



Series PT2 Open Cooling Tower

The PT2 brings you the most advanced counterflow, induced draft cooling tower in the industry. Engineered with input from end users, the PT2's design highlights BAC's commitment to ease of maintenance, low installation costs, reduced energy consumption and durable construction. Offering a compact footprint for low to medium tonnage requirements, the PT2 provides an efficient solution for installations with space constraints.



BAC's PT2: The Superior Counterflow Unit

Designed for Small to Medium Tonnage Requirements
103 to 827 Nominal Tons in a Single Cell

▼
Compact Design

▼
Low
Installed
Cost

▼
Easy to
Maintain

▼
Reduced
Environmental
Impact

▼
Variety of
Materials of
Construction



PT2 Benefits

> Low Environmental Impact

▶ ENERGY EFFICIENT

- All units meet or exceed ASHRAE Standard 90.1 energy efficiency requirements
- Premium efficient/inverter duty fan motors
- PT2-0412A and PT2-1218A models provide capacity control and redundancy from the two independent motors

▶ SOUND REDUCTION OPTIONS

- Standard fan optimizes sound and thermal performance
- For further reduced sound levels, Low Sound Fans, Whisper Quiet Fans, and sound attenuation are available



Whisper Quiet Fan

> Durable Construction

- ▶ Enhanced longevity with a variety of materials of construction
- ▶ Designed to withstand wind loads of up to 30 psf, upgraded units designed to withstand 130 psf
- ▶ Seismically verified through dynamic shake table testing up to a S_{DS} of 2.93g
- ▶ Meets wind and seismic requirements of the International Building Code (IBC)
- ▶ Listed on California's Office of Statewide Health Planning and Development (OSHPD) pre-approved equipment list



Shake Table Testing

> Reliable Year-Round Operation

▶ BALTIDRIVE® POWER TRAIN FAN SYSTEM (EXCEPT DIRECT DRIVE FOR PT2-0412A)

- Backed by BAC's comprehensive 5-year motor and drive warranty
- Corrosion resistant cast aluminum sheaves with specially designed powerband belts
- Cooling tower duty motors designed for hostile environment
- Extended lubrication lines are standard
- Eliminates the need for expensive winterization accessories
- Automatic bearing greasers (option)

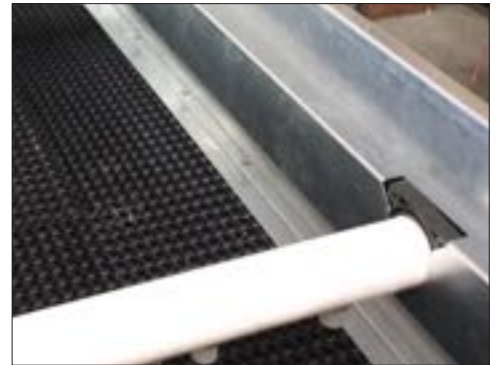


BALTIDRIVE® Power Train



> Easy Maintenance

- ▶ BranchLok™ Removal System allows for spray branch removal without tools
- ▶ External motor adjustment with included integral belt tensioning device
- ▶ Inward sliding access doors provide larger workspace
- ▶ Louvers are easily removed without tools
- ▶ Sloped cold water basin for easy cleaning
- ▶ External platforms and ladders improve accessibility (option)
- ▶ Removable panels allow for easy inspection and access to the fill (option)
- ▶ Basin sweeper piping to facilitate sediment collection (option)



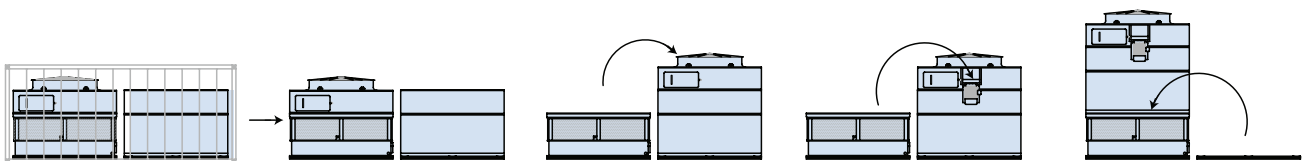
BranchLok™ Removal System

> Low Installed Cost

- ▶ Single piece lift available on all models
- ▶ Models ship in multiple sections to optimize the size and weight of the heaviest lift, allowing for use of smaller, less costly cranes
- ▶ BAC's InterLok™ System aligns the casing and the basin to expedite rigging and requires no sealer tape
- ▶ The PT2-0412A and PT2-0709A are designed to fit in standard export containers
- ▶ Factory pre-assembled platforms reduce installation time (option)
- ▶ Adaptable steel to fit existing support structure
- ▶ Knockdown units available for field assembly

