

TECHNICAL DATA SHEET – CW-H WITH MULTI-MAGIC CONTROLS

GENERAL

Climate Wizard coolers are characterised by the supply of 100% fresh, cool, outside air with NO additional moisture added, with greatly reduced energy consumption relative to an equivalent refrigerated system performing the same duty.

The coolers comprise of a supply air fan, an indirect heat exchanger pack, integrated water reservoir, pump, and chlorinator system.

CW-H15S and CW-H15S Plus can be operated in “Supercool” mode producing even colder supply air with added moisture (direct cooling). Supercool coolers have an additional pump and Chillcel® pads.

CABINET

The cabinet is constructed from coated marine grade aluminium incorporating the motor/fan assembly, non-corrodible heat exchange core and other ancillary equipment mounted on a heavy gauge base frame for structural stability.

Forklift tine channels are provided within the frame to facilitate transport and lifting.

Components are effectively treated to ensure corrosion resistance and mechanical fasteners are zinc coated, stainless steel or aluminium.

Connection surfaces are provided for outlet supply air and exhaust ductwork to be fitted using established industry practices.

FAN & MOTOR

The fan is a multi-blade, centrifugal type with backward curved blades. It has a cast aluminium rotor and plastic impeller which is statically and dynamically balanced.

The fan is directly mounted to the electric motor. The electric motor is high efficiency, inverter driven and responsive to 0-10V control signals to implement speed control that delivers optimum efficiency at lower speed operation.

HEAT EXCHANGE CORE

The heat exchange cores are designed to facilitate heat exchange between the wet air passages and the dry air passages such that high efficiency heat transfer takes place without the addition of any additional moisture.

They are designed to provide long life and consistent, long term high efficiency.

Supercool models are fitted with additional Chillcel® fabricated honeycomb, direct cooling pads.

WATER MANAGEMENT SYSTEM

The water supply connection is a ½” BSP fitting that connects directly to the internally mounted solenoid valve.

Water is held in an internal reservoir manufactured as a one-piece moulded polymer construction to ensure durability and corrosion resistance.

Heat exchange core saturation is achieved through internally mounted pumps delivering water to a specially designed non-clog water distribution system guaranteeing continuous uniform flow.

The pumps are manufactured from engineering plastics, with stainless steel shafts and fully encapsulated synchronous motors with thermal overload protection. They are provided with an easily cleanable strainer within the reservoir section.

An electronic water management system controls the maximum salinity level and chlorination of the reservoir water through continuous monitoring and replenishment.

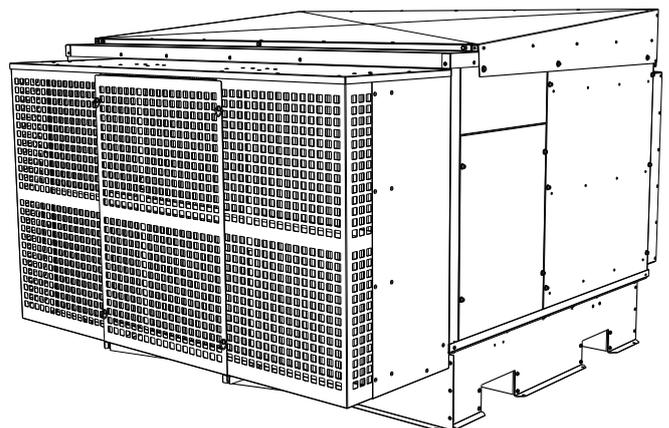
The reservoir is drained by an electric drain valve which responds to the water management control system. The design of the reservoir ensures that no water remains after draining.

ELECTRICAL CABINET AND CONTROLS

All electrical control equipment including supply connection terminals, motor control hardware, BMS interface electronics, and water management hardware is pre-wired and factory mounted within a robust IP66 enclosure meeting the requirements for outdoor mounting.

