2020 ERV Range

Plantroom / Rooftop Units

AIR CHANGE
DOAS & DEHUMIDIFICATION

Introduction - Energy Recovery Ventilators

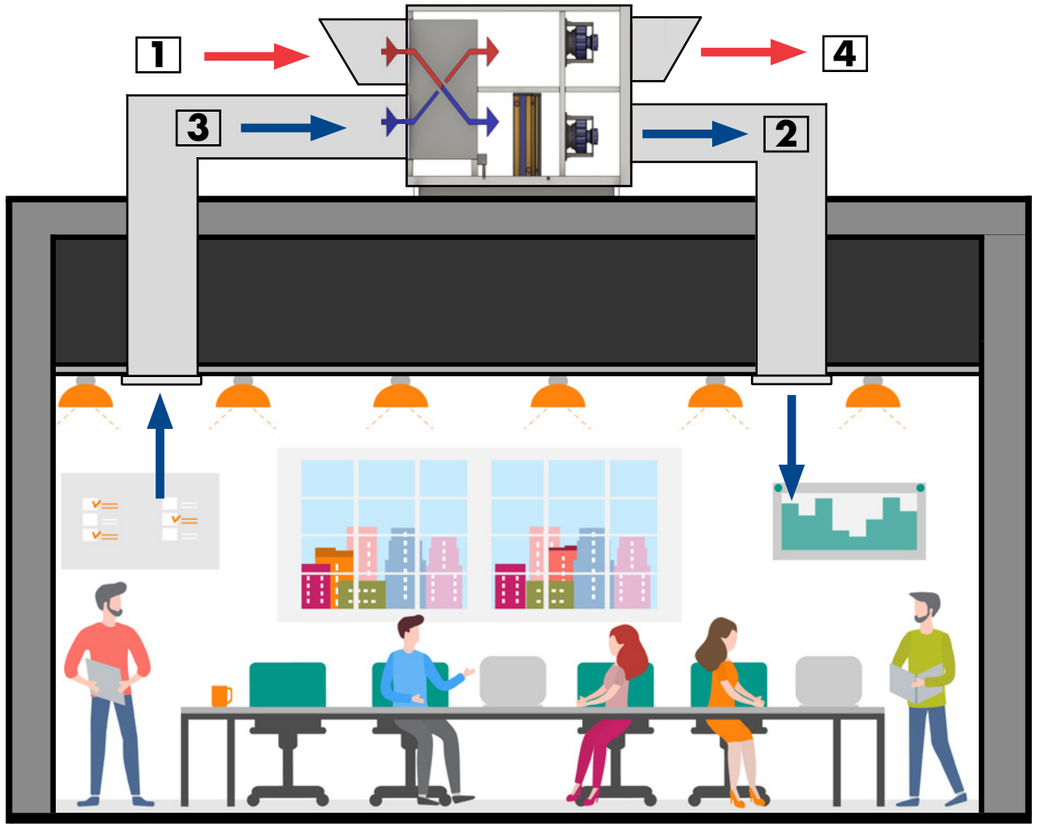
Fresh outside air must be supplied to indoor spaces to meet minimum mandated building code legislation (or greater volumes if required to improve occupant comfort) and provide make up air or positive room pressurisation where ever needed. However, providing fresh outside air to an indoor space comes 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"). An Energy Recovery Ventilator ("ERV") is a common form of DOAS which allows heat or energy to transfer between fresh outside air and air that is being exhausted in order to minimise the FAL.

Air Change have been manufacturing and supplying its DOAS ERV Range for over 20 years to a vast array of projects across Australia. By using its unique air-to-air heat and energy recovery technology, the Air Change ERV range is able to significantly reduce the running costs of HVAC systems needing fresh outside air. With a wide product range and design options available including integrated CHW and HHW coils, there is an Air Change ERV solution for any project.

