



Indirect Evaporative Air Conditioning



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

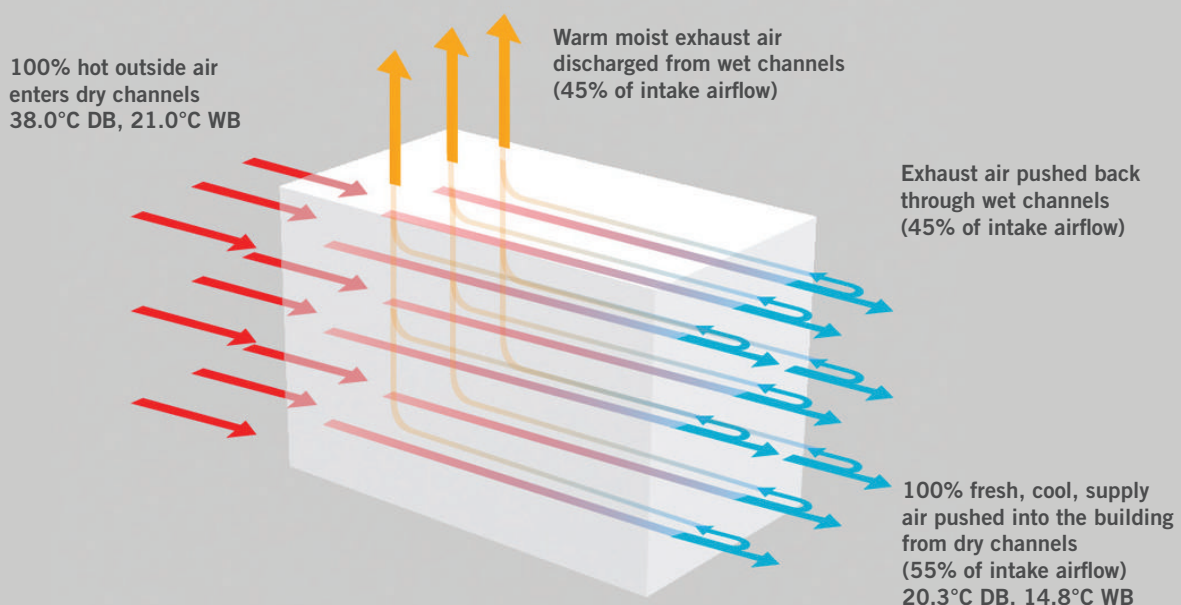
- As the air exits the dry channels, a portion of the conditioned air is returned through the wet channels.
- Through evaporation and conduction, it gains both moisture and heat. The channels are continuously soaked with water. This moist, warm air is then exhausted outside of the building.

- 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.

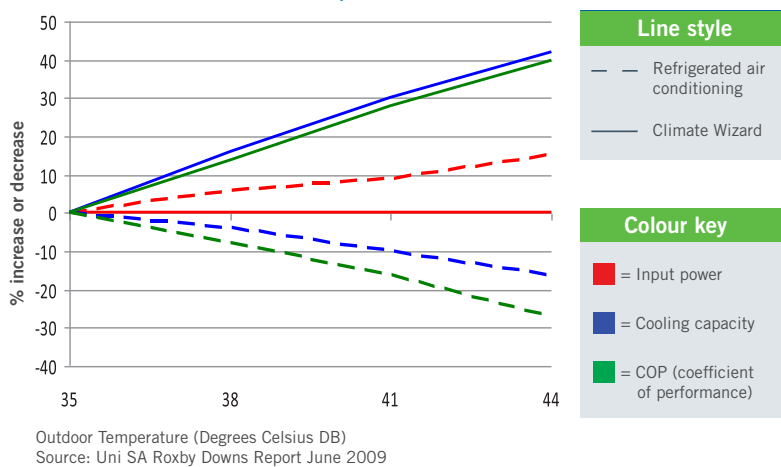
Climate Wizard counter-flow heat exchanger





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.

