



PCC Evaporative Condenser

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Improving on the PC2 benefits, the PCC lowers installation costs by reducing rigging time. The robust structural frame around the coil casing assures square-ness during rigging and eliminates the need for a shipping skid, thereby eliminating the need for disposal of the skid. The structural frame mates to an enhanced lower section. The lower section is provided with rigging pins reducing the alignment time to minutes. From 46 tons to 2,734 R-717 tons at the lowest condensing temperature, the PCC minimizes the energy consumption of the entire system reducing environmental impact, while saving contractors and owners money.



BAC's PCC: The Ideal Replacement

46 to 2,734 R-717 Tons in a Single Unit

Increased
Capacity
with 12' x 20'
Units

Redundant
Fan Option
on 12' x 18'
Units

Winter Dry
Operation

Seismically
Certified up to
 S_{DS} of 3.10g

Containerized
Units for
Exports



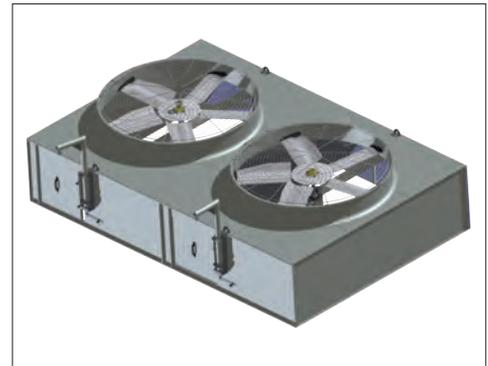
PCC Benefits

> Confidence – Reliability

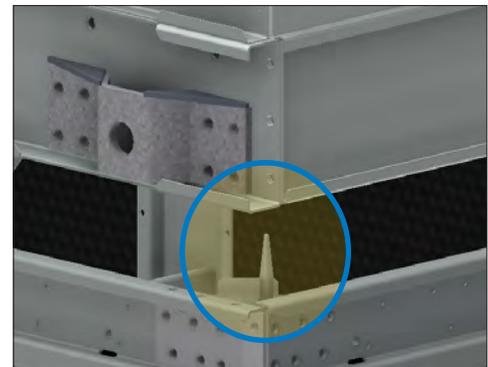
- ▶ Meets wind and seismic requirements of the International Building Code
- ▶ Bearings selected for a minimum L_{10} life of 100,000 hours
- ▶ Premium efficient fan motors are standard and ready for VFD's now or later
- ▶ Dual fan option is available on the popular 12' x 18' footprint - **BAC Exclusive!**

> Installation Efficiency

- ▶ BAC's new and improved InterLok™ System includes a structural frame to assure square-ness and rigging pins to align the coil casing to the basin reducing rigging time
- ▶ Rigging pins on the lower section
 - Align the coil casing and basin in less than 15 minutes per unit
- ▶ Pre-assembled IBC and OSHA approved platform packages reduce installation time (option)
- ▶ Single piece lift for all units
- ▶ Containerized units available for export
- ▶ Footprints that mount on most existing steel supports
- ▶ Single point wiring simplifies field installation (option)
- ▶ 12' x 20' box size increases capacity range reducing the number of cells required for a project



Two Fans on 12' x 18' Footprints (Option)



