DATA SHEET 1502
ECP60-02 Wet Box
Down Discharge • Top Discharge • Side Discharge

The ECP60-02 evaporative cooler is manufactured by EcoCooling in an ISO 9002 quality environment. The cooler is designed to meet all European electrical, water and other safety legislation.

- The ECP60-02 can be configured as a top, side or down discharge wet box.
- It cools air through evaporation of water as part of a ventilation system, but does not drive air flow.
- The cooler can handle 9,450m³/hr or 12,600m³/hr of fresh air dependent on its configuration.
- All air supplied to the area being cooled must be extracted or exhausted from it.

Material
- Cabinet components are injection moulded in polypropylene.
- The cabinets are UV stabilised and corrosion resistant.

Weights, Dimensions and Ductwork Connections
See configuration sheets for the above information

Electrical Supply

Voltage	1~ 240V 50Hz
Current	0.25A running
Protection	External isolator supplied

Water Requirements

Water Supply	
Water quality	Fresh potable water only
Minimum supply rate	500l/hr minimum
Minimum pressure	1 bar
Maximum pressure	7 bar
Connection	15 mm compression fitting to braided hose c/w adjustable flow restrictor
Control	• Solenoid supply valve • Float level probe activated shut off • Optional actuated valves available for frost protection
Compliance	• WRAS compliant • Double check valve recommended
Drain	
Capacity	2,000l/hr minimum
Connection offered	1" BSP male thread
Control	Drive Open-Normally Closed drain valve

Cooling Pads

Manufacturer	Munters
Material	CELdek® 5090
Saturation Efficiency	85-89%
Dimensions	680 x 850 x 100 mm

Circulation Pump

Flow Rate	1850l/hr (intermittent)
Power	50W
Voltage	220-240V
Pump Type	Centrifugal
Motor Type	Encapsulated shaded pole
Transmission	Magnetically coupled
Protection	Auto-reset Overload

Control Options
- EcoCooling PLC control system
  See associated documentation for further detail.
- Interface with BMS
  - VFC input to activate cooling mode
  - 12VAC output (pulsed) denotes cooler status
  - Modbus RTU RS485

Air Filtration
- Integrated Insect Screens
- Optional EU4 filtration
  See separate sheet for detail.

Maintenance
- Integrated testing sequence
- Recommended interval of 3-6 months
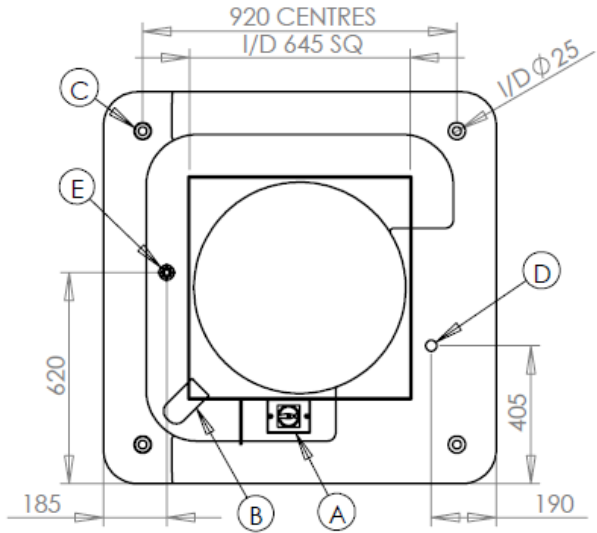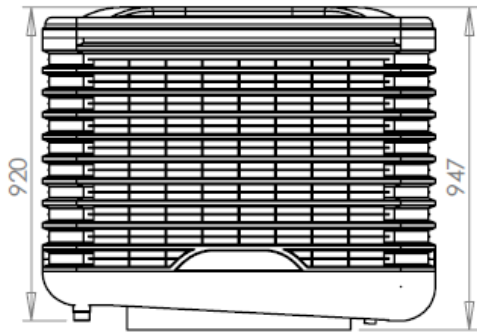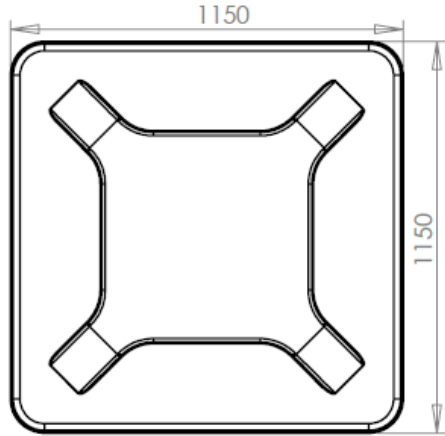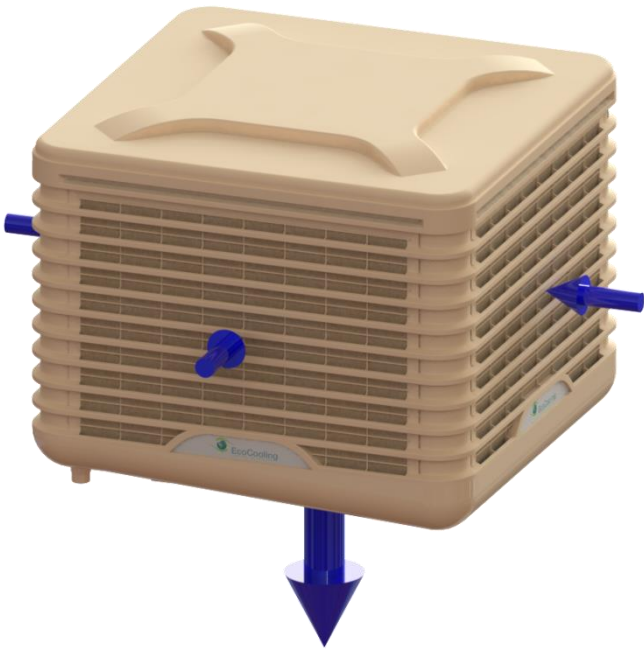 *Contact the manufacturer for application specific advice*

