

Reference Book

World-leading natural cooling technology



Why Breezair?

Why evaporative air conditioning?

Take the natural approach to air conditioning! Seeley International's Breezair range of evaporative air conditioners delivers lots of cool, 100% fresh air, at much lower costs than refrigerated cooling methods.

Evaporative cooling is fast becoming the only viable option for cooling large areas. A Breezair system uses up to 80% less energy than a refrigerated air conditioning system. Doors and windows can be left open, with absolutely no loss of cooling efficiency.

Fresh, clean air

The delivered air is 100% fresh, with no risk of recirculated fumes, germs or odours.

Most importantly, as the outside temperature rises, the more cooling you get inside – the fundamental benefit of the evaporative process.

Flexible cooling

If you need to cool small areas within a large space, then evaporative air conditioning gives you the only effective option – spot cooling. With spot cooling, an envelope of cool, high velocity air can be directed to a specific area, irrespective of the surrounding conditions.

Feel it for yourself!

Breezair evaporative air conditioning:

- ≡ Is more energy-efficient – cheaper to run
- ≡ Delivers cleaner, healthier air
- ≡ Is easier and cheaper to install
- ≡ Improves productivity through fresh, clean air (less chance of Sick Building Syndrome or other air-borne problems)
- ≡ Is healthier for the environment – drastically reduced power use, no harmful emissions and no synthetic refrigerants
- ≡ Is easier to maintain

Why Breezair?

For more than four decades, Seeley International's brands have been synonymous with leading-edge technology, innovative design and superior cooling performance, in addition to outstanding product reliability and ease of maintenance.

Seeley International's dedication to innovation through the highest standards of research, engineering and manufacture, as well as our commitment to excellence in customer service, all combine to deliver the best possible cooling systems at the best possible price.

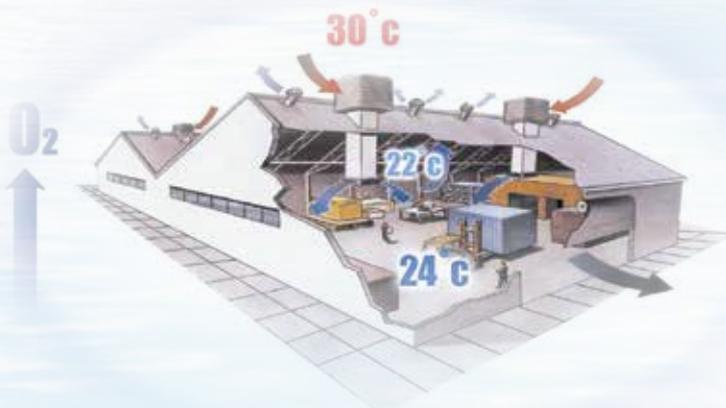
Designed and made in Australia to cope with even the harshest conditions, Breezair features a range of benefits exclusive to Seeley International, including:

- ≡ Permatuf corrosion-proof cabinets, that won't rust, fade or discolour – no wonder we guarantee them corrosion-free for 25 years!
- ≡ Tornado pumps – designed and manufactured by Seeley International, the Tornado pump delivers the highest levels of reliability and safety;
- ≡ The AQUAflow non-clogging water distribution system maximizes cooling efficiency;
- ≡ Intelligent, electronically controlled water management maintains a clean system;
- ≡ Chillcel pads are built strong to last longer and are easy to clean and replace when necessary;
- ≡ The WATERManager system ensures optimum machine life with minimum maintenance; and
- ≡ The super-efficient HushPower Direct Drive motor, the quietest motor available.