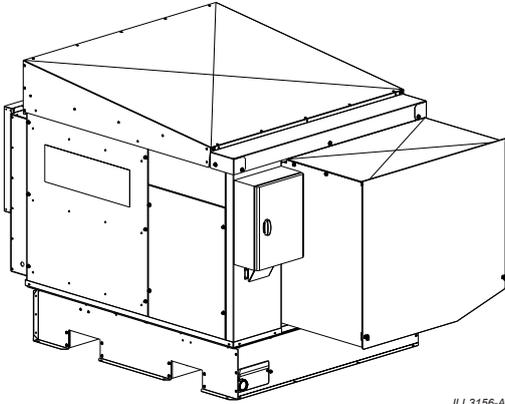
AIR FILTER

Intake air is filtered through aluminium framed, washable, pleated filters. The assembly includes a safety screen to protect the fan and a cover to minimise intrusion of rain.



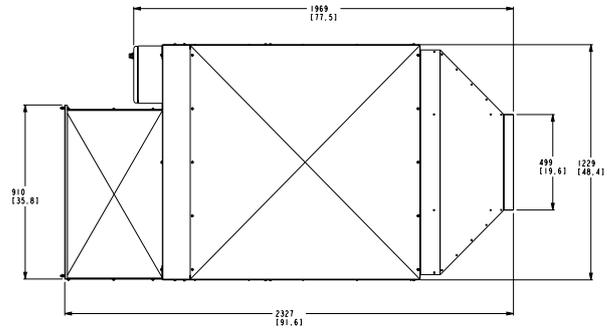
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CW-H10



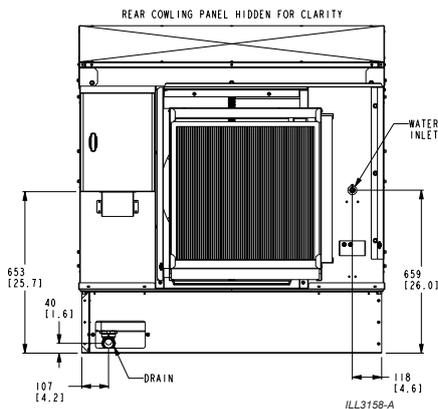
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TOP



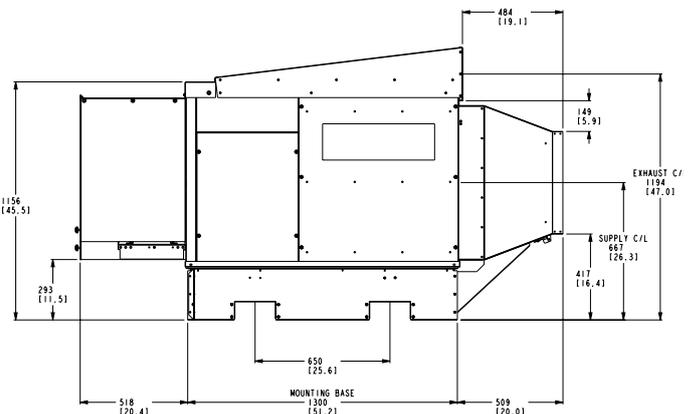
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REAR



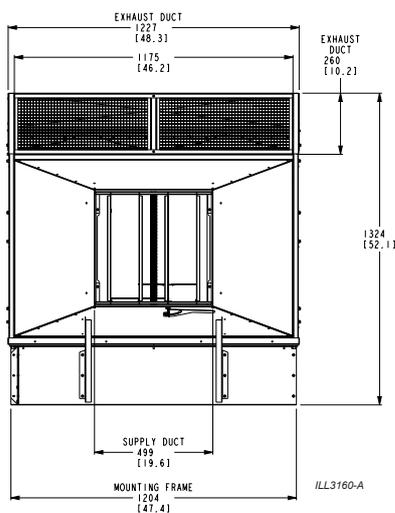
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SIDE



