



for LIFE

MITC-A

EVAPORATIVE CONDENSER



Compliant

AS/NZS 3666.1:2011

AS 1657-2013

AS 1210-2010

CTI ATC-128

CLOSED MOULDED FRP TECHNOLOGY
INDUCED DRAFT, COUNTERFLOW EVAPORATIVE CONDENSER

Low Sound, Low Energy, Low Risk



Since its founding in 1976, EVAPCO Incorporated has become an industry leader in the engineering and manufacturing of quality heat transfer products around the world. EVAPCO's mission is to provide first class service and quality products for the following markets:

- Commercial HVAC
- District Energy
- Industrial Process
- Industrial Refrigeration
- Power

EVAPCO's powerful combination of financial strength and technical expertise has established the company as a recognised manufacturer of market-leading products on a worldwide basis. EVAPCO is also recognised for the superior technology of its environmentally friendly product innovations in sound reduction and water management.

EVAPCO is an employee owned company with a strong emphasis on research & development and modern manufacturing plants. EVAPCO has earned a reputation for technological innovation and superior product quality by featuring products that are designed to offer these operating advantages:

- Higher System Efficiency
- Environmentally Friendly
- Lower Annual Operating Costs
- Reliable, Simple Operation and Maintenance

With an ongoing commitment to Research & Development programs, EVAPCO provides the most advanced products in the industry.

EVAPCO products have been marketed in Australia for more than 25 years beginning in the mid 1980's under an exclusive manufacturing agreement with F. Muller and continuing with the appointment of Aqua-Cool Towers as EVAPCO's exclusive licensee in 1995. In October 2009 EVAPCO, Inc acquired the controlling interest in Aqua-Cool Towers. The organisation was quickly restructured and all activities re-established under the new company name Evapco Australia Pty Ltd.



EVAPCO Inc. continues its dedication to making advancements in evaporative condenser technology. The **MTC-A** Evaporative Condenser is an industry first offering total corrosion resistance with precision moulded LRTM fibreglass (FRP) panels. The **MTC-A** combines EVAPCO's signature features of easy maintenance, efficient operation, low algae risk and low sound with total corrosion resistance. These features make the **MTC-A** the best evaporative condenser choice in the industry for projects that demand the highest level of corrosion resistance coupled with proven reliability.

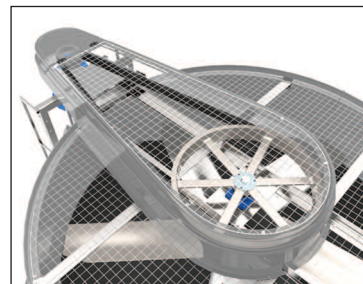


Fan Motors and Drive Assembly

- Standard MEPS or high efficiency MEPS compliant motors.
- Full access to motor from outside.
- 5 Year Motor and Drive Warranty.

Heavy Duty Belt Drive System

- Standard heavy-duty flange mount bearings with minimum L-10 life of 75,000 hours.
- External motor/belt adjustment.
- Solid-Back Multi-Groove Banded Belts.
- 5 Year Motor and Drive Warranty provided as standard.



High Efficiency Drift Eliminators

- Industry-leading drift rate of less than 0.001%
- Compliant with AS/NZS 3666.1:2011 Clause 4.4 "Drift Control"

US Patent 6,315,804

WST Air Inlet Louvers (Water and Sight Tight)

- Easily removable for convenient access.
- Light-weight, non-corrosive 316 stainless steel louver frames.
- Zero splash-out
- Proprietary design eliminates sunlight from entering condenser, preventing biological growth.
- Compliant with AS/NZS 3666.1:2011 Clause 4.6 "Sunlight"



U.S. Patent No. 7,927,196

MTC-A *Design and Construction Features*

ULTIMATE Corrosion Protection

- Heavy duty, closed moulded composite fiberglass basin, casing panels, and fan cylinders.
- Non-corrosive PVC water distribution, drift eliminators and air inlet louvers.
- Type 316 wetted stainless steel components.
- Heavy duty hot dip galvanised steel mechanical equipment supports and dry components. (316 stainless steel optional)

Precision Moulded LRTM Panels

- Smooth internal and external surfaces to prevent dirt and biological build up.
 - Panels engineered for strength and structural stability with minimum internal steel framework.

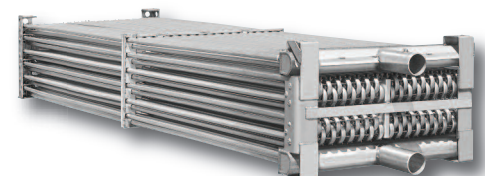
PVC Spray Distribution Header with ZM® II Nozzle

- Threaded nozzles eliminate troublesome grommets.
- Large orifice fixed position nozzles prevent clogging.
- Threaded end cap for ease of cleaning.



Elliptical Tube Thermal-Pak® Heat Transfer Coil featuring AS 1210 Compliance

- Elliptical return bends allows for more circuits per coil bundle increasing maximum thermal capacity per m².
- Design-verified with respect to AS 1210-2010 and registered with an Australian state authority responsible for plant safety.
- Custom nameplates on each coil prove compliance with the law.
- Upgrade to type 304L Stainless Steel TITAN COIL also available featuring an Xtra long 5 Year Coil Warranty as standard.

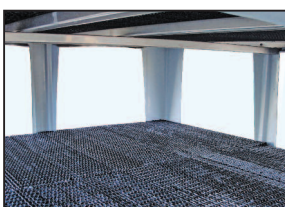


Optional Low Sound Solutions

- Super Low Sound Fans
- Low Sound Fans
- Water Silencers



Super Low Sound Fan



Water Silencers

MTC-A

DESIGN FEATURES

The MTC-A Design

EVAPCO focuses on continuous improvement and is committed to developing the most innovative products in the industry. In keeping with this commitment, EVAPCO's MTC-A is the first evaporative condenser in the industry to feature composite fibreglass panels formed entirely by an advanced, environmentally friendly, LRTM closed mould manufacturing process.

The MTC-A is the result of a collaborative effort and the combined resources of EVAPCO's global entities. The concept and design basis of the MTC-A stems from EVAPCO Australia's proven MEC product line, having 20 years of installed history.

Beginning with the MEC concept, EVAPCO Inc. then further developed MTC-A in 3D solid modelling software, then performed standardisation, strength analysis and generated thermal performance at EVAPCO's premier Research and Development Headquarters in Maryland, USA.

EVAPCO Composites Sdn Bhd, in Malaysia then brought the design to life taking responsibility for mould design, pattern making, tooling and finally all FRP parts production utilising LRTM manufacturing process.

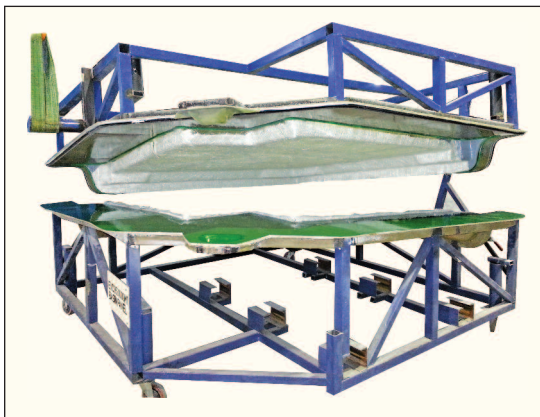
The MTC-A is unique in the industry having 3D solid modelling software designed patterns, moulds machined by 5-axis CNC, and with parts manufactured using LRTM. All aspects of the MTC-A, from concept to design to manufacture are performed "in-house" and by EVAPCO.

The final assembly of fabricated and globally sourced components is completed at one of EVAPCO's facilities. The final assembled products are available from Australia, Belgium, Italy or South Africa.

Light RTM Closed Moulding

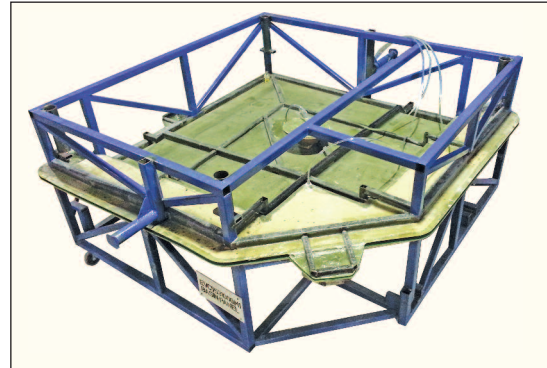
The LRTM process is an advanced moulding technique utilising a "male" and a "female" mould to create a part. By using two mould surfaces, the resulting parts are high quality with perfectly smooth finishes on both sides.

In the first step of the parts production, a thin layer of gel coat is applied to both mould surfaces. EVAPCO utilises high quality ISO Polyester, UV inhibited, color-match gel coat for superior finish, scratch resistance and UV protection. Next, a reinforcement glass fabric is placed into the female mould cavity. The male mould is aligned over and then lowered to form-fit the female mould. A full vacuum is then applied to the perimeter locking channel which locks the mould set together.



Reinforcement glass fabric loaded into mould cavity

A separate low vacuum is then applied to the part area of the mould cavity. A predetermined volume of resin is then injected in a controlled manner by a resin pump; the flow of the resin is aided by the partial vacuum. The resin infuses uniformly through the reinforcement glass fabric towards the center of part where the resin outlet and catch pot are located. The catch pot allows any excess of resin to be collected and prevents resin from entering the vacuum system. The infusion is deemed complete when the resin has fully and visibly displaced all air from the mould cavity.

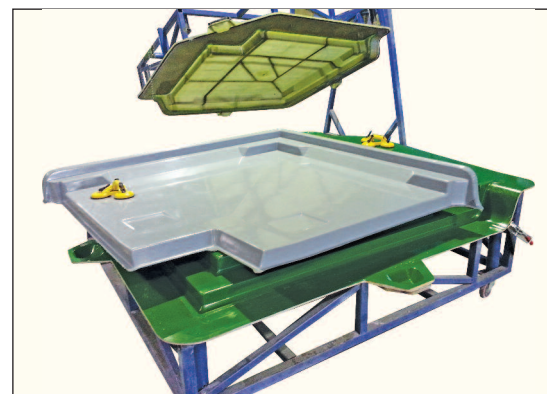


Closed Mould Manufacturing

Once the resin has fully infused, the resin pump is paused and resin flow to the mould is halted. Shortly thereafter the resin proceeds to cure via exothermic reaction; the part is left in the mould for up to 2 hours while it cools and hardens.

Once the part has sufficiently cured, the vacuum is released and the top mould is removed. The part is removed from the mould and then sent for CNC trimming and drilling process. Finally the part is wiped down and prepared for shipment.

While seemingly simple in theory, LRTM requires a commitment of resources and an initial capital investment that is beyond the comfort level of most evaporative condenser companies. When successfully implemented, the LRTM process provides many benefits including superior quality, 300-400% increased productivity compared to open mould and less VOC emission leading to a cleaner and more comfortable working environment.



Completed part; removed from mould

DESIGN FEATURES

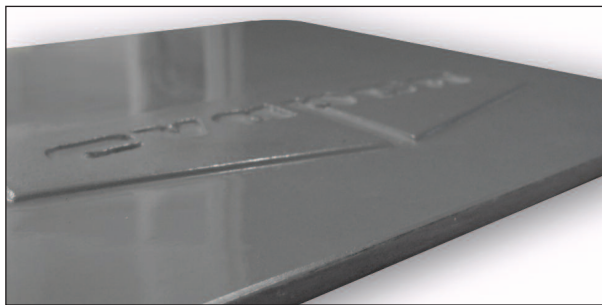
MTC-A

Advantages of LRTM

LRTM is widely used in the advanced industries of aerospace, automotive and marine because it produces precision parts, with higher quality and improved surface finish in less time, and with less styrene emission.

Solid Laminate Construction

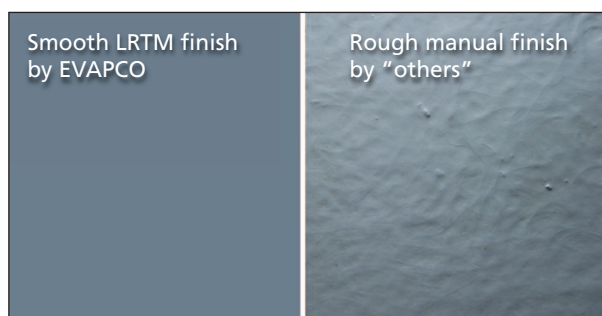
All panels of the MTC-A Evaporative Condenser are structural by design, thus reducing the need for a matrix of internal stainless steel bracing and framework. Designed and constructed for superior strength, the MTC-A panels are formed using LRTM, having consistent physical and mechanical properties.



LRTM panel having uniform part thickness

Tolerance and Parts Repeatability

Consistent high quality parts are the desirable advantage of the LRTM process. With LRTM, part thickness is uniform which ensures part strength and dimensional accuracy. Being able to produce consistent, quality parts is imperative to the final overall quality of the MTC-A. With quality and precision in the design and manufacture, the MTC-A has an unprecedented high degree of "fit-n-finish."



Two Sides Perfectly Smooth

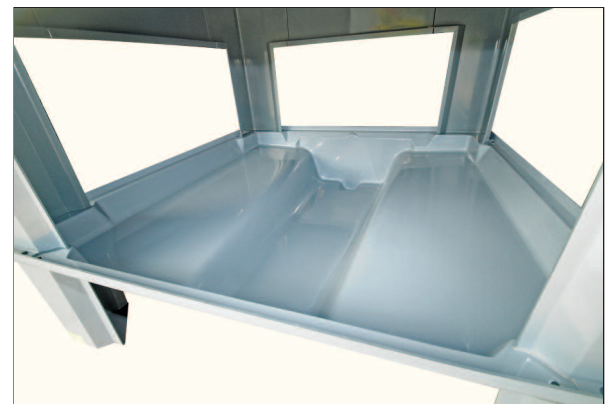
LRTM produces aesthetically and physically superior panels having a smooth and shiny finish on both sides. The picture shows the superior finish of LRTM as compared to the rough surface otherwise produced by conventional labour intensive open mould FRP processes.

Reduced Styrene Emissions

The closed nature of LRTM moulding provides reduced VOC emissions and a more worker-friendly environment than open mould processes. Simply put, closed mould manufacturing results in a cleaner, safer, and more productive production plant.