Air passes through water soaked Chillcel™ cooling pads



Water absorbs heat by the natural evaporation process. Cool, fresh air is produced



25 Years

Corrosion-free cabinets guarantee

10 Years

Structural components guarantee

2 Years

Pump, motor & electronic control module guarantee

Psychrometric Chart

Normal temperature

SI units, 200 meters

Barometric Pressure 101.3kPa

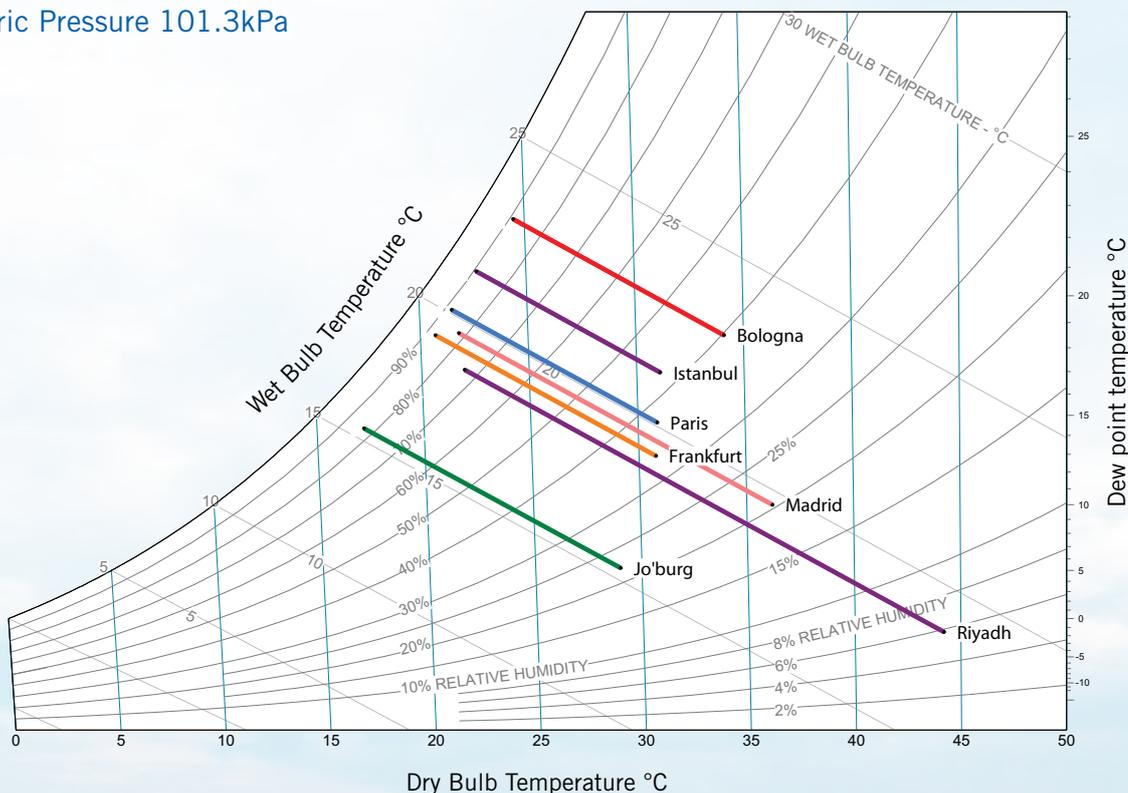


Chart explanation: Consider fresh air entering the cooler at 30°C dry-bulb and about 38% relative humidity. In the case of a direct evaporative air cooler, the fresh air passes directly through the wet cooling pad where it becomes cool and also moist, and emerges at about 21°C dry-bulb and 88% relative humidity. The process has

travelled along the wet-bulb (orange) line and the air has gained about 5.5 grams/kg of additional moisture.

The chart also shows direct evaporative cooler process lines using Breezair saturation efficiency of 85% and ASHRAE design condition for each city.

