



**We treat the air
that you breathe.**





Breathing innovation: excellence in air treatment.

FAST is committed to creating highly efficient solutions to meet the different needs of plant engineering solutions in terms of air treatment. Combining innovation and deep expertise, we design customised solutions for centralised systems, embracing every application in the world of **HVAC&R** and complying with current regulatory standards. Our flexibility and expertise make us a reliable, customer-focused partner capable of creating high added value solutions.



Our mission is to guarantee the most suitable air for each environment and for the activities that take place there.

Thinking together about the characteristics and qualities of the air in the rooms, creating and putting together the technologies that will make the required result possible, being present for normal management requirements and all kinds of maintenance and assistance to ensure continuity of efficiency and results. This is our mission.

This is Fast.



**The air is not
an empty space.**

On the contrary, it is the
condition in which we are
immersed and within which
all our activities take place.

Born from a great experience to be the air handling specialists.

FAST was founded in 1990 within the Giordano Riello International Group: the Group's vision was to develop an independent company and brand, able to position itself at the highest levels in the research and production of air handling machines. Led by Raffaella Riello (chair) and Paolo Gasparini (Managing Director), in just a few years FAST has become a leading player on the market, with a series of innovative high-tech machines.



Giordano Riello International Group, which was established in the 1920s with the founding of Officine Fratelli Riello, represents a pioneer in Italy in the air conditioning sector. **A family business capable of evolving into an international group** which today has 1,800 employees working in 8 production plants and which distributes its products in the global market, in over 150 countries, through distinct brands.



Ettore Riello, founder in 1922 of Officine Fratelli Riello

Each company in the Group has its own unique identity, but works strategically with others to share knowledge and expertise, thereby creating a significant competitive advantage in the market. **The connection with the group provides Fast with the chance to establish important synergies** and a set of technical, productive and marketing experience of great value.



In our world, we breathe an air of respect and collaboration.

Customer Care

We put the customer at the centre of everything we do. We are committed to understanding their needs and providing customised solutions.

Industrial culture

We have deep roots in the industrial sector, with a deep understanding of market needs and trends. We are committed to maintaining the highest standards of quality and innovation.

Sustainability

We are committed to operating in a sustainable way, reducing the environmental impact of our activities and promoting responsible practices within our supply chain.

Flexibility

We are flexible in our responses to the customer, adapting our solutions to their specific needs.



Team

We promote an inclusive and collaborative working environment; We value the power of the team and the ability to work together towards a common vision.

Synergies of the Giordano Riello International Group

We are able to use the synergies within the Riello Group for technological development, collaborating with other divisions and companies of the group to implement innovative and cutting-edge solutions.

Production autonomy

Our production autonomy allows us to produce almost all the components in-house, thereby ensuring direct control over the quality and delivery times of our supplies.



Quality Standards and Certifications: a commitment of excellence and safety.

The machines and their components are tested in adequately equipped laboratories in order to give the customer the greatest confidence in the product purchased. The **Eurovent, Vision 2000 and ISO 14001** quality certifications represent a guarantee of the maximum attention to quality in all of the company functions. We pay particular attention to the training of personnel at every stage of production activity, with the aim of achieving maximum specialisation.



EUROVENT - Performance certification

Fast is a member of the Eurovent program for air handling units (AHUs). Eurovent is a European association made up of 15 national bodies. Voluntary certification programs managed by Eurovent compare the technical characteristics declared by manufacturers in documentation and selection software with test results on actual products.



Quality - UNI EN ISO 9001 - Vision 2000

Fast has been UNI EN ISO 9001 certified since 1997. This international standard defines the requirements to ensure that companies provide products that comply with customer requirements or applicable regulations. In addition, it aims to increase customer satisfaction through a system of continuous improvement.



Environment - EN ISO 14001

Fast has been the leader in the air treatment sector to be certified UNI EN ISO 14001 since 2004. This international standard establishes the requirements for companies that want to reduce the environmental impact of their activities.



Safety - UNI ISO 45001: 2018

Fast is certified UNI ISO 45001:2018 the international standard for the certification of the Occupational Health and Safety management system. The safety of people is a fundamental value, one which we put into practice every day.



VDI 6022 - Hygiene certification

Fast air handling units can be certified VDI 6022. This German certification ensures that the sizing, materials, installed components and production facilitate cleaning operations of the units themselves, reduce microbial proliferation and are resistant to detergents and disinfectants used for maintenance.



DIN 1946 - Hygiene certification

The certification in accordance with German standard DIN 1946 represents an evolution compared to the VDI 6022 version, which Fast has implemented for its range of air handling units. Intended mainly for hospital and pharmaceutical applications, these units take the quality requirements of materials and maintenance spaces to an extreme, improving the hygienic conditions of the systems with undoubted benefits for the occupants of the areas served.



NOISE - Sound-proofing power of the panels

In collaboration with the Department of Technical Physics at the University of Padova, laboratory measurements were conducted on different types of panelling which make up the casing of the air handling units (thickness 50 mm).



PED - Pressure Equipment Directive

Directive 2014/68/EU (PED) imposes design, fabrication and testing requirements for pressurised equipment. The aim of the directive is to guarantee standardised criteria throughout all the countries of the European Community, in order to develop safe products.



CE - Safety certification

FAST pays particular attention to safety aspects, ensuring compliance with the CE mark, which certifies the conformity of products with the safety requirements of the applicable EU directives. The EC Declaration of Conformity is the last piece in a process that begins with the identification of the technical standards and ends with precise type-approval tests in specialised labs.



Reaction of the panels to fire

FAST, aware of the importance of every aspect of the design of air conditioning systems, has obtained a significant new result in terms of the certification of its machines. It regards the reaction of its buffer panels (injected with polyurethane foam) to fire.



Bacteriostatic treatment

Numerous laboratory tests were carried out at the Department of Environmental Medicine and Public Health of the University of Padova, to verify the effectiveness of the special bacteriostatic treatment applied to the inner surface of the air handling units.



Selection software: to optimise the work of professionals in the sector.

FAST offers **innovative software for the selection of HVAC&R products**, allowing industry professionals to quickly view, choose and configure the characteristics of the products suitable for the air conditioning system in question. An in-house support service provides personalised assistance, while training courses are available to illustrate the features and new features of the software.



FastNET 2.0 (Aircalc)

The "FastNET 2.0" configuration software is dedicated to the air handling units. With the latest software evolution, professionals can complete the configuration of the air handling unit with regulation and control elements. In this way, the unit becomes a "plug & play" solution.

Training: to meet sustainability challenges.

FAST has been offering training programmes for professionals in the HVAC&R sector for over 30 years, **with technical seminars and in-company courses**. Investments in training never stop, with courses taught by qualified teachers, both in the classroom and on-line, and guided tours of the production site.



With increasingly advanced systems, it is the after-sales service that makes the difference.

A relationship of trust with the market has been developed, thanks to the clarity and professionalism of our approach, combined with our experience, further strengthened by the reliability and professionalism of our after-sales service.

The immediate identification of any problems and quick interventions mean the customer is supported throughout the life cycle of the products, which are becoming more and more technologically complex.

All this is possible thanks to an extensive service network (Technical Service Centres coordinated by dedicated on-site personnel) trained by the company with specific courses.

The after-sales service includes:

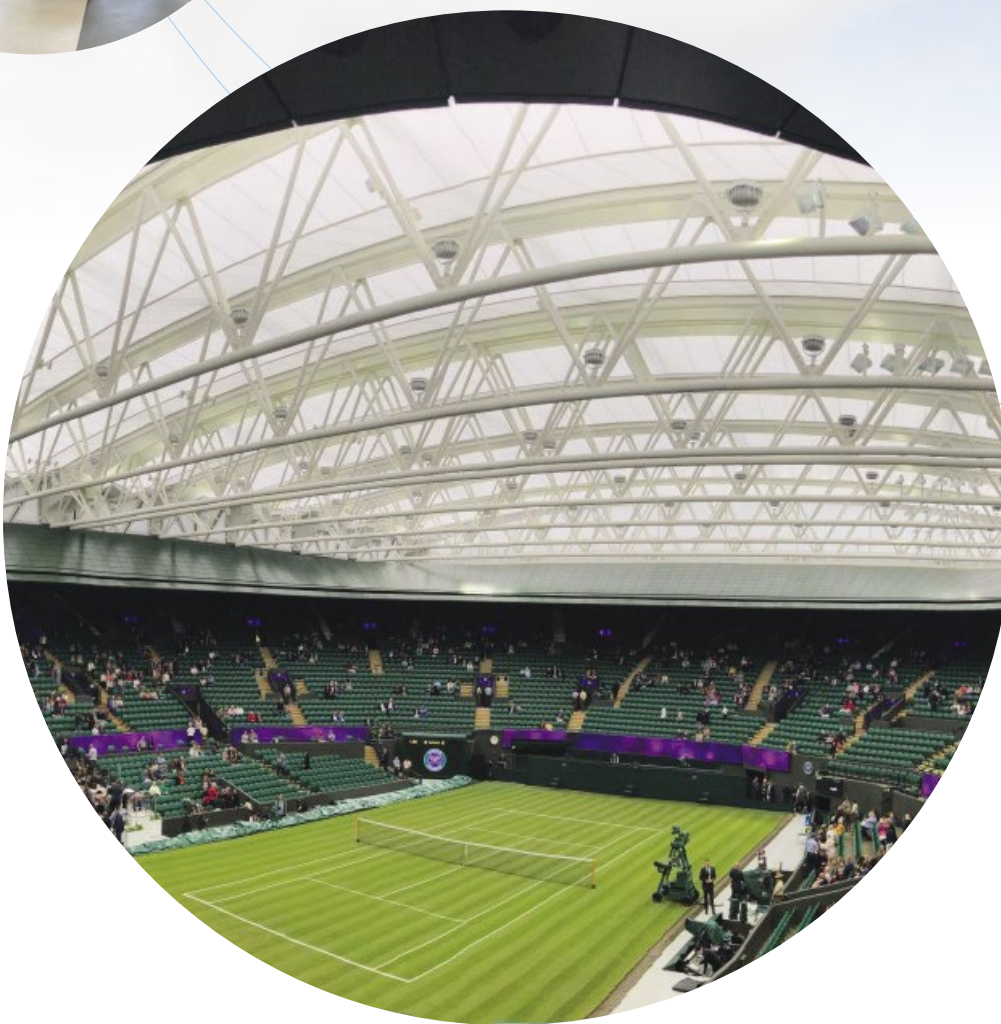
- Qualified technical support on all products ✓
- Organisation and commissioning of the installed units ✓
- Spare parts warranty ✓
- Inspections on construction sites to verify the installation ✓
- Scheduling of visits and maintenance ✓
- Warranty support and extensions ✓
- Provision of technical documentation on installed products ✓





If the air is Fast, you'll feel the difference.

We design and manufacture state-of-the-art air handling units, heat recovery units and Rooftop units, perfectly integrated into systems for offices, hotels, hospitals, data centres, theatres, swimming pools, sports facilities and the food and pharmaceutical industries. Each of our products is synonymous with efficiency, reliability and innovation, with a constant focus on air quality, energy saving and operational continuity.





Products

FM Line	18	1
FM Hygienic VDI 6022	28	
FM Hygienic DIN 1946	29	
Unit for specific applications	30	2
Alfamini	34	
Alfamax	35	
Heat recovery units	36	3
HRR	40	
HRF	41	
Roof-top units	42	4
RFM N1-N8	50	
RFM 09-16	54	
RFM 17-23	58	
RFE 01-10	62	
RFI 060M - 08M - 125M	66	



1 FM

Air handling units

The **FM air handling units** are the result of consolidated experience and in-depth studies and experiments in the **field of aeraulic machines**. The FM series is designed to suit all contexts, both in terms of functionality and size, allowing you to meet different air treatment needs even in specific sectors such as hospital, food, pharmaceutical and microelectronics.

