



# Indirect Evaporative Air Conditioning





## World leading climate control solutions

Seeley International is Australia's largest air conditioning manufacturer and a global leader in developing ingenious, energy-efficient cooling and heating products.

### Award Winning Company

Seeley International consistently wins awards each year for new product design, innovation and the environment.

Recent awards include:



### AIRA™

By SEELEY INTERNATIONAL

Commercial air conditioners, heaters & HCV

### Braemar™

By SEELEY INTERNATIONAL

Refrigerated air conditioning range including VRF (heat pump and heat recovery) Industrial & commercial evaporative air conditioners



Hyper-efficient indirect evaporative air conditioners



Dual Cool® Patented Dual Evaporative pre-cooling products



Compact, modular indirect evaporative air conditioners



# About Climate Wizard

Climate Wizard's unique indirect evaporative heat exchange core provides hyper-efficient cooling of outside air.

Generate **100% fresh, cool, outside air**, at temperatures that rival refrigerated systems, with up to **80% lower energy costs\***.



Reduced running costs by up to 80%\*

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

No high electrical demand charges even in hot weather

Savings on the installation costs



Temperatures are similar to those produced by refrigerated systems

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

No moisture added to the air\*\*

Total cooling performance increases when air temperature rises



Flexible design and engineering configurations

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

Covers an exceptionally large range of flexible configurations in a wide range of industries

Supported by a team of experienced design consultants and engineers



Wiser use of water (R-718)

No synthetic refrigerants or chemicals to harm the environment

Features an Auto-Cleanse™ water management system to minimise water consumption and to maintain quality



Simple, reliable solution to improve COP / EER (coefficient of performance / energy efficiency ratio)

Meets various regulatory requirements

Tested in NATA (National Association of Testing Authorities) accredited laboratory#



Australian designed and made

Designed for easy maintenance

Easy access to spare parts

National service network

After sales support

\*Compared to refrigerated systems performing the same duty

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

#Testing of the CW-80 units in the NATA accredited Meridian Test Laboratory is not possible due to their large and unique size.



# Standard product range

## Climate Wizard

Indirect evaporative air conditioning

Dramatically reduces energy consumption and cooling costs compared to equivalent refrigerated systems



### CW-H10

UP TO  
18kW

- COP of up to 12
- Up to 18 kW of cooling capacity in outside air pre-cooling applications
- Up to 800 L/s (2,880 m³/h) supply air

### CW-H15

UP TO  
24kW

- COP of up to 14
- Up to 24 kW of cooling capacity in outside air pre-cooling applications
- Up to 1,100 L/s (3,960 m³/h) supply air



### CW-P15

UP TO  
24kW

- COP of up to 12
- Up to 24 kW of cooling capacity in outside air pre-cooling applications
- Up to 1,100 L/s (3,960 m³/h) supply air



**WINNER 2017 – CW-P15**  
Product Design category  
(Commercial and Industrial)



### CW-80

UP TO  
140kW

- COP of up to 14
- Up to 140 kW of cooling capacity in outside air pre-cooling applications
- Up to 6,400 L/s (23,040 m³/h) supply air

### CW-80 Twin

UP TO  
280kW

- COP of up to 14
- Up to 280 kW of cooling capacity in outside air pre-cooling applications
- Up to 12,800 L/s (46,080 m³/h) supply air

Discover how Climate Wizard is the ideal solution for barrel halls at [climatewizard.com/bve](http://climatewizard.com/bve)

## Climate Wizard Supercool

Indirect evaporative cooling with direct evaporative stage

Designed to maintain precise temperature and humidity levels – at very low operating costs



### CW-H15S Plus

UP TO  
40kW

- COP of up to 18
- Up to 40 kW of cooling capacity in outside air pre-cooling applications
- Up to 1,600 L/s (5,760 m³/h) supply air

### CW-H15S

UP TO  
28kW

- COP of up to 16
- Up to 28 kW of cooling capacity in outside air pre-cooling applications
- Up to 1,100 L/s (3,960 m³/h) supply air



Discover how CW-H15S is the ideal solution for winery barrel halls at [seeleyinternational.com/bve](http://seeleyinternational.com/bve)



### CW-80S

UP TO  
160kW

- COP of up to 13
- Up to 160 kW of cooling capacity in outside air pre-cooling applications
- Up to 6,400 L/s (23,040 m³/h) supply air

# How it works

Climate Wizard indirect evaporative air conditioners use a hyper-efficient counter-flow heat exchanger to produce 100% fresh, cool, outside air, with no added moisture.

The fresh cold air produced by Climate Wizard can be similar to that produced by refrigerated systems, with temperatures that approach the ambient dew-point temperature.

## 1. Hot air enters the cooler

- Hot outside air enters the cooler via the inlet.
- A powerful, energy-efficient, electric fan moves the air towards the core.

## 2. Hot air passes through the core

- The core is an air-to-air heat exchanger consisting of alternating dry and wet channels.
- All of the air passes along the dry channels and gains no additional moisture.