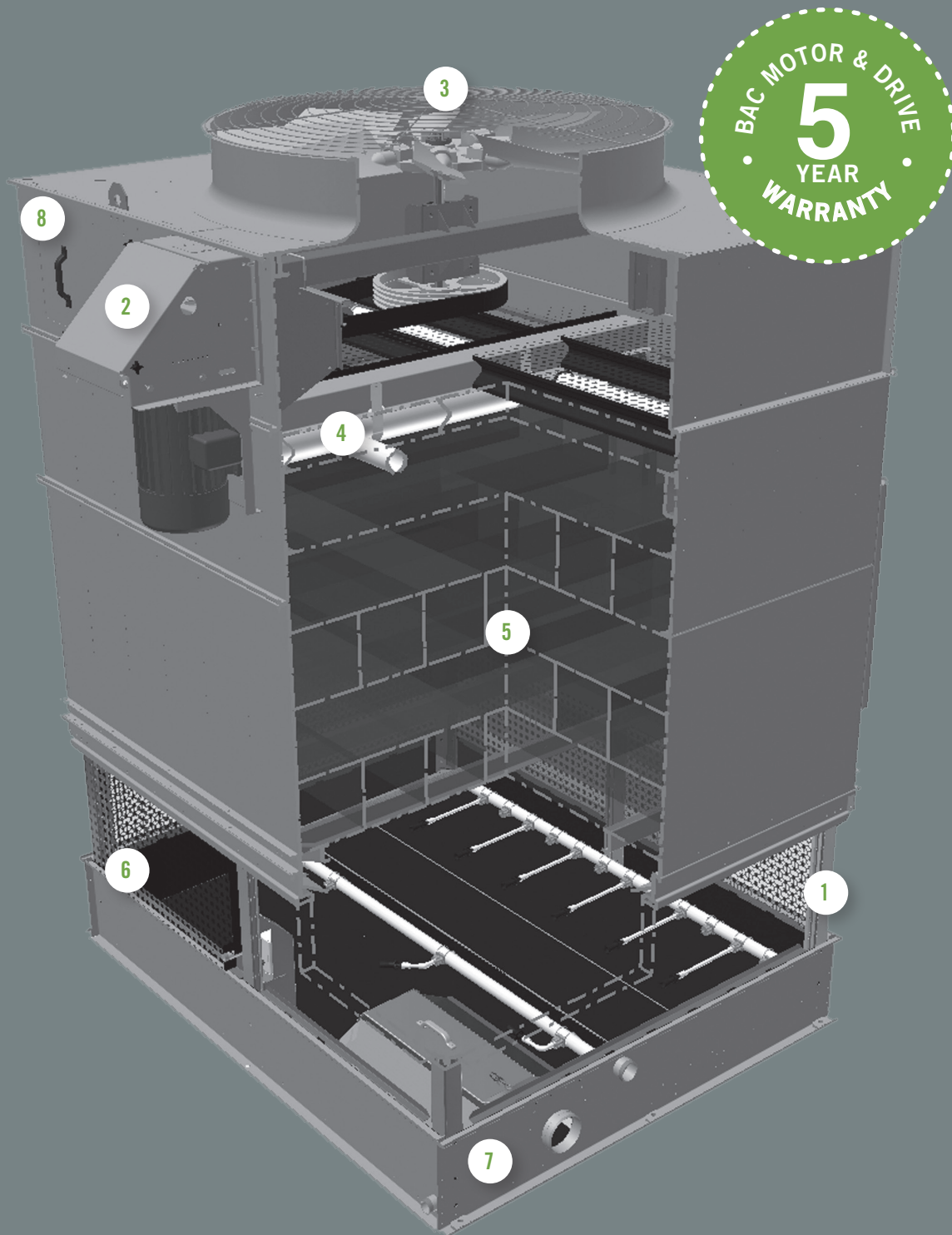


Single Piece Lift



Easily Assembled Containerized Units

PT2 Construction Details



1

Heavy-Duty Construction

- ▶ G-235 (Z700 metric) mill galvanized steel panels
- ▶ Meets wind and seismic requirements of the International Building Code (IBC)
- ▶ Shake table tested and verified with seismic ratings up to a S_{DS} of 2.93g
- ▶ Designed to withstand wind loads of up to 130 psf
- ▶ Base structure withstands higher seismic loading than any other induced draft counterflow tower on the market

2

BALTIDRIVE® Power Train

- ▶ Available on all models except direct drive model PT2-0412A
- ▶ Premium quality, solid backed, multi-groove belt
- ▶ Corrosion resistant cast aluminum sheaves
- ▶ Heavy-duty bearings with a minimum L_{10} of 80,000 hours
- ▶ Premium efficient/VFD duty motors are standard
- ▶ 5-year motor and drive warranty
- ▶ Extended lubrication lines

3

Low HP Axial Fan(s)

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

4

Water Distribution System

- ▶ Exclusive BranchLok™ Removal System for tool free branch removal
- ▶ Schedule 40 PVC spray header and branches
- ▶ Large orifice, non-clog nozzles
- ▶ Nozzles grommited for easy removal

5

BAC Pak™ Fill

- ▶ Guaranteed thermal performance
- ▶ Polyvinyl chloride (PVC)
- ▶ Impervious to rot, decay, and biological attack
- ▶ Flame spread rating of 25 per ASTM E84

6

Combined Air Inlet Shields

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

7

Cold Water Basin

- ▶ Sloped for easy cleaning
- ▶ Suction strainer with removable anti-vortex hood
- ▶ Adjustable water make-up assembly

8

Tool-less Access Door(s)

- ▶ Inward sliding door(s)
- ▶ Permanently attached to the unit

PT2

Custom Features & Options

► 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.

► 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 is used as the standard material of construction for all PT2 units. Standard PT2 unit construction has been seismically certified by an independent laboratory up to an S_{DS} of 1.0g by shake table testing and can withstand wind loads of up to 30 psf, proving its durability and strength. With proper maintenance and water treatment, G-235 galvanized steel products will provide an excellent service life under the operating conditions normally encountered in comfort cooling and industrial applications.

