



ROOFTOP

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AERMEC SOLUTIONS  
FOR AIR HANDLING



+460

Turnover  
in millions

7

Production  
systems

1800

Employees

6

Foreign  
subsidiaries





+60

Agencies  
in Italy

+80

Technical  
After-sales Services

+70

International  
distributors



# ROOFTOP UNITS

High-efficiency rooftop air-conditioning units are characterised by their **extraordinary compactness** and **extremely easy installation**.

Their purpose is to **air-condition rooms** and keep **indoor air quality** under control.

Within a single unit they integrate an **air source heat pump** for generating heating or cooling capacity and the necessary components to enable all **air handling** functions:

- Filtration
- Thermo-hygrometric control
- Air renewal
- Energy recovery on exhaust air
- Air quality control

Aermec's rooftop units are designed to ensure **maximum comfort conditions** in the rooms, while minimising energy consumption thanks to the use of free cooling / free heating and thermodynamic recovery.

Thanks to the different configurations available, they can evolve from simple air conditioners to advanced systems for the handling and control of indoor air quality. The air handled by the unit may include a **variable percentage of outdoor air**, up to 80% of the total, depending on the room's requirements.

Models are available for medium-occupancy applications (**RTX series**) such as shopping centres and production facilities, and models for high-occupancy applications (**RTY series**) such as cinemas and theatres, with air flow rates from 2,000 to 48,000 m<sup>3</sup>/h.





**AERMEC**



# INTERNAL VIEW

## 1 SUPPLY FANS

Plug fans coupled to EC brushless motors

## 2 EXHAUST FANS \*

Plug-fan type coupled to EC brushless motors, for MB4 and MBT configuration

## 3 EXTERNAL FANS

Helical axials with the possibility of speed control

## 4 COOLING CIRCUIT COMPARTMENT

With high-efficiency scroll compressors and electronic expansion valve

## 5 INTERNAL EXCHANGER

Direct expansion and finned coil

## 6 EXTERNAL EXCHANGER

Direct expansion and finned coil

## 7 INTEGRATIVE EXCHANGER \*

Finned water heating coil with integration function

## 8 ELECTROSTATIC FILTERS \*

On the supply air flow, in addition to the standard filter with 55% Coarse efficiency

## 9 OUTDOOR AIR INTAKE \*

Depending on the configuration chosen, placed on one or both sides, with waterproof cover

## 10 RECOVERY EXCHANGER THERMODYNAMIC \*

Dedicated direct expansion finned coil, placed on the exhaust air flow with MBT configuration

