Bulletin 167-CCC

CONTAINERIZED

ATW Closed Circuit Coolers

Engineered to Deliver the
Maximum Capacity and
Highest Quality to the
Worldwide Market - with the
Lowest Shipping Costs!

U.S. Green Building Council Member

Green Mechanical Council Helios Member

MCAA Supplier Partner Manufacturer/Supplier Council
Member MCAA
Mechanical Contractors Association of America

CERTIFIED ISO 9001 & 14001

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:

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

EVAPCO's powerful combination of financial strength and technical expertise has established the company as a recognized manufacturer of market-leading products on a worldwide basis. EVAPCO is also recognized for the superior technology of their 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–***Technology for the Future, Available Today!***

EVAPCO products are manufactured on five continents around the world and distributed through hundreds of factory-authorized sales representatives.

Advanced Technology Closed Circuit Coolers for a Worldwide Market

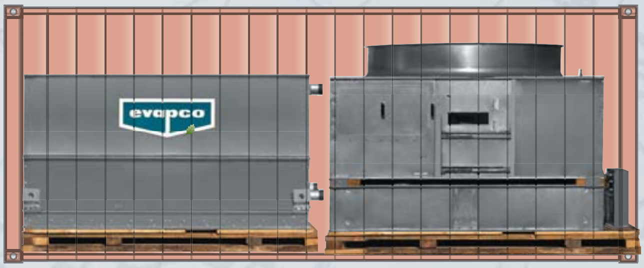
The Containerized line of Closed Circuit Coolers has been custom-engineered to ship in standard shipping containers. This feature greatly reduces the transportation costs associated with shipping. Customers around the world will benefit from the Advanced Technology features which are standard on the Containerized design:

- Low-Energy Consumption
- Induced-Draft Operation
- Thermal-Pak® Coils
- ZM® II Nozzles
- PVC Water Distribution System
- WST Air Inlet Louvers
- Simple Operation and Maintenance

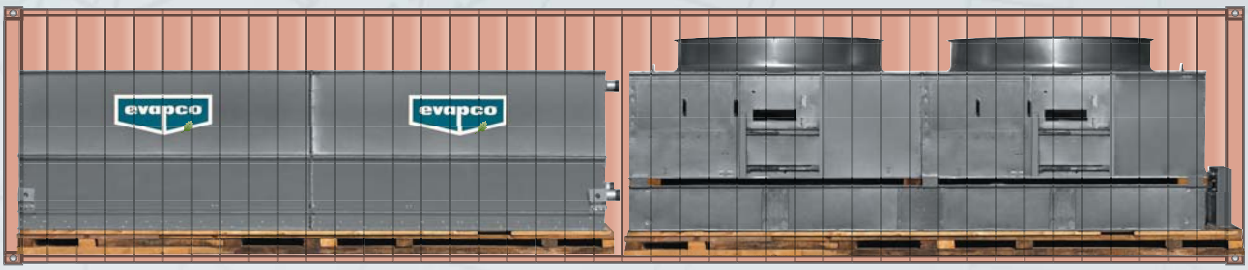
The Containerized Coolers have been designed for simplified field assembly and rigging, while delivering the quality and reliability of a factory-built unit. These units provide the maximum capacity with the lowest ocean shipping cost!

Designed to Lower Transportation and Installation Costs while Delivering Advanced Technology, Superior Performance, Ease of Maintenance and Long, Trouble-Free Operation.

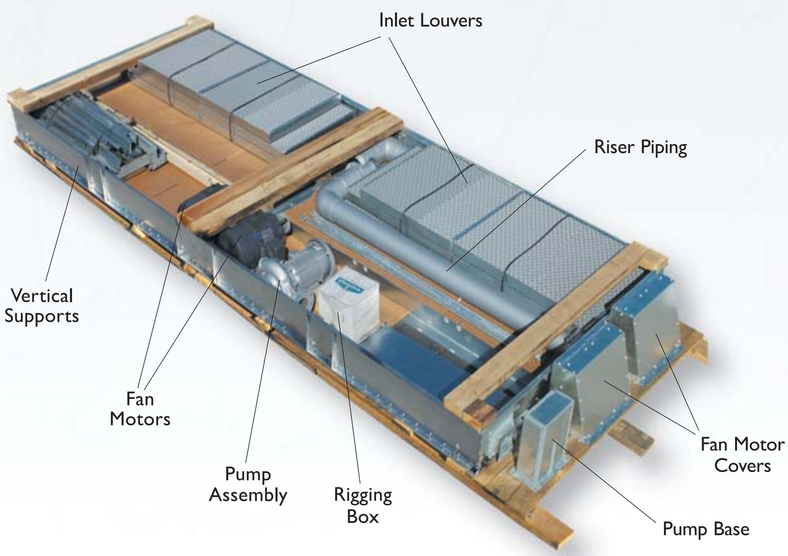
A complete 2.24M x 2.73M (7.33 ft. x 9 ft.) **unit will fit in a 20' Shipping Container!**



A complete 2.24M x 5.48M (7.33 ft. x 18 ft.) **unit will fit in a 40' Shipping Container!**



All Parts Required for Assembly Ship Inside the Basin.



Optional Accessories Ship Inside the Container

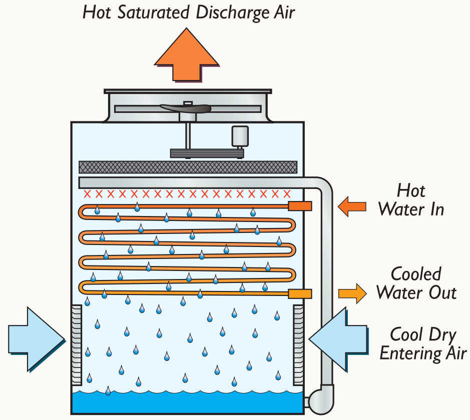
- Sloped Ladder
- Motor Davit
- Vibration Cutout Switch
- Basin Heater Package
- Electric Water Level Control
- Specialty Motors

cATW Design and Construction Features

The cATW line of closed circuit coolers reflects EVAPCO's continuing commitment to research and development. Their advanced design provides owners with many operational and performance advantages. For particularly corrosive environments, EVAPCO Coolers are available with Type 304 or 316 Stainless Steel construction. Contact the factory for details on available options.

