

# Construction details

## Closed circuit cooling towers

### Construction details

#### 1. Material options

- **Corrosion-resistant materials** come as standard for **maximum equipment life**:
  - The unique [Baltibond® hybrid coating](#) is standard for all structural components. The hybrid polymer coating is applied pre-assembly to all hot-dip galvanized steel components of the unit.
  - The hCore® heat exchanger is made of a highly corrosion-resistant, proprietary stainless steel alloy.
- **Optional stainless steel** panels and structural elements of type 304L and 316L for extreme applications.
- Or the economical alternative: a **water-contact stainless steel cold water basin**. Its key components and the basin itself are stainless steel. The rest is protected with the [Baltibond® hybrid coating](#).



#### 2. Heat transfer media

Using a highly corrosion-resistant stainless steel alloy, BAC's patented **hCore® Heat Transfer Technology** provides unmatched performance, exceptional reliability and long life in an incredibly compact package.



#### hCore® Heat Transfer Technology

- Proprietary stainless steel alloy exceeds M9540P salt spray environment cyclic corrosion testing at 100 times the typical water chemistry at 82°C.
- **Eliminates the need for passivation** and the potential for white rust.
- Engineered and manufactured for a **10 bar working pressure**.
- Fully-welded with robotic automation for **highest quality and maximum reliability**.
- Innovative heat transfer surface pattern for **maximum wet and dry performance**.

### 3. Air movement system

- The air movement system of each individual module consists of one or two **direct driven radial fans** made of aluminium, mounted on **EC motors with integrated control electronics**. They are completely **maintenance free** and guarantee redundancy.
- Compact, swing-out design allows easy access and inspection.
- EC motors have a **superior efficiency** that exceeds the requirements of efficiency class IE4. Integrated electronics of EC motors permit variable speed control for maximum system efficiency, at a significant reduced power consumption compared to AC motors with VFD.
- **High external static capacity** for indoor applications.
- Energy efficient radial fans give up to **40% savings** versus standard centrifugal fans.
- Our **drift eliminators** come in UV-resistant plastic, which will not rot, decay or decompose and their performance is tested and **certified by Eurovent**. They are assembled in **modules for easy removal from the side**.



## 4. Water distribution system

The patent-pending DiamondClear® Design is a water management system without stagnant water inside the unit. This provides continuous self-cleaning, significantly cutting water basin maintenance and water treatment costs by reducing scale build-up and biological growth.



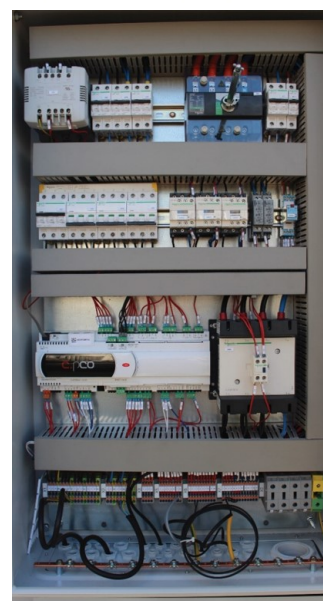
- Patent pending, **high performance spray system** resists clogging and delivers proper water coverage for reducing scaling. Spray branches have wide, non-clog plastic nozzles secured by rubber grommets. You can easily remove, clean and flush both nozzles and spray branches from outside the unit.
- **Sloped spray water collection system** diverts water to the compact spray water basin, reducing spray water system volume by 60% and **eliminating stagnant water** inside.
- Pressurized, turbulent flow of spray water into the **compact external basin** eliminates the need for sweeper piping and allows **inspection during operation**.
- Spray water basin has an **automated, conductivity-based blowdown system**, with a programmable drain cycle that reduces maintenance.
- Fully-enclosed design is **protected from sunlight, helping eliminate biological growth**.
- Each module has its own SST 304 submersible pump that can be piloted individually to enable a mix of dry and evaporative modules.



## 5. iPilot® Control System

BAC innovative iPilot® Control System enables multiple modes of operation to tailor water and energy performance to your needs. The embedded intelligence gives you the ability to **effectively balance water and energy savings** and achieve the lowest possible operating costs.

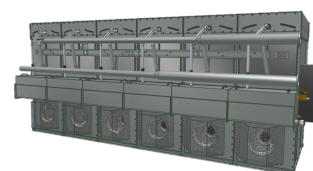
- **Plug and play**, factory set customs controls. All electrical components are pre-wired in the factory to an IP66 electrical panel with Integrated Programmable Logic Controller (PLC) and Human Machine Interface (HMI).
- All **site specific parameters are factory set and tested** before the unit is shipped.
- **Easy Building Management System (BMS) integration** including MODBUS, BACnet and LONWORKS.
- Allowing you to tune your water and energy saving preferences based on your climate, operating conditions and the prices you pay for water and energy.



## 6. Modular Design

The modular design and exclusive iPilot® Control System of the Nexus® enable **multiple modes of operation to balance water and energy savings**. Its flexible, robust design is ideal for confined layouts and indoor applications. The lightweight, compact modules can easily be maneuvered with a pallet jack and fit into most freight elevators.

- Numerous layout options, up to six modules per unit
- Possibility to ship as completely assembled units or individual modules
- Future expandability by adding modules
- No special rigging equipment required



**Need more information?** Contact your local [BAC representative](#).