## 3. Warm, moist air exhausted outside

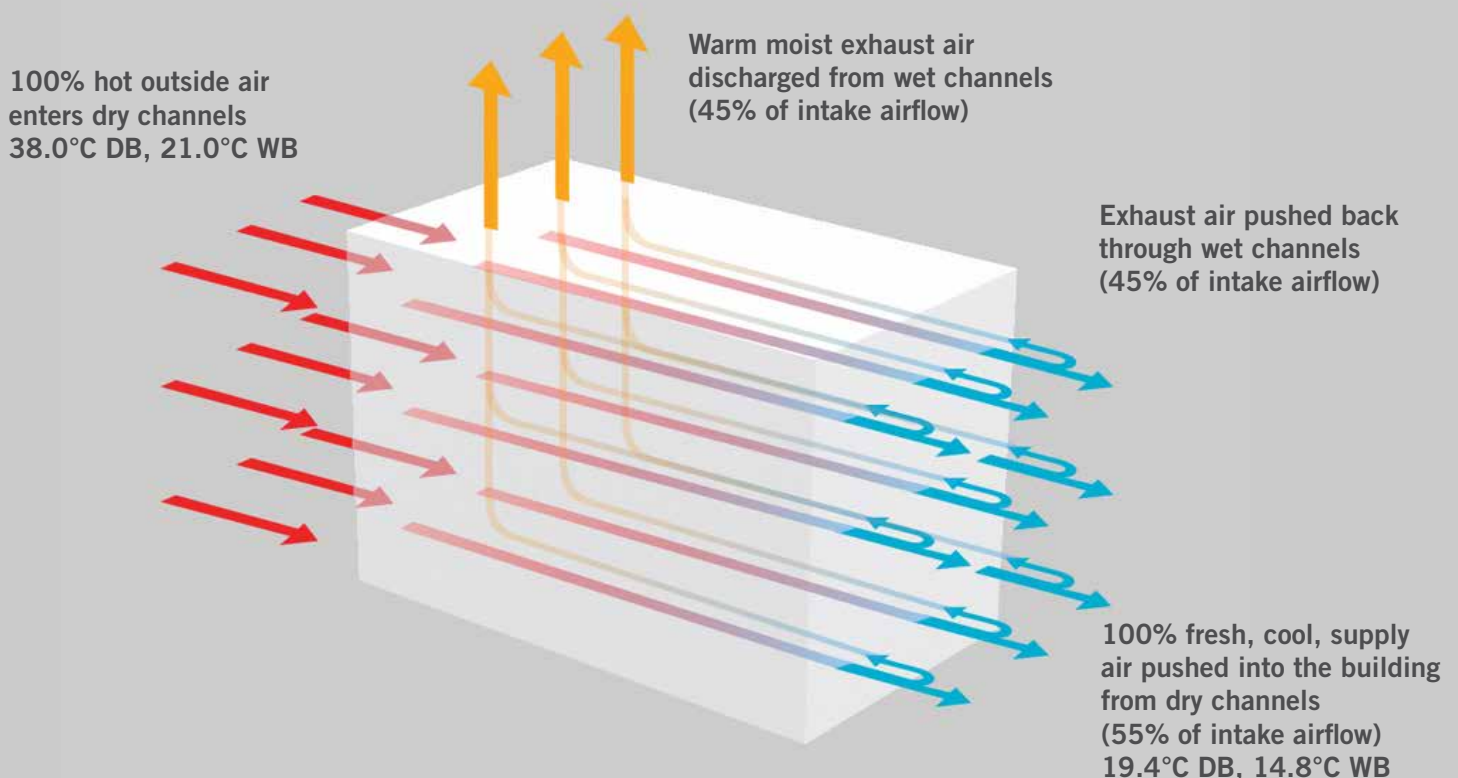
- As the air exits the dry channels, a portion of the conditioned air is returned through the wet channels.
- Through evaporation and conduction, it gains both moisture and heat. The channels are continuously soaked with water. This moist, warm air is then exhausted outside of the building.

- No moisture is transferred across the membranes between the dry and wet channels; only temperature (heat) is transferred.
- The heat passes out of the air in the dry channels through the membrane and into the air passing through the wet channels.
- In this way, the air in the dry channels becomes progressively colder but gains no moisture.

## 4. Fresh, cool outside air passes into the building

- The air passing along the dry channels in the core is cooled, with no moisture added.
- This fresh, cool air passes into the building.

## Climate Wizard counter-flow heat exchanger

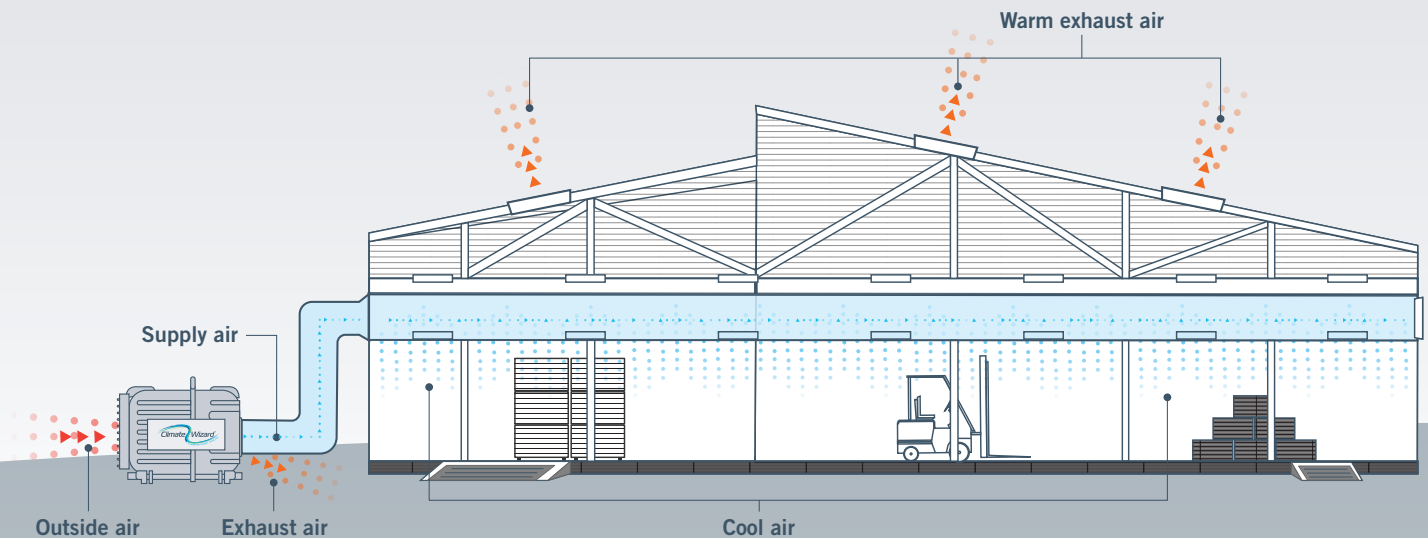


# Diverse configurations and applications

Dramatically reduce energy consumption and cooling costs by incorporating Climate Wizard with other HVAC systems.