Principle of Operation

The process fluid is circulated through the coil of the closed circuit cooler. Heat from the process fluid is dissipated through the coil tubes to the water cascading downward over the tubes. Simultaneously, air is drawn in through the air inlet louvers at the base of the cooler and travels upward over the coil opposite the water flow. A small portion of the water is evaporated which removes the heat. The warm moist air is drawn to the top of the closed circuit cooler by the fan and is discharged to the atmosphere. The remaining water falls to the sump at the bottom of the cooler where it is recirculated by the pump up through the water distribution system and back down over the coils.



Principle of Operation

Fan Drive System

The fan motor and drive assembly is designed to allow easy servicing of the motor and adjustment of the belt tension from the exterior of the unit. The totally enclosed fan cooled (T.E.F.C.) fan motor is mounted on the outside for easy access. A protective cover swings away to allow servicing and belt adjustment.

A large, hinged access door with a "quick release" latch provides access to the fan section for maintenance.

External Motor Mount (Optional Ladder Shown)

Fan Shaft Bearings

The fan shaft bearings in cATW units are specially selected for long, trouble-free life. They are rated for an L-10 life of 75,000 to 135,000 hours and are the heaviest pillow block bearings available.

Aluminum Alloy Pulleys

Fan pulleys located in the air stream are constructed of corrosion free aluminum for long life. The aluminum also helps belts last longer.

Power-Band Drive Belt

The Power-Band is a solid-back, multigroove belt system that has high lateral rigidity. The belt is constructed of neoprene with polyester cords. The drive belt is designed for 150 percent of the motor nameplate power for long life and durability.

WST Air Inlet Louvers

Water and Sight Tight air inlet louvers are designed to effectively eliminate splash-out and sunlight, greatly reducing the potential for algae formation inside the cooler. They are manufactured of corrosion-free PVC and mounted in lightweight frames to allow for easy removal and convenient access to the basin section.

Type 304 Stainless Steel Strainers

Subjected to excessive wear and corrosion, the sump strainer is critical to the successful operation of the cooler. EVAPCO uses only stainless steel for this very important component.

PVC Drift Eliminators

U.S. Patent No. 6315804

EVAPCO eliminators are constructed entirely of inert, corrosion-free PVC. This patented design reduces drift rate to 0.001% and has been specially treated to resist damaging ultraviolet light. The eliminators are assembled in easily handled sections to facilitate removal, thereby exposing the upper portion of the unit and water distribution system for periodic inspection.

ZM® II Nozzles

Even and constant water distribution is paramount for reliable, scale-free evaporative cooling. EVAPCO's Zero Maintenance ZM® II Spray Nozzle remains clog-free under the toughest conditions to deliver approximately 4 l/s to every square meter of coil plan area.

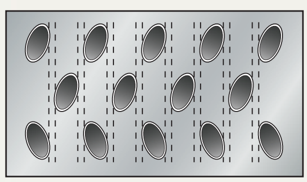
The heavy-duty ABS ZM® II Spray Nozzles have a 32mm diameter opening and a 32mm splash plate clearance. The fixed position ZM® II Spray Nozzles are mounted in corrosion-free PVC water distribution pipes that have threaded end caps. Together, these elements combine to provide unequaled coil coverage, enhanced droplet formation and make the industries best performing maintenance-free water distribution system.

Thermal-Pak® Coil

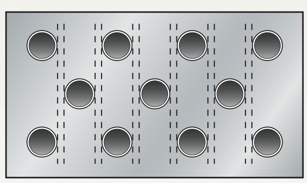
EVAPCO's Thermal-Pak® coils feature a design which assures maximum cooling capacity. The air flow thru the coil is counterflow to the process fluid, providing the most efficient heat transfer. This special coil design is utilized to reduce the air pressure drop through the unit while maximizing tube surface area and increasing its heat transfer capabilities. The uniquely shaped tubes of the coil are staggered in the direction of air flow to obtain a high film coefficient. In addition, all tubes are pitched in the direction of flow to assure drainage of the process fluid.

These characteristice and other engineering advancements of the Thermal-Pak® coil have been proven in EVAPCO's world-class research and development laboratory resulting in the following end user benefits:

- Low Power Consumption Per Ton
- Lower Operating Weight
- Small Plan Area Per Ton



Thermal-Pak® Coil by EVAPCO



Round Tube Coil by Others

The coils are manufactured from high quality steel tubing following the most stringent quality control procedures. Each circuit is inspected to assure the material quality and then tested before being assembled into a coil. Finally, the assembled coil is air pressure tested under water at 390 psig (2.69MPa). To protect the coil against corrosion, it is placed in a heavy-duty steel frame and the entire assembly is dipped in molten zinc (hot dip galvanized) at a temperature of approximately 800˚F (430˚C).

Design

EVAPCO units are of heavy-duty construction and designed for long 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 cooler are presented below. For additional information, contact the factory.

Air Circulation

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. Those closed circuit coolers located in wells, enclosures or adjacent to high walls must be properly located to avoid the problems associated with recirculation.

Recirculation raises the wet bulb temperature of the entering air causing the water temperature to rise above the design. For these cases, the discharge of the fan should be located at a height even with the adjacent wall, thereby reducing the chance of recirculation. For additional information, see the EVAPCO Equipment Layout Manual.

Good engineering practice dictates that the closed circuit cooler discharge air not be directed or located close to or in the vicinity of building air intakes.