Rigging Pins

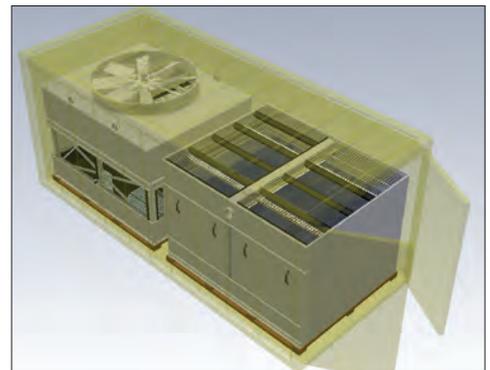


> Service – Maintenance

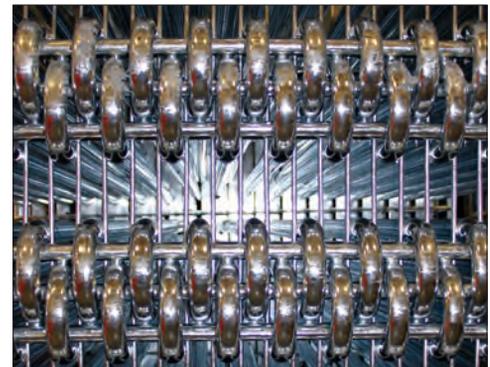
- ▶ Air intake louvers are sectioned for easy removal and easy access to all basin components
- ▶ External motor adjustment with included wrench
- ▶ A water distribution system that makes service of the nozzles, spray branches, and headers possible without the need for tools
- ▶ Quick release tool-less strainer

> Industrial Grade Construction

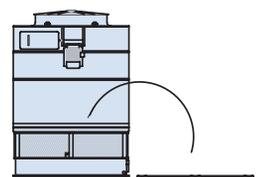
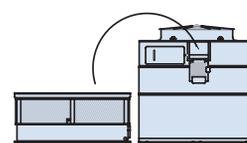
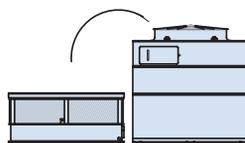
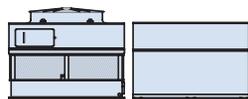
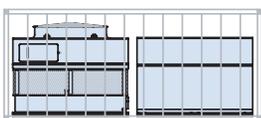
- ▶ Durable materials of construction
 - Mill galvanized (G-235) steel construction standard
 - TriArmor® Corrosion Protection System encapsulates the hygienic basin with three barriers of protection (option)
 - EVERTOUGH™ Construction provides the most corrosion resistant materials backed by a 5-year comprehensive, leak and corrosion warranty (option)
- ▶ Fully welded, not bolted, stainless steel basins (option)
- ▶ All coils are fabricated to ASME B31.5 standards
- ▶ Platforms are constructed to the latest IBC and OSHA regulations (option)



PCC 7.4' (Shown) Can Be Containerized for Export



All Coils Are Fabricated to ASME B31.5 Standards



Sequence for Removal and Rigging of a PCC Containerized Unit

PCC Construction Details

BAC MOTOR & DRIVE
5
YEAR
WARRANTY



1 Heavy-Duty Construction

- ▶ G-235 (Z700 metric) mill galvanized steel panels
- ▶ Meets wind and seismic requirements of the International Building Code (IBC)
- ▶ Certified to withstand up to an S_{DS} of 3.10g
- ▶ Robust structural frame assures square-ness

2 BALTIDRIVE® Power Train

- ▶ Premium efficient/VFD duty motors are standard
- ▶ 5-year motor and drive warranty
- ▶ Corrosion resistant cast aluminum sheaves
- ▶ Heavy-duty bearings, with minimum L_{10} life of 100,000 hours
- ▶ Premium quality, solid backed, multi-groove belt

3 Low HP Axial Fan(s)

- ▶ High efficiency
- ▶ Quiet operation
- ▶ Corrosion resistant aluminum

4 Water Distribution System

- ▶ Tool-less removal of spray branches
- ▶ Overlapping spray patterns ensure proper water coverage
- ▶ Large orifice, non-clog, BAC 360 Spray Nozzles

5 Coil

- ▶ Continuous serpentine, steel tubing
- ▶ Hot-dip galvanized after fabrication (HDGAF)
- ▶ Maximum allowable working pressure is 300 psig (2,068 kPa)
- ▶ Sloped tubes for free drainage of fluid
- ▶ Fabricated per ASME B31.5 standards
- ▶ When required, orders shipping into Canada are supplied with a CRN

6 Combined Inlet Shields

- ▶ Corrosion resistant
- ▶ Maintenance free
- ▶ UV-resistant finish
- ▶ Easy to remove sections

