The Climate Wizard
By SEELEY INTERNATIONAL™

Multi-cycle Indirect Evaporative Air Conditioning

SEELEY INTERNATIONAL

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:

H&V news AWARDS 2021 · THE ENERGY AWARDS 2021 · THE ENERGY AWARDS 19 WINNER · Family Business Awards FBA NZ · AWARDS 2018 WINNER · Half a Century of Exporting Excellence BUSINESS SA EXPORT AWARDS 2018 WINNER

Breezair by SEELEY INTERNATIONAL

The world's coolest, quietest and most energy efficient evaporative air conditioners

The Climate Wizard by SEELEY INTERNATIONAL

Hyper-efficient Multi-cycle indirect evaporative air conditioners

coolair by SEELEY INTERNATIONAL

High performance evaporative air conditioning. Unbelievable value.

Coolerado by SEELEY INTERNATIONAL

Compact, modular Multi-cycle indirect evaporative air conditioners

About The Climate Wizard

The Climate Wizard's unique Multi-cycle 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***.

Reduce carbon emissions Low GWP

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

Comfortable Indoor Air Quality

Temperatures are similar to those produced by refrigerated systems

Improved IAQ (Indoor Air Quality) with 100% fresh, cool outside air

No moisture added to the air**

Total cooling performance increases when air temperature rises

Flexible applications

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

Supporting Sustainability

Wiser use of water (R-718)
Responsible use of renewable resources

No synthetic refrigerants or chemicals

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

Hyper-efficient

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

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

Low maintenance with technical support

Australian designed, made and owned

Easy access to spare parts

International sales and technical support

*Compared to refrigerated systems performing the same duty.

** The 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.

How it works

The Climate Wizard Multi-cycle 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 The 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 Multi-cycle heat exchanger consisting of alternating dry and wet channels.
- All of the air passes along the dry channels and gains no additional moisture.

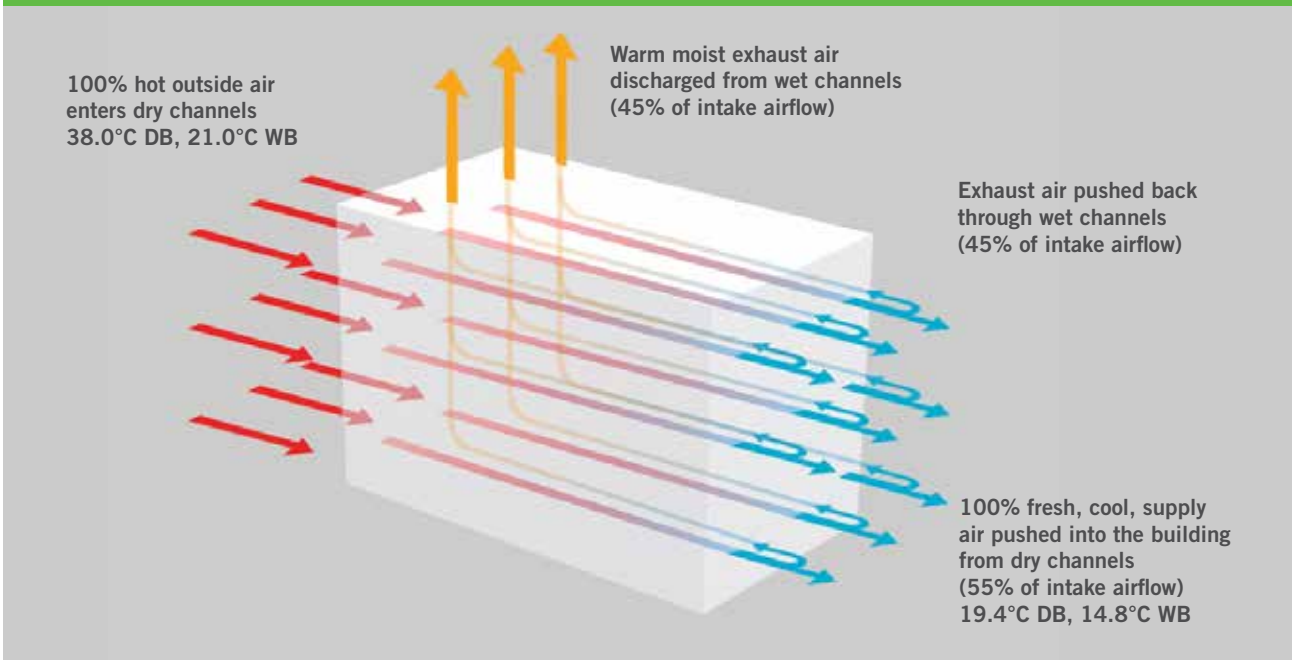
3. Warm and moist working air exhausted outside