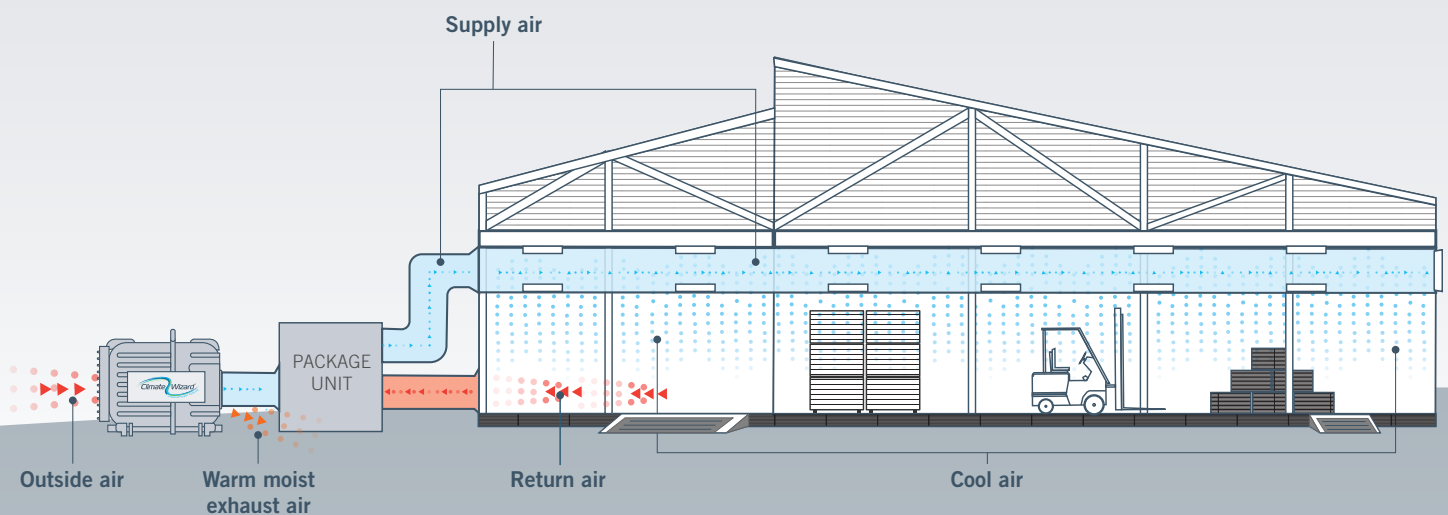
## Stand-alone cooling

Ideal for open plan and outdoor access applications



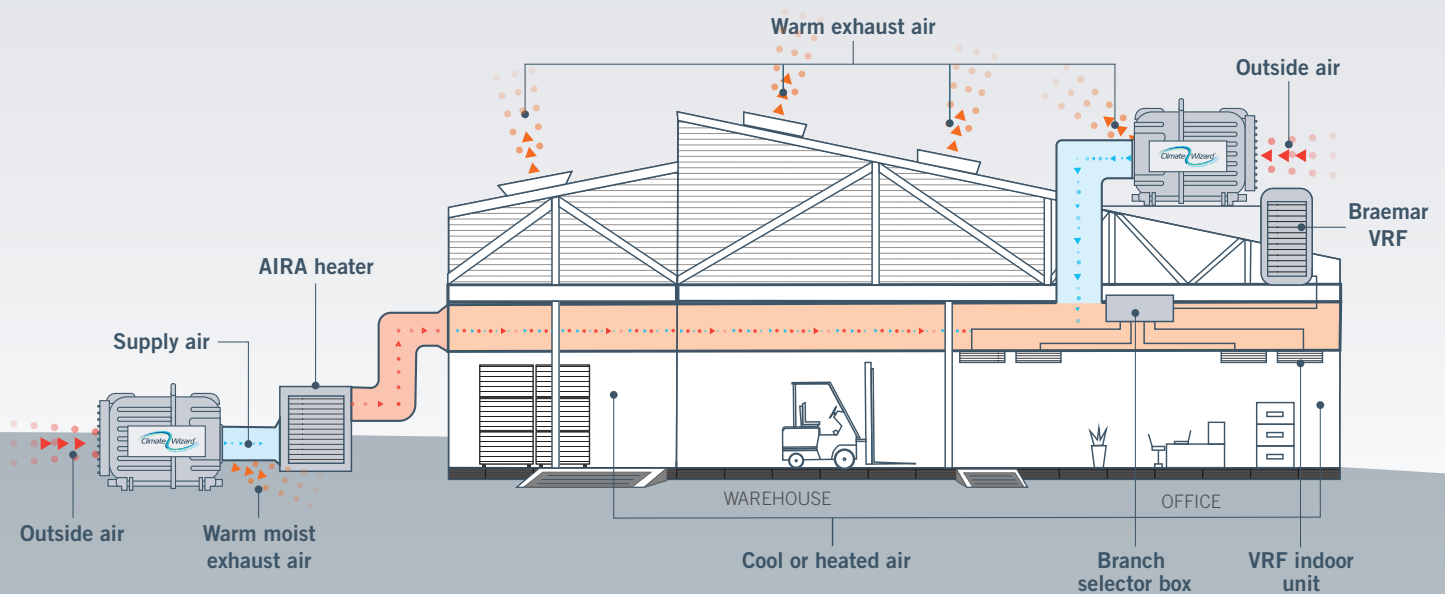
## Pre-cooling

A super cost effective way of cooling outside air required by refrigerated systems