7 Basin

- ▶ Sloped for easy cleaning
- ▶ Suction strainer with removable anti-vortex hood accessible from the louver face
- ▶ Adjustable water make-up assembly
- ▶ Rigging pins to simplify alignment

8 Recirculating Spray Water Pump

- ▶ Close coupled, bronze fitted centrifugal pump
- ▶ Totally enclosed fan cooled (TEFC) motor
- ▶ Bleed line with metering valve installed from pump discharge to overflow

9 Access Door(s)

- ▶ Inward sliding door
- ▶ Permanently attached to the unit

10 Rigging Pins (NOT SHOWN)

- ▶ Rigging pins on the lower section
- ▶ Align the coil casing and the basin in less than 15 minutes per unit

> Materials of Construction

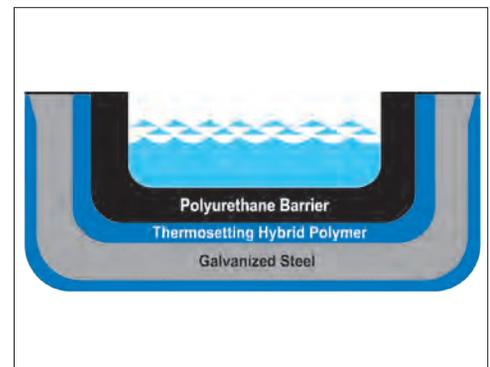
Determining the appropriate material of construction for a project depends on several factors, including water quality, climate and environmental conditions, availability of time and manpower for maintenance, unit lifetime requirements, and budget. BAC provides the widest variety of material of construction options in the industry and has the ability to provide a solution to meet all conditions and budgets. Options such as the TriArmor® Corrosion Protection System and EVERTOUGH™ Construction provide superior corrosion resistance and durability at a tremendous value.

▶ STANDARD CONSTRUCTION

G-235 mill galvanized steel is the heaviest commercially available galvanized steel, universally recognized for its strength and corrosion resistance. To assure long life, G-235 mill galvanized steel panels and structural members are used as the standard material of construction. The standard construction has been certified to withstand up to an S_{DS} of 3.10g and can withstand wind loads of up to 140 psf, proving its construction is designed for extreme durability. With proper maintenance and water treatment, G-235 galvanized steel will provide an excellent service life under the operating conditions normally encountered in refrigeration applications.



Rigging of Standard Construction Installation



TriArmor® Corrosion Protection System Triple Layer Protection of the Basin



TRIAMOR® CORROSION PROTECTION SYSTEM (OPTION)

The TriArmor® Corrosion Protection System consists of heavy gauge G-235 galvanized steel panels fully encapsulated by a thermosetting hybrid polymer and further protected by a polyurethane barrier applied to all submerged surfaces of the cold water basin. The triple layers of protection form a completely seamless cold water basin for the most leak resistant and durable basin in the industry. Other components within the basin, such as the strainer and submerged structural supports, will be constructed of stainless steel. The TriArmor® Corrosion Protection System was specifically designed for evaporative cooling applications and released in 2006 after a decade of extensive R&D and field testing. To date, there are thousands of successful installations in North America. Every basin is leak tested at the factory and warranted against leaks and corrosion for five years.



Application of TriArmor® Corrosion Protection System



▶ **EVERTOUGH™ CONSTRUCTION (OPTION)**

EVERTOUGH™ Construction combines the most corrosion resistant materials to provide the best value in corrosion protection for most water chemistries. EVERTOUGH™ Construction is backed by a comprehensive 5-year warranty which covers ALL components from the fan to the cold water basin, from louver to louver, including the motor (excluding the coil).

- The basin is constructed with the TriArmor® Corrosion Protection System. The basin is leak tested at the factory and warranted against leaks and corrosion for 5 years.
- Designated steel components above the basin are constructed of heavy-gauge G-235 mill galvanized steel and further protected with a thermosetting hybrid polymer. The thermosetting hybrid polymer has been tested to withstand 6,000 hours in a 5% salt spray without blistering, chipping, or losing adhesion.
- The distribution system is non-corrosive Schedule 40 PVC.
- Other components within the basin, such as the strainer and submerged structural supports, will be constructed of stainless steel.



