



United Technologies
turn to the experts 



AEROEDGE™



39CQ Custom Modular
Air Handling Unit

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Air flow range: 2,000m³/h~100,000m³/h



Carrier AeroEdge™ 39CQ custom air handling unit provide advanced technology and custom features in a streamlined, easy to install, packaged for indoor and outdoor application and available to handle wide variety commercial and industrial applications.

Units can be equipped with different coil configurations, different air filtration elements including HEPA and PM2.5 filters, stainless steel drain pans, thermal recovery heat wheels, heat piping and many other options. The 39CQ unit double wall casing allows panels to be easily cleaned for most stringent requirement in hygiene application like clean rooms and operating theatres with casing design complies with Eurovent standard. Fan options include forward curved, airfoil and plenum plug fans for extra quiet operation. Factory installed controls maintain airflow and ventilation requirement to improve indoor comfort and air quality (IAQ).



Eurovent Standards

Eurovent certification is administered by the French EUROVENT Certification Organization – an internationally recognized organization with the highest authority. It is recognized worldwide and certifies the performance of air handling units.

Eurovent certifications include EN1886 and EN13053. The EN1886 Certification is applicable for the mechanical characteristics of modular air-conditioners. These characteristics include the casing's mechanical strength, thermal bridge factor, heat transfer coefficient, air leakage rate, filter by-pass rate and the casing's sound-proofing effect.

Thermal Bridge Factor		Heat Transfer Coefficient		Air Leakage Rate (-400/+700Pa)	
Grade (Kb)		Grade	U (W/m ² K')	Grade	Max.Rate (L/M ² S')
TB1	0.75 < Kb < 1	T1	U <= 0.5	L1	0.15 / 0.22
TB2	0.6 < Kb <= 0.75	T2	0.5 < U <= 1	L2	0.44 / 0.63
TB3	0.45 < Kb <= 0.6	T3	1 < U <= 1.4	L3	1.32 / 1.9
TB4	0.3 < Kb <= 0.45	T4	1.4 < U <= 2		
TB5	No requirements	T5	No requirements		

Outstanding Casing Performance **High Efficiency and Energy Conservation**

Brand-new casing structure complies with Eurovent EN1886 (T2/TB2/L2) standards which ensures a low air leakage rate, superexcellent heat insulation performance and thermal bridge free. All these factors can help to reduce energy loss.

Multi-functional Options **Flexible Applications**

The multi-functional options and combinations of its modular design are flexible and convenient. Its flexible field installation options enables the unit to be shipped fully assembled or by sections.

Professional Selection Software **User-Friendly Operations**

Quickly respond to the design requirements of customers, support CAD drawing outputs and provide cost effective solutions.

Unique PM2.5 Solution **Long-acting Filters**

Unique PM2.5 filtering technology can achieve a constant filtration efficiency of 98.5%. Service life of the filter is 2~5 times longer than an ordinary synthetic filter.

Humanized Design **Easy and Convenient Maintenance**

The interior and exterior panels of the unit are smooth and easy to clean. Its heat-insulating access doors and observation windows are specially designed for repair and maintenance convenience.

Intelligent Control **Clear at a Glance**

Built-in control cabinet is equipped with an advanced control logic system, a graphical touch screen display and an independent or networking control option that supports BACnet Protocol-saving installation and maintenance costs.



Excellent Performance

Complies with Eurovent EN1886 (T2/TB2/L2) Standards



Excellent Air-Tightness

Brand-new casing structure was designed by Carrier. There are no panel fastening screws inside the smooth interior walls of the unit-making it easy to clean and maintain. The new sealing strips between the frame and the panels, and the seals of all the access panels and pipeline areas have been carefully designed to guarantee excellent air-tightness.