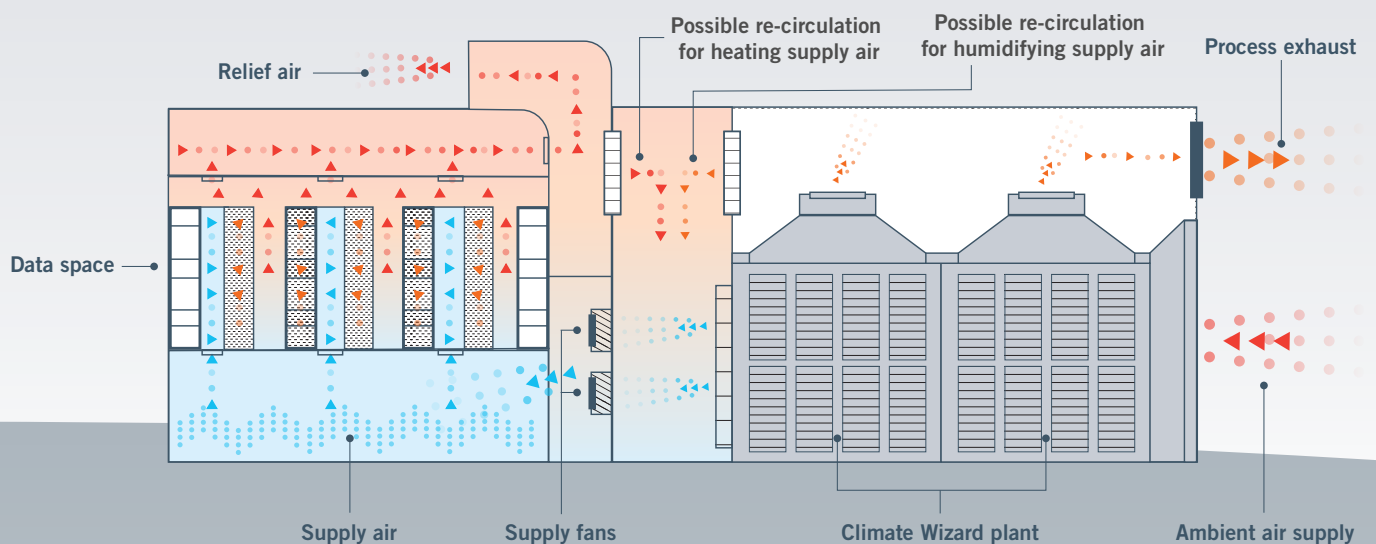
## Hybrid heating and cooling

Ensure full design heating and cooling capacity by combining Climate Wizard with other HVAC equipment such as commercial heating and/or VRF



## Data centre cooling

Climate Wizard delivers the right indoor climate and achieves outstanding PUE



# Design and performance features

## UV-resistant polymer shell and structure

- For withstanding extreme weather conditions
- Tapered shape for less obtrusive roof profile

## Integrated filter system

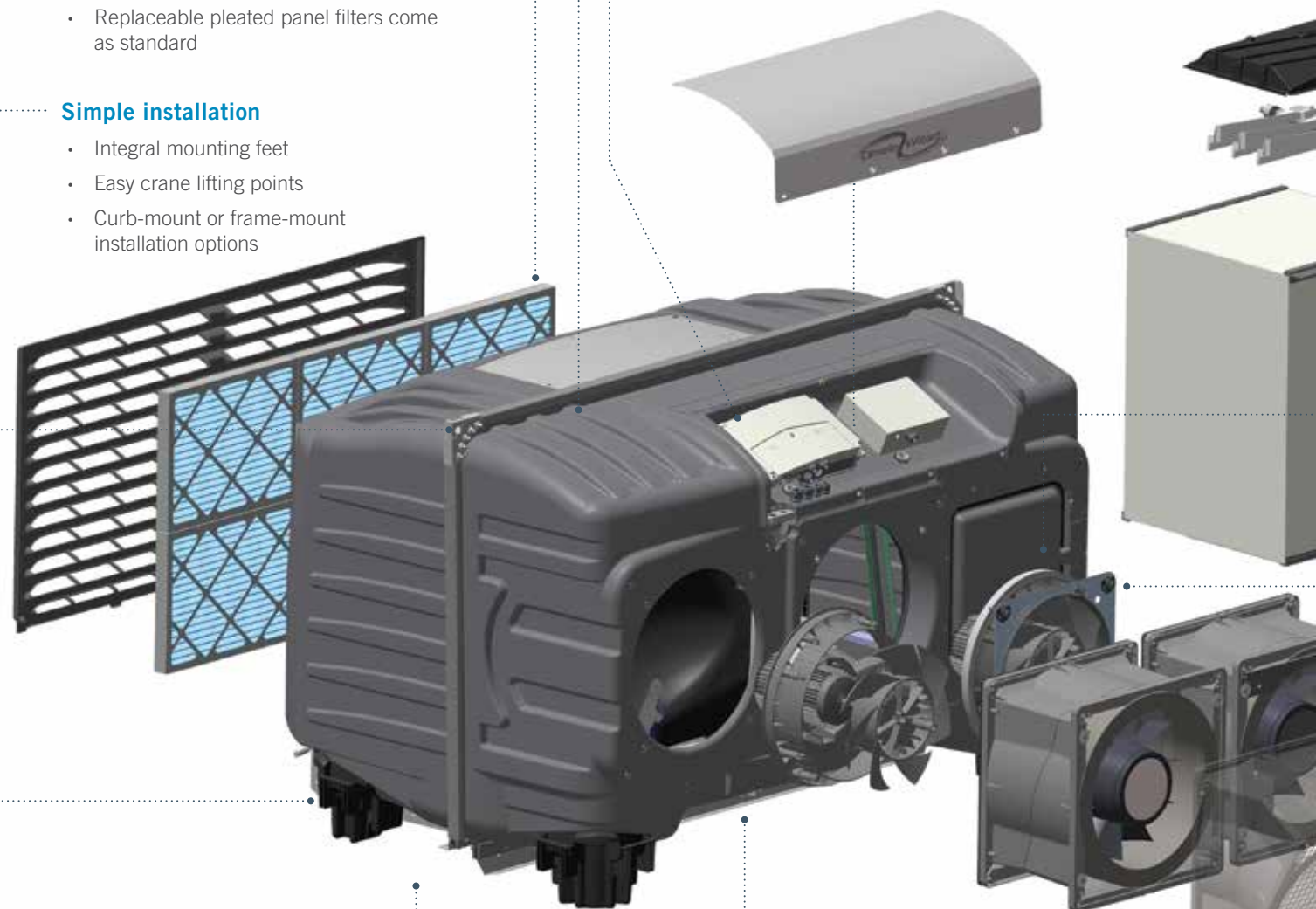
- Integrated air filtration system with options for disposable or washable pleated panel filters
- Replaceable pleated panel filters come as standard

