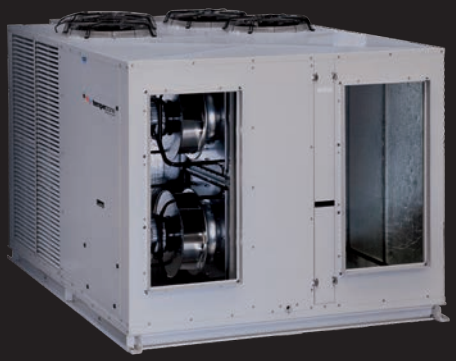
Energy Efficient Design · Energy Efficient Design ·

eco complete control

AIR COOLED

Air Cooled Packaged Units



PROUDLY MADE IN AUSTRALIA

OPA 370 ~ 2000

temperzone
climate innovations

eco complete control

One of the most energy-efficient on the market

Heating Capacity
11.6kW - 193.0kW

Cooling Capacity
10.8kW - 213.0kW

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.

PROUDLY MADE IN AUSTRALIA

OPA 370 ~ 2000

Australian Made

The OPA 370 ~ 2000 are manufactured in our Sydney Factory. The famous Australian Made logo is Australia's most trusted, recognised and widely used country of origin symbol, and is underpinned by a third-party accreditation system, which ensures products are certified as 'genuinely Australian'.

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.

Our Core Strengths In Australia & New Zealand

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

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

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

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

Supermarkets

Shopping Centres

Industrial Facilities

Laboratories

Museums and Community Halls

Schools and Universities

Restaurants, Pubs and Clubs

Office Buildings

Food Processing or Manufacturing Plants

Features

***** See OPA Range Options and Features on page 24 for applicable models.
***²** OPA 465 - 960 models only.
***³** OPA 465 - 2000 models only.

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

R410A

Dual EEV Systems *²
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 *³
Optional economy cycle and fresh air for reduced power consumption in shoulder seasons

Fresh Air Option *³
Optional fresh air damper with weather cowl inputs to control externally

- Intelligent defrost cycle
- 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.

Condenser Guards
Aesthetic guards protect the coil from damage.

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

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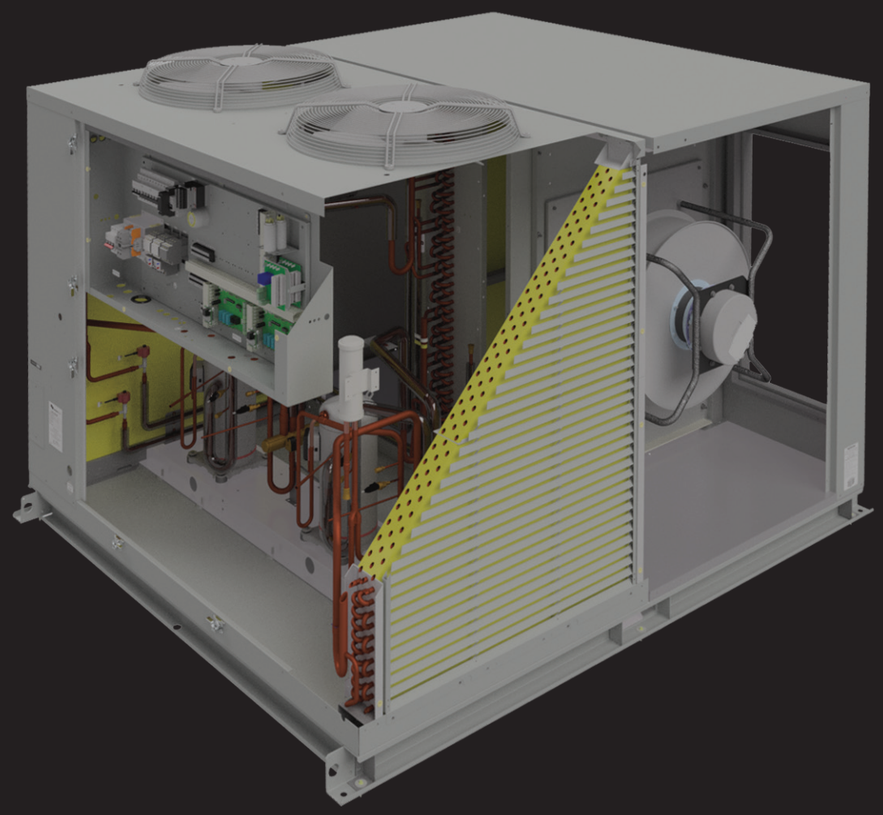
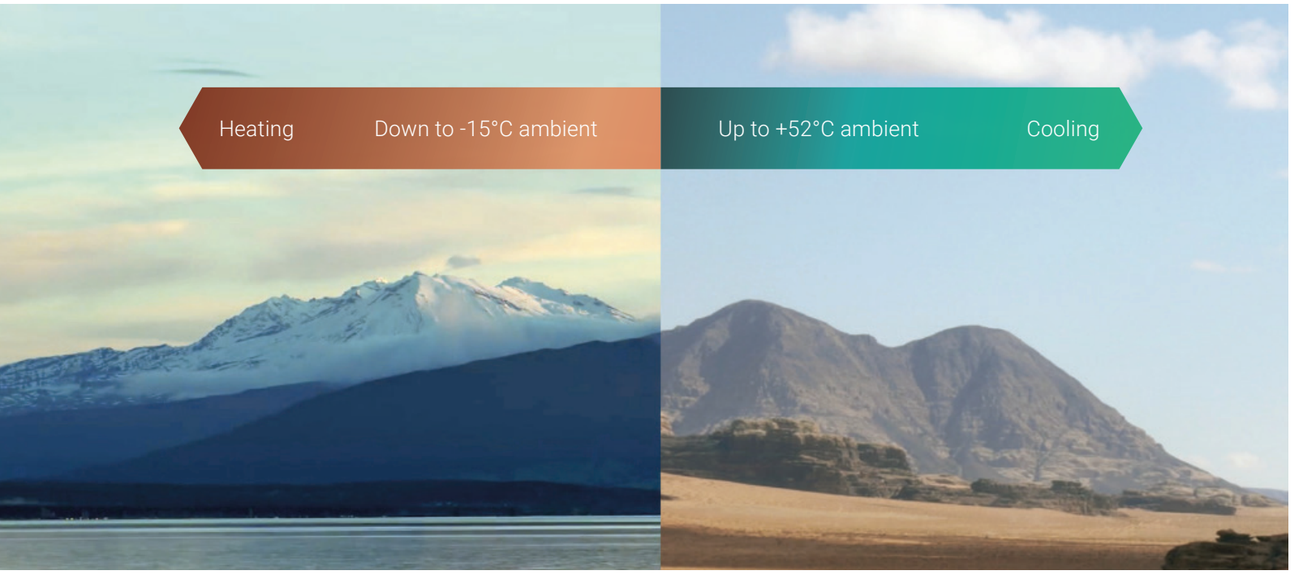
OPA 370 ~ 2000