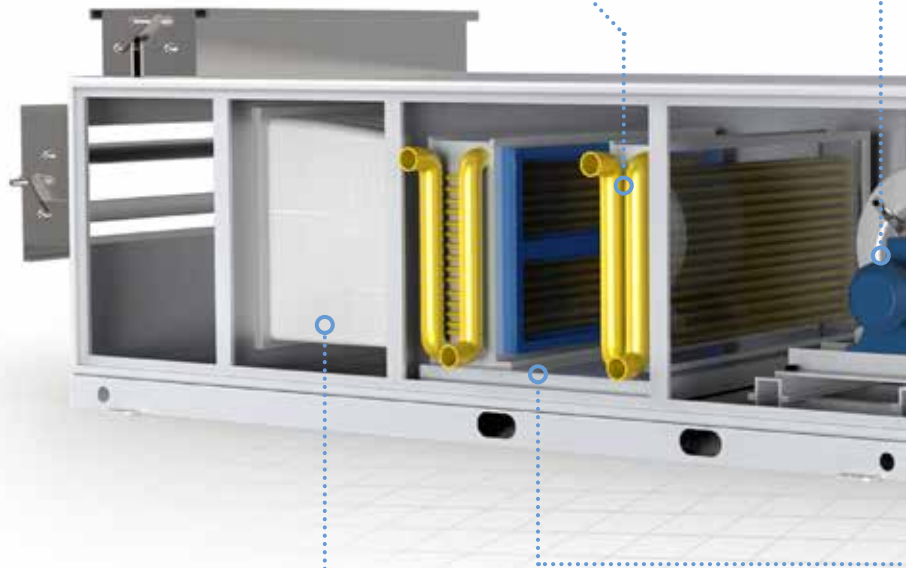
Thermal Bridge Free

The unique frame design includes pentapost and interposed panels to prevent air leakage. Sealing strips are used to re-enforce seals and effectively prevents occurrence of thermal bridges within the frame strips. The combined screw design also prevents occurrence of thermal bridges within the screws while beautifying the appearance of the unit-improving the overall casing performance.



High-performance Coils

All cooling and heating coils are made of copper pipes and aluminum fin through mechanically expanded tubes which are equipped with strong galvanized steel plate frames. The whole coil header undergoes a special antiseptic treatment after being welded. Each coil goes through a 2.8MPa reliability and leakage test in the factory to comply with the Air-conditioning, Heating and Refrigeration Institute (ARI) standards.



Optimal Thermal Insulation

The unit has a double-panel structure with a 50mm-thick foam PU thermal insulation material which has a heat conductivity coefficient of less than 0.0199W/m·°C. The frame and middle frame strips undergoes a special heat insulation treatment to effectively avoid air contact between the frame and the interior of the Unit to reduce air leakage and energy loss.



Various Filters Available to Meet Different Needs

A complete line of filters are available. The filters range from primary filters (plate-type, filter class up to G4), medium-efficiency filters (bag-type, filter class up to F9) and high-efficiency filters (filter class up to H13). Special filters such as durable high-efficient medical filters (PM2.5), activated-carbon filters and cartridge filters are also available.



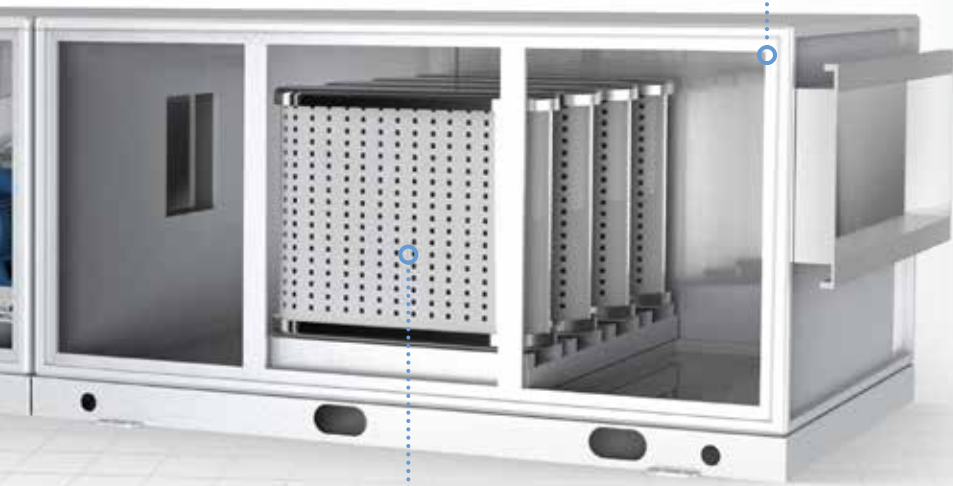
Optimized Centrifugal Fan with Low-Noise and High-Efficiency

