



2020 Rooftop Packaged Range



Introduction

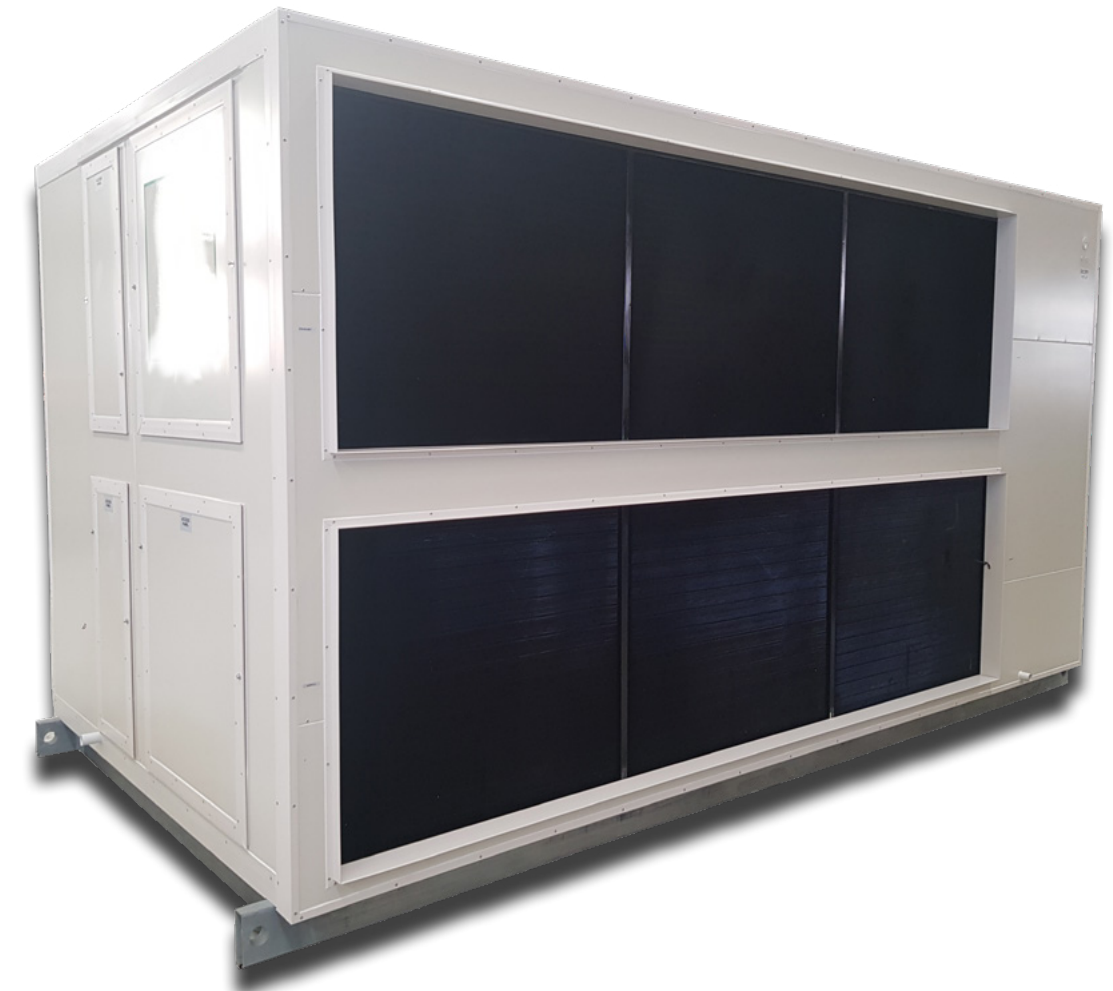
Fresh outside air must be supplied to indoor spaces to meet minimum mandated building code legislation (or greater volumes if required to improve occupant comfort) and provide make up air or positive room pressurisation where ever needed. However, providing fresh outside air to an indoor space comes with a significant energy penalty as any temperature differential between outside and inside increases the heating or cooling load required to condition this outside air to a space neutral temperature. The greater this differential, the greater the amount of energy required. Similarly, if the humidity present in the outside air exceeds that in the space it will need to be removed to maintain a space neutral condition. The removal of this excess humidity adds a latent component to the cooling load and further increases the energy required to maintain the desired room condition. The air conditioning necessary to provide outside air at a space neutral condition is known as the fresh air load ("FAL").