Wide Ambient Operating Range

Designed to handle local operating conditions.



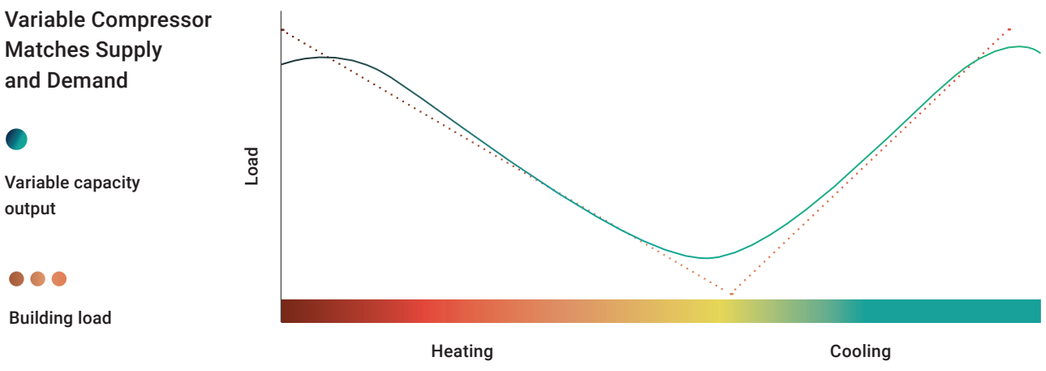
A Responsive and Adaptive Solution

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



Precision Load Response Technology

***ECO models only**

Efficiency and Comfort

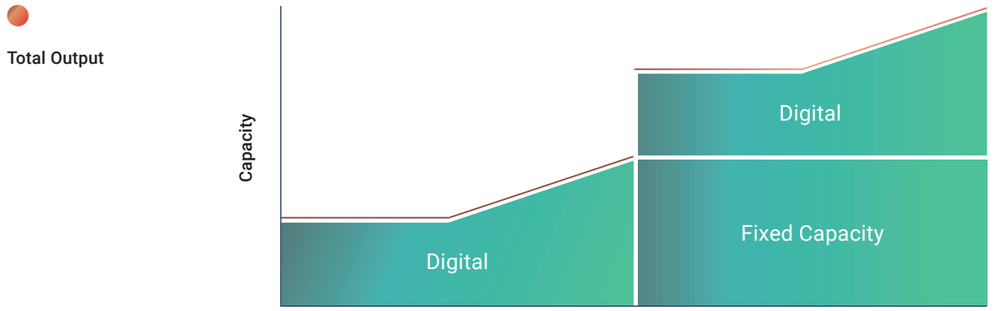
High levels of comfort and energy savings can be provided regardless of climatic conditions. The use of variable capacity compressors allow a precise load variation response. High response levels to current load conditions are further guaranteed using Electronic Expansion Valves and variable speed control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

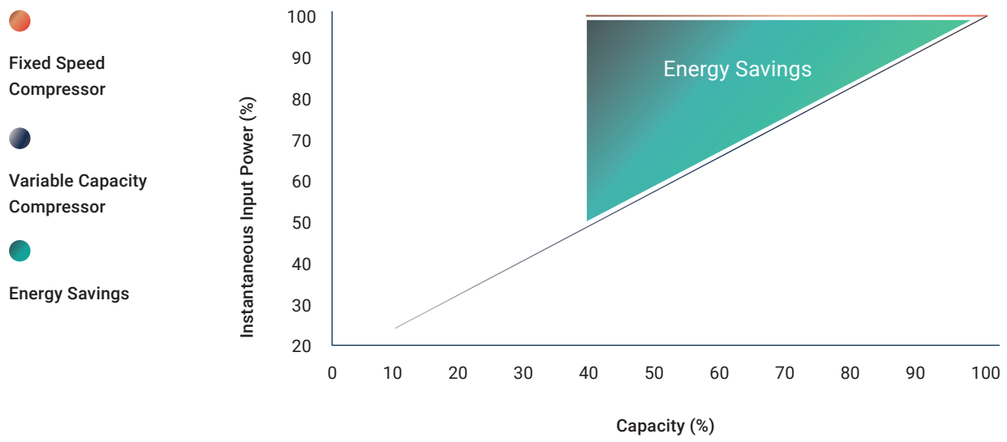
Compressor

- 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.