Piping

Cooler piping should be designed and installed in accordance with generally accepted engineering practices. The piping layout should be symmetrical on multiple unit systems, and sized for a reasonably low water velocity and pressure drop.

The standard closed circuit cooler is recommended only on a closed, pressurized system. The piping system should include an expansion tank to allow for fluid expansion and purging air from the system.

Note: Closed Circuit Coolers should never be used on an open type system. An open type system with a cooler may resultin premature coil failure.

The piping system should be designed to permit complete drainage of the heat exchanger coil. This will require a vacuum breaker or air vent to be installed at the high point and a drain valve installed at the low point of the piping system. Both must be adequately sized.

All piping should be securely anchored by properly designed hangers and supports. No external loads should be placed upon the cooler connections, nor should any of the pipe supports be anchored to the cooler framework.

Recirculating Water System

The surest way to protect the recirculating water system from freezing is with a remote sump. The remote sump should be located inside the building and below the unit. When a remote sump arrangement is selected, the spray pump is provided by others and installed at the remote sump. All water in the closed circuit cooler basin should drain to the remote sump when the spray pump cycles off.

Other freeze protection methods are available when a remote sump is not feasible. Electric pan heaters, steam or hot water coils can be used to keep the pan water from freezing when the unit cycles off. Water lines to and from the unit, spray pump and related piping should be heat traced and insulated up to the overflow level in order to protect from freezing.

The unit should not be operated dry (fans on, pump off) unless the basin is completely drained and the unit has been designed for dry operation. Consult the factory when dry operation is a requirement.

Freeze Protection

If the units are installed in a cold climate and operated year-round, freeze protection must be provided for the heat exchanger coil in the unit as well as for the recirculating water system.

Heat Exchanger Coil

The simplest and most foolproof method of protecting the heat exchanger coil from freeze-up is to use a glycol solution. If this is not possible, an auxiliary heat load must be maintained on the coil at all times so that the water temperature does not drop below 50°F (10°C) when the cooler is shut down. Heat loss data shown for each unit is based on 50°F (10°C) water in the coil, -10°F (-23.3°C) ambient and 45 MPH (72.4 km/h) winds (fan and pump off).

Heat Loss Data

Model	Standard Unit (kW)	Standard Unit (MBH)
cATW 67-3*	56	192
cATW 67-4*	68	232
cATW 67-5*	76	261
cATW 67-6*	81	278
cATW 89-3*	75	258
cATW 89-4*	91	312
cATW 89-5*	103	351
cATW 89-6*	110	375
cATW 103-5*	121	412
cATW 103-6*	128	438
cATW 133-3*	115	392
cATW 133-4*	138	473
cATW 133-5*	156	532
cATW 133-6*	166	568

If glycol is not used, in addition to ensuring the water temperature in the coil does not drop below 50°F (10°C) when the cooler is shut down, a minimum recommended flow rate per unit must be maintained as shown.

Minimum Flow Rate

Box Size	Minimum Flow (LPS)	Minimum Flow (GPM)
cATW 67	15	240
cATW 89		
cATW 103		
cATW 133		

Water Treatment

In some cases, the make-up water will have high impurity levels and a normal bleed will not be enough to prevent scale formation. In these cases, the services of an experienced water treatment company should be retained.

The water treatment program prescribed for the given conditions must be compatible with the unit's materials of construction, including the galvanized coil. If an acid is used to control pH, it should be accurately metered in dilute solution such that the spray water is held between a pH of 6.5 and 8.0. Batch feeding of chemicals is not recommended.

Units constructed of galvanized steel operating with circulating water having a pH of 8.0 or higher may require periodic passivation to prevent the formation of white rust. White rust is a corrosion byproduct of the protective zinc barrier and appears on the metal surface as white, waxy formations. If white rust forms and is left untreated, it may flake off and leave the bare metal substrate exposed.

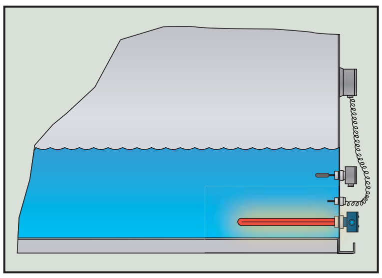
Control of Biological Contaminants

Water quality should be checked regularly for biological contamination. If biological contamination is detected, a more aggressive water treatment and mechanical cleaning program is required. 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 or sludge. In addition, the drift eliminators should be kept in good operating condition to minimize water from exiting the evaporative cooling unit in the discharge air.

To minimize the risk of biological contamination, at initial start up or after an extended shut down, it is recommended that the cooler be properly treated. Clean all debris such as leaves and dirt from the unit. Completely fill the basin to the overflow level with fresh water. Initiate a biocide water treatment or shock treatment program prior to operating the unit. It is preferable that all such procedures be conducted or supervised by a water treatment specialist.

Electric Heaters

Electric immersion heaters for the cooler basin are available. They are sized to maintain a +4°C to +5°C (+40°F) pan water temperature with the fans off and an ambient air temperature of -18°C (0°F). They are furnished with a thermostat and low water protection device to cycle the heater on when required and to prevent the heater elements from energizing unless they are completely submerged. All components are in weatherproof enclosures for outdoor use. The heater power contactors and electric wiring are not included as standard.



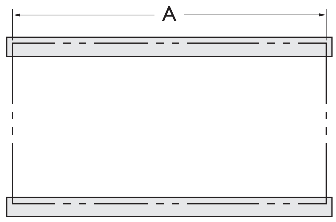
Heaters Sizes			
Model	-18°C 0°F kW	-29°C -20°F kW	-40°C -40°F kW
cATW 67	7	10	15
cATW 89	8	14	18
cATW 103	10	14	20
cATW 133	12	18	24

Steel Support

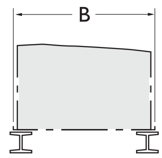
The recommended support for EVAPCO coolers is structural "I" beams located under the outer flanges and running the entire length of the unit. Mounting holes, 19mm (3/4") in diameter are located in the bottom channels of the pan section to provide for bolting to the structural steel. (Refer to certified drawings from the factory for bolt hole locations).

