



# Evaporative Condensers

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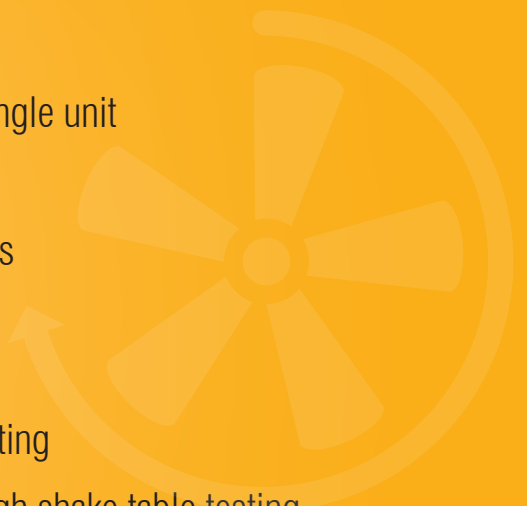
**BAC** offers the most complete line of evaporative condenser products in the world. With over 75 years of experience designing and manufacturing evaporative condensers, we have a unit to meet your application.

#### **THE BEST STOP FOR...**

- ✓ Over 75 years of experience
- ✓ Capacities ranging from 7 to 2,734 ammonia tons in a single unit
- ✓ Factory assembled accessories that reduce field labor
- ✓ The largest variety of footprints and air inlet configurations

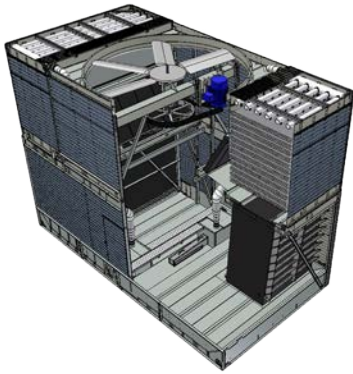

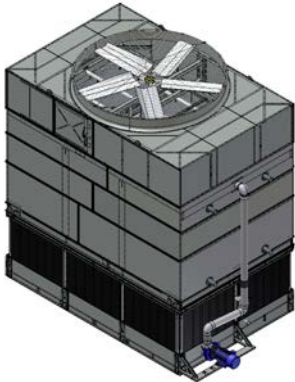
#### **THE ONLY STOP FOR...**

- ✓ Guaranteed seismic performance through shake table testing
- ✓ IBC certified units verify functionality after an event through shake table testing
- ✓ Unique patented coil technologies for the CXVB and CXVT Condensers
- ✓ XE Models for energy savings and reliable operation


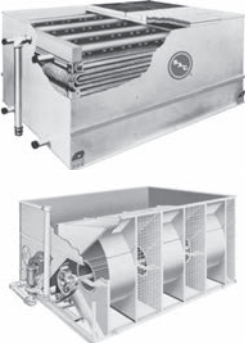
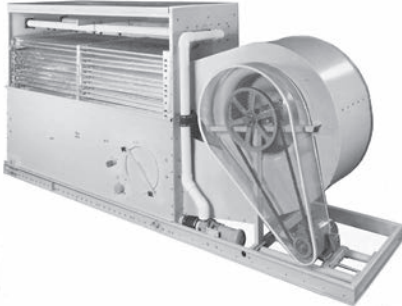


EVAPORATIVE CONDENSER

# Unique Features

	CXVT	CXVB	PCC
Model			
Flow and Fan System	Combined Flow, Induced Draft, Axial Fan	Combined Flow, Induced Draft, Axial Fan	Counterflow, Induced Draft, Axial Fan
Cataloged Capacity Range	540 - 2,114 Nominal Tons*	75 - 1,287 Nominal Tons*	46 - 2,734 Nominal Tons*
<b>UNIQUE FEATURES</b>	<ul style="list-style-type: none"> <li>• XE Models meet or exceed three times ASHRAE Standard 90.1 energy efficiency requirements and two times California Title 24 requirements</li> <li>• Lowest installation and operating costs for large projects</li> <li>• Fewer piping connections</li> <li>• Easy maintenance</li> <li>• Lowest refrigerant charge per ton</li> </ul>	<ul style="list-style-type: none"> <li>• Lowest refrigerant charge per ton</li> <li>• Less piping connections</li> <li>• Layout flexibility</li> <li>• Easy maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Replacement of existing installations</li> <li>• Redundant fan option on 12' x 18' units</li> <li>• Winter dry operation</li> <li>• Export units</li> </ul>