► STAINLESS STEEL (OPTION)

Several stainless steel material of construction options are available.

- **WELDED STAINLESS STEEL COLD WATER BASIN**
A welded stainless steel cold water basin is available. All steel panels and structural members of the cold water basin are constructed from stainless steel. Seams between panels inside the cold water basin are welded, providing an advantage over bolted stainless steel cold water 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**
All steel panels and structural elements are constructed of stainless steel.

► SEISMIC/WIND UPGRADED STRUCTURE

Select steel panels and structural members are upgraded for higher seismic and wind load applications. An upgraded PT2 unit is certified to withstand up to an S_{DS} of 2.93g and wind loads of 130 psf. All BAC upgraded units are shake table tested by an independent laboratory to certify the most accurate seismic ratings ensuring that the unit will remain operable following a seismic event.



Standard Construction Installation



Welded Stainless Steel Cold Water Basin



PT2 During Shake Table Testing



➤ 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 a cooling tower 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 to make belt tensioning simple.



STANDARD BALTIDRIVE® POWER TRAIN

Standard on All Models Except PT2-0412A Direct Drive Models

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. 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.



Standard BALTIDRIVE® Power Train Externally Mounted Motor
Models PT2-0709A, PT2-0809A, and PT2-0812A



INDEPENDENT DIRECT DRIVE MOTORS

Standard on PT2-0412A

The direct drive dual 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.



Direct Drive Motors(PT2-0412A)

PT2

Custom Features & Options



INDEPENDENT FAN OPERATION (OPTION)

Optional on PT2-1218A

Two fan 12' x 18' PT2 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.



EXTENDED LUBRICATION LINES

Extended lubrication lines are available for lubrication of the fan shaft bearings. Fittings are located on the exterior casing panel next to the access door.

▶ AUTOMATIC BEARING GREASER (OPTION)

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.



