



# HERCULES™

CHANGING THE GAME FOR  
COMMERCIAL AIR CONDITIONING



**ActronAir®**

Australian for air conditioning™



ActronAir has been designing and building air conditioning systems, for Australia's unique and demanding conditions, since 1984.

The company's technological advancements have led to the development of some of the most energy efficient systems in the world.



# Hercules™. Changing the game with advanced technology.



Sydney Exhibition Centre project 21 Hercules™ units

ActronAir is passionate about designing and engineering the most comfortable and efficient air conditioners in the world.

Engineered to better match the thermal load of a typical commercial building, Hercules™ delivers the highest seasonal energy efficiency in its class.

## Changing the game with Hercules™

Once in a while, something new comes along that completely redefines its class. Hercules™, the most advanced range of variable capacity reverse cycle packaged units ever engineered in Australia.

## Changing the game with energy savings.

With an IEER of 5.45\* and up to 50 percent more efficient than the minimum BCA compliant system, Hercules™ promises energy savings far in excess of current packaged systems.

In fact, independent side-by-side field-testing projected annual energy consumption savings of 45-55%# compared to 2 staged fixed speed AC technology.

## Changing the game with better comfort levels.

Hercules™ has the ability to control the temperature within  $\pm 0.3^{\circ}\text{C}$  of the set point. Additionally, the VAV option can connect to third party VAV boxes to deliver improved comfort levels and even further energy savings.

## Changing the game for controls.

The “brains behind the brawn” is the legendary ActronAir Smart Logic platform. As well as optimising performance, ActronAir Smart Logic enables BMS compatibility, third party web browsing capability, constant air volume control and fault diagnostics.

## Changing the game with less impact on the environment.

Hercules™ technology is the practical solution to long term, meaningful emissions reductions in the commercial building sector. Businesses are realising that this can also have a positive impact on the bottom line too.

Hercules™ combines strong performance with one of the lowest operating and product life cycle costs in its class. And when you factor in ActronAir's legendary longevity and reliability, you'll understand why the world of extra-large commercial air conditioners has a new benchmark.

Hercules™. Its changed the game!

# HERCULES

\* IEER is a seasonal rating based on US AHRI 340/360 standard.

# Ecosave Energy Analysis 2014.



# Changing the game for comfort.

From convention centres to car showrooms, from airport terminals to retail super centres, Hercules™ promises to deliver superior comfort levels.

Hercules™ is so versatile it will suit most applications:

- Retail – Shopping Centres, Supermarkets, Bulky Goods and Superstores.
- Industrial – Warehousing and Manufacturing.
- Commercial – Offices, Convention and Exhibition Centres.

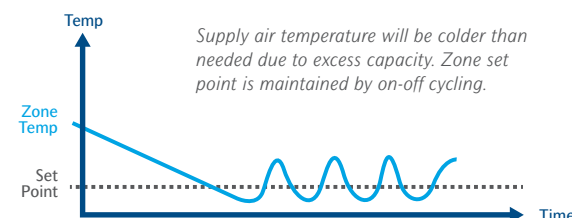


Engineered to deliver the optimum balance in temperature stability, Hercules™ reaches an ideal comfort level fast with the ability to maintain the temperature up to  $\pm 0.3^{\circ}\text{C}^*$  of the set point at the sensor location.

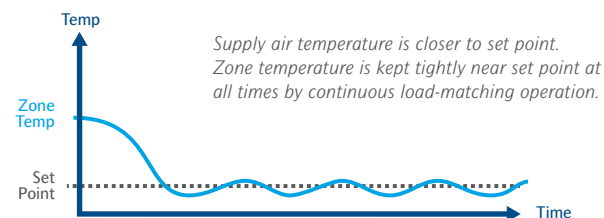
In traditional systems, airflow may be compromised due to filter build-up. Hercules™ senses build up due to dirty filters and automatically adjusts fan speed for constant airflow control.

In addition, Hercules™ is compatible with most Building Management Systems so it can be controlled both onsite or off-site to ensure comfort levels are ideal all year round.

## Without Variable Speed



## With Variable Speed



\*Temperature stability is achievable based on technological capability at the sensor however this may vary depending on installation conditions.

# Ultimate in temperature and humidity control.

## Variable Air Volume (VAV) option.

The Hercules™ system controls supply air temperature and works with third party VAV boxes to deliver individual temperature zones.

This option provides enhanced comfort with the ability to zone areas for cooling or heating.

The VAV option can provide further energy savings by ensuring the required amount of cooling, heating and fan energy is used by the relevant Zones/VAV terminals.



## Reheat option controls Relative Humidity.

Hercules™ with Reheat option will remove excess moisture to provide the required relative humidity (RH) once the set point temperature is achieved during cooling mode. This is ideal for improving comfort levels at part load and humid environments.

The Reheat option is ideal for certain applications:

- Supermarkets - in high humidity areas. Control of RH reduces the risk of potential slippages and accidents as a result of condensation dripping from frozen food storage doors.
- Food Manufacturing - better control of humidity reduces spoilage and improves consistency of output.
- University Classrooms - humidity fluctuates greatly as variations in student numbers and the quantity of outside air impacts each classroom. Higher comfort levels provide a better learning environment.



# For energy efficiency, bigger is better.

With an IEER of up to 5.45\* and over 50% more efficient than the minimum BCA compliant system\*, Hercules™ changes the game for rooftop packaged systems. It can also be a cost effective alternative to both Chillers and VRF.

