

AIR COOLED

Air Cooled Packaged Units



temperzone climate innovations



One of the most energy-efficient on the market

Heating Capacity

Cooling Capacity



Over 65 Years of **Industry Expertise**

Temperzone is dedicated to pioneering innovative new technologies and creating market-leading, easy-to-use solutions that offer precision climate control.

Temperzone is ideally positioned to play a partnering role in your commercial projects and to ensure you select the right solutions for your needs. Because our systems are all designed, manufactured and supported using home-grown expertise, you can always rely on the convenience of ready availability and easily accessible application support.



Our core strengths in New Zealand & Australia

Research & Development

Our design engineers develop local products, that provide innovative solutions designed for Australian and New Zealand conditions.



Logistics

We work closely with customers to ensure adequate stock is available and delivered when it is needed.



We aim to maximise performance by utilising our local team of engineers, who are able to provide the best solution for your applications.



Local Support

Our project engineers work with sales to make sure customers are getting the right product for the job.

A Flexible Solution For Multiple Spaces

Combine a large commercial floor space and constantly changing cooling or heating loads and you will have a climate control challenge that temperzone's air cooled package units are designed to handle even in the extremes of summer and winter. The OPA (Air cooled package systems) range in capacity from 11.6kW to 193.0kW and offer a wide range of flexibility to meet most applications.



Supermarkets



Shopping Centres



Industrial Facilities



Laboratories



Community Halls



Schools and Universities



Restaurants, Pubs and Clubs



Office Buildings



Food Processing or **Manufacturing Plants**

Temperzone

Features





Digital Compressor

40-100% continuous modulation enables wide capacity range and provides better humidity control at low capacity.



EC Plug Fan

High static plug fans that can be externally controlled via 0~10VDC or BMS command



Variable Speed Fans

Variable speed AC condenser fans provide greater efficiency and system control



Dual EEV Systems

Dual EEV offers optimum control of superheat for outstanding comfort and humidity control



Intelligent Unit Controller

Ensures the unit runs at its optimum efficiency and provides system operation data



Epoxy Coated Coils

Standard on indoor and outdoor coils for added coil protection



Corrosion Resistant Design

Marine grade surface protection and epoxy coated coil protection



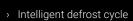
Economy Cycle

Optional economy cycle and fresh air for reduced power consumption in shoulder seasons



Fresh Air Option

Optional fresh air damper with weather cowl inputs to control externally



- Filter rails
- > Inbuilt Service GPO
- > Easy maintenance access
- Foil face polyethylene insulation



3rd Party Connectivity

Simple terminals for compress control on/off and modulation, fan speed and cycle modes.



Louvred Guards

Aesthetic guards protect the coil from damage.



BMS

BACnet™ or Modbus via RS485 (or TCP/IP option) *BACnet is optional accessory



Temperzone Air Cooled Packaged Units
Precision Load Response Technology

Variable Capacity

A responsive and adaptive solution, temperzone's ECO Air Cooled system can adjust its own cooling or heating capacity in accordance with changing loads.

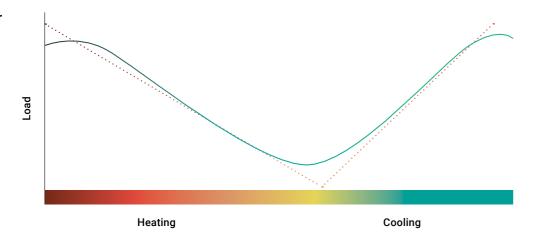
Variable Capacity Compressor

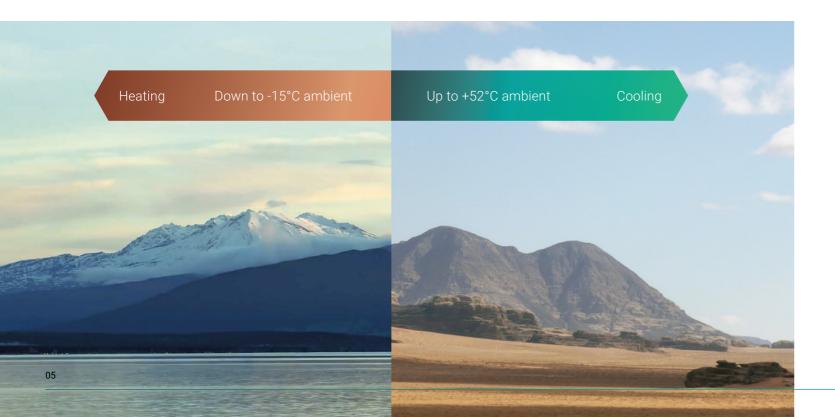
Thanks to a high-tech, variable capacity compressor the temperzone ECO unit adapts to suit the requirements in the occupied space. It works hard only when needed, all the while offering the ability to provide optimum comfort. Featuring simple control technology, our systems are easy-to-use.