\*Nominal Tons (R-717) at 96.3°F CT, 20°F SST, 78°F EWB

VCA	VC1	LOW PROFILE VCL	
			Model
Counterflow, Forced Draft, Axial Fan	Counterflow, Forced Draft, Centrifugal Fan	Counterflow, Forced Draft, Centrifugal Fan	Flow and Fan System
87 - 1,433 Nominal Tons*	7 - 1,140 Nominal Tons*	11 - 212 Nominal Tons*	Catalogued Capacity Range
<ul style="list-style-type: none"> <li>Easiest motor access</li> <li>Independent fan drives</li> <li>Pre-assembled platforms</li> <li>24' long coils for reduced piping</li> </ul>	<ul style="list-style-type: none"> <li>Low sound by design</li> <li>Indoor and outdoor installations</li> <li>Split coils for multiple compressors (optional)</li> <li>Copper connections (optional)</li> <li>Export units</li> </ul>	<ul style="list-style-type: none"> <li>Low sound by design</li> <li>Easily hidden</li> <li>Indoor and outdoor installations</li> <li>Single piece shipping and rigging</li> </ul>	<b>UNIQUE FEATURES</b>

\*Nominal Tons (R-717) at 96.3°F CT, 20°F SST, 78°F EWB



# CXVT

The new CXVT Evaporative Condenser offers a cost effective solution for both the owner and the installing contractor by reducing operation cost, improving reliability and reducing installation costs. The CXVT Evaporative Condenser is now available with XE (Extreme Efficiency) models to further reduce operating costs.

## REDUCED OPERATING COSTS

- ✓ The highest capacity in the industry in a single unit (540 - 2,114 R-717 tons)
- ✓ Combined Flow Technology provides the highest capacity at the lowest refrigerant charge
- ✓ On average, 60% lower refrigerant charge

## IMPROVED RELIABILITY

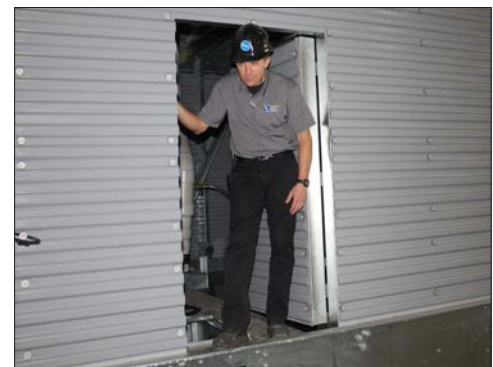
- ✓ Upgraded seismic and wind load capabilities to meet requirements in North America
- ✓ Largest standard access doors in the industry (64" x 34")
- ✓ Welded, not bolted, Type 304 Stainless Steel basin reduces potential for leaks and increases the life of the unit (optional)
- ✓ Coils fabricated per ASME B31.5 standards, available with CRN
- ✓ Scale reducing technology increases system efficiency

## COST EFFECTIVE INSTALLATION

- ✓ Dual air intakes allow for simple steel designs and layout flexibility
- ✓ Half the number of coil connections save time and material on piping, welding and valves
- ✓ Flexibility of coil connection location simplifies piping
- ✓ Lower operating weight reduces steel sizing and lower shipping weight reduces crane sizing
- ✓ Single fan and motor reduces wiring and controls
- ✓ Built in rigging guides allow for fast rigging
- ✓ Factory pre-assembled external platforms reduces installation time (optional)



Multi-Cell CXVT Installation Showing Simplified Piping



Now Even Larger Oversized Access Doors

# XE Models

The CXVT XE models are the newest addition to BAC's CXVT Evaporative Condenser portfolio. They are tailored for projects that require extreme efficiency units to minimize operating cost, provide application assurance, and reduce sound levels. The CXVT XE models are on average 3 times more efficient than the minimum energy requirements in ASHRAE Standard 90.1-2013 and 2 times more efficient than the minimum energy requirements in California Title 24.