Warranty
2 years parts only

ECP60-02 Configuration Details
Down Discharge

1150

1150

920

947

920 CENTRES
I/D 645 SQ

I/D Ø 25

620

405

185

190

C
E
D
B A

Configuration Features

Maximum Flow Rate	12,600m³/hr or 3.5 m³/s
Cooling Pad Area	2.3m²
Unit Size (H x W x D) Installed *Delivered (incl. pallet)*	947 x 1150 x 1150 mm* *1097 x 1170 x 1150 mm*
Duct Connection Port Square	645 mm I/D (Female)
Weight Ventilation mode Cooling mode Sump at full capacity Delivered	70kg 120kg 135kg 95kg

Serviceable Cooling Load (kW)

Dependant on:

• Temperature rise between supply and exhaust.
• Volumetric air flow rate.

Note that this does not describe the adiabatic cooling function.

Temp. Rise, ΔT Air Flow	5°C	7.5 °C	10 °C	12.5 °C	15 °C
12,600 m³/hr	22	32	43	53	64
9,450 m³/hr	16	24	32	40	48
6,300 m³/hr	11	16	22	27	32
3,150 m³/hr	6	8	11	14	16

Calculated using $\dot{Q} = (\dot{m}C_p)_{air}\Delta T$ with $\rho_{air,NTP} = 1.204$ & $C_{p,air,NTP} = 1.005$
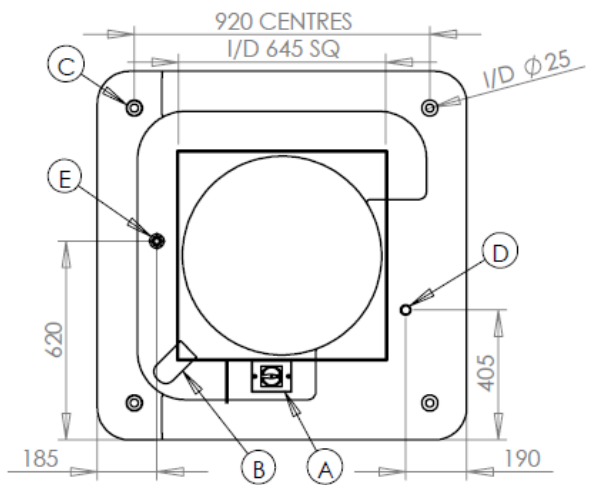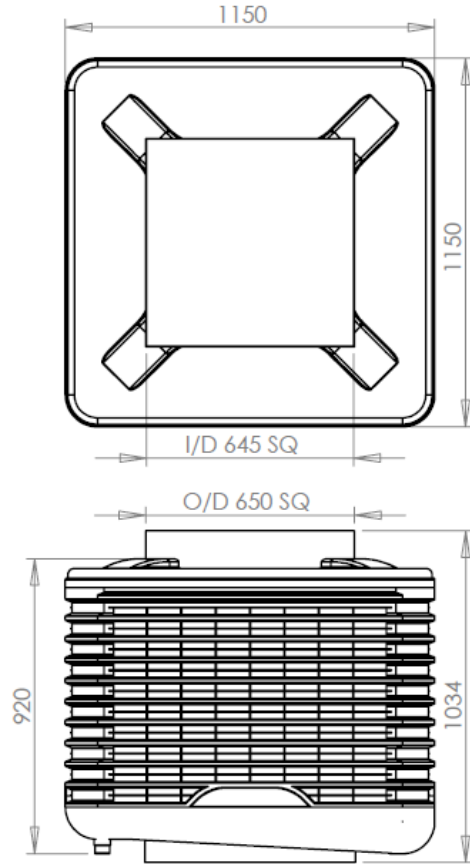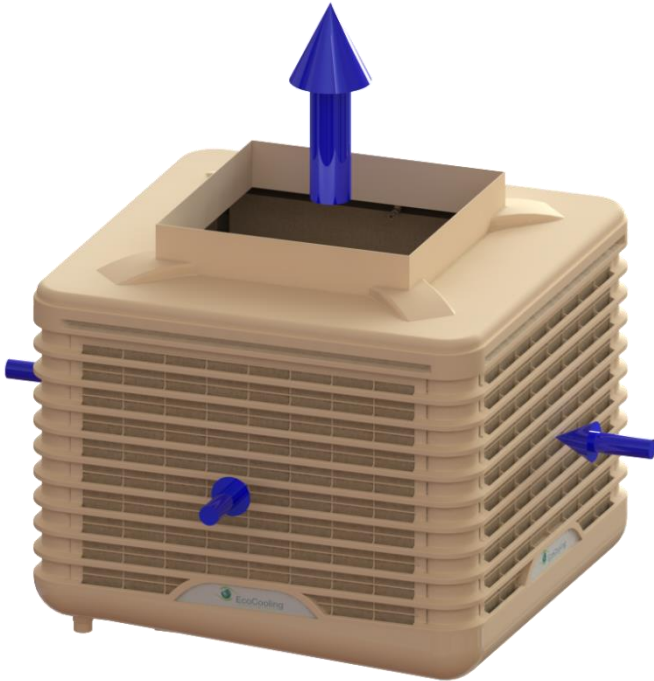