## Simple installation

- Integral mounting feet
- Easy crane lifting points
- Curb-mount or frame-mount installation options

## Electronic control module

- Advanced electronics programmed for maximum efficiency
- Controls unit operation to minimise water consumption and maximise efficiency
- Can be configured to accept external BMS system inputs to control system operation (while retaining control of water management and system efficiency)
- Smart, reliable, durable



## Water management system

- Custom designed water management system minimises water consumption and maximises cleanliness
- Continuously monitors and controls the water salinity level in the reservoir
- Controls water cleanliness using a factory installed electro-chlorinator
- Manages water distribution for minimum water consumption and maximum cooling efficiency
- Drains the water system during prolonged idle periods
- Alarms if low water levels are detected



## Tornado® drain pump

- Part of the water management system
- Controlled to manage water quality and maximise system efficiency
- Drains the reservoir during prolonged idle periods





### Water distributor

- The water distributor delivers a calibrated volume of water to the counter-flow heat exchanger
- The system uses tried and true technology, developed over many years by Seeley International
- Designed to prevent clogging and evenly water the direct evaporative media

### Indirect heat exchange core

- Patented Climate Wizard counter-flow heat exchanger
- Uses indirect evaporative cooling to keep added moisture separate from the supply air stream
- Designed for long service life and consistent performance
- Provides maximum efficiency

### Duct connection

- Duct connection for economy mode, return air path

### Supply and exhaust air fans and electric motors

- High efficiency inverter drive fan motors
- Sickle-bladed, airfoil profiled impellers with directly coupled inverter motors
- Quiet, vibration free operation

### Duct adaptor and post rotation guide

### High capacity circulation water pump

- The water distribution system is powered by an extremely reliable high capacity pump



## H models

Applicable to CW-H10 and CW-H15 models only

### Supply air pressure damper

- Regulates air pressure in the discharge plenum
- Used to control exhaust flow in the wet channels
- Provides simple, positive capacity control



### Filter system

- Intake air is filtered through replaceable pleated filters
- The assembly includes:
  - a safety screen to protect the fan
  - a cover to minimise intrusion of rain



### Cabinetry

- Powder coated, marine grade aluminium
- Weather proof and corrosion resistant
- Mechanical fasteners are stainless steel or aluminium

## Climate Wizard Supercool

CW-H15S, CW-H15S Plus and CW-80S models available

With Climate Wizard Supercool, the moisture content can be fine-tuned to specifications, required for different applications, from data centres to wineries.

### Chillcel® high efficiency evaporative pad

- High efficiency, direct evaporative cooling pad
- Produces an ultra-low leaving air temperature with minimal additional moisture
- Designed to maximise the space cooling capacity of Climate Wizard Supercool
- Increases supply airflow



### Drip tray

- Part of the independent water collection system for the direct evaporative section
- Corrosion free and self-draining

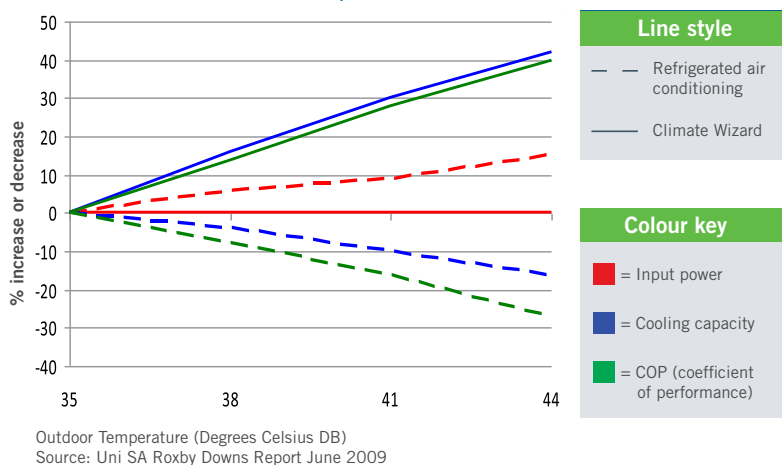
### Water distributor

- The water distributor delivers a calibrated volume of water to efficiently supercool the unit's leaving air
- A dedicated pump and water distributor are used to independently water the direct evaporative media to maximise versatility
- The system uses tried and true technology, developed over many years by Seeley International
- Designed to prevent clogging and evenly water the direct evaporative media



# Performance comparison

## Climate Wizard vs refrigerated cooling as temperature rises



Climate Wizard's cooling performance can rival that of refrigerated systems, using up to 80% less energy.

That's not only great for reducing power bills; it's also great for the environment. And, no matter how hot it gets outside, Climate Wizard uses the same amount of power and still delivers 100% fresh, cool air inside.