Complex Shapes

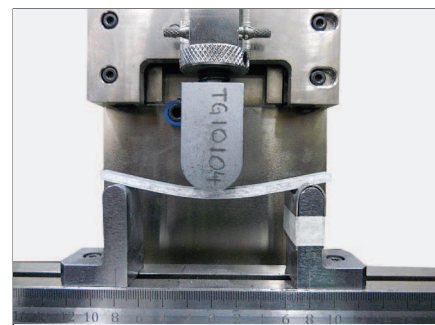
LRTM provides superior design flexibility for the creation of complex shapes, forms and compound curves. The fibreglass parts used on the MTC-A have been designed with this curvature complexity providing inherent part strength.



Compound curvature provides inherent part strength

Laboratory Tested for Strength and Consistency

All panel thicknesses have undergone destructive testing for determining the mechanical properties of the LRTM laminates. All tests have been performed in accordance with European (EU) and American (ASTM) Standards, to measure flexural properties, compressive and tensile strengths, modulus and glass content.



The testing results provided a confirmation of theoretical properties of the LRTM manufactured panels.

MTC-A

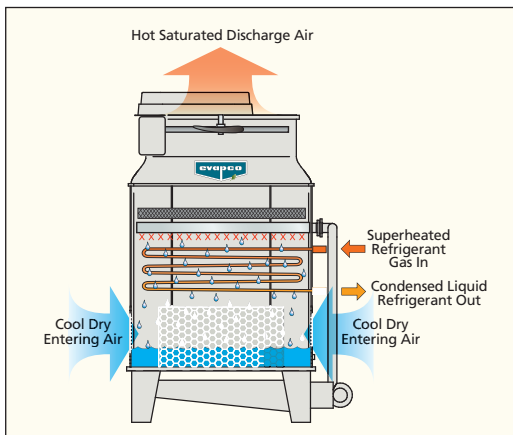
DESIGN FEATURES

Principle of Operation

The refrigerant gas is discharged from the compressor into the inlet connection of the MTC-A. Water from the condenser's sump is circulated over the condenser coil, while ambient air is simultaneously drawn into the unit. As the ambient air moves up through the coil section, a portion of the spray water is evaporated into the air stream.

The evaporative process cools the spray water, which in turn cools the tubes containing the refrigerant gas. The cool tube walls cause the compressed refrigerant gas to give up heat and condense into liquid. The condensed liquid flows out of the coil to the high pressure liquid receiver for return to the system. The hot, saturated air is drawn through the drift eliminators, where any entrained water droplets are removed. The condenser's fan then discharges this air stream out of the top of the unit at a high velocity, where it can dissipate harmlessly into the atmosphere.

The water which was not evaporated falls into the sump and is recirculated by the spray pump to the water distribution system above the condensing coil section.



Maintenance Free ZM® II Spray Nozzle Water Distribution System

EVAPCO's Zero Maintenance ZM® II Spray Nozzle remains clog-free while providing even and constant water distribution for reliable, scale-free evaporative cooling under all operating conditions.

The heavy duty nylon ZM® II Spray Nozzles have a 35.3mm diameter opening and a 31.8mm splash plate clearance. Furthermore, the fixed position ZM® II nozzles are mounted in corrosion-free PVC water distribution pipes that have threaded end caps. Together, these elements combine to provide unequalled coil coverage and scale prevention, and make the industry's best performing non-corrosive, maintenance-free water distribution system.



High Efficiency Drift Eliminators

The MTC-A is provided with an efficient drift eliminator system that effectively reduces entrained water droplets from the air discharge to less than 0.001% of the recirculated water flow rate. EVAPCO's drift eliminators are twice as efficient as the requirement set out in *AS 3666 Clause 4.4 Drift Control*.

The eliminators are constructed of non-corrosive PVC with a multi-pass design for maximum drift reduction. They are assembled in modular sections for easy removal and access to the water distribution system.

In addition to reducing drift, the eliminators also function as effective debris screens which protect the spray system and coils from sunlight and debris.

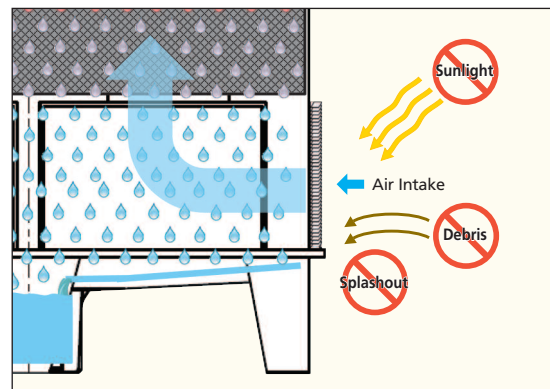


WST Air Inlet Louvers (Water and Sight Tight)

EVAPCO'S WST Air Inlet Louvers keep water in and sunlight out of induced draft products. The unique nonplanar design is made from light-weight framed PVC sections which have no loose hardware, enabling easy unit access.

The louver's air channels are optimised to maintain fluid dynamic and thermodynamic efficiency and block all line-of-sight paths into the basin eliminating splash-out; even when the fans are off. Additionally, algae growth is minimised by blocking all sunlight into the basin, making the louvers compliant with *AS 3666 Clause 4.6 Sunlight*.

The combination of easy access, no splash-out and minimised algae growth saves the end user money on maintenance hours, water consumption and water treatment costs.



DESIGN FEATURES

MTC-A

Thermal-Pak Coil®

The EVAPCO Thermal-Pak Coil® features elliptical tube design, first in the industry and now available with the MTC-A!

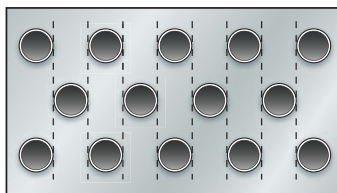
The elliptical tube design allows the coil bundle to be densely packed, reducing the number of tubes per bundle up to 10%. This provides weight and cost savings!

Additionally, the elliptical tubes have inherent spacing between each other which permits larger amount of air through the condenser without impeding the spray water from falling or creating additional static.

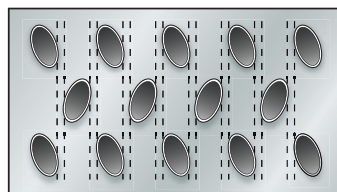
This revolutionary design makes the EVAPCO MTC-A the leading FRP evaporative condenser in the industry today!

The Thermal-Pak coils are fashioned out of high quality steel tubing following the most stringent quality control procedures. Each circuit is inspected at the weld seam then tested again before being stacked into a coil. Finally, the coil bundle is pneumatically tested at 2.76 MPa under water to ensure it is leak free.

To protect the coil against corrosion, the coil bundle is placed in a heavy steel frame and dipped in molten zinc (hot-dip galvanised) at a temperature of approximately 427°C.



Round Tube Coil by Others



Thermal-Pak® Coil by EVAPCO

Stainless Steel Coil Option

EVAPCO's stainless steel coil option, TITAN COIL is the solution when the maximum corrosion resistance is required in the application. Constructed with type 304L Stainless Steel, the TITAN COIL is manufactured using EVAPCO's elliptical tube Thermal Pak® design upgraded to Xtra Tough construction featuring: Xtra Durability, Xtra Corrosion resistance, and an Xtra long 5 year Coil Warranty as standard.



Low Sound Solutions

Super Low Sound Fan 9 – 15 dB(A) Reduction!

The Super Low Sound Fan offered by EVAPCO utilises an extremely wide chord blade design available for sound sensitive applications where the lowest sound levels are desired. The fan is two-piece molded heavy duty FRP construction utilising a forward swept blade design.

The Super Low Sound Fan is capable of reducing the unit sound pressure levels **9dB(A) to 15dB(A)**, depending on specific unit selection and measurement location compared to the standard MTC-A. The Super Low Sound Fan will have no impact on unit thermal performance.



*The Low Energy of an Axial Fan with
The Low Sound of a Centrifugal Fan*

Low Sound Fan 4 – 7 dB(A) Reduction!

The Low Sound Fan offered by EVAPCO is a wide chord blade design for sound sensitive application where low sound levels are desired. The Low Sound Fan shall utilise a unique soft-connect blade-to-hub design that is compatible with Variable Speed Drives.

Since the blades are not rigidly connected to the fan hub, no vertical vibration forces are transmitted to the unit structure which reduces sound pressure levels **4dB(A) to 7dB(A)**, depending on specific unit selection and measurement location. The fans are high efficiency axial propeller type on the MTC-A product line.

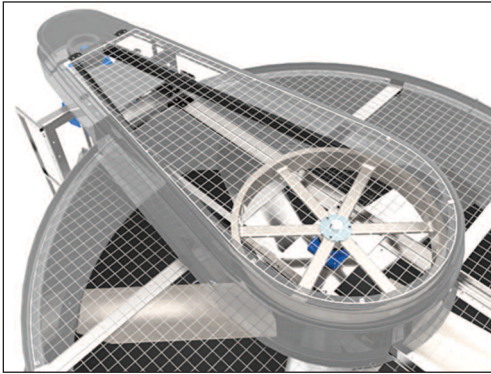


MTC-A

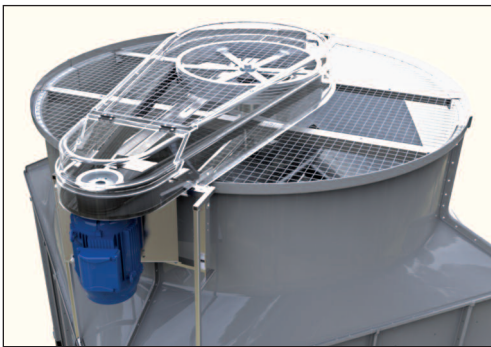
DESIGN FEATURES

Banded Belt Drive System Design

The MTC-A uses the standard belt drive system utilised in EVAPCO's induced draft evaporative condensers. The EVAPCO Banded Belt Drive System is engineered for heavy duty operation and provides trouble-free operation in the most severe of evaporative condenser applications. The Banded Belt Drive System is applicable to 2.4m wide box sizes and larger.



*Drive configuration for 8x, 10x, 11x, and 12x units.
(Belt guard shown as transparent for clarity)*



*Drive configuration for 8x, 10x, 11x, and 12x units.
(Belt guard shown as transparent for clarity)*



4x6 and 4x9 units.

The fan motor and drive assembly are mounted externally to the unit in a belt drive configuration. Belt tension is checked and adjusted by tightening the J-bolts on the motor base or moving the motor along the threaded rod. The lubrication lines are extended to the motor base, making bearing lubrication easy. All motors and lubrication lines are safely accessible with the (optional) ladder-platform.

Fan Motors

All MTC-A units utilise MEPS 2006 standard efficiency motors. Motors are epoxy coated as standard, unless otherwise requested.

Banded Belt Drive

The Banded Belt Drive is a solid-back multi-groove belt system that has high lateral rigidity. The belt is designed for evaporative condenser service, and is constructed of neoprene with polyester chords. The drive belt is sized for 150% of the motor nameplate power ensuring long and trouble free operation.

Drive System Pulleys

Drive system pulleys located within the discharge airstream of the evaporative condenser are constructed of an aluminium alloy.

Fan Shaft Bearings

The Fan Shaft Bearings on the MTC-A are specially selected to provide long life, minimising costly downtime. They are rated for a minimum L-10 life of 75,000 hours, making them the heaviest duty flange mount bearing in the industry used for evaporative condensers.

4' Wide Models Only

The fan motor is mounted internally, in a direct drive configuration. Access to the drive system for maintenance is via the access panel and ladder and platforms are not required. The TEAO fan motor is epoxy coated as standard.



ENGINEERING DATA AND DIMENSIONS

MTC-A

Box Sizes: 4x6 and 4x9

CONNECTION DESCRIPTION	CONNECTION (QTY) SIZE IN MM
	MTC-49A to MTC-115A
SYSTEM FLUID IN (INLET)	(1) 100
SYSTEM FLUID OUT (OUTLET)	(1) 100
MAKE-UP (MU)	(1) 25
OVERFLOW (OF)	(1) 50
DRAIN (D)	(1) 50

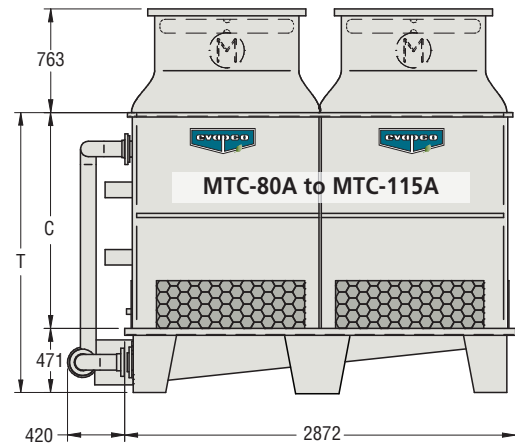
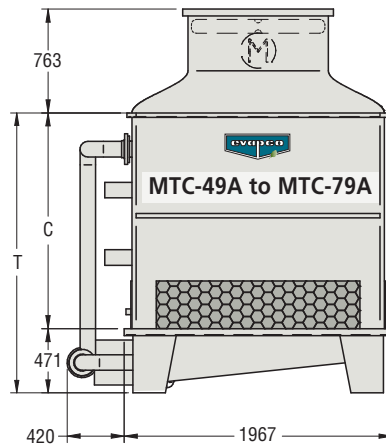
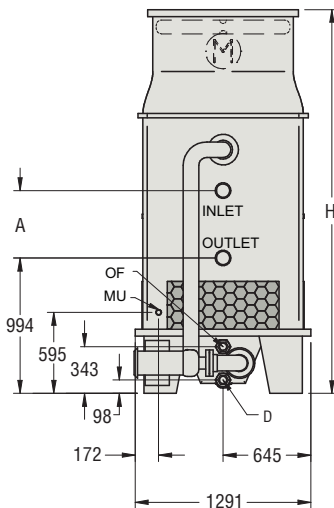
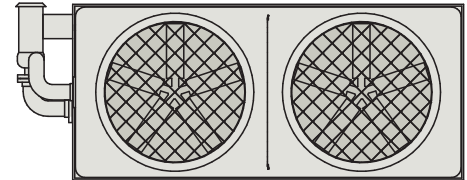
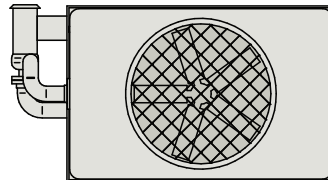