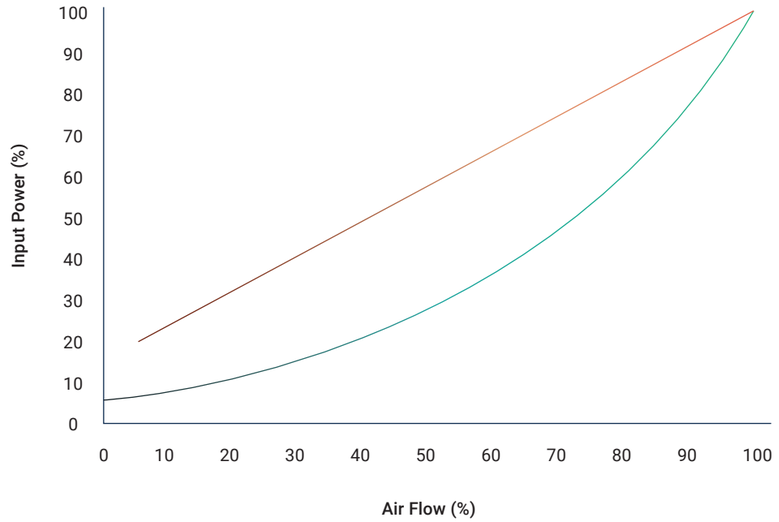
*ECO models only

Energy Saving Technology

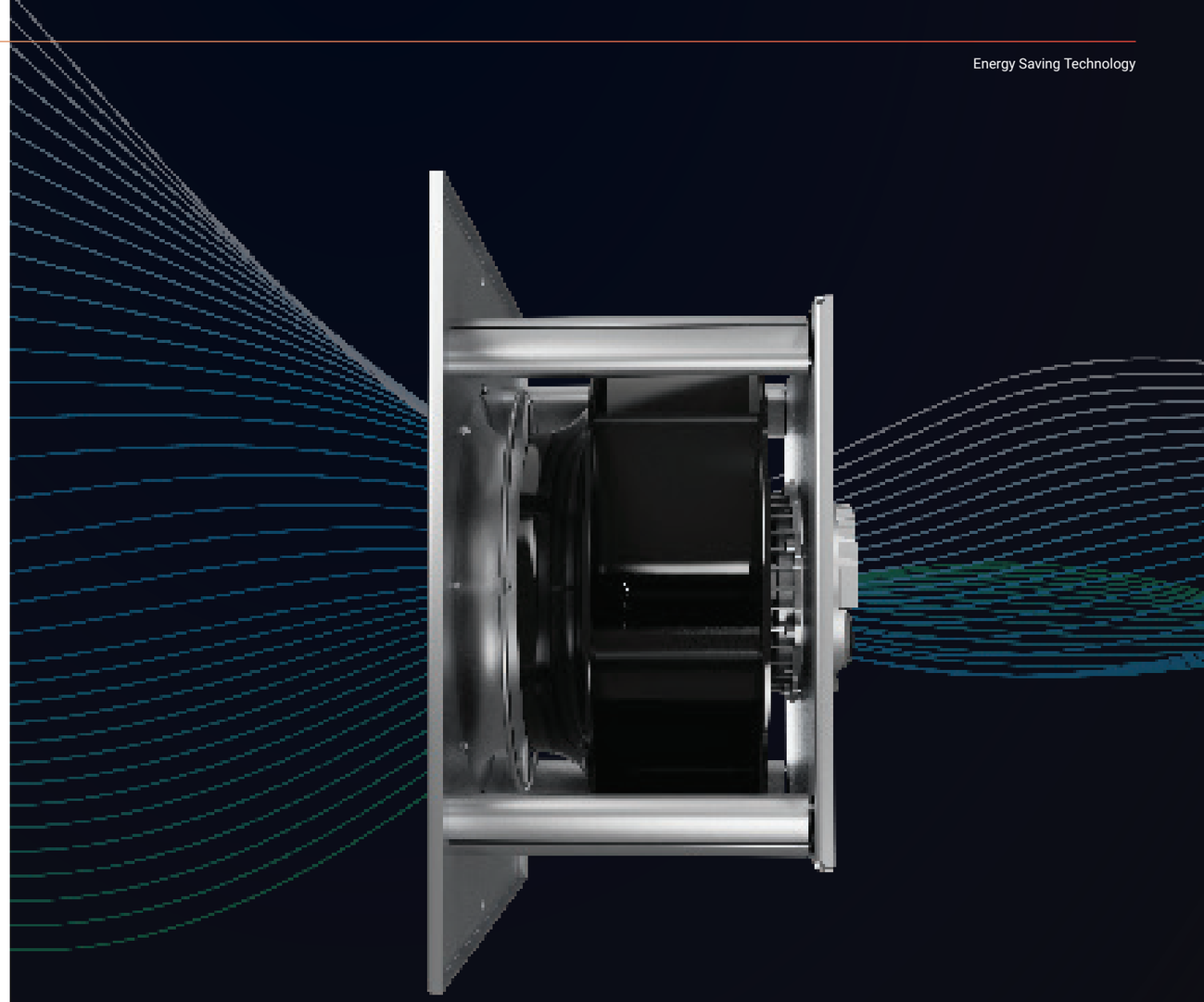
Intelligent system control technology offers leading energy efficiency with precision control of the air conditioners refrigeration system.

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.



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

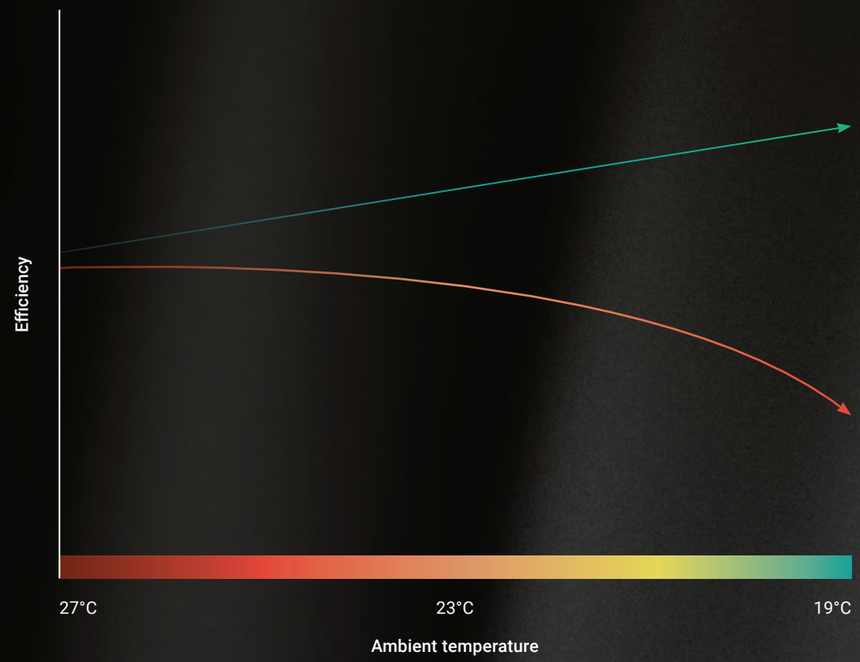
AC Variable Speed Condenser Fan

- 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

*OPA 465 - 960 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.