## LOWEST OPERATING COSTS

- ✓ 40% reduction in operating cost for an 860-Ton system
- ✓ Payback of less than 1 year

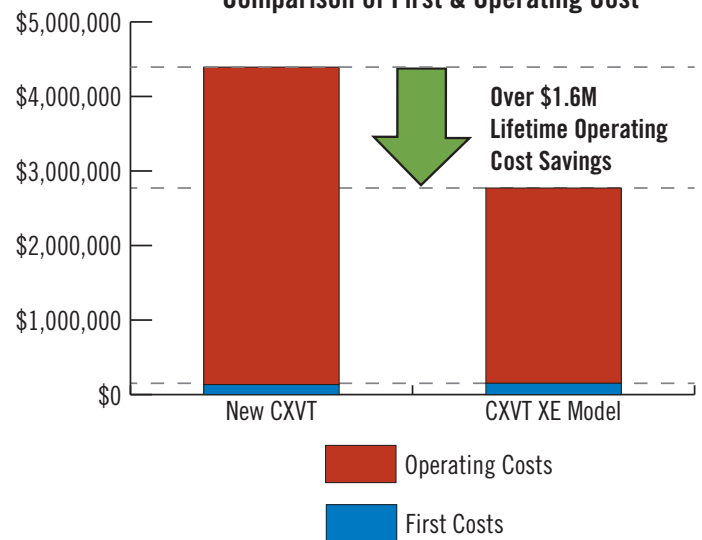
## APPLICATION ASSURANCE


- ✓ On average 3 times more efficient than minimum energy requirements in ASHRAE 90.1-2013
- ✓ On average 2 times more efficient than minimum energy requirements in California Title 24
- ✓ Extends the life of the mechanical drive components (minimum L<sub>10</sub> bearing life 190,000 hours, 40% longer than the standard CXVT)

## REDUCED SOUND LEVELS

- ✓ Sound reduction up to 50% (3 dB)
- ✓ Fans optimized to minimize sound levels and maximize efficiency
- ✓ Additional sound reducing options available

860 Ton Selection CXVT vs. CXVT XE Model  
Comparison of First & Operating Cost



 **Note:** Operating costs based on fan and pump kW x \$0.12/kWh x 8760 hours x 50% average load for the year x 20 years.

 Lowest Operating Costs       Application Assurance       Reduced Sounds Levels

**COMPARE > SELECT > SPECIFY >**



# CXVB

The CXVB delivers efficient performance in an easy-to-maintain package. BAC's Advanced Coil and Combined Flow Technology provides maximum capacity at the lowest refrigerant charge available in the industry by incorporating fill media into the traditional evaporative condenser. In addition, CXVB models are designed to mount directly on existing support steel of both crossflow and counterflow units, making them a direct replacement option for almost any existing model.



