



SMA Series

Split Make-Up Air Units

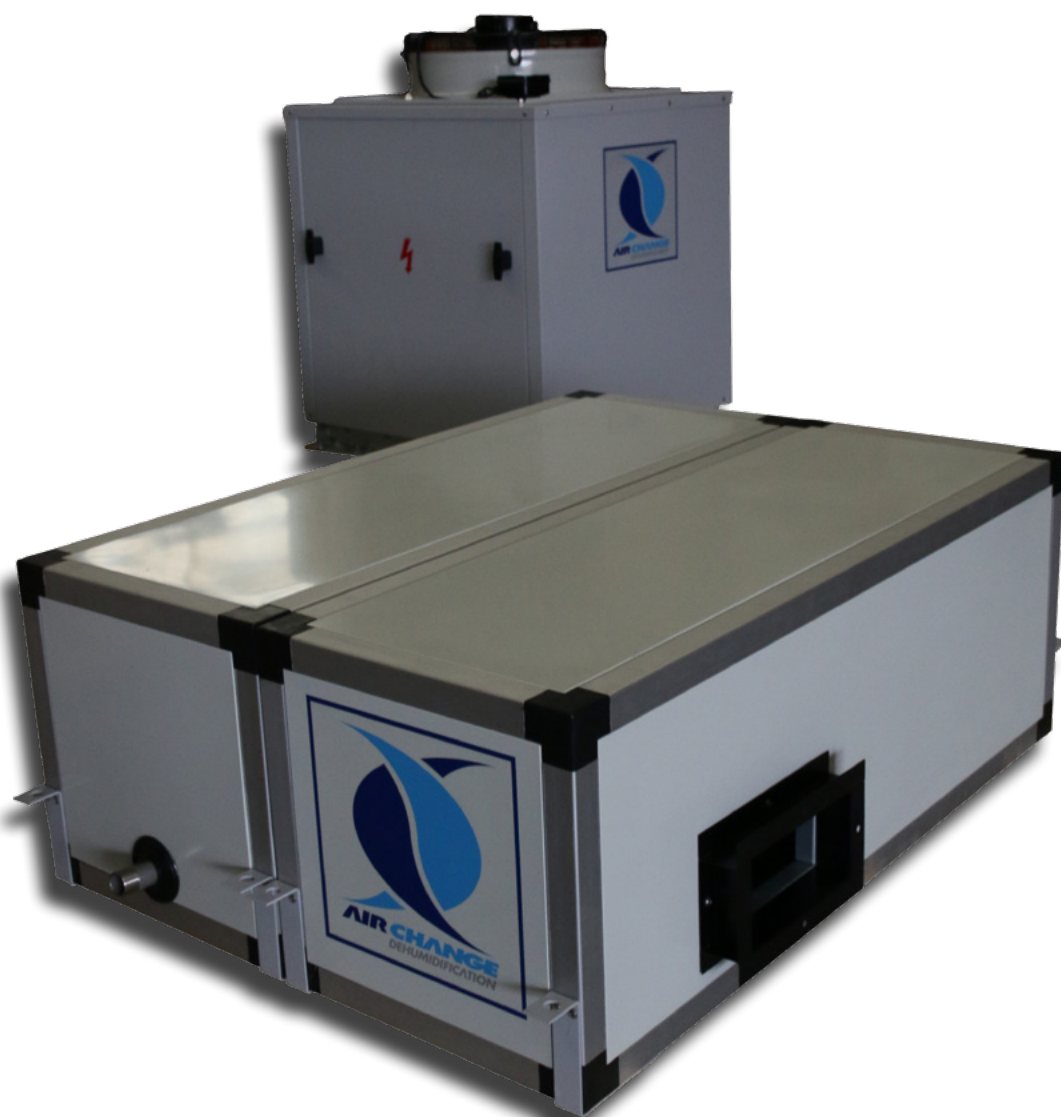


SMA Series of energy efficient make-up air dehumidifiers.

Air Change developed its popular PCU series of air management systems to achieve precise temperature and humidity control for critical applications. However, there are many projects that require supply of dehumidified make-up air without the sophistication and cost of a fully integrated PCU solution.