The FM series is made in full compliance with the provisions of the EN 1886 norm as far as mechanical resistance, air leakage, heat performance and soundproofing is concerned. The precise coupling of the frame makes it possible to achieve casing performance levels that fall within the best classes provided for by the UNI EN 1886 standard.



See virtual product



Over 100 sizes to meet every need.

FM AIR HANDLING UNITS

The FM units are designed for civil, commercial and hotel contexts, with 109 sizes to cover applications in every room, whatever its dimensions.

1 The **load-bearing structure** uses aluminium alloy profiles, also available in an anodised version and with a thermal break to improve performance in terms of both corrosion resistance and thermal insulation.



See all the features



2 GERMICIDAL LAMPS

These are generally used in sequence with extremely high efficiency filtration systems, to keep the bacterial flora and germs that are mainly formed in heat exchange batteries and condensate collection tanks under control.

3 HEAT RECOVERY UNITS

Static cross-flow; static cross-flow with by-pass damper; static cross-flow with recirculation damper (group 3 dampers with heat recovery unit); heat pipe; rotary; dual coils.

4 SILENCER BAFFLES

With horizontal or vertical configuration.

5 FANS

Forward-curved or backward-curved blades with wing contour, EC motors.

6 FILTERS

With rigid or loose pockets, roller, absolute, activated carbon or electrostatic, with extractable cell pre-filters.

7 DAMPERS

Partial or total section.

8 HEAT EXCHANGER COILS

Water, steam, direct expansion or electric.

9 HUMIDIFICATION

Adiabatic humidification; isothermal humidification.

10 DROP BAFFLE PLATE

STAINLESS STEEL, aluminium alloy or polypropylene.

The **panelling has a twin sheet metal wall** available in a variety of materials, from galvanized steel to AISI 316 stainless steel, through pre-painted galvanized steel with antibacterial paint, or Magnelis steel.

The **insulation** can be made of polyurethane or mineral wool.

The **ground-breaking gaskets** guarantee reduced leakage, in accordance with EN 1886. The screw-free method for fixing the panels to the load-bearing structure means the panels themselves are not altered in any way and the pressure is evenly distributed across their entire edge, even when they need to be removed for extraordinary maintenance and subsequently reassembled.



SPECIAL FEATURES

IONIZER MODULES

The installation of the ionizer modules keeps the unit sanitised over time. The oxidising ions generated by photocatalytic oxidation destroy bacteria, viruses, moulds, allergens and odours.

HUMIDIFICATION SYSTEMS

The humidification systems are chosen based on the specific use and the available fluid. The available options include:

isothermal humidification: steam distribution, with immersed electrodes, resistance heater elements or gas generator.

adiabatic humidification: paper pad, PVC pack, with or without a recirculation pump, high pressure, compressed air, ultra-sound and air washer.

HEAT RECOVERY UNITS

Various types of heat recovery systems make it possible to comply with energy saving regulations currently in force.

- ▶ cross-flow plate heat recovery units
- ▶ countercurrent plate heat recovery units (efficiency >90%)
- ▶ rotary heat recovery units (heat and humidity exchange)
- ▶ recovery and replenishment coils

FILTRATION

We offer all types of air handling unit filters, compliant with air quality regulations. Innovative electrostatic filters capture very small particles without losing effectiveness over time and eliminating up to 99% of bacteria, germs, moulds and yeasts.

ADVANTAGES

Fast is able to offer air handling units equipped with regulation system, electrical power panel and fully wired and factory-tested elements.

A “**plug and play**” solution which only requires a con-

nection to the power supply (as well as an aeraulic connection to the ducting system and a hydraulic connection for the heat exchanger coils).

- ✓ **Customisable** in terms of size, materials, insulation, type of treatment and components.
- ✓ **Constant updating** in the choice of materials and components to improve performance and configuration possibilities.
- ✓ Can be **universally adapted** for any application.
- ✓ **Full assistance** provided for selection and configuration needs.
- ✓ **Plug and play adjustment** for quick and easy installation.
- ✓ **Continuous support** during installation and start-up.
- ✓ **Components of primary brands** to guarantee free access to spare parts over the long term.
- ✓ **Single point of contact** for air handling units, saving on installation time.

THE MATERIALS

Aluminium profiles are available in the following versions:

- ▶ aluminium with natural finish
- ▶ anodised aluminium
- ▶ aluminium with natural thermal break finish
- ▶ anodised aluminium with thermal break

The thermal and acoustic insulation of the panels can be achieved with:

- ▶ polyurethane
- ▶ mineral wool

APPLICATIONS



Industrial



Service Sector



Health Care



Food/Beverage



Winemaking



Chemical



Museums



Wellness/SPA



Education



Fair



Government



Sport/Leisure



Hotels



Agriculture



Commercial

FM HYGIENIC



AIR HANDLING UNIT

AIR FLOW RATE FROM 1,000 TO 62,000 m³/h



See all the features

The units of the FM VDI 6022 series are certified according to the strict requirements of the German standard VDI 6022, internationally recognised for hygiene standards in ventilation and air conditioning units.

The certification process was carried out by Eurocer-

tifications Srl, the Italian partner of TÜV Hessen in Germany. These units must meet specific criteria in their sizing and they must use approved materials and components to **ensure ease of cleaning, reduction of microbial proliferation and resistance to detergents and disinfectants.**

Materials, finishes and Hygienic design for perfect sanitation.

- **Access sections** that facilitate inspections and cleaning.
- **Draining panels and tanks** for rapid evacuation of water during sanitisation.
- **Availability of 109 sizes.**
- **Modular support structure** for the standardisation of components and greater flexibility of use; sandwich panelling, 50 mm thick.



- ✓ **Simplified maintenance and inspection**
- ✓ **Rapid and effective sanitation**
- ✓ **High flexibility and adaptability**

FM HYGIENIC

DIN 1946-4

AIR HANDLING UNIT

AIR FLOW RATE FROM 1,000 TO 62,000m³/h



The units of the FM DIN 1946-4 series are certified according to the strict requirements of the DIN 1946-4 standard, certification of conformity referring to the hygiene requirements for ventilation in facilities and rooms of the health sector.

The units of the FM Hygienic series are designed for applications requiring special materials, ideal for environments where air handling units (AHUs)

have to undergo sanitation procedures with the use of potentially aggressive disinfectants on surfaces and internal components.

In compliance with the strict requirements of hygiene and cleanliness, these units **comply with all the geometric-constructive characteristics dictated by recent regulations.**

When air treatment is a matter of maximum hygiene.

- **Stainless steel construction and special coatings** on fans and components.
- **Dedicated filters** to reduce the microbial load of the delivery air.
- **88 customisable sizes.**



- ✓ **Compliance with hygiene standards**
- ✓ **Sanitised and safe air quality**
- ✓ **Certified Materials and Components**



2 Air handling unit for specific applications

The characteristics of places like **swimming pools, wellness centres and fitness centres** require specific plant engineering solutions and air treatment systems that combine **top energy savings with environmental comfort needs**. These systems, generally of the “all-air” type, are distinguished by a high energy demand. Estimates indicate that, in the case of a swimming pool, the cost of energy can reach 35% of the total management costs.

The 3 key factors to reconcile well-being and energy efficiency

DEHUMIDIFICATION

Remove the internal air and replace it with external air to maintain the right environmental comfort.

AIR DISTRIBUTION

In swimming facilities, it is necessary to minimise the air speed near the tank (max 0.1 m/s) to avoid excessive evaporation.

PRECISE CLIMATE CONTROL

Because even small variations in temperature and humidity parameters can lead to an increase of energy consumption.

VENTILATION

Ensure the correct supply of external air to keep chloramine levels in the air under control.



See virtual product

Dive into comfort without wasting energy.

The **AlfaMini** and **AlfaMax** units are innovative solutions designed for dehumidification and air treatment in swimming pools, combining energy efficiency, ease of use and durability. These units are the ideal choice to ensure a comfortable and safe environment in the swimming facilities.



SPECIAL FEATURES

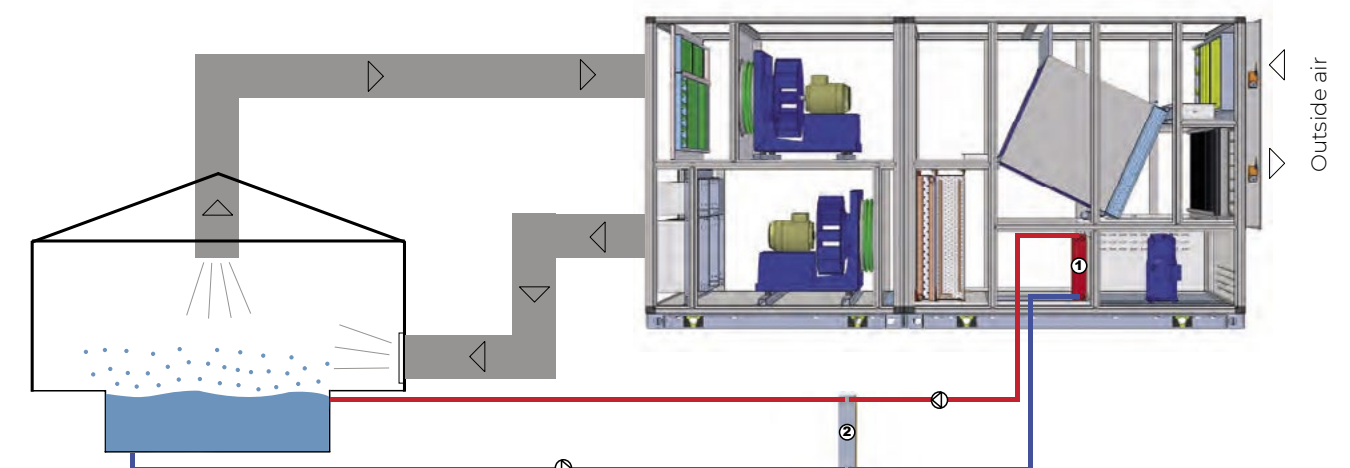
- **Thermal recovery** with a cross-flow heat recovery unit and a refrigerating circuit to optimise energy efficiency.
- **Water-side heat recovery system** to be used to partially reheat pool water at zero cost.
- **Anodised aluminium load-bearing structure and 50 mm sandwich panelling** to ensure corrosion resistance.
- **Plug fans** for efficient operation.
- **“Plug & Play” functionality** with electrical panel, regulation system and refrigerating circuit pre-installed for immediate use.

ADVANTAGES

- ✓ **Optimisation of energy efficiency** with heat recovery and savings on pool water heating costs.
- ✓ **Improved durability** thanks to the anodised aluminium structure and corrosion-resistant panelling.
- ✓ **Efficient operation** and reduced operating costs thanks to the use of painted plug fans.
- ✓ **Simplified installation and start-up**, reducing time and costs thanks to the “Plug & Play” system.
- ✓ **Plug and play adjustment** for quick and easy installation.
- ✓ **Creating a comfortable and safe environment** in swimming pools, improving comfort and safety.
- ✓ **Optimal air exchange**, essential for the reduction of chloramines, thanks to the possibility of working with up to 100% outside air.

Cycle with air-to-water heat transfer

If the air temperature conditions in the room are met, the heat produced by the refrigerating circuit is transferred to the pool water by means of a double plate heat exchanger (standard). A plate heat exchanger is an integral part of the refrigerating circuit of the unit (R410A air-to-water heat exchanger of the intermediate circuit, in the following figure indicated with 1). Another inspectable heat exchanger is supplied with the unit. This heat exchanger works with water from the intermediate circuit/pool water (item 2 in the following figure). A heat recovery system constructed in this way facilitates maintenance operations. The Customer is responsible for the components and hydraulic connections between the two heat exchangers.