EVERTOUGH™ Construction Installation

▶ **STAINLESS STEEL (OPTION)**

Several stainless steel material of construction options are available.

• **WELDED STAINLESS STEEL BASIN**

All steel panels and structural members of the basin are constructed from stainless steel. Seams between panels inside the basin are welded, providing an advantage over bolted stainless steel basins for minimizing susceptibility to leaks at basin seams. The basin is leak tested at the factory and welded seams are provided with a 5-year, leak-proof warranty.

• **ALL STAINLESS STEEL CONSTRUCTION**

Steel panels and structural elements are constructed of stainless steel. Seams between panels inside the basin are welded. The basin is leak tested at the factory and welded seams are provided with a 5-year, leak-proof warranty.



Welded Stainless Steel Basin

▶ **SEISMIC/WIND UPGRADED STRUCTURE**

Select steel panels and structural members are upgraded for higher seismic and wind load applications. An upgraded PCC unit is certified to withstand up to an S_{DS} of 3.10 g and wind loads of up to 140 psf.

> Coil Configurations

BAC offers a large selection of coil configuration options to fulfill any thermal and pressure drop requirements.

▶ **STANDARD SERPENTINE COIL**

The standard coil is constructed of continuous lengths of all prime surface steel. The coil is hot-dip galvanized after fabrication (HDGAF) to apply a thick, zinc corrosion barrier over the entire exterior surface of the coil. The coil is designed for low pressure drop. Each coil has a maximum allowable working pressure of 300 psig (2,068 kPa) and is fabricated per ASME B31.5 standards to ensure the highest quality and complete integrity.

▶ **STAINLESS STEEL COIL (OPTION)**

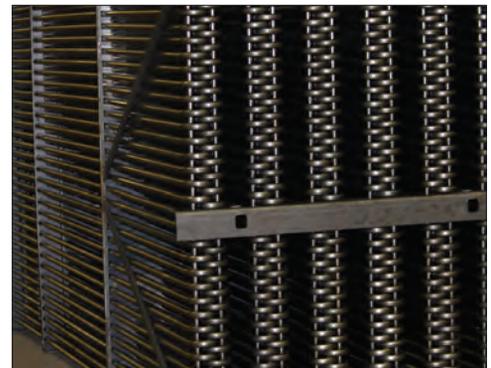
Coils are available in stainless steel for specialized applications. The coil is designed for low pressure drop with sloping tubes for free drainage of fluid. The coil has a maximum allowable working pressure of 300 psig (2,068 kPa) and is fabricated per ASME B31.5 standards to ensure the highest quality and complete integrity.

▶ **ASME U DESIGNATOR COIL (OPTION)**

BAC offers coils that are certified in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII, Division I. ASME U designated coils are available for projects requiring ASME certified pressure vessels and involve 3rd party inspection and certification. Standard ASME U designated coils are rated at 340 psig (2,344 kPa) maximum allowable working pressure, and they are pneumatically tested at 375 psig (2,586 kPa).



Standard Serpentine Coil



Stainless Steel Coil



▶ **MULTIPLE CIRCUIT COILS/AUXILIARY COOLING CIRCUIT (OPTION)**

Split coil configurations are available to allow separate process fluid or refrigerant loops through the same unit. Separate loops may be needed for multiple applications requiring different temperature processes or multiple types of process fluids or refrigerants. Multiple refrigerant circuit coils are generally required on halocarbon refrigerant systems, where it is common practice to maintain individual compressor systems. The quantity of circuits, capacity per circuit, and desired connection size and type should be specified when requesting this option.

▶ **COPPER SWEAT FITTINGS (OPTION)**

Factory installed copper sweat fittings are available to simplify field piping.



NOTE: A Canadian Registration Number (CRN) is required for all pressure vessels over 15 psig entering Canada. The CRN identifies that the design of a boiler, pressure vessel, or fitting has been accepted and registered for use in Canada. CRN is available for all BAC Dual and TriCoil configurations in Canada.