Beams should be level to within 3mm per 2m (1/8" per 6') before setting the unit in place. Do not level the unit by shimming between it and the "I" beams as this will not provide proper longitudinal support.

Steel Support (cont.)



Plan View



End Elevation

cATW Supporting Steel Dimensions

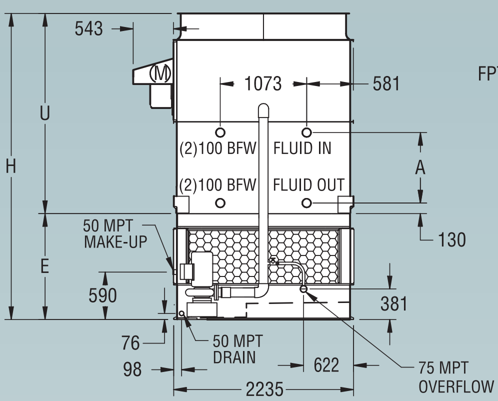
Models	S.I. Units (mm)		English Units	
	A	B	A	B
cATW 67	2731	2240	8' 11-1/2"	7' 4-3/16"
cATW 89	3651	2240	11' 11-3/4"	7' 4-3/16"
cATW 103	4261	2240	13' 11-3/4"	7' 4-3/16"
cATW 133	5486	2240	18' 0"	7' 4-3/16"

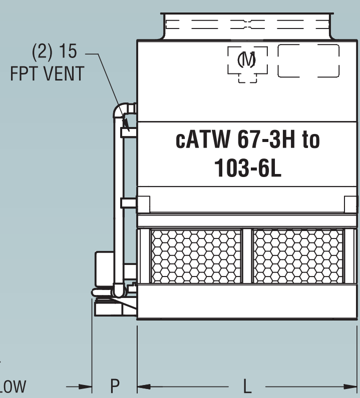
Nominal Tonnage By cATW Model

Model	Nominal Flow** (LPS)	Nominal Flow* (GPM)
cATW 67-3H	15.1	239
cATW 67-3I	17.1	271
cATW 67-4I	20.4	323
cATW 67-4J	23.5	373
cATW 67-5I	22.4	355
cATW 67-5J	25.8	409
cATW 67-6J	27.0	428
cATW 89-3J	26.4	419
cATW 89-4J	31.0	492
cATW 89-5J	33.9	537
cATW 89-5K	37.0	587
cATW 89-6K	38.6	612
cATW 103-5J	37.7	597
cATW 103-5K	41.2	653
cATW 103-6K	42.8	679
cATW 103-6L	45.8	726
cATW 133-3H	38.4	609
cATW 133-3I	42.8	678
cATW 133-4I	49.5	784
cATW 133-4J	56.0	888
cATW 133-5I	53.7	851
cATW 133-5J	60.8	963
cATW 133-6I	56.0	887
cATW 133-6J	63.2	1002

*Nominal Conditions: 100°F inlet, 90°F outlet, and 78°F WB
** Nominal Conditions: 37.7°C inlet, 32.2°C outlet, and 25.6°C WB