The diagram is by way of example only. Not all the components necessary to complete the water circuits have been indicated.

ALFAMINI

AIR HANDLING UNIT FOR SPECIFIC APPLICATIONS

AIR FLOW RATE FROM 2,500 TO 13,000 m³/h

The units of the Alfamini series are ideal for providing **wellness conditions in small and medium-sized environments**, such as spas, wellness centres, small swimming pools, and sports facilities.



Immediate well-being with the Plug & Play solution.

- Refrigerating circuit combined with **sensitive and latent heat recovery system** from the expelled air.
- Ready-to-use **“Plug & Play” solution**, designed for dehumidification and control of thermo-hygrometric conditions.
- **5 sizes available** to meet the specific needs of the environments.

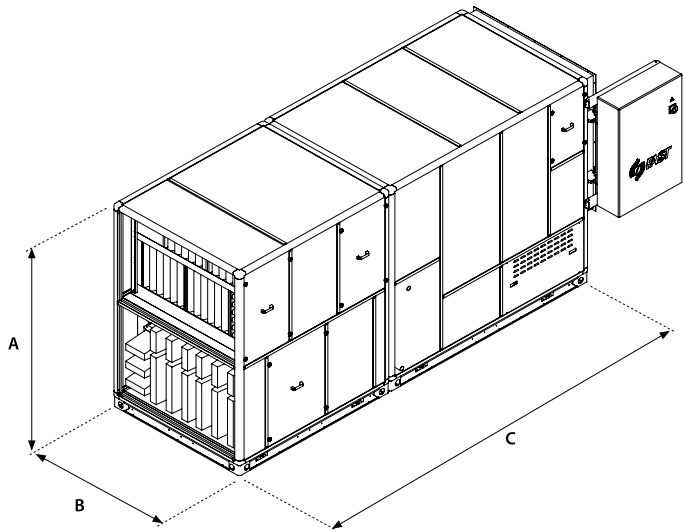


- ✓ **Optimised energy saving**
 - ✓ **Easy to use** and quick to install
 - ✓ **Can be adapted to different environments**
- with efficient performance

Technical data

Alfamini		025	040	060	100	130
Nominal air flow (supply/extract)	m³/h	2.500	4.000	6.300	10.000	13.000
Available pressure (supply/extract)	Pa	400	400	400	400	400
Heat recovery capacity recovered (1)	kW	7,9	12,6	20,4	32	41,5
Max heat recovery efficiency (1)	%	80,8	79,3	80,1	79,5	79,4
Refrigerant circuit recovered capacity (1)	kW	7,5	10,5	21,3	31,7	45,7
Total recovered capacity (1)	kW	15,4	23,1	41,6	63,7	87,3
Compressor absorbed power (1)	kW	1,3	1,6	3,7	6	8,4
COP (1)	-	11,8	14,4	11,2	10,6	10,4
COP (2)	-	3,9	4	4,1	4	4,1
Total dehumidification capacity (1)	kg/h	15,5	25,2	40,1	63,7	82,7
Supply fan power input	kW	1,6	2,6	3,7	5,9	7,6
Extract fan power input	kW	1,2	1,9	2,7	4,5	5,7
Type / number of compressors	n°	Scroll / 1				
Hot water heating coil (standard)						
Capacity (without recovery active) (1)	kW	26,1	35,4	61,6	95,3	124,5
Water flow rate (3)	l/h	2.250	3.050	5.300	8.200	10.700
Water pressure drop (3)	kPa	23,5	43,7	33,1	48,8	46,3
Plate heat exchanger R410A/non aggressive water (standard)						
Nominal water flow rate (4)	l/h	950	1.120	2.500	3.600	5.400
Water pressure drop (4)	kPa	19	19	31	32	33
Plate heat exchanger accessible non aggressive water/pool water (standard)						
Water flow rate nominal pool (5)	l/h	1.200	1.400	3.100	4.500	6.800
Pressure drop pool side (5)	kPa	32,4	34	31,4	33	34,5
Pressure drop intermediate circuit side (5)	kPa	21,2	22,3	20,6	21,6	22,5
Electrical data						
Power supply		400 V - 3 ph - 50 Hz				
Maximum total current input supply fan	A	3,5	6,2	11	14,6	15
Maximum total current input extract fan	A	2,6	4,9	6,4	11,3	11,3
Unit maximum current input	A	11,6	17,1	32,4	49,3	61,3
Unit starting current	A	32,1	46,1	91,4	181,9	184,3

(1) External air 0°C, 80% RH; internal air 29°C, 60% RH.
(2) Values as per conditions of D.M. 7 april 2008 for heating only operation.
(3) Water temperature inlet/outlet 70/60°C; water pressure drop including 3 way valve.
(4) Water temperature inlet/outlet non aggressive 27/37°C.
(5) Water temperature inlet/outlet intermediate circuit 37/27°C; water temperature inlet/outlet pool 25/35°C.



Dimensions

AlfaMini		25	40	60	100	130
A	mm	1.765	1.765	2.245	2.405	2.405
B	mm	895	895	1.055	1.375	1.695
C	mm	3.230	3.390	4.190	4.190	4.670
Weight	kg	900	1.000	1.350	2.060	2.600

The dimensions and weights are subject to changes.

ALFAMAX

AIR HANDLING UNIT FOR SPECIFIC APPLICATIONS

AIR FLOW RATE FROM 16,000 TO 25,000 m³/h

AlfaMax units are the ideal solution for guaranteeing well-being in medium/large-sized wellness areas such as spas, wellness centres, swimming pools, sports facilities, etc.



See all the features

The simplicity of Plug & Play also for large applications.

- Refrigerating circuit combined with sensitive and latent **heat recovery system** from the expelled air.
- **“Plug & Play” solution** for immediate use, it manages dehumidification and thermo-hygrometric control.
- **Available in 3 sizes.**

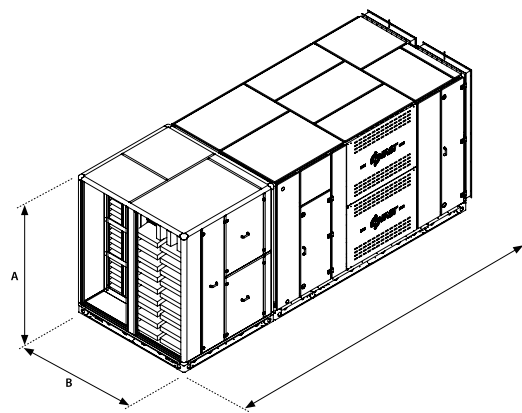


- ✓ **Optimised energy saving**
- ✓ **Quick and easy installation and start-up**
- ✓ **Optimised dimensions** for large volumes of air treated

Technical data

Alfamax		160	200	250
Nominal air flow (supply/extract)	m3/h	16.000	20.000	25.000
Available pressure (supply/extract)	Pa	400	400	400
Heat recovery capacity recovered (1)	kW	59,6	68,6	89,2
Max heat recovery efficiency (1)	%	93	86	89,2
Refrigerant circuit recovered capacity (1)	kW	46,3	53,6	69,4
Total recovered capacity (1)	kW	105,9	122,2	158,6
Compressor absorbed power (1)	kW	8,5	9,2	12,8
COP (1)	-	12,5	13,3	12,4
COP (2)	-	4,0	3,9	3,9
Total dehumidification capacity (1)	kg/h	102,2	127,6	159,5
Supply fan power input	kW	10,9	13,7	17,7
Extract fan power input	kW	8,3	9,8	12,4
Type / number of compressors	n°	Scroll / 1		
Hot water heating coil (standard)				
Capacity (without recovery active) (1)	kW	131,9	182,7	205,9
Water flow rate (3)	l/h	11.300	15.700	17.700
Water pressure drop (3)	kPa	43,7	37,9	42,2
Plate heat exchanger R410A/non aggressive water (standard)				
Water flow rate nominal (4)	l/h	5.760	6.450	8.260
Water pressure drop (4)	kPa	33	33	33
Plate heat exchanger accessible non aggressive water/pool water (standard)				
Water flow rate nominal pool (5)	l/h	7.200	8.100	10.400
Pressure drop pool side (5)	kPa	34,2	34,7	34,2
Pressure drop intermediate circuit side (5)	kPa	22,3	22,7	22,2
Electrical data				
Power supply		400 V - 3 ph - 50 Hz		
Maximum total current input supply fan	A	29,2	41,0	42,0
Maximum total current input extract fan	A	22,0	22,6	30,0
Unit maximum current input	A	86,2	99,6	123,0
Unit starting current	A	209,0	223,0	287,0

(1) External air 0°C,80% RH; internal air 29°C,60% RH.
(2) Values as per conditions of D.M. 7 april 2008 for heating only operation.
(3) Water temperature inlet/outlet 70/60°C; water pressure drop including 3 way valve.
(4) Water temperature inlet/outlet non aggressive 27/37°C.
(5) Water temperature inlet/outlet intermediate circuit 37/27°C; water temperature inlet/outlet pool 25/35°C.



Dimensions

Alfamax		160	200	250
A	mm	2.085	2.405	2.405
B	mm	2.015	2.175	2.335
C	mm	5.790	5.790	6.430
Weight	kg	2.780	3.250	3.580

The dimensions and weights are subject to changes.



Heat recovery units Units for the service sector

Recent research shows that people spend almost 90% of their time in closed spaces. In this situation, the HVAC&R (Heating, Ventilation, Air Conditioning, and Refrigeration) system must be able to ensure comfort, energy efficiency as well as the health of those present.

The “service sector” application includes a wide variety of intended uses such as: hotels, offices, retailers, banks, restaurants and bars, shopping centres, multifunctional structures.

The mechanical systems and therefore the air conditioning units must be adapted to their needs.



See virtual product



Air quality for quality of life in the service sector buildings.

Traditionally, **comfort was the main parameter** for evaluating an HVAC&R. This includes managing temperature and humidity to ensure a comfortable environment for people.

With the regulatory evolution, energy efficiency has become crucial.

Our systems guarantee optimised energy consumption to reduce environmental impact and operating costs.



High efficiency with rotary heat recovery unit with performance efficiency exceeding 90%

- **High efficiency rotary heat recovery unit**, with low pressure drops and available with hygroscopic surface treatment, aluminium plates and countercurrent heat exchange, with certified efficiency exceeding 90% (EUROVENT standard).
- **Plug Fan fans equipped with electronic control motors EC** (up to size 17) or high-efficiency motors managed by inverters reduces electrical absorption and guarantees silent operation.
- Design aimed at **reducing the overall value of the SFP** (Specific Fan Power) for greater energy sustainability.
- **“Plug & Play” design** for easy installation and use, with integrated electronic control and electrical panel directly on the machine.
- **Dedicated control software** for optimising the use of the unit, aimed at ensuring favourable energy conditions.
- **Free-cooling and free-heating function** to make the most of favourable outdoor weather conditions.
- **Advanced ventilation and heat regulation control** with energy saving functions.

SPECIAL FEATURES

- **Focus on improving indoor air quality (IAQ)** to ensure healthy and safe environments.
- **Control of the presence of dust, pollutants and microorganisms in the air.**
- **Flexible and customisable solutions** for different service sector environments such as hotels, offices, restaurants and shopping centres.
- **Offering advanced and customised technologies** to address emerging air quality challenges.
- **Over 30 years of experience** in the sector.