The fan impellers and pulleys are statically and dynamically balanced and the whole fan is calibrated through an operational vibration test to ensure a smooth and stable fan operation. The base is equipped with a shock absorber which is shared by the fan and the motor assembly. To effectively avoid vibration, the fan was completely isolated from the moving parts and a flexible connection between the fan outlet and the casing was installed.



Hinge-Type Access Doors

The full-sized access doors have a positive-negative pressure design. The door body is built with a special seal that reduces air-leakage and facilitates routine overhauls.



Modular Design for Model Selection Convenience

- > The Unit's height, width and length were proportionally increased by 100mm based on its modulus.
- > The air volume corresponds to a certain unit type.
- > Modular products save material and control costs to the maximum extent.
- > Standard modular products make modeling and manufacturing faster and more convenient.



Exquisite Drain Pan

The drain pan is made of a galvanized steel sheet which comes with an optional stainless steel drain pan. The downward drainage of the drain pan ensures that the condensate water is completely drained away.



Soundproofing Section

Various mufflers such as dissipative mufflers, reactive mufflers and complex mufflers can be provided to meet diverse noise reduction requirements.

Haze Resistant Long-acting PM2.5 Solution

Based on research, PM2.5 (a particle with an aerodynamic equivalent diameter of 2.5 micrometers or less) has become the most hazardous pollutant in the atmosphere.

A clear connection can be established between the increased pollution levels with particles below 2.5µm and the increased mortality rate caused by cardiovascular and respiratory illnesses.

Carrier provides a unique PM2.5 filtering technology which can resist frequent hazy weather while providing you with a high-quality indoor environment. The filter is made from the latest nanotechnology which executes a purely mechanical filtration system that can resist PM2.5 in a continuous and efficient manner.

Outstanding Advantages of the PM2.5 Filter

- > Efficient and Stable Filtering Performance: The PM2.5 removal efficiency is up to 98.5%.*
- > Unique PM2.5 Filtering Technology: The filter is a purely mechanical filtration system which is made from the latest nanotechnology. The filtration efficiency for particles smaller than PM2.5µm remains constant over time.
- > Long Service Life: The dust holding capacity is 2 times more than an ordinary synthetic filter medium.

The bag filter is designed with three layers. The middle layer is a uniquely wave shape nano fine fiber layer which greatly increases the effective filtering area of the filtering material. The service life of the filter is 2~5 times longer than an ordinary synthetic filter-reducing routine maintenance costs.

- > Energy-saving and Environment-friendly: The filtering pressure drop is small and the Grade A (the highest grade) energy-saving filter conforms with Eurovent 4/11. The material of the new filter technology has an initial pressure drop of 35% which is lower than the glass fiber at the same efficiency grade. If calculated according to Eurovent 4/11, the system energy consumption can also be reduced by 35%.

PM2.5 removal
efficiency
up to
98.5%

Service life
2~5 times
longer than
ordinary types

* The diameter of all particles falls between 0.1 to 2.5 micrometers.

Reliable Quality

HDP Corrosion-resistant Panels

The outside panel of the AeroEdge™ is made of a new high-durability polyester (HDP) pre-painted steel sheet. The high-durability corrosion-resistant panels use high-molecular-weight resins with less polymer branched-chains, stable bond energy and photolysis resistant features, which can keep its color for a long time and resist shedding and chalking up to 15 years. These characteristics completely improve the product's quality.