Note that all dimensions shown are nominal and have a ±10mm tolerance due to manufacturing processes employed.

A	Rotary Isolator
B	Control Panel Port
C	Support Socket (x4)
D	1" BSP Drain Valve
E	½" BSP Inlet Spigot

ECP60-02 Configuration Details
Top Discharge

Configuration Features

Maximum Flow Rate	12,600m³/hr or 3.5 m³/s
Cooling Pad Area	2.3m²
Unit Size (H x W x D) *Delivered (incl. pallet)*	1034 x 1150 x 1150 mm* *1184 x 1170 x 1150 mm*
Duct Connection Port Square	645 mm I/D (Female)
Weight Ventilation mode Cooling mode Sump at full capacity Delivered	65 kg 115 kg 130 kg 85 kg

Serviceable Cooling Load (kW)

Dependant on:
- Temperature rise between supply and exhaust.
- Volumetric air flow rate

Note that this does not describe the adiabatic cooling function.

Temp. Rise, ΔT Air Flow	5ºC	7.5 ºC	10 ºC	12.5 ºC	15 ºC
12,600 m³/hr	22	32	43	53	64
9,450 m³/hr	16	24	32	40	48
6,300 m³/hr	11	16	22	27	32
3,150 m³/hr	6	8	11	14	16

Calculated using $\dot{Q} = (\dot{m}C_p)_{air} \Delta T$ with $\rho_{air,NTP} = 1.204$ & $C_{p,air,NTP} = 1.005$

Note that all dimensions shown are nominal and have a ±10mm tolerance due to manufacturing processes employed.