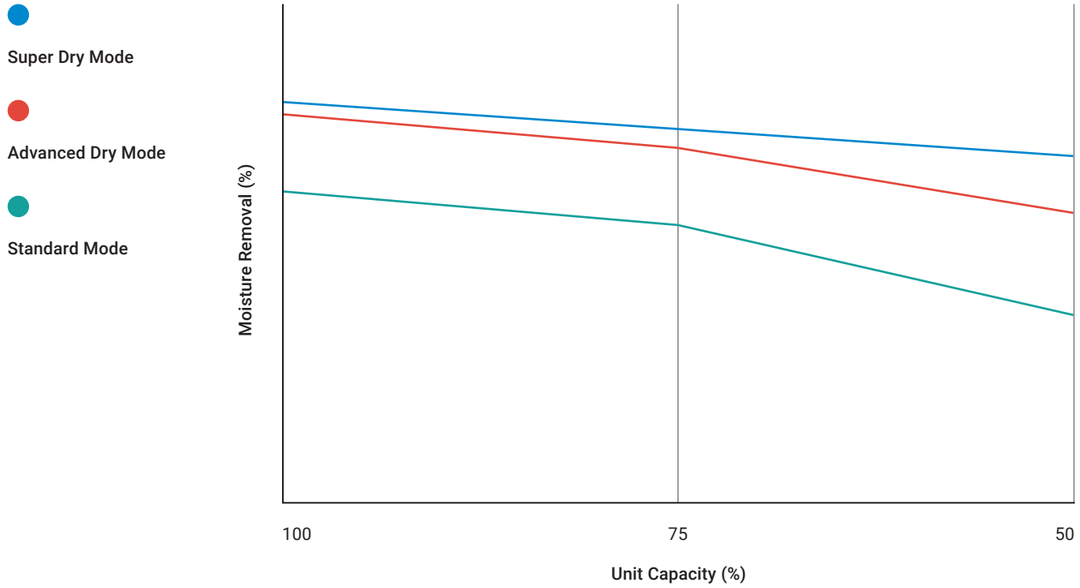
Benefits include:

- 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.

*ECO models only

Advanced & Super Dry Mode*

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

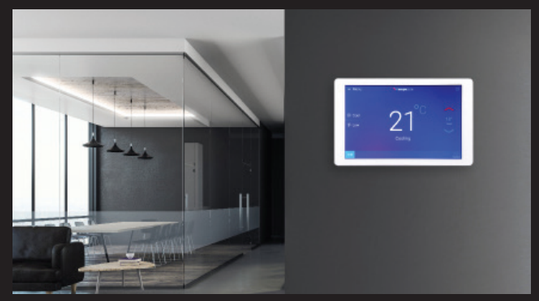


Advanced Dry Mode and Super Dry Mode can only be achieved by Temperzone ECO units as they utilise optimised Dual Electronic Refrigeration Valve control (IP protected) to achieve exceptional dehumidification performance across the units full operation range.

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**



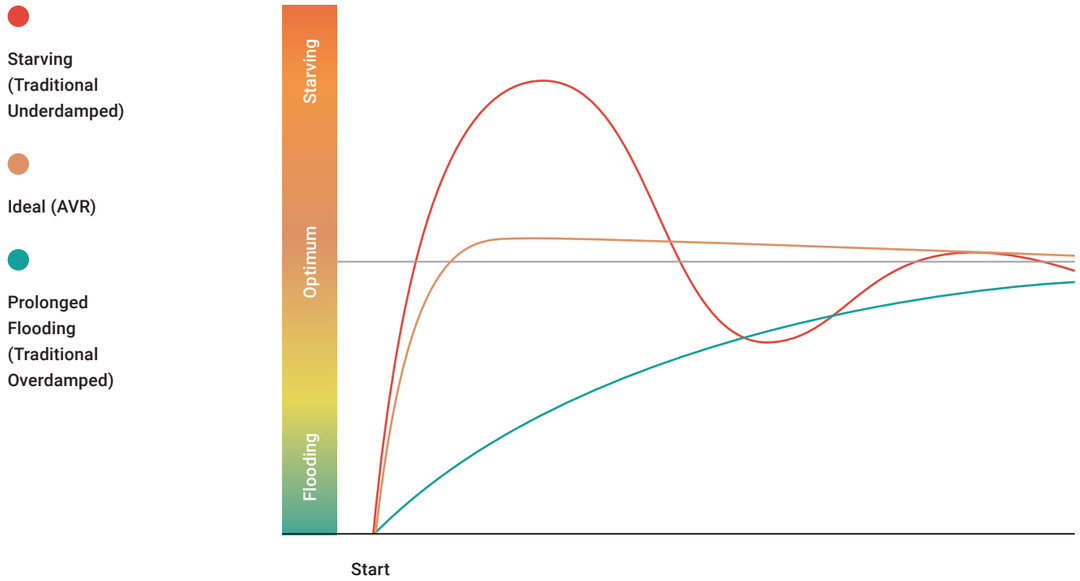
Climate Touch – Coming Soon
Contemporary and convenient, it is designed to seamlessly fit into modern residential and commercial environments while delivering comprehensive yet simple control of your comfort.