**IEER\***  
**5.45**

Engineered to better match the thermal load of a typical commercial building, Hercules™ delivers the highest seasonal energy efficiency in its class. In fact, this technology even surpasses ASHRAE 90.1 (minimum IEER of 2.9) one of the most recognised standards for building energy efficiency in the US.

IEER (IPLV) is a measure of seasonal energy efficiency. It is based on the US AHRI 340/360 and takes into account the air conditioners performance across its cooling operating envelope.

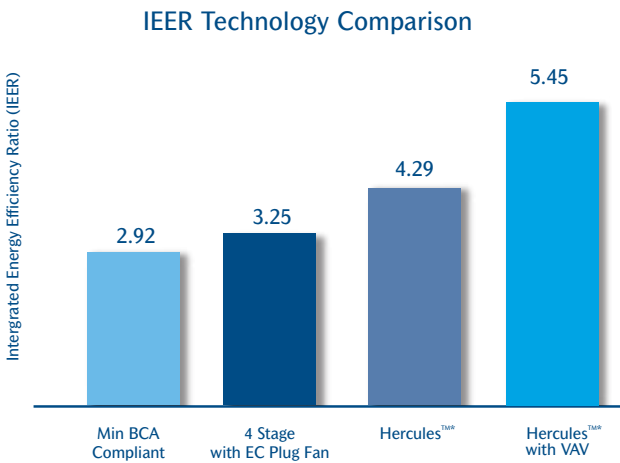
In general, a 'typical' commercial building air conditioner operates between 50 to 75% capacity for 85% of the time.

This observation is supported by the US calculation for IEER ratings (AHRI 340/360) for commercial ducted systems. Clause 6.2.2 of AHRI 340/360 for Integrated Energy Efficiency Ratio (IEER) states for equipment covered by this standard, the IEER shall be calculated using test derived data and the following formula.

$$IEER = (0.020 \times A) + (0.617 \times B) + (0.238 \times C) + (0.125 \times D) \times 1$$

Where:

- A** = EER at 100% net capacity at AHRI standard rating conditions
- B** = EER at 75% net capacity and reduced ambient
- C** = EER at 50% net capacity and reduced ambient
- D** = EER at 25% net capacity and reduced ambient

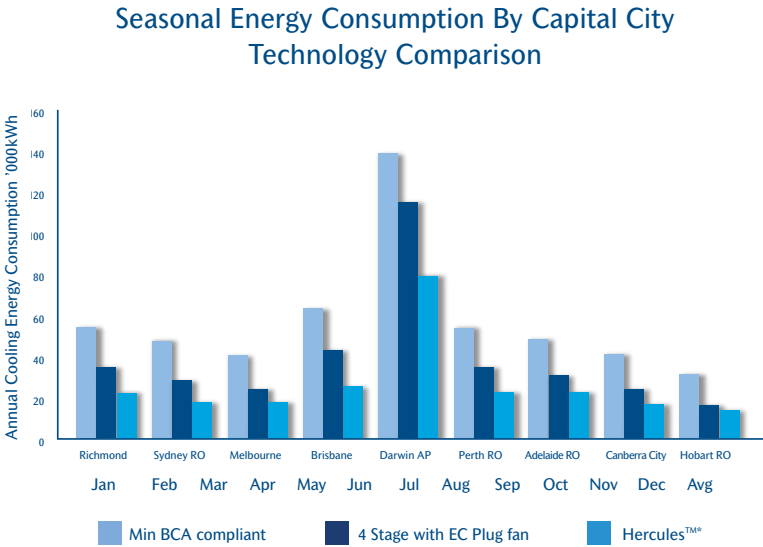


## Energy Modelling puts Hercules™ in front.

Energy modelling of a typical commercial premises in Richmond, Sydney was conducted for 3 technologies:

- Minimum BCA Section J5.4 Compliant – 2 stage fixed speed AC Belt Drive
- 4 stage - 3 fixed speed and 1 modulating compressor with EC Plug Fan
- Hercules™ – Variable speed compressors with EC Plug Fan and EC Outdoor Fan

Hours of operation was 6am to 9pm, 7 days.



Annual Cooling Energy Consumption Technology Comparison



Over a year, energy modelling annual cooling energy consumption was calculated for each of the technologies based on building load of 170kW.

Hercules™ was found to be 35% more efficient than 4-stage technology and over 50% more efficient than minimum BCA requirements.

Based on an electricity price of 12c per kWh and the cooling energy consumption, this translates to a saving of up to \$4061 per annum compared to the minimum BCA requirements or \$1578 per annum compared to 4 stage technology with 3 fixed and 1 modulating compressor.

## Shopping Centre Side-by-Side Case study project annual savings of 45-55%\*\*.

Independently conducted field testing and energy analysis at Narellan Shopping Centre compared 2 packaged unit technologies operating side-by-side in 2014.

1. Hercules™ technology
2. 2 stage fixed speed AC technology

Over the 14 day period, the total energy consumption savings of 40% was observed for Hercules. On a daily basis, energy consumption savings of 21% - 69% were achieved.

*Save between \$23,670 to \$60,915 on your cooling electricity costs when compared to other commercially available technology.\*\**

- Based on a 15 year product life, assuming \$0.12 per kWh, PKV1700 model.



Using regression analysis and weather data for the region, \*\*Ecosave project annual energy consumption savings of 45-55% versus conventional 2 stage fixed speed AC technology.

It is believed these results are understated due the following factors:

- Hercules was a larger capacity at 169kW vs 2 stage fixed speed unit at 145kW.
- Data was logged during a 2 week period in January. Part load savings throughout the year would be even higher.
- The Hercules unit did not use the VAV option. This would provide further savings.

\*IEER based on AHRI 340/360 clause 6.2.2.