Table 1 Engineering Data

Model Number	Fans		Weights (kg)				NH3 Operating Charge (kg)	Coil Volume (L)	Operating Basin Volume (L)	Spray Pump		Dimensions (mm)			
	Fan Motor (kW)	Air Flow (m³/s)	Shipping	Shipping Heaviest Section	Rigging Heaviest Section	Operating				kW	L/s	H	T	C	A
MTC-49A	2.2	5.8	1085	1085	1085	1395	23	197	175	0.55	8.5	2819	2057	1586	495
MTC-54A	4	6.7	1090	1090	1090	1395	23	197	175	0.55	8.5	2819	2057	1586	495
MTC-59A	2.2	5.6	1245	1245	1245	1555	30	254	175	0.55	8.5	3124	2362	1891	685
MTC-65A	4	6.5	1245	1245	1245	1560	30	254	175	0.55	8.5	3124	2362	1891	685
MTC-71A	2.2	5.5	1390	1390	1390	1710	37	314	175	0.55	8.5	3204	2442	1971	876
MTC-79A	4	6.3	1395	1395	1395	1715	37	314	175	0.55	8.5	3204	2442	1971	876
MTC-80A	(2) 1.5	8.4	1540	1540	1540	1995	34	288	254	0.75	12.6	2819	2057	1586	495
MTC-87A	(2) 2.2	9.4	1565	1565	1565	2020	34	288	254	0.75	12.6	2819	2057	1586	495
MTC-96A	(2) 1.5	8.1	1775	1775	1775	2235	45	379	254	0.75	12.6	3124	2362	1891	685
MTC-104A	(2) 2.2	9.2	1795	1795	1795	2260	45	379	254	0.75	12.6	3124	2362	1891	685
MTC-106A	(2) 1.5	7.8	1995	1995	1995	2470	55	462	254	0.75	12.6	3204	2442	1971	876
MTC-115A	(2) 2.2	8.9	2020	2020	2020	2490	55	462	254	0.75	12.6	3204	2442	1971	876

- NOTES: (1) Do not use catalogue drawing for pre-fabrication. Dimensions and weights are subject to change.
 (2) Adequate spacing must be allowed for unobstructed airflow and access to the unit. Refer to the MT Layout Guidelines section of this brochure.
 (3) Refrigerant charge shown for R-717. Multiply by 1.93 for R-22 and 1.98 for R-134a.
 (4) Contact your local EVAPCO sales representative for thermal selection and pricing.

MTC-A

ENGINEERING DATA AND DIMENSIONS

Box Sizes: 8x8

CONNECTION DESCRIPTION	CONNECTION (QTY) SIZE IN MM
	MTC-134A to MTC-233A
SYSTEM FLUID IN (INLET)	(2) 100
SYSTEM FLUID OUT (OUTLET)	(2) 100
MAKE-UP (MU)	(1) 50
OVERFLOW (OF)	(1) 50
DRAIN (D)	(1) 50

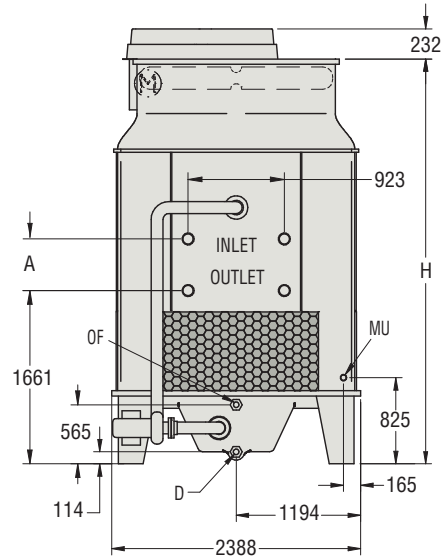
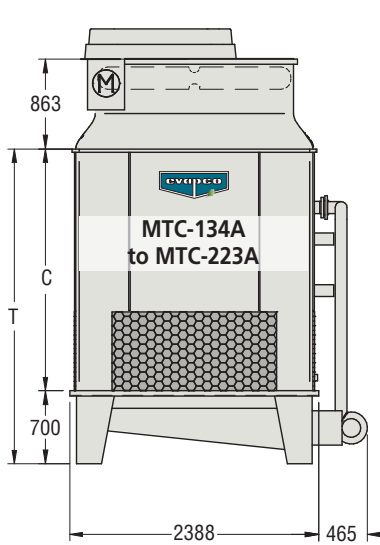
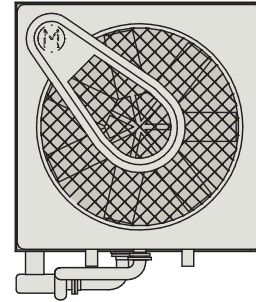


Table 2 Engineering Data

Model Number	Fans		Weights (kg)				NH3 Operating Charge (kg)	Coil Volume (L)	Operating Basin Volume (L)	Spray Pump		Dimensions (mm)			
	Fan Motor (kW)	Air Flow (m ³ /s)	Shipping	Shipping Heaviest Section	Rigging Heaviest Section	Operating				kW	L/s	H	T	C	A
MTC-134A	4	12.5	3150	2475	2300	3835	55	469	594	1.5	25.2	3880	3019	2319	495
MTC-147A	5.5	14.3	3170	2475	2300	3855	55	469	594	1.5	25.2	3880	3019	2319	495
MTC-156A	7.5	15.6	3175	2475	2300	3860	55	469	594	1.5	25.2	3880	3019	2319	495
MTC-160A	4	12.1	3555	2885	2710	4245	72	613	594	1.5	25.2	3880	3019	2319	685
MTC-176A	5.5	13.9	3580	2885	2710	4270	72	613	594	1.5	25.2	3880	3019	2319	685
MTC-187A	7.5	15.1	3585	2885	2710	4275	72	613	594	1.5	25.2	3880	3019	2319	685
MTC-202A	11	16.9	3640	2885	2710	4325	72	613	594	1.5	25.2	3880	3019	2319	685
MTC-177A	4	11.8	4030	3260	3350	4730	89	757	594	1.5	25.2	4321	3461	2761	876
MTC-194A	5.5	13.5	4055	3260	3375	4755	89	757	594	1.5	25.2	4321	3461	2761	876
MTC-206A	7.5	14.6	4060	3260	3380	4760	89	757	594	1.5	25.2	4321	3461	2761	876
MTC-223A	11	16.4	4115	3260	3435	4815	89	757	594	1.5	25.2	4321	3461	2761	876
SLSF ADDITION			+70			+70						+255			

- NOTES: (1) Do not use catalogue drawing for pre-fabrication. Dimensions and weights are subject to change.
 (2) Adequate spacing must be allowed for unobstructed airflow and access to the unit. Refer to the MT Layout Guidelines section of this brochure.
 (3) Refrigerant charge shown for R-717. Multiply by 1.93 for R-22 and 1.98 for R-134a.
 (4) Contact your local EVAPCO sales representative for thermal selection and pricing.

ENGINEERING DATA AND DIMENSIONS

MTC-A

Box Sizes: 8x12

CONNECTION DESCRIPTION	CONNECTION (QTY) SIZE IN MM
	MTC-205A to MTC-348A
SYSTEM FLUID IN (INLET)	(2) 100
SYSTEM FLUID OUT (OUTLET)	(2) 100
MAKE-UP (MU)	(1) 50
OVERFLOW (OF)	(1) 50
DRAIN (D)	(1) 50

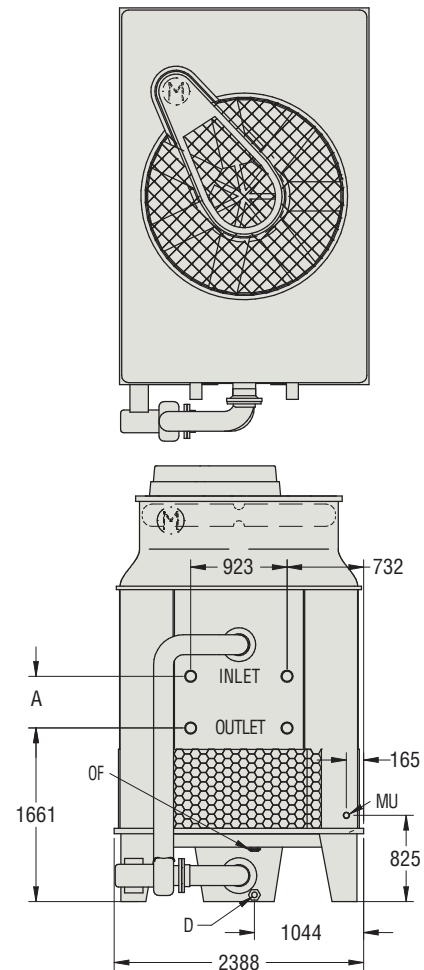
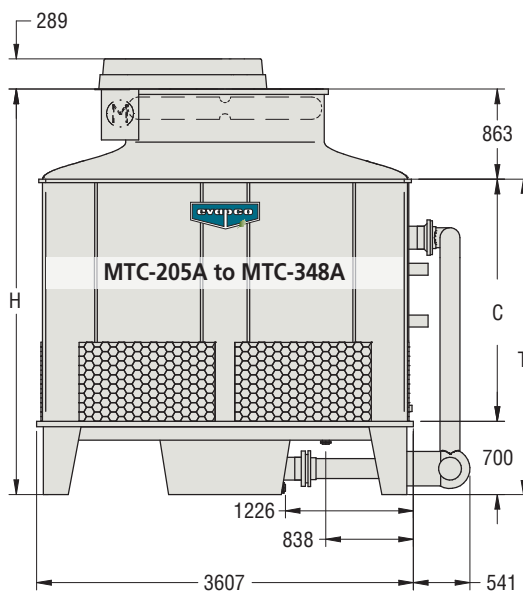


Table 3 Engineering Data

Model Number	Fans		Weights (kg)				NH3 Operating Charge (kg)	Coil Volume (L)	Operating Basin Volume (L)	Spray Pump		Dimensions (mm)			
	Fan Motor (kW)	Air Flow (m³/s)	Shipping	Shipping Heaviest Section	Rigging Heaviest Section	Operating				kW	L/s	H	T	C	A
MTC-205A	5.5	19.1	4830	3635	3745	5455	89	755	1188	2.2	34.7	3883	2997	2292	495
MTC-219A	7.5	21.0	4840	3635	3755	5465	89	755	1188	2.2	34.7	3883	2997	2292	495
MTC-239A	11	23.8	4900	3635	3815	5525	89	755	1188	2.2	34.7	3883	2997	2292	495
MTC-252A	15	25.8	4925	3635	3840	5550	89	755	1188	2.2	34.7	3883	2997	2292	495
MTC-245A	5.5	18.5	5455	4260	4375	6095	117	991	1188	2.2	34.7	3883	2997	2292	685
MTC-262A	7.5	20.3	5465	4260	4380	6105	117	991	1188	2.2	34.7	3883	2997	2292	685
MTC-286A	11	23.1	5525	4260	4440	6165	117	991	1188	2.2	34.7	3883	2997	2292	685
MTC-302A	15	25.0	5550	4260	4470	6190	117	991	1188	2.2	34.7	3883	2997	2292	685
MTC-271A	5.5	17.9	6115	4915	5030	6770	144	1226	1188	2.2	34.7	4299	3413	2708	876
MTC-290A	7.5	19.7	6125	4915	5040	6775	144	1226	1188	2.2	34.7	4299	3413	2708	876
MTC-316A	11	22.4	6180	4915	5100	6835	144	1226	1188	2.2	34.7	4299	3413	2708	876
MTC-334A	15	24.3	6210	4915	5125	6865	144	1226	1188	2.2	34.7	4299	3413	2708	876
MTC-348A	18.5	25.8	6225	4915	5140	6875	144	1226	1188	2.2	34.7	4299	3413	2708	876
SLSF ADDITION			+70			+70						+255			

- NOTES: (1) Do not use catalogue drawing for pre-fabrication. Dimensions and weights are subject to change.
 (2) Adequate spacing must be allowed for unobstructed airflow and access to the unit. Refer to the MT Layout Guidelines section of this brochure.
 (3) Refrigerant charge shown for R-717. Multiply by 1.93 for R-22 and 1.98 for R-134a.
 (4) Contact your local EVAPCO sales representative for thermal selection and pricing.