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)

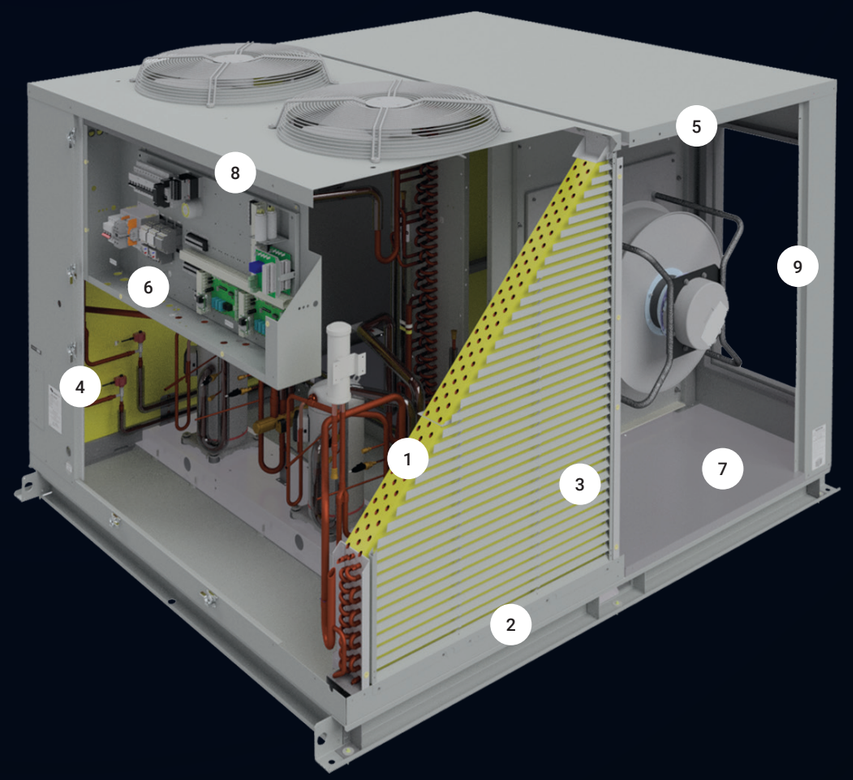
Ideal (AVR)

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.

1. Epoxy coated coil protection for superior corrosion resistance
2. Marine grade pretreatment and polyester powder coated galvanized steel, inside and out
3. Louvre Guards for added protection against severe weather, UV damage to coils & accidental contact
4. Dual EEV offers optimum control of superheat for outstanding comfort and humidity control
5. SKT coated screws provide a higher corrosion resistance than 316 stainless steel
6. Intelligent unit controller ensures optimum efficiency and provides system operation data
7. Closed cell foam insulation ensuring no particles are introduced into the air stream
8. Socket Outlet (SO) in electrical panel for single phase appliances
9. Removable access panels for easy servicing



PROUDLY MADE IN AUSTRALIA

OPA 370 ~ 2000

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	Programmable occupancy inputs
Set airflow - auto / low / med / hi (customisable)	On demand override count down timer up to 12hrs
Key board and temperature locks	Filter monitor option (by hours)
7 Day programmable time clock	Continuous or Intermittent fan operation
Set temperature: 5°C to 50°C at 0.5°C increments	Connects to outdoor unit
Remote sensor inputs	

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

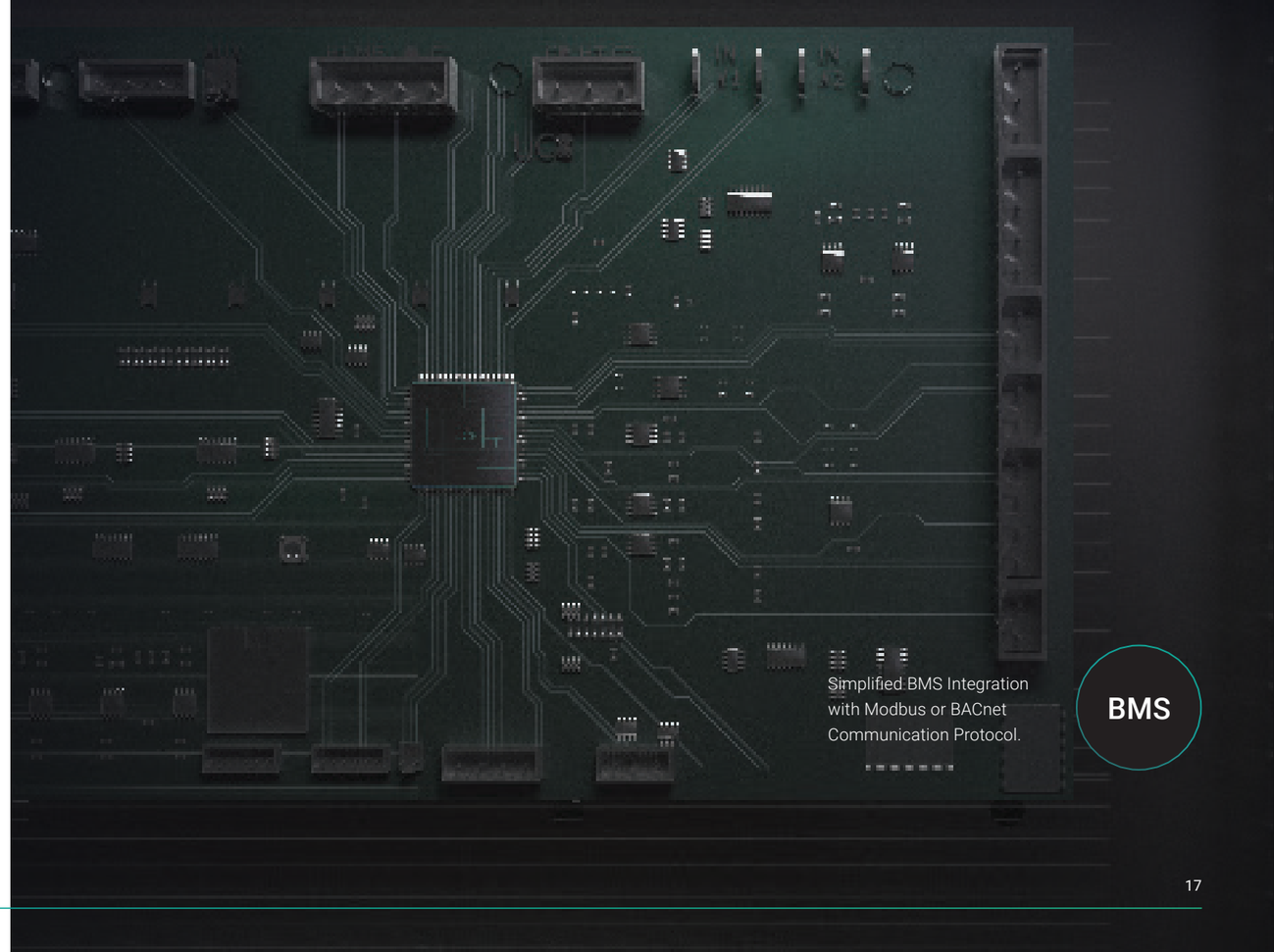
Set control mode – cool / dry / heat / auto / advanced auto / fan only	On demand override count down timer up to 8hrs
Set airflow - auto / low / med / hi (customisable)	Connects to outdoor unit (UC8)
ECO, Dry, and Quiet functions	Auto start after power failure
7 Day programmable time clock	Continuous or Intermittent fan operation
365 day event calendar	Temperature, schedule and function locks
Set temperature: 5°C ~ 50°C at 0.5°C increments	System operating parameters view
	Fault notifications/logging