Variable Compressor Matches Supply and Demand

Variable capacity output

Building load





Precision Load Response Technology

*ECO models only

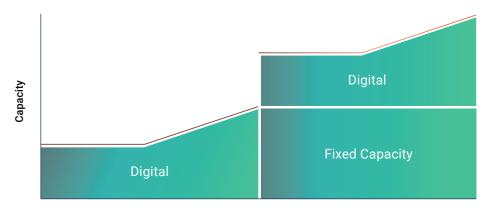
Efficiency and Comfort

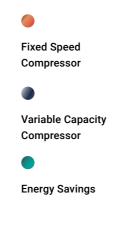
High levels of comfort and energy savings can be provided regardless of climatic conditions. The use of variable capacity compressors allow a precise load variation response. High response levels to current load conditions are further guaranteed using Electronic Expansion Valves and variable speed control of the indoor and outdoor fans.

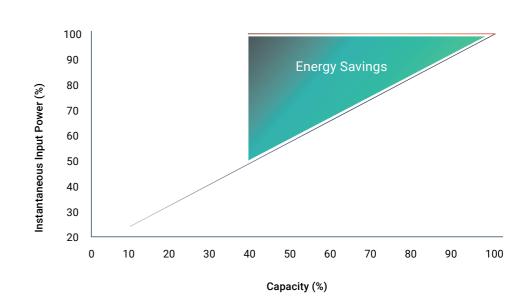
Compressor

- > Continuous modulation enables wide capacity range.
 - 1 compressor 40-100%
 - 2 compressors 20-100%
 - 4 compressors 10-100%
- Modulating compressors have the ability to continue to operate at high ambient conditions without faulting.









*ECO models only

Energy Saving Technology

Intelligent system control technology offers leading energy efficiency with precision control of the air conditioners refrigeration system.

EC Fan Technology

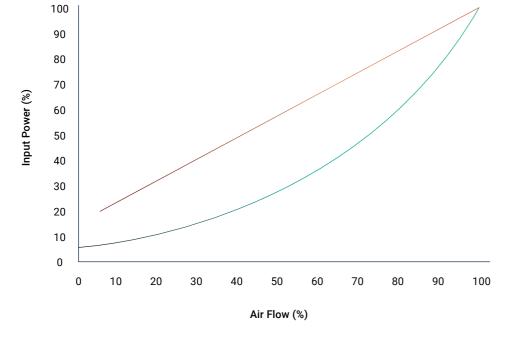
Our high-efficiency EC fan motors are up to 50% more energy efficient than Belt drive or AC motor alternatives and enable quiet operation with slow ramp-up and no sudden noise changes. Achieve precise comfort with custom select fan speeds or continuously variable fan speed control.