ADVANTAGES

- ✓ **Contribution to the long-term health and well-being** of occupants through the improvement of indoor air quality
- ✓ **Adaptability of systems** to a wide range of service sector environments, with customised solutions for every specific need
- ✓ **Quiet and efficient** operation
- ✓ **Quick and easy installation** with “Plug & Play” design
- ✓ **Panel thickness 50 mm**
- ✓ **Maximised** energy recovery from expelled air
- ✓ **Advanced protection** against contaminants
- ✓ **Low energy consumption** and efficient and silent operation
- ✓ **Maximum flexibility** thanks to the possibility of vertical or horizontal installation
- ✓ **Internal or external execution**

HRR

HEAT RECOVERY UNITS

AIR FLOW RATE FROM 1,000 TO 30,000 m³/h

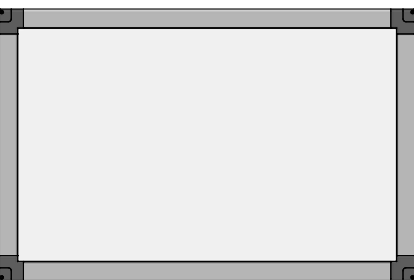
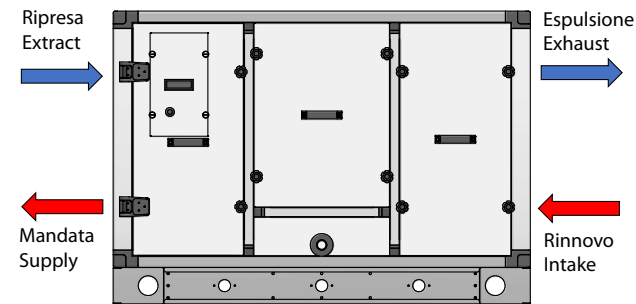
The HRR units are designed to offer superior performance in the management of air quality and thermo-hygrometric comfort in **residential environments**.



See all the features

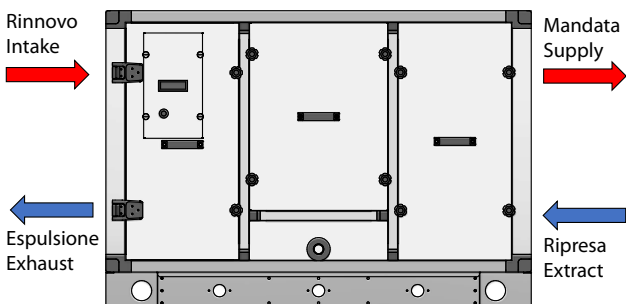
Configurations

HRR Horizontal Configuration
Right delivery (top view)



Lato Attacchi / Connection Side
Lato Ispezioni / Access Side

HRR Horizontal Configuration
left delivery (top view)

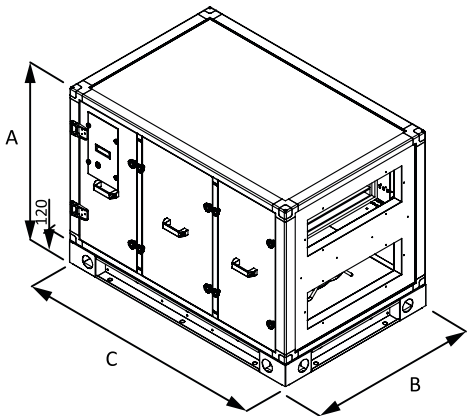


Lato Attacchi / Connection Side
Lato Ispezioni / Access Side

Technical data

HRR		07	09	12	15	17	21	24
HEAT RECOVERY UNIT								
Power supply		400V 3N ~ 50Hz						
Unit type		UVNR (Unit ventilation not residential)						
Heat capacity recovered (EN308) (1)	kW	5,8	10,3	19,4	31,4	41,3	64,3	85,0
Dry heating efficiency (2)	%	79,0	78,9	78,3	78,8	78,9	78,5	78,7
Information In Compliance With Annex V Of Regulation Eu No. 1253/2014								
Nominal air flow rate supply / recovery	m ³ /s	0,31	0,54	1,03	1,65	2,17	3,39	4,47
Nominal air flow rate supply / recovery	m ³ /h	1100	1950	3700	5950	7800	12200	16100
Fans (3)								
Commissioning	type	Analog signal of EC fan						
Type	type	Plug-fan						
Number	n°	1	1	1	1	1	1	1
Supplied electrical power consumption	kW	0,27	0,48	0,85	1,31	1,90	2,20	2,80
Recovered electrical power consumption	kW	0,27	0,48	0,86	1,30	1,90	2,20	2,80
Total input electric power	kW	0,84	2,04	6,10	8,78	10,20	22,37	30,37
SFP int.	W/(m ³ /s)	1061,00	994,00	927,00	733,00	669,00	778,00	759,00
SFP int. lim. 2018	W/(m ³ /s)	1141	1106	1033	942	887	886	887
Filters face velocity	m/s	1,8	1,9	1,8	1,8	1,8	1,6	1,7
Nominal external pressure Δp (3)	Pa	100	100	100	100	100	100	100
Useful static supply pressure	Pa	360	520	1000	1100	900	1440	1500
Useful static recovery pressure	Pa	360	520	1000	1100	900	1440	1500
Supplied internal pressure drop Δps int.	Pa	269	262	276	222	216	240	241
Recovered internal pressure drop Δps int.	Pa	272	265	280	225	219	243	244
Fans static efficiency (4)	%	64,5	65,5	62,8	64,1	67,2	64,7	65,8
Internal leakage (5)	%	< 3	< 3	< 3	< 3	< 3	< 3	< 3
External leakage	%	0,2	0,2	0,1	0,1	0,1	0,1	0,1
Air filter								
Delivery filter energy classification		D						
Recovery filter energy classification		D						

(1) Expelled air: Tdb=25°C; Twb<14°C. Fresh air: Tdb=5°C.
(2) Relation between the inlet air heating gain and the expulsion air heating loss, both relating to the outside temperature, measured in dry reference conditions, with balanced mass flow and an internal/external air heating difference of 20K, excluding the heating gain generated by the fan motors and the internal leakage.
(3) Performances referring to clean filters
(4) According to regulation EU 327/2011
(5) External leakage test performed at +400 Pa and -400 Pa; internal leakage test performed at 250 Pa



Dimensions

HRR		07	09	12	15	17	21	24
A	mm	965	1285	1445	1765	2085	2405	2725
B	mm	895	1005	1375	1695	1855	2335	2665
C	mm	1375	1535	2045	2365	2365	3005	3005
Empty weight	kg	240	340	570	820	1010	1610	1980

The dimensions and weights are subject to changes.

HRF

HEAT RECOVERY UNITS

NOMINAL AIR FLOW RATE FROM 790 TO 4,250 m³/h

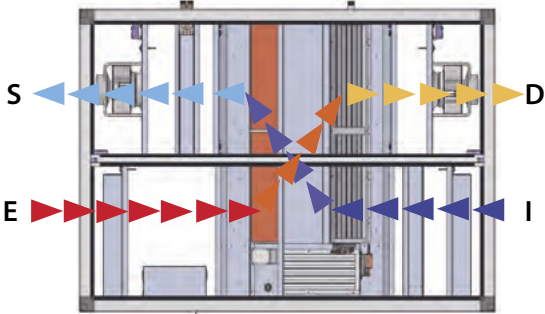
HRF units meet the needs of well-being in **residential environments**, offering an **advanced solution for heat recovery** with excellent performance, ideal for ensuring energy efficiency and excellent air quality.



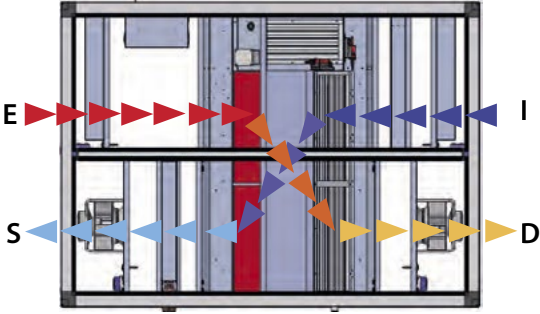
See all the features

Configurations

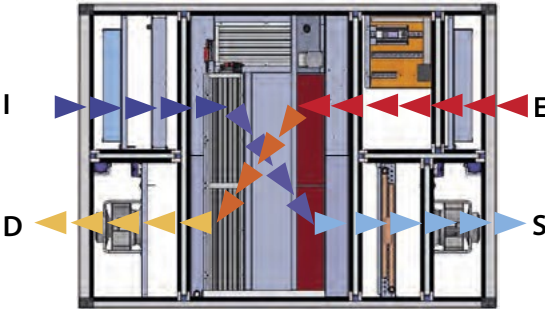
HRF O Horizontal Configuration
Right delivery (top view)



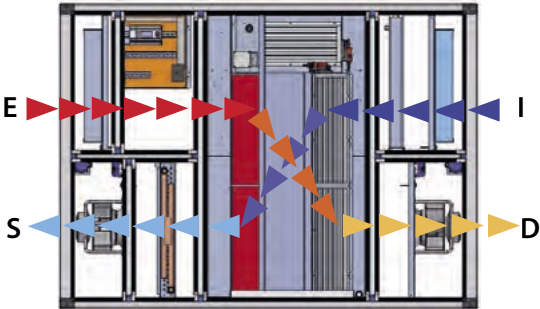
HRF P Horizontal Configuration
Left delivery (top view)



HRF V Vertical Configuration
Right delivery (view from accessible side)



HRF Z Vertical Configuration
Left delivery (view from accessible side)

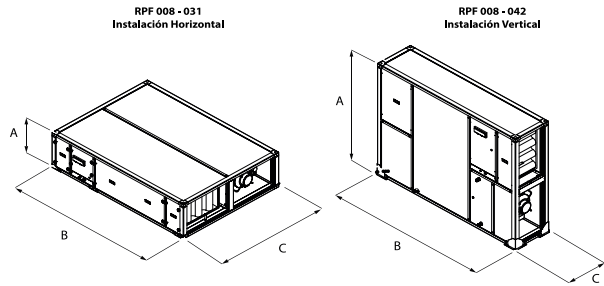


D = Expulsion I = Renewal S = Sending E = Resumption

Technical data

HRF		008	010	013	020	031	042
Heat recovery unit							
Power supply		230V~50Hz				400V 3~50Hz	
Unit type		UVNR (non-residential ventilation unit)					
Heat recovery system type	Type/n°	Static at counter-current flow / 1					
Heat capacity recovered (EN308) (1)	kW	4,2	5,4	7,0	10,7	16,6	22,8
Dry heating efficiency (2)	%	80,0	79,9	80,0	79,9	79,9	83,8
Information in compliance with Annex V of regulation EU no. 1253/2014							
Nominal air flow rate supply / recovery	m³/s	0,22	0,28	0,36	0,56	0,86	1,18
Nominal air flow rate supply / recovery	m³/h	790	1000	1300	2000	3100	4250
Minimum air flow rate	m³/h	200	200	400	1000	1000	1300
Maximum air flow rate	m³/h	980	1260	1530	2350	3700	4600
Fans (3)							
Commissioning	type	Analogue signal of EC fan (0-10Vdc)					
Type	type	EC					
Number	no.	2	2	2	2	2	2
Supplied electrical power consumption	kW	0,16	0,24	0,33	0,60	0,79	1,30
Recovered electrical power consumption	kW	0,15	0,23	0,33	0,56	0,76	1,20
Total input electric power	kW	0,31	0,47	0,66	1,16	1,55	2,50
Maximum input power	kW	0,60	1,24	1,26	1,66	5,26	5,26
Maximum input power	A	4,6	7,5	7,5	9,3	11,1	11,1
SFP int.	W/(m³/s)	625,00	667,00	743,00	1142,00	919,00	1211,00
SFP int. lim. 2018	W/(m³/s)	1127	1118	1109	1227	1031	1253
Filters face velocity	m/s	1,8	2,0	1,8	2,2	2,2	2,1
Nominal external pressure Δp (3)	Pa	200	250	250	250	250	225
Useful static supply pressure	Pa	191	218	169	134	215	143
Useful static recovery pressure	Pa	196	233	175	152	255	184
Supplied internal pressure drop Δps int.	Pa	174	198	219	319	304	372
Recovered internal pressure drop Δps int.	Pa	176	189	227	355	293	379
Fans static efficiency (4)	%	61,7	57,2	57,2	61,8	66,9	62,7
Internal leakage (5)	%	0,3	0,3	0,3	0,1	0,3	0,2
External leakage	%	< 3	< 3	< 3	< 3	< 3	< 3
Air filter							
Delivery filter energy classification		B					
Recovery filter energy classification		On request					

- (1) Expelled air: Tdb=25°C; Twb<14°C. Fresh air: Tdb=5°C.
(2) Relation between the inlet air heating gain and the expulsion air heating loss, both relating to the outside temperature, measured in dry reference conditions, with balanced mass flow and an internal/external air heating difference of 20K, excluding the heating gain generated by the fan motors and the internal leakage.
(3) Performances referring to clean filters
(4) According to regulation EU 327/2011
(5) External leakage test performed at +400 Pa and -400 Pa; internal leakage test performed at 250 Pa



Dimensions

HRF		008	010	013	020	031	042
A	O,P	mm	450	450	524	560	700
	V,Z	mm	1054	1258	1374	1694	1948
B	O,P	mm	1915	1915	2174	2334	2654
	V,Z	mm	1915	1915	2174	2334	2654
C	O,P	mm	1054	1258	1374	1694	1948
	V,Z	mm	450	450	524	560	700
Empty weight	O,P	kg	194	220	264	328	452
	V,Z	kg	194	220	264	328	452

The dimensions and weights are subject to changes.