MTC-A

ENGINEERING DATA AND DIMENSIONS

Box Size: 10x10

CONNECTION DESCRIPTION	CONNECTION (QTY) SIZE IN MM
	MTC-191A TO MTC-373A
SYSTEM FLUID IN (INLET)	(2) 100
SYSTEM FLUID OUT (OUTLET)	(2) 100
MAKE-UP (MU)	(1) 50
OVERFLOW (OF)	(1) 50
DRAIN (D)	(1) 50

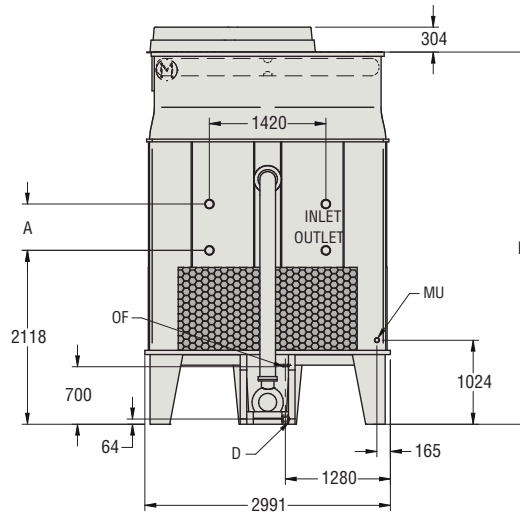
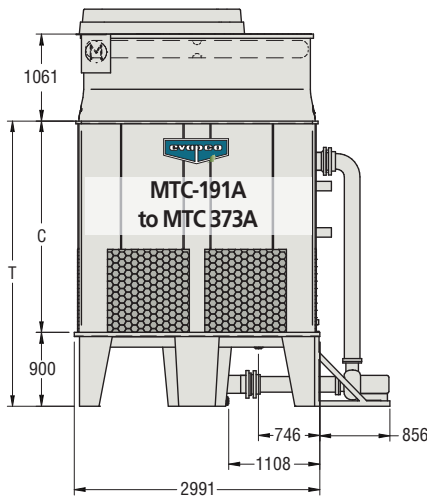
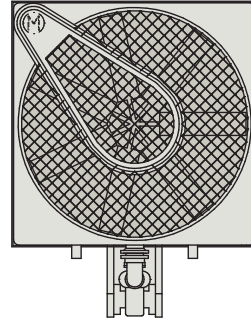


Table 4 Engineering Data

Model Number	Fans		Weights (kg)				NH3 Operating Charge (kg)	Coil Volume (L)	Operating Basin Volume (L)	Spray Pump		Dimensions (mm)			
	Fan Motor (kW)	Air Flow (m³/s)	Shipping	Shipping Heaviest Section	Rigging Heaviest Section	Operating				kW	L/s	H	T	C	A
MTC-191A	4	17.1	4755	3585	3600	5450	86	734	552	4	34.7	4534	3473	2573	565
MTC-212A	5.5	19.6	4775	3585	3625	5470	86	734	552	4	34.7	4534	3473	2573	565
MTC-226A	7.5	21.6	4785	3585	3635	5480	86	734	552	4	34.7	4534	3473	2573	565
MTC-247A	11	24.5	4845	3585	3690	5540	86	734	552	4	34.7	4534	3473	2573	565
MTC-261A	15	26.6	4865	3585	3710	5555	86	734	552	4	34.7	4534	3473	2573	565
MTC-229A	4	16.6	5395	4225	4240	6100	112	954	552	4	34.7	4534	3473	2573	781
MTC-253A	5.5	19.0	5415	4225	4265	6125	112	954	552	4	34.7	4534	3473	2573	781
MTC-272A	7.5	21.0	5425	4225	4275	6135	112	954	552	4	34.7	4534	3473	2573	781
MTC-295A	11	23.8	5485	4225	4330	6190	112	954	552	4	34.7	4534	3473	2573	781
MTC-313A	15	25.8	5500	4225	4350	6210	112	954	552	4	34.7	4534	3473	2573	781
MTC-326A	18.5	27.4	5510	4225	4360	6220	112	954	552	4	34.7	4534	3473	2573	781
MTC-254A	4	16.1	6105	4935	4955	6825	139	1181	552	4	34.7	4975	3915	3015	996
MTC-280A	5.5	18.5	6130	4935	4975	6850	139	1181	552	4	34.7	4975	3915	3015	996
MTC-299A	7.5	20.3	6135	4935	4985	6860	139	1181	552	4	34.7	4975	3915	3015	996
MTC-327A	11	23.1	6195	4935	5045	6915	139	1181	552	4	34.7	4975	3915	3015	996
MTC-345A	15	25.0	6215	4935	5060	6935	139	1181	552	4	34.7	4975	3915	3015	996
MTC-360A	18.5	26.6	6225	4935	5070	6945	139	1181	552	4	34.7	4975	3915	3015	996
MTC-373A	22	28.0	6250	4935	5100	6970	139	1181	552	4	34.7	4975	3915	3015	996
SLSF ADDITION			+320			+320						+330			

NOTES: (1) Do not use catalogue drawing for pre-fabrication. Dimensions and weights are subject to change.
 (2) Adequate spacing must be allowed for unobstructed airflow and access to the unit. Refer to the MT Layout Guidelines section of this brochure.
 (3) Refrigerant charge shown for R-717. Multiply by 1.93 for R-22 and 1.98 for R-134a.
 (4) Contact your local EVAPCO sales representative for thermal selection and pricing.

ENGINEERING DATA AND DIMENSIONS

MTC-A

Box Size: 11x11

CONNECTION DESCRIPTION	CONNECTION (QTY)
	SIZE IN MM
	MTC-288A TO MTC-524A
SYSTEM FLUID IN (INLET)	(2) 100
SYSTEM FLUID OUT (OUTLET)	(2) 100
MAKE-UP (MU)	(1) 50
OVERFLOW (OF)	(1) 50
DRAIN (D)	(1) 50

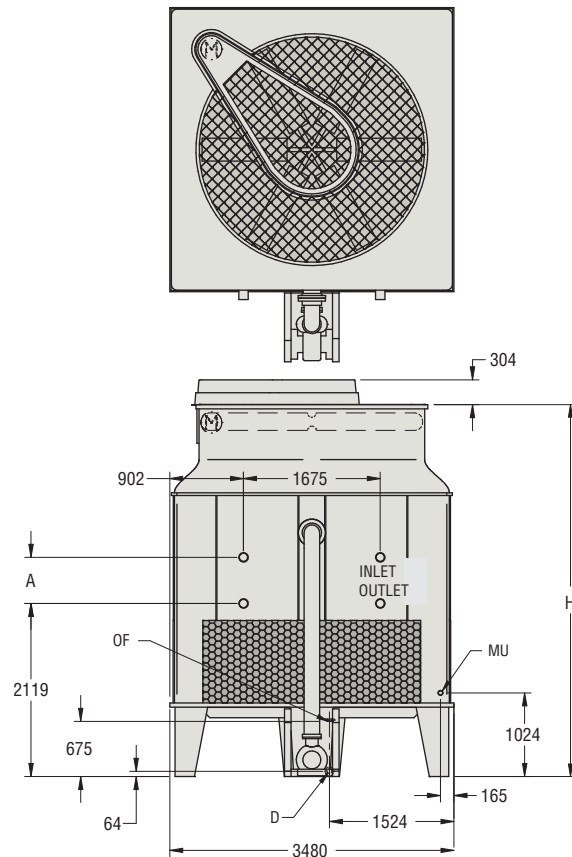
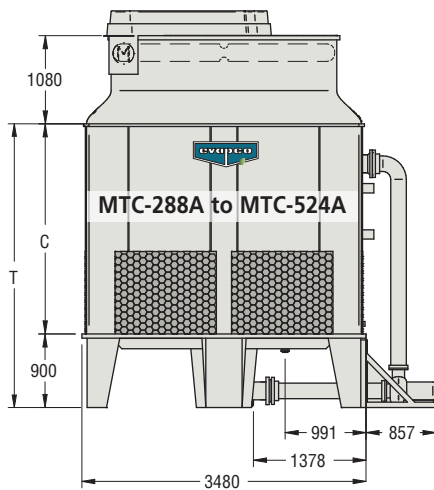


Table 5 Engineering Data

Model Number	Fans		Weights (kg)				NH3 Operating Charge (kg)	Coil Volume (L)	Operating Basin Volume (L)	Spray Pump		Dimensions (mm)			
	Fan Motor (kW)	Air Flow (m³/s)	Shipping	Shipping Heaviest Section	Rigging Heaviest Section	Operating				kW	L/s	H	T	C	A
MTC-288A	7.5	26.6	5985	4265	4265	6595	117	992	686	4	47.3	4553	3451	2550	565
MTC-317A	11	30.4	6045	4265	4325	6655	117	992	686	4	47.3	4553	3451	2550	565
MTC-336A	15	33.3	6075	4265	4350	6680	117	992	686	4	47.3	4553	3451	2550	565
MTC-352A	18.5	35.5	6085	4265	4365	6695	117	992	686	4	47.3	4553	3451	2550	565
MTC-364A	22	37.3	6110	4265	4385	6720	117	992	686	4	47.3	4553	3451	2550	565
MTC-346A	7.5	25.8	6855	5130	5130	7480	153	1300	686	4	47.3	4553	3451	2550	781
MTC-378A	11	29.5	6915	5130	5190	7540	153	1300	686	4	47.3	4553	3451	2550	781
MTC-402A	15	32.3	6940	5130	5215	7565	153	1300	686	4	47.3	4553	3451	2550	781
MTC-421A	18.5	34.5	6955	5130	5230	7580	153	1300	686	4	47.3	4553	3451	2550	781
MTC-436A	22	36.2	6975	5130	5255	7600	153	1300	686	4	47.3	4553	3451	2550	781
MTC-381A	7.5	25.1	7780	6055	6055	8425	189	1609	686	4	47.3	4994	3893	2991	996
MTC-418A	11	28.7	7840	6055	6115	8480	189	1609	686	4	47.3	4994	3893	2991	996
MTC-445A	15	31.4	7865	6055	6140	8510	189	1609	686	4	47.3	4994	3893	2991	996
MTC-465A	18.5	33.4	7880	6055	6155	8525	189	1609	686	4	47.3	4994	3893	2991	996
MTC-482A	22	35.2	7900	6055	6180	8545	189	1609	686	4	47.3	4994	3893	2991	996
MTC-508A	30	38.1	7980	6055	6255	8625	189	1609	686	4	47.3	4994	3893	2991	996
MTC-395A	7.5	24.3	8640	6915	6915	9305	225	1917	686	4	47.3	4994	3893	2991	1212
MTC-433A	11	27.8	8700	6915	6975	9360	225	1917	686	4	47.3	4994	3893	2991	1212
MTC-459A	15	30.4	8725	6915	7005	9390	225	1917	686	4	47.3	4994	3893	2991	1212
MTC-480A	18.5	32.4	8740	6915	7015	9405	225	1917	686	4	47.3	4994	3893	2991	1212
MTC-497A	22	34.1	8765	6915	7040	9425	225	1917	686	4	47.3	4994	3893	2991	1212
MTC-524A	30	36.9	8840	6915	7115	9505	225	1917	686	4	47.3	4994	3893	2991	1212
SLSF ADDITION			+320			+320						+330			

- NOTES: (1) Do not use catalogue drawing for pre-fabrication. Dimensions and weights are subject to change.
 (2) Adequate spacing must be allowed for unobstructed airflow and access to the unit. Refer to the MT Layout Guidelines section of this brochure.
 (3) Refrigerant charge shown for R-717. Multiply by 1.93 for R-22 and 1.98 for R-134a.
 (4) Contact your local EVAPCO sales representative for thermal selection and pricing.

MTC-A

ENGINEERING DATA AND DIMENSIONS

Box Size: 12x12

CONNECTION DESCRIPTION	CONNECTION (QTY) SIZE IN MM
	MTC-305A TO MTC-557A
SYSTEM FLUID IN (INLET)	(2) 100
SYSTEM FLUID OUT (OUTLET)	(2) 100
MAKE-UP (MU)	(1) 50
OVERFLOW (OF)	(1) 50
DRAIN (D)	(1) 50

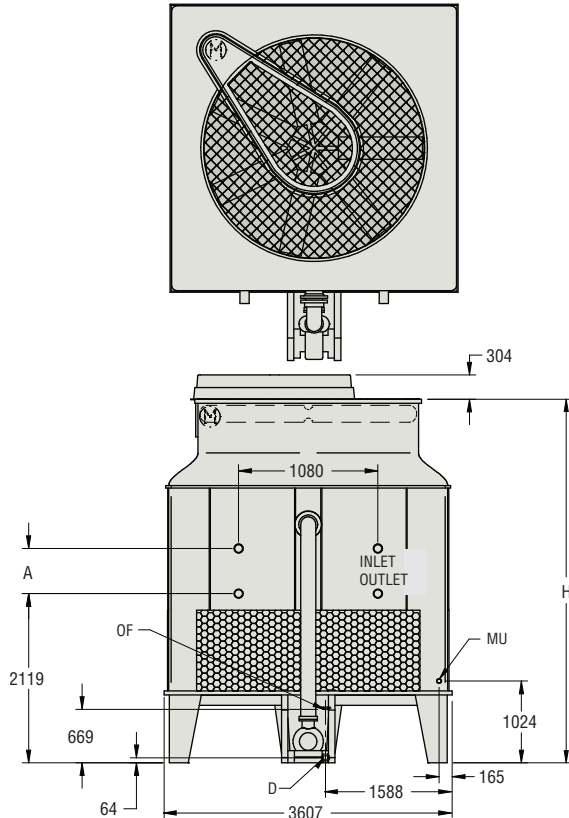
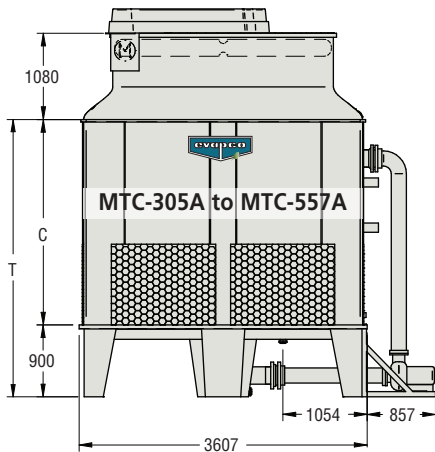