\*\*Ecosave is an Independent Energy company. For more information about this case study, contact ActronAir.



# Changing the Game with Advanced Technology.

## Highest Efficiency Variable Capacity Packaged Unit

### High Efficiency EC Outdoor Fans

- Provides low ambient cooling
- Standard 125Pa external static available

### Removable Louvred coil guard

- Protection from the elements
- Removable for easy cleaning

### High efficiency EC plug fans

- Constant air flow control
- High static up to 500Pa
- Eliminates belt and pulley drive losses and associated maintenance
- Programmable air flow control for faster and more accurate commissioning
- Backward curve non-overloading for maximum durability

### Capacity Range

- PKV1400 (35-140kW)
- PKV1700 (42-169kW)
- PKV2000 (49-195kW)

### Other features

- Low ambient cooling -5°C
- EEV refrigerant flow control
- 25mm foil face polyethylene insulation
- Powder-coated panels to withstand 1,000 hour salt spray exposure AS/NZS 4506:2005

### Various return and supply air options available

### Optional economy cycle dampers with and without spill air

- Image shows economy cycle dampers. These are options to the base unit.

### Variable Air Volume (VAV) option

- Provides the ability to zone areas when cooling or heating
- Works in conjunction with 3rd party VAV boxes to deliver individual temperatures zones.

### Structurally enhanced independent base

- Hot dipped galvanised 'C' channel

### Reheat option

- Controls Relative Humidity and improves comfort levels at part load and humid environments.

### ActronAir Smart Logic platform

- BMS compatible
- Group control up to 15 units
- Third party web browsing capability
- Factory-fitted LCD user interface (CP10) (Optional 2nd remote LCD user interface CP05 with a 200m range)
- Alarm fault data logger for up to 100 events with error code display
- Dedicated input for remote stop/start alarms or fire
- DRED enabled (AS4755)

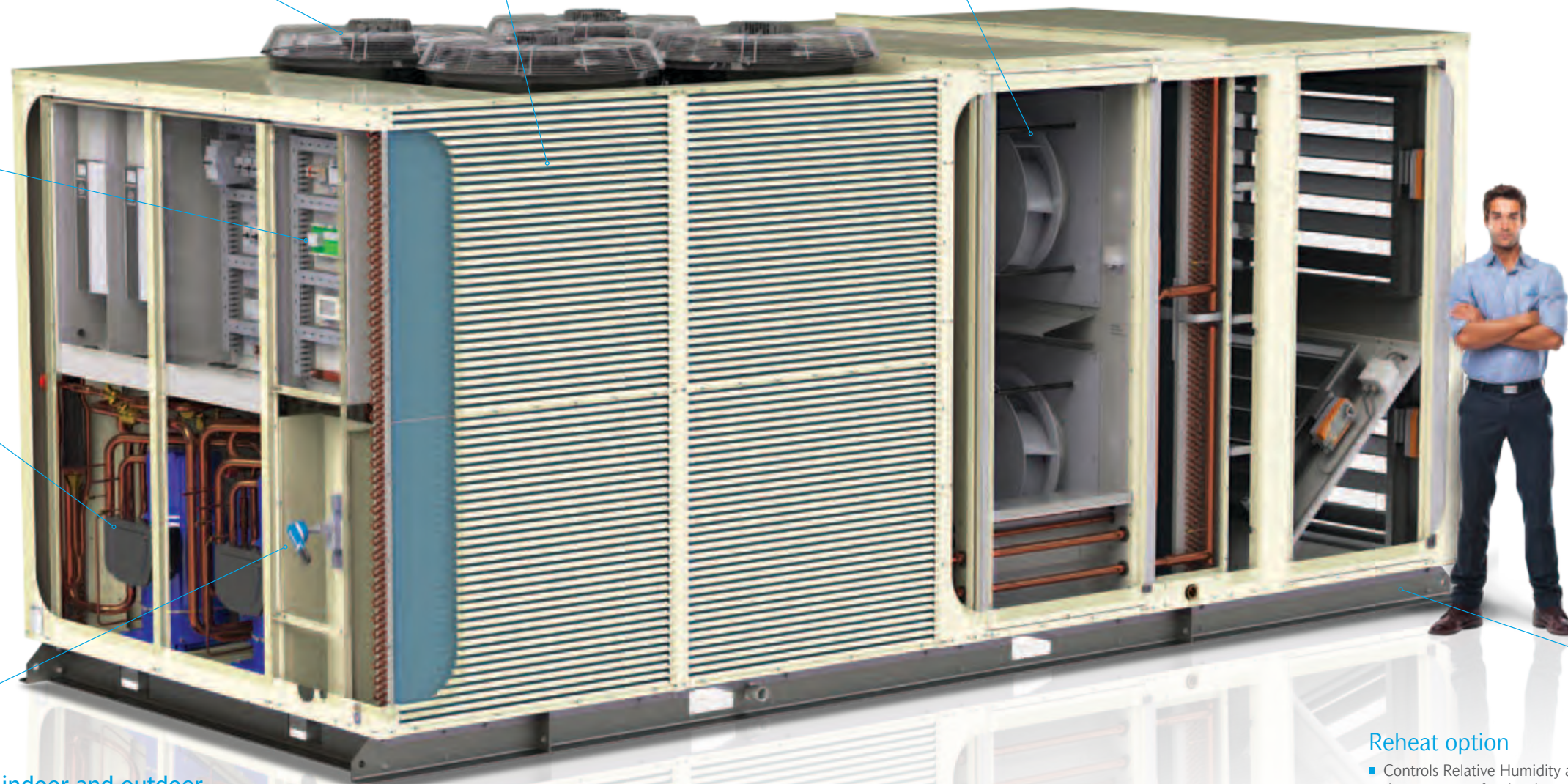
### Dual Variable Speed compressors with Inverter technology