BALTDRIIVE® Power Train Internally Mounted Motor
Models PT2-1009A, PT2-1012A, PT2-1212A, and PT2-1218A



Vibration Cutout Switch



Automatic Bearing Greasers



> Cold Water Basin

The cooling tower water collects in the cold water basin which provides the required head pressure for the cooling system pump. The PT2 cold water basin utilizes a sloped pan design to help eliminate 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 existing 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.

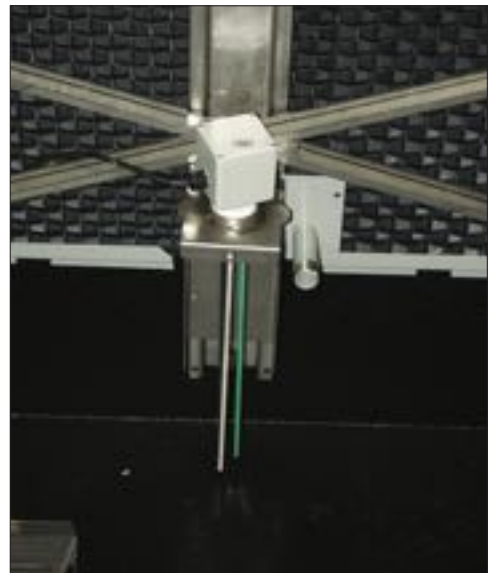


Mechanical Water Level Control



▶ **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 which illuminates 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.



Electric Water Level Control

▶ **SIDE OUTLET DEPRESSED SUMP BOX (OPTION)**

A side outlet depressed sump box is available for field installation below the base of the tower. This option facilitates horizontal piping below the basin, and is a compact alternative to using an elbow in the piping arrangement, saving on both installation time and cost. The outlet connection is designed to mate with an ASME Class 150 flat face flange. See the "Connection Guide" on [page J176](#) for more information on standard and optional unit connection types.

PT2

Custom Features & Options



BASIN HEATERS (OPTION)

Evaporative cooling equipment exposed to below freezing ambient temperatures require protection to prevent freezing of the water in the cold water 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	0°F (-17.8°C) Ambient Heater's kW	-20°F (-28.9°C) Ambient Heater's kW
PT2-0412A	6	6
PT2-0709A	6	8
PT2-0809A	8	10
PT2-0812A	10	12
PT2-0814A	10	14
PT2-1009A	8	10
PT2-1012A	10	14
PT2-1212A	12	16
PT2-1214A	14	20
PT2-1218A	18	24



Basin Heater



NOTE: One heater element is required. This table is based on 380V/3 phase/50 Hz power.

BASIN SWEEPER PIPING (OPTION)

Basin sweeper piping is an effective method of reducing sediment that may collect in the cold water basin of the unit. A complete piping system, including nozzles, is provided in the cold water basin to connect to side stream filtration equipment (provided by others). For more information on filtration systems, consult the "Filtration Guide" found on [page J241](#).

► LOW AND HIGH LEVEL ALARMS (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.



Basin Sweeper Piping



> Multi-Cell Unit Options

Special care must be taken for multi-cell installations to ensure balanced water levels in the cold water basins across cells. If measures are not put in place to ensure balanced basin water levels, a potential exists that one basin may overflow and dump water, while the water level in another tower goes low and requires make-up. This leads to unnecessary water waste. To prevent this from occurring, BAC provides two options for balancing water levels and recommends that the installation be designed to ensure balanced flows to and from each tower.

▶ FLUME BOX – STANDARD ON ALL MULTI-CELL UNITS

A flume box is provided as standard for multi-cell units to balance the water level in the cold water basins. See the “Connection Guide” on [page J176](#) for more information.

▶ EQUALIZER (OPTION)

Equalizer connections are available as an option for multi-cell cooling towers in lieu of a flume box. Use of an equalizer allows for easy isolation of a cell for winter operation, maintenance, or inspection while continuing system operation. See “Cooling Towers in Parallel” on [page J167](#) for more information.



Flume Box Prepared for Shipping

> Water Distribution System

The PT2 distribution system was specially designed for accessibility and maintainability. This includes the exclusive BranchLok™ Removal System, BAC non-clogging grommets for easy removal and replacement.