The most efficient way to remove this FAL is treat it separately to the normal sensible load that arises from the space use

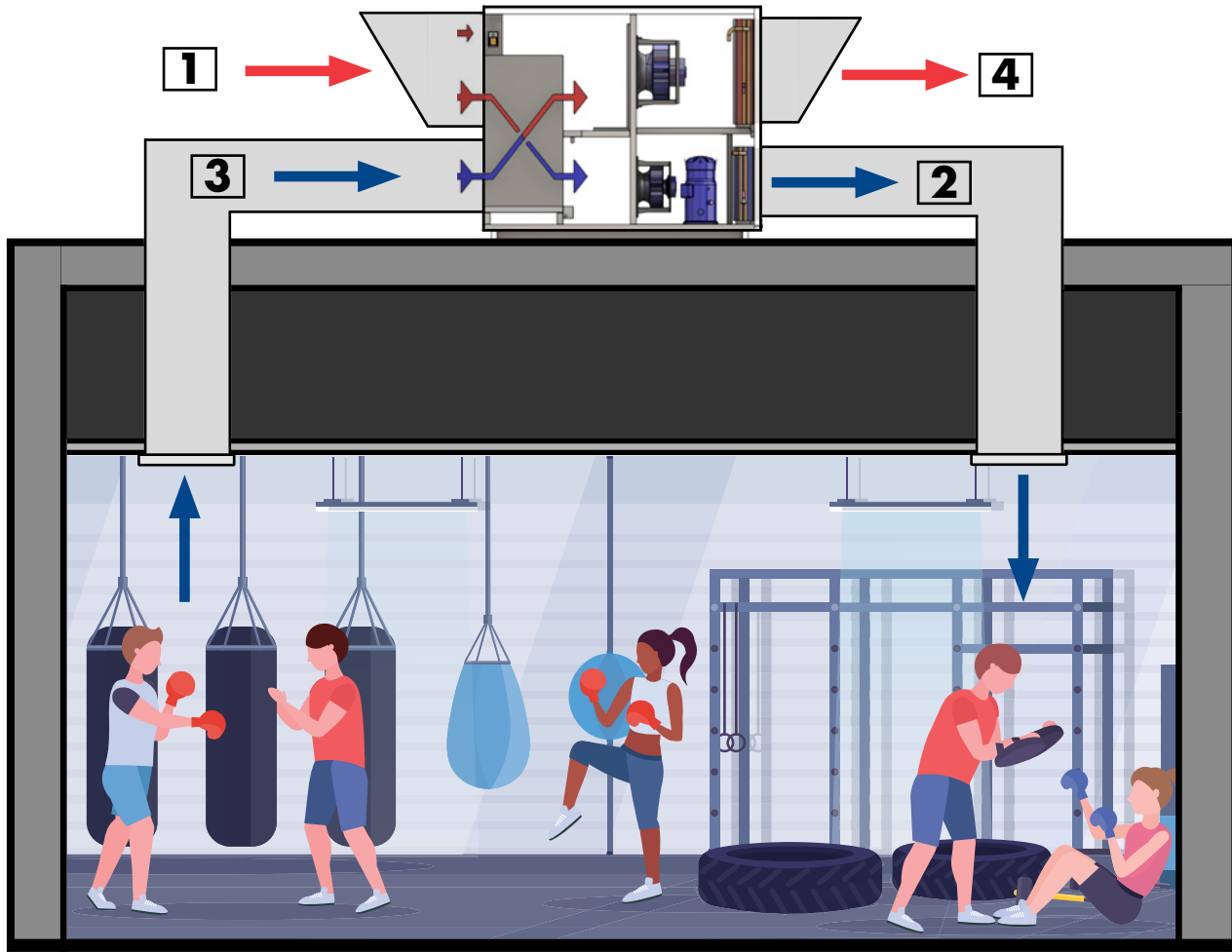
and the building fabric heat gain or loss by employing a dedicated outdoor air system ("DOAS"). The cool dehumidified fresh air supply will provide sensible room cooling but may need to be supplemented depending on the overall room load.