- As the air exits the dry channels, a portion of the conditioned air is returned through the wet channels, where it is cooled by evaporative cooling process.
- No moisture is transferred across the membranes between the dry and wet channels; only 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.
- The wet channels are continuously soaked with water to allow the evaporative cooling process along the entire length of the core. This moist, warm air is then exhausted outside.

4. Fresh, cool outside air passes into the building

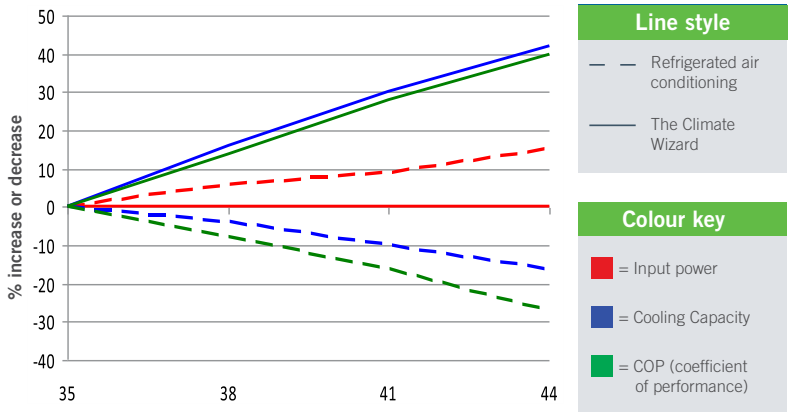
- The air passing along the dry channels in the core is cooled, with no moisture added.
- This fresh, cool air passes into the building.

The Climate Wizard Multi-cycle counter-flow heat exchanger



Performance comparison

The Climate Wizard vs refrigerated cooling as temperature rises



Outdoor Temperature (Degrees Celsius DB)
Source: Uni SA Roxby Downs Report June 2009

The 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, The 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. The Climate Wizard's cost-saving capabilities actually increase, when the heat is at its highest.