cATW Engineering Dimensions & Data – S.I. Units





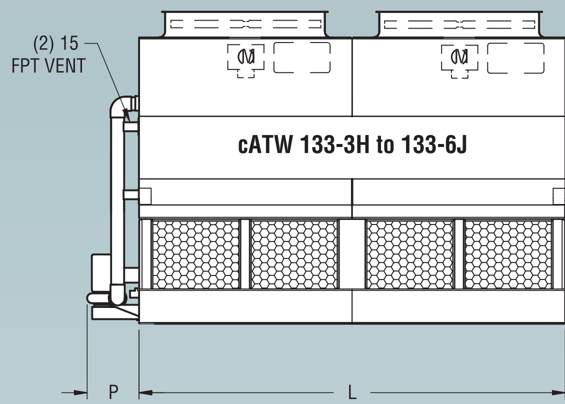


Table 1 Engineering Data

C-ATW Model No.	Fans		Weights(kg)			Coil Volume L	Spray Pump		Remote Sump△			Dimensions (mm)▲					
	kW	m³/s	Shipping	Operating	Heaviest Section†		kW	L/s	Liters Req'd*	Conn. Size (mm)	Operating Weight(kg)	Height H	Upper U	Lower E	Coil A	Length L	Pump P
cATW 67-3H	5.5	17	3,420	4,560	2,690	544	1.5	25.8	455	200	4,030	3423	2105	1318	495	2727	563
cATW 67-3I	7.5	19	3,420	4,560	2,690	544	1.5	25.8	455	200	4,030	3423	2105	1318	495	2727	563
cATW 67-4I	7.5	18	3,890	5,200	3,160	710	1.5	25.8	455	200	4,670	3613	2296	1318	686	2727	563
cATW 67-4J	11	20	3,950	5,260	3,220	710	1.5	25.8	455	200	4,730	3613	2296	1318	686	2727	563
cATW 67-5I	7.5	17	4,380	5,860	3,660	876	1.5	25.8	455	200	5,330	3804	2486	1318	876	2727	563
cATW 67-5J	11	20	4,440	5,910	3,710	876	1.5	25.8	455	200	5,380	3804	2486	1318	876	2727	563
cATW 67-6J	11	19	4,930	6,570	4,200	1041	1.5	25.8	455	200	6,040	3994	2677	1318	1067	2727	563
cATW 89-3J	11	26	4,210	5,790	3,330	715	2.2	34.7	585	250	5,060	3423	2105	1318	495	3648	631
cATW 89-4J	11	25	4,850	6,650	3,970	937	2.2	34.7	585	250	5,920	3613	2296	1318	686	3648	631
cATW 89-5J	11	24	5,470	7,500	4,590	1160	2.2	34.7	585	250	6,770	3804	2486	1318	876	3648	631
cATW 89-5K	15	26	5,500	7,530	4,620	1160	2.2	34.7	585	250	6,790	3804	2486	1318	876	3648	631
cATW 89-6K	15	25	6,150	8,400	5,270	1382	2.2	34.7	585	250	7,670	3994	2677	1318	1067	3648	631
cATW 103-5J	11	27	6,300	8,630	5,280	1349	2.2	37.8	700	250	7,810	3915	2486	1429	876	4258	617
cATW 103-5K	15	29	6,320	8,650	5,310	1349	2.2	37.8	700	250	7,830	3915	2486	1429	876	4258	617
cATW 103-6K	15	28	7,070	9,660	6,060	1610	2.2	37.8	700	250	8,840	4105	2677	1429	1067	4258	617
cATW 103-6L	18.5	30	7,080	9,670	6,070	1610	2.2	37.8	700	250	8,850	4105	2677	1429	1067	4258	617
cATW 133-3H	(2) 5.5	34	6,340	8,740	4,950	1056	4.0	50.4	890	300	7,660	3632	2105	1527	495	5483	670
cATW 133-3I	(2) 7.5	37	6,350	8,750	4,960	1056	4.0	50.4	890	300	7,670	3632	2105	1527	495	5483	670
cATW 133-4I	(2) 7.5	36	7,310	10,040	5,910	1392	4.0	50.4	890	300	8,960	3823	2296	1527	686	5483	670
cATW 133-4J	(2) 11	40	7,420	10,160	6,030	1392	4.0	50.4	890	300	9,080	3823	2296	1527	686	5483	670
cATW 133-5I	(2) 7.5	35	8,260	11,340	6,870	1728	4.0	50.4	890	300	10,260	4013	2486	1527	876	5483	670
cATW 133-5J	(2) 11	39	8,380	11,450	6,990	1728	4.0	50.4	890	300	10,370	4013	2486	1527	876	5483	670
cATW 133-6I	(2) 7.5	34	9,240	12,650	7,850	2064	4.0	50.4	890	300	11,570	4204	2677	1527	1067	5483	670
cATW 133-6J	(2) 11	38	9,360	12,760	7,970	2064	4.0	50.4	890	300	11,680	4204	2677	1527	1067	5483	670

† Heaviest section is the coil/casing section.

* Liters shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation (300mm would normally be sufficient).

▲ Unit dimensions and coil connections may vary slightly from catalog. See factory certified prints for dimensions, quantity of coil connections, and piping configuration. Coil connections are 100mm bevel for weld (BFW). Other connection types such as grooved for mechanical coupling or flanged are also available as options.

△ **Remote Sump Configuration**
When a remote sump arrangement is selected, the spray pump, suction strainer and associated piping are omitted; the unit is provided with an oversized outlet to facilitate drainage to the remote sump.