- Delivers 25-100% capacity to better match building load for superior seasonal energy efficiency and comfort
- More precise temperature control up to  $\pm 0.3^{\circ}\text{C}^*$
- Full performance at 50°C heatwave conditions
- High inbuilt power correction factor 0.92 and minimal inrush current (25Amps) can reduce capital outlay on transformer and cables for new buildings
- Inbuilt compressor protection logic

### Lockable 3-phase load break isolation switch

### Large indoor and outdoor heat exchangers

- Optimised refrigeration circuit
- Enhanced rifle bore tube
- Blue Fin epoxy coated coil protection



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\*Temperature stability is achievable based on technological capability at the sensor however this may vary depending on installation conditions.



# Latest Generation Compressor Technology.

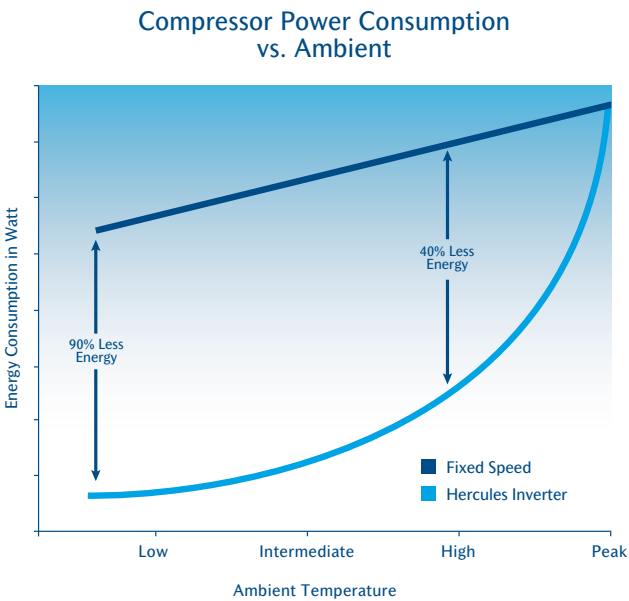
The latest generation of Inverter compressor technology has exceptional part load performance characteristics, delivering improved energy efficiency.



Two variable speed compressors closely match the thermal load requirements of a building. With a system turn down ratio of 4:1, the capacity can be adjusted from 25% to 100%.

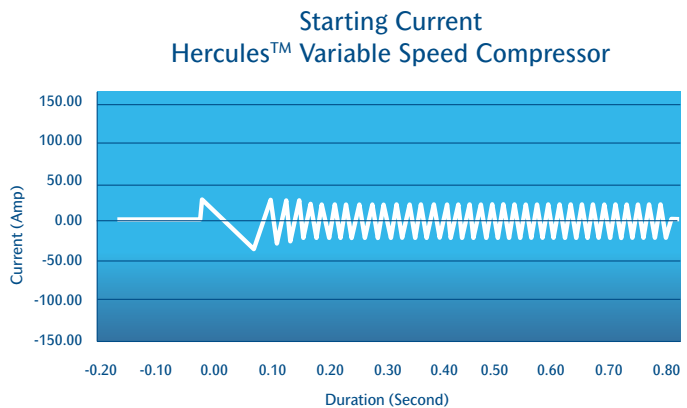
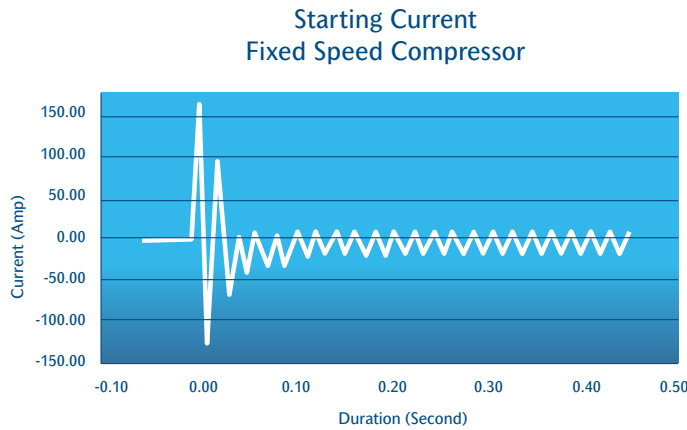
Both compressors simultaneously ramp up and down to reduce indoor coil bypass air and maximise system efficiency. At very low part load conditions, run time equalisation occurs.

This technology has exceptional part load efficiency to reduce energy consumption.



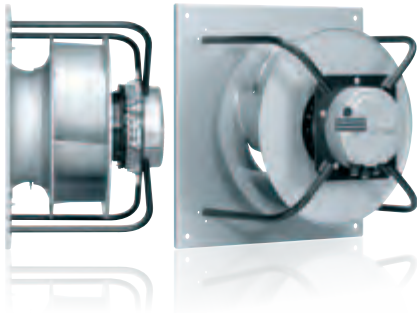
Key Benefits:

- Turn down ratio up to 4:1, capacity range 25-100%.
- Unique compressor start up program reduces start-up noise and mechanical stress and improves reliability.
- Optimised algorithms improves part-load energy efficiency.
- Full compressor operation at 50°C ambient conditions.
- In built compressor run-time equalisation.
- In built compressor protection reduces downtime.
- In built active power factor correction and minimal in-rush current of 18 Amps (PKV 1400), 25 Amps (PKV 1700), 18 Amps (PKV2000) reduces load on the power grid, stress on compressor and eliminates the need for a soft starter. This could save thousands of dollars in unnecessary transformer and cabling upgrade costs.
- ActronAir Smart Logic ensures that each compressor has run time equalisation resulting in improved performance and reliability.
- Two stage system allows for a 50% redundancy.