Table 6 Engineering Data

Model Number	Fans		Weights (kg)				NH3 Operating Charge (kg)	Coil Volume (L)	Operating Basin Volume (L)	Spray Pump		Dimensions (mm)			
	Fan Motor (kW)	Air Flow (m³/s)	Shipping	Shipping Heaviest Section	Rigging Heaviest Section	Operating				kW	L/s	H	T	C	A
MTC-305A	7.5	27.9	6490	5000	4975	7460	131	1113	693	4	50.5	4553	3473	2573	565
MTC-335A	11	32.0	6555	5000	5040	7525	131	1113	693	4	50.5	4553	3473	2573	565
MTC-357A	15	35.2	6580	5000	5065	7550	131	1113	693	4	50.5	4553	3473	2573	565
MTC-374A	18.5	37.4	6595	5000	5080	7565	131	1113	693	4	50.5	4553	3473	2573	565
MTC-387A	22	39.4	6620	5000	5105	7590	131	1113	693	4	50.5	4553	3473	2573	565
MTC-365A	7.5	27.1	7480	5985	5965	8470	172	1461	693	4	50.5	4553	3473	2573	781
MTC-401A	11	31.1	7545	5985	6030	8530	172	1461	693	4	50.5	4553	3473	2573	781
MTC-427A	15	34.1	7570	5985	6055	8560	172	1461	693	4	50.5	4553	3473	2573	781
MTC-447A	18.5	36.3	7585	5985	6070	8575	172	1461	693	4	50.5	4553	3473	2573	781
MTC-463A	22	38.2	7605	5985	6090	8595	172	1461	693	4	50.5	4553	3473	2573	781
MTC-489A	30	41.4	7690	5985	6175	8675	172	1461	693	4	50.5	4553	3473	2573	781
MTC-403A	7.5	26.3	8480	6990	6965	9495	213	1809	693	4	50.5	4994	3915	3015	996
MTC-443A	11	30.2	8545	6990	7030	9555	213	1809	693	4	50.5	4994	3915	3015	996
MTC-472A	15	33.1	8575	6990	7060	9585	213	1809	693	4	50.5	4994	3915	3015	996
MTC-494A	18.5	35.3	8585	6990	7070	9600	213	1809	693	4	50.5	4994	3915	3015	996
MTC-512A	22	37.1	8610	6990	7095	9620	213	1809	693	4	50.5	4994	3915	3015	996
MTC-540A	30	40.2	8690	6990	7175	9700	213	1809	693	4	50.5	4994	3915	3015	996
MTC-419A	7.5	25.5	9400	7905	7885	10430	253	2150	693	4	50.5	4994	3915	3015	1212
MTC-460A	11	29.2	9460	7905	7945	10490	253	2150	693	4	50.5	4994	3915	3015	1212
MTC-487A	15	32.1	9490	7905	7975	10520	253	2150	693	4	50.5	4994	3915	3015	1212
MTC-510A	18.5	34.2	9505	7905	7990	10530	253	2150	693	4	50.5	4994	3915	3015	1212
MTC-528A	22	35.9	9525	7905	8010	10555	253	2150	693	4	50.5	4994	3915	3015	1212
MTC-557A	30	38.9	9605	7905	8090	10635	253	2150	693	4	50.5	4994	3915	3015	1212
SLSF ADDITION			+320			+320						+330			

NOTES: (1) Do not use catalogue drawing for pre-fabrication. Dimensions and weights are subject to change.
 (2) Adequate spacing must be allowed for unobstructed airflow and access to the unit. Refer to the MT Layout Guidelines section of this brochure.
 (3) Refrigerant charge shown for R-717. Multiply by 1.93 for R-22 and 1.98 for R-134a.
 (4) Contact your local EVAPCO sales representative for thermal selection and pricing.

PIER SUPPORT LAYOUT

MTC-A

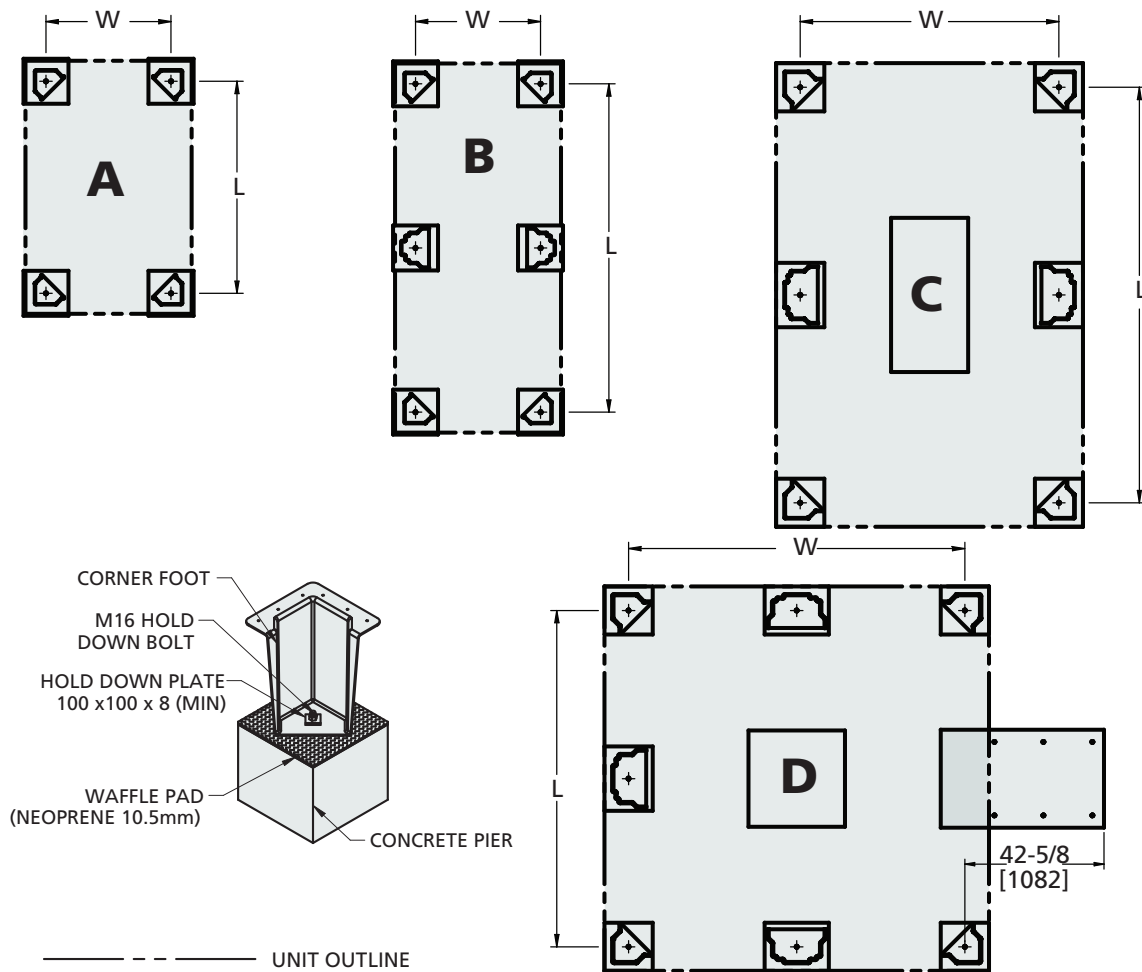


Table 9 Pier Support Layout

Box Size	Diagram	Model	Dimension (mm)	
			W	L
4 x 6	A	MTC-49A TO MTC-79A	973	1649
4 x 9	B	MTC-80A TO MTC-115A	973	2554
8 x 8	A	MTC-134A TO MTC-223A	2013	2013
8 x 12	C	MTC-205A TO MTC-348A	2013	3232
10 x 10	D	MTC-191A TO MTC-373A	2016	2016
11 x 11	D	MTC-288A TO MTC-524A	3105	3105
12 x 12	D	MTC-305A TO MTC 557A	3232	3232

NOTES:

1. These are suggested arrangements for preliminary layout purposes. Consult your local EVAPCO sales representative for factory certified pier support drawings and alternate layout arrangements.
2. The recommended support for the MTC-A is concrete piers located under the feet and sump (where applicable).
3. Piers should be level before setting the unit in place. Do not level the unit by shimming between it and the piers.
4. Concrete Piers and Anchor bolts are to be furnished by others.
5. All pier dimensions should be a minimum of 300mm x 500mm. All centre sump dimensions should be minimum 1200mm x 1200mm.
6. Dimensions and data are subject to change without notice. Refer to the certified drawings for exact dimensions.

Single/Multiple Unit Installations

EVAPCO's induced draft, counterflow units may have air inlets located on all four sides. When the unit is located near a wall or other structure that blocks fresh air from entering the unit, consideration must be given to the clearance distance between the air inlets of the unit and this blockage. In this type of layout, air will be drawn in through the space between the unit and the wall or other structure as well as down from above. It is important to provide adequate space in front of each air inlet to ensure proper air flow and prevent air recirculation.

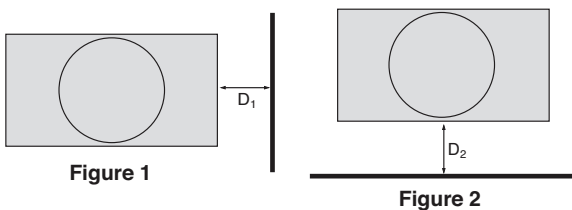
When more than one EVAPCO induced draft counterflow units are installed at the same location, the potential for recirculation becomes a greater concern. For installations with two or more cooling towers, the units may be placed in a variety of locations depending on site conditions and available space.

EVAPCO has developed the recommended distances for various cases of induced draft counterflow layouts. These distances have been developed to ensure that the units are provided with adequate airflow and that recirculation is minimised. Space must also be provided for piping, accessories, removal of access doors and for maintenance of the mechanical equipment.

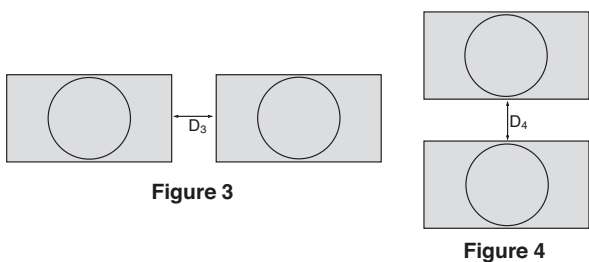
Product improvements confirmed by factory testing and years of field experience have allowed EVAPCO to develop minimum required distances from the unit and the surrounding walls as well as between units[†]. In addition, the distances shown in the following tables are dependent on the number of surrounding walls and the number of units. Therefore, the data presented in Tables 7 and 8 show the minimum dimensions D1 through D8 required for a variety of installation cases. See the following figures that illustrate these various cases.

For layouts of multiple multi-cell units similar to Figures 12 and 14, please contact your local EVAPCO sales representative for confirmation of layout design.

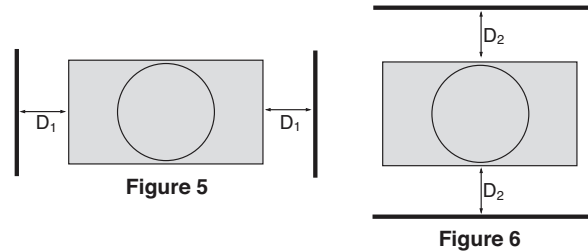
CASE 1 - Single Wall/Single Unit



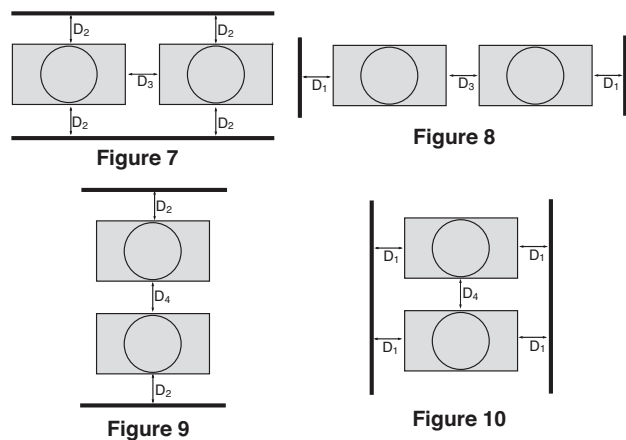
CASE 2 - No Obstructions



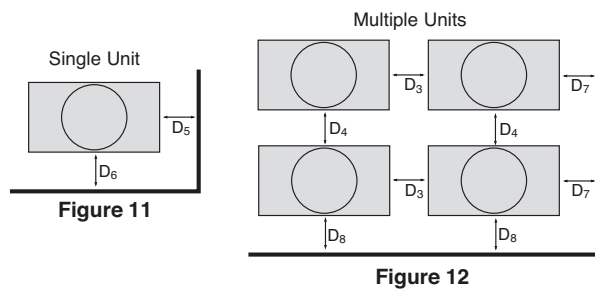
CASE 3 - Two Walls/Single Unit



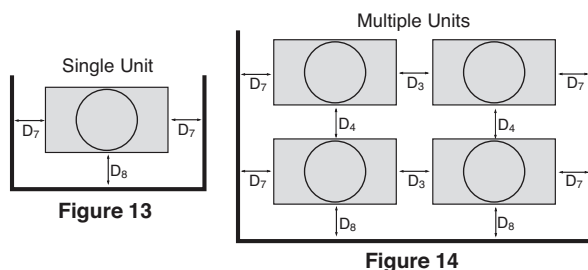
CASE 4 - Two Walls/Two Units



CASE 5 - Two Walls (Corner)



CASE 6 - Three Walls



[†] The guidelines set forth in Tables 7 & 8 are to be used exclusively for EVAPCO equipment. Data from factory testing is based on air discharge velocities and air intake areas that are specific to EVAPCO equipment. Therefore, this data is NOT to be applied to other manufacturers' evaporative cooling equipment. However, any nearby equipment that is either intaking or discharging air will affect the overall layout. Please contact your local EVAPCO sales representative with any questions on how to place around other manufacturer's equipment.

MT LAYOUT GUIDELINES

MTC-A

Table 7 - Dimensions D1-D4

4' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)				
	All units	All units	Towers	Cond./Coolers*	All units
	D1	D2	D3	D3	D4
4x6	610	610	610	1830	610
4x9	610	610	610	1830	610

8' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)				
	All units	All units	Towers	Cond./Coolers*	All units
	D1	D2	D3	D3	D4
8x8	915	915	915	1830	1830
8x12	915	915	915	1830	1830
8x24	915	915	915	-	1830

10' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)				
	All units	All units	Towers	Cond./Coolers*	All units
	D1	D2	D3	D3	D4
10x10	915	915	915	1830	1830
10x20	915	915	915	-	1830
10x30	915	915	915	-	1830

11' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)				
	All units	All units	Towers	Cond./Coolers*	All units
	D1	D2	D3	D3	D4
11x11	915	915	915	1830	1830
11x16	915	915	915	-	1830
11x22	915	915	915	-	1830
11x32	915	915	915	-	1830
11x33	915	915	915	-	1830

12' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)				
	All units	All units	Towers	Cond./Coolers*	All units
	D1	D2	D3	D3	D4
12x12	915	915	915	1830	1830

16' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)				
	All units	All units	Towers	Cond./Coolers*	All units
	D1	D2	D3	D3	D4
16x8	915	915	1830	-	1830
16x12	915	915	1830	-	1830
16x16	915	915	1830	-	1830
16x20	915	915	1830	-	1830

20' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)				
	All units	All units	Towers	Cond./Coolers*	All units
	D1	D2	D3	D3	D4
20x20	915	915	1830	-	1830

22' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)				
	All units	All units	Towers	Cond./Coolers*	All units
	D1	D2	D3	D3	D4
22x16	915	915	1830	-	1830

24' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)				
	All units	All units	Towers	Cond./Coolers*	All units
	D1	D2	D3	D3	D4
24x8	915	915	1830	-	1830
24x12	915	915	1830	-	1830

Table 8 - Dimensions D5-D8

4' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)			
	D5	D6	D7	D8
4x6	610	610	610	610
4x9	610	610	610	610

8' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)			
	D5	D6	D7	D8
8x8	915	915	915	915
8x12	915	915	915	915
8x24	915	915	915	1220

10' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)			
	D5	D6	D7	D8
10x10	915	915	915	915
10x20	915	915	915	915
10x30	915	1065	1065	1220

11' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)			
	D5	D6	D7	D8
11x11	915	915	915	915
11x16	915	915	915	915
11x22	915	915	915	1065
11x32	915	1065	1065	1220
11x33	915	1065	1065	1220

12' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)			
	D5	D6	D7	D8
12x12	915	915	915	915

16' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)			
	D5	D6	D7	D8
16x8	915	915	915	915
16x12	915	915	915	915
16x16	915	915	915	915
16x20	1220	1065	1370	1220

20' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)			
	D5	D6	D7	D8
20x20	1220	1220	1370	1370

22' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)			
	D5	D6	D7	D8
22x16	1220	1065	1370	1220

24' Wide Models

Unit Length (Ft.)	Minimum Dimensions (mm)			
	D5	D6	D7	D8
24x8	1220	915	1370	1370
24x12	1220	915	1370	1370

DIMENSION KEY

D1, D5, D7 - From Ends of Units D3 - Units End to End
 D2, D6, D8 - From Sides of Units D4 - Units Side to Side

*Minimum D3 dimension for Condenser and Coolers Furnished with Pumps. For Units without pumps use D3 dimensions for towers.