› Drive System Options

The fan drive system provides the cooling air necessary to reject unwanted heat from the system to the atmosphere. All BAC drive systems use premium efficient cooling tower duty motors and include BAC's comprehensive 5-year motor and drive warranty. Cooling tower duty motors are specially designed for the harsh environment inside an evaporative condenser and have permanently lubricated bearings, drastically decreasing the maintenance requirement of the motor. BAC belt drive systems are the most durable and maintenance friendly drive systems on the market, including single nut adjustment for belt tensioning.



Multiple Circuit Coil



Copper Sweat Fittings

PCC

Custom Features & Options

▶ STANDARD INDEPENDENT DIRECT DRIVE MOTORS

Standard on PCC-x-0406x and PCC-x-0412x only

The direct drive motor system with TEAO motors is factory mounted, alleviating the need for field installation and includes independent fans and motors for capacity control and redundancy in critical applications. Direct drive systems have the benefit of simplicity by having fewer moving parts, which reduces maintenance requirements and friction losses within the drive system.

▶ STANDARD BALTIDRIVE® POWER TRAIN

The BALTIDRIVE® Power Train utilizes special corrosion resistant materials of construction and state-of-the-art technology to ensure ease of maintenance and reliable year-round performance. This BAC engineered drive system consists of a specially designed powerband and two cast aluminum sheaves located at minimal shaft centerline distances to maximize belt life. When compared to a gear drive system, this specially engineered belt drive system provides many advantages. The BALTIDRIVE® Power Train requires only periodic inspection of components and belt tensioning, which is simple with a single nut adjustment and requires less downtime. Only fan bearing lubrication is required for routine maintenance. Belt drive systems also have the added advantage of being suitable for variable frequency drive (VFD) applications without requiring expensive optional accessories.

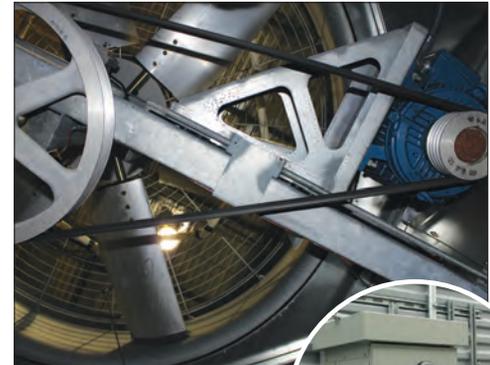


INDEPENDENT FAN OPERATION (OPTION)

Two fan 12' x 18' PCC models are available with an independent fan. The option consists of one fan motor and drive assembly for each fan to allow independent operation, adding an additional step of fan cycling for capacity control. This option ensures complete redundancy for the fan and motor system.

▶ VIBRATION CUTOUT SWITCH (OPTION)

A factory mounted vibration cutout switch is available to effectively protect against rotating equipment failure. BAC can provide either a mechanical or solid-state electronic vibration cutout switch in a NEMA 4 enclosure to ensure reliable protection. Additional contacts can be provided on either switch type to activate an alarm. Remote reset capability is also available on either switch type.



BALTIDRIVE® Power Train Used for VFD Applications





> Maintenance Options

BAC provides maintenance packages to help make maintaining the PCC Evaporative Condenser as easy as possible. Choose the package that will best meet your needs. A properly maintained evaporative condenser will increase its life.

MAINTENANCE PACKAGES

Package Type	Extended Lubrication Lines	Davit Arm With a Mount	Bearing Greaser	Basin Sweeper Piping
Standard	✓			
Enhanced	✓	✓*	✓	
Superior	✓	✓*	✓	✓

▶ STANDARD

The Standard maintenance package includes extended lubrication lines to the fan shaft bearings. Fittings are located next to the access door.



Standard Maintenance Package:
Extended Lubrication Lines



* **NOTE:** The Enhanced option comes with a motor removal mount per cell and **one** davit arm. The Superior option comes with a motor removal mount and davit arm **per** cell.