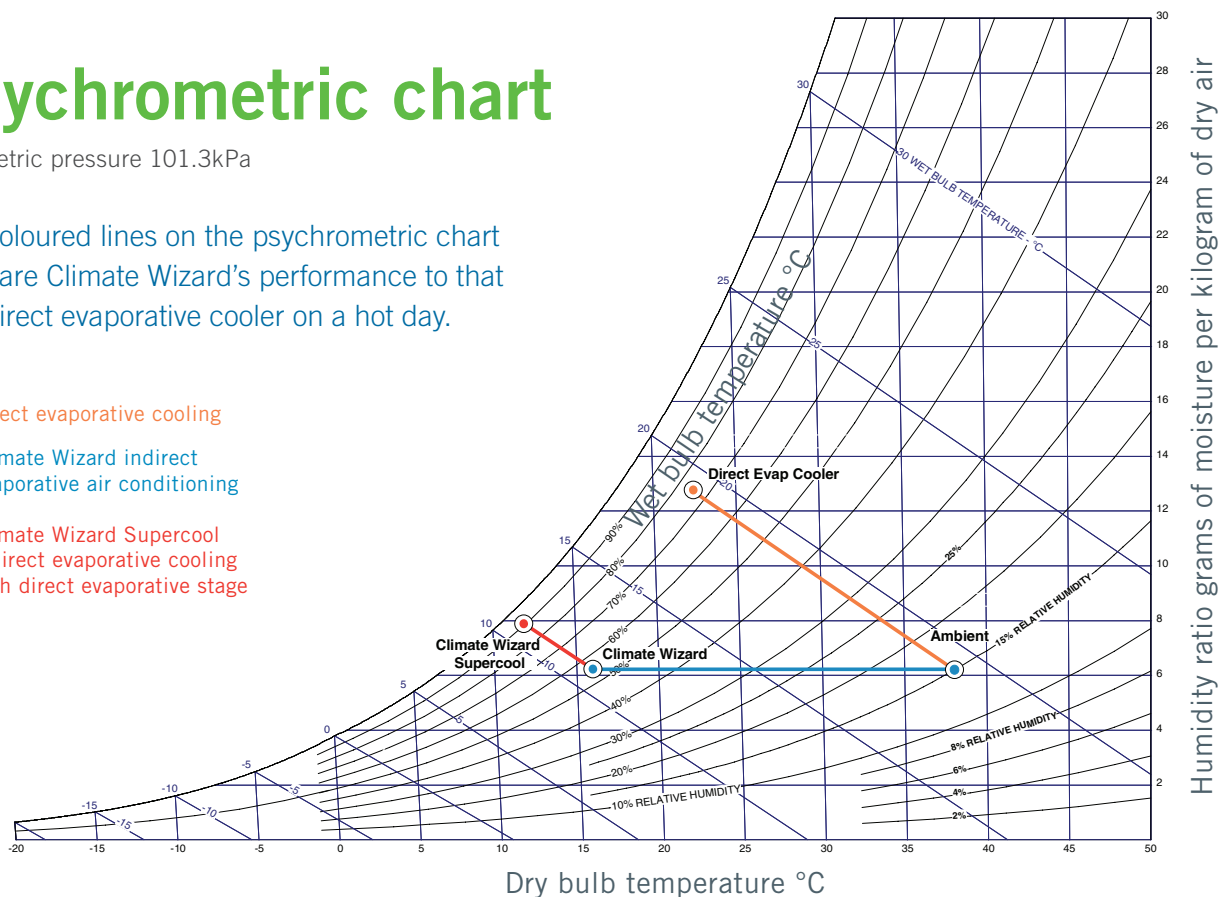
At the same time, Climate Wizard's performance also increases as temperatures rise – again, in complete contrast to refrigerated systems.