**A CXVB Installation Showing Simplified Piping**

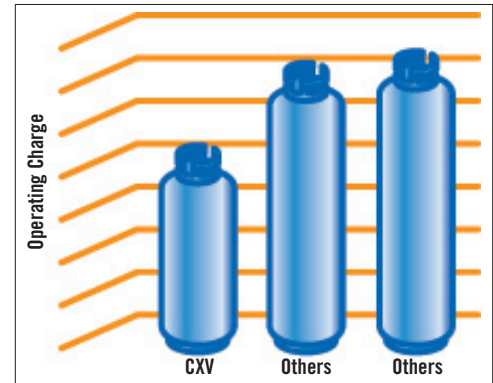




**Note:** Patented coil-fill technology provides the highest capacity at the lowest refrigerant charge in the industry.

## TECHNOLOGY — LEADERSHIP

- ✓ Patented Combined Flow Technology provides the highest capacity at the lowest refrigerant charge in the industry
- ✓ Air and water flow in a parallel path therefore eliminating scale producing “hot spots” on the coil
- ✓ Increased heat rejection occurs as the water spray flows over the fill therefore lowering spray water temperatures
- ✓ Meets wind and seismic requirements of the 2015 International Building Code through shake table testing, rated to withstand a seismic event up to 2.4g
- ✓ Premium efficient motors are standard and ready for VFD's now or later



Operating Charge

## INSTALLATION EFFICIENCY

- ✓ Coil-fill technology lowers installation and operating costs
  - Significantly lower refrigerant charge
  - Fewer coil connections and valves
  - Lower weights mean support steel can be reduced
  - Less overall piping connections and fewer supports
- ✓ Pre-assembled platform package reduces installation time (optional)
- ✓ Single point wiring simplifies field installation (optional)



Easily Accessible Spray Water Distribution

## SERVICE — MAINTENANCE

- ✓ Oversized doors for access to the internal walkway
- ✓ Spacious interior provides easy access to the cold water basin, drift eliminators, coils, and drive system
- ✓ Extended lubrication lines, internal walkway, and internal ladder (standard)
- ✓ A water distribution system that makes service of the nozzles, spray branches, and headers possible without the need for tools
- ✓ Motor davit system to facilitate motor removal (optional)



Pre-Assembled Platforms

## INDUSTRIAL GRADE CONSTRUCTION

- ✓ Materials of Construction:
  - Hot dip galvanized (G-235) steel construction standard
  - TriArmor® Corrosion Protection System encapsulates the hygienic cold water basin with three barriers of protection (optional)
  - EVERTOUGH™ Construction combines the most corrosion resistant materials to provide the best value in corrosion protection (optional)
- ✓ Fully welded, not bolted, stainless steel basins (optional)
- ✓ All coils are fabricated to ASME B31.5 standards



# PCC

Improving on the PC2 benefits, the PCC lowers installation costs by reducing rigging time. 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. The PCC is an excellent choice for either replacement opportunities or new construction/expansion projects.



PCC Evaporative Condenser

## CONFIDENCE — RELIABILITY

- ✓ Bearings selected for a minimum  $L_{10}$  life of 100,000 hours
- ✓ Premium efficient 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!**
- ✓ Meets wind and seismic requirements of the 2015 International Building Code through shake table testing, rated to withstand a seismic event up to 3.1g



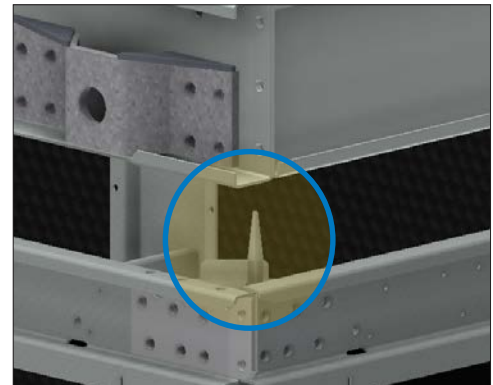
**Note:** The robust structural frame around the coil casing assures square-ness during rigging and eliminates the need for a shipping skid.