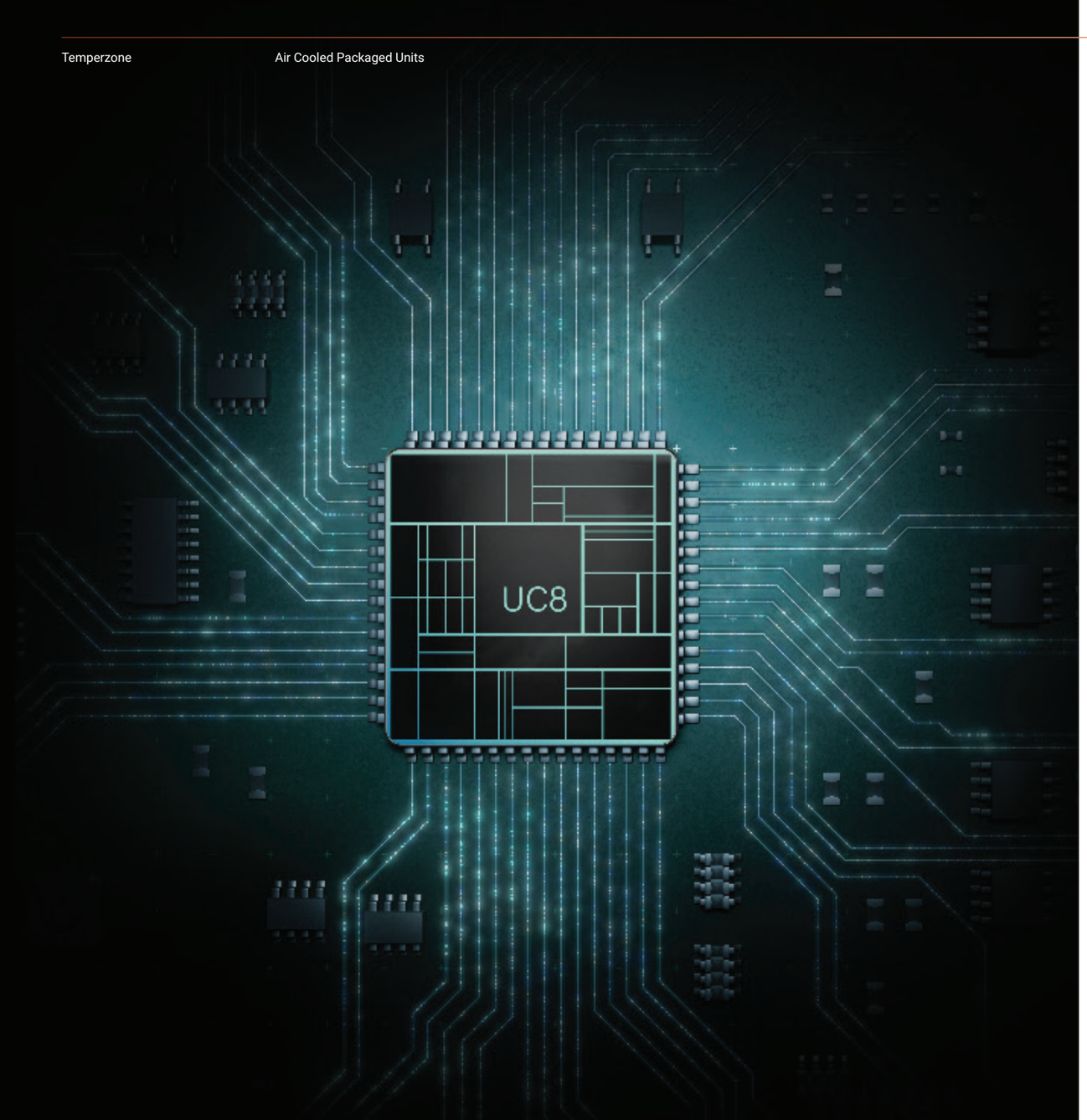
***ECO models only**

BMS Connectivity

Air Cooled Packaged unit's can connect into a BMS for control and operation.

- Through the outdoor unit via the UC8's Modbus/RS485 port with multi-unit control capability.
- Up to 99 units can be connected on a common RS458 bus in daisy chain design.
- Daisy chain wiring saves on amount of wiring and required labour time.
- BMS communication cable (2-wire shielded).
- Maximum cable length of 1000m.