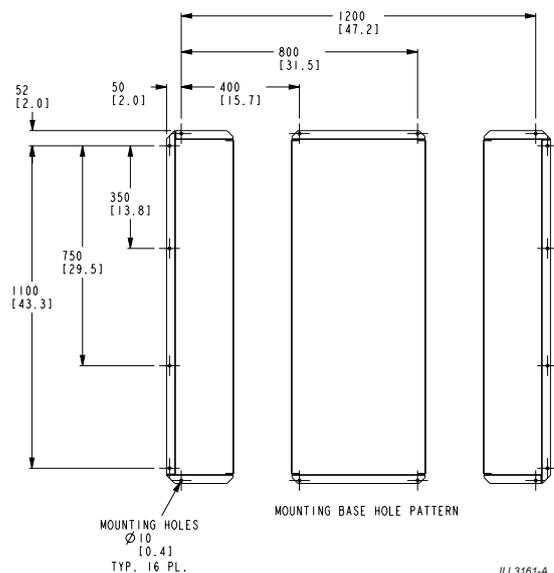
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FRONT



ILL3160-A

BOTTOM



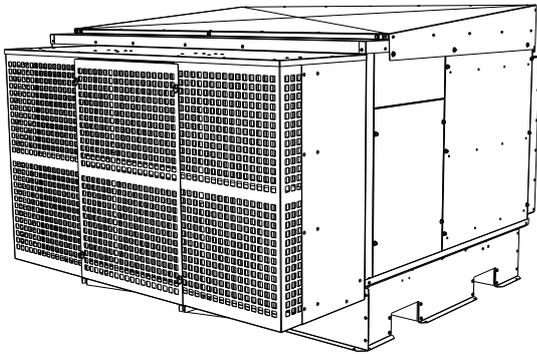
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NOTE: Installers must allow adequate access to and around the cooler for Maintenance. Provision must be made for access to power, control, water supplies and drains. Refer to the Installation Manual for full details.

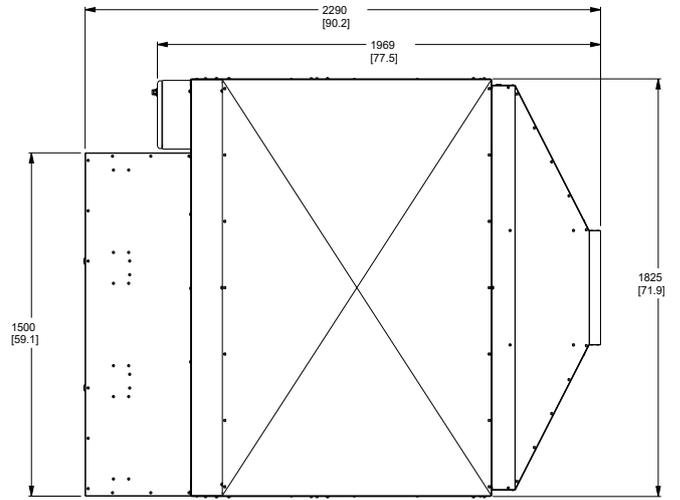
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CW-H15

TOP



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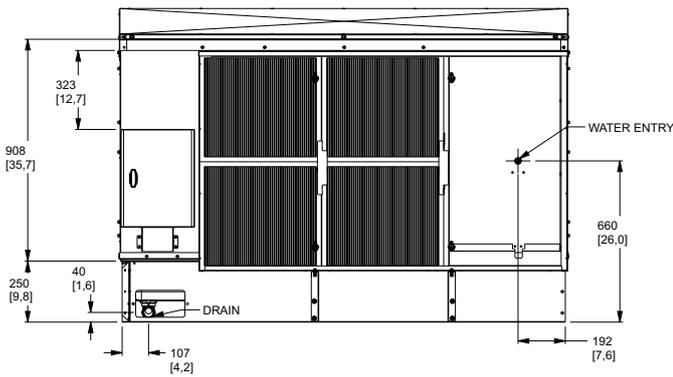