## 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 (optional)
- ✓ 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 (optional)
- ✓ 12' x 20' box size increases capacity range reducing the number of cells required for a project



Shake Table Tested up to 3.1g



Factory Supplied Rigging Pins for Ease of Rigging and Alignment

## 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 (optional)
  - EVERTOUGH™ Construction provides the most corrosion resistant materials backed by a 5-year comprehensive, leak and corrosion warranty (optional)
- ✓ Fully welded, not bolted, stainless steel basins (optional)
- ✓ All coils are fabricated to ASME B31.5 standards
- ✓ Platforms are constructed to the latest IBC and OSHA regulations (optional)

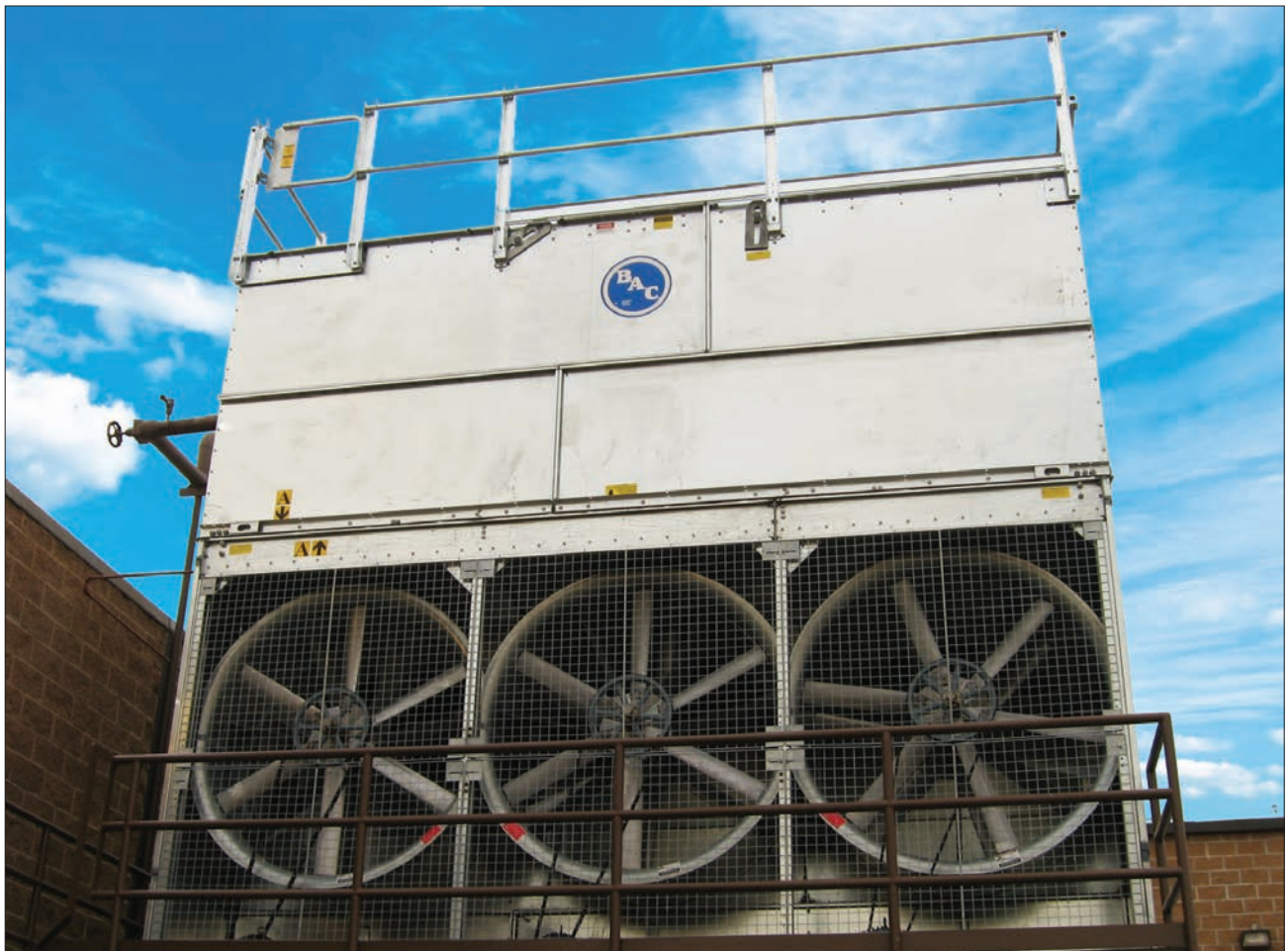


Enhanced Access Package (Optional)



# VCA

When your application calls for a workhorse, turn to the VCA. The VCA incorporates features which benefit the installer, operator, end-user, and owner. With a tonnage range of 87 - 1,433 ammonia tons and compliance with the wind and seismic requirements of the 2015 International Building Code, the VCA is the industry leader in the forced draft, axial fan category.