Resists coming-off and pulverization for 15 years

Salt Fog Resistance Comparison

Coating Category	Salt Fog Resistance (h)
Ordinary Polyester (PE)	≥ 500
High-Durability Polyester (HPD)	≥1000

Ultraviolet Ray Resistance Comparison

Test Method (ASTM G53)	Gloss Retention Rate		Color Difference (ΔE)	
	QUVA (2000H)	QUVB (500H)	QUVA (2000H)	QUVB (500H)
Ordinary polyester (PE)	> 70%	> 20%	< 3	< 5
High-Durability Polyester (HPD)	100%	> 80%	< 1	< 3



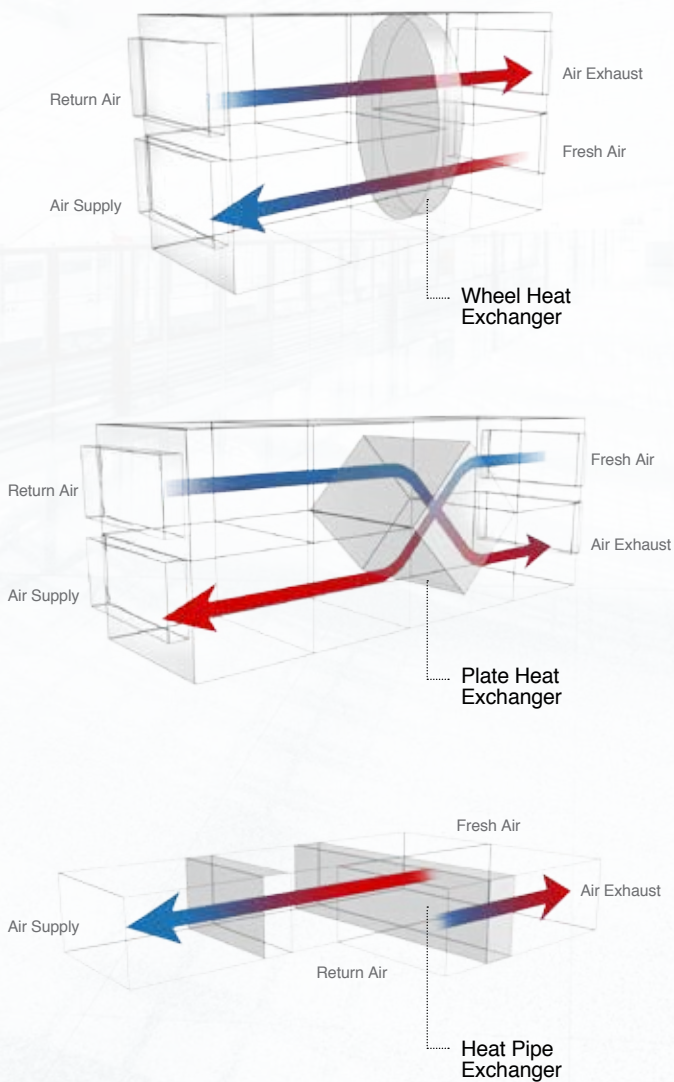
High-efficiency Energy-saving Heat Recovery Applications

People pay more and more attention to indoor air quality and they continue to have high requirements for introducing outdoor fresh air. However, introducing fresh air consumes more energy. How can you meet these requirements for comfort and conserve energy at the same time?

Carrier's high-efficiency heat-recovery device can achieve a heat exchange of fresh air and air exhaust which effectively improves the air quality while saving energy.

Heat recovery efficiency is high up to

90%



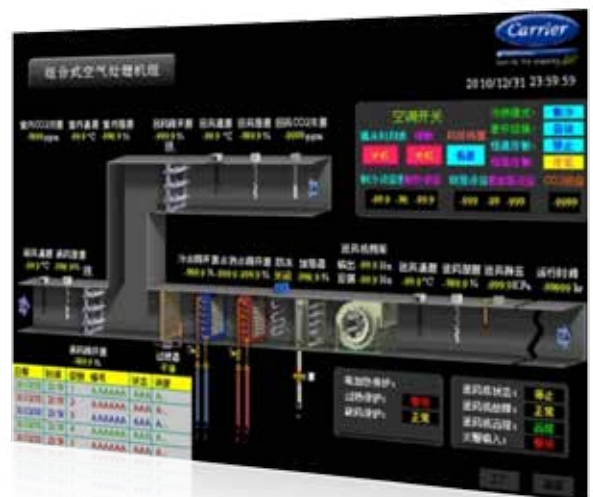
Integrated Intelligent Control System

The AeroEdge™ Modular Air-conditioning Unit is equipped with an optional integrated built-in control system. The control system adopts an advanced control and management system which optimizes its control scheme based on various application requirements. This system enables the air-conditioning system devices to fully exert their efficiencies, always be in the optimum state and meet the requirements for manufacturability or comfort. The touch screen graphical display makes the running status clear at a glance-convenient for routine operations and maintenance.