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



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 13
- Up to 24 kW of cooling capacity in outside air pre-cooling applications
- Up to 1,150 L/s (4,140 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

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



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

^ CW-H15 Supercool and Supercool Plus requires additional supercool section to be externally controlled by installing contractor. **Temperature data from field measurements.
Note: Nominal cooling capacity is based on design conditions of 38.0 °C db / 21.0 °C wb. Stand alone cooling capacity may be lower, depending on application.

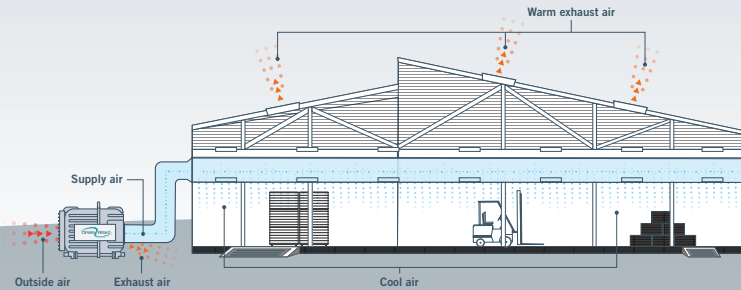
Diverse configurations and applications

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

Stand-alone cooling

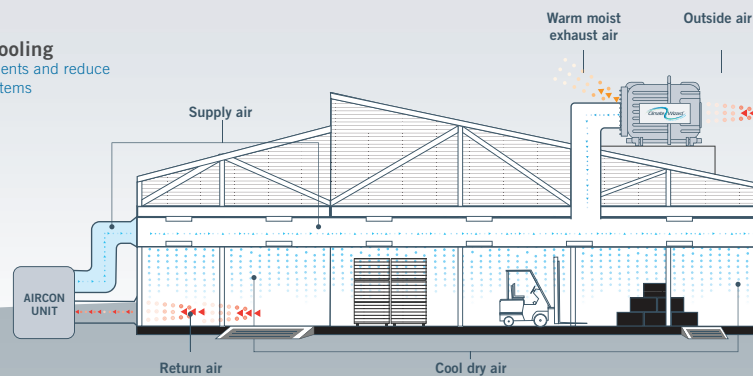
Ideal for open plan and outdoor access applications

STAND ALONE COOLING



Supplementary cooling

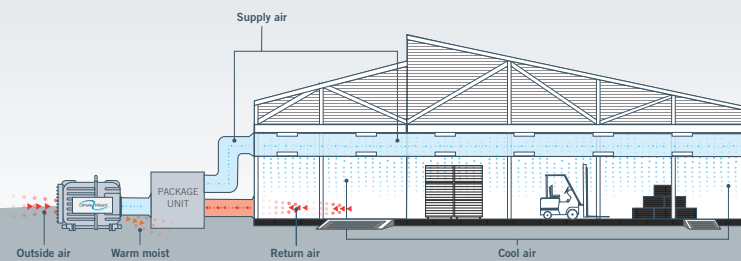
Meet fresh air requirements and reduce load on refrigerated systems



Pre-cooling

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

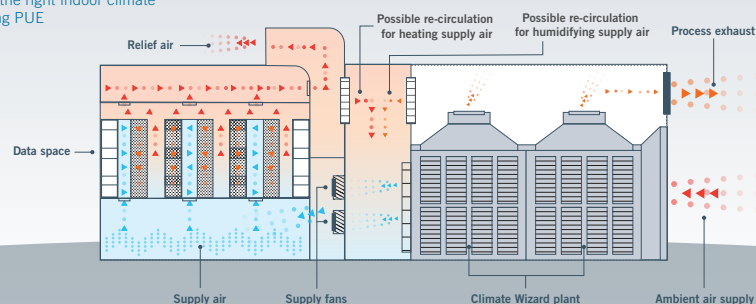
PRE-COOLING / FIRST STAGE COOLING



Data centre cooling

Climate Wizard delivers the right indoor climate and achieves outstanding PUE

DATA CENTRES



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/eu/commercial/tools



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 1440mm (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.