VCA Installation



**Note:** If access is a concern, the VCA has oversized doors as standard.

## PEACE OF MIND — FLEXIBILITY

- ✓ Independent fan motors are standard on every VCA model providing redundancy and options for capacity control
  - For replacement opportunities where existing wiring must remain, the VCA can be supplied with a dual motor option
- ✓ Meets wind and seismic requirements of the 2015 International Building Code through shake table testing, rated to withstand a seismic event up to 1.6g
- ✓ Bearings selected for a minimum life of  $L_{10}$  94,000 hours
- ✓ Premium efficient motors are standard and ready for VFD's now or later



Shake Table Testing

## INSTALLATION EFFICIENCY

- ✓ BAC's InterLok™ System aligns the coil casing and the basin to expedite rigging
- ✓ Pre-assembled platform packages significantly reduce installation time
- ✓ Single point wiring simplifies field installation (optional)



Variety of Pre-Assembled Platforms

## SERVICEABILITY

- ✓ Two large access doors are standard with every side blow VCA
- ✓ Entire drive system is located at the base of the unit for easy and unrestricted access to the motors, bearings, and fans
- ✓ Extended lubrication lines standard
- ✓ A water distribution system that makes service of the nozzles, spray branches, and headers possible without the need for tools
- ✓ Multiple access options to meet your service and site requirements (all OSHA compliant)



Oversized Access Doors as Standard

## INDUSTRIAL GRADE CONSTRUCTION

- ✓ Materials of Construction:
  - Hot dip galvanized (G-235) steel construction standard
  - TriArmor® Corrosion Protection System encapsulates the hygienic cold water basin with three barriers of protection (optional)
- ✓ Fully welded, not bolted, stainless steel basins (optional)
- ✓ All coils are fabricated to ASME B31.5 standards



# Series V

The VC1, VCL, and VC1-C combine to complete BAC's Series V product line. Together, they provide solutions to some of the hardest evaporative cooling scenarios. With both indoor and outdoor applications possible, the VCL also accommodates low height restrictions. The VC1-C is ideal for exporting, as it fits into standard shipping containers.



VC1 Installation



VCL Installation



**Note:** The VC1 and VCL are great for tight enclosures and sound sensitive applications.

## EASY MAINTENANCE

- ✓ BAC 360 Spray Nozzles are non-clogging, reducing maintenance costs and ensuring efficient equipment operation
- ✓ Fans, motors, and drive system are located outside of the moist discharge air stream, protecting them from moisture, condensation, and icing while facilitating maintenance
- ✓ All moving parts are located near the base of the unit, within easy reach for cleaning, lubrication, or adjustments

## FLEXIBLE INSTALLATION

- ✓ Low profile VCL fits well into mechanical equipment rooms with low ceilings and are easily hidden behind louvered walls on buildings
- ✓ Series V models have centrifugal fans, suitable for applications where external duct work and other sources of external static pressure exist
- ✓ VC1, VCL, and VC1-C can accommodate indoor applications

## ECONOMICAL EXPORT

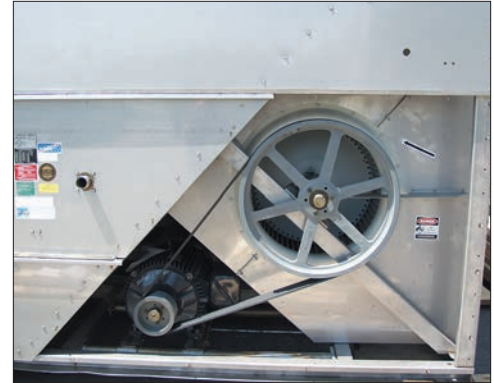
- ✓ VC1-C models are sized specifically to fit into standard dry van containers, minimizing ocean freight costs for export shipments