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

Psychrometric chart

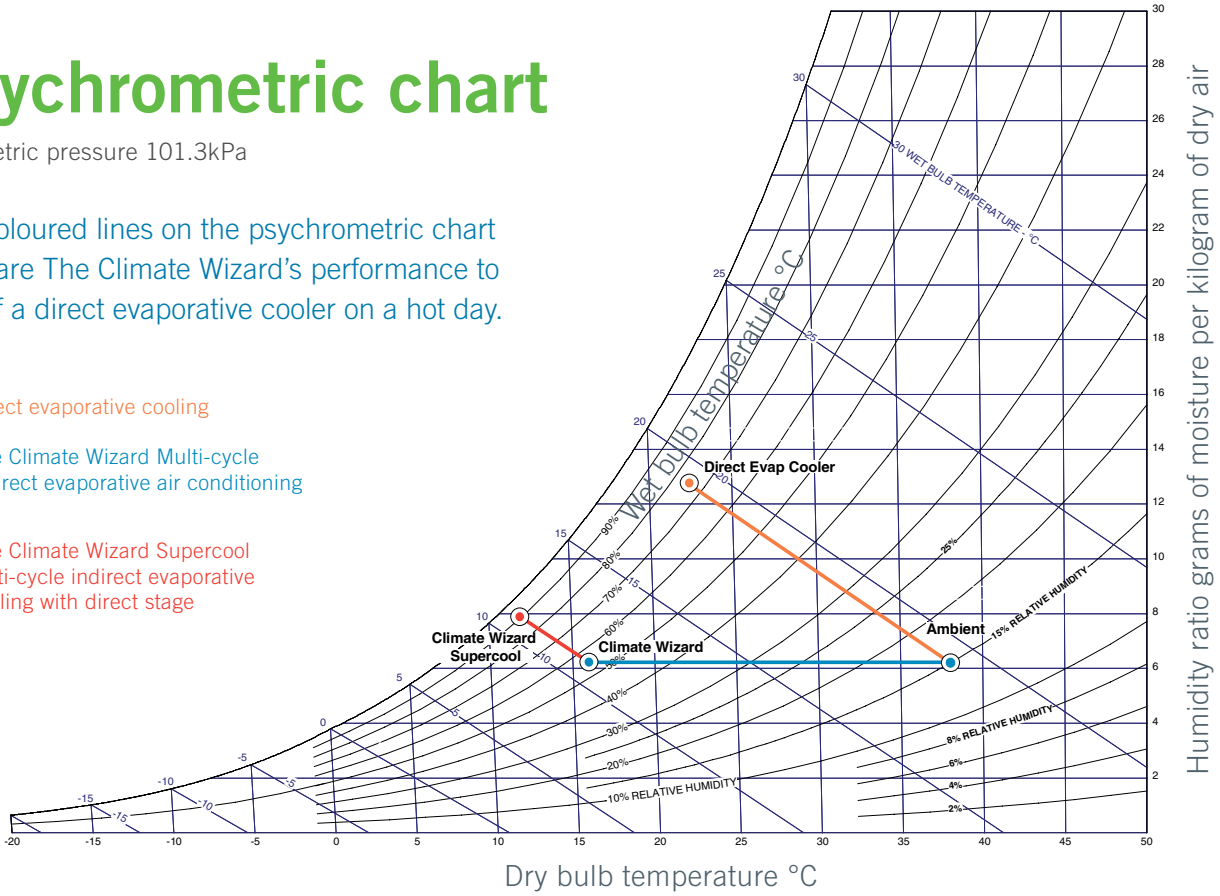
Barometric pressure 101.3kPa

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

Direct evaporative cooling

The Climate Wizard Multi-cycle indirect evaporative air conditioning

The Climate Wizard Supercool Muti-cycle indirect evaporative cooling with direct stage



Standard product range

The Climate Wizard By SEELEY INTERNATIONAL

The Climate Wizard

Multi-cycle indirect evaporative air conditioning

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

CW-H15

25kW COOLING CAPACITY

- COP 14
- Up to 1,100 L/s (3,960 m³/h) supply air @150 Pa
- Input Power 1.8 kW

CW-80

180kW COOLING CAPACITY

- COP 13
- Up to 8.500 L/s (30,600 m³/h) supply air @270 Pa
- Input Power 12.5 kW

Electrical supply	3-phase, 380-415 V, 50 Hz	3-phase, 380-415 V, 50 Hz
Dimensions	2,330mm (L) x 1,230mm (W) x 1,325mm (H)	3,980mm (L) x 2,550mm (W) x 3,515mm (H)
Operating weight	255 kg	2,700 kg

CW-80 and CW-80S can work at external static pressure of up to 820 Pa!

The Climate Wizard Supercool

Multi-cycle 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 40 kW COOLING CAPACITY

- COP 19
- Up to 1,600 L/s (5,760 m³/h) supply air @80 Pa
- Input Power 2.1 kW

CW-H15S

UP TO 29 kW COOLING CAPACITY

- COP 16
- Up to 1,100 L/s (3,960 m³/h) supply air @120 Pa
- Input Power 1.8 kW

Electrical supply	3-phase, 380-415 V, 50 Hz	3-phase, 380-415 V, 50 Hz
Dimensions	2,290mm (L) x 1,825mm (W) x 1,285mm (H)	2,290mm (L) x 1,825mm (W) x 1,285mm (H)
Operating weight	345 kg	345 kg

CW-3

UP TO 29 kW COOLING CAPACITY

- COP 17
- Up to 1,300 L/s (4,680 m³/h) supply air @150 Pa
- Input Power 1.75 kW

CW-80S

UP TO 214kW COOLING CAPACITY

- COP 15
- Up to 8,200 L/s (29,500 m³/h) supply air @240 Pa
- Input Power 12.5 kW

Electrical supply	1-phase, 220-240 V, 50/60 Hz	3-phase, 380-415 V, 50 Hz
Dimensions	1,160mm (L) x 1,160mm (W) x 1,020mm (H)	3,980mm (L) x 2,550mm (W) x 3,515mm (H)
Operating weight	210 kg	2,850 kg

Note: Nominal cooling capacity is based on design conditions of 38.0 °C db / 21.0 °C wb. Stand alone cooling capacity may be different, depending on application.