4

ROOF-TOP Applications for the service sector

Designed for **rooftop installation**, high-efficiency Roof-top stand-alone HVAC units stand out for their **compactness** and **ease of installation** making them the ideal solution for commercial and industrial applications.

Available in **different configurations**, these units can act as both simple air conditioning systems as well as advanced systems, providing the treatment and control of indoor air quality, integrating an air heat pump and the components necessary to manage the following functions in a single system:

- **filtering**
- **thermo-hygrometric control**
- **air renewal**
- **energy recovery from expelled air**
- **air quality control**



See virtual product



Efficiency and air quality configurable with various accessories.

ROOF-TOP units are characterised by **energy efficiency**, as well as high **air quality** and considerable **versatility**, thanks to their ability to adapt to different specific needs. Designed to be placed on the roof, these units allow you to optimise the internal space and simplify the installation process.



- 1 DELIVERY FAN**
Plug-fan type coupled with brushless EC motors
- 2 EXTRACTOR FAN***
Plug-fan type coupled with brushless EC motors, for MB4 and MBT configuration
- 3 EXTERNAL FANS**
Helical axial fans with the possibility of adjusting the number of rotations
- 4 REFRIGERATING CIRCUIT COMPARTMENT**
With high-efficiency scroll compressors and electronic expansion valve
- 5 INDOOR HEAT EXCHANGER**
With direct expansion and finned coil
- 6 EXTERNAL HEAT EXCHANGER**
With direct expansion and finned coil
- 7 ADDITIONAL HEAT EXCHANGER ***
Finned water heating coil with integration function

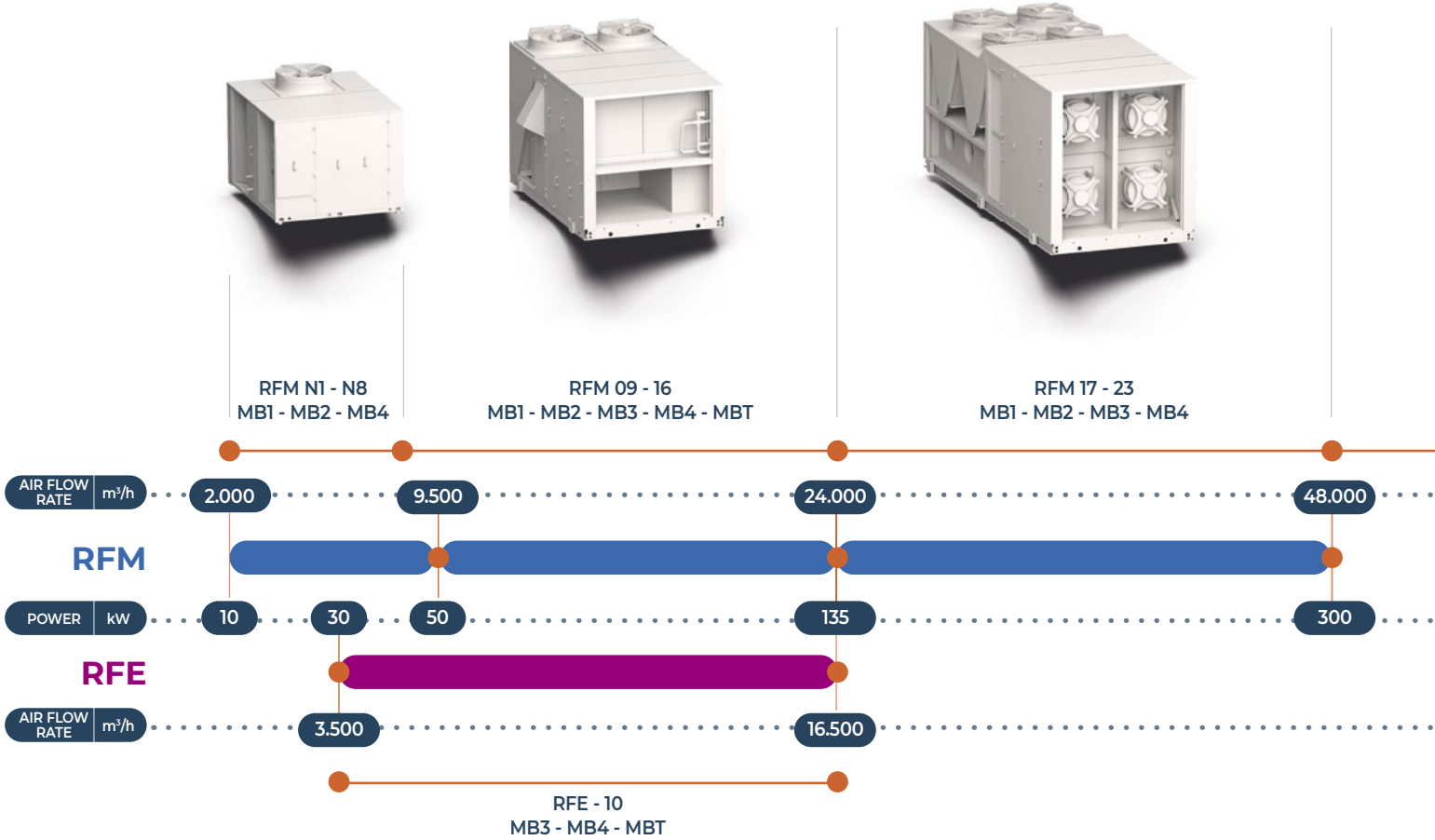
- 8 ELECTROSTATIC FILTERS ***
On the delivery flow, in addition to the standard filter with Coarse efficiency 55%
- 9 EXTERNAL AIR INTAKE ***
Depending on the configuration chosen, it may be on one side or on both sides, with rain hood
- 10 THERMODYNAMIC HEAT RECOVERY EXCHANGER ***
Dedicated direct expansion finned coil, placed on the ejection flow with MBT configuration
- 11 CONDENSATE COLLECTION TANK**
Aluminium with lower threaded discharge point
- 12 CASING**
With painted galvanised sheet metal frame and insulated sandwich panels
- 13 SANITISATION DEVICE ***
Photocatalytic-effect sanitising system

* Configurable optional components

A complete range

RFM Series Roof-top Unit: for medium sized applications such as shopping centres, with an external air flow rate not exceeding 50%. Available in 23 sizes, it has air flow rates from 2,000 to 48,000 m³/h and thermal power from 10 to 300 kW. All units (except the first 8 sizes) can be configured for cooling only.

RFE Series Roof-top Unit: for large occupancy applications, such as cinemas and theatres, with an external air flow rate of up to 80%. Available in 10 sizes, it covers air flow rates from 3,500 to 16,500 m³/h and thermal power from 30 to 135 kW.



ADVANTAGES

- ✓ **Reduced operating costs:** thanks to advanced ventilation, optimised refrigerating circuits and smart electronics
- ✓ **Compact and “plug and play” structure:** facilitates transport and installation with factory pre-configuration and standardised connections
- ✓ **Customisation:** wide range of accessories to meet specific requirements
- ✓ **Easy maintenance:** easy access to components for ordinary and extraordinary operations

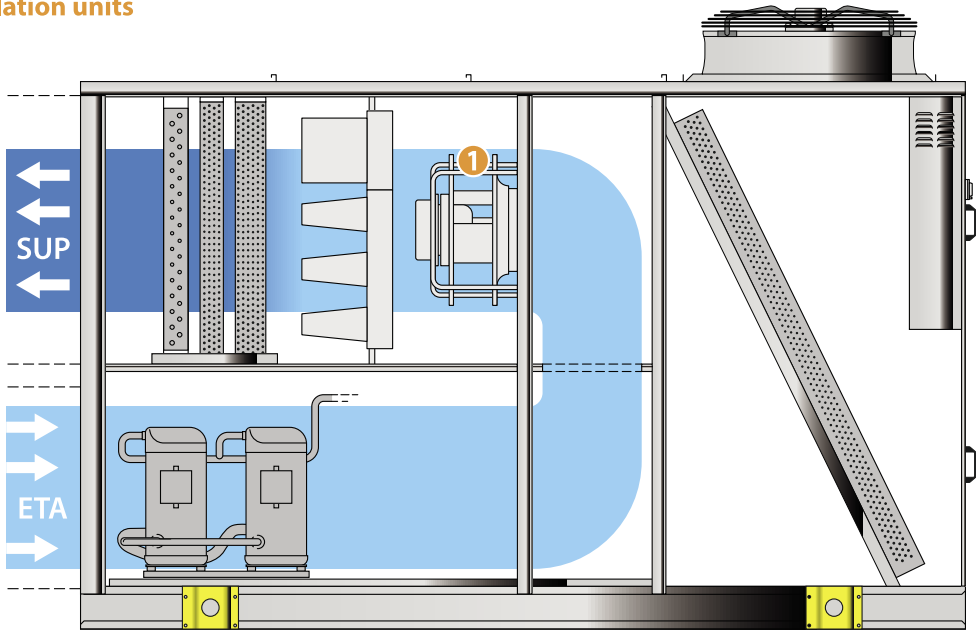
Available configurations

	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	RFM 01-23	RFM 01-23	RFM 09-23 RFE 01-10	RFM 01-23 RFE 01-10	RFM 09-16 RFE 01-10

MB1 Full recirculation units

1 Supply/return fan

SUP : Supply air
ETA : Return air

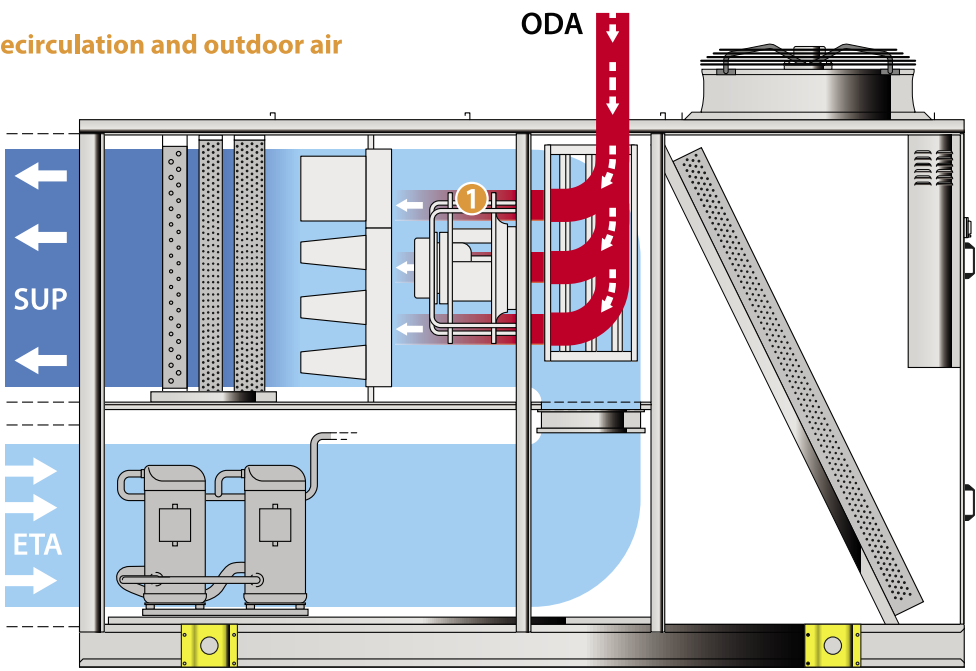


- Single internal ventilating section for supply and return air.
- Configuration suitable for air conditioning without fresh air make up.