## REDUNDANCY AND RELIABILITY

- ✓ Premium efficient/inverter duty motors are standard
- ✓ Optional BALTIGUARD™ Fan System provides redundancy and energy savings by providing a pony motor

## LOW SOUND

- ✓ Centrifugal fans have inherently low sound characteristics
- ✓ Factory designed sound attenuation is available for both the air intake and discharge
- ✓ Particularly sound sensitive areas can be accommodated by facing the quiet blank-off panel to the sound sensitive direction



External Drive Access



BALTIGUARD™ Fan System



VC1-C Containerized Units



# IBC

BAC is a pioneer in the cooling industry, demonstrating product ruggedness and reliability through shake table testing by meeting the seismic and wind requirements of the 2015 International Building Code (IBC). BAC chooses to test their products in actual earthquake simulations. For our complete shake table testing story visit us at:

[www.BaltimoreAircoil.com/IBC](http://www.BaltimoreAircoil.com/IBC)



## SHAKE TABLE TESTING

- ✓ It is the only way to guarantee functionality after an event.
- ✓ Full-size units are tested by an independent laboratory in accordance with AC 156.
- ✓ Tests are conducted on tri-axial shake tables.
- ✓ Functional tests are conducted before and after testing to verify functionality and certify units for a component importance factor of 1.5.



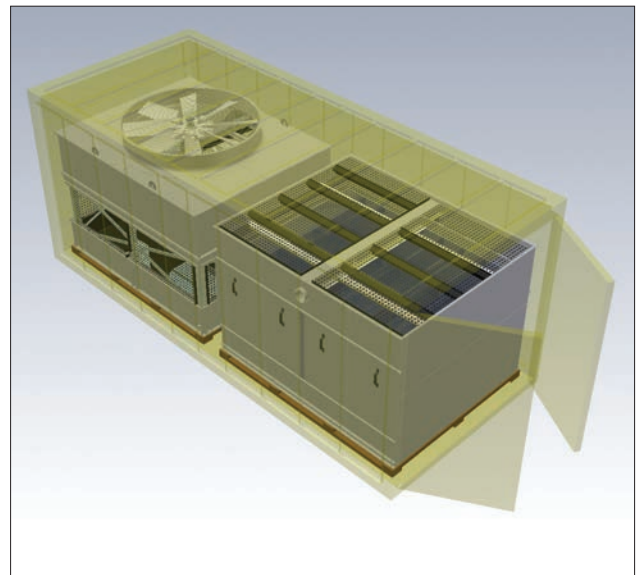
# Export



## PCC AND VC1-C, CONTAINERIZED FOR EXPORT 500 TONS IN A SINGLE 40' SHIPPING CONTAINER\*

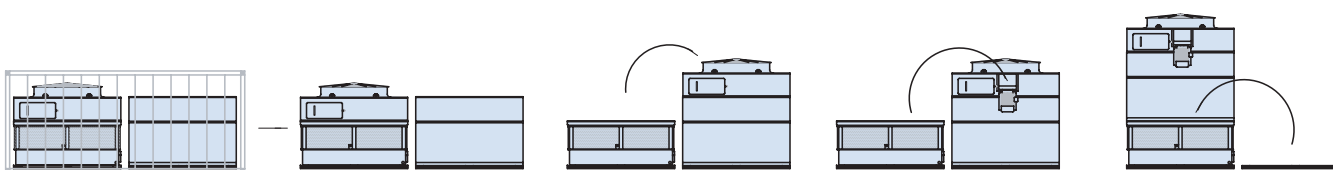
### ENGINEERED FOR:

- ✓ Lowest shipping costs for the worldwide export market
- ✓ Maximized capacities for assembled containerized units
- ✓ Designed to fit, assembled, in 20' and 40' dry van containers



- All VC1-C, PCC 7.4' x 9', and PCC 7.4' x 18' units are designed to fit assembled into dry van containers, minimizing ocean freight costs for export shipments.