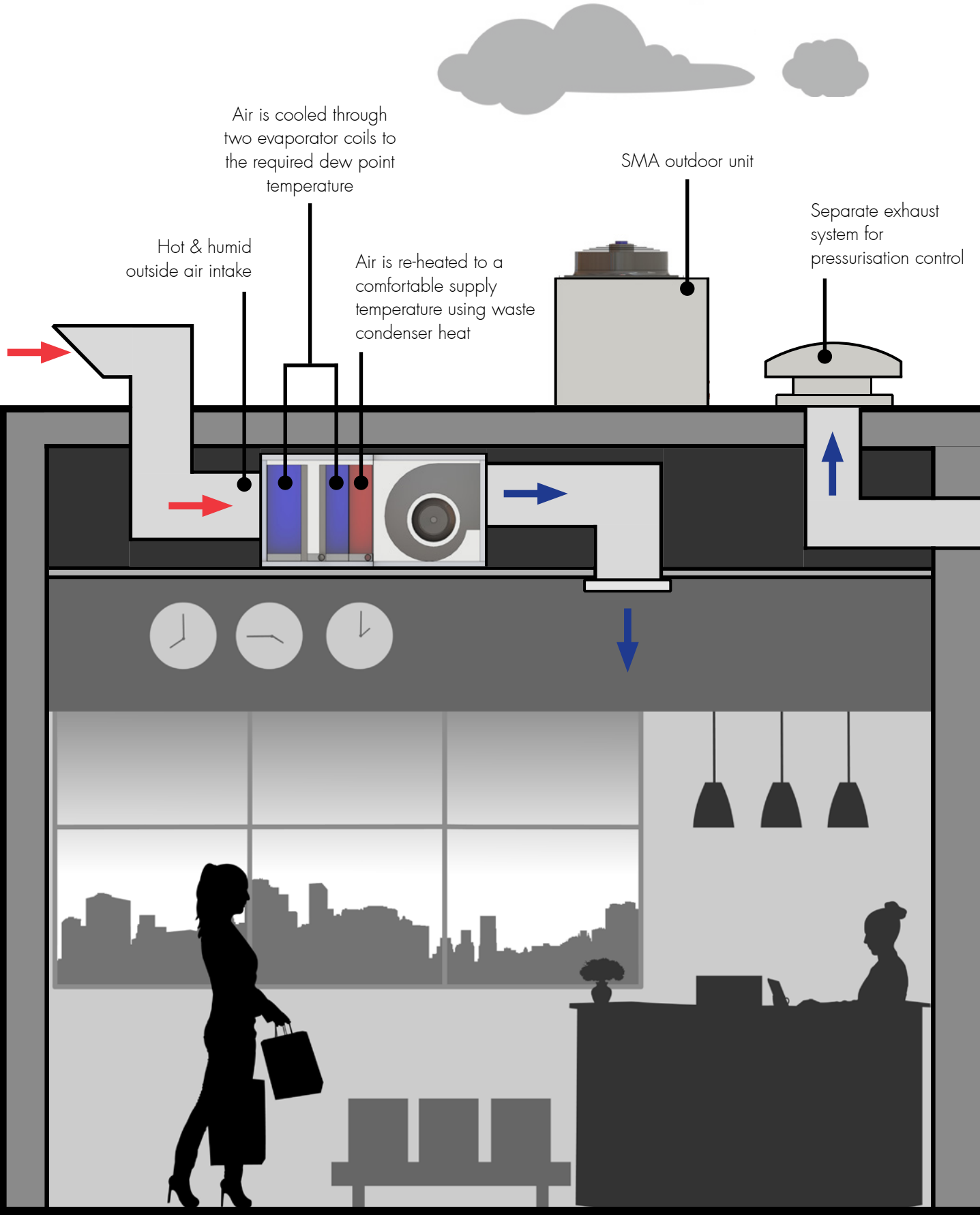
For these smaller less demanding applications, Air Change has developed its SMA series, a split ducted system that delivers 100% outside air that has been dehumidified to comfortable room neutral temperature for air quantities between 300l/s and 900l/s.

As with all Air Change products, the energy efficiency of SMA units is of paramount concern, particularly as they are designed to deliver dehumidified make-up air over prolonged periods of time. With this in mind, the SMA series uses an optimised dual stage refrigeration system with waste condenser heat from one of the refrigeration circuits to provide reheat. Optimising the condensing and evaporating conditions of the two refrigeration circuits lifts the COP and hence lowers energy consumption by an average of 15% over a comparative single circuit system. The resulting efficiency in typical installations is similar to that of a precool and reheat air-to-air heat exchange system, but with a significantly reduced cabinet size.