This is in direct contrast to refrigerated systems, which require increasing amounts of power as outside temperatures rise. Climate Wizard's cost-saving capabilities actually increase, when the heat is at its highest.

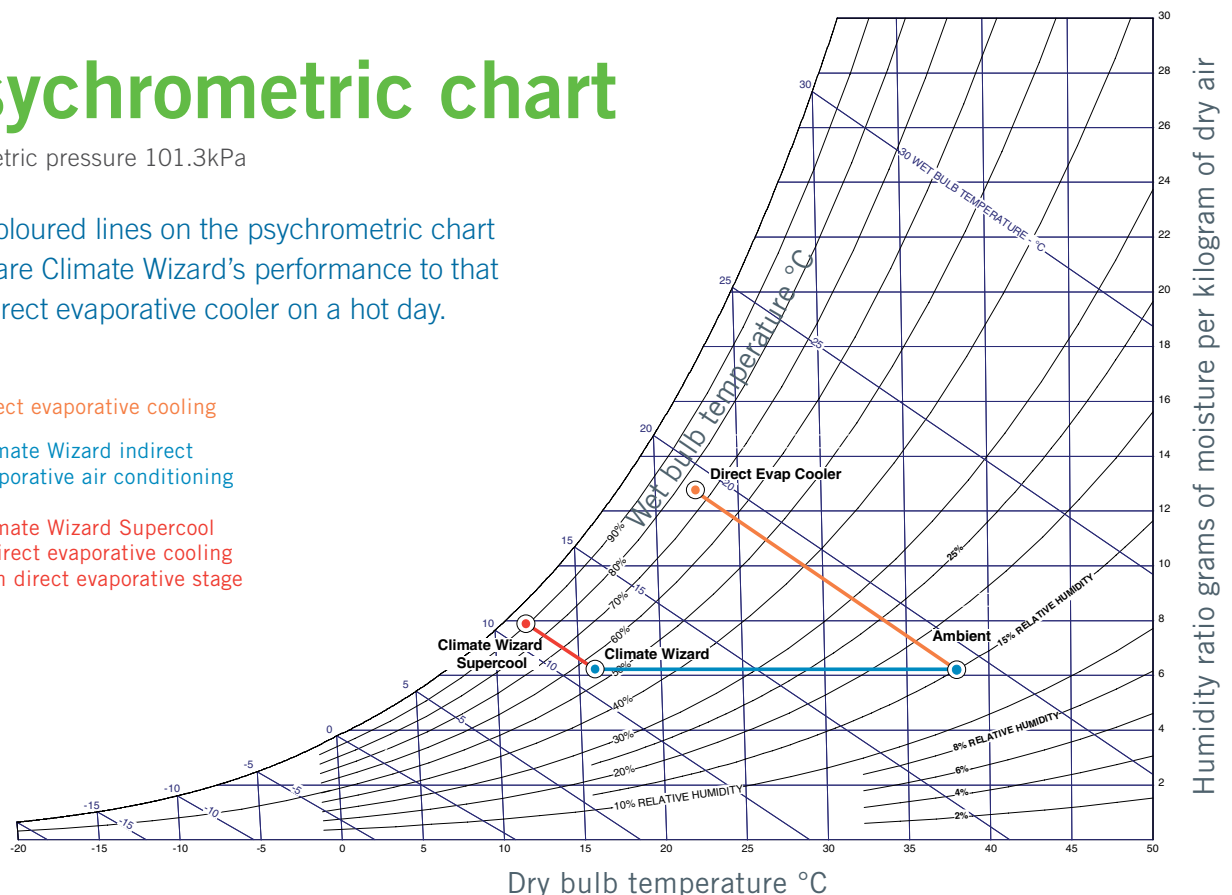
At the same time, Climate Wizard's performance also increases as temperatures rise – again, in complete contrast to refrigerated systems.

# Psychrometric chart

Barometric pressure 101.3kPa

The coloured lines on the psychrometric chart compare Climate Wizard's performance to that of a direct evaporative cooler on a hot day.

- Direct evaporative cooling
- Climate Wizard indirect evaporative air conditioning
- Climate Wizard Supercool indirect evaporative cooling with direct evaporative stage





# Climate Wizard Cooling Performance

## Supply Air Temperature

Location	Design condition	Climate Wizard Leaving Air Temp (°C)					
		CW-H10	CW-H15/P15	CWH-15S	CW-H15S Plus	CW-80	CW-80S
Arid	42°C DB / 21°C WB	18	18	14	16	19	15
Temperate	37°C DB / 19°C WB	17	17	14	15	18	15
Continental	31°C DB / 20°C WB	19	19	17	18	20	18
Sub-Tropical	31°C DB / 23°C WB	22	22	20	21	22	21
Tropical	33°C DB / 26°C WB	26	26	25	25	26	25

## Stand-Alone Cooling Capacity

Location	Design condition	CW-H10		CW-H15/P15		CWH-15S		CW-H15S Plus		CW-80		CW-80S	
		kW	COP	kW	COP	kW	COP	kW	COP	kW	COP	kW	COP
Arid	42°C DB / 21°C WB	9	6	12	7	18	10	23	10	68	7	96	10
Temperate	37°C DB / 19°C WB	10	7	14	8	19	10	25	11	75	8	101	10
Continental	31°C DB / 20°C WB	8	6	11	6	14	8	19	9	62	6	78	8
Sub-Tropical	31°C DB / 23°C WB	6	4	8	4	9	5	13	6	40	4	52	5

## Pre-Cooling Capacity

Location	Design condition	CW-H10		CW-H15/P15		CWH-15S		CW-H15S Plus		CW-80		CW-80S	
		kW	COP	kW	COP	kW	COP	kW	COP	kW	COP	kW	COP
Arid	42°C DB / 21°C WB	24	17	33	18	39	21	53	24	186	16	216	19
Temperate	37°C DB / 19°C WB	20	14	27	15	32	18	44	20	153	14	180	17
Continental	31°C DB / 20°C WB	12	8	16	9	19	11	26	12	90	7	107	9
Sub-Tropical	31°C DB / 23°C WB	9	7	13	7	14	8	20	9	68	5	80	6
Tropical	33°C DB / 26°C WB	7	5	10	6	11	6	15	7	53	3	61	4

# Climate Wizard cooling performance calculator

Enter the key parameters to compare how much energy can be saved. Typically the results are compelling.

