

### Packaged Air Cooled Reverse Cycle Type Air Conditioner Range 11-125kW With Energy / Heat Recovery



The Roof Top Packaged unit range is designed to be used when high fresh air quantities are required. They have the benefit of energy reclaim, packaged with a direct expansion system into one single unit.

#### Energy Efficient Construction

- Cabinets are constructed of 50 mm BHP Colourbond Sandwich panel, for best practice insulation.
- Purpose built UV treated polymer joiners are used to eliminate heat loss through the body of the unit.
- The Counter flow Enthalpy heat exchanger that will be incorporated into the unit will reclaim up to 75% of the energy from the exhaust stale air, therefore saving up to 75% of the cost to heat or cool outdoor air. Counter flow Sensible heat exchanger with 80% efficiency on sensible only is available at no additional cost.
- Air Change units are designed with extremely large access doors to ensure that all parts are accessible for servicing and replacement.
- The Exhaust and Supply fans forward curved centrifugal, direct coupled, fans with tropic proof motors from their respective manufacturer. Fan speeds are adjusted via separate ABB VSD controllers. Fan housings will be rubber mounted to reduce vibration being transmitted to the body of the unit.



### Features

- Rooftop Compressors are Danfoss scrolls, to ensure the highest efficiency and quality.
- The unit has an automatic lock out on power failure, low pressure control automatic reset, and high pressure control automatic reset after latching relay reset from control board.
- Phase protection is standard across all Rooftop Packaged unit to protect compressors on miss wiring events
- De ice control is electronic and operates on a time-selected basis to energise at  $-3^{\circ}\text{C}$  and off at  $10^{\circ}\text{C}$  coil temperature
- A Choice of R-22 or R-407C refrigerant circuits
- Fans incorporating three phase fan motors (20kW<sub>r</sub> and over) are direct coupled, therefore eliminating the need for pulleys and belts.
- Small Rooftop Packaged Unit (11-16kW<sub>r</sub>) incorporates direct drive fan and motors with a choice of 3 speeds for easy airflow commissioning
- Supply and exhaust air three phase fan motors are controlled with separate VSD controllers with benefits including;
  - i. Ramped starting of fan motors, leading to a prolonged life of all fan and motor components and eliminate starting power / amperage spikes.
  - ii. Dramatically reduced commissioning times as airflow is tuned simply by adjusting fan speed through VSD control panel or by analogue inputs for modulating fan speed.
  - iii. Easy integration to a BMS system
  - iv. Saves running costs by precisely controlling power needed to the motor
  - v. Optional Modbus adapter for high level communication
  - vi. HVAC series VSD's are available for BacNet communication.



### Options

#### ***RA Bypass***

Used in high load or startup conditions. Allows the unit to run with as low as 50% fresh air thus reducing the fresh air load of the system. Motorized damper optional.

#### ***Economy Cycle***

Used in comfortable ambient conditions. Fresh air bypasses the heat exchanger, optimising energy saving throughout the year.

#### ***HVAC series VSD's***

Available on 20kW and above Rooftop Packaged Unit, HVAC series VSD's for high level communication with BMS system

#### ***Hot/Cold water coil***

Rooftop package units can incorporate hot or cold water coils to optimise capacity.

#### ***De-superheater***

Reclaim energy from refrigerant to heat water. Suits a variety of applications.

#### ***High Static Fan Upgrade***

Fan upgrades available for high flow or high external static pressure drops.

#### ***Compressor Upgrade***

Upgrade your compressors to increase refrigerant output.