How Breezair compares to refrigerated air conditioning

	Breezair	Refrigerated air conditioning
Temperature of supply air	Cool	Cool → cold
Moisture control	Moisture added	Moisture removed
Moisture control impact	Preserves essential moisture	Removes essential moisture
Fresh air control	100% fresh air	Maximum about 25% fresh air
Fresh air impact	100% fresh air eliminates many causes of Sick Building Syndrome	Recycled air can result in Sick Building Syndrome
Capital costs – installed	Lower	Higher
Running costs	Very low	Very high
Refrigerant type used	Natural - water	Synthetic – Hydrofluorocarbons
Environmental impact of Refrigerant	No synthetic refrigerants	Synthetic refrigerants have very high global warming potential. They damage the environment as they leak into the atmosphere over time

Breezair installations all around the world



Over quarter of a million
commercial/industrial
installations worldwide



Markings are intended to represent the locations of Breezair installations across the globe and are approximate only. All markings are indicative of completed installations at the time of print.

Industrial applications

Textile industry



Akurun Tekstil
(Turkey)



Menderes Tekstil
(Turkey)



ERKO Tekstil
(Turkey)



GOKHAN Tekstil
(Turkey)



Gucci
(Italy)



Powenall & Hampson
(UK)

Printing & production lines



Small Typographer
(Ukraine)



Laminar (producer of specialised high-tech equipment of protective boxes)
(Russia)



Hammond Press
(UK)



Compass manufacturer services
(New Mexico, USA)



Foxprint
(UK)



MESA Etiket
(Turkey)

Industrial applications

Rubber, glass & laser industry



Polypal
(UK)



Waterford
(UK)



Levine Machine
(USA)



Porite
(Taiwan)



AGA - Cast iron
(UK)



Group Laser Ebro
(Spain)



Bedfords
(UK)



Kingspan insulation
(UK)



Food industry



Heineken
(Spain)

Heineken has more than 110 coolers installed in the bottling area.
One of the biggest installations in Europe.



Drinks manufacturer
(Netherlands)



Granarolo factory
(Italy)



Dairy factory
(Netherlands)



Nicholl food packaging
(UK)



Pepsico, Matutano
(Romania)



Pepsico, Matutano
(Portugal)

Industrial applications

Laboratories & mechanical engineering facilities



Not only does the Breezair unit provide evaporative cooling to factories, offices and buildings, but it **also helps remove unpleasant odours from the workplace.**

Cranden Diamond Products, a major diamond tool manufacturer, is using the Breezair system to provide a constant flow of fresh air through its cutting area to remove the smell of chemicals from the adjacent laboratory.

Cranden Diamond Products
(UK)



ESI Eskanasi
(Switzerland)



Stannah powdercoating
(UK)

ESI Eskanasi manufactures of small metal components for precision gears. Extremely stable humidity and temperature conditions were required in the production area in order to guarantee accurate dimensions of the products.

Automotive industry



General Motors / Mitsubishi
(Venezuela)



Renault
(Moscow, Russia)



Dana
(Spain)



Lamborghini
(Modena, Italy)



Scania
(Netherlands)

Industrial applications

Factories



Venequip
(Venezuela)



Michelin
(Spain)



Schneider Electric factory
(India)

Indian factory temperature drops from 39°C down to 26°C with Breezair

Schneider Electric manufactures electrical automation and control systems, with more than 10,000 employees across 10 countries worldwide. The company's Indian factory, located in Baroda, Gujarat, did not have any air conditioning installed in the factory and often temperatures would soar as high as 39°C during summer inside the factory. Understandably, these hot temperatures were affecting employee efficiency, reducing production speed and creating high attrition rates.



Factories



Honda
(Pakistan)



Opel
(Eindhoven, Netherlands)

Industrial applications

Agricultural & animal facilities



Horse Hall & Stables
(Russia)



**Koeman &
Van de Burg Bloembollen**
(Netherlands)



**Koeman &
Van de Burg Bloembollen**
(Netherlands)



Animal farming – cows
(Spain)