## 11 CONDENSATE DRIP TRAYS

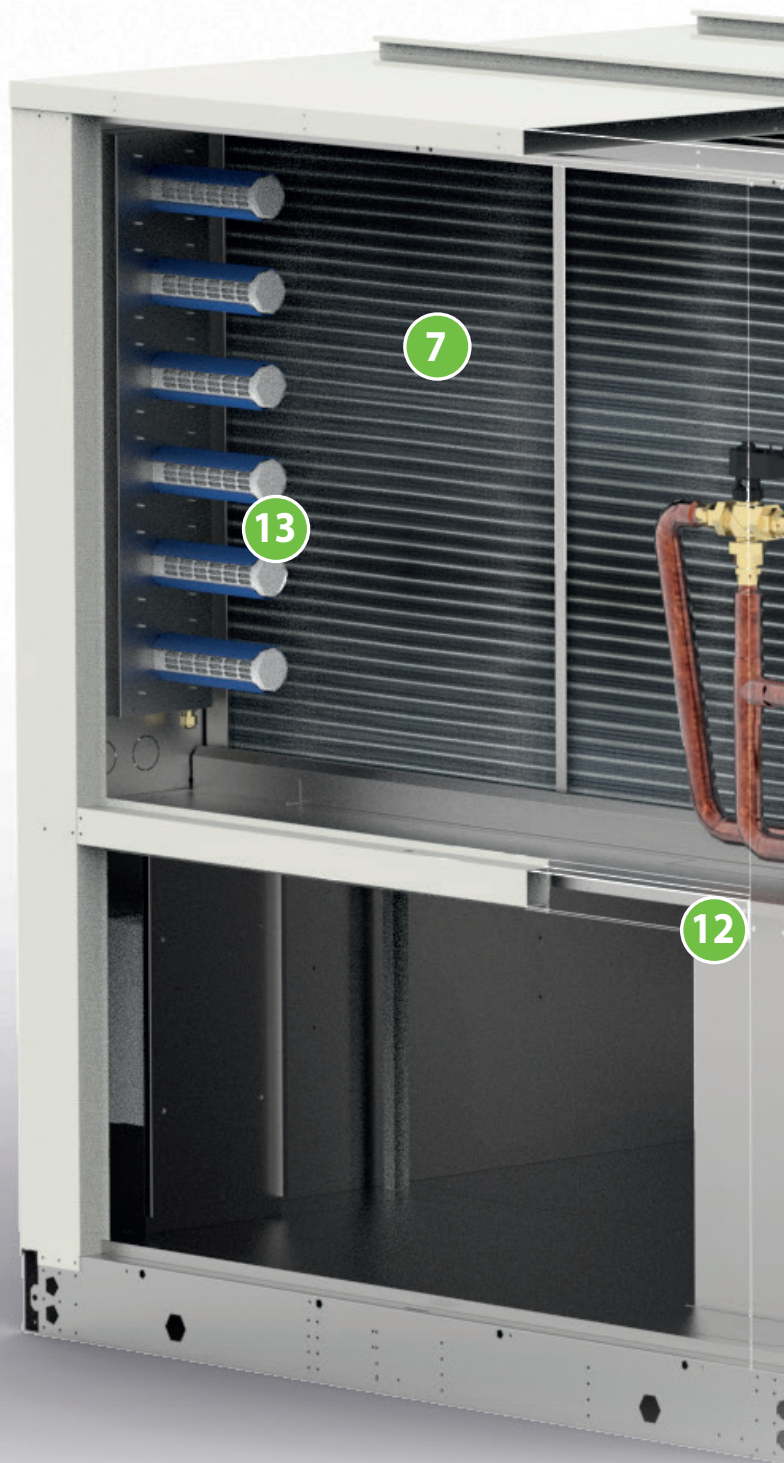
Aluminium with threaded bottom drain

## 12 CASING

With painted galvanised sheet metal frame and insulated sandwich-type panels

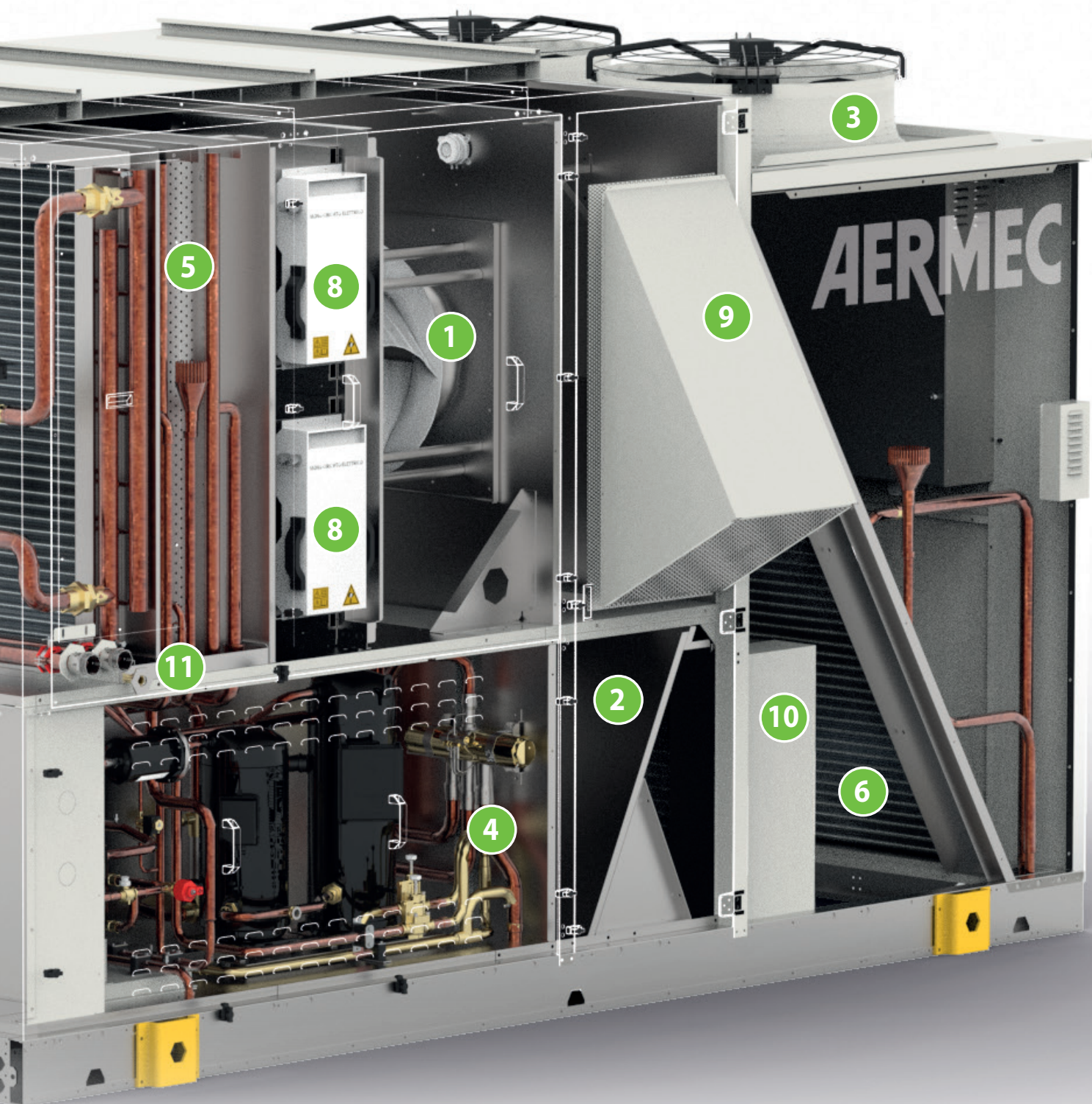
## 13 SANITISING DEVICE \*

Sanitising system with photocatalytic effect



*\* Configurable optional components*

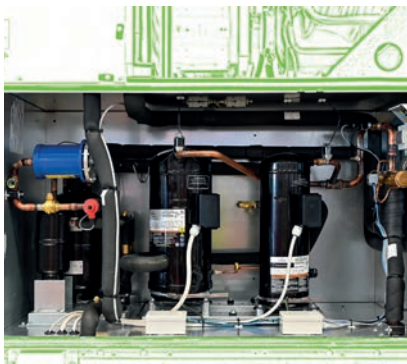




*Image for illustrative purposes.*

*The components have no design value and may vary depending on the configuration.*

# MAIN COMPONENTS



## COOLING CIRCUIT

It runs on R410A refrigerant and consists of scroll compressors in "uneven" tandem configuration (compressors of different sizes to increase the capacity steps) to ensure maximum energy savings at partial loads and provide the correct degree of partialisation of the supplied capacity power; internal and external finned coils; electronic expansion valve; safety and regulation components. The compressor compartment is isolated from the air flow.



## CONDENSATE DRAIN TRAY

Aluminium tray positioned below the internal finned exchanger, with bottom drain.



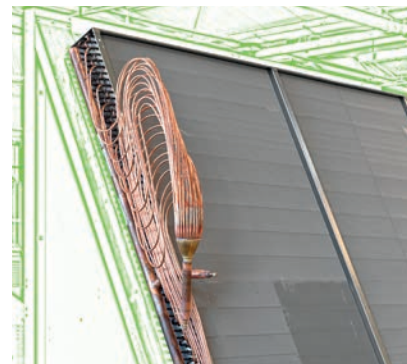
## AIR FILTRATION

It relies on standard corrugated filters with a Coarse 55% filtration efficiency, with the possibility of adding compact pocket filters with ePM1 50% or ePM1 80% efficiency or electrostatic filters. The control system warns when filters need to be changed. Indoor air quality is monitored by CO<sub>2</sub> and VOC probes available as accessories, which allow the fresh air flow rate to be adjusted to the ventilation requirements of the room.