MB2 Units with recirculation and outdoor air

1 Supply/return fan

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

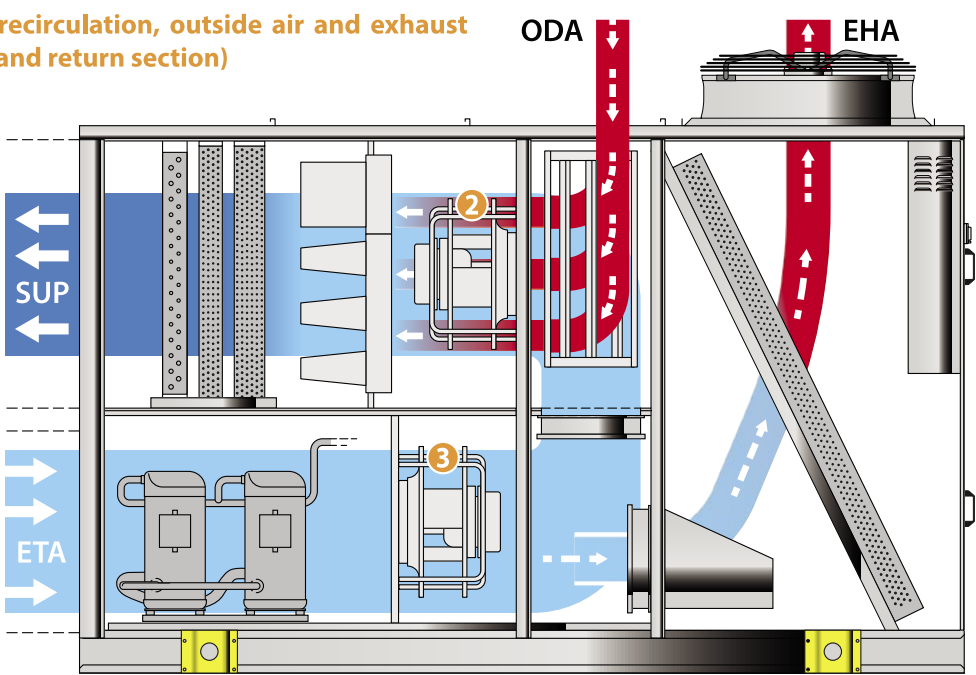


- Single internal ventilating section for return air, with outdoor air make up and supply air section.
- **Total freecooling** and **freeheating** (100% of handled outside air) to reduce electricity consumption.
- In the presence of outdoor air, the rooms are kept under **overpressure**, thus avoiding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



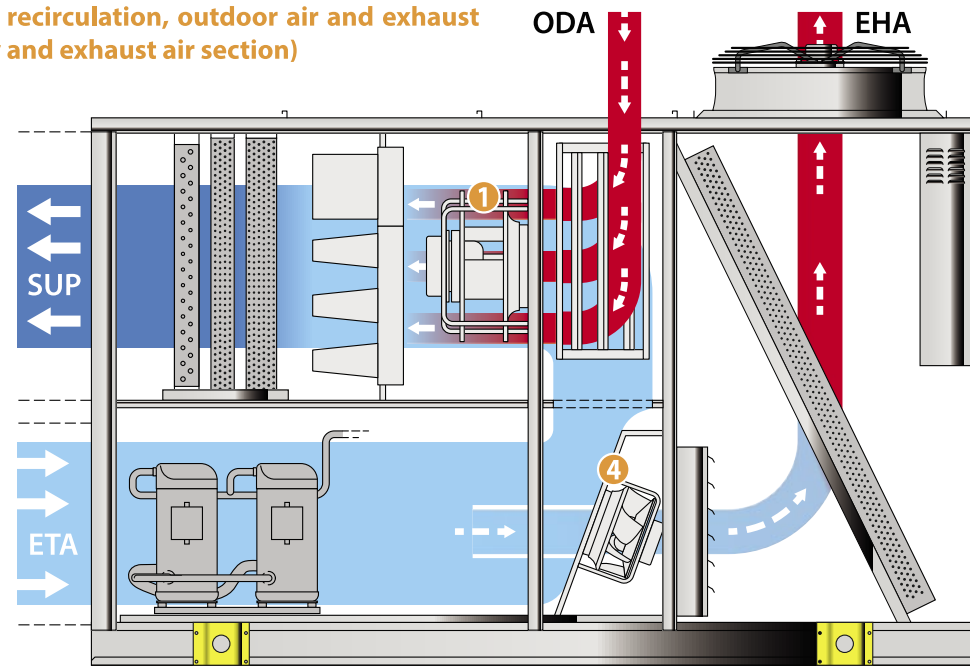
- One ventilating section for return air and supply air, with an intake damper for outside air and an exhaust damper for exhaust air.
- **Total freecooling** and **freeheating** (100% of handled outside air) to reduce electricity consumption.
- Thermodynamic recovery of energy of exhaust air to increase 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



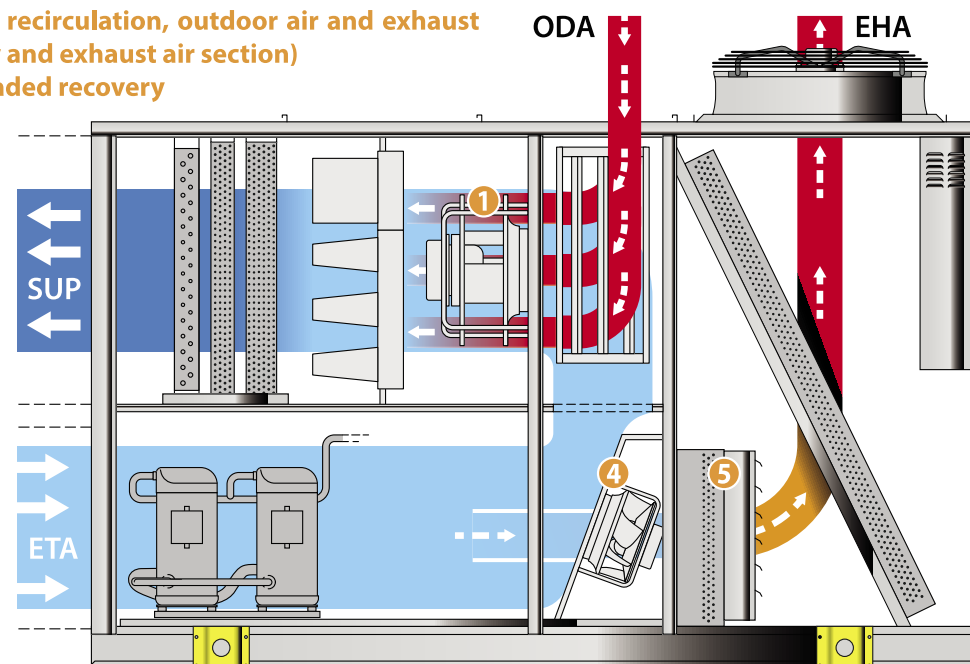
- Ventilating section for return air flow, with a damper for external air intake.
- **Reduced ventilating section** for exhaust air only.
- **Partial freecooling** and **freeheating** (50% of the handled outside air) to reduce electricity consumption.
- **Thermodynamic recovery** of energy from the exhaust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



RFM N1-N8

APPLICATIONS FOR THE SERVICE SECTOR
COOLING CAPACITY FROM 13 TO 50 kW

The roof-top units of the RFM range are designed for **applications with medium occupancy such as shopping centres**, shops, offices and production areas, as they can operate with 30% of fresh and exhaust air (MB4 version).



See all the features

Roof-top unit for applications with an average degree of crowding

- **Wide range of cooling capacities**
- **Integration with external air**
- Available version: **RFM F** Cooling-only
- Available version: **RFM H** heat pump operation for cooling and heating



- ✓ **Versatile solution**
- ✓ **Energy efficiency**
- ✓ **Operational flexibility** with the heat pump version

Technical data

RFM		N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB1									
Cooling performances (1)									
Cooling capacity	kW	12,70	15,50	19,10	22,20	28,60	33,00	43,00	47,00
Sensible cooling capacity	kW	8,60	10,40	12,80	14,80	19,00	22,40	28,80	32,10
Compressors absorbed power	kW	3,30	4,20	5,00	6,00	7,20	8,70	11,40	12,50
EER compressors		3,87	3,71	3,82	3,69	3,98	3,79	3,75	3,75
Heating performances (2)									
Heating capacity	kW	13,50	16,10	19,90	23,00	29,60	34,00	44,70	48,50
Compressors absorbed power	kW	3,07	3,65	4,28	5,15	6,23	6,86	9,43	10,02
COP compressors		4,40	4,41	4,64	4,47	4,75	4,96	4,74	4,84

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.
(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

RFM		N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB2									
Cooling performances (1)									
Cooling capacity	kW	13,42	16,34	20,16	23,35	30,21	34,79	45,26	49,44
Sensible cooling capacity	kW	8,92	10,86	13,40	15,40	19,70	23,40	30,00	33,50
Compressors absorbed power	kW	3,33	4,22	5,04	6,07	7,29	8,85	11,65	12,74
EER compressors		4,03	3,87	4,00	3,85	4,14	3,93	3,88	3,88
Heating performances (2)									
Heating capacity	kW	13,65	16,24	20,02	23,18	29,87	34,22	45,17	48,94
Compressors absorbed power	kW	2,77	3,31	3,86	4,65	5,62	6,15	8,58	9,22
COP compressors		4,92	4,91	5,18	4,99	5,32	5,57	5,26	5,31

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.
(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

RFM		N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB4									
Cooling performances (1)									
Cooling capacity	kW	13,49	16,49	20,33	23,58	30,45	35,16	45,65	49,95
Sensible cooling capacity	kW	8,93	10,91	13,40	15,50	19,80	23,50	30,20	33,60
Compressors absorbed power	kW	3,27	4,12	4,92	5,90	7,13	8,59	11,39	12,43
EER compressors		4,13	4,00	4,13	4,00	4,27	4,10	4,01	4,02
Heating performances (2)									
Heating capacity	kW	14,00	16,81	20,69	24,05	30,77	35,50	46,63	50,79
Compressors absorbed power	kW	2,81	3,36	3,92	4,73	5,71	6,27	8,74	9,38
COP compressors		4,98	5,00	5,28	5,08	5,39	5,67	5,33	5,41

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.
(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

Energy Index

RFM			N1	N2	N3	N4	N5	N6	N7	N8
Energy Index										
SEER	H	W/W	3,73	3,60	3,76	3,70	3,86	3,86	3,80	3,77
ηsc	H	%	146.1%	141.2%	147.5%	144.8%	151.5%	151.5%	148.8%	147.8%
Pdesignh	H	kW	7	9	11	13	16	19	25	26
SCOP	H	W/W	3,47	3,34	3,46	3,36	3,29	3,50	3,47	3,44
ηsh	H	%	135.6%	130.5%	135.4%	131.2%	128.7%	137.1%	135.7%	134.4%

RFM N1-N8

General Technical Data

RFM		N1	N2	N3	N4	N5	N6	N7	N8
Power supply									
Power supply		400V~3N 50Hz	400V~3N 50Hz	400V~3N 50Hz	400V~3N 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz
Compressor									
Type	type	Scroll							
Nymber	n°	2	2	2	2	2	2	2	2
Circuit	n°	2	2	2	2	2	2	2	2
Refrigerant	type	R410A							
Sound data									
Sound power level	dB(A)	73,3	73,7	76,4	76,3	81,2	79,7	82,8	82,9
Sound pressure level (1)	dB(A)	65,3	65,8	68,5	68,3	73,2	71,7	74,8	74,9

(1) MB1 configuration sound pressure measured in free field (Q=2), 1m away from the outer surface of the ducted unit, high static pressure 50 Pa (EN ISO 9614-2). 3 dB(A) tolerance on sound power level (Eurovent 8/1).