NOTES: Evapco's minimum clearances guarantee proper thermal performance but further clearances may be required for proper access or maintenance as determined by the engineer responsible for plant/installation design. For large installations please consult your local EVAPCO sales representative. Refer to EVAPCO's Equipment Layout Manual (Bulletin 311) at www.evapco.com.au for further details or call your local EVAPCO sales representative for immediate assistance.

NOTICE OF PLANT DESIGN REGISTRATION

Design Registration

In accordance with Australian Commonwealth, Territory and State Work, Health and Safety (WHS) Regulations, manufacturers, importers and suppliers of certain pressure equipment **must not supply** pressure equipment unless it has been Design Registered with an Australian authority having responsibility for plant safety.

With regards to Industrial Refrigeration, HVAC and Industrial Process pressure equipment, Design Registration is required for all evaporative closed circuit coolers and evaporative condensers where the Hazard Level is determined as A, B, C or D according to the criteria in section 2.1 of AS 4343-2005: Pressure Equipment – Hazard Levels.

Imported Pressure Equipment

For pressure equipment imported from outside of Australia, the importer must take all reasonably practicable steps to ensure the equipment complies with Australian WHS Regulations. Where design registration is required, the importer must ensure the equipment is design registered with an Australian authority before supplying the equipment to anyone in Australia.

If the overseas manufactured pressure equipment has been design registered with an Australian authority, then the manufacturer or importer will have been issued a Certificate of Plant Design Registration issued by an Australian authority having responsibility for plant safety. If the pressure equipment is not design registered, then it would be the responsibility of the importer to arrange for a qualified individual to carry out any calculations, analysis, testing or examination as required for a formal design verification. After design verification is complete, the importer must then apply for the design to be registered with the State, Commonwealth or Territory authority having responsibility for plant safety. Section 42 of SafeWork Australia Model Work Health and Safety Bill states the penalty for non-compliance as follows:

42 Requirements for authorisation (1) of plant or substance:

(1) A person must not use plant or a substance at a workplace if:

- (a) the regulations require the plant or substance or its design to be authorised; and
- (b) the plant or substance or its design is not authorised in accordance with the regulations.

Maximum penalty:

In the case of an individual—\$20,000.

In the case of a body corporate—\$100,000.

⁽¹⁾ Part 4 Section 40: In this Part, authorised means authorised by a license, permit, registration or other authority (however described) as required by the regulations.

EVAPCO Evaporative Closed Circuit Coolers and Evaporative Condensers

In compliance with Australian legislative and regulatory requirements, the coil chambers in EVAPCO's closed circuit coolers and evaporative condensers are Design Registered. The certificates on pages 18 and 19 are EVAPCO's Certificates of Plant Design Registration issued by WorkSafe VIC as an authority also recognised by all other States, Territories and Commonwealths of Australia.

Protect yourself and ensure the design is registered by insisting to see the manufacturer's Certificate of Plant Design Registration which has been issued by a State, Commonwealth or Territory authority responsible for plant safety. Be careful of manufacturers that will only provide a statement of compliance and/or registration number on their own letterhead.

EVAPCO's authority-issued Certificate's of Plant Design Registration are found on the following two pages for reference.

For further details of each State, Territory or Commonwealth regulations refer to the following websites:

SafeWork Australia	Model Work Health and Safety Regulations
WorkSafe ACT	Work Health and Safety Regulation 2011
SafeWork SA	Work Health and Safety Regulations 2012
WorkCover NSW	Work Health and Safety Regulation 2011
WorkSafe VIC	Occupational Health and Safety Regulations 2007
Tasmania WorkCover	Work Health and Safety Regulations 2012
Workplace Health and Safety QLD	Work Health and Safety Regulation 2011
WorkSafe NT	Work Health and Safety (National Uniform Legislation) Regulations
WorkSafe Department of Commerce WA	Occupational Safety and Health Regulations 1996

AS 1210 PRESSURE VESSEL COMPLIANCE - GALVANISED STEEL COIL

MTC-A



Occupational Health and Safety Act 2004, OHS Regulations 2007
 Equipment (Public Safety) Act 2004, Equipment (Public Safety) Regulations 2007



NOTICE OF PLANT DESIGN REGISTRATION

Plant Type	Other - Cooling Tower Coil
Representational Drawing(s)	AQ-14-849AUNZ Rev A
Design Description and Extent	Model/ID No. 6x20-14R-58T-0.375P Coil Evaporative Condenser / Cooler
Technical Information	Header & Tubes: Design Pressure 2.07/0 MPa, Volume 2270 litres, Design Temperature 149/-20°C, Hazard Level B
Maker	Evapco
Confirmation Number	V1501244
Date of Confirmation	12 May 2015
Published technical standards or engineering principles (as listed by designer and confirmed by design verifier)	AS1210-2010 Amendment A1 2013 Pressure Vessels

IMPORTANT INFORMATION

1. This notice applies only to the above design, which has been registered according to the above-named Regulations. WorkSafe has not verified that the designer has complied with the design obligations prescribed by the Regulations or the above mentioned technical standards or engineering principles.
2. The plant owner will require this confirmation and, therefore, a copy of it should be supplied to the manufacturer, so that it can in turn be provided to the supplier and owner with the plant or equipment.
3. The Regulations require the designer to keep and maintain, in a suitable state for examination, all records that the Regulations require for 10 years.
4. WorkSafe reserves the right to audit the registered design at any time to assess compliance with the above Acts and Regulations. If an audit is undertaken, WorkSafe may ask the person seeking registration or the plant owner or both to supply detailed information relating to the design of the plant. Design systems of work and documentation may also be audited. If an audit identifies non-compliance with the Acts and Regulations, all plant built to that design may require modifications and may be prohibited from use.
5. This notice is automatically invalidated if the design is altered to an extent that requires new measures to control risk. A person must not use, or cause or allow plant manufactured to the altered design to be used at a workplace unless WorkSafe has confirmed registration of the alteration.
6. You should quote the registration number in all correspondence to WorkSafe regarding this design. Any queries should be addressed to the WorkSafe's Licensing Branch, 1300 852 562.
7. This notice will also be considered a notice of Plant Design Registration under the Equipment (Public Safety) Regulations 2007.


Leanne McDonald
 Licensing Manager

Occupational Health and Safety Act 2004, OHS Regulations 2007
 Equipment (Public Safety) Act 2004, Equipment (Public Safety) Regulations 2007



NOTICE OF PLANT DESIGN REGISTRATION

Plant Type	Other – Cooling Tower Coil
Representational Drawing(s)	AQ-14-849AUNZ-SS Rev. A
Design Description and Extent	Model / ID No: 6X20-14R-58T-0.375P Coil Evaporative Condenser/Cooler
Technical Information	Shell: Design Pressure 2.07 / 0 MPa, Volume: 2207 litres, Design Temperature: 149 / - 20°C, Hazard Level: B
Maker	EVAPCO
Confirmation Number	V1600319
Date of Confirmation	3 March 2016
Published technical standards or engineering principles <small>(as listed by designer and confirmed by design verifier)</small>	AS1210: 2010 Amendment A1 2013 Pressure vessels NZS 4219: 2009 Seismic performance of engineering systems in buildings.

IMPORTANT INFORMATION

1. This notice applies only to the above design, which has been registered according to the above-named Regulations. WorkSafe has not verified that the designer has complied with the design obligations prescribed by the Regulations or the above mentioned technical standards or engineering principles.
2. The plant owner will require this confirmation and, therefore, a copy of it should be supplied to the manufacturer, so that it can in turn be provided to the supplier and owner with the plant or equipment.
3. The Regulations require the designer to keep and maintain, in a suitable state for examination, all records that the Regulations require for 10 years.
4. WorkSafe reserves the right to audit the registered design at any time to assess compliance with the above Acts and Regulations. If an audit is undertaken, WorkSafe may ask the person seeking registration or the plant owner or both to supply detailed information relating to the design of the plant. Design systems of work and documentation may also be audited. If an audit identifies non-compliance with the Acts and Regulations, all plant built to that design may require modifications and may be prohibited from use.
5. This notice is automatically invalidated if the design is altered to an extent that requires new measures to control risk. A person must not use, or cause or allow plant manufactured to the altered design to be used at a workplace unless WorkSafe has confirmed registration of the alteration.
6. You should quote the registration number in all correspondence to WorkSafe regarding this design. Any queries should be addressed to the WorkSafe's Licensing Branch, 1300 852 562.
7. This notice will also be considered a notice of Plant Design Registration under the Equipment (Public Safety) Regulations 2007.



Ymara Jayamanne
 Team Leader (Acting)
 Licensing Branch

Standard and Optional Maintenance Features

Routine maintenance is the key to a long lasting evaporative condenser. EVAPCO offers features and accessories to complement the robust design of the MTC-A. The two main areas that require easy access for routine maintenance are the motor & drive assembly and the cold water basin.



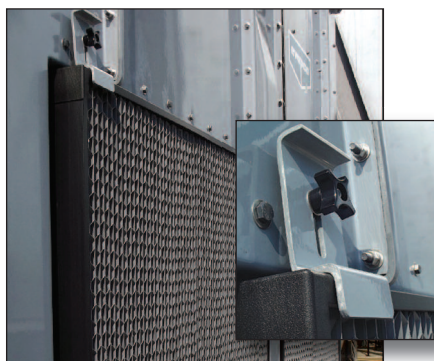
Drive System Ladder and Platform Package

All units 2.4m and wider can be provided with an access ladder & platform package. The platform provides access to the motor and lubrication lines for motors checks and maintenance. Where required, EVAPCO is able to provide safety cages for the ladder. The ladder and platform assembly provided are in accordance with AS 1657.



Access Door(s)

EVAPCO's MTC-A provides one man-sized access door for maintenance as standard. The access door is designed so that drift eliminators can be easily removed and replaced for cleaning. Also, the water distribution system and coil can be checked by entering through the access door. Additional access doors may be added subject to approval from the factory, contact your local EVAPCO sales representative for more information.



Quick Release Fasteners for Louvers

The MTC-A basin is accessible from all four sides (depending on layout) via the air inlet louvers. Each louver has two (2) quick release fasteners that remain on the unit when loosened. Lift and remove the light weight louvers for full access to the basin.



Easy Basin Access

The cold water basin section is easily accessible from ground level by simply loosening the two (2) quick release fasteners on the inlet louver assembly surrounding the evaporative condenser and lifting out the light weight louver. The basin can be accessed from all four (4) sides of the evaporative condenser.

Design

EVAPCO units are of heavy-duty construction and designed for long and trouble-free operation. Proper equipment selection, installation and maintenance is, however, necessary to ensure full unit performance. Some of the major considerations in the application of a condenser presented below. For additional information, contact your local EVAPCO sales representative.

Air Circulation

In reviewing the system design and unit location, it is important that proper air circulation be provided. The best location is on an unobstructed roof top or on ground level away from walls and other barriers. Care must be taken when locating condensers in wells or enclosures or next to high walls. The potential for recirculation of hot, moist discharge air back into the fan intake exists. Recirculation raises the wet bulb temperature of the entering air causing the condensing pressure to rise above the design.

For these cases, a discharge hood or ductwork should be provided to raise the overall unit height even with the adjacent wall, thereby reducing the chance of recirculation. Good engineering practice dictates that the evaporative condenser's discharge air not be directed or located close to or in the vicinity of building air intakes. Engineering assistance is available from the factory to identify potential recirculation problems and recommend solutions.

For additional information regarding layout of evaporative condensers, see pages 14 through 15 of this brochure.

Piping

Condenser piping should be designed and installed in accordance with generally accepted engineering practice. All piping should be anchored by properly designed hangers and supports with allowance made for possible expansion and contraction. No external loads should be placed upon condenser connections, nor should any of the pipe supports be anchored to the unit framework. For additional information concerning refrigerant pipe sizing and layout, see EVAPCO Bulletin 131 entitled "Piping Evaporative Condensers".

Maintaining the Recirculated Water System

The heat rejection in a condenser is accomplished by the evaporation of a portion of the recirculated spray water. As this water evaporates, it leaves behind all of its mineral content and impurities. Therefore, it is important to bleed-off an amount of water equal to that which is evaporated to prevent the build-up of these impurities. If this is not done, the mineral or the acidic nature of the water will continue to increase. This will ultimately result in heavy scaling or corrosive conditions.

Bleed-off

Each unit supplied with a pump mounted on the side is furnished with a clear bleed line for visual inspection and a valve which, when fully open, will bleed-off the correct amount of water. If the make-up water supplying the unit is relatively free of impurities, it may be possible to cut back the bleed, but the unit must be checked frequently to make sure scale is not forming. Make-up water pressure should be maintained between 135 and 345 kPa.