## INSULATED CASING

It consists of a self-supporting structure in painted galvanised sheet metal, with sandwich-type insulated panels and internal insulation. Designed to ensure accessibility to internal components for maintenance.



## HEAT EXCHANGERS

The internal and external exchangers are direct expansion and corrugated finned pack, with the possibility of having a protective treatment for the aluminium fins. A finned water or electric heating coil and a hot gas post-heating coil can be added. In addition, a natural gas-fired hot air generator can be added to supplement the heating capacity.



## HUMIDIFICATION

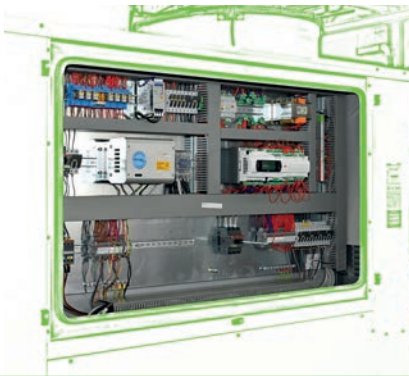
A humidifier with immersed electrode steam generator is available as an accessory. The humidity is controlled by a probe in the supply or room section, which also acts on the post-heating exchanger in summer mode.





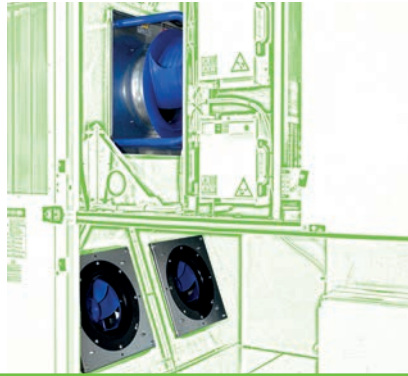
### DEDICATED HEAT RECOVERY UNIT

Finned pack heat exchanger (optional) dedicated to recovering the thermal energy contained in the air extracted from the conditioned space and connected to the unit's cooling circuit. Only exhaust air is passed through it, thus maximising the thermodynamic recovery already achieved with the external finned exchanger.



### CONTROL AND ELECTRIC POWER BOARD

It includes the electrical protections and the microprocessor electronic controller with user interface for complete control of the unit. Interfaces to connect to remote supervision and control systems available as options.



### INTERNAL VENTILATING SECTIONS

Depending on the configuration, there is a supply section and a recovery or exhaust section. The fans are of the plug-fan type with EC brushless motors, which allow the flow rate of handled air to be varied, guaranteeing high efficiency, low noise and easy maintenance.



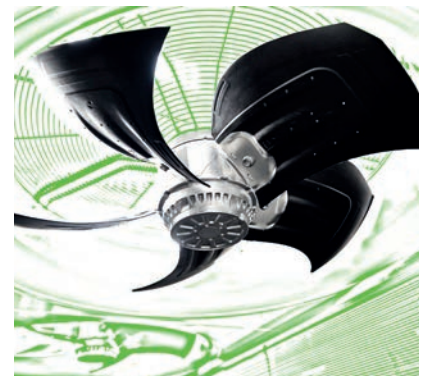
### SANITISING DEVICE

Germicidal lamp technology with a photocatalytic effect, it uses the combined action of UV radiation and a titanium dioxide catalyst structure to generate natural oxidising ions capable of destroying pollutants in the air and on surfaces. Available as an accessory.



### USER INTERFACE

Control panel with graphic interface, to control and manage all the accessories and the various configurations of the unit. The panel has an IP65 protection rating and is equipped with a pivotable metal cover as additional protection against weather and tampering. The wall-mounted or recessed control panel can be remotely controlled up to a distance of 200 metres from the unit.



### EXTERNAL VENTILATING SECTION

It consists of statically and dynamically balanced axial fans, with the possibility of adjusting the rpm to control the condensing and evaporating pressure by a pressure switch or EC brushless motors.



# A COMPLETE RANGE FOR EVERY NEED

Aermec offers two rooftop series dedicated to **medium and high-density or occupancy applications respectively**.

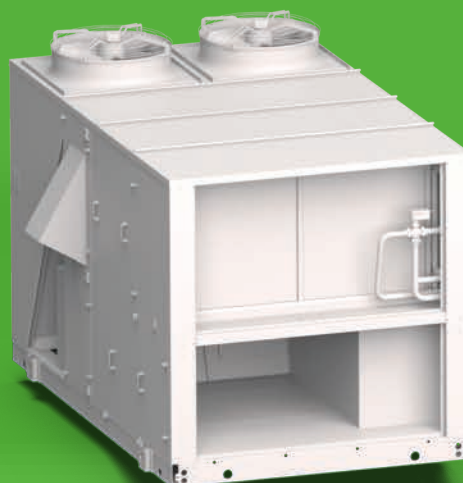
The **RTX series** is aimed at applications where the fresh air flow rate does not exceed 50% of

the total handled, such as production plants and shopping centres.