AC Motor

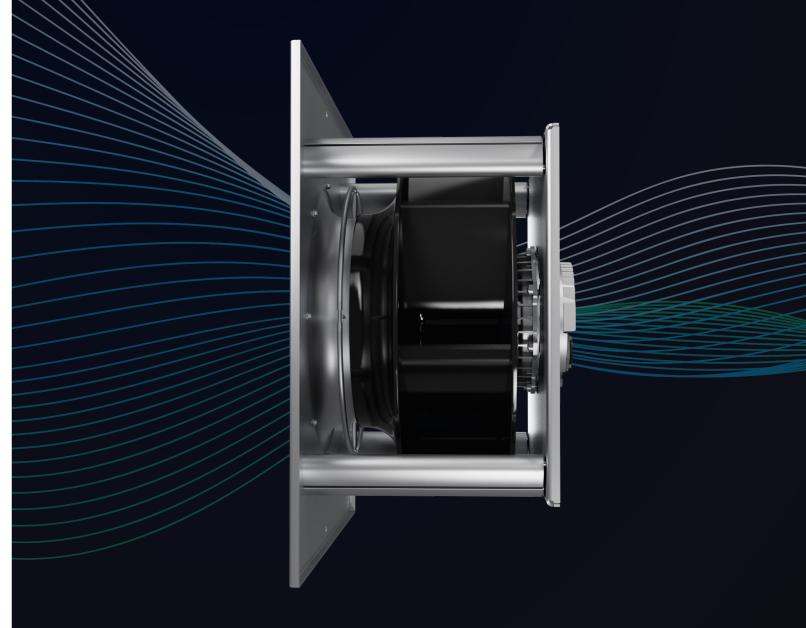


EC Motor



Ideal solution for open spaces





EC Plug Fans

EC Plug fans control airflow accurately and efficiently. Fan speed can also be controlled via external signals via input or Modbus.

- > Programmable for exact airflow
- > High static pressure
- > Enables variable airflow operation
- Longer motor life resulting from lower running temperatures
- > Lower maintenance and commissioning costs
- Slow ramp up for quiet operation
- > Longer bearing life due to soft start

AC Variable Speed Condenser Fan

- > Extended system operating envelope with fully modulating head pressure control
- > Increased energy savings at part-load conditions with integrated speed control
- > High fan reliability with soft starting and low air noise
- > Quiet Mode for noise sensitive applications

*ECO models only

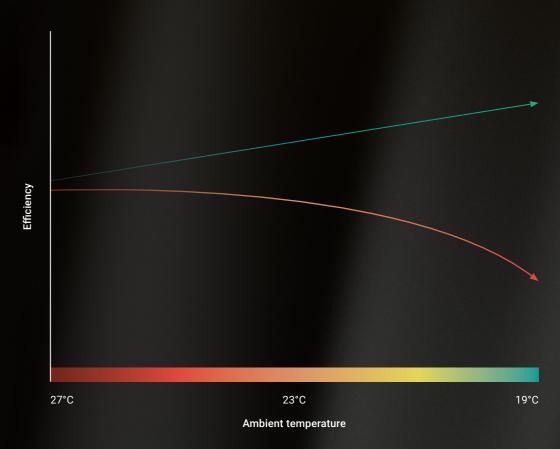
Dual Electronic Expansion Valves (EEV)

Temperzone Econex dual EEV's allow optimum control of superheat at varying load. They also provide increased efficiencies by lowering head pressure and optimum feeding of heat exchanger coils. EEV's control liquid saturation over the coils, which in turn increases the opportunity to absorb energy.





EEV



Benefits include:

- > EEVs enable improved efficiency and reduced operating costs at part-load conditions.
- > They also facilitate maximised energy savings during the shoulder seasons periods in which air conditioning systems often run at part-load.
- > Fast and precise control of superheat.
- > Dual EEVs enables the individual control of each EEV and activate the unique temperzone Dry mode.

Air Cooled Packaged Units

*ECO models only

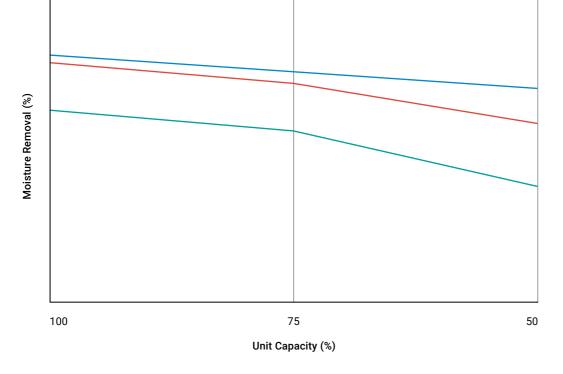
Advanced & Super Dry Mode

ECO units offers superior levels of Dry Modes to suit your requirements.

Super Dry Mode

Advanced Dry Mode

Standard Mode



Advanced Dry Mode and Super Dry Mode can only be achieved by Temperzone ECO units as they utilise optimised Dual Electronic Refrigeration Valve control (IP protected) to achieve exceptional dehumidification performance across the units full operation range.

Advanced dry mode can provide de-humidification over a wide range of operating conditions and unit duty whilst the indoor fan speed can remain constant.

Super dry cooling mode requires the UC8 controller to vary the indoor fan speed. Under most operating conditions indoor fan speed will be equal to the speed requested by the thermostat or other controller. Only when the desired indoor coil temperature cannot be achieved by the dual electronic expansion valves alone then the controller will adjust the indoor fan speed to obtain de-humidification.

