



HYBRID PLUS2 AIRCOOL® VENTILATORS



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The Hybrid Plus2 Aircool ventilator combines the features of the Aircool ventilator with an innovative air tempering and mixing unit utilising a single energy-efficient fan.

The system has been developed to provide a simple cost-effective solution for specifiers and main contractors. With a focus on indoor air quality and thermal comfort, the Hybrid Plus2 Aircool is the ideal product to incorporate into schools and other educational buildings.

Air quality and thermal comfort

Heating and cooling are important in maintaining a comfortable indoor environment, together with the provision of good air quality and the removal of pollutants, especially important in maintaining CO₂ levels to below 1,000ppm.

The primary aim of a ventilation system is to ensure that there is air movement throughout



It has been primarily designed to be used in a single-sided ventilation strategy and to meet the requirements of the Facilities Output Specification for Priority Schools Programme Phase 2, Building Bulletin 101, 'Guidelines on ventilation, thermal comfort and indoor air quality in schools' and Building Bulletin 93, 'Acoustic design of schools: performance standards'.

the building, circulating air so that it does not become stale and ridding the building of pollutants by bringing fresh air in and taking stale air out.

The Hybrid Plus2 Aircool system can provide ventilation up to 150 litres/second via the fan operation offering an energy-efficient means of maintaining thermal comfort in a 'free running building'. The mixing of fresh air with internal room air is an integral part of the design of the unit which reduces the risk of cold draughts during cooler periods.

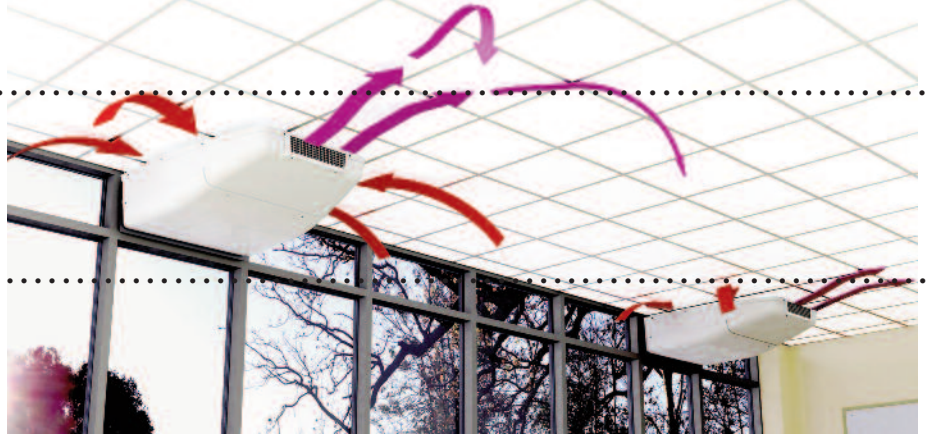
Effective and intelligent control of the ventilator is critical to maximising its performance. A Passivent iC8000 controller, internal CO₂ and temperature sensors and also an external temperature sensor are used with intelligent software to determine the different operating modes and ensure automatic, optimum thermal comfort and indoor air quality.

The iC8000 controller can work in conjunction with other building services such as the heating system and can be integrated through a building management system.



BENEFITS

- Contemporary design.
- Quiet operation leads to less disturbance when in use.
- Sensors respond automatically to rising levels of CO₂.
- Enables Facilities Output Specification for Priority Schools Programme, BB101 and BB93 to be achieved.
- Each unit can ventilate a room containing up to 16 occupants.
- Modular format enables flexible design.
- Versatile mounting options to accommodate wall, curtain walling and windows.
- Three modes of operation to satisfy cool and warm conditions.
- Lightweight construction for easy lifting and positioning.
- Three-component design for speedy installation.
- Energy efficient fan resulting in lower running costs.



Exceptional design

Slim and sleek

The unit is one of the slimmest in its class due to its unique internal design. Its aesthetic, contemporary look and flexible design means that it can be mounted exposed or, if preferred, within a bulkhead.

Versatile

It can be fitted to external facades, including all forms of wall construction, curtain walling and window profiles.

Quiet

The ventilator utilises silent, controllable insulated dampers from the Aircool range. The system can be used to meet the acoustic requirements of BB93.