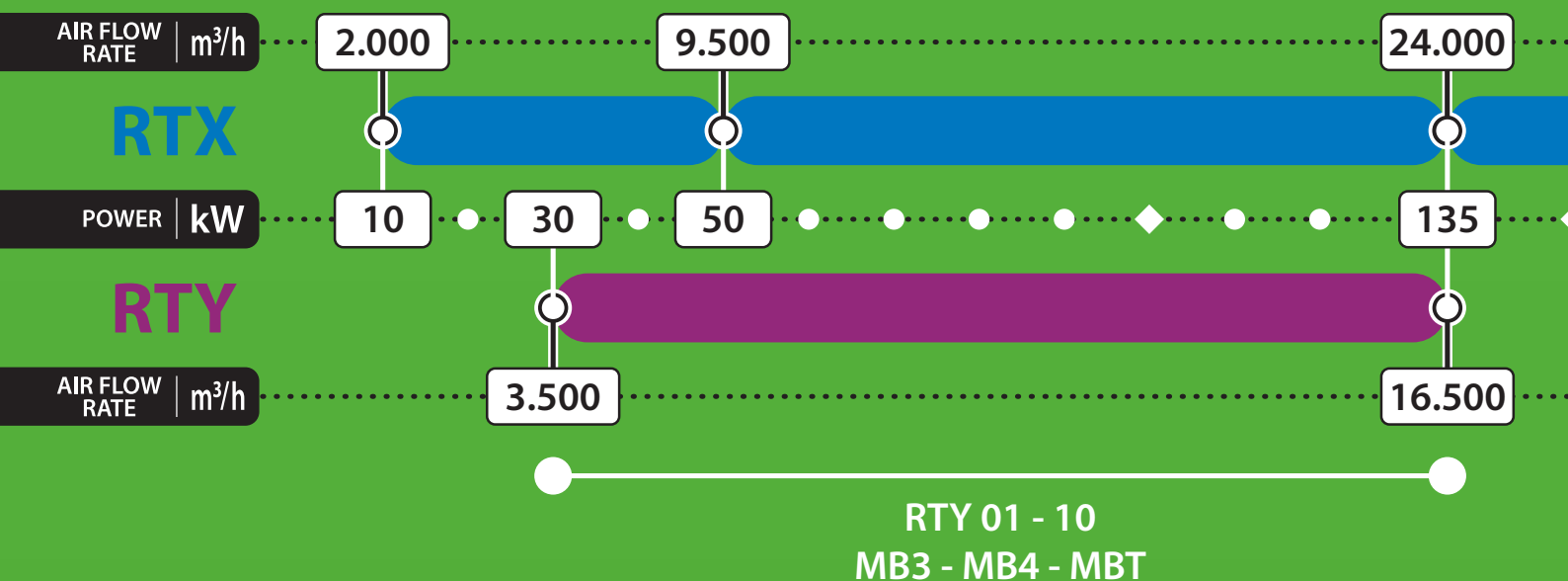
The **RTY series**, on the other hand, is suitable for applications with a high demand for air renewal, such as cinemas and theatres, where the external



RTX N1 - N8  
MB1 - MB2 - MB4



RTX 09 - 16  
MB1 - MB2 - MB3 - MB4 - MBT





air flow rate can be up to 80% of the total.

All units operate in **reversible heat pump** in both heating and cooling.

The RTX series (except for the first 8 sizes) is also available in a cooling-only version.

The **RTY** series is available in **10 sizes** covering the air flow range **from 3,500 to 16,500 m<sup>3</sup>/h**, with

heat outputs **from 30 to 135 kW**.

On the other hand, the **RTX** series has **23 sizes**, divided over three structures, to handle air flow rates **from 2,000 to 48,000 m<sup>3</sup>/h**, with heat outputs **from 10 to 300 kW**. Depending on the size, up to **4 configurations** of handled air flows are available: recovery, exhaust, recirculation, renewal and supply.