cATW Engineering Dimensions & Data – S.I. Units

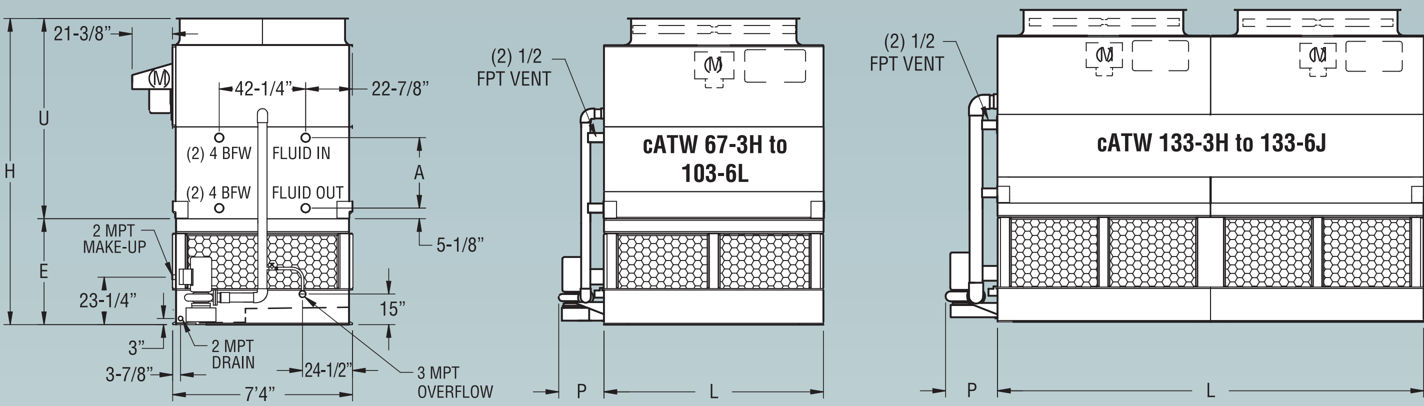


Table I Engineering Data

C-ATW Model No.	Fans		Weights(lbs)			Coil Volume	Spray Pump		Remote Sump △			Dimensions ▲					
	HP	CFM	Shipping	Operating	Heaviest Section†	ft³	HP	GPM	Gallons Req'd*	Conn. Size (in)	Operating Weight(lbs)	Height H	Upper U	Lower E	Coil A	Length L	Pump P
cATW 67-3H	7.5	35,830	7,530	10,050	5,930	19	2	410	120	8"	8,880	11' 2-3/4"	6' 10-7/8"	4' 3-7/8"	19-1/2"	8' 11-3/8"	22-1/8"
cATW 67-3I	10	39,290	7,540	10,060	5,940	19	2	410	120	8"	8,890	11' 2-3/4"	6' 10-7/8"	4' 3-7/8"	19-1/2"	8' 11-3/8"	22-1/8"
cATW 67-4I	10	38,140	8,570	11,460	6,970	25	2	410	120	8"	10,290	11' 10-1/4"	7' 6-3/8"	4' 3-7/8"	27"	8' 11-3/8"	22-1/8"
cATW 67-4J	15	42,730	8,700	11,590	7,100	25	2	410	120	8"	10,420	11' 10-1/4"	7' 6-3/8"	4' 3-7/8"	27"	8' 11-3/8"	22-1/8"
cATW 67-5I	10	37,000	9,660	12,910	8,060	31	2	410	120	8"	11,740	12' 5-3/4"	8' 1-7/8"	4' 3-7/8"	34-1/2"	8' 11-3/8"	22-1/8"
cATW 67-5J	15	41,450	9,790	13,040	8,190	31	2	410	120	8"	11,870	12' 5-3/4"	8' 1-7/8"	4' 3-7/8"	34-1/2"	8' 11-3/8"	22-1/8"
cATW 67-6J	15	40,170	10,860	14,480	9,260	37	2	410	120	8"	13,310	13' 1-1/4"	8' 9-3/8"	4' 3-7/8"	42"	8' 11-3/8"	22-1/8"
cATW 89-3J	15	54,270	9,280	12,770	7,350	25	3	550	155	10"	11,160	11' 2-3/4"	6' 10-7/8"	4' 3-7/8"	19-1/2"	11' 11-5/8"	24-7/8"
cATW 89-4J	15	52,690	10,690	14,670	8,760	33	3	550	155	10"	13,060	11' 10-1/4"	7' 6-3/8"	4' 3-7/8"	27"	11' 11-5/8"	24-7/8"
cATW 89-5J	15	51,110	12,060	16,530	10,130	41	3	550	155	10"	14,920	12' 5-3/4"	8' 1-7/8"	4' 3-7/8"	34-1/2"	11' 11-5/8"	24-7/8"
cATW 89-5K	20	55,390	12,120	16,590	10,190	41	3	550	155	10"	14,980	12' 5-3/4"	8' 1-7/8"	4' 3-7/8"	34-1/2"	11' 11-5/8"	24-7/8"
cATW 89-6K	20	53,680	13,550	18,510	11,620	49	3	550	155	10"	16,900	13' 1-1/4"	8' 9-3/8"	4' 3-7/8"	42"	11' 11-5/8"	24-7/8"
cATW 103-5J	15	57,120	13,880	19,020	11,650	48	3	600	185	10"	17,210	12' 10-1/8"	8' 1-7/8"	4' 8-1/4"	34-1/2"	13' 11-5/8"	24-1/4"
cATW 103-5K	20	61,910	13,940	19,080	11,710	48	3	600	185	10"	17,270	12' 10-1/8"	8' 1-7/8"	4' 8-1/4"	34-1/2"	13' 11-5/8"	24-1/4"
cATW 103-6K	20	60,000	15,580	21,290	13,350	57	3	600	185	10"	19,480	13' 5-5/8"	8' 9-3/8"	4' 8-1/4"	42"	13' 11-5/8"	24-1/4"
cATW 103-6L	25	63,860	15,610	21,320	13,380	57	3	600	185	10"	19,510	13' 5-5/8"	8' 9-3/8"	4' 8-1/4"	42"	13' 11-5/8"	24-1/4"
cATW 133-3H	(2) 7.5	71,910	13,980	19,270	10,910	37	5	800	235	12"	16,890	11' 11"	6' 10-7/8"	5' 1/8"	19-1/2"	17' 11-7/8"	26-3/8"
cATW 133-3I	(2) 10	78,880	14,010	19,300	10,940	37	5	800	235	12"	16,920	11' 11"	6' 10-7/8"	5' 1/8"	19-1/2"	17' 11-7/8"	26-3/8"
cATW 133-4I	(2) 10	76,580	16,110	22,140	13,040	49	5	800	235	12"	19,760	12' 6-1/2"	7' 6-3/8"	5' 1/8"	27"	17' 11-7/8"	26-3/8"
cATW 133-4J	(2) 15	85,790	16,360	22,390	13,290	49	5	800	235	12"	20,010	12' 6-1/2"	7' 6-3/8"	5' 1/8"	27"	17' 11-7/8"	26-3/8"
cATW 133-5I	(2) 10	74,280	18,220	24,990	15,150	61	5	800	235	12"	22,610	13' 2"	8' 1-7/8"	5' 1/8"	34-1/2"	17' 11-7/8"	26-3/8"
cATW 133-5J	(2) 15	83,210	18,470	25,240	15,400	61	5	800	235	12"	22,860	13' 2"	8' 1-7/8"	5' 1/8"	34-1/2"	17' 11-7/8"	26-3/8"
cATW 133-6I	(2) 10	71,980	20,380	27,890	17,310	73	5	800	235	12"	25,510	13' 9-1/2"	8' 9-3/8"	5' 1/8"	42"	17' 11-7/8"	26-3/8"
cATW 133-6J	(2) 15	80,640	20,630	28,140	17,560	73	5	800	235	12"	25,760	13' 9-1/2"	8' 9-3/8"	5' 1/8"	42"	17' 11-7/8"	26-3/8"

† Heaviest section is the coil/casing section.

* Gallons shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation (12" would normally be sufficient).

▲ Unit dimensions and coil connections may vary slightly from catalog. See factory certified prints for dimensions, quantity of coil connections, and piping configuration. Coil connections are 4" bevel for weld (BFW). Other connection types such as grooved for mechanical coupling or flanged are also available as options.

△ **Remote Sump Configuration**
When a remote sump arrangement is selected, the spray pump, suction strainer and associated piping are omitted; the unit is provided with an oversized outlet to facilitate drainage to the remote sump.

cATW Closed Circuit Cooler Specification

Furnish and install as shown on the plans an EVAPCO Model __________induced draft counterflow closed circuit cooler. Each unit shall have the capacity to cool _________GPM(LPS) of _______ from __________°F (°C) to _________°F (°C) with a ______°F (°C) entering wet bulb temperature.