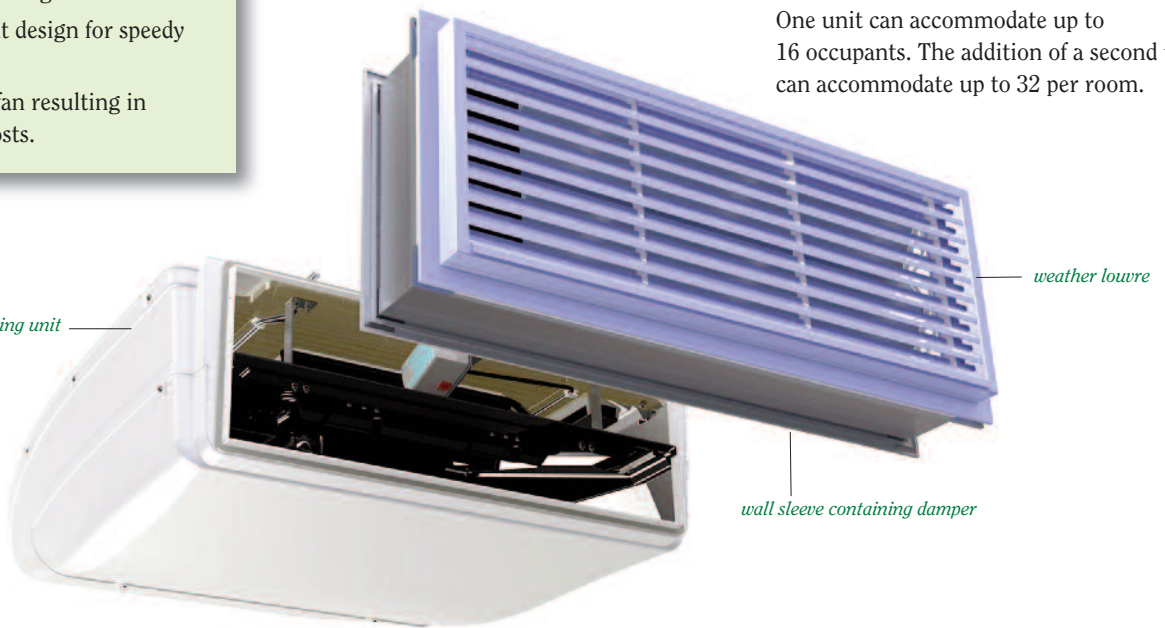
Energy efficient

Thanks to the energy-efficient fan and the ultra-energy-efficient passive mode, power consumption is kept to a minimum.

Scalable

One unit can accommodate up to 16 occupants. The addition of a second unit can accommodate up to 32 per room.

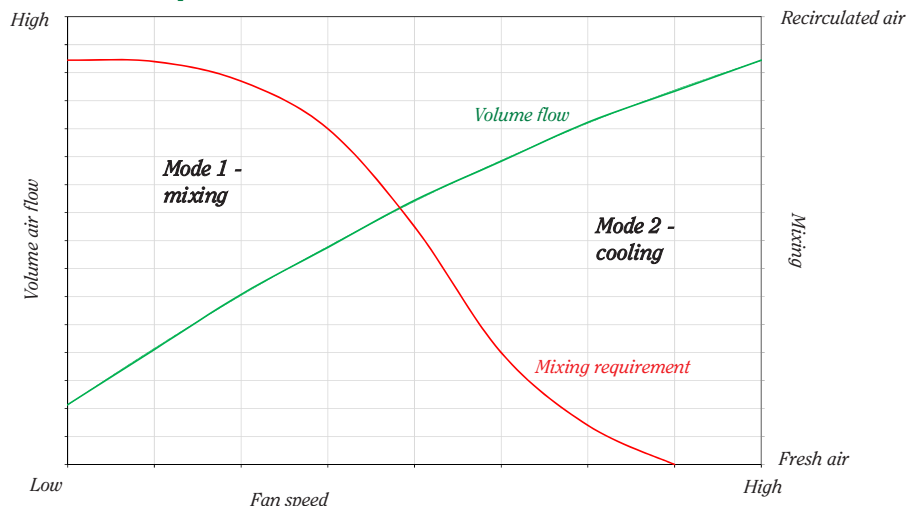
Hybrid Plus2 Aircool mixing unit



Ventilation conditions during modes 1 and 2 of the system.

When there is a requirement for a low volume of air flow due to air quality, but with the need to maintain thermal comfort in the room, the system operates in mode 1 (mixing). As the ventilation conditions change, the system adapts to a mode 2 (cooling) operation where the emphasis switches to increasing air flow and reducing the room temperature.