RTX 17 - 23  
MB1 - MB2 - MB3 - MB4

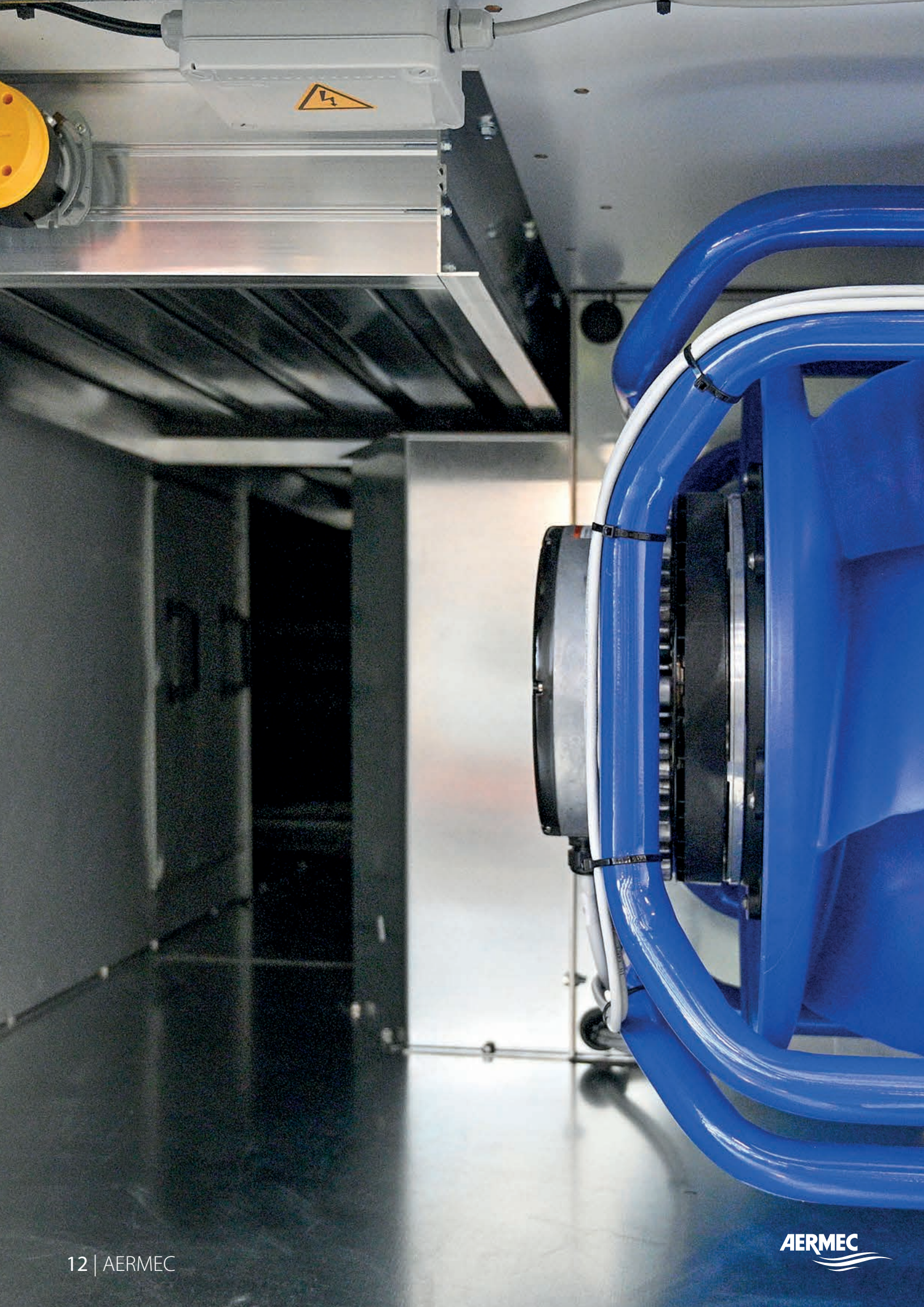
48.000

HEATING / COOLING

300

HEATING / COOLING







# CONFIGURATIONS AVAILABLE

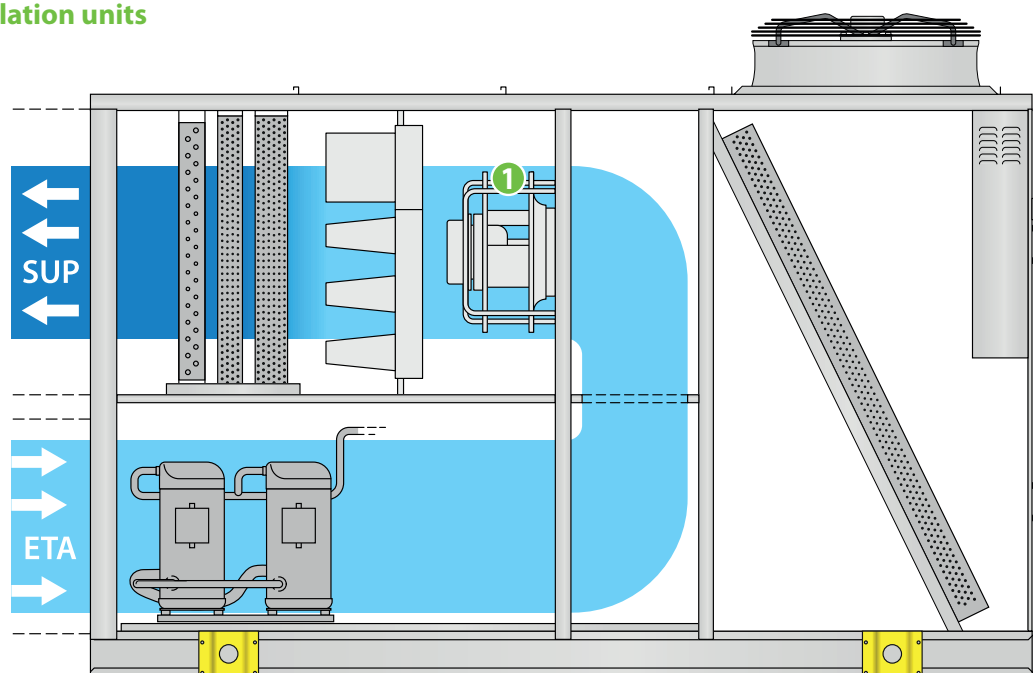
	MB1	MB2	MB3	MB4	MBT
Number of ventilating sections	1	1	2	2	2
supply	✓	✓	✓	✓	✓
return			✓		
exhaust				✓	✓
Fresh air	No	Yes	Yes	Yes	Yes
Exhaust air	No	No	Yes	Yes	Yes
Thermodynamic recovery	No	No	Yes	Yes	Yes
upgraded					✓
Models available	RTX 01-23	RTX 01-23	RTX 09-23 RTY 01-10	RTX 01-23 RTY 01-10	RTX 09-16 RTY 01-10

## MB1 Full recirculation units

① Supply/return fan

SUP : Supply air

ETA : Return air



- Single internal ventilating section for supply and return air.
- Configuration suitable for air conditioning without fresh air make up.



## MB2

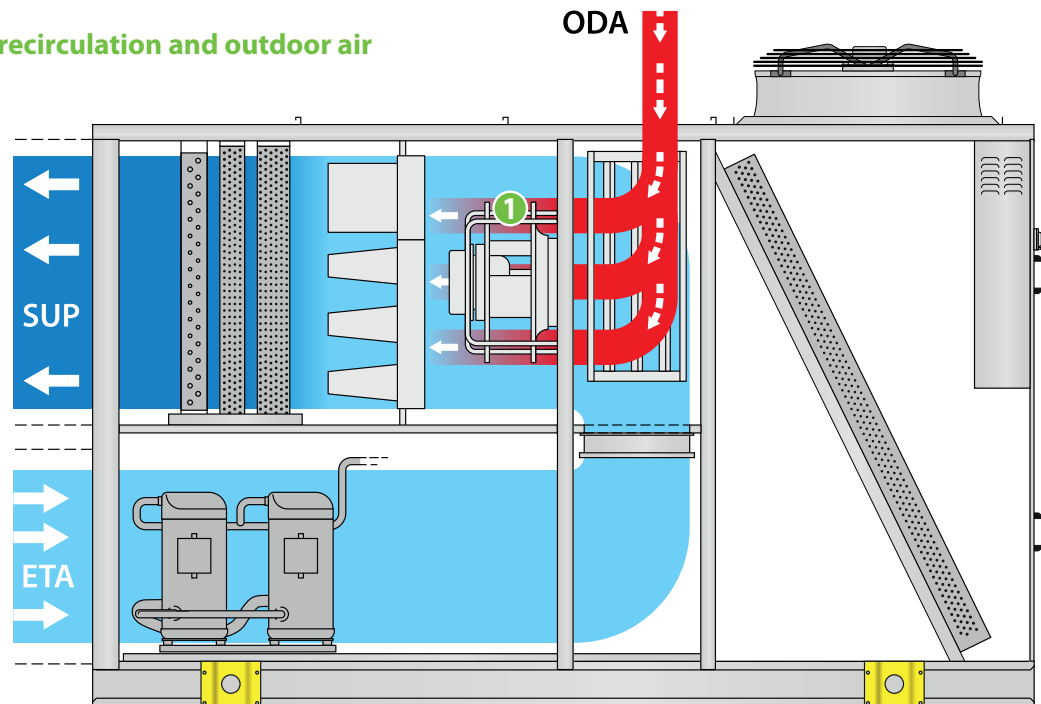
### Units with recirculation and outdoor air

① Supply/return fan

SUP : Supply air

ETA : Return air

ODA : Outdoor air



- Single internal ventilating section for return air, with outdoor air make up and supply air section.
- **Total freecooling** and **freeheating** (100% of handled outside air) to reduce electricity consumption.
- In the presence of outdoor air, the rooms are kept under **overpressure**, thus avoiding contamination from outside.