UC intelligent unit controller

Intelligent unit controller (UC) has been designed to deliver efficient and precise system control under all conditions. Intelligent control of outdoor fan speed, coil temperatures, compressor speed and advanced refrigeration safeties

WiFi Service Utility Tool

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 take control of the unit. It has its own WiFi network built in and the control and diagnostics are done wirelessly from a smartphone, tablet or notebook PC.

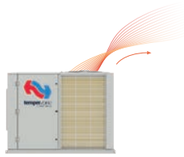
***ECO models only**

Flexible Handing Options

32 Flexible handing configurations available to suit the application.

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.

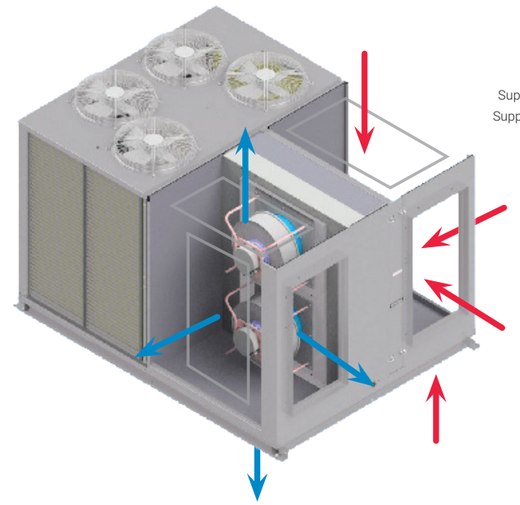
Fresh Air Damper option
The Fresh Air Damper allows the introduction of fresh air into the air conditioned space, there by increasing the amount of oxygen available to the building occupants.



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.

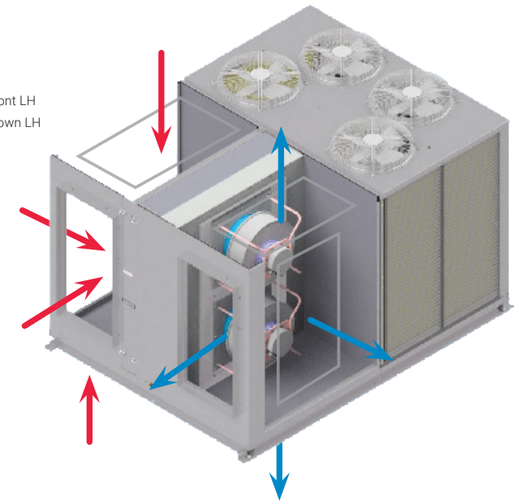
Standard Handing



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

Opposite Handing

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



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:

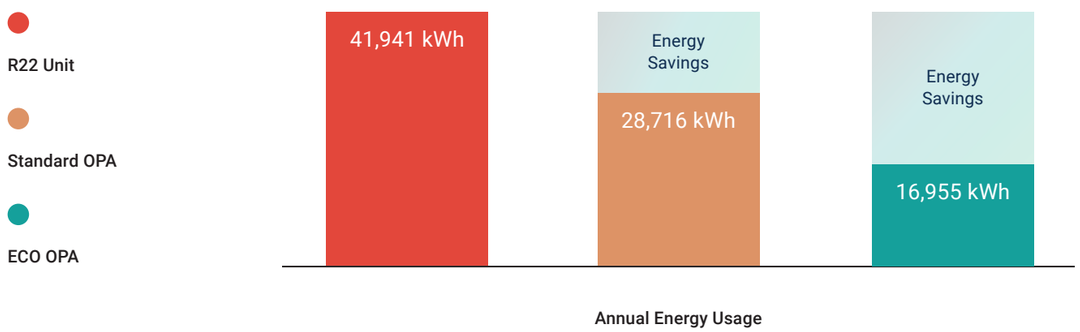
- R22 units with a scroll compressor
- Standard OPA units
- ECO OPA units*

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.



One of the most energy-efficient on the market.

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.

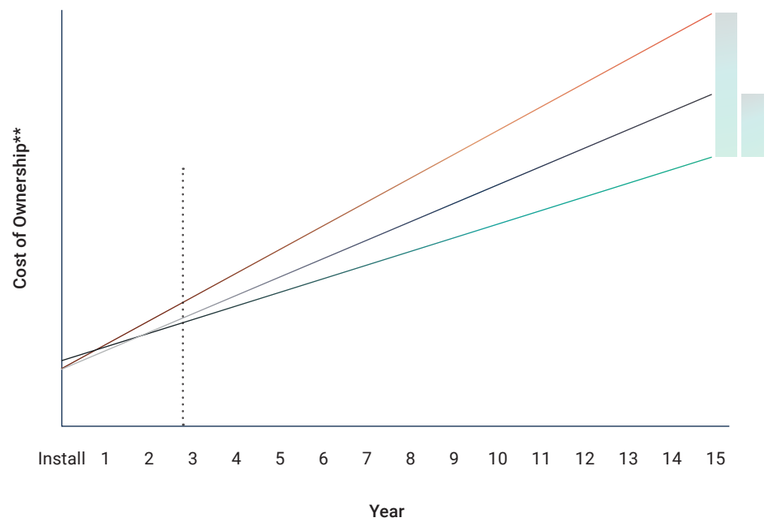
Substantial Cost Savings

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.