Ventilation performance



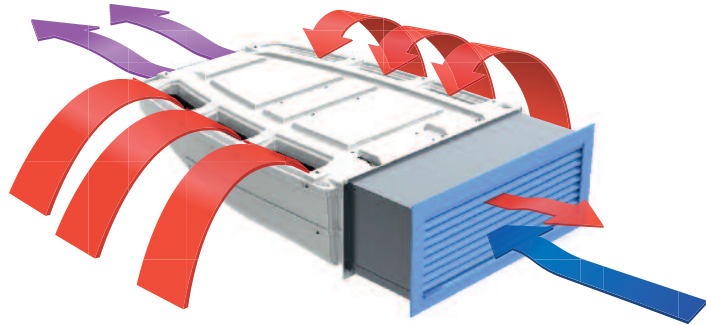
Adaptable modes

The unit can operate three modes of ventilation dependant on the internal and external environment of the room being ventilated.

1 Mixing mode

In winter, colder spring and autumn periods the Hybrid Plus2 Aircool tempers the incoming air with warmer internal air before it enters the space, thereby minimising the risk of cold draughts for the occupants. By mixing and utilising any excess of heat gains within the space, there is no need to use additional energy to warm the fresh air.

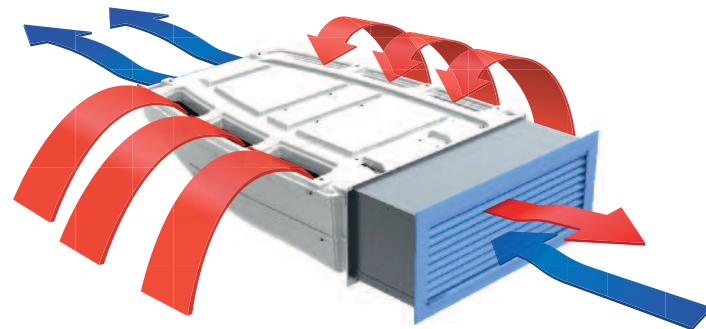
Warm internal air enters the unit at ceiling level and is also discharged across the ceiling once mixed to ensure thermal comfort levels are the highest possible.



2 Cooling mode

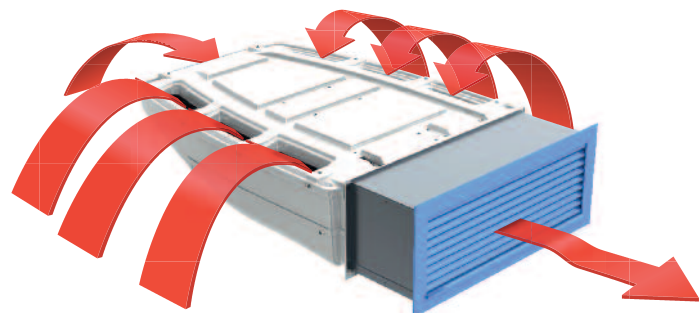
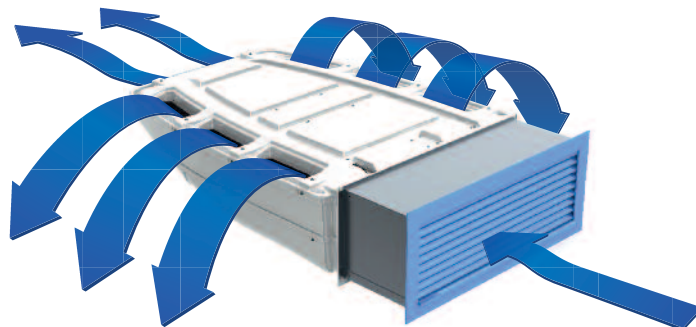
In peak summer conditions, the energy-efficient, low power fan can be activated to promote air movement, keeping the ventilation strategy operating and temperature under control.

When the building encounters high heat gains, the fan can be activated to purge the space more rapidly than a passive ventilation system. The fan speed will automatically adjust to suit the temperature and CO₂ requirements within the space.



3 Passive mode

Due to the low airflow resistance of the system, the Hybrid Plus2 Aircool is able to operate in a passive mode without any need for fan assistance. This mode offers single-sided ventilation to provide an equivalent area of 0.054m² and is highly cost-effective due to the lack of energy required to motorise the fan unit.



The graph opposite shows the varying ventilation conditions during modes 1 and 2 of the system.

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Designed for fast and simple installation

- *Flexible* - can be positioned within the space, either on display or within a suspended ceiling or bulkhead (requiring additional grilles and ducts).
- *Fast* - simple component system makes for speedy installation.
- *Lightweight* - easy to lift into position.
- *Easy maintenance* - access panel for inspection.
- *Simple fixings* - straightforward installation to structure or via four drop down bolts.
- *Secure* - no external fixings on louvre.