## MB3

### Units with recirculation, outside air and exhaust air (supply and return section)

② Supply fan

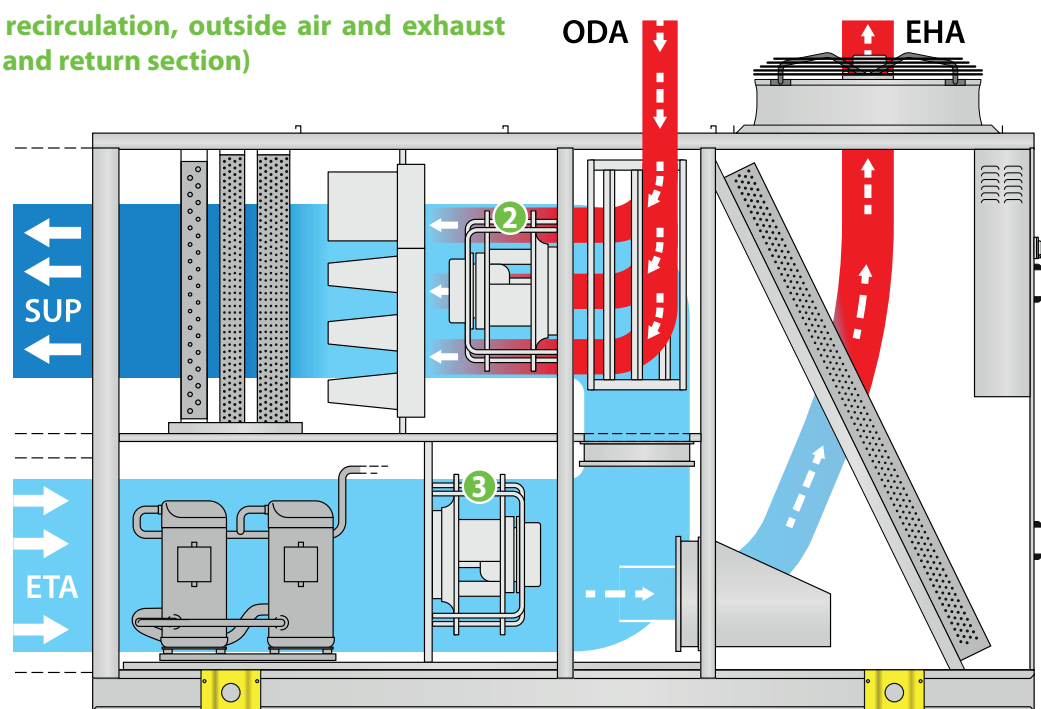
③ Return fan

SUP : Supply air

ETA : Return air

ODA : Outdoor air

EHA : Exhaust air



- One ventilating section for return air and supply air, with an intake damper for outside air and an exhaust damper for exhaust air.
- **Total freecooling** and **freeheating** (100% of handled outside air) to reduce electricity consumption.
- Thermodynamic recovery of energy of exhaust air to increase energy efficiency.
- Balanced supply and exhaust airflows: it is possible to unbalance them to create a underpressure or overpressure.