# High Efficiency EC Fan Technology.

EC Indoor Fan.



EC Plug fans deliver exact airflow requirements whilst minimising power usage. In fact, EC Plug fan technology is up to 50% more efficient versus traditional forward curve belt and pulley systems.

Hercules™ has been engineered to intuitively deliver constant airflow. Pressure transducers and ActronAir Smart Logic automatically compensate for loaded filters.

This provides enhanced comfort and improved maintenance of system performance.

Key Benefits:

- Variable air-flow for improved efficiency and comfort.
- Program control feature for exact airflow requirements.
- High Static easily achieved (up to 500Pa).
- Significant time saved for onsite commissioning.
- Eliminates belt dust and belt adjustment providing a cleaner environment and lowers operational maintenance cost.
- Automatic compensation for loaded filters to deliver constant airflow requirements.
- Improved occupant comfort.

EC Outdoor Fan.



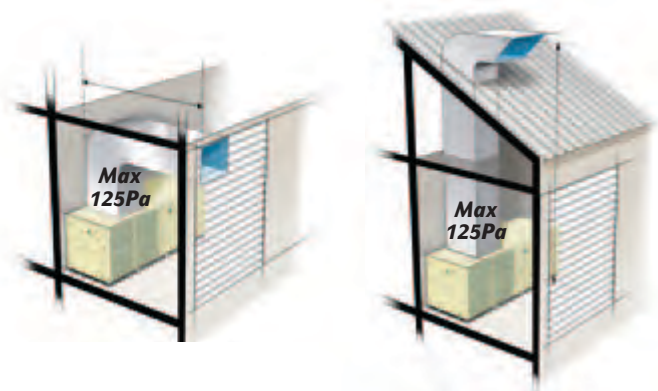
EC Outdoor Fans deliver improved performance and efficiency when compared to AC technology.

While AC motors have an efficiency of 50-70%, EC motors perform significantly better with an efficiency of up to 90%.

This not only results in better use of primary energy, it's achieved with less lost heat - which adds up to a longer product life cycle.

This technology also delivers low ambient cooling, ducted discharge with up to 125Pa and full performance operation at 50°C.

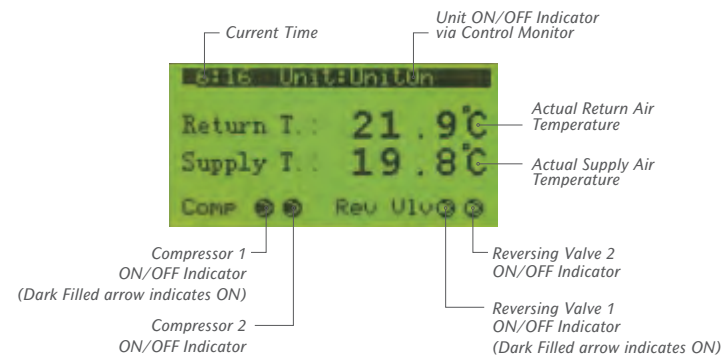
Ducted condenser airflow when installed in plantroom



Furthermore, because they are controlled by ActronAir Smart Logic, the fans automatically deliver just the right amount of airflow for all operating conditions. This is generally around 70-80% of its maximum design, so Hercules™ operates at a lower sound levels than other systems.

# Controls puts you in command.

With ActronAir's superiority in controls, logic and electronics, it's no surprise that Hercules™ is such a game-changer.



There's more to ActronAir Smart Logic than optimising comfort, energy efficiency and performance.

Other features include:

- BMS Compatibility to integrate with most MODBUS and BACNET operating systems.
- Allows 3rd party web browsing.
- Constant air volume control.
- Fault diagnostics.
- Factory fitted LCD user interface.
- Maintenance and service activities are enhanced with a 100-event fault register.
- Dedicated input for remote stop/start and fire alarms.
- Inbuilt full head pressure control.
- Smart high and low head pressure safety management system.
- Programmable differential pressure for filters and fans.
- 7/365 day time clock scheduler with programmable operating times (2 On/Off cycles per day) and 12 special day events.
- Secondary optional remote LCD user interface.
- Variable Air Volume (VAV) enabled with connectivity to most BMS systems.



# Save time on maintenance and service.

A technician's life has never been easier.

The Hercules™ Control Interface CP10 provides easy access to system operation information such as system:

- Low pressure
- High Pressure
- Supply air volume
- Filter pressure drop to aid with correct servicing levels
- System temperatures

Hercules™ eliminates the maintenance and service associated with belt and pulley driven systems. This results in improved airflow accuracy and reduced maintenance costs on site.

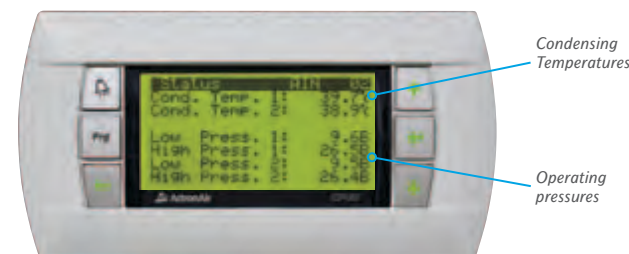
Set airflow in minutes.

So instead of a maintenance job that could take all day, adjusting the airflow should take minutes.