▶ STANDARD SIDE INLET CONNECTION

The PT2 is provided with a single inlet connection, and non-clogging nozzles allow for easily flushing debris from the water distribution system.



Side Inlet Connection

PT2

Custom Features & Options



BRANCHLOK™ REMOVAL SYSTEM

The BranchLok™ Removal System is a water distribution branch removal system that requires no tools, allowing for easy inspection and maintenance of the water distribution. Maintainability ensures continued even flow over the heat transfer surface for maximum capacity.

> Fill

PT2's BAC Pak™ Fill is exclusively designed to provide you guaranteed thermal performance and is made of PVC making it virtually impervious to rot, decay, and biological attack.



STANDARD FILL

Standard BAC Pak™ Fill can be used in applications with entering water temperature up to 140°F (60°C). The fill and drift eliminators are formed from self-extinguishing PVC having a flame spread rating of 25 per ASTM E84.

▶ HIGH TEMPERATURE FILL (OPTION)

An optional high temperature fill material is available which increases the maximum allowable entering water temperature to 150°F (65.5°C).

▶ FILL INSPECTION PANELS (OPTION)

Removeable inspection panels allow for easy inspection and access to the fill.

> Air Intake Options

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



COMBINED INLET SHIELDS (CIS)

The Combined Inlet Shields' (CIS) bent flow path blocks sunlight from the cold water 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, are CTI certified, 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.



BranchLok™ Removal System



PT2 with One Fill Inspection Panel Removed



Combined Inlet Shields



> 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.



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. On the PT2, this specially designed joint eliminates the need for sealer tape and significantly reduces rigging time.



InterLok™ System

▶ KNOCKDOWN UNITS (OPTION)

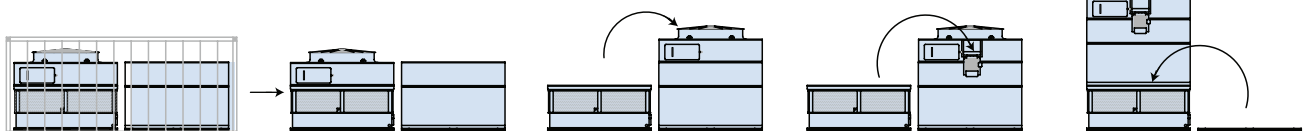
Knockdown units are available for jobs where access to the cooling tower location is limited by elevators, doorways, or similar obstacles, where lifting methods impose very strict weight limits, or where the shipping cost of a fully assembled tower is excessive. All materials of construction and design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

▶ CONTAINERIZED UNITS

The PT2-0412A and PT2-0709A 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.



PT2-0709A in a Standard Shipping Container



Easily Assembled Containerized Units

PT2

Custom Features & Options

> 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 place and can provide the most cost effective option to meet any requirement.

▶ **STANDARD FAN**

The fan provided for all PT2 Cooling Towers 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. The thermal performance with the Low Sound Fan has been certified in accordance with CTI Standard STD-201.

▶ **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. The thermal performance with the Whisper Quiet Fan has been certified in accordance with CTI Standard STD-201.

▶ **WATER SILENCERS (OPTION)**

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



Whisper Quiet Fan



Water Silencers



> Access Options

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

▶ **MOTOR REMOVAL SYSTEM (OPTION)**

All motor removal system options include davit arm(s) to facilitate motor replacement.



Motor Removal System with Davit Arms

▶ **MODULAR EXTERNAL PLATFORMS AND LADDER PACKAGES (OPTION)**

Every modular external platform is preassembled 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.

▶ **ACCESS DOOR PLATFORM AND LADDER PACKAGES (OPTION)**

An access door platform is available for safe access to the unit, as well as a working platform to stage tools for maintenance.

▶ **EXTERNAL LADDER (OPTION)**

The PT2 can be furnished with an inclined ladder - a 75° angled ladder - extending from the base of the unit to the access door, providing safe access to visually inspect the unit with minimal space requirements. Inclined ladders should not be used as working platforms, or as a landing platform to enter or exit the unit. A platform (also available as a BAC option) is recommended if the unit is entered or work will be performed from this access point. All components are designed to meet OSHA requirements.



External Ladder



Access Door Platforms



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