Fans

RFM		N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB1, MB2, MB4									
External fans									
Type	H	type	Axial	Axial	Axial	Axial	Axial	Axial	Axial
Number	H	n°	2	2	2	2	2	2	2

RFM			N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB1, MB2, MB4										
Internal fans										
Nominal air flow rate	H	m³/h	2000	2800	3500	4000	5000	6500	8000	9500
Minimum air flow rate	H	m³/h	1800	1800	2700	2700	4000	4000	6500	6500
Maximum air flow rate	H	m³/h	2900	2900	4100	4100	6900	6900	10100	10100

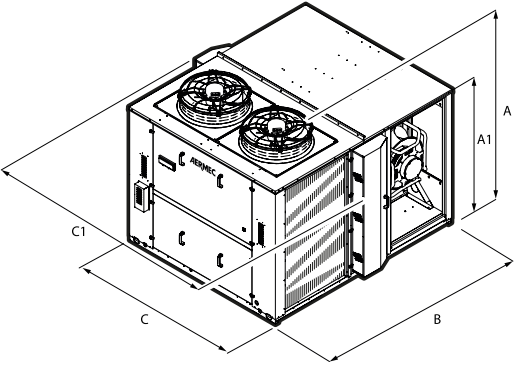
RFM			N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB1, MB2										
Delivery										
Type	H	type	Brushless EC	Brushless EC	Brushless EC	Brushless EC	Brushless EC	Brushless EC	Brushless EC	Brushless EC
Number	H	n°	1	1	1	1	1	1	1	1
Maximum useful head (1)	H	Pa	755	575	460	555	435	460	575	765
High static pressure (EN14511) (1)	H	Pa	100	100	124	124	124	150	150	200

(1) At the nominal/maximum flow rate with a new clean air filter.

RFM			N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB4										
Delivery										
Type	H	type	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC
Number	H	n°	1	1	1	1	1	1	1	1
Maximum useful head (1)	H	Pa	755	575	460	555	435	460	575	765
High static pressure (EN14511) (1)	H	Pa	100	100	124	124	124	150	150	200

(1) At the nominal/maximum flow rate with a new clean air filter.

Dimensions



RFM			N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB1										
A	H	mm	1170	1170	1470	1470	1610	1610	1710	1710
A1	H	mm	910	910	1210	1210	1410	1410	1510	1510
B	H	mm	1460	1460	1460	1460	1860	1860	2310	2310
C	H	mm	1560	1560	1560	1560	1910	1910	1910	1910
C1	H	mm	-	-	-	-	-	-	-	-
Empty weight	H	kg	335	335	405	405	594	594	745	745

RFM			N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB2										
A	H	mm	1170	1170	1470	1470	1610	1610	1710	1710
A1	H	mm	910	910	1210	1210	1410	1410	1510	1510
B	H	mm	1460	1460	1460	1460	1860	1860	2310	2310
C	H	mm	1560	1560	1560	1560	1910	1910	1910	1910
C1	H	mm	-	-	-	-	-	-	-	-
Empty weight	H	kg	335	335	405	405	594	594	745	745

RFM			N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB4										
A	H	mm	1170	1170	1470	1470	1610	1610	1710	1710
A1	H	mm	910	910	1210	1210	1410	1410	1510	1510
B	H	mm	1460	1460	1460	1460	1860	1860	2310	2310
C	H	mm	-	-	-	-	-	-	-	-
C1	H	mm	1850	1850	1850	1850	2200	2200	2200	2200
Empty weight	H	kg	345	345	429	429	619	619	775	775

The dimensions and weights are subject to changes.

RFM 09-16

APPLICATIONS FOR THE SERVICE SECTOR
COOLING CAPACITY FROM 50 TO 135 kW

The ROOF-TOP units of the RFM range are **autonomous air units** designed to completely treat the air. These units are ideal for places with an **average degree of crowding such as shopping centres, shops, offices and production areas**, as they can operate with 30% of fresh and exhaust air (MB2 - MB3 - MB4 - MBT version).



See all the features

Roof-top unit for applications with an average degree of crowding

- **Autonomous air units**
- Available version: **RFM F** Cooling-only
- Available version: **RFM H** heat pump operation for cooling and heating



- ✓ **Versatility of use**
- ✓ **Energy saving** thanks to the use of outdoor air
- ✓ **Comfort in all seasons** with the heat pump versions

Technical data

RFM		09	10	11	12	13	14	15	16
Configuration: MB1									
Cooling performances (1)									
Cooling capacity	kW	50,00	60,10	68,60	81,00	93,40	103,50	114,00	125,30
Sensible cooling capacity	kW	40,10	46,10	52,70	63,20	70,90	81,80	89,30	97,10
Compressors absorbed power	kW	11,90	14,40	18,80	17,90	23,10	25,60	30,50	35,50
EER compressors		4,20	4,17	3,65	4,53	4,04	4,04	3,74	3,53
Heating performances (2)									
Heating capacity	kW	49,40	61,10	69,30	80,60	93,70	102,20	113,70	126,60
Compressors absorbed power	kW	9,80	12,20	15,50	15,70	20,60	21,00	24,40	28,40
COP compressors		5,04	5,01	4,47	5,13	4,55	4,87	4,66	4,46

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.
(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

RFM		09	10	11	12	13	14	15	16
Configuration: MB2									
Cooling performances (1)									
Cooling capacity	kW	52,90	63,30	72,30	85,30	98,40	108,80	120,10	131,60
Sensible cooling capacity	kW	42,70	48,80	55,90	67,10	75,00	86,70	94,80	102,80
Compressors absorbed power	kW	12,10	14,60	19,00	18,10	23,30	25,90	30,90	35,90
EER compressors		4,37	4,34	3,81	4,71	4,22	4,20	3,89	3,67
Heating performances (2)									
Heating capacity	kW	50,50	61,90	70,60	82,20	94,90	103,60	115,30	128,10
Compressors absorbed power	kW	9,00	11,20	14,10	14,30	18,90	19,20	22,50	26,00
COP compressors		5,61	5,53	5,01	5,75	5,02	5,40	5,12	4,93

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.
(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

RFM		09	10	11	12	13	14	15	16
Configuration: MB3									
Cooling performances (1)									
Cooling capacity	kW	53,40	63,70	73,10	86,10	99,30	110,00	121,30	133,30
Sensible cooling capacity	kW	43,00	48,90	56,20	67,40	75,30	87,00	95,10	103,20
Compressors absorbed power	kW	11,80	14,20	18,50	17,70	22,80	25,10	30,10	34,80
EER compressors		4,53	4,49	3,95	4,86	4,36	4,38	4,03	3,83
Heating performances (2)									
Heating capacity	kW	52,10	64,10	74,10	85,00	98,60	107,80	120,60	134,30
Compressors absorbed power	kW	9,20	11,40	14,40	14,60	19,10	19,40	22,90	26,70
COP compressors		5,66	5,62	5,15	5,82	5,16	5,56	5,27	5,03

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.
(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

RFM		09	10	11	12	13	14	15	16
Configuration: MB4									
Cooling performances (1)									
Cooling capacity	kW	53,40	63,70	73,10	86,10	99,30	110,00	121,30	133,30
Sensible cooling capacity	kW	43,00	48,90	56,20	67,40	75,30	87,00	95,10	103,20
Compressors absorbed power	kW	11,80	14,20	18,50	17,70	22,80	25,10	30,10	34,80
EER compressors		4,53	4,49	3,95	4,86	4,36	4,38	4,03	3,83
Heating performances (2)									
Heating capacity	kW	52,10	64,10	74,10	85,00	98,60	107,80	120,60	134,30
Compressors absorbed power	kW	9,20	11,40	14,40	14,60	19,10	19,40	22,90	26,70
COP compressors		5,66	5,62	5,15	5,82	5,16	5,56	5,27	5,03

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.
(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

RFM 09-16

Technical data

RFM		09	10	11	12	13	14	15	16
Configuration: MBT									
Cooling performances (1)									
Cooling capacity	kW	57,10	67,80	78,00	90,50	103,70	116,90	128,80	140,60
Sensible cooling capacity	kW	46,60	53,00	61,20	71,90	79,70	94,00	102,60	110,60
Compressors absorbed power	kW	11,80	14,20	18,50	17,70	22,80	25,10	30,10	34,80
EER compressors		4,84	4,77	4,22	5,11	4,55	4,66	4,28	4,04
Heating performances (2)									
Heating capacity	kW	55,40	68,00	78,30	90,10	103,60	114,40	127,50	141,40
Compressors absorbed power	kW	9,20	11,40	14,40	14,60	19,10	19,40	22,90	26,70
COP compressors		6,02	5,96	5,44	6,17	5,42	5,90	5,57	5,30
Recovery efficiency	%	84%	92%	87%	90%	85%	85%	82%	78%

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.
(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

Energy Index

RFM			09	10	11	12	13	14	15	16
Energy index										
SEER	H	W/W	4,24	3,94	3,76	3,92	3,89	4,22	4,10	4,05
η _{sc}	H	%	166.6%	154.5%	147.2%	153.9%	152.7%	165.7%	161.1%	159.1%
P _{designh}	H	kW	29	34	38	46	52	57	62	71
SCOP	H		3,59	3,50	3,30	3,27	3,22	3,47	3,41	3,38
η _{sh}	H	%	140.5%	137.0%	128.8%	127.7%	126.0%	135.9%	133.5%	132.3%

General Technical Data

RFM			09	10	11	12	13	14	15	16
Power supply										
Power supply	H		400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz
Compressor										
Type	H	type	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Numer	H	n°	2	2	2	2	2	2	2	2
Circuit	H	n°	1	1	1	1	1	1	1	1
Refrigerant	H	type	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Partialization step	H	n°	2	2	3	3	3	2	3	3

Fans

RFM			09	10	11	12	13	14	15	16
Configuration: MB1, MB2, MB3, MB4, MBT										
External fans										
Type	H	type	Axial AC	Axial AC	Axial AC	Axial AC	Axial AC	Axial AC	Axial AC	Axial AC
Number	H	n°	2	2	2	2	2	2	2	2

RFM			09	10	11	12	13	14	15	16
Configuration: MB1, MB2, MB3, MB4, MBT										
Internal fans										
Nominal air flow rate	H	m³/h	9500	11000	13000	15000	17000	20000	22000	24000
Minimum air flow rate	H	m³/h	6650	7700	9100	10850	12600	14000	15400	16800
Maximum air flow rate	H	m³/h	9500	11000	13000	15500	18000	20000	22000	24000

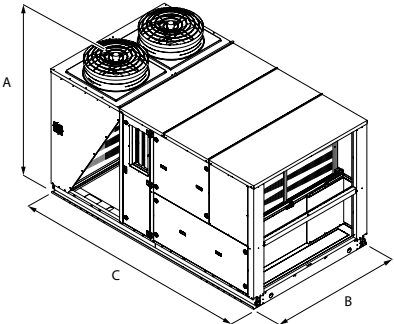
RFM			09	10	11	12	13	14	15	16
Configuration: MB3										
Recovery										
Type	H	type	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC
Number	H	n°	1	1	1	2	2	2	2	2

Taglia			09	10	11	12	13	14	15	16
Configuration: MBT										
Exhaust										
Type	H	type	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC
Number	H	n°	1	1	1	2	2	2	2	2

Technical data

RFM			09	10	11	12	13	14	15	16
Configuration: MB1, MB2, MB3, MB4, MBT										
Delivery										
Type	H	type	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC
Number	H	n°	1	1	1	2	2	2	2	2
Maximum useful head (1)	H	Pa	770	510	445	555	740	640	525	675
High static pressure (EN14511) (1)	H	Pa	200	200	200	200	250	250	250	300

(1) At the nominal/maximum flow rate with a new, clean air filter.