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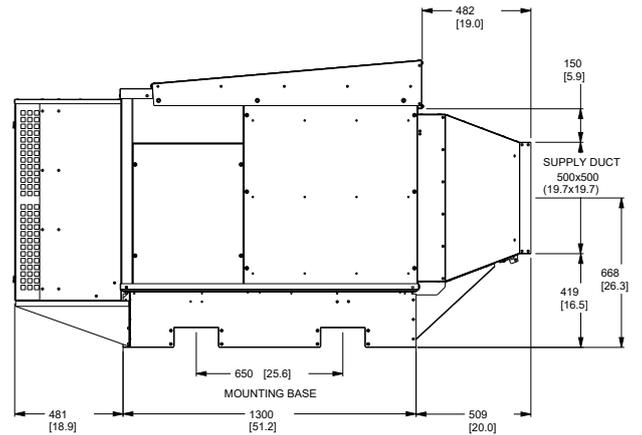
REAR

SIDE

REAR COWLING PANEL AND TWO RIGHT FILTERS
HIDDEN FOR CLARITY



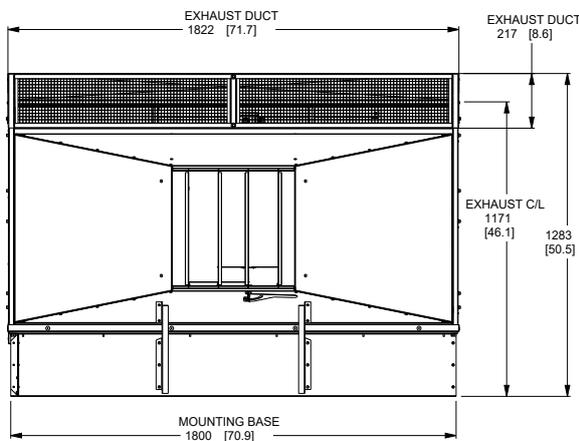
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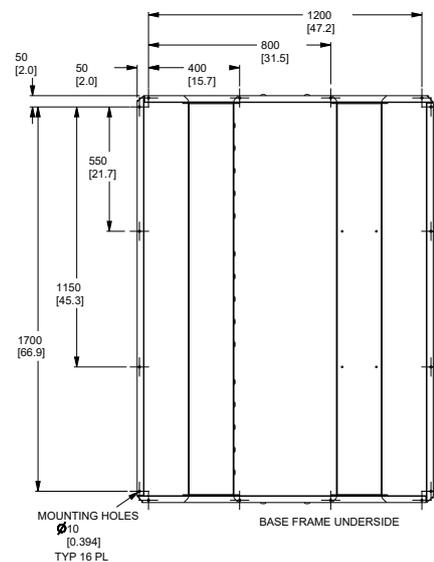
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FRONT

BOTTOM



ILL2422-C



ILL1920-C

NOTE: Installers must allow adequate access to and around the cooler for Maintenance. Provision must be made for access to power, control, water supplies and drains. Refer to the Installation Manual for full details.