Basin and Casing

The basin and casing shall be constructed of heavy gauge mill hot-dip galvanized steel (G-235 in U.S.A. and Asia, Z-725 in Europe) for long life and durability. Standard basin accessories shall include overflow, drain, type 304 stainless steel strainers, and brass make-up valve with plastic float.

Fan Motor

__________horsepower (kW) totally enclosed fan cooled motors shall be furnished suitable for outdoor service on _______________ volts, __________hertz, and __________phase.
Motor(s) shall be mounted on an adjustable base, which is accessible from the outside of the unit for service. A swing away protective cover shall shield the motor and sheave from the weather.

Drive

The fan drive shall be multigroove, solid back V-belt type with taper lock sheaves designed for 150% of the motor nameplate power. The belt material shall be neoprene reinforced with polyester cord and specifically designed for closed circuit cooler service. Fan sheave shall be aluminum alloy construction. The fans and the fan sheaves shall be mounted on the shaft with a specially coated bushing to provide maximum corrosion protection. Belt adjustment shall be accomplished from the exterior of the unit. Bearing lube lines shall be extended to the exterior of the unit for easy maintenance.

Axial Propeller Fans

Fans shall be heavy-duty axial propeller type statically balanced. The fans shall be constructed of aluminum alloy blades, installed in a closely fitted cowl with venturi air inlet. Fan screens shall be galvanized steel mesh and frame, bolted to the fan cowl.

Fan Shaft Bearings

Fan shaft bearings shall be heavy-duty self-aligning ball type with grease fittings extended to the outside of the unit. Materials shall be stainless steel balls with chrome steel races and zinc plated housing for corrosion resistance. Bearings shall be designed for a minimum L-10 life of 75,000 hours.

Water Recirculation Pump

The pump(s) shall be a close-coupled, centrifugal type with mechanical seal, installed vertically at the factory to allow free drainage on shut down. __________horsepower (kW) totally enclosed motor(s) shall be furnished suitable for outdoor service on __________volts, __________hertz, and __________phase.

Heat Transfer Coil

Cooling coil(s) shall be all prime surface steel, encased in a steel framework and hot-dip galvanized after fabrication as a complete assembly. The tubes shall be arranged in a self-spacing, staggered pattern in the direction of airflow for maximum heat transfer efficiency and minimum pressure drop, without the use of additional spacers between the coil tubes. The coil(s) shall be pneumatically tested at 390 psig (2.69MPa) under water.

Water Distribution System

The spray header shall be constructed of schedule 40 polyvinyl chloride pipe for corrosion resistance. All spray branches shall be removable for cleaning. The water shall be distributed over the entire coil surface by heavy-duty, ABS spray nozzles with large 1-1/4" (32mm) diameter opening and internal sludge ring to eliminate clogging. Nozzles shall be threaded into spray header to provide easy removal for maintenance.

Eliminators

The eliminators shall be constructed entirely of inert polyvinyl chloride (PVC) in easily handled sections. The eliminator design shall incorporate three changes in air direction to assure complete removal of all entrained moisture from the discharge air stream. Maximum drift rate shall be less than 0.001% of the circulating water rate.

Louvers

The louvers shall be constructed from polyvinyl chloride (PVC). The louvers shall be mounted in easily removable frames for access to the pan for maintenance. The louvers shall have a minimum of two changes in air direction to prevent splash out and block direct sunlight.

Finish

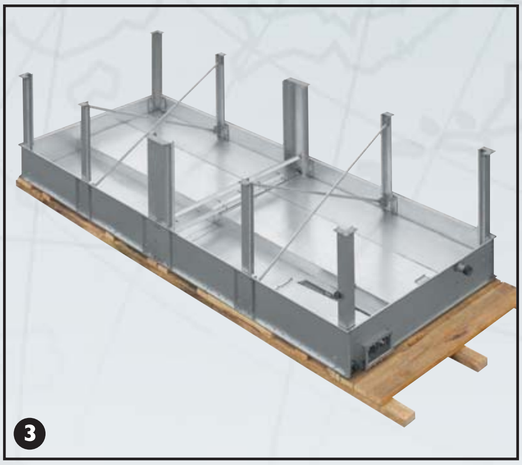
All basin and casing materials shall be constructed of heavy gauge mill hot-dip galvanized steel (G-235 in U.S.A. and Asia, Z-725 in Europe). During fabrication, all panel edges shall be coated with a 95% pure zinc-rich compound for superior protection against corrosion.

Easy Field Assembly

(See rigging and assembly instructions for fully detailed procedure.)

Unload Unit from Container

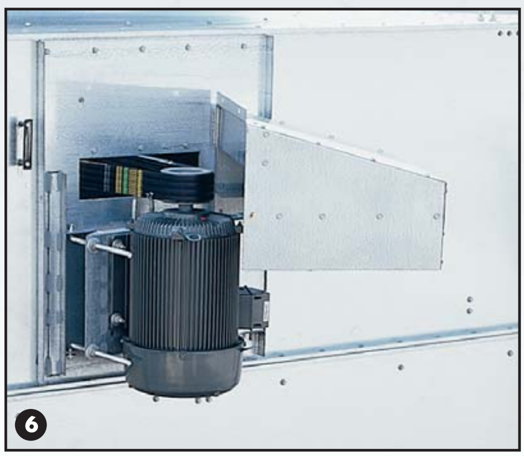
Mount Fan Section to Coil Section



Install Vertical Posts in Basin Section

Mount Coil/Fan to basin Section

Mount Pump and Piping



Mount Fan Motor

evapco

Innovation, Performance, Experience

EVAPCO, Inc. — World Headquarters & Research / Development Center

P.O. Box 1300 • Westminster, MD 21158 USA
410-756-2600 p • 410-756-6450 f • marketing@evapco.com