A	Rotary Isolator
B	Control Panel Port
C	Support Socket (x4)
D	1" BSP Drain Valve
E	½" BSP Inlet Spigot

ECP60-02 Configuration Details
Side Discharge

1150

1152

680
650

20X10 XLOTS (X4)

947
920

650
680

Configuration Features

Maximum Flow Rate	9,450m³/hr or 2.6 m³/s
Cooling Pad Area	1.7m²
Unit Size (H x W x D) *Delivered (incl. pallet)*	947 x 1152 x 1150 mm* *1097 x 1170 x 1150 mm*
Duct Connection Port *Fixing points*	650 mm Plain Square *680 mm centres*
Weight Ventilation mode Cooling mode Sump at full capacity Delivered	70kg 115kg 130kg 90kg

920 CENTRES
I/D 645 SQ

I/D Ø 25

C

E

D

620

405

185

190

B   A

*Note that all dimensions shown are nominal and have a ±10mm tolerance due to manufacturing processes employed.

A	Rotary Isolator
B	Control Panel Port
C	Support Socket (x4)
D	1" BSP Drain Valve
E	½" BSP Inlet Spigot

Serviceable Cooling Load (kW)

Dependant on:

- Temperature rise between supply and exhaust.
- Volumetric air flow rate

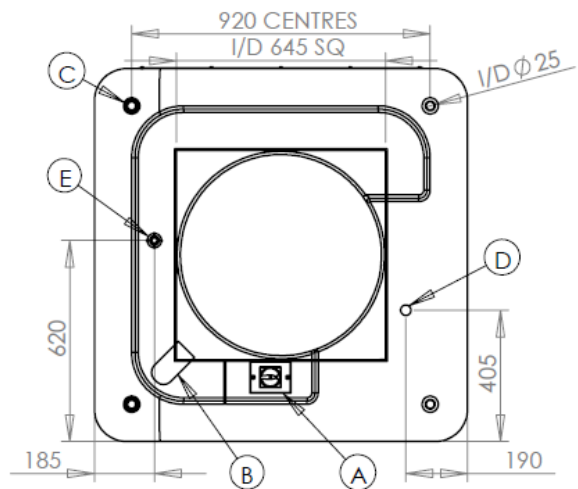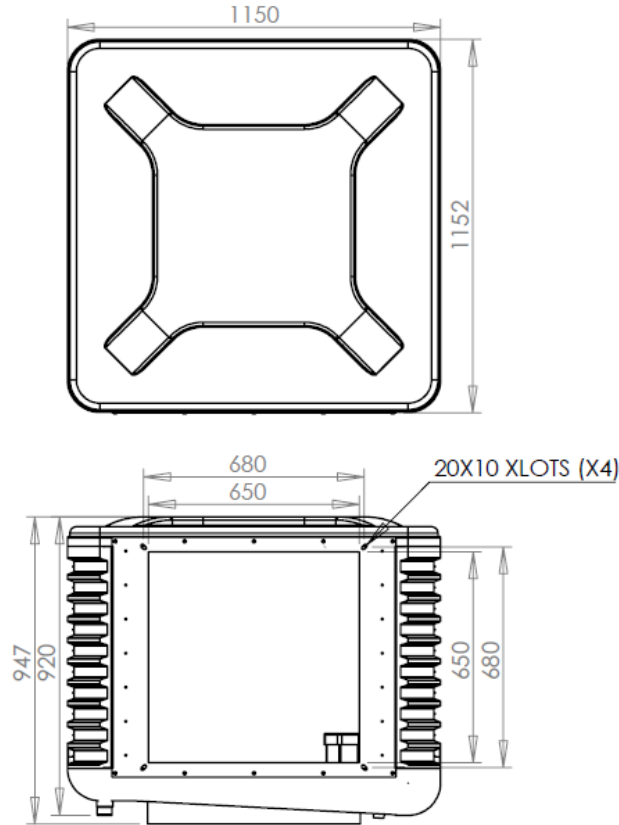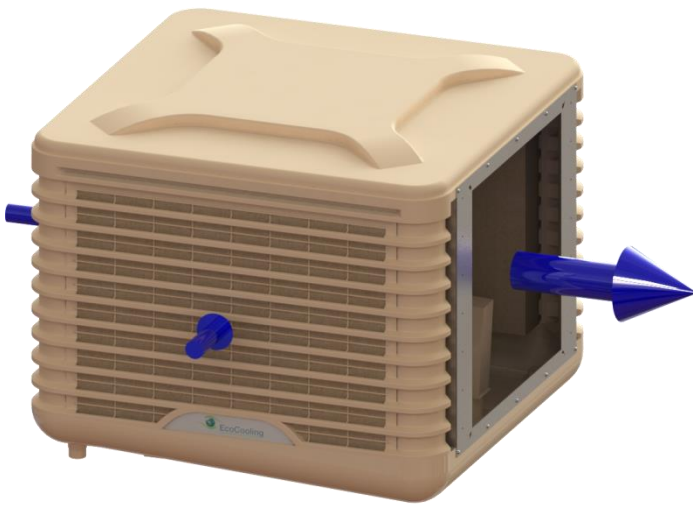*Note that this does not describe the adiabatic cooling function.*