Ideal solution for office spaces





Climate Touch – Coming Soon Contemporary and convenient, it is designed to seamlessly fit into modern residential and commercial environments while delivering comprehensive yet simple control of your comfort.

Temperzone

Durable Long Life Design

ECO units are designed to be highly durable and suited to the harshest environmental conditions.

Adaptive Valve Regulation

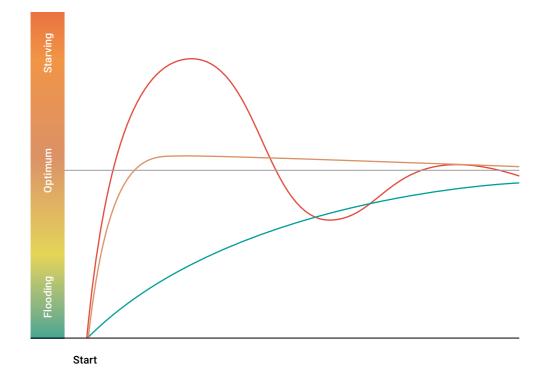
Temperzone's proprietary Adaptive Valve Regulation system (AVR) ensures that Temperzone inverter air conditioning systems run more efficiently and enjoy a longer operational life. AVR maximises efficiency in both heating and cooling cycles by regulating refrigerant flow capacity, allowing the system to maintain stability and efficiency over the full range of operating conditions.

Starving (Traditional Underdamped)





Prolonged Flooding (Traditional Overdamped)



AVR also prevents:

- Prolonged flooding (oil washed out of the system), which leads to seized bearings and compressor damage.
- > Improves Compressor Lifecycle.
- Starving, which leads to HP/LP trips and reduced EER / Duty. Continuous starving leads to compressor motor overheat.



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Epoxy coated coil protection for superior corrosion resistance



Marine grade pretreatment and polyester powder coated galvanized steel, inside and out



Louvre Guards for added protection against severe weather, UV damage to coils & accidental contact



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Dual EEV offers optimum SKT coar control of superheat for a higher outstanding comfort and humidity control

SKT coated screws provide a higher corrosion resistance than 316 stainless steel



Intelligent unit controller ensures optimum efficiency and provides system operation data



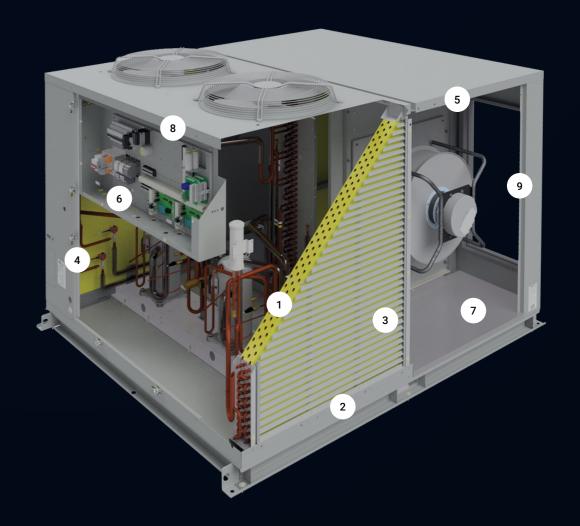
Closed cell foam insulation ensuring no particles are introduced into the air stream



Socket Outlet (SO) in electrical panel for single phase appliances



Easy access hinged maintenance service doors with door stays



Control Options

From advanced commercial controllers to stylish touch screen controllers, Temperzone has a control option to suit your space and application.

TZT-100

Temperzone's TZT-100 thermostat is an advanced controller suited to commercial environments. It delivers comprehensive control for your system not available with other thermostats.



Features

Modes - cool / cool-dry / heat / auto-dry / auto

Set airflow - auto / low / med / hi (customisable)

Key board and temperature locks

7 Day programmable time clock

Set temperature: 5°C to 50°C at 0.5°C increments

Remote sensor inputs

Programmable occupancy inputs

On demand override count down timer up to 12hrs

Filter monitor option (by hours)

Continuous or Intermittent fan operation

Connects to outdoor unit

Climate Touch *UC8 units only Temperzone's new stylish Climate Touch gives contemporary and convenient control. It is designed to seamlessly fit into modern commercial environments while delivering comprehensive yet simple control of your comfort.