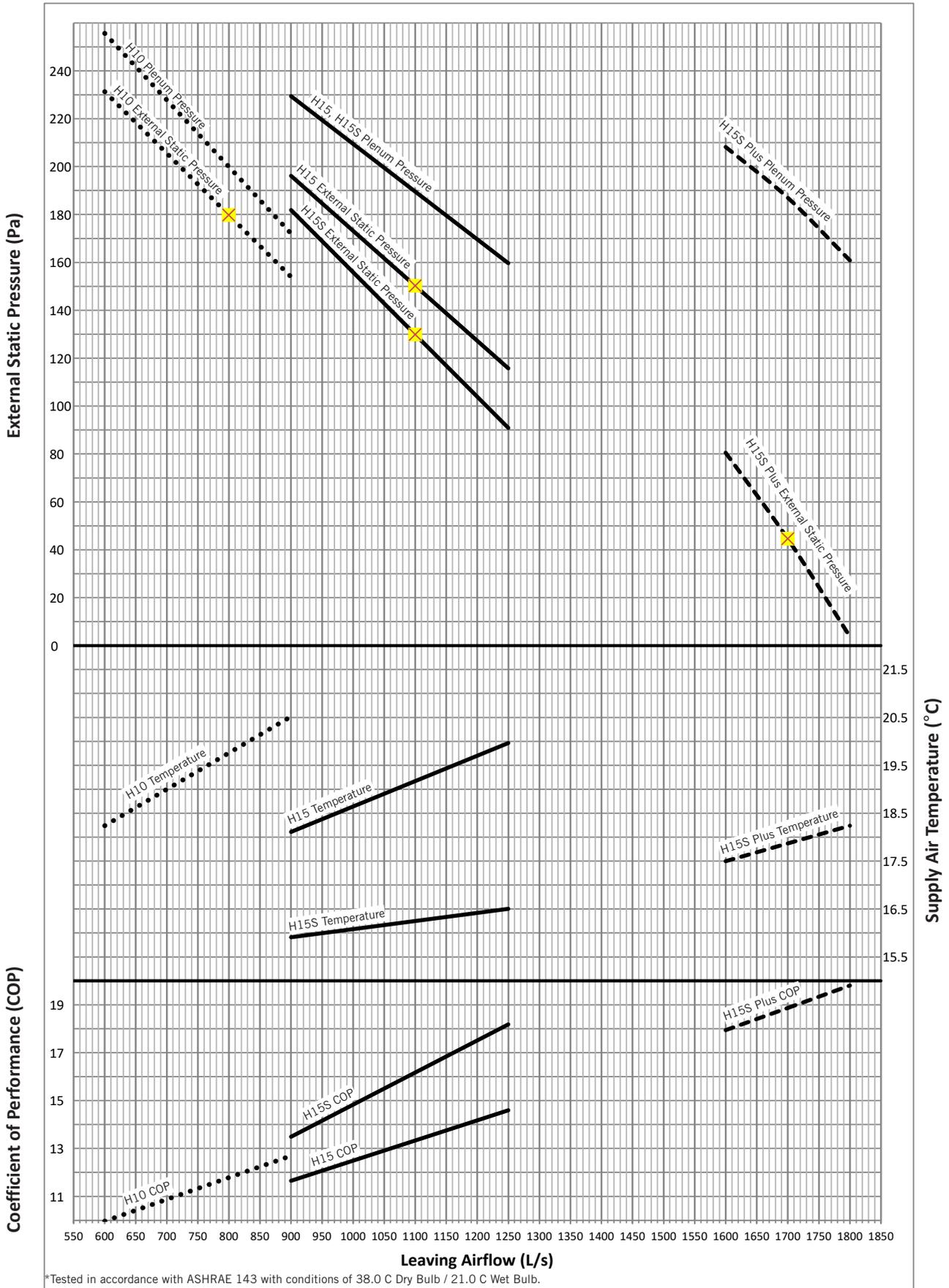
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MODEL:		CW-H10	CW-H15	CW-H15S	CW-H15S Plus		
OPTIMUM PERFORMANCE	Airflow	Supply Air	800 L/s @ 180 Pa 2880 m³/h @ 180 Pa	1100 L/s @ 180 Pa 3960 m³/h @ 180 Pa	1100 L/s @ 120 Pa 3960 m³/h @ 120 Pa	1600 L/s @ 80 Pa 5760 m³/h @ 80 Pa	
		Exhaust Air	655 L/s 2360 m³/h	900 L/s 3240 m³/h	900 L/s 3240 m³/h	530 L/s 1910 m³/h	
	Temperature*	Supply Air	19.5 °C	19.5 °C	15.8 °C	17.4 °C	
	Cooling Capacity*	Standalone	8 kW	11 kW	16 kW	20 kW	
		Pre-Cooling	18 kW	25 kW	29 kW	40 kW	
	COP*	Standalone	5	6	8.5	9.5	
Pre-Cooling		12	14	16	19		
ENVIRONMENT	Maximum Inlet Air Temperature	55 °C	55 °C	55 °C	55 °C		
SERVICES	Electrical	Voltage	380-415V / 3N~ / 50Hz				
		Rated Current	4.9 A	4.9 A	4.9 A	4.9 A	
		Input Power	1.5 kW	1.8 kW	1.8 kW	2.1 kW	
	Water	Supply	10 L/min Minimum 20 L/min Recommended @ 100 kPa - 800 kPa	10 L/min Minimum 20 L/min Recommended @ 100 kPa - 800 kPa	10 L/min Minimum 20 L/min Recommended @ 100 kPa - 800 kPa	10 L/min Minimum 20 L/min Recommended @ 100 kPa - 800 kPa	
		Max Temperature	40 °C	40 °C	40 °C	40 °C	
		Inlet	1/2" Male BSP	1/2" Male BSP	1/2" Male BSP	1/2" Male BSP	
		Consumption*	44 L/hr	56 L/hr	60 L/hr	72 L/hr	
		Drain	40mm Flexible Coupling	40mm Flexible Coupling	40mm Flexible Coupling	40mm Flexible Coupling	
		Drain Flow Rate	15 L/min	35 L/min	35 L/min	35 L/min	
	Duct Connections	Supply Air	Side Discharge 500 x 500 mm				
		Exhaust Air	Side Discharge 1230 x 260 mm				
	AIR SYSTEMS	Supply Air Fan/Motor	Fan	1x 560mm Centrifugal Backward Curve	1x 560mm Centrifugal Backward Curve	1x 560mm Centrifugal Backward Curve	1x 560mm Centrifugal Backward Curve
			Motor	3.5 kW	3.5 kW	3.5 kW	3.5 kW
Control			Variable Speed, ECM, PWM Control				
Max Speed			1350 rpm	1350 rpm	1350 rpm	1460 rpm	