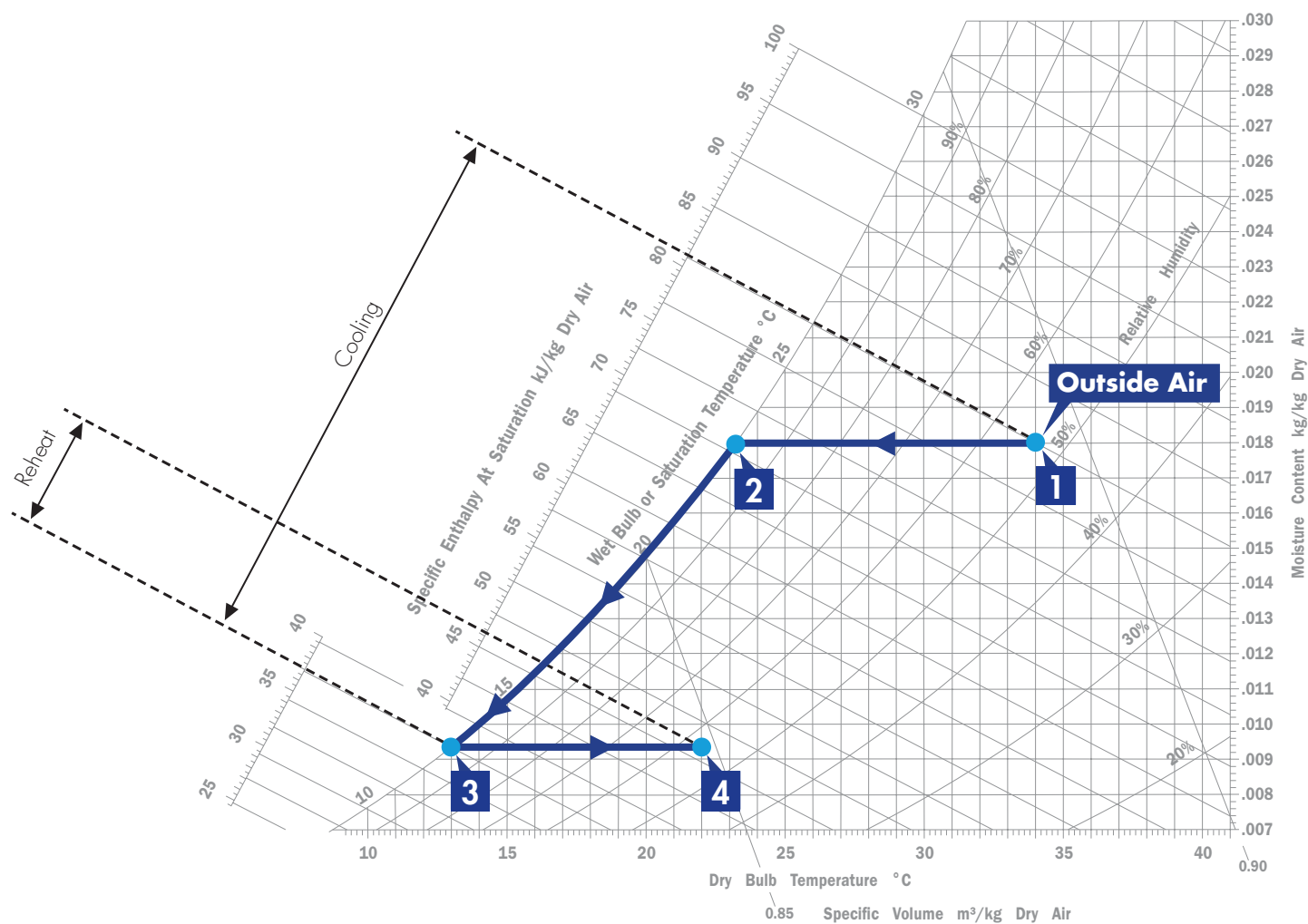


Patent Pending

How it works



How it works



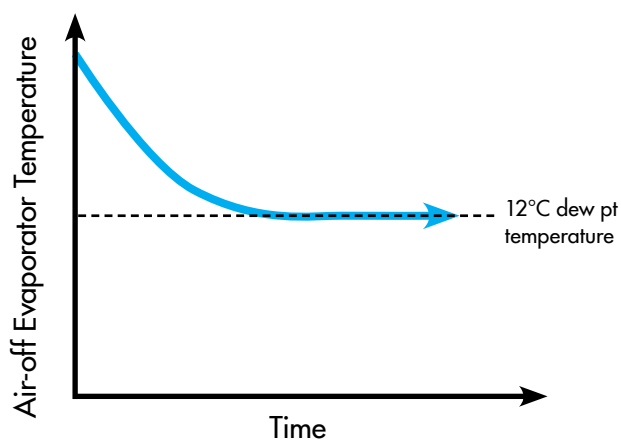
- 1 Humid outside air enters the unit.
- 2 The make-up air is cooled through the evaporator coils to the dew point line.
- 3 The make-up air is further cooled along the dew point line to the required moisture content.
- 4 The make-up air is reheated to a comfortable supply temperature using waste condenser heat.