To minimise the energy consumed for this FAL, Air Change have been manufacturing and supplying its DOAS Rooftop Packaged Unit Range for over 20 years to a vast array of projects across Australia. By combining air-to-air heat and energy recovery technology to reduce the FAL with a reverse cycle DX heat pump, the Air Change Rooftop Packaged Range is able to provide space temperature and humidity control using significantly less energy. With a wide product range and other design options available, there is an Air Change Rooftop Packaged solution for any application requiring fresh outside air.

Contact one of our experienced sales engineers for a detailed unit selection.



How it Works



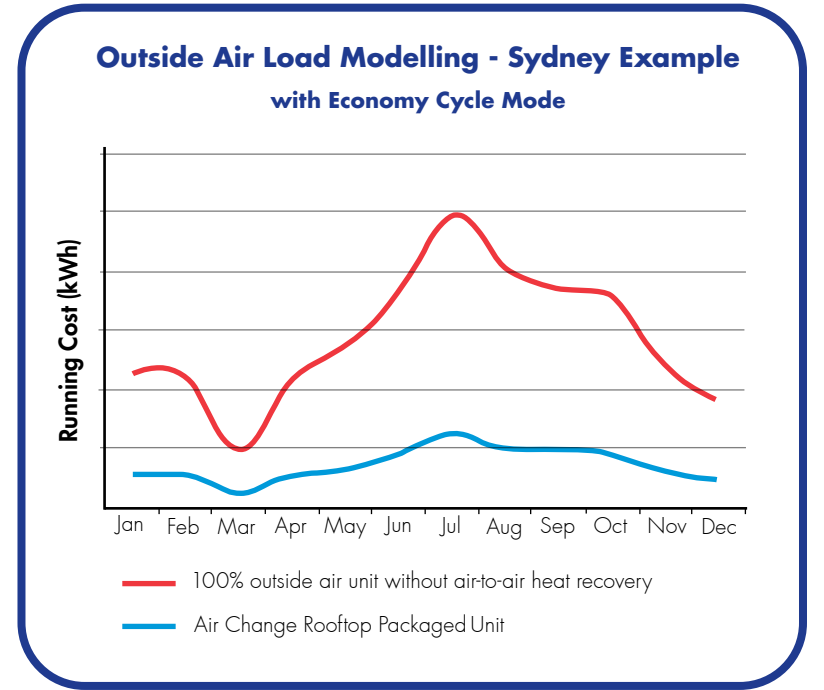
Cooling Mode Scenario

- 100% fresh outside air enters the unit and passes through an air-to-air heat / energy exchanger where it exchanges heat (and moisture) with the return air (stage 3) that is to be exhausted.
- Once the air has been pre-cooled (or dehumidified) passing through the air-to-air heat / energy exchanger, additional cooling is provided by a DX evaporator coil to maintain the desired room temperature.
- Cool dry air returns to the unit where it exchanges heat / energy with the hot fresh air before it is exhausted from the building.
- Before the return air is exhausted outside, it is used to reject heat from the DX condenser coil and being cooler than the outside air boosts unit EER.

Conversely, in a heating scenario the air-to-air heat exchanger provides preheating to minimise the outside air load. The integrated DX system is reverse cycle and switches to heating mode when required