Features

Set control mode - cool / dry / heat / auto / advanced auto / fan only

Set airflow - auto / low / med / hi (customisable)

ECO, Dry, and Quiet functions

7 Day programmable time clock

365 day event calendar

Set temperature: 5°C ~ 50°C at 0.5°C increments

On demand override count down timer up to 8hrs Connects to outdoor unit (UC8)

Auto start after power failure

Continuous or Intermittent fan operation

Temperature, schedule and function locks

System operating parameters view

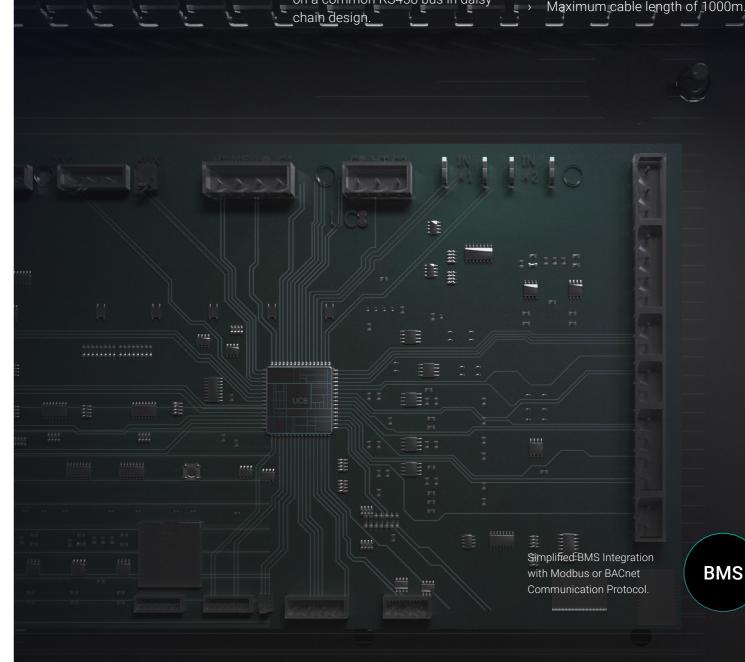
Fault notifications/logging



> Through the outdoor unit via the UC8's Modbus/RS485 port with multi-unit control capability

a BMS for control and operation.

- > Up to 99 units can be connected on a common RS458 bus in daisy
- > Daisy chain wiring saves on amount of wiring and required labour time.
- > BMS communication cable (2-wire shielded).
- Maximum cable length of 1000m.



Air Cooled Packaged Units 1111 **UC** intelligent Intelligent unit controller (UC) has been designed to deliver efficient and precise system control under all conditions. Intelligent control of outdoor fan speed, coil unit controller temperatures, compressor speed and advanced refrigeration safeties WiFi Service WiFi Service Utility (WSU) is a portable control interface that plugs directly into

the UC6, UC7 & UC8 board on a Temperzone Air Conditioning Unit. It allows you

to monitor a wide range of operational parameters, view fault logs and even

diagnostics are done wirelessly from a smartphone, tablet or notebook PC.

take control of the unit. It has its own WiFi network built in and the control and

*ECO models only

Flexible Handing Options



Economiser Cycle option

The Economy Cycle presents significant energy savings. When the outside ambient air is below set point required, the compressor is cycled off, outside air dampers open, and the supply air fan continues to run, bringing cool air in from outside.



resh Air Damper option

The Fresh Air Damper allows the introduction of fresh air into the air conditioned space, there by increasing the amount of oxygen available to the building occupants.



EC Outdoor Fans option

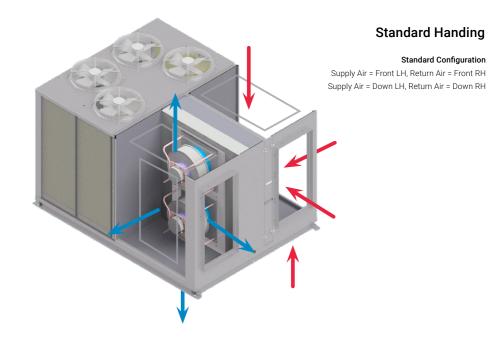
High static outdoor fans allows at least 110pa allowing condenser air to be ducted in applications where the unit is positioned inside.