Features

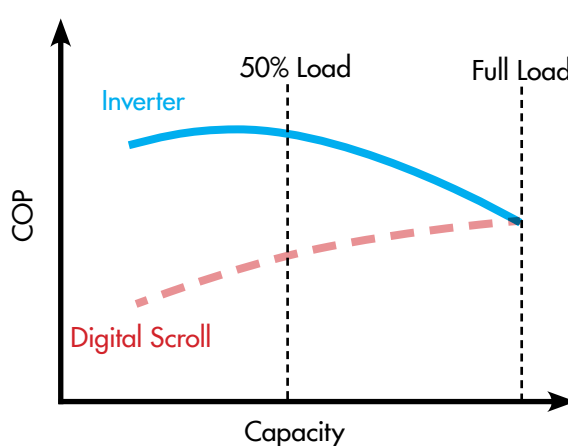


BLDC Inverter Compressors

To best perform their required function, a dehumidifier must maintain a constant air-off coil dew point temperature which requires a stable evaporator pressure with any air-on coil condition. The variable capacity control of inverter compressors allow units to precisely meet the required dew point temperature without compressor on/off cycling and hence maintain constant and accurate dehumidification. Inverter compressors also offer much higher energy efficiency than fixed speed compressors using hot gas bypass to achieve stable evaporator pressure and better control and efficiency than digital scroll compressors.



Smooth and steady control of evaporator air temperature achieved by inverter compressors.

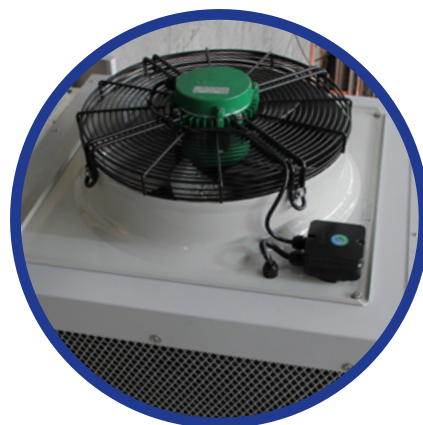


Indicative COP vs. capacity profiles of inverter and digital scroll compressors.



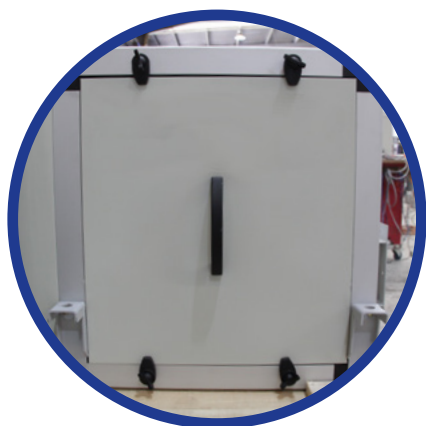
Coil Protection

Anti-corrosion treatment and hail guards.



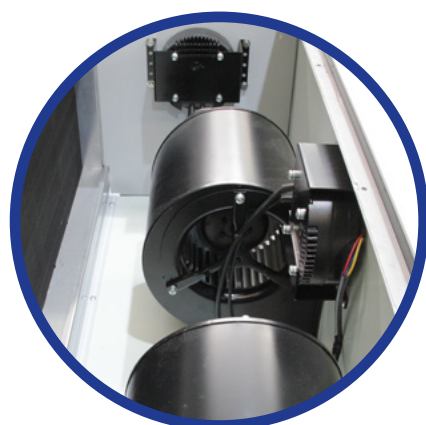
EC Axial Condenser Fans

High efficiency and integrated speed control with respect to head pressure.



25mm Polyurethane Panel

In humid climates, even internally mounted units must be well insulated in order to prevent condensation forming on the cool cabinet. The SMA indoor units are constructed with 25mm polyurethane panel to prevent this “sweating”.



EC Forward Curve Supply Fans

By using EC forward curve fans, SMA units are able to be easily speed controlled and offer greater energy efficiency than the more common AC type fan.