1. Obtain the design set external static pressure (within fan range) for the system.
2. Read the Hercules™ fan graph to find the set static pressure to program the required air flow.
3. Enter the set static into the control set point menu. (You will now have the required airflow volume provided the installed duct static is within the fan limits shown in the fan graph table).

Each outlet airflow still requires balancing but the total volume of air will be correct provided the total system resistance does not exceed the fan limit.

Display showing status of Compressor 1 & 2 operating pressures and temperatures



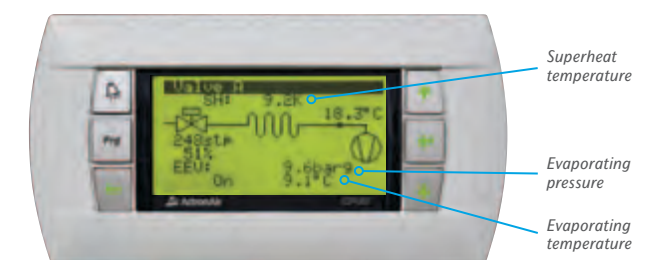
Display showing Supply duct pressure, Supply Air Volume, Filter Pressure differential and compressor discharge temperatures



Image also shows Filter Pressure Alarm set point. When the set point is reached, the control will provide an alarm output on the CP10 display or to the BMS system.



Display showing the Evaporator Superheat and pressure.





# Taking performance to new highs.

## Improved performance in all seasons.

- Superior Operating Range -10°C to 50°C
- Extra large heat exchanger coils are engineered using enhanced rifle bored tubing with wave type fin profile to maximise system performance. Louvre fin profile is used on the indoor.



- Blue fin hydrophilic epoxy coated coil protection on both indoor and outdoor coils.
- Continuous heating during defrost operation. De-ice operation is interlocked and independent for each circuit to maintain 50% heating cycle.
- Electronic Expansion Valve (EEV) accurately responds to variable load demands, protects the compressor for longer lasting performance.
- Preheat Delay minimises cold drafts on start up in the Heating cycle.

## Engineered for strength and reliability.

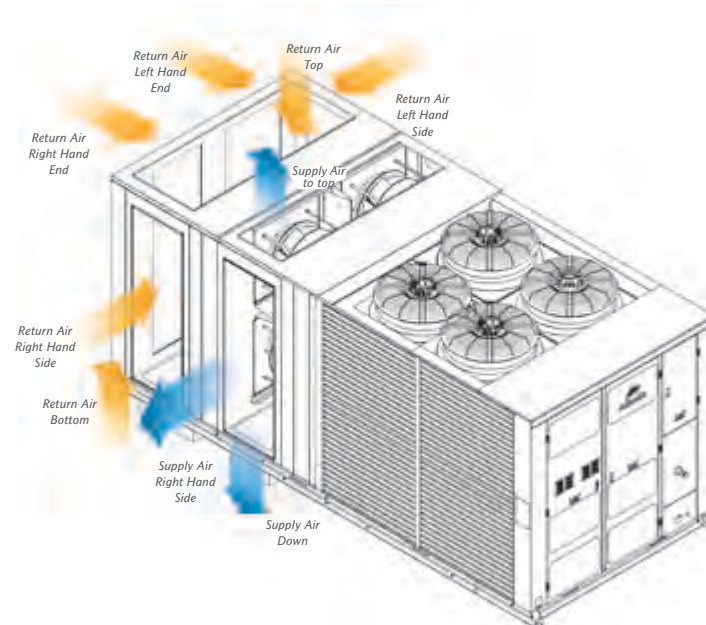
- Structurally enhanced independent base engineered using hot dipped galvanised 'C' channel.
- Removable louvre coil guard protection for easy cleaning and maintenance. Provides additional protection from mechanical damage such as hail storms.
- Powder coated outdoor panels (60~80 microns) to withstand 1000-hour salt spray exposure AS/NZS 4506:2005.
- Safety devices inbuilt
  - Discharge and suction pressure transducers
  - High and low pressure cut-outs
  - Compressor Crankcase heating uniquely self manages power usage and maintains compressor protection
- Differential pressure transducer for filter and fans.
- Stainless steel fasteners with protective coating to reduce corrosion.
- 25mm Foil Faced Polyethylene insulation with Zero Fire Rated and sweat tested to AS3823.1.2:2012 Section 6.4.
- Sloped Indoor coil drain pan. Designed so system can be installed level.
- Factory fitted Lockable 3 Phase Load Break Isolation switch. Reduces installer cost and time on site.

*Outdoor sound level is significantly reduced through the use of generously sized heat exchange coils, variable speed EC condenser fans and variable speed Inverter compressors. In part load operation sound levels are reduced even further.*

# Installation design and configuration benefits.

## Whichever way you look at it, Hercules™ is the ideal choice for most applications.

- Multiple Hanging options to suit most applications.