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

How it Works



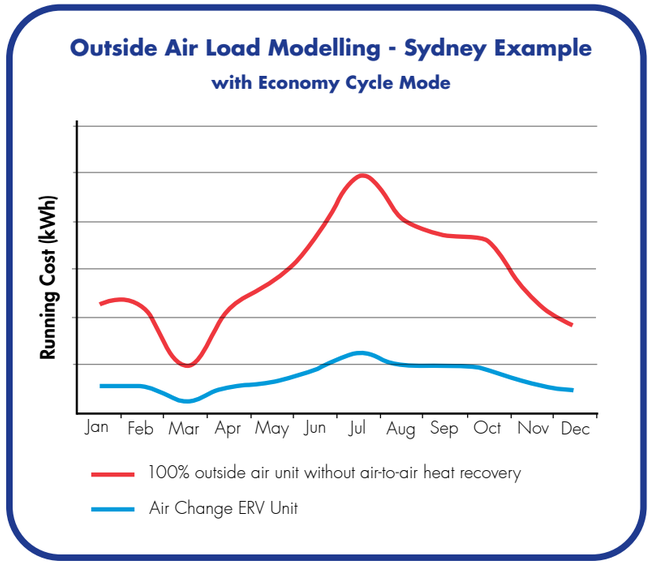
Cooling Scenario

1. 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.
2. Once the air has been precooled (or dehumidified) passing through the air-to-air heat / energy exchanger, additional cooling is provided by an integrated CHW coil to maintain the desired room temperature. As an alternative to the the CHW coil, seperate equipment running in series or parallel to the ERV can provide the additional cooling.
3. Cool dry air returns to the unit where it exchanges heat / energy with the hot fresh air before it is exhausted from the building.
4. The now hot (and humid) return air from the space is exhausted outside.

Conversely, in a heating scenario the air-to-air heat exchanger provides preheating to minimise the outside air load. An integrated HHW coil (or seperate equipment) can provide additional heating when required.

The Advantages

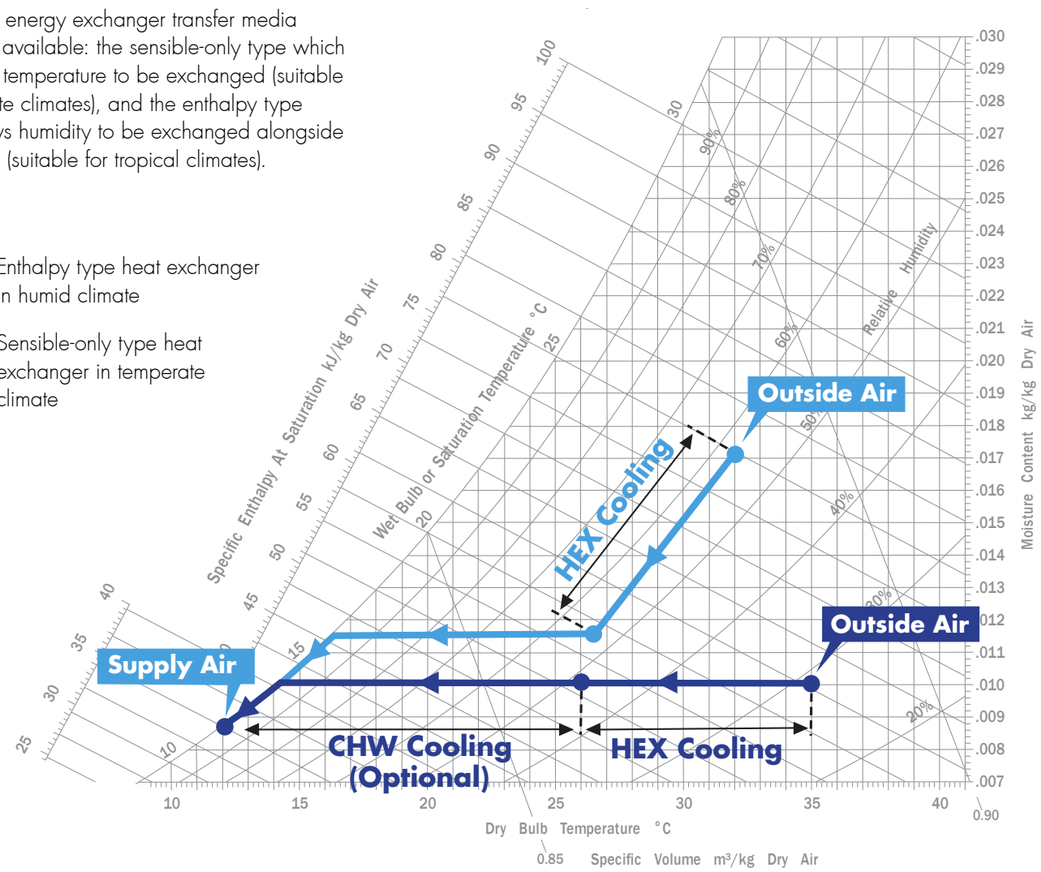
The air-to-air heat / energy exchanger provides significant year-round energy savings by providing precooling in summer and preheating in winter.