EC Plug Fans option

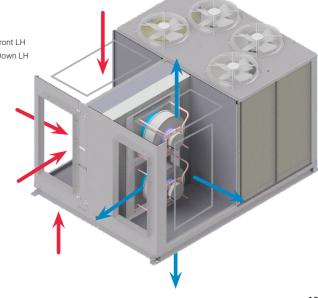
Improved efficiency and comfort through the supply of exact airflow requirements with variable airflow technology. Up to 50% more efficient than belt driven fans. Standard in ECO units.

32 Flexible handing configurations available to suit the application.



Opposite Handing

Standard Configuration
Supply Air = Front RH, Return Air = Front LH
Supply Air = Down RH, Return Air = Down LH



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Utility Tool

Energy Savings

With the right application and selection advice, Temperzone ECO Air Cooled technology can lead to substantial running cost savings.

Upgrade Options

Upgrading air conditioning infrastructure generally involves either:

- 1. Replacing old technology or
- 2. Making a choice between competing modern technologies (STD vs ECO) With the right application and selection advice, energy modelling shows that temperzone Air Cooled technology can lead to substantial running cost savings.

Energy Modelling

Using ACADs Camel and ACADS Beaver software, annual energy consumption was modelled on a large office supply retailer in Sydney with a total heat load of 148kW.

Energy Efficiency Comparison

Energy modelling was based on a system consisting of 3 x OPA 550 rooftop units or their R22 equivalents, with economy cycle dampers fitted. The objective was to examine the energy efficiency of three comparative technologies:

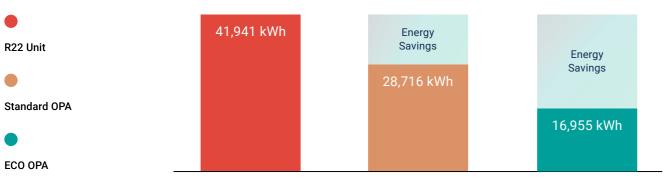
- > R22 units with a scroll compressor
- > Standard OPA units
- > ECO OPA units*

Hours of operation 6am to 10pm, 7 days.

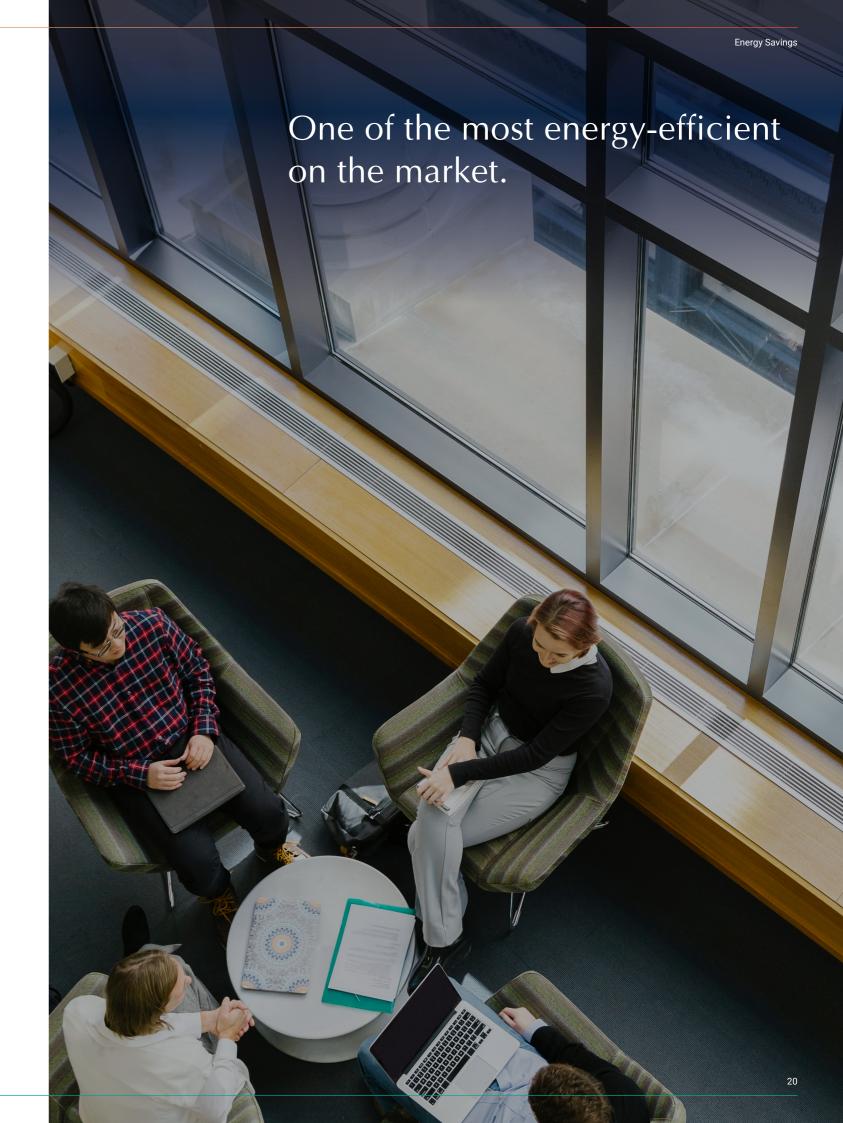
Up to 60% Savings Replacing Old Technology