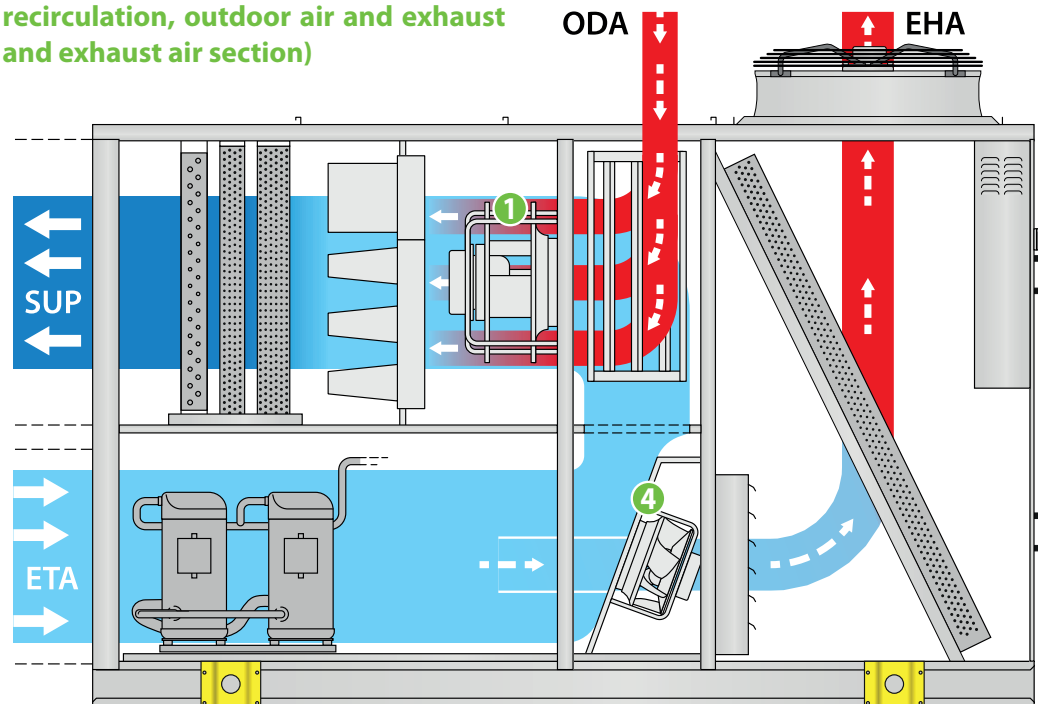


## MB4

### Units with recirculation, outdoor air and exhaust air (supply and exhaust air section)

- 1 Supply/return fan
- 4 Exhaust fan

SUP : Supply air  
ETA : Return air  
ODA : Outdoor air  
EHA : Exhaust air



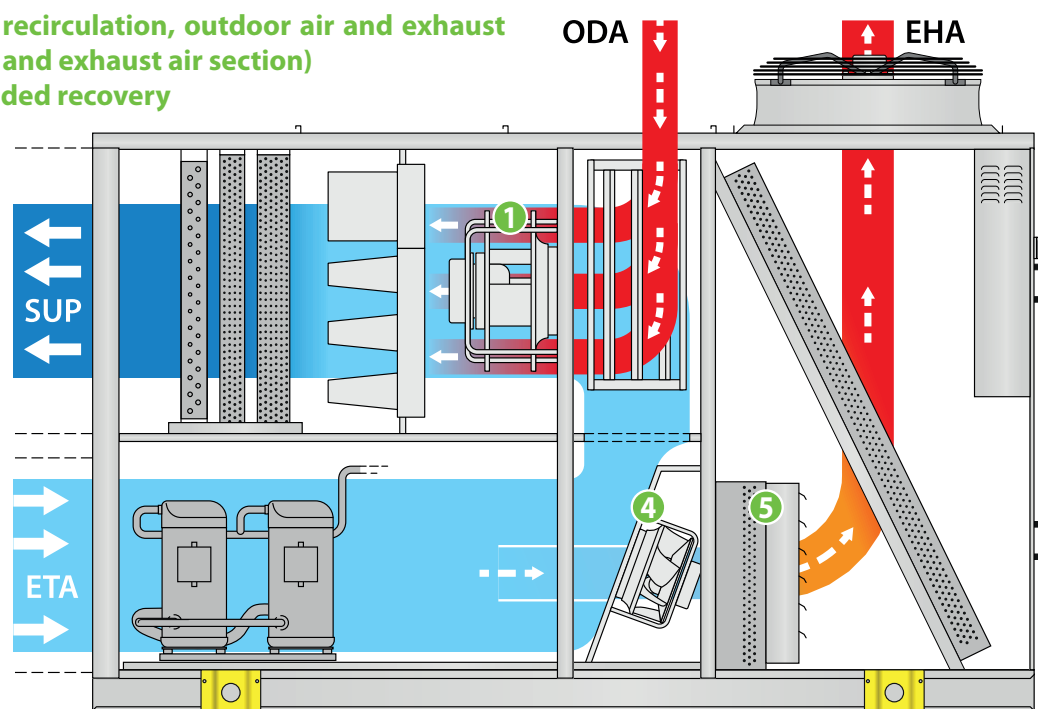
- Ventilation section for return air flow, with a damper for external air intake.
- **Reduced ventilating section** for exhaust air only.
- **Partial freecooling** and **freeheating** (50% of the handled outside air) to reduce electricity consumption.
- **Thermodynamic recovery** of energy from the exhaust air passing through the external heat exchanger to increase energy efficiency.

## MBT

### Units with recirculation, outdoor air and exhaust air (supply and exhaust air section) with upgraded recovery

- 1 Supply/return fan
- 4 Exhaust fan
- 5 Dedicated thermodynamic recovery coil

SUP : Supply air  
ETA : Return air  
ODA : Outdoor air  
EHA : Exhaust air



- Ventilating section for return air flow, with a damper for external air intake.
- **Reduced ventilating section** for exhaust air only.
- **Partial freecooling** and **freeheating** (50% of the handled outside air) to reduce electricity consumption.
- **Upgraded thermodynamic recovery** of exhaust air through both a dedicated heat exchanger and the external heat exchanger for maximum energy efficiency.



# ADVANCED ELECTRONIC ADJUSTMENT

The rooftop units are equipped with an electronic adjustment system that manages operation under different conditions of use, ensuring that comfort is maintained within the rooms with the lowest possible energy consumption. Furthermore, depending on the accessories installed, the electronic adjustment can activate different functions for even more efficient and user-friendly management.

As a basic setting, electronic adjustment of the unit is designed so that the fans operate with the constant air flow rate function. This function acts on the analogue outputs of the fans, keeping both the supply and recovery air flow rate constant. In view of reducing energy consumption, the supply and recovery air flow rates can vary depending on the amount of compressors active (Optional).

Summer and Winter thermoregulation is implemented by means of a temperature probe of the air recovered from the treated environment. Depending on the Set points, the controller activates, deactivates or modulates the connected devices (fans, compressors, resistors/generator, valves and dampers).