Control options

Seeley International has designed the most advanced technology to give you full control of your coolers in the smartest way.

MagIQtouch® controller

Optional with CW-3

- Control all features on a user-friendly touch screen
- Easy operating process due to in-built Installation Wizard
- PIN access & Program mode available
- Operate up to 60 coolers from a single MagIQtouch controller

MagIQcool™ controller

Optional with CW-3

Operate The Climate Wizard cooler from an easy to use, wall mounted thermostat controller

External air sensor

Optional with all coolers

- Measures current outside temperature
- Intuitively optimises water and energy usage based on outside ambient conditions
- Extends the life of your air conditioner by automatically draining the water tank when temperature nears freezing

Multi-Magic™ controller and electronic control module

For CW-H and CW-80

- 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) or Modbus Master commands through RS485.

Remote indoor temperature sensor

Optional with all coolers

- A remote temperature and humidity sensing module
- Enables the Controller to be mounted in a convenient location (e.g. control room), while still sensing air from the conditioned space

Multi-Magic™ duct sensor

For CW-80

This sensor measures the air temperature and relative humidity inside ducts.

BMS interface

Standard on all models

Separate BMS module to be ordered only for CW-3, Embedded in all other models

All The 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.

Multi-Magic By SEELEY INTERNATIONAL Control system

Seeley International has delivered, in collaboration with Schneider Electric, a new standard in climate control for its hyper-efficient commercial cooling range, The Climate Wizard.

Providing Smart connectivity, Multi-Magic® delivers state-of-the-art control for optimising performance, energy-efficiency and operational savings, as well as easy installation with an intuitive user interface.

Design and performance features CW-H Series

Multi-cycle indirect heat exchange core

- Climate Wizard patented 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

Supply air pressure damper

- Regulates air pressure in the discharge plenum
- Used to control exhaust flow

Water reservoir

- One piece moulded polymer construction
- Durable and corrosion free
- Provides excellent sound deadening properties
- Sloped to prevent standing water when drained

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
- Automatic drain valve

Water distributor

- The water distributor delivers a calibrated volume of water to efficiently cool the unit's leaving air
- A dedicated pump and water distributor are used to independently water the direct evaporative media to maximise versatility*
- Minimum water consumption and maximum cooling efficiency

Supply air fan and electric motor

- Backward curved, direct drive, plug fan
- Variable speed electronically commutated motor

Tornado® circulation water pump

- Exceptional reliability under all conditions
- Includes 'clever impact start' feature that will overcome any tendency for the pump to become locked up with residue during prolonged off periods

The Climate Wizard
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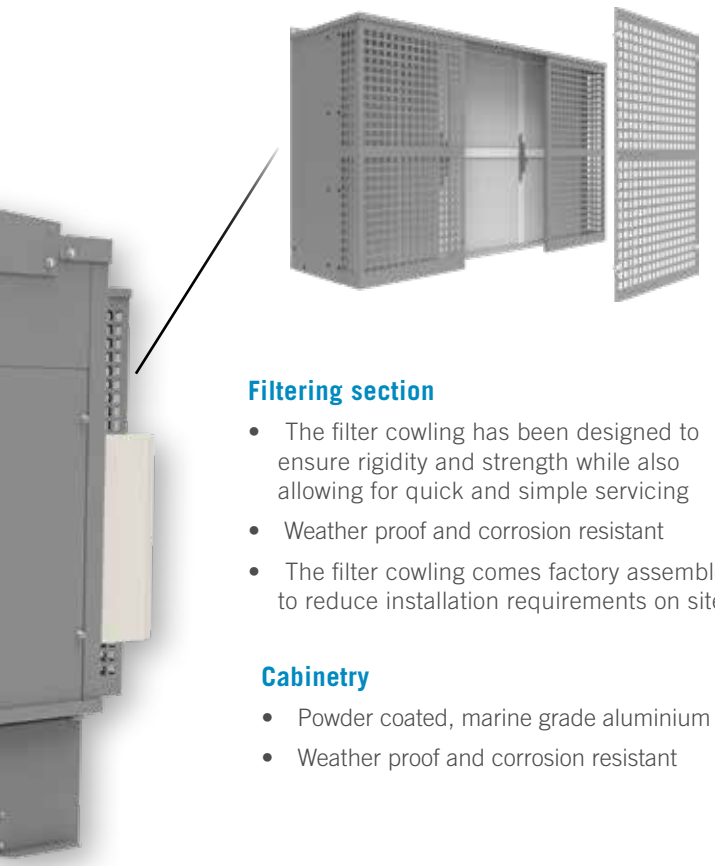