North America

EVAPCO, Inc.
World Headquarters
P.O. Box 1300
Westminster, MD 21158 USA
410-756-2600 p | 410-756-6450 f
marketing@evapco.com

EVAPCO East
5151 Allendale Lane
Taneytown, MD 21787 USA
410-756-2600 p | 410-756-6450 f
marketing@evapco.com

EVAPCO Midwest
1723 York Road
Greenup, IL 62428 USA
217-923-3431 p | 217-923-3300 f
evapcomw@evapcomw.com

EVAPCO West
1900 West Almond Avenue
Madera, CA 93637 USA
559-673-2207 p | 559-673-2378 f
contact@evapcowest.com

EVAPCO Iowa
925 Quality Drive
Lake View, IA 51450 USA
712-657-3223 p | 712-657-3226 f

EVAPCO Iowa
Sales & Engineering
215 1st Street, NE
P.O. Box 88
Medford, MN 55049 USA
507-446-8005 p | 507-446-8239 f
evapcomn@evapcomn.com

EVAPCO Newton
701 East Jourdan Street
Newton, IL 62448 USA
618-783-3433 p | 618-783-3499 f
evapcomw@evapcomw.com

EVAPCOLD
521 Evapco Drive
Greenup, IL 62428 USA
217-923-3431 p
evapcomw@evapcomw.com

EVAPCO-Dry Cooling, Inc.
1011 U.S. Highway 22 West
Bridgewater, NJ 08807 USA
1-908-379-2665 p
info@evapco-blct.com

Refrigeration Valves & Systems Corporation
A wholly owned subsidiary of EVAPCO, Inc.
1520 Crosswind Drive
Bryan, TX 77808 USA
979-778-0095 p | 979-778-0030 f
rvs@rvscorp.com

EVAPCO Northwest
5775 SW Jean Road, Suite 210
Lake Oswego, OR 97035 USA
503-639-2137 p | 503-639-1800 f

EvapTech, Inc.
A wholly owned subsidiary of EVAPCO, Inc.
8331 Nieman Road
Lenexa, KS 66214 USA
913-322-5165 p | 913-322-5166 f
marketing@evaptech.com

Tower Components, Inc.
A wholly owned subsidiary of EVAPCO, Inc.
5960 US Highway 64 East
Ramseur, NC 27316 USA
336-824-2102 p | 336-824-2190 f
mail@towercomponentsinc.com

South America

EVAPCO SEMCO
Equipamentos de Refrigeracao Ltda.
Rua Alexandre Dumas, 1601
Conj. 13, 14, 15 - Edificio Stelvio Mazza
04717-004 Sao Paulo - SP, Brazil
(55+19) 5681-2000 p

Europe

EVAPCO Europe BVBA
European Headquarters
Heersterveldweg 19
Industrieterrein Oost
3700 Tongeren, Belgium
(32) 12-395029 p | (32) 12-238527 f
evapco.europe@evapco.be

EVAPCO Europe, S.r.l.
Via Ciro Menotti, 10
I-20017 Passirana di Rho
Milan, Italy
(39) 02-939-9041 p | (39) 02-935-00840 f
evapcoeurope@evapco.it

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

EVAPCO Europe GmbH
Meerbuscher Straße 64-78
Haus 5
40670 Meerbusch, Germany
(49) 2159-69560 p | (49) 2159-695611 f
info@evapco.de

Flex coil a/s
A wholly owned subsidiary of EVAPCO, Inc.
Knøsgårdvej 115
DK-9440 Aabybro, Denmark
(45) 9824 4999 p | (45) 9824 4990 f
info@flexcoil.dk

EVAPCO S.A. (Pty.) Ltd.
A licensed manufacturer of EVAPCO, Inc.
18 Quality Road
Isando 1600
Republic of South Africa
(27) 11-392-6630 p | (27) 11-392-6615 f
evapco@evapco.co.za

Evap Egypt Engineering Industries Co.
A licensed manufacturer of EVAPCO, Inc.
5 El Nasr Road
Nasr City, Cairo, Egypt
2 02 24022866 / 2 02 24044997 p
2 02 24044667 / 2 02 24044668 f
primacool@link.net / shady@primacool.net

Asia/Pacific

EVAPCO Asia/Pacific Headquarters
1159 Luoning Road, Baoshan Industrial Zone
Shanghai 200949, P.R. China
(86) 21-6687-7786 p | (86) 21-6687-7008 f
marketing@evapcochina.com

EVAPCO (Shanghai) Refrigeration Equipment Co., Ltd.
1159 Luoning Rd., Baoshan Industrial Zone
Shanghai, P.R. China, Postal Code: 200949
(86) 21-6687-7786 p | (86) 21-6687-7008 f
marketing@evapcochina.com

Beijing EVAPCO Refrigeration Equipment Co., Ltd.
No. 66 the 4th Block, Yanxi Economic
Development Zone
Huairou District
Beijing, P.R. China Postcode: 101407
010-6166-7238 p | 010-6166-7295 f
evapcobj@evapcochina.com

EVAPCO Australia (Pty.) Ltd.
34-42 Melbourne Road
P.O. Box 436
Riverstone NSW 2765, Australia
(61) 2 9627-3322 p | (61) 2 9627-1715 f
sales@evapco.com.au

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

EvapTech Asia Pacific Sdn. Bhd
A wholly owned subsidiary of EvapTech, Inc.
B-61, IOI Boulevard
Jalan Kenari 5, Bandar Puchong Jaya
47170 Puchong, Selangor, Malaysia
(60-3) 8070-7255 p | (60-3) 8070-5731 f
marketing-ap@evaptech.com

EVAPCO...SPECIALISTS IN HEAT TRANSFER PRODUCTS AND SERVICES.

Visit **EVAPCO's** Website at: http://www.evapco.com http://www.evapcoasia.com

5M/04-09/DGD

Bulletin 167-CCC 09/16-1K(3)