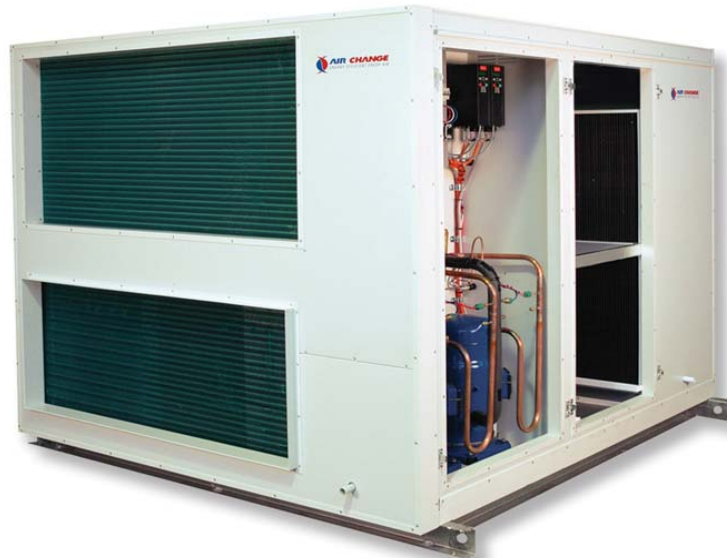
#### ***Corrosion Resistant***

Corrosion resistant packaging available for harsh and corrosive environments

#### ***Sensible Only Heat Exchanger***

80% sensible transfer efficiency for dry climates or any specialist applications.

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# PRODUCT RANGE: ROOFTOP PACKAGE

## Quick Reference Guide



### Technical Specifications

Model No.	Refrigerant Capacity	Air Flow	Overall Dimensions (mm) (Standard Unit)	Overall Dimension (mm) (with Economy Cycle)	(Standard Unit) Weight	Nominal Running Amps (per phase)	Phase	Electrical Input	C.O.P*
	kWr	L/s	H X D X W	H X D X W	kg	Amps		kW	
ACS11RCRTP	11	500	1150 X 1330 X 1760	1200 X 1630 X 1950	360	11.1	3	4.2	5.0
ACS16RCRTP	16	750	1150 X 1330 X 1760	1200 X 1630 X 1950	420	12.9	3	5.7	5.5
ACS20RCRTP	20	1000	1200 X 1630 X 1950	1300 X 1630 X 2200	500	17.0	3	6.9	5.8
ACS23RCRTP	23	1100	1200 X 1630 X 1950	1300 X 1630 X 2200	580	19.6	3	8.2	5.5
ACS27RCRTP	27	1200	1300 X 1630 X 2200	1850 X 2350 X 2250	610	21.6	3	9.1	6.2
ACS32RCRTP	32	1400	1300 X 1630 X 2200	1850 X 2350 X 2250	660	27.4	3	10.8	5.6
ACS36RCRTP	36	1700	1300 X 1630 X 2200	1850 X 2350 X 2250	780	33.2	3	13.6	5.2
ACL45RCRTP	45	2000	1850 X 2350 X 2250	1965 X 2350 X 2900	1060	33.9	3	16.1	5.3
ACL52RCRTP	52	2300	1850 X 2350 X 2250	1965 X 2350 X 2900	1130	40.9	3	19.7	5.0
ACL60RCRTP	60	2700	1850 X 2350 X 2250	1965 X 2350 X 2900	1320	50.5	3	22.9	5.0
ACL65RCRTP	65	2800	1965 X 2350 X 2900	1965 X 2350 X 3550	1680	52.0	3	23.3	5.2
ACL70RCRTP	70	3200	1965 X 2350 X 2900	1965 X 2350 X 3550	1720	60.6	3	27.3	4.9
ACL82RCRTP	82	3600	1965 X 2350 X 2900	1965 X 2350 X 3550	1760	62.6	3	30.9	5.0
ACL96RCRTP	96	4200	1965 X 2350 X 2900	1965 X 2350 X 3550	1920	77.0	3	36.9	4.9
ACL125RCRTP	125	5000	2210 X 2350 X 3550	2210 X 2350 X 4850	2100	88.2	3	42.3	4.9

\*Based on Sydney Cooling Conditions Including Heat Exchanger

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### Refrigeration Plus Heat Exchanger Performance- Total Cooling\* (kW<sub>r</sub>)