Integrated Control System

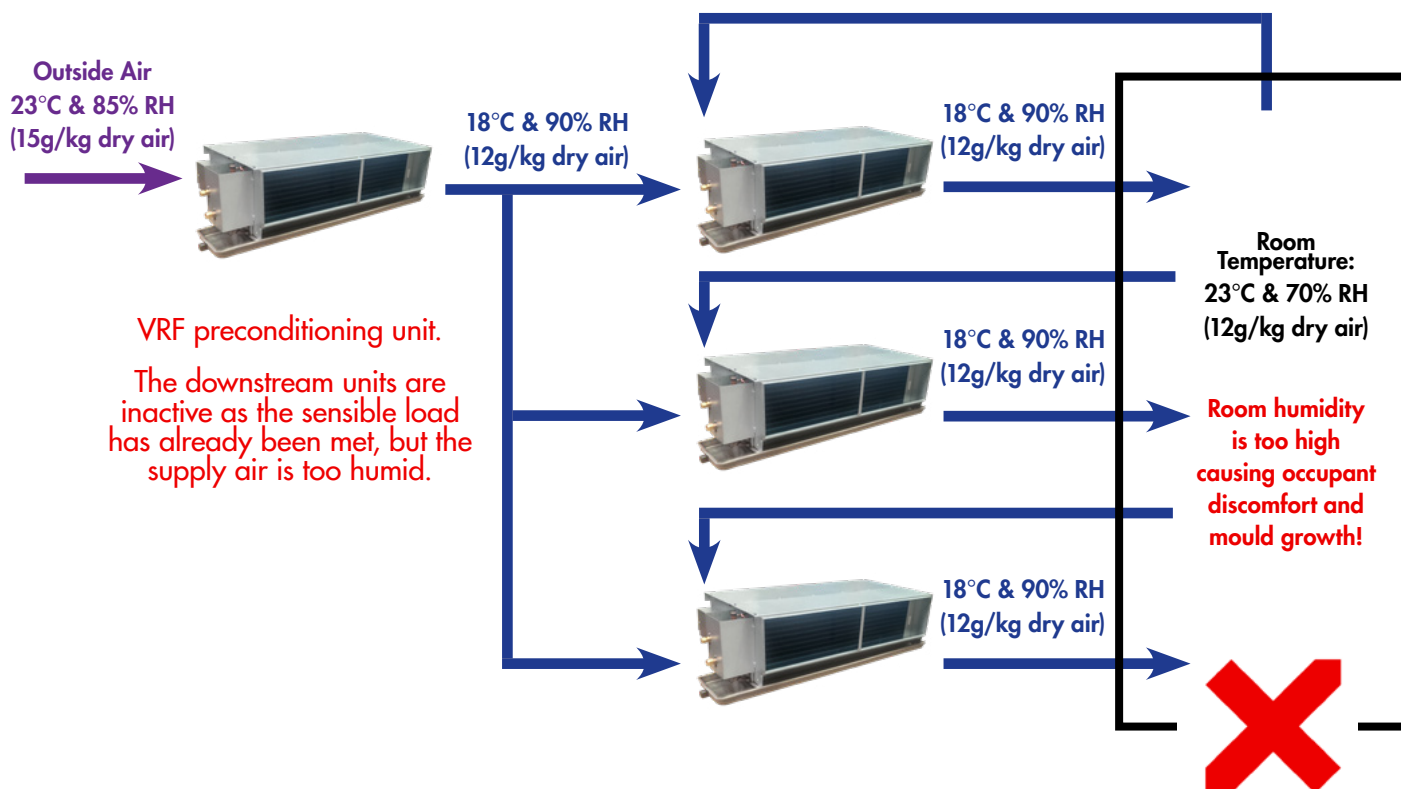
The integrated SMA control system monitors ambient outside air conditions and modulates unit capacity according to the required supply air dew point temperature. In conditions where the outside air is already at the required moisture content and dry bulb temperature, the unit automatically switches off.

The supply air dew point temperature setpoint is adjustable via a control display inside the SMA condensing unit. Unit start/stop can be achieved by a digital signal from a BMS or other external controller.