## BAC QUALITY AND FEATURES AVAILABLE ANYWHERE!



Sequence for Removal and Rigging of a PCC Containerized Unit

\* Nominal Tons (R-22) at 105°F CT, 40°F SST, 78°F EWB

# Product Comparison

ITEMS SHADED IN BLUE ARE BAC EXCLUSIVE FEATURES AND OPTIONS

Standard Features	CXVT	CXVB	PCC <sup>(4)</sup>	VCA	VC1	VC1-C	VCL
Axial Fan	•	•	•	•			
Centrifugal Fan <sup>(1)</sup>					•	•	•
Large Plenum Area for Access	•	•		•			
R-717 Tons	540 - 2,114	75 - 1,287	46 - 2,734	87 - 1,433	7 - 1,140	153 - 333	11 - 212
R-22 Tons	683 - 2,676	105 - 1,815	65 - 3,851	122 - 2,019	10 - 1,608	216 - 469	16 - 299
Premium Efficient Fan Motors	•	•	•	•	•	•	•
<b>Construction Options</b>							
Welded Stainless Steel Cold Water Basin <sup>(3)</sup>		•					
Water-Contact Stainless Steel Cold Water Basin <sup>(3)</sup>	•	•	•	•	•	•	•
Stainless Steel Construction <sup>(3)</sup>	•	•		•	•	•	
Water-Contact Stainless Steel Unit		•	•	•	•	•	•
EVERTOUGH™ Construction	•	•	•	•			
TriArmor® Corrosion Protection System	•	•	•	•			
<b>Coil Options</b>							
Extended Surface Coils		•		•	•	•	•
Stainless Steel Coils	•	•	•	•	•	•	•
ASME U Designator Coils	•	•	•	•	•	•	•
Multiple Circuit Coils	•	•	•	•	•	•	•
<b>Options and Accessories</b>							
Independent Fan Operation		•	•	•			
BALTIGUARD™ Fan System	•	•			•		•
Low Sound Fan	•	•	•				
Whisper Quiet Fans		•	•				
Intake Sound Attenuation	•	•			•		•
Discharge Sound Attenuation	•	•	• <sup>(5)</sup>		•		•
Handrails with Ladder <sup>(2)</sup>	•		•	•	•		
External Access Platform with Ladder <sup>(2)</sup>	•	•	•	•	•		
Internal Ladder	•	•					
Internal Access Platform	•	•					
Gear Drive	•						
Basinless Unit Construction	•						
Indoor Applications					•	•	•
Motor Removal System	•	•	•				
Single Point Wiring		•	•	•			
Redundant Pumps		•	•		•		
Top Combined Inlet Shields		•					

**Note 1:** Centrifugal fan units can overcome ESP imposed by duct work or other restrictions. A larger fan motor may be required. Contact your local BAC Representative with any questions.

**Note 2:** Safety cages available on ladders when required by local safety standards.

**Note 3:** Seams between the panels inside the cold water basin are welded for CXV, CXVT, PCC, and VCA models. The basin is leak tested at the factory and welded seams are provided with a five-year leak-proof warranty.

**Note 4:** Some materials of construction options and accessories were not available during the time of printing. Contact your local BAC Representative for the most current information.

**Note 5:** Only available on PCC-0406 and PCC-0412 models.

# Evaporative Condenser Solutions?

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Visit [www.BaltimoreAircoil.com](http://www.BaltimoreAircoil.com):

- ✓ Select a Unit
- ✓ Request a Quote
- ✓ Find Your Local Representative
- ✓ Browse BAC's Knowledge Center
- ✓ Learn About Parts & Services



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