Model No.	Sydney	Brisbane	North Queensland	Adelaide	Melbourne	Canberra	Darwin	Perth	Hobart
ACS11RCRTP	21.1	23.9	26.5	18.6	16.4	15.0	27.4	18.6	13.7
ACS16RCRTP	31.2	35.4	39.3	27.4	24.1	21.9	40.7	27.4	20.0
ACS20RCRTP	40.2	45.8	51.1	35.2	30.8	27.9	52.9	35.2	25.3
ACS23RCRTP	45.2	51.4	57.2	39.7	34.9	31.7	59.2	39.7	28.9
ACS27RCRTP	56.2	63.0	69.3	50.2	44.9	41.5	71.5	50.2	38.4
ACS32RCRTP	60.3	68.1	75.5	53.3	47.1	43.1	78.0	53.3	39.4
ACS36RCRTP	70.3	79.9	88.8	61.8	54.3	49.4	91.9	61.8	45.0
ACL45RCRTP	85.4	96.6	107.2	75.4	66.6	60.8	110.8	75.4	55.6
ACL52RCRTP	98.5	111.3	123.5	86.9	76.8	70.2	127.6	86.9	64.2
ACL60RCRTP	114.5	129.7	143.9	101.0	89.1	81.3	148.8	101.0	74.4
ACL65RCRTP	121.6	137.2	152.0	107.5	95.2	87.1	157.1	107.5	79.9
ACL70RCRTP	134.6	152.6	169.5	118.6	104.5	95.3	175.2	118.6	87.0
ACL82RCRTP	154.7	174.9	193.9	136.6	120.8	110.4	200.4	136.6	101.2
ACL96RCRTP	180.8	204.4	226.5	159.8	141.3	129.2	234.1	159.8	118.3
ACL125RCRTP	210.7	258.2	287.2	186.1	157.1	150.5	292.8	186.1	121.9

\* Based on AIRAH design ambient conditions, 24°C/50RH% Indoor Conditions

### Refrigeration Plus Heat Exchanger Performance- Total Heating\* (kW<sub>r</sub>)

Model No.	Sydney	Brisbane	North Queensland	Adelaide	Melbourne	Canberra	Darwin	Perth	Hobart
ACS11RCRTP	23.5	23.5	21.4	26.4	26.8	32.6	16.5	25.9	28.6
ACS16RCRTP	34.3	34.3	31.1	38.6	39.2	47.9	23.7	37.8	41.9
ACS20RCRTP	44.0	44.0	39.8	49.8	50.6	62.2	30.0	48.8	54.2
ACS23RCRTP	49.9	49.9	45.3	56.3	57.2	70.0	34.5	55.2	61.1
ACS27RCRTP	56.8	56.8	51.8	63.8	64.7	78.7	40.0	62.5	69.0
ACS32RCRTP	66.6	66.6	60.7	74.7	75.8	92.1	46.9	73.3	80.9
ACS36RCRTP	77.3	77.3	70.2	87.2	88.5	108.3	53.4	85.4	94.6
ACL45RCRTP	97.0	97.0	88.6	108.6	110.2	133.5	68.9	106.6	117.4
ACL52RCRTP	111.7	111.7	102.0	125.0	126.9	153.7	79.4	122.7	135.2
ACL60RCRTP	129.3	129.3	118.0	145.0	147.1	178.5	91.4	142.2	156.8
ACL65RCRTP	138.2	138.2	126.4	154.4	156.7	189.3	98.9	151.6	166.8
ACL70RCRTP	151.8	151.8	138.4	170.4	172.9	210.2	106.9	167.1	184.4
ACL82RCRTP	175.4	175.4	160.3	196.3	199.2	241.1	124.9	192.6	212.1
ACL96RCRTP	204.8	204.8	187.2	229.2	232.5	281.4	145.8	224.9	247.6
ACL125RCRTP	235.5	235.5	214.1	260.4	276.6	294.4	149.2	255.3	256.1

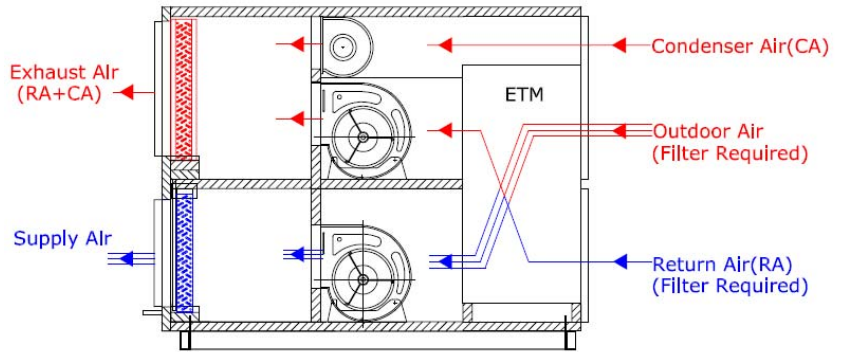
\* Based on AIRAH design ambient conditions, 21°C/50% Indoor Conditions