ENHANCED (OPTION)

The Enhanced maintenance package includes all items in the standard package plus:

- **MOTOR REMOVAL MOUNT** – A motor removal mount per cell with a single arm to facilitate motor replacement is included.
- **AUTOMATIC BEARING GREASER** – Automatic Bearing Greasers come with BAC recommended grease, compatible with all BAC bearings and provide a continuous supply of new grease to eliminate the need for periodic bearing maintenance. Life of the bearing is extended by eliminating under and over greasing problems. Positive displacement pumps allow for mounting up to 30 feet away from the bearing. When the grease pouch is nearly depleted, three months to a year depending on bearing size, simply replace the pouch.



Motor Removal Davit Arm with Motor Removal Mount

PCC

Custom Features & Options

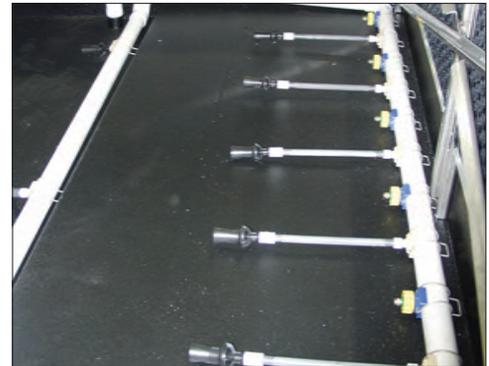
▶ SUPERIOR (OPTION)

The Superior maintenance package includes extended lubrication lines as described in the standard package as well as:

- **MOTOR REMOVAL SYSTEM** – One motor removal mount and davit arm per cell.
- **AUTOMATIC BEARING GREASER** – Automatic Bearing Greasers come with BAC recommended grease, compatible with all BAC bearings and provide a continuous supply of new grease to eliminate the need for periodic bearing maintenance. Life of the bearing is extended by eliminating under and over greasing problems. Positive displacement pumps allow for mounting up to 30 feet away from the bearing. When the grease pouch is nearly depleted, three months to a year depending on bearing size, simply replace the pouch.
- **BASIN SWEEPER PIPING** – Basin sweeper piping is an effective method of eliminating sediment that may collect in the basin. A complete piping system, including nozzles, is provided in the basin to connect to side stream filtration equipment (provided by others). For more information on filtration systems, consult “Filtration Guide” found on **page J241**.



Automatic Bearing Greaser



Basin Sweeper Piping



Access Options

BAC provides a broad offering of access packages. Our evaporative equipment is designed to be easily maintained for sustaining capacity over a longer life. All BAC platforms and ladders are OSHA and IBC compliant to ensure personnel safety and code compliance.

ACCESS PACKAGES

Package Type	Inclined Ladder	Ladder	Handrails	Platform
Basic	✓			
Basic Plus		✓	✓	
Enhanced		✓		✓

▶ BASIC (OPTION)

The Basic access package includes an inclined ladder extending from the base of the unit to the access door, providing safe access with minimal space requirements. All components are designed to meet OSHA requirement.

▶ BASIC PLUS (OPTION)

The Basic Plus access package includes a ladder from the base of the unit to the fan deck and handrails to provide safe access to the top of the unit. The specially designed handrail packages are secured for compact shipping in the cold water basin to minimize shipping costs and are ready for field assembly.

ENHANCED (OPTION)

The Enhanced access package includes an access door platform and ladder to allow access to the unit when installed on elevated supports. This option allows for safe access to the unit, as well as a working platform to stage tools for maintenance. The platform is pre-assembled and pre-fitted at the factory to ensure that every component will fit and function exactly as described. The platform is rigged easily in the field with minimum fasteners and drastically reduces the time required for rigging external access platforms.



NOTE: Platforms, ladders, handrails, safety gates, and safety cages can be added at the time of order or as an aftermarket item. Safety cages and safety gates are available with the Basic Plus and Enhanced package options.