Water Treatment

A proper water treatment program is an essential part of routine maintenance in order to help assure proper operation and longevity of the unit. To help prevent the formation of "white rust", the interior of the unit should be passivated during start-up and monitored periodically as part of the water treatment program. For more information about white rust, please request a copy of EVAPCO Engineering Bulletin 36. A qualified water treatment company should be contacted to design a water treatment protocol specifically based on applicable location, water quality and unit materials of construction.

If acid is used for treatment, it should be accurately metered and the concentration properly controlled. **The pH of the water should be maintained between 6.5 and 8.0. Units constructed of galvanised steel operating with circulating water having a pH of 8.3 or higher will require periodic passivation of the galvanised steel to prevent the formation of "white rust".** Batch chemical feeding is not recommended because it does not afford the proper degree of control. If acid cleaning is required, extreme caution must be exercised and only inhibited acids recommended for use with galvanised construction should be used.

NOTE: Operating the condenser below 6.0 pH for any period of time may cause the removal of the protective zinc coating on the galvanised steel components.

For more information see EVAPCO Bulletin entitled "Operation and Maintenance Instructions Bulletin 116D-Metric".

Control of Biological Contaminants

Water quality should be checked regularly for biological contamination, if biological contamination is detected, a more aggressive water treatment and mechanical cleaning program should be undertaken. The water treatment program should be performed in conjunction with a qualified water treatment company. It is important that all internal surfaces be kept clean of accumulated dirt and sludge. In addition, the drift eliminators should be maintained in good operating condition.

MECHANICAL SPECIFICATIONS

MTC-A

General

Factory assembled, induced draft counterflow evaporative condenser complete with fan, coil, louvers, accessories and lifting devices having design and materials of construction as per the following.

Construction

Basin Section

Cold water basin and basin feet shall be constructed of LRTM fibreglass with uniform thickness. All fibreglass panels shall be perfectly smooth on both faces and each surface is to be protected by UV inhibited gelcoat. Internal and external hardware shall be type 316 stainless steel.

Basins standard accessories shall include make-up valve with float ball, quick fill connection, drain, overflow and an antivortex strainer.

Casing Section

All casing panels shall be constructed of LRTM fibreglass of uniform thickness and each surface is to be protected by UV inhibited gelcoat. Internal wetted steel parts within the casing shall be type 316 stainless steel. All internal and external hardware in the casing to be type 316 stainless steel.

The casing panels shall totally encase the complete fill section to protect the fill from direct sunlight exposure. **Compliant with AS 3666 Clause 4.6 Sunlight.**

Fan Section

All fan section panels shall be constructed of LRTM fibreglass, with uniform thickness. Each surface is to be protected by UV inhibited gelcoat. Drive mechanical support shall be welded, heavy-duty type structural steel, hot dip galvanised after fabrication (HDGAF). Fan screen and mechanical hardware shall also be galvanised.

Fan

Fans having diameter 1000mm or less shall be high efficiency axial propeller type, using a high strength die cast aluminium hub and fibreglass reinforced polypropylene (FRP) wide cord blades. Each fan shall be statically balanced and installed in a closely fitted cowl with venturi air inlet for maximum fan efficiency.

Fans having diameter greater than 1000mm shall be high efficiency axial propeller type with aluminium wide cord blade construction. Each fan shall be statically balanced and installed in a closely fitted cowl with venturi air inlet for maximum fan efficiency.

Fans designed for Super Low Sound shall be high efficiency axial propeller type with FRP hub and blade construction. Fans shall have forward sweeping blades for superior sound quality. Fans shall be statically balanced and installed in a closely fitted cowl with venturi air inlet for maximum fan efficiency.

Drift Eliminators

The eliminators shall be constructed entirely of Polyvinyl Chloride (PVC) in easily handled sections. Design shall incorporate three changes in air direction and limit the water carryover to a maximum of 0.001% of the recirculating water rate. **Compliant with AS 3666 Clause 4.0 Drift Control.**

Water Distribution System

Spray water shall be distributed over the entire coil surface by heavy duty moulded nylon spray nozzles with large 32mm diameter openings and internal sludge ring to eliminate clogging. Nozzles shall be threaded into the spray header to provide easy removal for maintenance. Spray header and branches shall be Polyvinyl Chloride (PVC) for corrosion resistance. Branches shall have threaded end caps to facilitate debris removal.

Heat Transfer Coil

The coil(s) shall be all prime surface steel, encased in steel framework with the entire assembly hot-dip galvanised after fabrication. Coil(s) shall be designed with sloping tubes for free drainage of liquid refrigerant and tested to 2.76 MPa air pressure under water.

All coils must comply with AS1210-2010 Pressure Vessels. Manufacturer's Certificate of Plant Design Registration (issued by a State, Commonwealth or Territory authority responsible for plant safety) must be provided.

Air Inlet Louvers

The Air Inlet Louvers shall be constructed from UV inhibited polyvinyl chloride (PVC) and is set within a 316 stainless steel frame that allows for easy removal of louvers for access to the entire basin area for maintenance. The louvers shall have a minimum of two changes in air direction and shall be of a non-planar design to prevent splash out, block direct sunlight and debris from entering the basin. **"Compliant with AS 3666 Clause 4.6 Sunlight"**. Air Inlet Louvers shall be manufactured by the evaporative condenser supplier to ensure single source responsibility and control of the final product.

Make-up Float Valve Assembly

Make-up Float Valve Assembly shall be brass float valve with stainless steel arm and adjustable plastic float.

Access

Casing Access: A removable full casing height access door shall be provided to facilitate maintenance or removal of drift eliminators and the water distribution system.

Basin Access: Framed removable louver panels shall be on four (4) sides of the unit for basin access.

Basin Strainer

Basin Strainer shall be all type 316 stainless steel construction with large area removable perforated screens.

Fan Motor

Fan motor(s) shall be totally enclosed, ball bearing type electric motor(s) with IP56 protection rating suitable for moist air service. Motor(s) shall be MEPS 2006 compliant with epoxy coated finish.

Belt Drive Fans

Fans having diameter greater than 1000mm shall be belt driven by multi-groove, solid back V-belt type with taper lock bushings designed for 150% of the motor nameplate power. The belt material shall be neoprene reinforced with polyester cord and specifically designed for evaporative equipment service. Fan pulley shall be aluminium alloy construction. Belt adjustment shall be accomplished from the exterior of the unit.

Fan bearings shall be heavy duty, self-aligning, pillow block type with extended lubrication lines and fittings. Minimum L10 life for bearings shall be 75,000 hours.

Fan shaft shall be constructed from solid type 316 stainless steel.

Sound

The maximum sound pressure levels (dB) including water noise with all fans operating at full speed shall be measured and presented in accordance with CTI ATC-128.

Understanding & Specifying Sound

Sound

Sound is the alteration in pressure, stress, particle displacement and particle velocity, which is propagated in an elastic material. Audible sound is the sensation produced at the ear by very small pressure fluctuations in the air.

Sound Pressure

Sound pressure is the intensity of sound. Sound pressure (L_p) in decibels is the ratio of measured pressure (P) in the air to a reference sound pressure, $P_0=2 \times 10^{-5}$ Pascal based on the following formula:

$$L_p(\text{dB}) = 10 \log_{10} (\Delta P^2 / \Delta P_0^2)$$

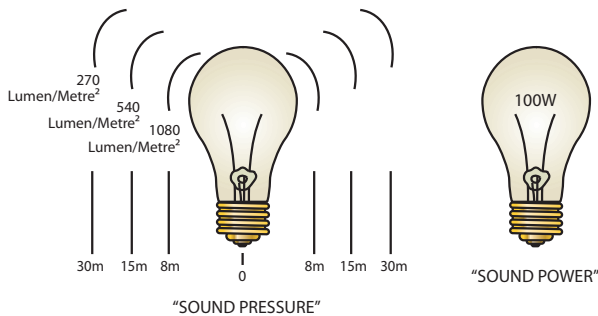
Sound pressure level is what is actually being measured when sound data is recorded. Microphones that measure sound are pressure-sensitive devices that are calibrated to convert the sound pressure waves into decibels. Similar to the intensity coming from a light bulb which gets dimmer as one gets further and further away, sound pressure decreases in decibel as your ear gets further from the sound source.

Sound Power

Sound power is the energy of sound. Sound power (L_w) in decibels is the ratio of the calculated sound power, (W) to a reference power, $W_0=1$ picowatt, according to the following formula:

$$L_w(\text{dB}) = 10 \log_{10} (W/W_0)$$

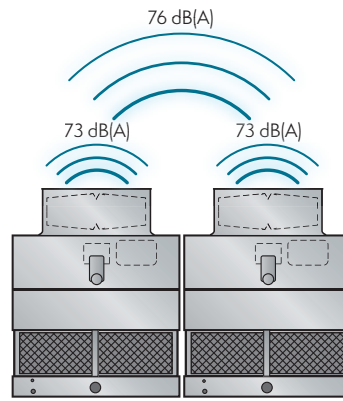
Sound power level is not a measured value, but is calculated based on the measured sound pressure. Similar to wattage of a light bulb that does not change the farther one is away from the light bulb, sound power does not vary with distance.



Adding Multiple Sound Sources

Since the decibel is a logarithmic function, the numbers are not added linearly. Therefore, two 73 dB sound sources added together do not equal 146 dB. The resultant sound would actually be 76 dB. The following table shows how to add decibels from two sound sources:

Difference in dB Level	Add to the higher dB Level
0 to 1	3
2 to 3	2
4 to 8	1
9 or greater	0



Sound Pressure – The A-Weighted Scale

The A-Weighted Scale, dB(A) is a means to translate what a sound microphone measures to how the human ear perceives the sound. Use the following formula and conversions:

$$sB(A) = 10 \log_{10} \sum 10^{((dB+C_f)/10)}$$

$f=800$
 $f=63$

where: C_f =correction factor per band let: $Z_f=(dB+C_f)/10$
 dB = measured sound pressure

Band	Center Frequency	Frequency (Hz)	Sample Range (Hz)	C_f (Hz)	Z_f (dB)
1	63	44-88	68	-26.2	4.18
2	125	89-175	76	-16.1	5.99
3	250	176-350	77	-8.6	6.84
4	500	351-700	73	-3.2	6.98
5	1000	701-1400	70	0	7.00
6	2000	1401-2800	68	+1.2	6.92
7	4000	2801-5600	71	+1.0	7.20
8	8000	5601-11200	73	-1.1	7.19

Example calculation of the dB(A) formula using the sample data.

$$dB(A) = 10 \log_{10} \sum 10^{(z_1)} + 10^{(z_2)} + 10^{(z_3)} + 10^{(z_4)} + 10^{(z_5)} + 10^{(z_6)} + 10^{(z_7)} + 10^{(z_8)} = 10 \log_{10}(67114245.2) = 78.3dB(A)$$

THE SCIENCE OF SOUND

MTC-A

Specifying Sound

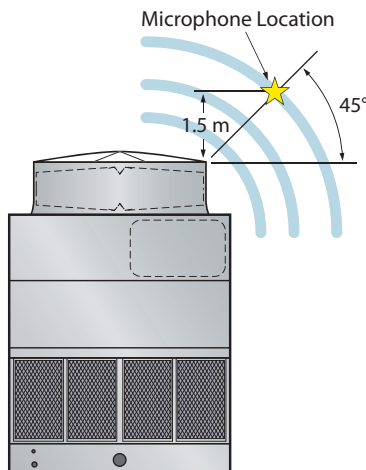
Specifying sound pressure in dB(A) measured 1.5 metres above the fan discharge during full speed operation.

- All manufacturers can meet a performance specification with low sound options.
- Fan noise is what matters. 1.5 metres above the fan is where it matters.

Measurement Location

Per Cooling Technology Institute Standard ATC-128

A sound microphone should be located 1.5 metres above the cooling tower fan cowl edge at a 45° angle. This position assures accurate sound measurements and eliminates a source of uncertainty by taking the microphone out of the high velocity fan discharge air.

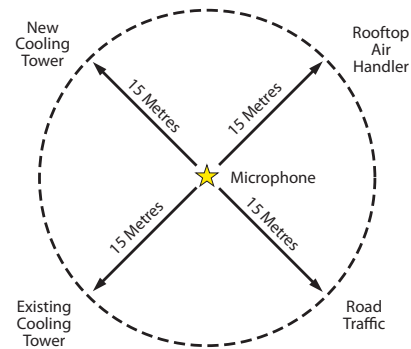


Typical Sound Pressure Levels of Well Known Noises:

Jet Airplane, 45 metres away	140 dB(A)
Circular Saw	110 dB(A)
Nightclub	100 dB(A)
Semi Truck	90 dB(A)
Sidewalk of a Busy Road	80 dB(A)
Household Vacuum, 1 metre away	70 dB(A)
Normal Conversation	60 dB(A)
Quiet Library	40 dB(A)

Notable Facts about Sound:

- +/-1dB(A) is inaudible to the human ear
- Decreasing a noise source by 10 dB(A) sounds half as loud to the human ear



Easy Verification

At 1.5 metres from the cooling tower, a sound meter records only cooling tower noise. You can easily verify the actual noise coming from the cooling tower against the specified sound data with good certainty.

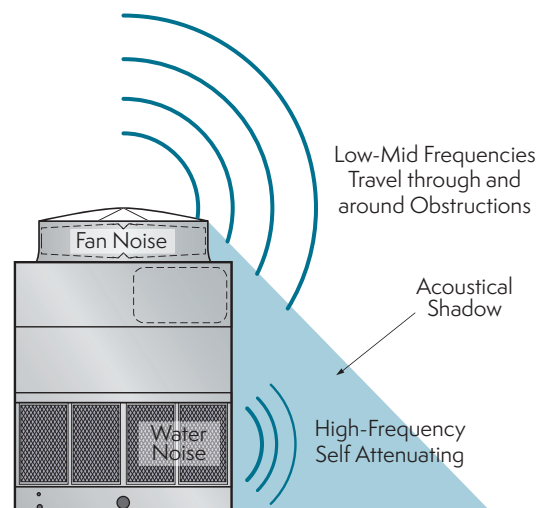
If sound were specified at 15 metres or some greater distance from the sound-sensitive location, there is increased uncertainty in the measured data due to other possible sound sources within the 15 metres radius of the sound microphone.