The results revealed the R22 system consumed 125,824 kWh, the Standard OPA system 86,149 kWh, while the ECO system consumed only 50,866 kWh annually.

When we examine individual unit energy consumption we see a substantial 60% energy savings which the OPA 550 ECO achieves over the R22 unit.



Annual Energy Usage



R22 Unit

Reduced power usage and lifetime cost of ownership

The energy modelling study revealed the retailer would reduce carbon emissions by utilising energy efficient ECO units over older technology.

Environmental Considerations

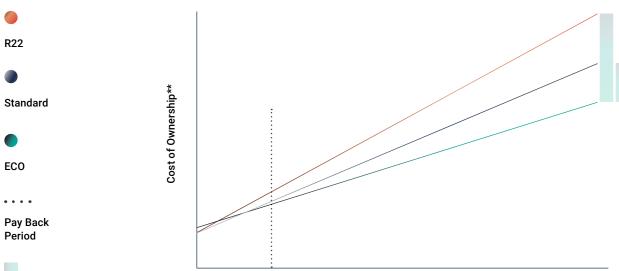
While HVAC is essential for creating comfortable and safe working environments, in Australia it's also been estimated to account for 45% of energy usage and 63% of greenhouse gas emissions. With such serious environmental considerations at stake, system design and equipment selection is critical when replacing equipment and planning new constructions.

Substantial Cost Savings

The cost savings generated in our single retail store over the 15 year product life expectancy of our air conditioning units was substantial.

The study revealed a major difference in lifetime cost of ownership** between R22 and ECO units. Significant savings can be attained by replacing old R22 units with ECO technology.

Cost of ownership** savings were also significant when choosing to install ECO units over Standard units. Lower running and maintenance costs meant recovering the extra capital and installation cost of fitting ECO units was just over two and a half years.



Cost Savings

Our energy study revealed that replacing R22 units with ECO units dramatically reduces power consumption & cost of ownership over the lifetime of the system.

^{**} Includes mechanical systems cost
(provide/install), yearly service/maintenanc
costs, and yearly running costs*.

OPA Range Options and Features

The range of available temperzone options allows you to completely customise your unit, giving you flexibility and ultimate control.

							ECO ULTRA
Model	OPA 116	OPA 161	OPA 186	OPA 201	OPA 242	OPA 294	OPA 336
Features							
Adjustable Indoor Fan	•	•	•	•	•	•	•
Variable Speed Condenser Fans	•	•	•	•	•	•	•
BMS Connection	•	•	•	•			•
Epoxy Coated Coil							
Evaporator	•	•	•	•	•	•	•
Condenser	•	•	•	•	•	•	•
Economy Cycle Kit	N/A	N/A	N/A	N/A			
Outside Air Kit	N/A	N/A	N/A	N/A			
Variable Compressor	0	0	•	•			•
Fixed Compressor	•	•	•	•	•	•	N/A
EC Indoor Fan	•	•	•	•	•		•
Compressor Soft Starter							•
Optional Panel Filters							
50mm	N/A	N/A	N/A	N/A			
100mm	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Handing Options							
Supply Air							
Return Air	N/A	N/A	N/A	N/A			

Standard	
Optional	

OPA 340	• OPA 370	OPA 465	OPA 550	OPA 705	OPA 855	OPA 960	OPA 1370	OPA 2000
•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•
		•	•	•	•	•		
•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•
		•	•	•	•	•		
•	•	•	•	•	•	•	•	•
		•	•	•	•	•		
N/A	N/A							