Enhanced Access Package

PCC

Custom Features & Options

> Basin

The spray water collects in the basin and is then pumped back over the condensing coil. During operation, the PCC basin eliminates any stagnant water zones, which are susceptible to biological growth.

▶ **STANDARD MECHANICAL WATER LEVEL CONTROL**

Mechanical make-up valves must operate continuously in the moist and turbulent environment within evaporative cooling equipment. Due to this environment, the operation of the valve must be simple and the valve must be durable. BAC's high quality mechanical water level control assembly is standard with all units and has been specially designed to provide the most reliable operation while being easy to maintain. This accessory is omitted for remote sump applications.

▶ **ELECTRIC WATER LEVEL CONTROL (OPTION)**

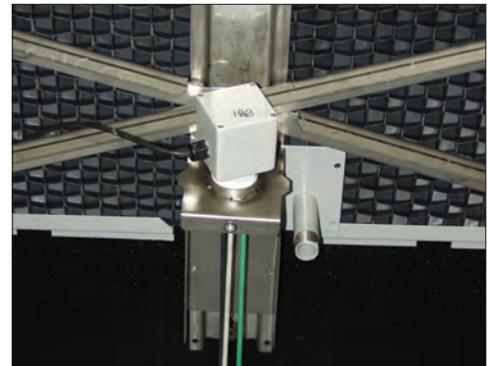
BAC's Electric Water Level Control (EWLC) is a state-of-the-art, conductivity actuated, probe type liquid level control. The hermetically sealed EWLC is engineered and manufactured specifically for use in evaporative cooling systems and is equipped with an error code LED to indicate status, including when the water and/or probes are dirty. The EWLC option replaces the standard mechanical make-up valve, and includes a slow closing, solenoid activated valve in the make-up water line to minimize water hammer. EWLC is recommended when more precise water level control is required and in areas that experience sub-freezing conditions.

▶ **LOW AND HIGH LEVEL ALARM FLOAT SWITCHES (OPTION)**

Low and high level alarm float switches are available to provide added control to your equipment operation. Level alarms can alert operators to an abnormal operating condition to ensure the highest system efficiency with minimal water usage.



Mechanical Water Level Control



Electric Water Level Control



► **BASIN HEATERS (OPTION)**

Evaporative cooling equipment exposed to below freezing ambient temperatures require protection to prevent freezing of the water in the basin when the unit is idle. Factory-installed electric immersion heaters, which maintain 40°F (4.4°C) water temperature, are a simple and inexpensive way of providing such protection.

HEATER kW DATA

Model Number	-20°F (-28.9°C) Ambient Heaters		Model Number	-20°F (-28.9°C) Ambient Heaters	
	Number of Heaters	kW per Heater		Number of Heaters	kW per Heater
PCC-x-0406x	1	3	PCC-x-2418x	2	24
PCC-x-0412x	1	6	PCC-x-2420x	2	24
PCC-x-7409x	1	8	PCC-x-1024x	2	14
PCC-x-7418x	1	15	PCC-x-1224x	2	16
PCC-x-1012x	1	14	PCC-x-1236x	2	24
PCC-x-1212x	1	16	PCC-x-1240x	2	24
PCC-x-1218x	1	24	PCC-x-2424x	4	16
PCC-x-1220x	1	24	PCC-x-2436x	4	24
PCC-x-2012x	2	24	PCC-x-2440x	4	24
PCC-x-2412x	2	16			



Basin Heater

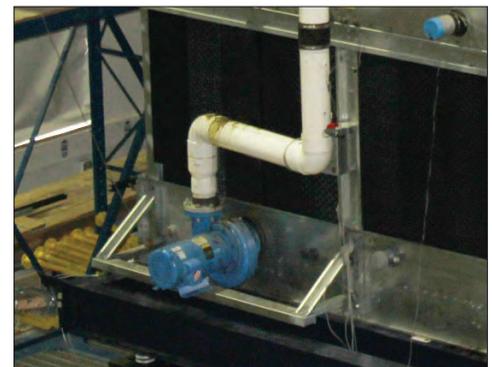


NOTE: This table is based on 460V/3 phase/60 Hz power.