Air Filters		Inlet	G4 Washable 305 x 610 x 50mm - 2 610 x 610 x 50mm - 1	6x G4 Washable 457 x 508 x 50mm	6x G4 Washable 457 x 508 x 50mm	6x G4 Washable 457 x 508 x 50mm	
HEAT EXCHANGERS	Indirect Evaporative	3 Cores	3 Cores	3 Cores	3 Cores		
	Direct Evaporative	NONE	NONE	3 Chillcel Pads	3 Chillcel Pads		
WATER SYSTEMS	Tank (Reservoir) Capacity	45 L	65 L	65 L	65 L		
	Inlet Valve	12Vdc Solenoid Valve	12Vdc Solenoid Valve	12Vdc Solenoid Valve	12Vdc Solenoid Valve		
	Pumps Indirect Heat Exchangers	2 Pumps 13 LPM @ 1.5m Head 230V 50Hz 30W ea.	2 Pumps 13 LPM @ 1.5m Head 230V 50Hz 30W ea.	2 Pumps 13 LPM @ 1.5m Head 230V 50Hz 30W ea.	2 Pumps 13 LPM @ 1.5m Head 230V 50Hz 30W ea.		
	Pump Direct Heat Exchangers	NONE	NONE	1 Pump 13 LPM @ 1.5m Head 230V 50Hz 30W ea.	1 Pump 13 LPM @ 1.5m Head 230V 50Hz 30W ea.		
	Salinity Management	Conductivity Probe	Conductivity Probe	Conductivity Probe	Conductivity Probe		
	Chlorinator	12 Vdc	12 Vdc	12 Vdc	12 Vdc		
	Drain Valve	12 Vdc Vertical	12 Vdc Vertical	12 Vdc Vertical	12 Vdc Vertical		
DIMENSIONS	Shipping	2050mm Long 1375mm Wide 1280mm High	2290mm Long 1950mm Wide 1270mm High	2290mm Long 1950mm Wide 1270mm High	2290mm Long 1950mm Wide 1270mm High		
	Operating inc. Accessories	2330mm Long 1230mm Wide 1325mm High	2290mm Long 1825mm Wide 1285mm High	2290mm Long 1825mm Wide 1285mm High	2290mm Long 1825mm Wide 1285mm High		
WEIGHT	Shipping	250 kg	340 kg	355 kg	355 kg		
	Operating inc. Water/Accessories	255 kg	330 kg	345 kg	345 kg		
STANDARDS COMPLIANCE	Electrical Safety : IEC 60335.1:2011 +A1 +A2, AS/NZS 60335.1:2011 +A1, +A2, +A3, +A4, +A5 IEC 60335.2.98:2002 +A1 +A2, AS/NZS 60335.2.98:2005 +A1, +A2 Ingress Protection : IEC 60529:2011 EMC : IEC 61000-6-3:2006, AS/NZS 61000-6-3:2012 EMF : EN 62233:2008						