24-hour
Intelligent
Real-time
Monitoring

Graphical Display, Ensuring Real-time Monitoring

The integrated built-in control system enables the air-conditioning system devices to fully exert their efficiencies and always be in the optimum state. The touch screen graphical display achieves real-time monitoring of the operating system.



Factory Installation, Ensuring High Reliability

Part of the control elements are installed and connected to the wires of the factory for testing which is then shipped out of the factory after passing the professional tests. This ensures that all components are working normally-saving installation and debugging time and ensuring the reliability of the unit.

Typical Applications

Hotels and High-grade Office Buildings

The long-acting PM2.5 solution can ensure a high-quality indoor environment.

The optimized motor can absorb shock and lower noise.

The integrated intelligent control system can improve operational reliability and economical efficiency. The main components are dismountable which makes it convenient for routine maintenance.



Hospitals

The optimized motor can reduce vibration and lower noise.

The inside panel is made of antibacterial material which is convenient for dust removal and degerming. The complete series of filter products are optional.

The smooth interior walls are convenient for cleaning and maintenance.

The electrode humidifying/dry-steam humidifying/integrated built-in intelligent control system can achieve a constant temperature and humidity control.



Industrial Application

The thermal bridge free design (TB2) ensures excellent air tightness (L2).

Standard HDP panels possess excellent outdoor durability and pulverization resistance.

The optional stainless steel internal panel and the water pan possess strong corrosion resistance.

Various heat recovery forms such as the rotary heat exchanger, plate heat exchanger and heat pipe exchanger reduce energy consumption.

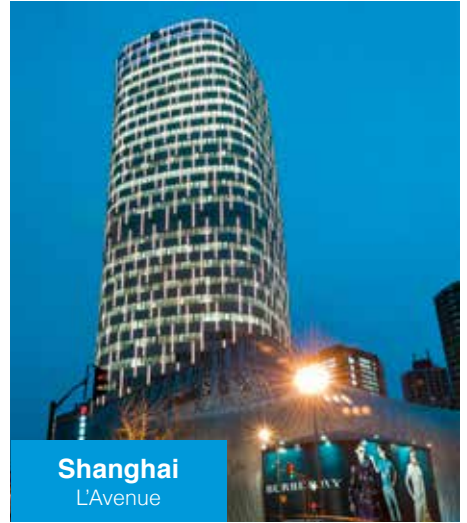




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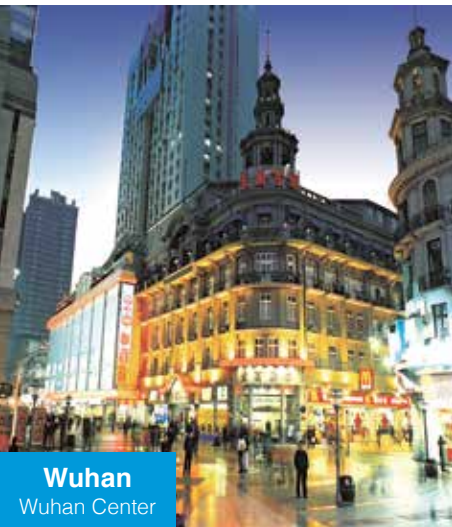


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Fortune Center

For three decades, Carrier airside equipment has continuously given its support to the development of green cities.



Xi'an
Metro Line 1



Wuhan
Wuhan Center



Shenzhen
Kingkey Financial Center



Chengdu
Metro Line 2



Carrier improves people's lives and the world around us. Our products and services improve building performance and our culture of improvement will not allow us to rest when it comes to the environment.