Filtering section

- The filter cowling has been designed to ensure rigidity and strength while also allowing for quick and simple servicing
- Weather proof and corrosion resistant
- The filter cowling comes factory assembled to reduce installation requirements on site.

Cabinetry

- Powder coated, marine grade aluminium
- Weather proof and corrosion resistant

Supercool Models

Adding a Direct Evaporative Cooling pad after the Multi-cycle indirect stage, we have the so-called Supercool Model.

The result of adding this new direct stage downstream to the heat-exchanger core is that we can reduce the DB (dry bulb) supply air temperature adding a very small quantity of moisture only, for ever lower temperatures and super-cool effect!

Seeley International designs Supercool models of all sizes, browse our catalogue to learn more!

All features marked with * are available only in the Supercool Models.

Chillcel® Pads

- Revolutionary cell structure for optimum cooling capacity
- Only the best quality paper is used, which gives the pads optimal saturation efficiencies to suit the harshest climates

The Climate Wizard CW-3

CW3 is the latest breakthrough in the Climate Wizard range: with its polymer case and compact footprint, CW3 is easy to install and much lighter, if compared with other models.

Micro-core™ technology

CW3 has an innovative heat exchanger based on patented Micro-Core™ technology which is fully manufactured by Seeley International and provides sub-wet bulb cooling.

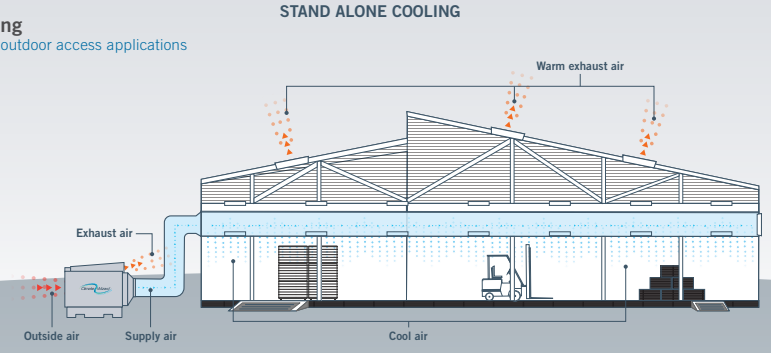
- **Exceptionally compact footprint**
- **Polymer structure for a lighter unit**
- **Supercool (Indirect + Direct stage)**
- **Can be installed directly on the duct**
- **Can be used in Free-cooling mode**