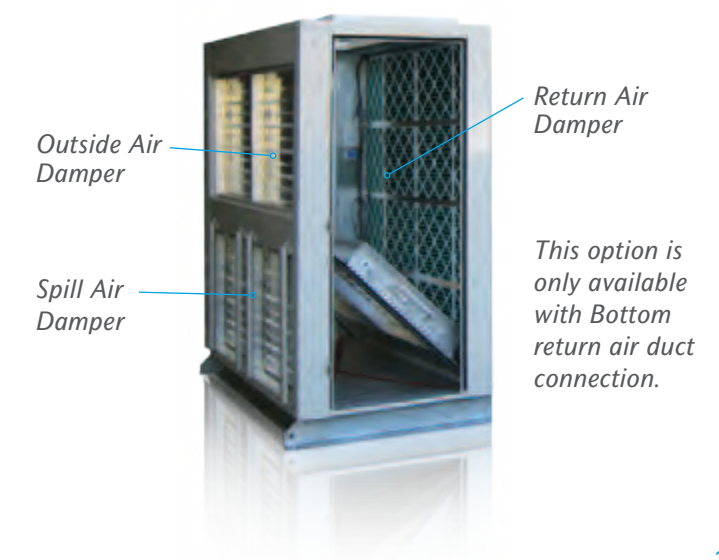


- Outside air can be introduced manually or automatically to comply with the Building Code of Australia (BCA). Using the auto option and third party controls, the correct amount of outside air can be regulated to maximise energy efficiency.
- Recessed low profile condenser fans improve aesthetics and minimises system height. This helps with design and placement on site to meet customer and council requirements.
- Container transportable for ease of transit to site.
- Quicker installation time. With the flexibility of duct work connections, installation time can be cut down providing minimum disruption during change-over.
- Structurally enhanced independent base engineered using hot dipped galvanised 'C' channel. This base frame may eliminate the need for a platform. Only support posts need to be installed with a WHS compliant working area around the unit, this can reduce the installation cost.

- Reduced capital outlay on electrical supply costs including transformers and cables due to:
  - Minimal startup inrush current
  - Low operating current at maximum load.
  - High in built power correction factor 0.92
- Factory fitted lockable 3 phase load break isolation switch. Reduces installer cost and time on site.



Optional economy cycle dampers with and without spill air



# Hercules™ vs. VRF.

A much simpler solution.

Features	Hercules	VRF	Comparison
Faster, simpler installation	✓	✗	With built-in controls, Hercules™ is operational as soon as it is powered. VRF requires more complicated installation and higher associated costs: <ul style="list-style-type: none"><li>• Power wired to each outdoor and indoor unit.</li><li>• Complicated network of brazed copper pipes for refrigerant transport.</li></ul>
Elimination of potential water leaks	✓	✗	Hercules™ eliminates this requirement. VRF systems require condensate drainage from each indoor unit. Blockages may result in potential water leakage in the ceiling.
Reduced potential for refrigerant leaks	✓	✗	Hercules™ is a fully charged system. VRF systems have higher risk of refrigerant leaks due to multiple connections.
Reduced ongoing maintenance costs	✓	✗	Hercules™ is engineered as one purpose built unit. VRF requires more complex maintenance with multiple indoor and outdoor units.
Outside air can be easily introduced	✓	✗	Hercules™ can easily incorporate outside air. VRF requires a totally separate system to be installed.
Average technical skill required for service and maintenance	✓	✗	Designed with the installer in mind, Hercules™ has many features to assist in service and maintenance. VRF requires a highly skilled mechanic to maintain and service the system.
Simpler 2 year parts and labour warranty	✓	✗	Some VRF systems only offer 12 months warranty, with labour additional charge.

# Hercules™ vs. Chilled Water System.

The advantages all add up.

Features	Hercules	Chilled water	Comparison
Faster, simpler installation	✓	✗	Chilled water requires more complicated installation and higher associated costs. With built-in controls, Hercules™ is operational as soon as it is powered.
Elimination of potential water leaks	✓	✗	Chilled water systems pump water around the building with increased risk of leaks. Blockages in condensate drainage of the air handling units or fan coil units may result in potential water leakage in the ceiling. Hercules™ eliminates this requirement.
Reduced ongoing maintenance costs	✓	✗	Chilled water central plant systems require higher ongoing maintenance i.e. water treatment, annual cleaning of the condenser tubes, water pump maintenance, vee belt adjustment and complicated controls. Water-cooled chilled water systems have cooling towers which impose additional legislative and maintenance requirements.
May allow for greater lettable floor space	✓	✗	Hercules™ eliminates the need for plantroom space thus providing a greater return on investment for floor space.
Average technical skill required for service and maintenance	✓	✗	A higher skilled mechanic is required to service and maintain a chilled water system. This skill level can be difficult to access in some geographical areas. Hercules™ has been designed with ease of serviceability for the mechanic.
Simpler 2 year parts and labour warranty	✓	✗	With chilled water systems, warranty can be complicated as there are many component suppliers with different warranty terms.