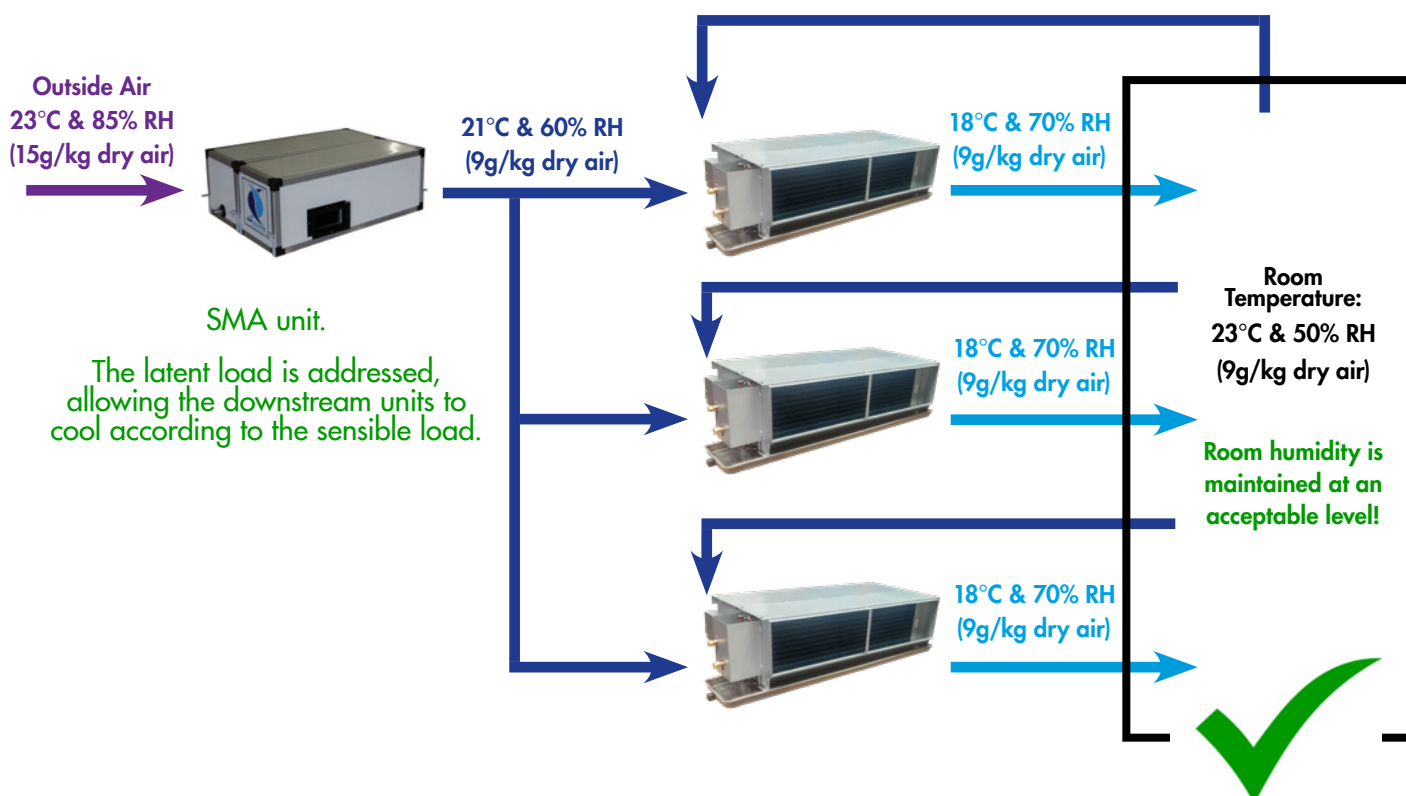
SMA units make VRF perform better in humid climates

Typical cooling systems will “cycle off” once the indoor dry bulb temperature is met regardless of the humidity level. An accompanying SMA unit will provide the much-needed dehumidification of outside air, ensuring a perfect indoor environment.

Typical VRF system in humid part-load scenario:



VRF system with SMA unit in humid part-load scenario:



Specifications

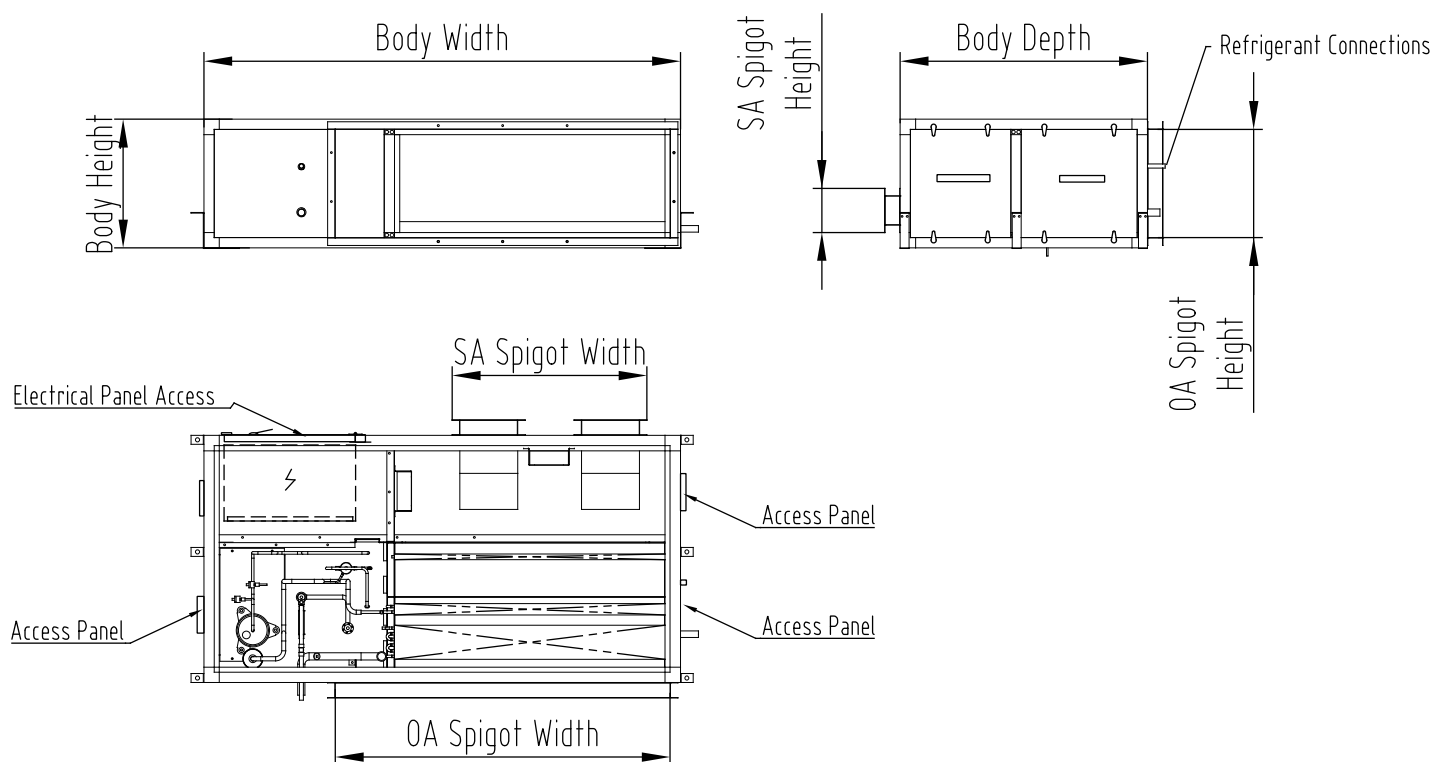
Model	SMA 30	SMA 50	SMA 70	SMA 90
Supply Air Airflow (l/s)	300	500	700	900
Design Ambient Temperature (°C)	33	33	33	33
Supply Air Dew Point (°C)	11 - 13	11 - 13	11 - 13	11 - 13
Nominal Supply Air Temperature (°C)	21 - 23	22 - 24	21 - 23	18 - 20
Nominal Cooling Capacity (kW)	18 (variable)	30 (variable)	42 (variable)	53 (variable)
Reheat Capacity (kW)	3.5 (fixed)	6 (fixed)	8 (fixed)	7.5 (fixed)
Reverse Cycle	Yes	Yes	Yes	Yes
Compressor Type	1x Inverter + 1x Fixed	1x Inverter + 1x Fixed	1x Inverter + 1x Fixed	1x Inverter + 1x Fixed
Refrigerant	R410A	R410A	R410A	R410A
Supply Air Fan Type	EC Scroll 400W	EC Scroll 400W (x2)	EC Scroll 400W (x2)	EC Scroll 400W (x3)
Volts / Ph / Hz - Indoor Unit	240 / 1 / 50	240 / 1 / 50	240 / 1 / 50	240 / 1 / 50
Volts / Ph / Hz - Outdoor Unit	415 / 3 / 50	415 / 3 / 50	415 / 3 / 50	415 / 3 / 50

Air Change supports a policy of continuous product improvement. Therefore specification and designs are subject to change without prior notice.

Model	SMA 30-CU	SMA 50-CU	SMA 70-CU	SMA 90-CU
Supply Air Airflow (l/s)	300	500	700	900
Design Ambient Temperature (°C)	40	40	40	40
Supply Air Dew Point (°C)	11 - 13	11 - 13	11 - 13	11 - 13
Nominal Supply Air Temperature (°C)	21 - 23	22 - 24	21 - 23	18 - 20
Nominal Cooling Capacity (kW)	19 (variable)	32 (variable)	44 (variable)	57 (variable)
Reheat Capacity (kW)	3.5 (fixed)	6 (fixed)	8 (fixed)	7.5 (fixed)
Reverse Cycle	Yes	Yes	Yes	Yes
Compressor Type	1x Inverter + 1x Fixed	1x Inverter + 1x Fixed	1x Inverter + 1x Fixed	1x Inverter + 1x Fixed
Refrigerant	R410A	R410A	R410A	R410A
Supply Air Fan Type	EC Scroll 400W	EC Scroll 400W (x2)	EC Scroll 400W (x2)	EC Scroll 400W (x3)
Volts / Ph / Hz - Indoor Unit	240 / 1 / 50	240 / 1 / 50	240 / 1 / 50	240 / 1 / 50
Volts / Ph / Hz - Outdoor Unit	415 / 3 / 50	415 / 3 / 50	415 / 3 / 50	415 / 3 / 50