Sound Quality

Sound coming from the top of the cooling tower is comprised of low and mid-frequency fan noise. Low and mid-frequency fan "rumble" is very difficult to attenuate. Fan rumble travels through everything and around everything and is what is audible at any sound-sensitive location.

Sound coming from the sides of the cooling tower is comprised of high-frequency water noise which is much less objectionable than fan noise and attenuates naturally with distance.

Sound measured at the side of a cooling tower is inside the acoustical shadow of the noise emitted from the top. Outside the acoustical shadow, the low and mid-frequency fan noise completely masks the high-frequency water noise.



Sound Performance of Evaporative Condensers

Suggested Specifications

Sound Performance

Evaporative condenser sound performance shall be provided in pressure dB(A) measured 1.5 metres above the fan discharge during full speed fan operation with water running in accordance with CTI acceptance test code 128 (ATC-128).

Super Low Sound Axial Propeller Fans

Units shall be provided with Super Low Sound Fans in order to assure a maximum sound pressure level not to exceed ____ dB(A) measured 1.5m away from the fan discharge cylinder during full speed fan operation with water running in accordance with CTI ATC-128.

Fans shall be high efficiency axial propeller type with non-corrosive FRP hub and blade construction. The heavy duty fan construction shall utilise a forward swept blade design for superior sound quality. Each fan shall be statically balanced and installed in a closely fitted cowl with venturi air inlet for maximum fan efficiency.

Low Sound Axial Propeller Fans

Units shall be provided with Low Sound Fans in order to assure a maximum sound pressure level not to exceed ____ dB(A) measured 1.5m above the fan discharge cylinder during full speed fan operation with water running in accordance with CTI ATC-128.

Fans shall be high efficiency axial propeller type with aluminium wide chord blade construction. The Low Sound Fan shall utilise a unique soft-connect blade-to-hub design that is compatible with Variable Speed Drives. Each fan shall be statically balanced and installed in a closely fitted cowl with venturi air inlet for maximum fan efficiency.

Water Silencers

The unit shall be provided with water silencers located in the falling water area of the cold water basin. The water silencers shall be constructed of lightweight PVC in easily handled sections for ease of removal and access to the basin area.

Technical Support Services

Equipment Selection Software

SPECTRUM™ by EVAPCO is a new industry leading computer selection program that makes it easy for you to find and optimise the right EVAPCO solutions for every project. Evaluate thermal performance, layout, and energy requirements across units; analyse optional equipment features; and generate complete specifications and unit drawings – all within a friendly and intuitive format. Contact your EVAPCO sales representative to access SPECTRUM™ now.



Public Website

Visit www.evapco.com.au for a complete list of EVAPCO Australia's product offerings. The most current Catalogues, Rigging and Assembly Manuals, Operation and Maintenance Manuals can be downloaded from the website.

- Product Literature
- Catalogues
- Rigging Instructions
- Operation and Maintenance Manuals
- Videos

Drawings of Cooling Towers, Closed Circuit Coolers and Condensers are provided via this link: www.evapco.com.au/resources

The following drawings are provided:

- Unit Certified Drawings (.pdf format)
- Pier Support Drawings (.pdf format)
- Scaled isometric views of towers in CAD (.dwg format)

MATERIAL SPECIFICATION

MTC-A

EVAPCO MTC-A QUICK REFERENCE MATERIAL SPECIFICATION CHART		
SUMMARY	STANDARD	OPTION 3 - All 316
Steel Parts - Dry Section	HDGAF	316SST
Coil & Coil Frame	SELECTABLE - HDGAF, 304SST OR 316SST	
Coil Supports	316SST	
Other Steel Parts - Wet Section	316SST	
Unit Structure		
Casing & Access Door	LRTM Composite Fibreglass	
Corner Support Structure		
Fan Deck & Fan Cylinder		
Cold Water Basin/Sump		
Heat Transfer Section - Wet		
Drift Eliminators*	PVC	
Drift Eliminator Supports	316SST	
Coil & Coil Frame	SELECTABLE - HDGAF, 304SST OR 316SST	
Coil Supports	316SST	
Inlet Louver Material	PVC	
Inlet Louver Frames	316SST	
Mechanical Equipment - Dry		
Mechanical Support Frame	HDGAF, Welded	316SST, Welded
Fan and Drive Guard Screens	HDGAF	316SST
Drive Guard Body	LRTM	
Std Fan Blades - Hub (DD Models)	PPG - Aluminium	
Std Fan Blades - Hub (BD Models)	Alum - Anodised Steel	
Fan Shaft (BD Models)	Solid Carbon Steel	Solid 316SST
Fan Shaft Bearings	Heavy Series, Square Flanged (cast iron) with Self Locking Collars, minimum L10 life 75,000 hrs	
Drive - Belt (BD Models)	Solid-back Multi-Groove Power Band Sized for 150% Motor Power	
Fan Motor	Epoxy Coated IP56 MEPS2-2006 Compliant (1)	
Fan Motor Shaft	Mild Steel	
Pump Bracket	GALV 2700	316SST
External Service Platform with Ladder/Cage (optional accessory)		
Platform	FRP	
Platform Supports	HDGAF	
Ladder/Cage	HDGAF	
Spray Pump & Water Distribution System - Wet		
Pump Piping & Spray Branches ^Δ	PVC	
Spray Branch Supports	316SST	
Nozzles	ZM [®] II, ABS Plastic, with 32mm diameter non-clog orifice	
Spray Pump Motor Assembly	Epoxy Coated Casing, Cast Iron Impeller, Bronze Wear Rings, IP55 MEPS2-2006 Compliant (1)	
Make Up Valve Assembly		
Make Up Valve	Brass	
Float Arm Assembly	316SST	
Float Ball / Pancake	Plastic	
Connections		
Make Up and Quickfill	316SST - MPT	
Overflow & Drain	PP Schedule 80 - FPT	
Suction Strainer	316SST	
Fasteners / Hardware		
Panel-to-Panel Joints	316SST	
Panel-to-SST Joints	316SST	
Panel-to-HDGAF Joints	GALV	-
Warranty		
Motor and Drive System (3)	5 years	
Comprehensive Unit Warranty (3)	1 year	5 years (2)
Notes		
PPG - Glass Reinforced Polypropylene PP - Polypropylene LRTM - Light Resin Transfer Moulded Composite Fibreglass BD - Belt Drive Models DD - Direct Drive Models		
HDGAF - Hot Dip Galvanised After Fabrication GAL 2700 - Mill Galvanised Steel 700g/m2 GALV - Zinc Protected Hardware		
* Standard material provided is PVC unless optional HPVC Fill and/or HPVC Drift Eliminators is otherwise indicated on the Technical Data Sheet.		
Δ Standard material provided is PVC unless Technical Data Sheet indicates Water Distribution Piping CPVC is included.		
(1) Standard offer motor is MEPS2-2006 compliant as per AS1359.5, Section 2, Clause 2.3, Table B2		
(2) Unit warranty is 5 years only if 304SST OR 316SST coils are selected in addition to Material Option 3 - All 316.		
(3) Refer to warranty statement for complete details and conditions of warranty.		



for LIFE

EVAPCO PRODUCTS ARE MANUFACTURED WORLDWIDE.



★ World Headquarters/ Research and Development Center

■ EVAPCO Facilities

EVAPCO Australia Pty Ltd - Continental Headquarters for Australia, New Zealand, and Oceania

EVAPCO Australia Pty Ltd, 34-42 Melbourne Road, Riverstone NSW 2765, Australia
Phone: +61 2 9627 3322 • Email: sales@evapco.com.au • Website: www.evapco.com.au

EVAPCO North America

EVAPCO, Inc. World Headquarters
P.O. Box 1300 Westminister, MD 21158 USA
Phone: +1 410-756-2600
Fax: +1 410-756-6450
E-mail: marketing@evapco.com

EVAPCO East
5151 Allendale Lane Taneytown, MD 21787 USA
Phone: +1 410-756-2600
Fax: +1 410-756-6450
E-mail: marketing@evapco.com

EVAPCO Midwest
1723 York Road Greenup, IL 62428 USA
Phone: +1 217-923-3431
Fax: +1 217-923-3300
E-mail: evapcomw@evapcomw.com

EVAPCO West
1900 West Almond Avenue Madera, CA 93637 USA
Phone: +1 559-673-2207
Fax: +1 559-673-2378
E-mail: contact@evapcowest.com

EVAPCO Iowa
925 Quality Drive Lake View, IA 51450 USA
Phone: +1 712-657-3223
Fax: +1 712-657-3226

EVAPCO Iowa Sales & Engineering
215 1st Street, NE P.O. Box 88 Medford, MN 55049 USA
Phone: +1 507-446-8005
Fax: +1 507-446-8239
E-mail: evapcomn@evapcomn.com

EVAPCO Newton
701 East Jourdan Street Newton, IL 62448 USA
Phone: +1 618-783-3433
Fax: +1 618-783-3499
E-mail: evapcomw@evapcomw.com

EVAPCOLD
521 Evapco Drive Greenup, IL 62428 USA
Phone: +1 217-923-3431
E-mail: evapcomw@evapcomw.com

EVAPCO-BLCT Dry Cooling, Inc.
1011 US Highway 22 West Bridgewater, New Jersey 08807 USA
Phone: +908-379-2665
E-mail: info@evapco-blct.com

Refrigeration Valves & Systems Corporation
A wholly owned subsidiary of EVAPCO, Inc.
1520 Crosswind Dr. Bryan, TX 77808 USA
Phone: +1 979-778-0095
Fax: +1 979-778-0030
E-mail: rvs@rvscorp.com

EvapTech, Inc.
A wholly owned subsidiary of EVAPCO, Inc.
8331 Nieman Road Lenexa, KS 66214 USA
Phone: +1 913-322-5165
Fax: +1 913-322-5166
E-mail: marketing@evaptech.com

Tower Components, Inc.
A wholly owned subsidiary of EVAPCO, Inc.
5960 US HWY 64E Ramseur, NC 27316
Phone: +1 336-824-2102
Fax: +1 336-824-2190
E-mail: mail@towercomponentsinc.com

EVAPCO South America

Evapco Brasil
Equipamentos Industriais Ltda.
Al. Vênus, 151 - CEP: 13347-659 Indaítuba - Sau Paulo - Brasil
Phone: +55 11-5681-2000
E-mail: vendas@evapco.com.br

EVAPCO Europe

EVAPCO Europe BVBA European Headquarters
Heersteveldweg 19 Industrieterrein Oost 3700 Tongeren, Belgium
Phone: +32 1-239-5029
Fax: +32 1-223-8527
E-mail: evapco.europe@evapco.be

EVAPCO Europe, S.r.l.
Via Ciro Menotti 10 I-20017 Passirana di Rho, Milan, Italy
Phone: +39 02-939-9041
Fax: +39 02-935-00840
E-mail: evapcoeuropa@evapco.it

EVAPCO Europe, S.r.l.
Via Dosso 2 23020 Piateda Sondrio, Italy

EVAPCO Europe GmbH
Insterburger Straße 18 D-40670 Meerbusch, Germany
Phone: +49 2159-695618
Fax: +49 2159-695611
E-mail: info@evapco.de

EVAPCO Air Solutions
Knosgårdvej 115 DK-9440 Aabybro Denmark
Phone: +45 98-244-999
Fax: +45 98-244-990
E-mail: info@flexcoil.dk

EVAPCO Air Solutions GmbH
Berenbosteler Str. 76 A 30823 Garbsen, Germany
Phone: +49 5137 93875-0 / +49 5137 93875-20
E-mail: info@evapcoas.de

Evap Egypt Engineering Industries Co.
A licensed manufacturer of EVAPCO, Inc.
5 El Nasr Road Nasr City, Cairo, Egypt
Phone: +2 02-2402-2866 / +2 02 2404-4997
Fax: +2 02-2404-4668-7 / +2 02-2404-4668
E-mail: Primacool@link.net / Shady@primacool.net

EVAPCO S.A. (Pty.) Ltd.
A licensed manufacturer of EVAPCO, Inc.
18 Quality Road, Isando 1600 Republic of South Africa
Phone: +27 11-392-6630
Fax: +27 11-392-6615
E-mail: evapco@evapco.co.za

EVAPCO Asia/Pacific

EVAPCO Asia/Pacific Headquarters
1159 Luoning Rd. Baoshan Industrial Zone Shanghai, 200949, P. R. China
Phone: +86 21-6687-7786
Fax: +86 21-6687-7008
E-mail: marketing@evapcochina.com

EVAPCO (Shanghai) Refrigeration Equipment Co., Ltd.
1159 Luoning Rd., Baoshan Industrial Zone Shanghai 200949, P.R. China
Phone: +86 21-6687-7786
Fax: +86 21-6687-7008
E-mail: marketing@evapcochina.com

Beijing EVAPCO Refrigeration Equipment Co., Ltd.
No.13 Yanxi Avenue, Yanqi Development Zone Huai Rou Country Beijing, P.R. China 101407
Phone: +86 10-6166-7238
Fax: +86 10-6166-7395
E-mail: evapcoobj@ecapcochina.com

EVAPCO Australia (Pty.) Ltd.
34-42 Melbourne Road P.O. Box 436 Riverstone, N.S.W. 2765, Australia
Phone: +61 2-9627-3322
Fax: +61 2-9627-1715
E-mail: sales@evapco.com.au

EVAPCO Composites Sdn. Bhd
No. 70 (Lot 1289) Jalan Industri 2/3 Rawang Integrated Industrial Park 48000 Rawang, Selangor, Malaysia
Phone: +60 3-6092-2209
Fax: +60 3-6092-2210

EvapTech Asia Pacific Sdn. Bhd
A wholly owned subsidiary of EvapTech, Inc.
B-6-1, IOI Boulevard Jalan Kenari 5, Bandar Puchong Jaya 47170 Puchong, Selangor, Malaysia
Phone: +60 3-8070-7255
Fax: +60 3-8070-5731
E-mail: marketing-ap@evaptech.com



EVAPCO...LOW ENERGY, LOW SOUND, LOW RISK

Visit EVAPCO's Website at: www.evapco.com.au