► **Water Distribution System**

► **STANDARD SPRAY WATER PUMP**

The PCC water distribution system comes standard with an integral spray water pump sized to distribute the recirculating water over the coil maximizing capacity. The patented BAC 360 Spray Nozzles are non-clog, ensure even flow over the coil area, and are simple to remove for maintenance.



Standard Spray Water Pump

► **Shipping and Rigging**

BAC units are factory-assembled to ensure uniform quality with minimum field assembly. Each unit has been designed with rigging and assembly in mind and includes features to minimize the number of tools required and installation time.

PCC

Custom Features & Options

▶ INTERLOK™ SYSTEM

The InterLok™ System is a self-aligning casing/basin joint that makes assembly easier. The alignment of the casing and basin joint determines the leak resistance of the joint. With the InterLok™ System, the joint is now inside the unit, therefore eliminating the possibility of water leakage at these seams.

▶ RIGGING GUIDES

The PCC is designed with a robust structural frame around the coil casing to assure square-ness during shipping and rigging. The lower section is equipped with field installed rigging pins that reduces alignment time to less than 15 minutes.

▶ KNOCKDOWN UNITS (OPTION)

Knockdown units are available for jobs where access to the evaporative condenser location is limited by elevators, doorways, or similar obstacles, where lifting methods impose very strict weight limits, or where the shipping cost of a fully assembled unit is excessive. All materials of construction and design features are the same as those of a factory assembled unit. Welded stainless steel basins and TriArmor® Corrosion Protection System basins are excluded due to the need for in-plant assembly.

▶ CONTAINERIZED UNITS (OPTION)

The PCC 4'x6', 4'x12', 7.4'x9', and 7.4'x18' can be containerized in a standard shipping container for easy export, allowing for the lowest transportation cost possible when providing high quality BAC units to all parts of the world. Up to 500 nominal R-22 tons in a single 40' shipping container.

> Sound Options

Recognition of the importance of sound restriction is growing and can be a very important design criterion for any project. BAC maintains the widest selection of sound mitigating options in the market and can provide the most cost effective option to meet any requirement.



InterLok™ System



PCC-x-0406x, PCC-x-0412x, PCC-x-0709x, and PCC-x-0718x Can Be Containerized



▶ **STANDARD FAN**

The fan provided for all PCC Evaporative Condensers is selected to optimize low sound levels and maximize thermal performance.

▶ **LOW SOUND FAN (OPTION)**

The Low Sound Fan option reduces sound up to 8 dBA. Adding a high solidity fan allows for decreased fan speed, which proportionally decreases sound levels.

▶ **WHISPER QUIET FAN (OPTION)**

The Whisper Quiet Fan reduces sound up to 15 dBA. This single piece, high solidity fan is made from chemical resistant fiber reinforced polyester (FRP) and comes standard with blade leading protection. As a single piece fan, the non-corrosive blades are permanently pitched and require minimal maintenance.

▶ **WATER SILENCERS (OPTION)**

Water silencers are available to reduce the sound of falling water inherent in induced draft counterflow evaporative condensers. When utilized with one of BAC's Low Sound Fans, the sound contribution due to water noise can be reduced to negligible levels.

> Air Intake

In an evaporative condenser, airborne debris can be entrained in the water through the unit's air intake. Reducing the amount of debris that enters the condenser lowers maintenance requirements and helps to maintain thermal efficiency.

▶ **COMBINED INLET SHIELDS**

The Combined Inlet Shields' (CIS) bent flow path blocks sunlight from the basin and acts as a screen to prevent debris from entering the unit. These benefits result in a significant reduction in algae growth, debris accumulation, and scale build-up. CIS are constructed from corrosion and UV resistant PVC and are installed in easy to handle sections to facilitate removal, inspection, and replacement. The use of CIS results in lower maintenance costs and ease of maintenance over the life of the unit.



Low Sound Fan



Water Silencers



Combined Inlet Shields