Performance

Equivalent free area of each unit: 0.054m².

Max. flow rate when inlet & outlet resistances are equal and fan is in operation: 150 l/s.

Compliance: Building Bulletins 93 & 101.

Acoustic: A 30dB_{Dn,e,w} noise reduction is possible through the product with the damper in the open position, when tested to BS EN ISO 10140-2:2010* for element-normalised level difference and BS EN ISO 717-1:2013*.

The system can be used to meet the acoustic requirements of BB93.

*All acoustic testing was independently carried out by Acoustical Investigation and Research Organisation Ltd, an UKAS accredited testing laboratory.

Energy consumption: specific fan power ranges between 0.133 to 0.40W l/s, depending on the ventilation rate.

Appearance

External louvres and frame are polyester powder coated to order. Internal cover grille and housing are supplied in white RAL 9016 as standard but can be provided in other colours upon specific request.

Dimensions

Internal tempering and mixing unit:

967mm(w) x 330mm(h) x 1253mm(d).

Aircool size would be supplied to suit the building

requirements: typically 842mm(w) x 320mm(h) for wall applications and 873mm(w) x 351mm(h) for window applications.

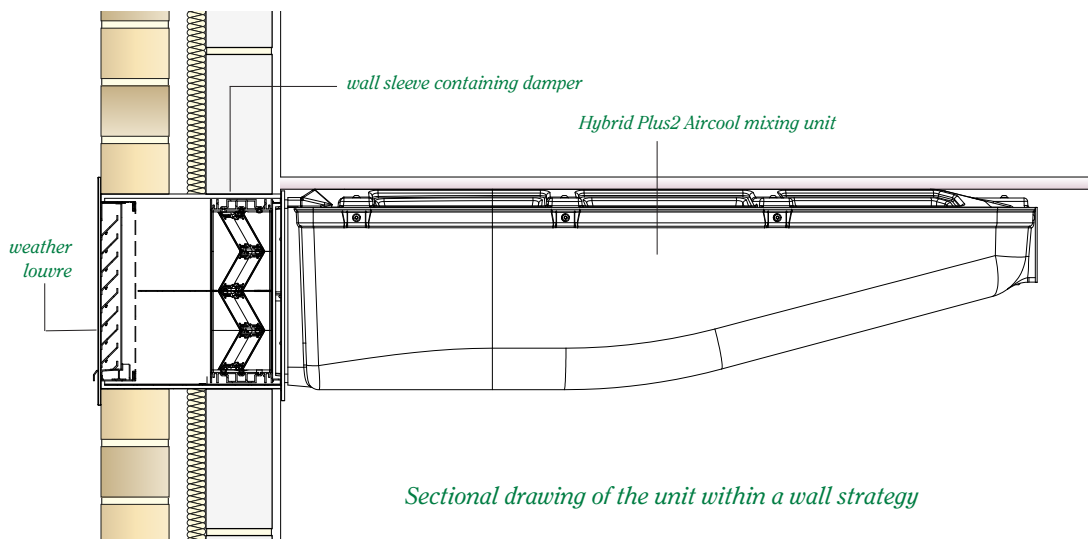
Weight: 32kg.

Specification clause Hybrid Plus2 Aircool, incorporating Aircool ventilator with a mixing chamber. Aircool for masonry walls/windows/curtain walls* having extruded aluminium frame, extruded aluminium external weather louvres, 4mm black polypropylene insect screen. Insulated aluminium motorised controllable dampers fabricated from double skin of aluminium with ABS thermal break and blade compression seals. Mixing chamber finished to RAL 9016 white, incorporating variable speed fan, controllable mixing dampers.

Ventilator U-value 0.86W/m²K when closed. 24V modulating actuator control for dampers, controlled by Passivent iC8000 intelligent controller. Fan flow rate of up to 150 l/s.

Ventilators designed and manufactured under BS EN ISO 9001, and supplied by Passivent, North Frith Oasts, Ashes Lane, Hadlow, Kent TN11 9QU. Tel: 01732 850770, email: projects@passivent.com.

*Delete as applicable.



Sectional drawing of the unit within a wall strategy

OTHER PRODUCTS

Passivent offers a range of other ventilation products including:

SoundScoop® acoustic transfer ventilation products.

Roof ventilation terminals incorporating Airtract®, Airscoop® and combined rooflights / ventilators.

Intelligent ventilation control systems.

iMEV intelligent mechanical extract ventilation systems.

Aircool® ventilators for windows, curtain walling and walls.



PASSIVENT

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