Animal & breeding facilities



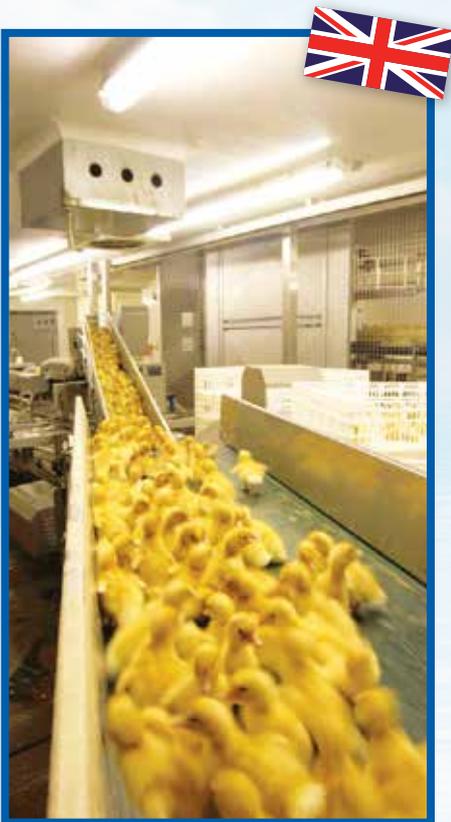
Animal farming
(Poland)



Animal farming – chicken
(Poland)



Animal farming – ducks
(Poland)



Cherry Valley
(UK)



Pelaw Grange Greyhound Stadium
(UK)

Commercial applications

Car dealers



Car dealer
(France)



Car dealer
(Belgium)



Car dealer
(Belgium)



Mercedes Benz dealer
(Belgium)



Wasel Car testing facility
(Dubai, UAE)



Warehouses



Pharmaceutical warehouse
(Venezuela)



CPG Logistics
(UK)



Warehouse
(Saudi Arabia)



Solver Roof
(Australia)



Bunnings Warehouse
(Australia)



Sonnecken office equipment
(Germany)



Decathlon sports
(Spain)

Commercial applications

Laundries



Celtic linen
(UK)



Johnsons Apparelmaster
(UK)



Bates Laundry
(UK)

Bakeries



Bakery
(France)



Riverside bakery
(UK)



Martin bakery
(UK)



La fornia bakery
(UK)

Commercial applications

Transport, parking & medical



TUSSAM bus station in Seville
(Spain)



TUSSAM, a civic corporation that manages the public transport in the city and suburbs of Seville, Spain, has created a cooler and healthier environment for workshop staff by installing Breezair evaporative cooling. The Breezair coolers have reduced temperatures in the workshops from a stifling 40°C to a more comfortable 26°C.



CPG Logistics
(UK)

When CPG Logistics, built a new £1.5 million pound multi-tiered mezzanine floor within it's 100,000m² distribution centre in Gosport, it was faced with the dilemma of how to meet MHRA (Medicines and Healthcare Products Regulatory Agency) regulations on storing pharmaceutical products at between 18°C and 26°C, when temperatures at the top of the three-storey warehouse were reaching 36°C. The solution came with the Breezair Evaporative Cooling System, which has reduced inside temperatures to a regulatory 22°C, even on the hottest day.

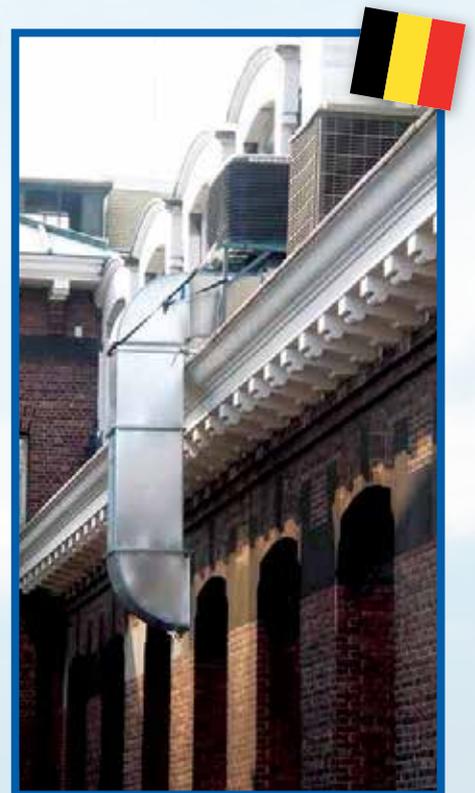
Offices, schools & banks



INPRO
(Czech Republic)