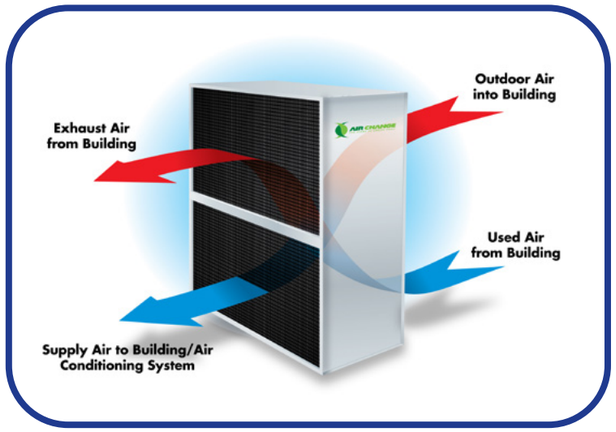
Two heat / energy exchanger transfer media options are available: the sensible-only type which allows only temperature to be exchanged (suitable for temperate climates), and the enthalpy type which allows humidity to be exchanged alongside temperature (suitable for tropical climates).

Enthalpy type heat exchanger in humid climate

Sensible-only type heat exchanger in temperate climate



Features



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

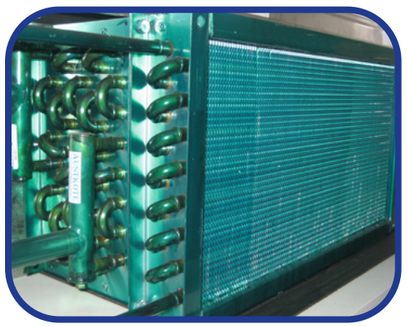
EC fans offer optimal levels of energy efficiency. They also have high static pressure development, making them suitable for applications requiring high filtration grades or long ductwork runs. Budget friendly AC plug fans are available as an alternative option.

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.

Additional Corrosion Resistance (Optional)

Unit components can be specially selected or surface treated for corrosion resistance to ensure reliable operation and longevity in harsh environments like pool halls or seaside buildings.

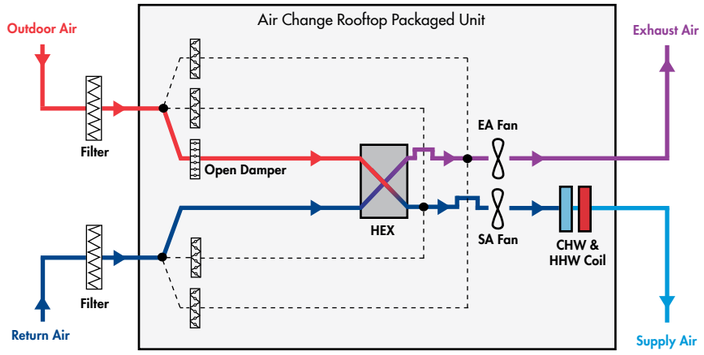


CHW and HHW Coils (Optional)

CHW and / or HHW coils can be integrated into the unit to provide room cooling and heating. The coils are sized and selected according to project specific requirements. Protective epoxy coatings are standard and ensure resistance to corrosion.

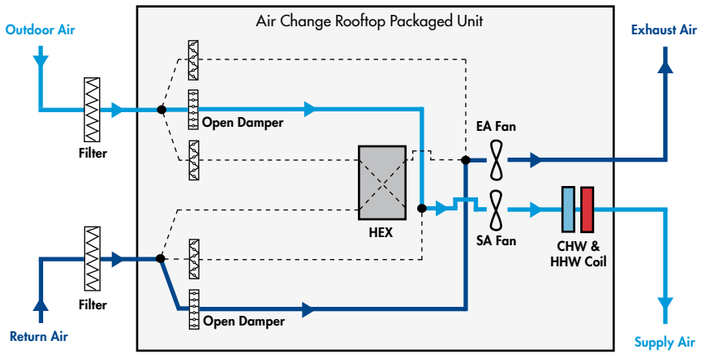
Operating Modes

100% Outside Air Heat Recovery (default)



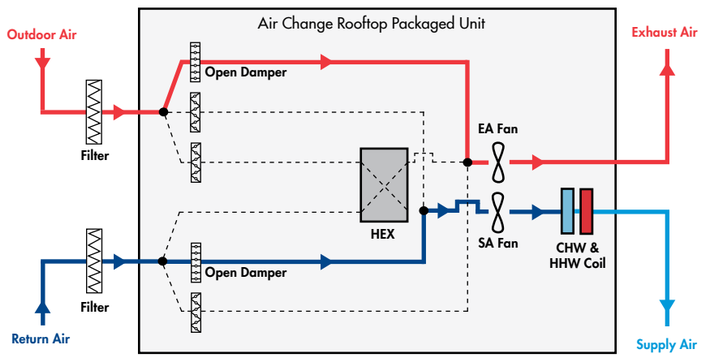
Used when the outside air temperature is hot or cold, and the indoor space requires 100% fresh outside air. The air-to-air heat / energy exchanger minimises the outside air load.

