost)

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CERTIFICATION



evapco®

Guarantee of Thermal Performance

EVAPCO® unequivocally guarantees the thermal performance of its equipment as shown on the certified drawings, when the equipment is installed in accordance with good engineering practice. If after installation and start-up there is any question regarding thermal performance of the equipment, at the owner's request EVAPCO will send its engineers to the jobsite to conduct a performance test. This test may be observed by the owner and the consulting engineer or by their authorized representatives. If the results of the evaluation show the equipment to be deficient, EVAPCO will make the necessary repairs or alterations to correct the deficiency at no cost to the owner. If the equipment is found to be performing in accordance with its certified drawing, the owner is expected to reimburse the company for its costs associated with this performance test.

EVAPCO, INC. INCORPORATED MCMLXXVI MARYLAND

EVAPCO...Specialists in Heat Transfer Products and Services.

AOS2636

- **Evapco Guarantee of Thermal Performance certification**
- **Evapco unequivocally guarantees the thermal performance of the AT Cooling Tower product line**

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PROJECT REFERENCE

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No.	Project Title	Year	CTI-Certified	Belt Driven	FM Approved	Epoxy Coated	Total Capacity (kW)
1	Novacap	In Progress	•	•			2,752 kW
2	Hi Tech Data Project	In Progress	•	•			47,115 kW
3	S Data Centre	In Progress	•	•			23,739 kW
4	Zenith @ Loyang Singapore	2016	•	•			11,868 kW
5	Q-Cells @ Cyberjaya Malaysia	2015	•				4,600 kW
6	Soxal J10 @ Jurong Island	2015	•	•			2,615 kW
7	Century Chemical @ Penang	2015	•	•			3,612 kW
8	Micron Fab 10X	2015	•	•	•		16,720 kW
9	Abbott @ Kulim, Malaysia	2015	•	•	•		6,900 kW
10	UMC	2015	•	•	•		9,064 kW
11	Equinix SG3 Phase II	2015	•	•	•		8,790 kW
12	Mediapolis Phase I	2014	•	•			16,617 kW
13	Changi District Cooling System	2014	•	•	•		16,617 kW
14	B-Braun B8, B5, B9	2014	•	•	•		8,205 kW
15	Ciity Hall MRT	2014	•	•			2,730 kW

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THANK YOU