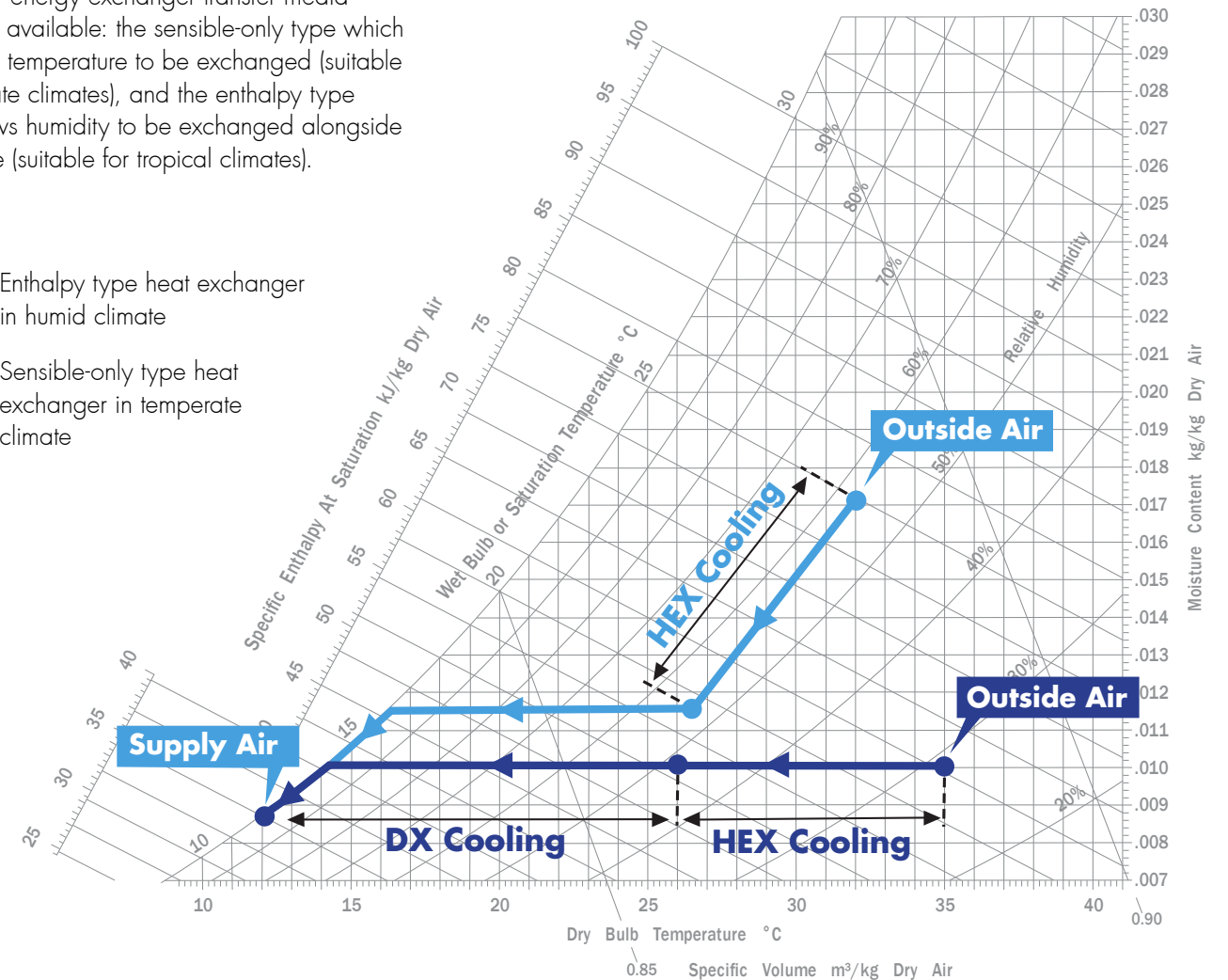
The Advantages

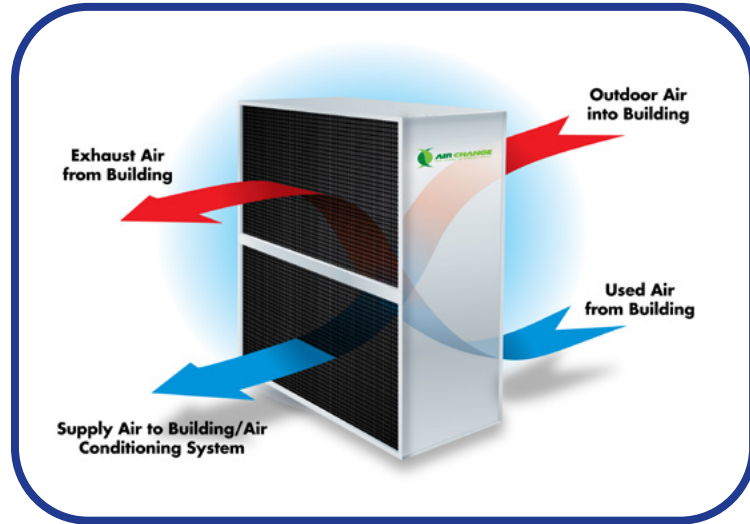
The air-to-air heat / energy exchanger provides significant year-round energy savings by providing precooling in summer and preheating in winter.