Les Buisses
(France)



Fortis Bank
(Belgium)



University of Managua
(Nicaragua)



Queen Elisabeth School
(UK)



College
(Hungary)



College, auditorium
(Pakistan)

Commercial applications

Churches



Church
(Italy)



Church in Alexandria
(Egypt)



Evangelical church in Sicily
(Italy)

Conference, engineering & military facilities



**Klepperzaal Hardenberg
exhibition centre
(Netherlands)**



**Budpragres exhibition
(Minsk, Belarus)**



**HPC Engineering PLC
(UK)**



**Military shipyard
(Turkey)**



**NATO base in Naples
(Italy)**

Commercial applications

Shops & commercial centres



Tom&Co pet store
(Belgium)



Wyerale pet & garden centre
(UK)



Warrington market
(UK)



Pasatiempo Mall in Lourdes
(El Salvador)



Modena indoor market Albinelli
(Italy)

Shops & commercial centres



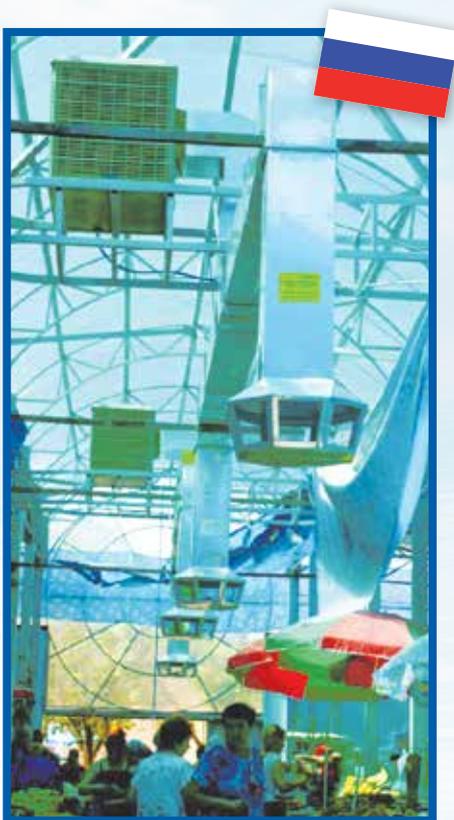
Widnes Market Hall
(UK)



Fruit market in Sicily
(Italy)



Hypermarket
(Netherlands)



Marketplace in Krasnodar
(Russia)



**Large commercial centre,
Warner Bros**
(Spain)



Hypermarket
(Colombia)



Garden centre in Biella
(Northern Italy)



**Kaufhaus Stolz in
St. Peter Ording**
(Northern Germany)

Commercial applications

Bars & restaurants



Greek restaurant in Valencia
(Spain)



State of the art restaurant
(Netherlands)



Aristocrats restaurant
in Bucharest
(Romania)



Restaurant in Modena
(Italy)



Pata Palo restaurant
(Spain)



Sharm restaurant
(Egypt)

Sport centres



Sport centres in Adelaide
(Australia)



ELIXIA fitness centre
(France)



Fitness centre
(France)



Bowling hall
(France)



Factory fitness centre
(Netherlands)



Karting centre
(Spain)