* Supply Air Temperatures, Cooling Capacities, COP and Water Consumption tested to Australian Standard AS 2913-2000 and ASHRAE 143 with design condition of: 38 °C dry-bulb, 21 °C wet-bulb and 27.4 °C room exit temperature.

FREQUENCY (Hz)	Air Inlet Sound Power Level (db re 1 pW) Octave Band Centre Frequency							Total Sound Power (db re 1 pW)
	125	250	500	1k	2k	4k	8k	
CW-H10	70	60	58	57	54	50	42	63
CW-H15	84	68	65	62	55	51	44	70
CW-H15S	68	69	64	63	60	53	44	73
CW-H15S Plus	71	70	66	64	61	55	48	75

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*Tested in accordance with ASHRAE 143 with conditions of 38.0 C Dry Bulb / 21.0 C Wet Bulb.

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OPTIONS, FEATURES & ACCESSORIES

Multi-Magic coolers are supplied with a series of interface terminals inside the electrical enclosure for use with additional accessories.

ITEM	ID	TYPE
MODBUS	+	RS-485 MODBUS Communication for Wall Controller or 3rd Party Master
	-	
	GND	
POWER SUPPLY	24Vdc	DC Power Supply for Wall Controller, Sensors or BMS
	0Vdc	
MULTI-MAGIC SENSORS (sold separately)	RM TEMP	Room Temperature 0-10V
	RM RH	Room Humidity 0-10V
	AMB TEMP	Ambient Temperature 0-10V
	AMB RH	Ambient Humidity 0-10V
	SUP TEMP	Duct Temperature 0-10V
FAN STATUS	FAN STS	Fan Run Output. Relay Output Dry Contact, Adjustable Timer
	FAN COM	
FIRE	FIRE	Fire Terminals. Bridge to Run.
	FIRE	

Multi-Magic coolers can be controlled via 4 different methods

OPTION 1: BUILDING MANAGEMENT SYSTEM (BMS)

Multi-Magic coolers are supplied with a series of low voltage BMS Interface Terminals to allow external devices, such as 3rd party controllers, to control the basic functions of the cooler.

ITEM	ID	TYPE
BMS	IEC	Digital Input Dry Contact
	DEC	Digital Input Dry Contact
	SPD	Speed: Analogue Input 0-10Vdc
	ERR	Error: Relay Output Dry Contact. Configurable NO/NC
	GND	GND

OPTION 2: MULTI-MAGIC WALL CONTROLLER

(sold separately)

- MODBUS RS-485 to control up to 15 Devices
- Temperature & Relative Humidity Sensors
- Manual IEC, Supercool & Fan Speed Control
- Thermostatic Speed Control
- Supercool Humidity Setpoint
- 7-Day Program
- Room Sensor Averaging
- Ambient Condition Monitoring
- Min & Max Fan Speed Limits
- Screen Security Lock
- Auto-Restart Function
- Device Fault History
- English, Spanish, French, Italian, Portuguese



OPTION 3: RS-485 MODBUS PRIMARY

Multi-Magic coolers can be controlled via a 3rd Party RS-485 Modbus Primary. Modbus Registers are available for controlling and monitoring the basic functions of the connected coolers.