Air Cooled Packaged Units **Technical Specifications** Temperzone

Technical Specifications

Model	OPA 116	OPA 161	OPA 186	OPA 201	OPA 242	OPA 294	OPA 336
Total (Gross) Capacity kW*							
Cooling	11.6	16.1	18.6	20.0	23.5	29.5	29.3
Net (Rated) Capacity kW*							
Cooling / Heating	11.33 / 10.8	15.55 / 14.4	18.2 / 16.2	19.76 / 18.08	22.34 / 22.1	28.3 / 27.2	28.3 / 27.4
EER/COP*	ı						
EER* Cooling	3.35	3.24	3.17	3.14	3.19	3.21	3.34
COP* Heating	3.58	3.23	3.44	3.33	3.39	3.58	3.28
Power	1						
Power Supply	3 Phase - 342	2 - 436V 50 Hz	7_				
Run Amps / Phase (A/ph)	9/5/5	11 / 7 / 7	12/8/8	13/9/9	13 / 10 /10	18 / 15 / 15	13.5/15.5/13
IP Rating	IP 44						IP 44
Compressor							
Number per Unit	1	1	1	1	2	2	
	Hi Efficiency	Scroll	Hi Efficiency Digital Scroll		2 x Hi Efficiency Scroll		DC Inverter
Number of Refrigeration Circuits	1	1	1	1	2	2	
Refrigerant	R 410A						R 410A
Fans							
Indoor	Centrifugal /	EC Direct Driv	/e		Plug Fan	Forward Curved	Plug Fan
Outdoor	Variable Speed Propeller Type (VSPT)						VSPT
Airflow							
Nominal**	650	815	1000	1100	1400	1600	1700
Maximum	800	1000	1200	1225	1600	2100	2230
Noise Data***	l ———						
SPL @ 3 Metres	55	55	59	59	62	57	63
Overall Dimensions (mm)	l ———						
Length	1110	1160	1160	1230	1675	1780	 1781
	1200	1200	1200	1200	1567	1490	1468
	915	1070	1070	1175	1375	1500	1500
Weight (kg)							
Nett	193	225	235	270	443	516	472

* To AS/NZS 3823 conditions ** Supply Airflow at Nominal Conditions

*** Noise Data measured to BS 848.2: 2014 - Installation Type A

**** Units comply with MEPS & or the requirements on the NCC

		ECO	ECO	ECO	ECO	ECO		
OPA 340	OPA 370	OPA 465	OPA 550	OPA 705	OPA 855	OPA 960	OPA 1370	OPA 2000
	20.1	44.0				06.0	107.0	100.0
34.0	39.1 	44.9	54.6	69.7	85.1	96.0	137.0	193.0
32.5 / 30.1	36.9 / 35.6	43.9 / 41.1	52.9 / 53.4	67.9 / 67.5	79.4 / 78.0	87.9 / 90.0	130.0 / 135.0	184.0 / 213.0
3.31	3.23	3.22	2.93	3.30	3.10	2.99	3.16	2.81
3.59	3.48	3.62	3.35	3.75	3.28	3.40	4.02	3.55
3 Phase - 342	2 - 436V 50 Hz							
17 / 20 / 17	20 / 24 / 20	20 / 26 / 20	29 / 38 / 29	33 / 40 / 34	45 / 52 / 45	58 / 66 / 57	75 / 83 / 83	102 / 110 / 110
IP 44		IP 44					IP 44	
2	2						4	4
2 x Hi Efficien	ıcy Scroll	1 x Hi Efficier 1 x Hi Efficier	ncy Digital Scroll ncy Scroll		2 x Hi Efficien	ıcy Digital Scroll	4 x Hi Efficien	cy Scroll
2	2	2	2	2	2	2	4	4
R 410A		R 410A					R 410A	
Forward Curved	Plug Fan						Forward Curv	red
VSPT		Variable Spee	ed Propeller Type				VSPT	
1800	2100	2400	2800	3700	4200	4750	7500	9500
2200	2500	3330	3330	5100	5100	5100	8500	10500
65	65	68	65	63	63	63	70	62
2058	2080	2344	2344	2902	2902	2902	4668	6248
1625	- <u>2000</u> - 1670	- ————————————————————————————————————	1949	2149	2149	2149	2425	2430
1500	1550	1634	1737	1859	1859	1859	2377	2430
631	662	 798	 878	1105	1133	1129	2297	3070
	-002							0070





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