Residential applications



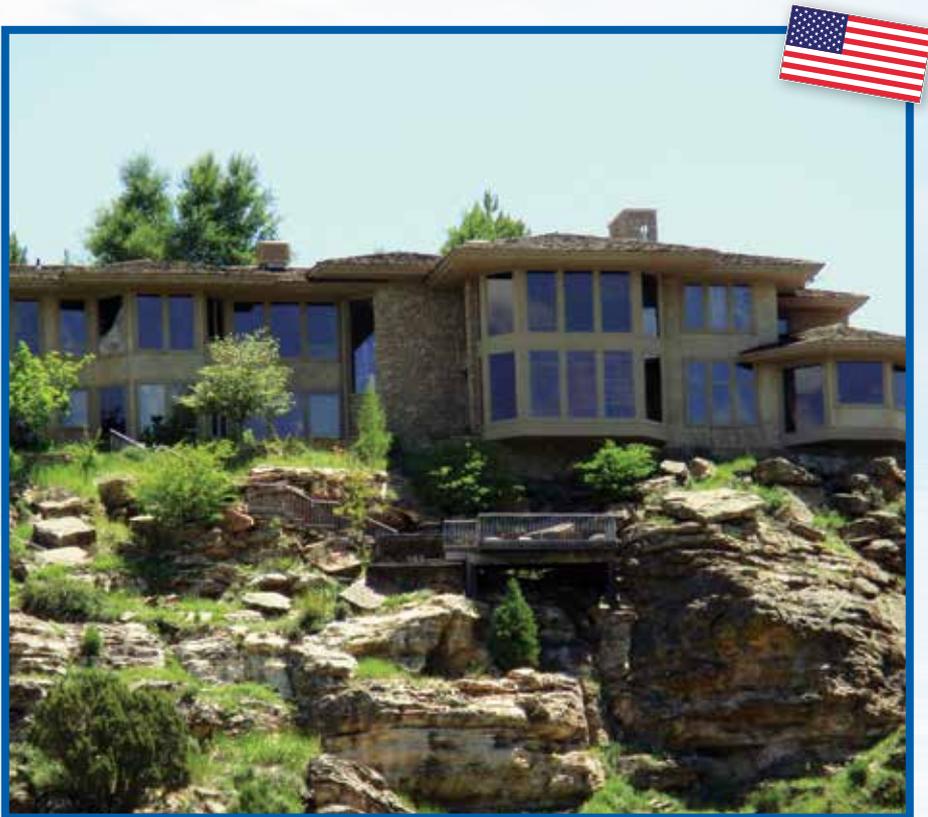
**Chalet on the mountain
in Madrid
(Spain)**



**Cottage
(Ukraine)**



**Trendy apartment in Malaga
(Spain)**



**Colorado
(USA)**



**Villa on the coast
(Spain)**



**Villa on the coast in Valencia
(Spain)**

Outdoor applications



McDonalds
(Australia)



Car races
(Australia)



**Vending machines
at Tierra Mitica**
(Spain)



Marquee
(Italy)



Bio-cooling palm tree
(Spain)



Bio-cooling tower
(East coast of Spain)



**Bio-cooling tower at
Zaragoza fair/expo**
(East coast of Spain)



Warner Bros thematic park
(Spain)



Tents for events
(Italy)

About Climate Wizard

Climate Wizard is an air conditioner that uses an indirect evaporative heat transfer core that provides hyper-efficient cooling of outside air. It delivers 100% fresh, cool, outside air, with greatly reduced energy consumption. Climate Wizard is a proven technology that has been adopted across the world.

Climate Wizard's hyper-efficient benefits

- **Improved IAQ (indoor air quality) with 100% outside air**

In stand alone applications, 100% outside air means better indoor air quality and reduced incidence of "sick building" syndrome. The Climate Wizard cooling system will far exceed the regulatory standards for outside air ventilation rates, as Climate Wizard can supply 100% fresh outside air all the time.

- **Reduced running costs**

Climate Wizard can use up to 80% less energy than an equivalent refrigerated system performing the same duty, thanks to the unique indirect evaporative heat exchange core technology.

- **No moisture added**

Climate Wizard does not add any moisture to the supply air and can cool the supply air to several degrees below the ambient wet bulb temperature, which means it can be used in a very wide range of geographic locations.

*Climate Wizard Supercool (indirect/direct option) adds a small amount of moisture to the supply air.