REGISTER	TYPE	DETAILS	
COMMANDS			
9200	UINT	Bit 0	IEC Enable
		Bit 1	DEC Enable
		Bit 2	Fault Reset
		Bit 3	Manual Drain
9201	UINT	0-1000	Supply Fan Speed (0-100%)
STATUS			
9205	UINT	Bit 0	Fault State
		Bit 1	Low Probe WET
		Bit 2	High Probe WET
		Bit 3	Inlet Solenoid Valve OPEN
		Bit 4	Drain Valve OPEN
		Bit 5	Indirect Pump RUNNING
		Bit 6	Direct Pump RUNNING
9206	UINT	0-1000	Supply Fan Speed (0-100%)
9207	UINT	0-6615	Water Salinity Level
9208	UINT	0-100	Chlorinator Output (%)
9209	UINT		Fault Code
9210	INT	-400 - 700	Ambient Temperature
9211	INT	0 - 1000	Ambient Relative Humidity
9212	INT	0 - 500	Room Temperature
9213	INT	0 - 1000	Room Relative Humidity

OPTION 4: BACNET MS/TP OR BACNET IP

Multi-Magic coolers can be controlled via a 3rd Party BACnet Controller, either via MS/TP or IP protocols. BACnet objects are available for controlling and monitoring the basic functions of the connected coolers.

OBJECT	DETAILS	
COMMANDS		
CMD_IEC	IEC Enable	
CMD_DEC	DEC Enable	
CMD_Spd	0 to 10 Fan Speed	
CMD_Drain	Manual Drain	
BCN_CMD_ON_OFF	Cooler Run	
CMD_FaultReset	Reset Fault Codes	
STATUS		
STSIEC	IEC Pump RUNNING	
STSDEC	DEC Pump RUNNING	
STSError	Fault	
STSLowProbe	Low Probe WET	
STSHighProbe	High Probe WET	
STSSolenoid	Inlet Solenoid OPEN	
STSDrain	Drain Valve OPEN	
STSchlorinator	Chlorinator RUNNING	
STSSupplyFSpd	Supply Fan Speed Range 0 to 10	
STSSalinity	Water Salinity Level (uS/cm)	
STSchIPWM	Chlorinator PWM %	
STSFaultCode	Fault Code.	
STSAmbientTemp	Ambient Sensor Temperature -40 to 70°C	
STSAmbientRH	Ambient Sensor RH, Range 0 to 100 %	
STSRoomTemp	Room Sensor Temperature 0 to 50°C	
STSRoomRH	Room Sensor RH, Range 0 to 100 %	

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TEMPERATURE & RELATIVE HUMIDITY SENSORS

(sold separately)

For all sensors:

Operating Voltage DC 24V

Signal Output DC 0...10 V

Accuracy at 23°F and 50% r.h.

Temperature: $\pm 0.3K$

Relative Humidity: $\pm 3\%$ r.h.

Each CW-H cooler had dedicated inputs for one each of the following optional sensors.

ROOM SENSOR

Temperature Range
0...+50°C

Relative Humidity Range
0...100% r.h.

IP30



When used in conjunction with the Multi-Magic Wall Controller:

- Allows the Wall Controller to be located safely away from the conditioned space. Wall Controller sensor values are disabled and only Room Sensor used for setpoint control.
- Multiple Room Sensor values from multiple coolers be average together to provide an overall temperature and relative humidity ales for larger spaces.

AMBIENT SENSOR

Temperature Range
-40...+70°C

Relative Humidity Range
0...100% r.h.

Radiation Shield
IP65



When used in conjunction with the Multi-Magic Wall Controller:

- Ambient Condition Monitoring mode uses advanced formulas to calculate a predicted supply temperature. Coolers are disabled if the predicted supply temperature is greater than the current room temperature.
- Particularly suitable for applications which require room temperatures less than 20 °C