Two heat / energy exchanger transfer media options are available: the sensible-only type which allows only temperature to be exchanged (suitable for temperate climates), and the enthalpy type which allows humidity to be exchanged alongside temperature (suitable for tropical climates).

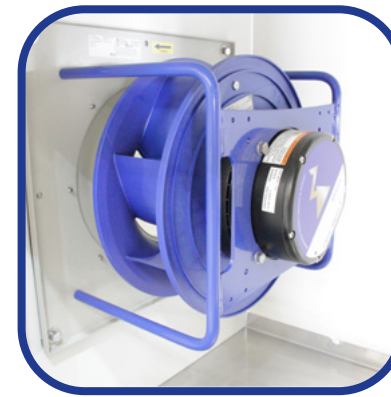
- Enthalpy type heat exchanger in humid climate
- Sensible-only type heat exchanger in temperate climate





Air-to-Air Heat Exchangers

Air Change’s unique counterflow plate heat / energy exchangers provide optimal heat transfer between outside air and return air, reducing the outside air load with significant running cost savings.



EC Supply Air and Exhaust Air Fans

EC fans offer optimal levels of energy efficiency. They also have high static pressure development, making them suitable for applications requiring high filtration grades or long ductwork runs.



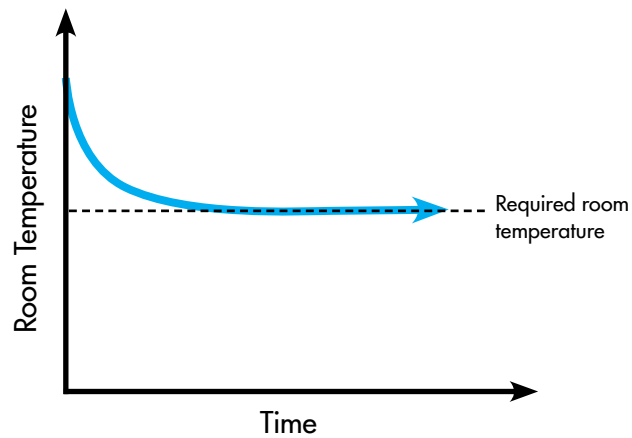
BLDC Inverter Compressors (Optional)

The variable capacity of inverter compressors provide a match of heating or cooling capacity with the heating or cooling load. Because the load and capacity are matched, inverter compressors offer enhanced energy efficiency during capacity turn-down due to the reduced compressor lift. As DX systems typically spend minimal time at full design load, this translates to significant seasonal energy savings.

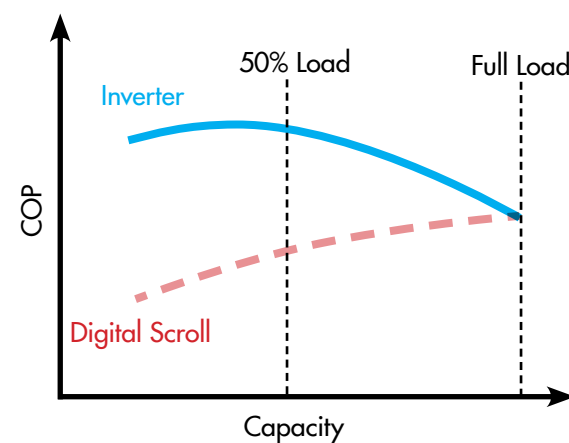


ClimaSync Control System (Optional)

The optional ClimaSync Control System ensures optimal performance and reliability. The control logic and operational functions are programmed to meet the requirements of each project. Features include proactive thermostat logic, performance status and trends, advanced protection logic, alarm histories, and time scheduling. Unit operation is achieved through touchscreen human machine interface, high level interface, or through online connectivity.