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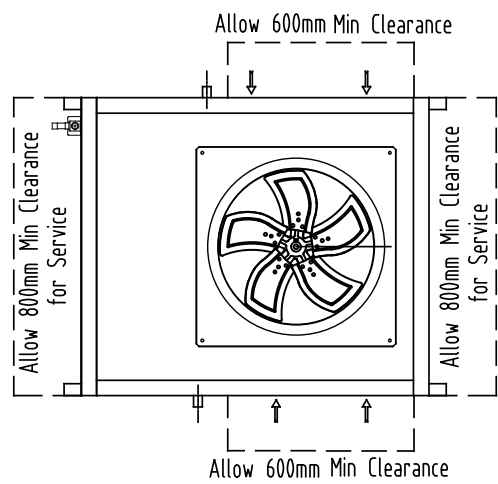
Dimensions (Indoor Unit)



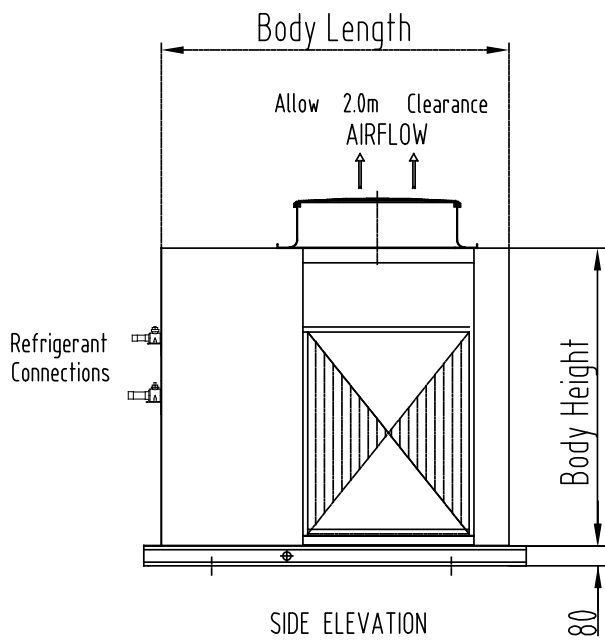
Model	SMA 30 / SMA 30-CU	SMA 50 / SMA 50-CU	SMA 70 / SMA 70-CU	SMA 90 / SMA 90-CU
Body Depth (mm)	900	960	960	960
Body Width (mm)	1250	1850	1950	2150
Body Height (mm)	460	500	500	600
SA Spigot Width (mm)	283	756	756	1229
SA Spigot Height (mm)	171	171	171	171
OA Spigot Width (mm)	770	1300	1400	1300
OA Spigot Height (mm)	380	420	420	520
Approx. Weight (kg)	90	125	200	250

Dimensions and weight are subject to change. Refer to project certified dimensional drawings for finalised details.

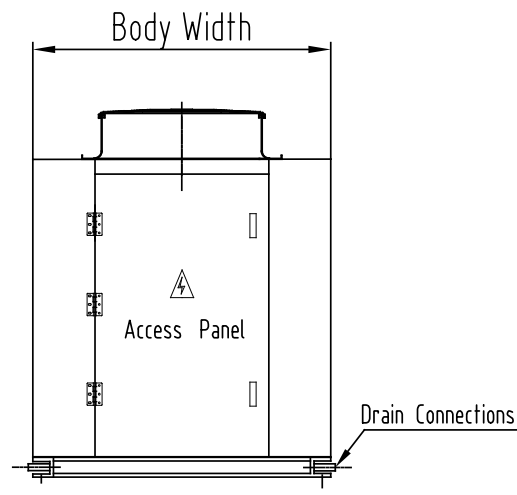
Dimensions (Outdoor Unit)



PLAN VIEW



SIDE ELEVATION



REAR VIEW

Model	SMA 30	SMA 50	SMA 70	SMA 90
Body Length (mm)	900	1350	1450	1450
Body Width (mm)	800	1080	1200	1200
Body Height (mm)	835	1200	1200	1200
Approx. Weight (kg)	150	250	300	350
Model	SMA 30-CU	SMA 50-CU	SMA 70-CU	SMA 90-CU
Body Length (mm)	900	1450	1450	1600
Body Width (mm)	800	1200	1200	1200
Body Height (mm)	965	1200	1200	1200
Approx. Weight (kg)	160	300	350	400

Dimensions and weight are subject to change. Refer to project certified dimensional drawings for finalised details.

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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

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