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.

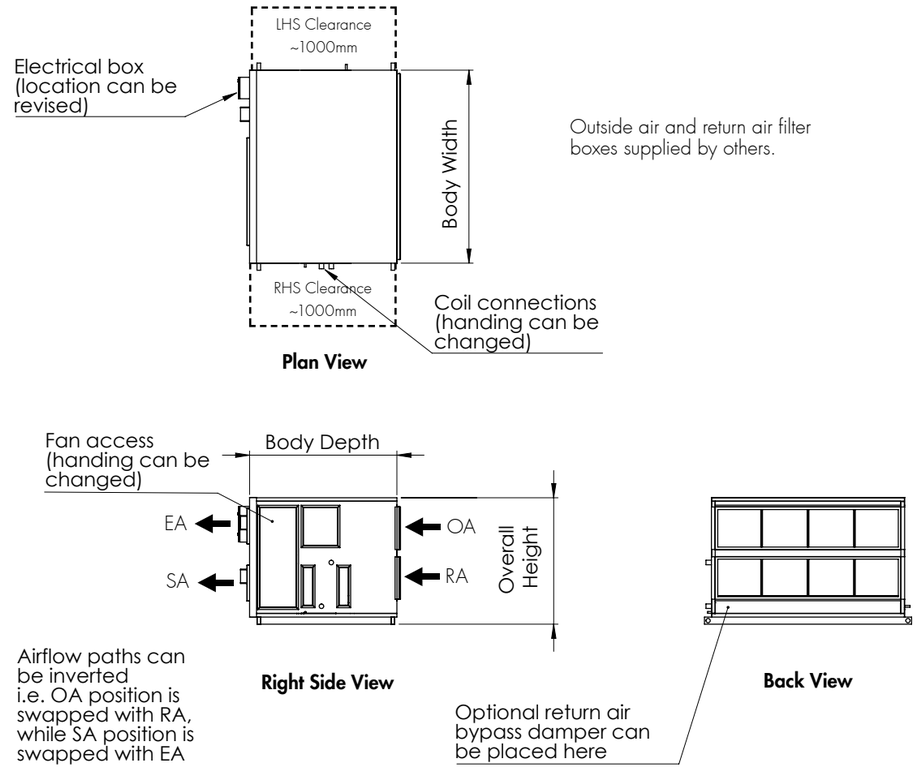
Technical Data

	ERV													
Model Number:	**250**	**550**	**750**	**1000**	**1500**	**2000**	**2500**	**3000**	**3500**	**4000**	**5000**	**6000**	**7000**	**8000**
Supply Air (l/s)	250	550	750	1000	1500	2000	2500	3000	3500	4000	5000	6000	7000	8000
Exhaust Air (l/s)	250	550	750	1000	1500	2000	2500	3000	3500	4000	5000	6000	7000	8000
Outside Air	100%													
HEX Media	Sensible-Only or Enthalpy													
CHW & HHW Coils	Optional													
Fan Type	EC Plug Fans - Variable Speed. Optional Forward Curved Scroll Fans on Models ERV1500 and Under.													
Volts / Ph / Hz #	240/1/50	415/3/50												
Construction	50mm PU Sandwich Panel													
Dimensions (standard)														
Body Depth (mm)	1155	1735	1735	1780	2060	2060	2100	2100	2100	2100	2160	2170	2170	2170
Body Width (mm)	755	1065	1065	1400	1400	1400	2050	2050	2700	2700	3350	4000	4650	5300
Overall Height (mm)	1065	1355	1355	1465	1770	1770	1850	1850	1770	1770	1770	1830	1830	1870
Weight (kg)	150	400	400	500	800	800	1000	1000	1400	1400	1600	1900	2200	2500
Dimensions (Economy Cycle)														
Body Depth (mm)	-	2100	2100	2100	2100	2100	2200	2200	2200	2200	2160	2170	-	
Body Width (mm)	-	1400	1400	1400	2050	2050	2700	2700	3350	3350	4000	5300	-	
Overall Height (mm)	-	1650	1650	1650	1650	1650	1900	1900	1950	1950	1820	2030	-	
Weight (kg)	-	600	600	600	1000	1000	1200	1200	1700	1700	1900	2100	-	

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

**Larger TALL models are available upon request. Contact your Air Change representative for more information.

Power input for typical EC plug fan unit.



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AIR CHANGE
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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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Air Change Pty Ltd products internationally patent protected

Refrigerant Trading Authorisation No: AU23586

Multi Award Winning Technology

ARBS Industry Awards "Product Excellence" Winner 2018
AIRAH "Product of the Year" Winner 2017
AIRAH "Excellence in Innovation" Winner 2012 & 2013