Smooth and steady control of room temperature achieved by inverter compressors.



Indicative COP vs. capacity profiles of inverter and digital scroll compressors.

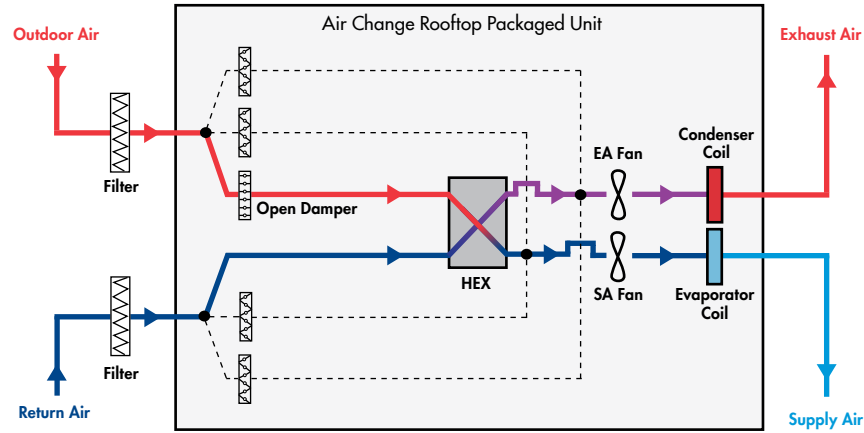


Economy Cycle & Return Air Bypass Modes (Optional)

Dampers can be integrated into the unit to provide the optional operating modes of Economy Cycle and Return Air Bypass. See the schematics on the following page for details.

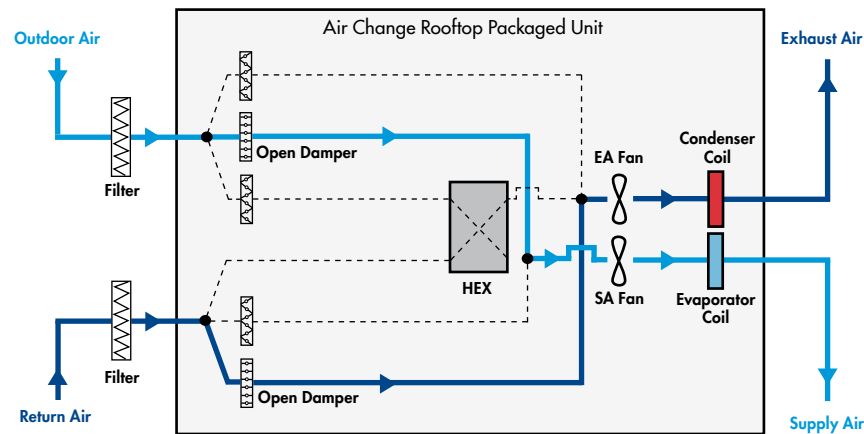
Operating Modes

100% Outside Air Heat Recovery (default)



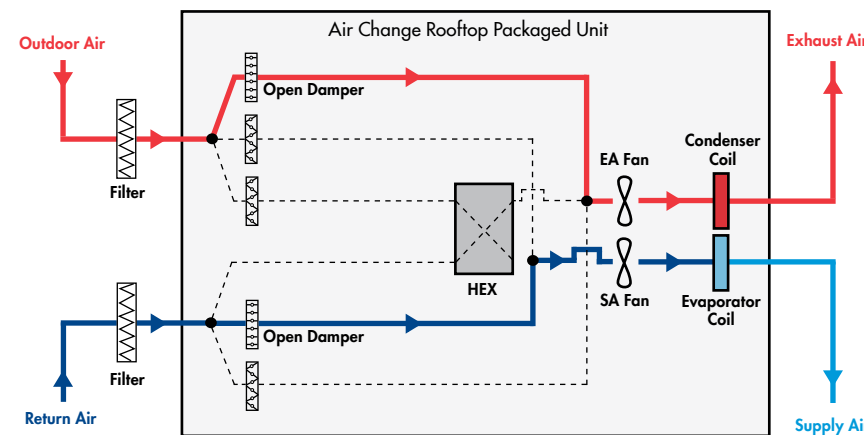
Used when the outside air temperature is hot or cold, and the indoor space requires 100% fresh outside air. The air-to-air heat / energy exchanger minimises the outside air load.