Diverse configurations and applications

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

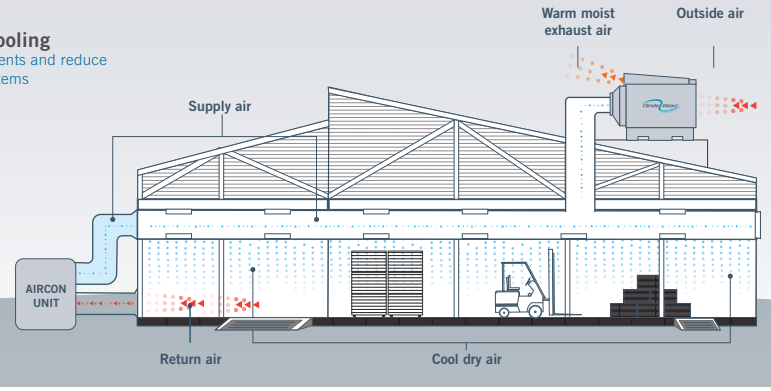
Stand-alone cooling

Ideal for open plan and outdoor access applications



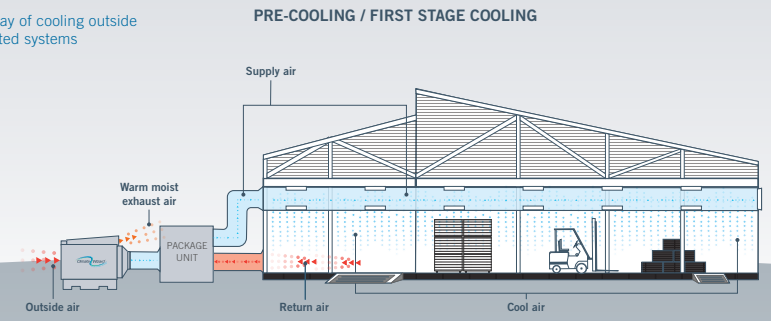
Supplementary cooling

Meet fresh air requirements and reduce load on refrigerated systems



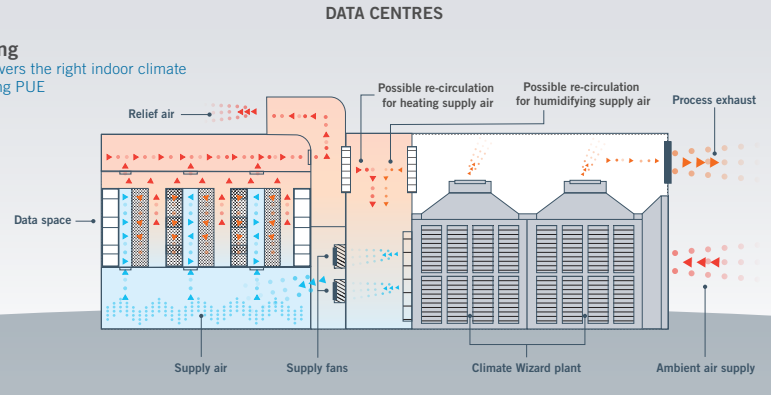
Pre-cooling

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



Data centre cooling

The Climate Wizard delivers the right indoor climate and achieves outstanding PUE



The Climate Wizard Cooling Performance

Supply Air Temperature

Location	Design condition						
		CW-3	CW-H15	CW-H15S	CW-H15S Plus	CW-80	CW-80S
Arid	42°C DB / 21°C WB	19	18	15	16	19	16
Temperate	37°C DB / 19°C WB	18	17	14	15	18	15
Continental	31°C DB / 20°C WB	20	19	17	18	20	18
Sub-Tropical	31°C DB / 23°C WB	23	23	20	22	23	21
Tropical	33°C DB / 26°C WB	26	26	25	25	26	25

Stand-Alone Cooling Capacity

Location	Design condition	CW-3		CW-H15		CW-H15S		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	14	8	12	7	17	9	22	10	86	6	117	9
Temperate	37°C DB / 19°C WB	17	10	14	8	19	10	25	11	102	8	132	10
Continental	31°C DB / 20°C WB	13	8	11	6	14	8	19	9	82	6	100	8
Sub-Tropical	31°C DB / 23°C WB	8	4	8	4	9	5	13	6	48	4	60	5

Pre-Cooling Capacity

Location	Design condition	CW-H15		CW-H15S		CW-H15S Plus		CW-80		CW-80S	
		kW	COP	kW	COP	kW	COP	kW	COP	kW	COP
Arid	42°C DB / 21°C WB	32	18	37	21	52	23	239	18	266	21
Temperate	37°C DB / 19°C WB	27	15	32	18	44	20	203	15	230	17
Continental	31°C DB / 20°C WB	16	9	19	11	26	12	120	9	136	11
Sub-Tropical	31°C DB / 23°C WB	12	7	13	8	19	9	85	6	95	7
Tropical	33°C DB / 26°C WB	10	6	11	6	16	7	73	5	81	6

The Climate Wizard cooling performance calculator

Enter the key parameters to check The Climate Wizard performance for your project. 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/eu/commercial/tools**