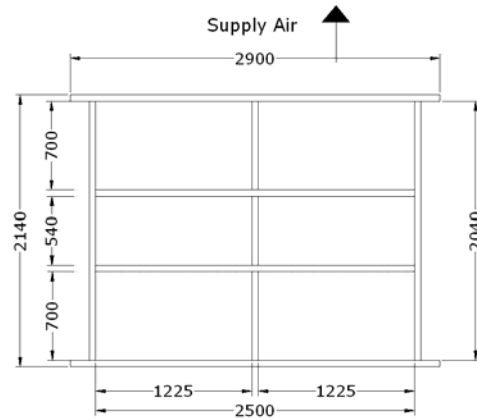


ACL70RCRTP		
TECHNICAL SPECIFICATIONS	UNIT	VALUE
Supply Air	L/s	3200
Return Air	L/s	3200
Outdoor Air	L/s	3200
Condenser Air	L/s	3000
Exhaust Air	L/s	6200
Compressor Qty		2
Refrigerant Charge (R22 / R407C)	kg/Comp	6.9
Total Compressor Capacity	kWr	70
<b>OUTDOOR AIR TO SUPPLY AIR</b>		
Pressure Drop Heat Exchanger	Pa	208
Pressure Drop Evaporator Coil	Pa	120
External Static Pressure Up to	Pa	300
Total Pressure on Supply Fan	Pa	628
<b>SUPPLY FAN</b>		
Fan Speed (max)	rpm	1400
Motor Power	kW	5.5
Motor Poles		4
Motor Torque	Nm	36.4
<b>RETURN AIR TO EXHAUST AIR</b>		
Pressure Drop Heat Exchanger	Pa	208
Pressure Drop Condenser Coil	Pa	120
External Static Pressure Up to	Pa	250
Total Pressure on Exhaust Fan	Pa	578
<b>EXHAUST FAN</b>		
Fan Speed (max)	rpm	1400
Motor Power	kW	5.5
Motor Poles		4
Motor Torque	Nm	36.4
<b>CONDENSER AIR</b>		
Fan Qty		2
Air Flow	L/s	3000
Fan Speed	rpm	1360
<b>COIL SIZE</b>		
Condenser Coil	mm	2110 X 914
Evaporator Coil	mm	2110 X 762
Face Velocity Coil Evap	m/s	1.99
<b>ELECTRICAL POWERING</b>		
		415/3/50
Current (MCC) (Comp)	A	64
Current (RLA) (Comp)	A	36
Supply Fan FLA	A	10.8
Supply Fan LRA	A	75.6
Exhaust Fan FLA	A	10.8
Exhaust Fan LRA	A	75.6
Make Up Fan FLA	A	3
Nominal Running Current	A	61.6/60.6/60.6
Full Load Amps	A	89.6/88.6/88.6

## Rooftop Schematic:



## Base Dimensions:



### Overall Dimensions

Height: 1965 mm (Body 1865)  
 Width: 2900 mm (Body 2700)  
 Depth: 2350 mm (Body 2270)

### Weight

1720kg

### Spigot Size

Supply Air (2060 X 700)  
 Return Air (2600 X 740)  
 Exhaust Air (2060 X 880)  
 Outdoor Air (2600 X 975)

### General

70 kW Reverse Cycle Roof Top Package with Dual Stage Heating and Cooling.

*Allow 1.5m clearance from doors to ensure adequate space for proper service and maintenance*

## Sound Pressure Levels dB(A)

### Exhaust @ 1m

63	Hz	57
125	Hz	61
250	Hz	64
500	Hz	74
1000	Hz	71
2000	Hz	72
4000	Hz	71
8000	Hz	61
OA	Hz	79

### Intake @ 4m

63	Hz	44
125	Hz	50
250	Hz	52
500	Hz	66
1000	Hz	55
2000	Hz	53
4000	Hz	49
8000	Hz	37
IA	Hz	67