Economy Cycle (optional)



Used for free-cooling - when cold 100% outside air is brought straight into an indoor space to address the room load. Also used when the outside air temperature is mild and air-to-air heat / energy recovery is not necessary for supplying 100% fresh outside air.

Return Air Bypass (optional)



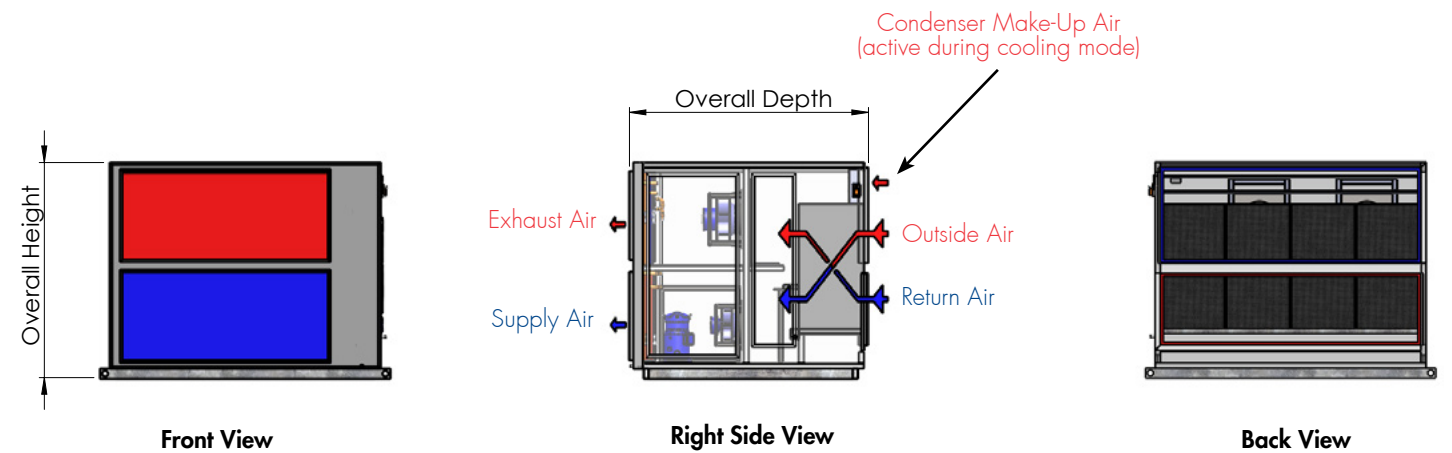
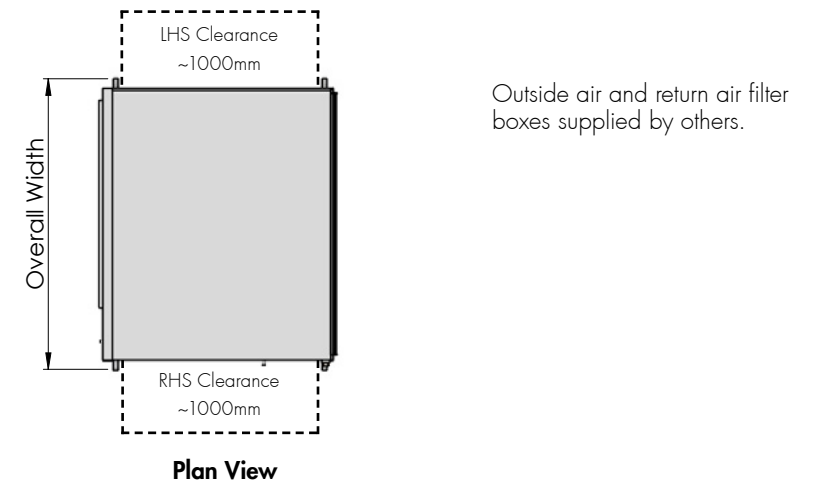
Used when 100% fresh outside air is not required (eg. when room occupancy levels are low). Outside air volume can be modulated between 0% and 100% to provide the minimum required fresh air and achieve further energy savings.