- **Total cooling performance increases when air temperature rises**

With Climate Wizard, total cooling performance increases as temperatures increase. This does not happen with refrigerated air conditioning, which shows reduced cooling capacity as temperatures rise.

- **Reduce the energy use and improve the cooling performance of existing refrigerated systems**

Climate Wizard can be used on its own or in combination with refrigerated systems to dramatically reduce energy usage by pre-cooling outside air. Used with refrigerated systems, it can also extend the life of the air conditioning equipment.

- **Reduced electrical kW demand**

When summer cooling loads increase, the electrical demand from refrigerated cooling systems also increase; leading to higher electrical demand charges.

In contrast, a Climate Wizard's electrical demand remains steady even in hot weather, helping you control your electrical demand charges.

- **Ideal for use as a DOAS (dedicated outdoor air system), data centres cooling, or for comfort cooling applications**

Climate Wizard cools the air to conditions suitable for data centres, including class A1 data centres, at ultra-low PUE's (power usage efficiency).

- **Flexible design and engineering configurations**

Climate Wizard is easy to retrofit into existing buildings with refrigerated air conditioning plants, as well as brand new projects in a variety of configurations.

- **Savings on the installation costs**

In some countries, the cost of installing a Climate Wizard on a new building can be up to 30% cheaper compared to installing VRF (variable refrigerant flow) equipment.

- **Wiser use of water (R-718)**

Climate Wizard is the best technology available to take full advantage of environmentally friendly R-718. It produces high quality cooling at high electrical efficiencies.

- **No synthetic refrigerants or chemicals to harm the environment**

Climate Wizard does not require any additives to maintain cooling performance. Also, it uses water sparingly, so it does not require large amounts of water to operate.

- **Simple, reliable solution to improve COP / EER (coefficient of performance / energy efficiency ratio) and to meet various regulatory requirements**

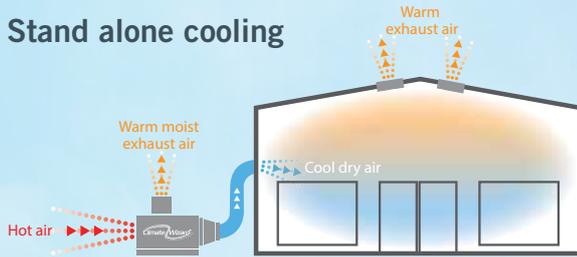
Whether it's airflow, pressure, cooling capacity, or efficiency, Climate Wizard tops them all. At Seeley International, Australia's largest manufacturer of cooling and heating solutions, and the leader in developing energy-efficient cooling technologies, we rigorously test all of our energy efficient products, to ensure they surpass all relevant standards.

- **NATA (National Association of Testing Authorities) accredited laboratory**

Seeley International is Australia's only air conditioning and heating manufacturer with a NATA accredited test laboratory. NATA provides assessment, accreditation and training services to laboratories and technical facilities throughout Australia and internationally.

Climate Wizard can be used in diverse configurations and a range of applications:

Stand alone cooling



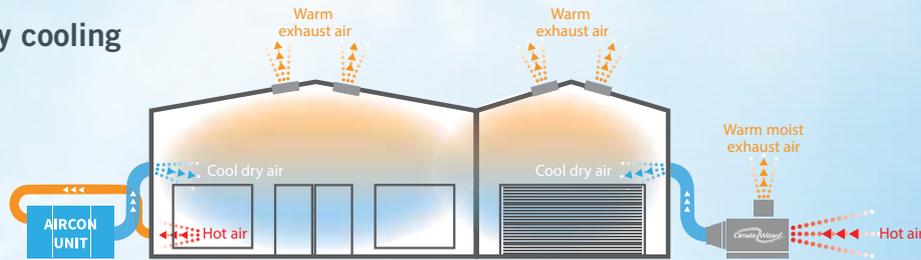
Climate Wizard used to provide stand alone cooling.