** Includes mechanical systems cost (provide/install), yearly service/maintenance costs, and yearly running costs.



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

OPA Range Options and Features

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

● Standard

□ Optional

– Not Available

PROUDLY MADE IN AUSTRALIA

OPA 370 ~ 2000

Model	OPA 116	OPA 161	OPA 186	OPA 201	OPA 242	OPA 294	OPA 340	ECO OPA 370	ECO OPA 465	ECO OPA 550	ECO OPA 705	ECO OPA 855	ECO OPA 960	OPA 1370	OPA 2000
Features															
Adjustable Indoor Fan	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Variable Speed Condenser Fans	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
BMS HLI Modbus/RS485	●	●	●	●	–	–	□	□	●	●	●	●	●	□	□
Epoxy Coated Coil															
Evaporator	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Condenser	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Economy Cycle Kit	–	–	–	–	–	–	□	□	□	□	□	□	□	□	□
Outside Air Kit	–	–	–	–	–	–	–	–	□	□	□	□	□	□	□
Variable Compressor (Digital)	–	–	–	●	–	–	–	–	●	●	●	●	●	●	□
Fixed Compressor	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
EC Plug Indoor Fan	–	–	–	–	●	–	–	–	●	●	●	●	●	□	□
Compressor Soft Starter	□	□	□	□	–	–	–	–	□	□	□	□	□	□	□
Optional Panel Filters															
50mm	–	–	–	–	□	□	□	□	□	□	□	□	□	□	□
100mm	–	–	–	–	–	–	–	–	□	□	□	□	□	□	□
Handing Options															
Supply Air	□	□	□	□	□	□	–	□	□	□	□	□	□	□	□
Return Air	–	–	–	–	□	□	–	□	□	□	□	□	□	□	□

Front S/A & Front R/A in Standard & Opposite hand configurations only

OPA 116-340 Range
Technical Specifications

PROUDLY MADE IN AUSTRALIA

OPA 370 ~ 2000

Model	OPA 116	OPA 161	OPA 186	OPA 201	OPA 242	OPA 294	OPA 340
Total (Gross) Capacity kW*							
Cooling	11.6	16.1	18.6	20.0	23.5	29.5	34.0
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	32.5 / 30.1
EER/COP*							
EER* Cooling	3.35	3.24	3.17	3.14	3.19	3.21	3.31
COP* Heating	3.58	3.23	3.44	3.33	3.39	3.58	3.59
Power							
Power Supply	3 Phase - 342 - 436V 50 Hz						
Run Amps / Phase (A/ph)	9 / 5 / 5	11 / 7 / 7	12 / 8 / 8	13 / 9 / 9	13 / 10 /10	18 / 15 / 15	17 / 20 / 17
IP Rating	IP 44						
Compressor							
Number per Unit	1	1	1	1	2	2	2
Type	Hi Efficiency Scroll		Hi Efficiency Digital Scroll		2 x Hi Efficiency Scroll		
Number of Refrigeration Circuits	1	1	1	1	2	2	2
Refrigerant	R 410A						

	OPA 116	OPA 161	OPA 186	OPA 201	OPA 242	OPA 294	OPA 340
Fans							
Indoor	Centrifugal / EC Direct Drive				Plug Fan	Forward Curved	
Outdoor	Variable Speed Propeller Type (VSPT)						
Airflow							
Nominal**	650	815	1000	1100	1400	1600	1800
Maximum	800	1000	1200	1225	1600	2100	2200
Noise Data***							
SPL @ 3 Metres	55	55	59	59	62	57	65
Overall Dimensions (mm)							
Length	1110	1160	1160	1230	1675	1780	2058
Width	1200	1200	1200	1200	1567	1490	1625
Height	915	1070	1070	1175	1375	1500	1500
Weight (kg)							
Nett	193	225	235	270	443	516	631

Notes:
* To AS/NZS 3823 conditions
** Supply Airflow at Nominal Conditions
*** Noise Data measured to BS 848.2: 2014 - Installation Type A - measured in decibels re 1 picowatt
Units comply with MEPS & or the requirements on the NCC

OPA 370-2000 Range Technical Specifications

OPA 370 ~ 2000

Model	● OPA 370	ECO ○ OPA 465	ECO ○ OPA 550	ECO ○ OPA 705	ECO ○ OPA 855	ECO ○ OPA 960	● OPA 1370	● OPA 2000
Total (Gross) Capacity kW*								
Cooling	39.1	44.9	54.6	69.7	85.1	96.0	137.0	193.0
Net (Rated) Capacity kW*								
Cooling / Heating	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
EER/COP*								
EER* Cooling	3.23	3.22	2.93	3.30	3.10	2.99	3.16	2.81
COP* Heating	3.48	3.62	3.35	3.75	3.28	3.40	4.02	3.55
Power								
Power Supply	3 Phase - 342 - 436V 50 Hz							
Run Amps / Phase (A/ph)	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 Rating	IP 44	IP 44					IP 44	
Compressor								
Number per Unit	2	2	2	2	2	2	4	4
Type	2 x HES	1 x Hi Efficiency Digital Scroll / 1 x Hi Efficiency Scroll			2 x Hi Efficiency Digital Scroll		4 x Hi Efficiency Scroll	
Number of Ref. Circuits	2	2	2	2	2	2	4	4
Refrigerant	R 410A	R 410A					R 410A	

Model	● OPA 370	ECO ○ OPA 465	ECO ○ OPA 550	ECO ○ OPA 705	ECO ○ OPA 855	ECO ○ OPA 960	● OPA 1370	● OPA 2000
Fans								
Indoor	Plug Fan	Plug Fan					Forward Curved	
Outdoor	VSPT	Variable Speed Propeller Type					VSPT	
Airflow								
Nominal**	2100	2400	2800	3700	4200	4750	7500	9500
Maximum	2500	3330	3330	5100	5100	5100	8500	10500
Noise Data***								
SPL @ 3 Metres	65	68	65	63	63	63	70	62
Overall Dimensions (mm)								
Length	2080	2344	2344	2902	2902	2902	4668	6248
Width	1670	1949	1949	2149	2149	2149	2425	2430
Height	1550	1634	1737	1859	1859	1859	2377	2430
Weight (kg)								
Nett	662	798	878	1105	1133	1129	2297	3070

Notes:
* To AS/NZS 3823 conditions
** Supply Airflow at Nominal Conditions
*** Noise Data measured to BS 848.2: 2014 - Installation Type A - measured in decibels re 1 picowatt
Units comply with MEPS & or the requirements on the NCC

OPA 370 ~ 2000

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Auckland	09 – 279 5250
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