Technical Data

Model Number:	ACSXXRCRTP							ACLXXRCRTP						
	11	16	20	23	27	32	36	45	52	65	70	82	96	125
Supply Air (l/s)	500	750	1000	1100	1200	1400	1700	2000	2300	2800	3200	3700	4200	5000
Return Air (l/s)	500	750	1000	1100	1200	1400	1700	2000	2300	2800	3200	3700	4200	5000
Outside Air	100%													
Condenser Make-Up Air (l/s)	300	450	600	660	720	840	1020	1500	1500	3000	3000	3000	3000	3000
Exhaust Air (RA + CMA) (l/s)	800	1200	1600	1760	1920	1240	2720	3500	3800	5800	6200	6700	7200	8000
HEX Media	Sensible-Only or Enthalpy													
Comp. Capacity# Cooling (kW)	11	16	20	23	27	32	36	45	52	65	70	82	96	125
Comp. Capacity# Heating (kW)	15	20	25	29	34	40	45	59	68	85	91	107	125	156
Comp. Stages (Fixed Speed)	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Refrigerant	R407C for Standard Fixed Speed Compressors. R410A for Optional Inverter Compressors													
Fan Type	3 Phase EC Plug Fans - Variable Speed													
Volts / Ph / Hz	415 / 3 / 50													
Construction	50mm PU Sandwich Panel													
Dimensions (standard)														
Overall Depth (mm)	1630	1630	1735	1735	1755	1755	1870	2350	2350	2375	2375	2375	2375	2340
Overall Width (mm)	1760	1760	1950	1950	2200	2200	2200	2250	2250	2900	2900	2900	2900	4200
Overall Height (mm)	1590	1590	1590	1590	1805	1805	1870	1930	1930	2400	2400	2400	2400	2400
Weight (kg)	550	550	650	650	850	850	900	1200	1250	1550	1550	1650	1700	2400
Dimensions (Economy Cycle)														
Overall Depth (mm)	2220	2220	2460	2460	2460	2460	2460	2460	2460	2460	2495	2495	2495	2450
Overall Width (mm)	1600	1600	2250	2250	2250	2250	2250	2250	2900	2900	3550	3550	3550	4200
Overall Height (mm)	1650	1650	1655	1655	1850	1850	1850	1850	1965	2140	2060	2060	2330	2430
Weight (kg)	550	600	750	750	900	900	1150	1200	1500	1550	1900	1900	2000	2400

*Specifications are subject to change. Refer to project certified documentation for finalised details.

Cooling capacity based on: OA 35/24°C, RA 24/17°C with 100% outside air. Heating capacity based on: OA 8°C, RA 21°C with 100% outside air.



Recent Projects



- Lennox Community Centre, NSW
- Tamworth Public School, NSW
- Coogee Synagogue, NSW
- Electra Community Centre, VIC
- Adina Apartments, VIC
- Catholic Regional College, VIC
- TSS Annand Theatre, QLD
- Northgate Hall, QLD
- Hillbrook Anglican College, QLD
- Fullarton Lutheran Homes, SA
- Sacred Heart College, SA

- Mawson Lakes School, SA
- Ellenbrook High School, WA
- Burswood Tavern, WA
- Harrisdale School, WA
- H Hotel Darwin, NT
- Puma Katherine, NT
- Marrara Tennis Centre, NT
- Fahan School, TAS
- Dial Range Sports, TAS
- Waimakariri Sports Facility, NZ
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For more than 20 years, Air Change has provided unique equipment and engineering solutions for local and international clients using our internationally patented heat and energy recovery technology. During that time, we have developed a comprehensive range of energy efficient products to deliver controlled indoor climate conditions satisfying the requirements of all project stakeholders: the developer, the design engineer, and the building's owner and occupants.

www.airchange.com.au

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