Pre-cooling



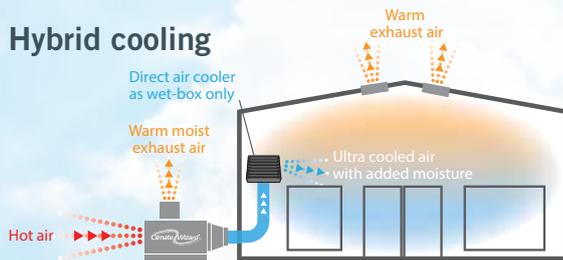
Climate Wizard installed in front of an air conditioning system to provide pre-cooling.

Supplementary cooling



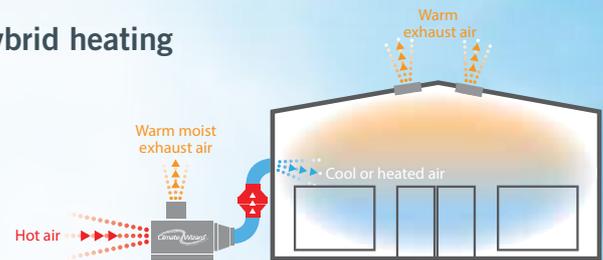
Climate Wizard used with an air cooling system to provide supplementary cooling.

Hybrid cooling

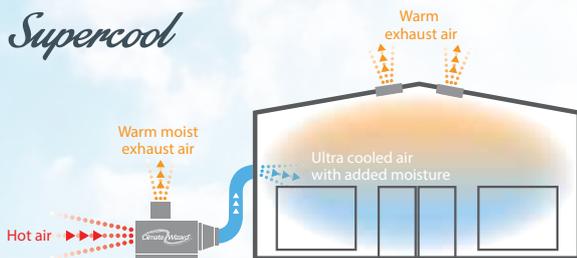


Climate Wizard is combined with other complimentary devices, such as direct evaporative 'wet-boxes' or heating devices; such as elements, hot water coils, gas-fired exchangers to successfully resolve a variety of heat load and comfort challenges.

Hybrid heating

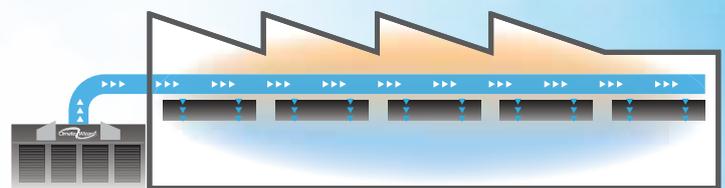


Supercool



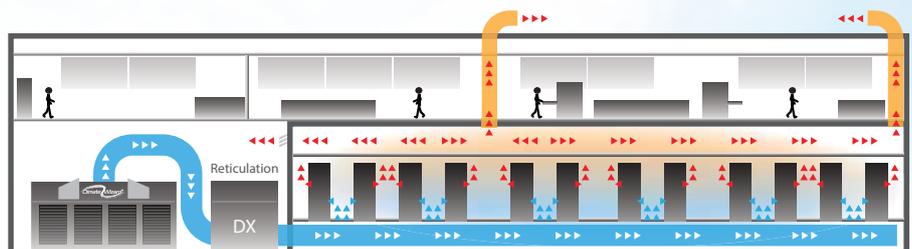
Climate Wizard Supercool delivers ultra cooled air with added moisture, that can be fine-tuned to specifications.

High capacity with high volume module



High capacity Climate Wizard with HVM (high volume module) used to provide stand alone cooling or be interconnected into a common air handling system.

Customised to mechanical specifications



Climate Wizard HVM can be designed to integrate with other air conditioning equipment supplied by other contractors.



BREEZAIR

Direct Evaporative Air Conditioning

CLIMATE WIZARD

Indirect Evaporative Air Conditioning

COOLAIR

Direct Evaporative Air Conditioning

COOLERADO

Indirect Evaporative Air Conditioning

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