You will be provided with a summary and a report of your results to meet local climate conditions.

Go to [seeleyinternational.com/commercial/tools](https://seeleyinternational.com/commercial/tools)



# Controller options

## BMS interface

Standard on all models

All Climate Wizard air conditioning models are supplied with an interface to enable the cooler to be controlled from an external location, using a Building Management System.

## BACnet

Optional on CW-80, CW-80S, and CW-80 Twin

Building Automation and Control Network communication protocol is available on all CW-80 models.

# CW-P15 controller options

## MagIQtouch® controller

Optional with CW-P15

- Modbus capable
- Easy operating process due to in-built Installation Wizard
- Each cooler comes supplied with 20m wiring loom
- Option to extend this up to a maximum length of 40m
- Operate up to 60 coolers (total loom length must be 500m from a single MagIQtouch controller, using optional Link Module and wiring loom-no special controllers required)
- Operate Braemar ducted gas heating and Climate Wizard cooling from the same MagIQtouch controller



## MagIQtouch BMS Industrial Controller MS1

Optional with CW-P15

- Optional 12Vdc power supply
- 100m communication cable
- Operate up to 60 coolers using link modules



## Switch plate controller

Optional with CW-P15

- Operate one cooler from an easy to use switch plate
- The switch plate comes with 20m wiring loom
- Option to extend this up to a maximum length of 40m



## MagIQcool™ controller

Standard with CW-P15

- Operate one cooler from an easy to use, wall mounted thermostat controller
- The controller comes with 20m wiring loom
- Option to extend this up to a maximum length of 40m





# Technical specifications

	Climate Wizard		
	CW-H10	CW-H15	CW-P15
Nominal cooling capacity*	18 kW	24 kW	24 kW
Rated airflow	800 L/s (2,880 m³/h) at 180 Pa external static pressure	1,100 L/s (3,960 m³/h) at 150 Pa external static pressure	1,100 L/s (3,960 m³/h) at 140 Pa external static pressure
Max. external static pressure	215 Pa	215 Pa	250 Pa
Max. inlet air temperature	55 °C	55 °C	55 °C
Power requirement	1.5 kW	1.8 kW	1.9 kW
Electrical supply	3-phase, 380-415 V, 50 Hz	3-phase, 380-415 V, 50 Hz	1-phase, 200-240 V, 50 Hz
Water supply	20 L/min delivered at 100 kPa min, 800 kPa max (External in-line filtration recommended)	20 L/min delivered at 100 kPa min, 800 kPa max (External in-line filtration recommended)	20 L/min delivered at 100 kPa min, 800 kPa max (External in-line filtration recommended)
Water consumption	44 L/h	56 L/h	56 L/h
Supply air configuration	Side discharge	Side discharge	Side discharge
Supply fans	Backward curved centrifugal fan with direct coupled EC motor	Backward curved centrifugal fan with direct coupled EC motor	1x sickle-bladed, airfoil profiled impeller with directly coupled inverter motor
Exhaust fans	n/a	n/a	1x sickle-bladed, airfoil profiled impeller with directly coupled inverter motor
Pump	Water circulation pump	Water circulation pump	Water circulation pump
Water management	Low voltage catalytic chlorinator and salinity probe	Low voltage catalytic chlorinator and salinity probe	Low voltage catalytic chlorinator and salinity probe
Drain valve	Low voltage, vertical, electric drive	Low voltage, vertical, electric drive	1 x 240V electric pump
Heat exchanger core	2 x Climate Wizard patented counter-flow heat exchanger cores	3 x Climate Wizard patented counter-flow heat exchanger cores	3 x Climate Wizard patented counter-flow heat exchanger cores
Air filtration	G4 pleated washable filters with metal frames	G4 pleated washable filters with metal frames	G4 pleated washable filters with metal frames
Water reservoir	One piece, moulded polymer, 45 L	One piece, moulded polymer, 65 L	One piece, moulded polymer, 47 L
Dimensions	2,330mm (L) x 1,230mm (W) x 1,325mm (H)	2,330mm (L) x 1,825mm (W) x 1,285mm (H)	1960mm (W) x 1430mm (L) x 1285mm (H)
Shipping weight	250 kg	320 kg	239 kg
Operating weight	255 kg	325 kg	335 kg
Controller options	Wall controller, BMS interface	Wall controller, BMS interface	Wall controller, BMS interface, MagiQtouch controller (optional)

Note: specifications subject to change. \*Tested in accordance with ASHRAE 143 conditions of 38.0 °C db / 21.0 °C wb. Stand alone cooling capacity may be lower, depending on application.