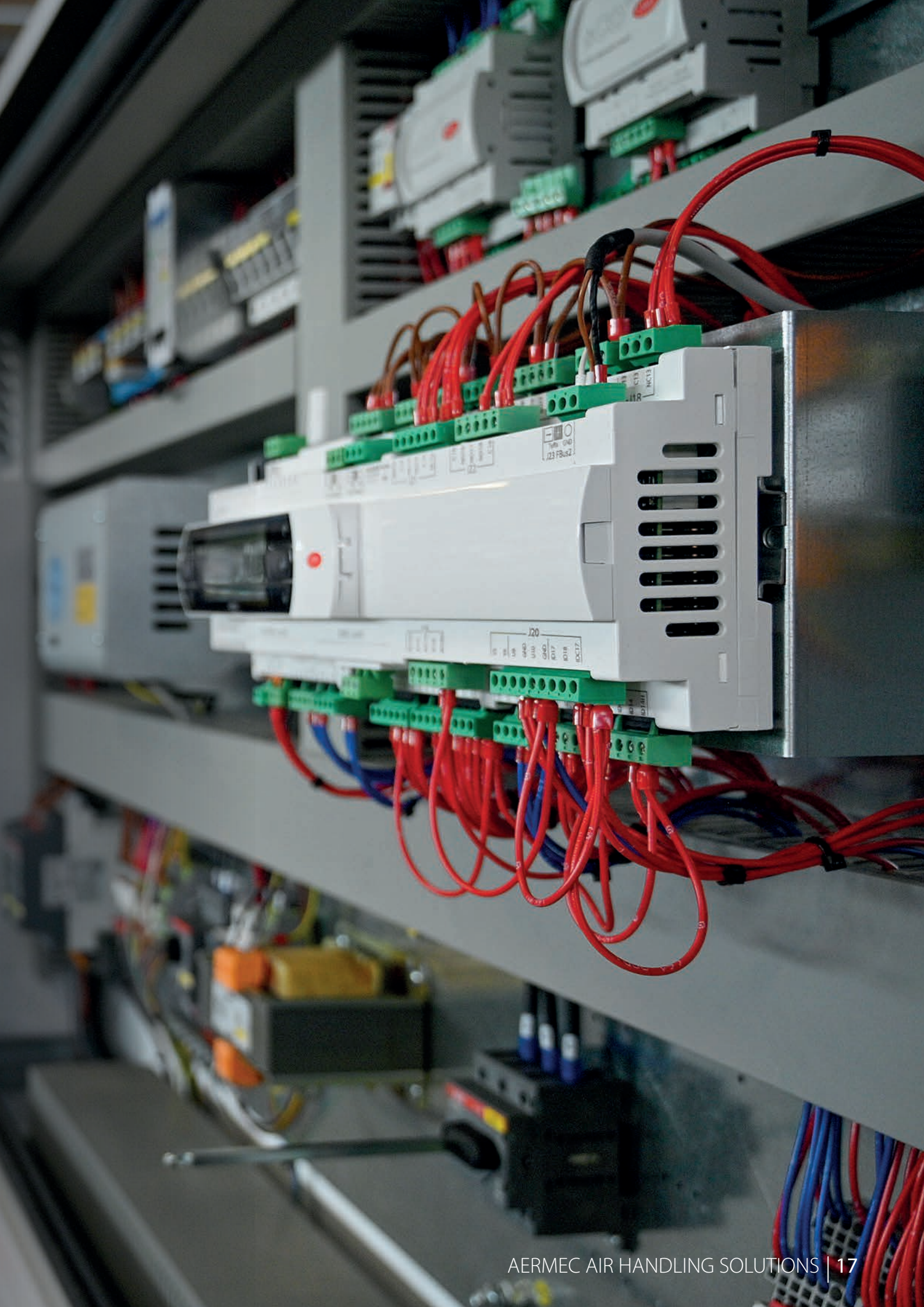
Here are the main functions of adjustment:

- 2 summer Set Points and 2 winter Set Points in view of Energy Saving (Standard)
- Dynamic Set Point / Compensation of Set Points (Optional)
- Water and electric coil management (Optional)
- ON/OFF and modulating humidifier management (Optional)
- Dynamic Defrost (as per standard in heat pump versions)
- Supply and recovery fan management: integrated-separated mode (as per standard)
- "Wash" function
- "Commissioning" function
- Summer dehumidification (Optional)
- Post heating in dehumidification (Optional)
- Constant pressure on the supply duct (Optional)
- PSTEP function: the supply and recovery air flow rates vary according to the heat load at STEP of flow rates and therefore according to the number of compressors running (optional)
- Extractor hood function (MB3 configuration only)
- Free cooling/heating thermal/enthalpy
- Winter free cooling (can be activated)
- Remote panel (Optional)
- Communication protocol (Optional)
- CO<sub>2</sub>- VOC probe (Optional)

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*Refer to the available technical documentation for further details.*







# APPLICATIONS AND REFERENCES



*Industrial*



*Tertiary*



*Hospital*



*Food*



*Theatres and Cinemas*



*Logistics Centres*



*Museum*



*Data Centre*



*School*



*Fair*



*Public*



*Sport / Entertainment*



*Hotel*



*Airports*



*Commercial*



**Ikea**

Santa Cruz de Tenerife (Canary Islands, Spain)  
*Commercial*



**Ortea Palace Luxury Hotel**

Syracuse (Italy)  
*Hotel*





### Nice International Airport

Nice (France)

*Airports*



### Akrapovic

Ivancna Gorica (Slovenia)

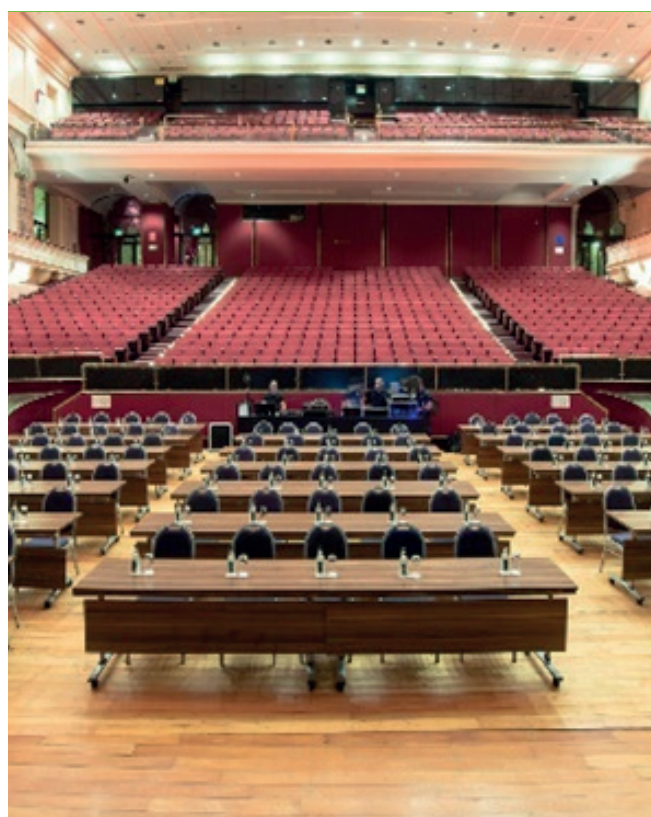
*Industrial*



### "I Giardini del Sole" shopping centre

Castelfranco Veneto (Italy)

*Retail*



### MCC Malta

Valletta (Malta)

*Conference centres*





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