Temp. Rise, ΔT Air Flow	5°C	7.5 °C	10 °C	12.5 °C	15 °C
9,450 m³/hr	16	24	32	40	48
7,088 m³/hr	12	18	24	30	36
4,725 m³/hr	8	12	16	20	24
2,363 m³/hr	4	6	8	10	12

Calculated using $\dot{Q} = (\dot{m}C_p)_{air}\Delta T$ with $\rho_{air,NTP} = 1.204$ & $C_{p,air,NTP} = 1.005$

ECP60-02 Control and Communications
BMS Integration

Wiring Details

The ECP60-02 is supplied with a 4 core control cable as described in the table below.

Colour	Description	Function	Requirement
Black	Control Common 12V-	Cooling Mode Enable	Volt Free Contact to enable
Blue	Cooling		
Grey	Status	Cooler Status	12VDC relay to monitor
White	Control Common 12V+		

Cooler Status Function

- The cooler has 8 states which are communicated via the 'Cooler Status' cores.
- The tables to the right and below give further detail.

Signal Type	Pulsed 12VDC
Time period	0.5s
Pulse length	1 period ON
Gap (within string)	1 period OFF
String break	2 periods OFF

Cooler Status Signals

Status		Each state is denoted by a unique string of pulses as depicted below. 'Available', is the only exception and is denoted by a permanent signal.
Code	Description	
0	Available	
1	Cooling	
2	Slow Fill	
3	Overflow	
4	Probe Error	
5	Slow Evaporation	
6	Slow Drain	
7	Clean/Test	

ECP60-02 Control and Communications
Modbus

Modbus Configuration

- The ECP60-02 has the facility for Modbus communication and control
- The tables to the right and below describe the configuration

Protocol/Type	Modbus RTU/RS485
Baud Rate	1200
Start Bit	1
End Bit	1

Modbus Registry

Address	Description	R/W	Range	Comment
0x01	Cool	R/W	0/1	Enable cool mode
0x08	Start Test	R/W	0/1	Enable test mode
0x10	Cancel Test	R/W	0/1	Cancel test mode
0x06	Address	R/W	1-200	Cooler Modbus address write
0x07	Cooler Status	R	1	Cooling Mode
			2	Slow fill
			3	Overflow
			4	Probe error
			5	Slow Evaporation
			6	Slow Drain
			7	Test Mode
0x10	Slow Fill	R	0	Normal
			1	EcoCooler Fault
0x11	Overflow	R	0	Normal
			1	EcoCooler Fault
0x12	Probe Error	R	0	Normal
			1	EcoCooler Fault
0x13	Slow Evaporation	R	0	Normal
			1	EcoCooler Fault
0x14	Slow Drain	R	0	Normal
			1	EcoCooler Fault
0x15	Water Level Probe - Level 1	R	0	Down
			1	Up
0x16	Water Level Probe - Level 2	R	0	Down
			1	Up
0x17	Water Level Probe - Level 3	R	0	Down
			1	Up
0x18	Water Level Probe - Level 4	R	0	Down
			1	Up
0x19	Water Inlet Valve	R	0	Closed
			1	Open
0x1a	Water Drain Valve – Open	R	0	Closed
			1	Open
0x1b	Water Drain Valve – Close	R	0	Open
			1	Closed
0x1c	Circulation Pump	R	0	Off
			1	On
0x1d	Operation Mode	R	0	Ventilation Mode
			1	Cooling Mode
0x1e	Test Mode	R	0	Normal
			1	Test Mode
0x1f				
0x1g				