# Technical specifications

	Climate Wizard	
	CW-80	CW-80 Twin
Nominal cooling capacity*	140 kW**	280 kW**
Rated airflow	6,400 L/s (23,040 m³/h) at 100 Pa external static pressure	12,800 L/s (46,080 m³/h) at 100 Pa external static pressure
Max. external static pressure	250 Pa	250 Pa
Max. inlet air temperature	55 °C	55 °C
Power requirement	10.0 kW at rated airflow	20 kW at rated airflow
Electrical supply	3-phase, 380-415 V, 50 Hz	3-phase, 380-415 V, 50 Hz
Water supply	45 L/min delivered at 85 kPa min, 800 kPa max (External in-line filtration recommended)	90 L/min delivered at 85 kPa min, 800 kPa max (External in-line filtration recommended)
Water consumption	326 L/h	652 L/h
Supply air configuration	Side or top discharge	Top discharge
Supply fans	2 x backward curved centrifugal fan with direct coupled EC motor	4 x backward curved centrifugal fan with direct coupled EC motor
Exhaust fans	4 x backward curved centrifugal fan with direct coupled EC motor	8 x backward curved centrifugal fan with direct coupled EC motor
Pump	Water circulation pump	Water circulation pump
Water management	Low voltage catalytic chlorinator and salinity probe	Low voltage catalytic chlorinator and salinity probe
Drain valve	Low voltage, vertical, electric drive	Low voltage, vertical, electric drive
Heat exchanger core	16 x Climate Wizard patented counter-flow heat exchanger cores	32 x Climate Wizard patented counter-flow heat exchanger cores
Air filtration	16 x G4 pleated washable filters with metal frames size 625mm x 625mm x 45mm	32 x G4 pleated washable filters with metal frames size 625mm x 625mm x 45mm
Water reservoir	One piece, moulded polymer, 180 L	2 x one piece, moulded polymer, 180 L
Dimensions	4,470mm (L) x 2,550mm (W) x 3,515mm (H)	6,005mm (L) x 2,550mm (W) x 4,205mm (H)
Shipping weight	2,000 kg	3,910 kg
Operating weight	2,700 kg	5,320 kg
Controller options	BMS interface, BACnet (optional)	BMS interface, BACnet (optional)

Note: specifications subject to change. \*Tested in accordance with ASHRAE 143 conditions of 38.0 °C db / 21.0 °C wb. Stand alone cooling capacity may be lower, depending on application. \*\*Temperature data from field measurements.

# Technical specifications

	Climate Wizard Supercool		
	CW-H15S Plus	CW-H15S	CW-80S
Nominal cooling capacity*	40 kW	28 kW	160 kW**
Rated airflow	1,600 L/s (5,760 m³/h) at 80 Pa external static pressure	1,100 L/s (3,960 m³/h) at 130 Pa external static pressure	6,400 L/s (23,040 m³/h) at 100 Pa external static pressure
Max. external static pressure	155 Pa	195 Pa	200 Pa
Max. inlet air temperature	55 °C	55 °C	55 °C
Power requirement	2.2 kW	1.8 kW	11.8 kW at rated airflow
Electrical supply	3-phase, 380-415V, 50 Hz	3-phase, 380-415 V, 50 Hz	3-phase, 380-415V, 50 Hz
Water supply	20 L/min delivered at 100 kPa min, 800 kPa max (External in-line filtration recommended)	20 L/min delivered at 100 kPa min, 800 kPa max (External in-line filtration recommended)	45 L/min delivered at 85 kPa min, 800 kPa max (External in-line filtration recommended)
Water consumption	72 L/h	60 L/h	423 L/h
Supply air configuration	Side discharge	Side discharge	Side discharge
Supply fans	Backward curved centrifugal fan with direct coupled EC motor	Backward curved centrifugal fan with direct coupled EC motor	2 x backward curved centrifugal fan with direct coupled EC motor
Exhaust fans	n/a	n/a	4 x backward curved centrifugal fan with direct coupled EC motor
Pump	Water circulation pump	Water circulation pump	Water circulation pump
Water management	Low voltage catalytic chlorinator and salinity probe	Low voltage catalytic chlorinator and salinity probe	Low voltage catalytic chlorinator and salinity probe
Drain valve	Low voltage, vertical, electric drive	Low voltage, vertical, electric drive	Low voltage, vertical, electric drive
Heat exchanger core	3 x Climate Wizard patented counter-flow heat exchanger cores	3 x Climate Wizard patented counter-flow heat exchanger cores	16 x Climate Wizard patented counter-flow heat exchanger cores
Air filtration	G4 pleated washable filters with metal frames	G4 pleated washable filters with metal frames	16 x G4 pleated washable filters with metal frames size 625mm x 625mm x 45mm
Water reservoir	One piece, moulded polymer, 65 L	One piece, moulded polymer, 65 L	One piece, moulded polymer, 180 L
Dimensions	2,330mm (L) x 1,825mm (W) x 1,285mm (H)	2,330mm (L) x 1,825mm (W) x 1,285mm (H)	4,470mm (L) x 2,550mm (W) x 3,515mm (H)
Shipping weight	335 kg	335 kg	2,100 kg
Operating weight	340 kg	340 kg	2,850 kg
Controller options	Wall controller, BMS interface^	Wall controller, BMS interface^	BMS interface, BACnet (optional)

Note: specifications subject to change. \*Tested in accordance with ASHRAE 143 conditions of 38.0 °C db / 21.0 °C wb. Stand alone cooling capacity may be lower, depending on application. ^CW-H15 Supercool and Supercool Plus requires additional supercool section to be externally controlled by installing contractor. \*\*Temperature data from field measurements.



### **BREEZAIR**

Ducted Evaporative Air Conditioning

### **BRAEMAR**

Ducted Evaporative Air Conditioning | Ducted Gas Heating  
Reverse Cycle Air Conditioning | Gas Wall Furnaces and Space Heaters

### **CLIMATE WIZARD**

Indirect Evaporative Air Conditioning

### **CONVAIR**

Portable Air Conditioning

### **COOLAIR**

Ducted Evaporative Air Conditioning

### **COOLERADO**

Indirect Evaporative Air Conditioning

### **AIRA**

Direct and Indirect Evaporative Air Conditioning | Ducted Gas Heating  
Commercial Gas Space Heating | Energy Recovery Systems

### **INTEGRATED COMFORT INCORPORATED (ICI)**

Dual Cool® Patented Dual Evaporative pre-cooling products

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Information in this brochure was correct at the time of preparation. E & OE

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