# Hercules™ features outmuscle the competition.

Technical Information							
PACKAGE MODEL		PKV1400T8R1		PKV1700T8R1		PKV2000T8R1	
		Part load Capacity	Maximum Capacity	Part load Capacity	Maximum Capacity	Part load Capacity	Maximum Capacity
¹ Total (Gross) Capacity (kW) (AS/NZS3823.1.2)	Cooling (Min - Max)	110.00 (35.50 -140.00)	140.00 (35.50 -140.00)	140.00 (42.50 -169.11)	169.11 (42.50 - 169.11)	155.00 (49.00 -195.50)	195.50 (49.00 - 195.50)
	Heating	113.50	147.00	138.50	177.92	162.30	202.10
Nett (Rated) Capacity (kW) (AS/NZS3823.1.2)	Cooling	106.68	135.00	137.12	163.31	150.50	187.50
	Heating	116.58	152.50	141.50	184.32	166.90	210.00
Total Input Power (kW) (AS/NZS3823.1.2)	Cooling	28.28	39.84	38.05	52.22	37.55	53.75
	Heating	24.82	34.00	31.90	48.03	38.40	51.70
Nett (Rated) Input Power (kW) (AS/NZS3823.1.2)	Cooling	31.60	44.84	40.93	58.02	42.05	61.75
	Heating	27.90	39.50	34.90	54.43	43.00	56.90
EER Total (AS/NZS3823.1.2) COP Total (AS/NZS3823.1.2)	Cooling	3.89	3.51	3.68	3.24	4.13	3.64
	Heating	4.57	4.32	4.34	3.70	4.23	3.91
² EER Rated (AS/NZS3823.1.2) ³ COP Rated (AS/NZS3823.1.2)	Cooling	3.38	3.01	3.35	2.81	3.58	3.04
	Heating	4.18	3.86	4.05	3.39	3.88	3.52
Power Supply (V / Ph / Hz)		400V / 3Ph + N / 50Hz					
Rated Amps (AS/NZS3823.1.2)		52.9	71.6	63.7	92.1	66.7	86.0
Full Load Amps (AS/ NZS3823.1.2)		89.9		114.1		117.0	
⁴ Circuit Breaker Amps (Suggested)		100.00		125.0		125.0	
IP Rating		IP44					
Compressor	Type / No. per Unit	Variable Capacity Scroll with Inverter Drive / 2					
	Starting Method	Soft Start					
No. of Refrigeration Circuits/Capacity Range		2 / Variable (33.50kW-140.00kW)		2 / Variable (42.50kW-170.00kW)		2 / Variable (155.00kW-195.50kW)	
Refrigerant		R410a					
Fans (Type x Number per unit)	Outdoor	Variable Speed ECM / Direct Drive Axial Fan x 4					
	Indoor	Variable Speed ECM / Direct Drive Backward Curve Plug Fan x 4					
Airflow Indoor (l/s)	Maximum	6960	8880	8880	10680	9480	10890
	Nominal	5800	7400	7400	8900	7900	9900
	Minimum	4640	5920	5920	7120	6320	7920
External Static Pressure (Pa) at:	Maximum Airflow	500	210	455	230	470	75
	Nominal Airflow	500	465	500	450	500	415
Unit Dimensions (mm)	Depth	5250					
	Height	2360					
	Width	2265					
⁵ Nominal Weight (kgs)		2456		2674		2702	
⁶ Sound Pressure Level (dBA)	Outdoor (high/maximum)	54.4 / 66.2	59.1 / 66.2	59.1 / 66.2	61.9 / 66.2	60.7/ 66.2	66.2 / 66.2
⁷ Sound Power Level (dBA)	Outdoor (high/maximum)	71.5 / 83.2	76.1 / 83.2	76.1 / 83.2	78.9 / 83.2	77.7 / 83.2	83.2 / 83.2
BCA Compliant		Yes	Yes	Yes	Yes	Yes	Yes
Control Options and Features							
Control Interface with LCD Display for System Operation		Included		Included		Included	
Automatic / Manual Operation		Yes		Yes		Yes	
7 Day Programmable Time-Clock		Standard		Standard		Standard	
Bi-Flow Electronic Expansion Valve (EEV)		Standard		Standard		Standard	
Compressor Discharge Temperature Control		Standard		Standard		Standard	
Adjustable Indoor Fan Airflow Setpoint		Standard		Standard		Standard	
Indoor Coil Anti-Freeze Protection		Standard		Standard		Standard	
Return Air Offset		Standard		Standard		Standard	
High and Low Pressure Protection		Standard		Standard		Standard	
Three Phase protection on all Motors		Standard		Standard		Standard	
Alarm Fault Data Logger		Standard		Standard		Standard	
BMS Compatibility		Optional		Optional		Optional	
Field Information							
Refrigerant Factory Charge - (g)		19,500 & 19,500		28,000 & 28,000		28,000 & 28,000	
Condensate Drain Connection - Size/Type	Indoor Section	31.8 mm (1-1/4") Ø BSP Female Thread					
	Outdoor Section	31.8 mm (1-1/4") Ø BSP Female Thread					
Air Duct Connection	Supply Duct W x L - (mm)	553 x 1953					
	Return Duct W x L - (mm)	803 x 1953					
Variations							
*E - Economiser without Spill Air		Optional		Optional		Optional	
*G - Outside Air Auto		Optional		Optional		Optional	
*H - Outside Air Manual		Optional		Optional		Optional	
K - Additional Coil Coat Protection (Outdoor Section)		Optional		Optional		Optional	
L - Additional Coil Coat Protection (Indoor Section)		Optional		Optional		Optional	
*M - Economy Cycle with Spill Air		Optional		Optional		Optional	
V - Variable Air Volume Option*		Optional		Optional		Optional	
W - Reheat - For RH Control*		Optional		Optional		Optional	
X - IP55 Rated		Optional		Optional		Optional	

\*Return Air Sensor needs to be relocated by installer specific to site requirements.

- Based on unit rating excluding indoor fan kW.
- EER Rated = Energy Efficiency Ratio (Rated Capacity Cooling / Rated Input Cooling).
- COP Rated = Coefficient of Performance (Rated Capacity Heating / Rated Input Heating).
- Recommended circuit breaker size. This should be used as a guide only. Refer to AS/NZS 3000 'Australian/New Zealand Wiring Rules' for more details.
- Refer to Catalogue Unit Weight Distribution Guide section for details of weight points.
- Sound Pressure Level at 3m distance is determined as the measured sound pressure at 3m perpendicular to the coil side of the condenser.
- Determination of Sound Power Levels of Noise Sources, AS1217.2 - Precision Methods for Broad-Band Sources in Reverberation Rooms.

ActronAir® is constantly seeking ways to improve the design of its products, therefore specifications are subject to change without notice. Please check prior to your purchase.

\*These variations mutually exclude each other.







# **ActronAir®**

## Australian for air conditioning™

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