Dimensions

RFM			09	10	11	12	13	14	15	16
A	H	mm	2061	2061	2061	2373	2373	2440	2440	2440
B	H	mm	1900	1900	1900	2100	2100	2200	2200	2200
C	H	mm	3400	3400	3400	3400	3400	4000	4000	4000

The dimensions and weights are subject to changes.

RFM 17-23

APPLICATIONS FOR THE SERVICE SECTOR COOLING CAPACITY FROM 152 TO 305 kW

The roof-top units of the RFM range are **autonomous air-to-air units** designed to completely treat the air. The units are also characterised by their **extensive operating limits (from -20° C to +48° C)**.

These units are ideal for places with an average degree of crowding such as **shopping centres, shops, offices and production areas**, as they can operate with 30% of fresh and exhaust air.



See all the features

Roof-Top unit for average occupancy applications

- **Autonomous air-to-air units**
- Wide operating range
- Available version: **RFM F** Cooling-only
- Available version: **RFM H** heat pump operation for cooling and heating



- ✓ **Climatic reliability:** Consistent performance in a wide range of outdoor temperatures
- ✓ **Versatility of use:** suitable for different commercial and production environments, with the ability to manage both cooling and heating
- ✓ **Operational efficiency:** optimised operation thanks to the outdoor air management, improving indoor air quality

Technical data

Size		17	18	19	20	21	22	23
Configuration: MB1								
Cooling performances (1)								
Cooling capacity	kW	151,90	170,10	191,70	213,30	231,70	246,10	289,10
Sensible cooling capacity	kW	114,30	125,40	136,10	151,60	164,70	178,50	202,30
Compressors absorbed power	kW	32,70	39,20	45,30	54,00	60,70	69,00	68,90
EER compressors		4,65	4,34	4,23	3,95	3,82	3,57	4,20
Heating performances (2)								
Heating capacity	kW	152,70	170,80	192,80	216,20	230,80	245,50	296,30
Compressors absorbed power	kW	28,20	33,90	39,20	43,90	46,30	51,20	58,60
Compressor COP		5,41	5,04	4,92	4,92	4,98	4,79	5,06

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

Size		17	18	19	20	21	22	23
Configuration: MB2								
Cooling performances (1)								
Cooling capacity	kW	160,20	179,40	201,80	224,60	243,90	258,90	304,50
Sensible cooling capacity	kW	120,90	132,60	143,20	159,70	173,50	188,30	212,90
Compressors absorbed power	kW	33,10	39,50	45,60	54,60	61,60	69,80	69,70
EER compressors		4,84	4,54	4,43	4,11	3,96	3,71	4,37
Heating performances (2)								
Heating capacity	kW	155,10	174,20	195,50	219,50	234,00	248,60	300,70
Compressors absorbed power	kW	25,80	31,10	35,70	40,40	42,50	47,00	54,10
Compressor COP		6,01	5,60	5,48	5,43	5,51	5,29	5,56

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

Size		17	18	19	20	21	22	23
Configuration: MB3								
Cooling performances (1)								
Cooling capacity	kW	161,30	181,10	203,70	226,90	246,70	262,10	307,20
Sensible cooling capacity	kW	121,30	133,30	143,80	160,50	174,50	189,20	213,90
Compressors absorbed power	kW	32,50	38,80	44,50	53,20	59,90	67,70	68,30
EER compressors		4,96	4,67	4,58	4,27	4,12	3,87	4,50
Heating performances (2)								
Heating capacity	kW	159,10	179,00	202,30	227,70	243,60	259,90	310,90
Compressors absorbed power	kW	26,20	31,40	36,30	41,00	43,30	47,90	55,00
Compressor COP		6,07	5,70	5,57	5,55	5,63	5,43	5,65

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

Size		17	18	19	20	21	22	23
Configuration: MB4								
Cooling performances (1)								
Cooling capacity	kW	161,30	181,10	203,70	226,90	246,70	262,10	307,20
Sensible cooling capacity	kW	121,30	133,30	143,80	160,50	174,50	189,20	213,90
Compressors absorbed power	kW	32,50	38,80	44,50	53,20	59,90	67,70	68,30
EER compressors		4,96	4,67	4,58	4,27	4,12	3,87	4,50
Heating performances (2)								
Heating capacity	kW	159,10	179,00	202,30	227,70	243,60	259,90	310,90
Compressors absorbed power	kW	26,20	31,40	36,30	41,00	43,30	47,90	55,00
Compressor COP		6,07	5,70	5,57	5,55	5,63	5,43	5,65

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

Energy Index

Size			17	18	19	20	21	22	23
Energy index									
SEER	H	W/W	4,01	3,94	4,18	3,92	4,15	3,94	3,85
ηsc	H	%	157.6%	154.6%	164.3%	153.8%	162.9%	154.5%	150.9%
Pdesignh	H	kW	89	98	109	123	130	141	168
SCOP	H		3,47	3,31	3,45	3,36	3,49	3,43	3,26
ηsh	H	%	135.7%	129.4%	134.8%	131.5%	136.4%	134.2%	127.3%

RFM 17-23

General Technical Data

Size	17	18	19	20	21	22	23
Power supply							
Power supplyH	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz
Compressor							
Type	Ht	ypeS	crollS	crollS	crollS	crollS	croll
Number	Hn	o.	4	444444			
Circuits	Hn	o.	2	222222			
Refrigerant	Ht	ypeR	410A	R410A	R410A	R410A	R410A
Partialisation step	Hn	o.	666666				6

Fans

Size	17	18	19	20	21	22	23
Configuration: MB1, MB2, MB3, MB4							
External fans							
Type	Ht	ypeA	ssiali AC	Assiali AC	Assiali AC	Assiali AC	Assiali ACA
Number	Hn	o.	444444				4

Size	17	18	19	20	21	22	23
Configuration: MB1, MB2, MB3, MB4							
Internal fans							
Nominal air flow rate	H	m³/h	26000	29000	33000	37000	40000
Minimum air flow rate	H	m³/h	18200	20300	23100	25900	28000
Maximum air flow rate	H	m³/h	36000	36000	44000	44000	53000

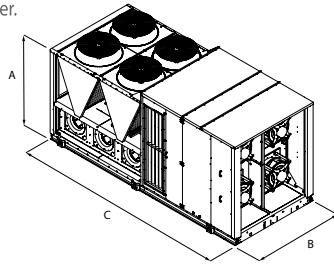
Size	17	18	19	20	21	22	23
Configuration: MB3							
Recovery							
Type	Ht	ypeR	AD ECR	AD ECR	AD ECR	AD ECR	AD EC
Number	Hn	o.	3333333				RAD EC

Size	17	18	19	20	21	22	23
Configuration: MB4							
Exhaust							
Type	Ht	ypeR	AD ECR	AD ECR	AD ECR	AD ECR	AD EC
Number	Hn	o.	222222				RAD EC

Size	17	18	19	20	21	22	23
Configuration: MB1							
Delivery							
Type	Ht	ypeR	AD ECR	AD ECR	AD ECR	AD ECR	AD EC
Number	Hn	o.	22	33	34	44	RAD EC
Maximum useful head (1)H		Pa	700	475	520	580	690
High static pressure (EN14511) (1)	HP	a	350	350	350	350	350

Configuration: MB2, MB3, MB4							
Delivery							
Type	Ht	ypeR	AD ECR	AD ECR	AD ECR	AD ECR	AD EC
Number	Hn	o.	223	33	44	44	RAD EC
Maximum useful head (1)H		Pa	519	341	330	470	636
High static pressure (EN14511) (1)	HP	a	350	350	350	350	350

At the nominal/maximum flow rate with a new, clean air filter.



Dimensions

Size	17	18	19	20	21	22	23
Dimensions and weights							
AH	mm	2430	2430	2430	2430	2430	2430
BH	mm	2200	2200	2200	2200	2200	2200
CH	mm	5210	5210	5210	5210	7750	7750

The dimensions and weights are subject to changes.



RFE 01-10

APPLICATIONS FOR THE SERVICE SECTOR

COOLING CAPACITY FROM 30 TO 140 kW

The roof-top units of the RFE range are **autonomous air-to-air units** designed to completely treat the air. These units are ideal for places where there is a **high degree of crowding such as cinemas, conference halls, restaurants, cafés and discos**, as they can operate with 80% of fresh and exhaust air.



See all the features

Roof-Top unit for high occupancy applications

- **Autonomous air-to-air units**
- **High percentage of outside air**
- Available version: **RFM H** heat pump operation for climate management in both cooling and heating

- ✓ **Comfort and air quality** in spaces with high occupancy levels
- ✓ **Optimal air exchange**
- ✓ **Optimisation of energy costs** in each season

Technical data

Size		01	02	03	04	05	06	07	08	09	10
Configuration: MB3											
Cooling performances (1)											
Cooling capacity	kW	30,20	39,60	48,70	65,40	75,30	84,30	90,90	107,60	121,40	133,60
Sensible cooling capacity	kW	21,20	27,10	32,60	43,10	48,90	55,20	61,10	70,50	80,60	87,40
Compressors absorbed power	kW	5,30	8,40	9,70	13,10	15,20	17,50	18,50	23,30	27,60	32,60
EER compressors		5,70	4,71	5,00	5,00	4,96	4,82	4,92	4,61	4,39	4,09
Heating performances (2)											
Heating capacity	kW	29,30	39,70	48,50	66,50	76,60	85,80	91,40	110,40	123,40	137,90
Compressors absorbed power	kW	4,40	7,00	8,40	12,40	14,20	15,70	15,50	19,20	21,80	25,50
Compressor COP		6,67	5,68	5,77	5,38	5,39	5,47	5,89	5,73	5,66	5,41

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.
(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

Energy Index

Size			17	18	19	20	21	22	23
Energy index									
SEER	H	W/W	4,01	3,94	4,18	3,92	4,15	3,94	3,85
ηsc	H	%	157.6%	154.6%	164.3%	153.8%	162.9%	154.5%	150.9%
Pdesignh	H	kW	89	98	109	123	130	141	168
SCOP	H	W/W	3,47	3,31	3,45	3,36	3,49	3,43	3,26
ηsh	H	%	135.7%	129.4%	134.8%	131.5%	136.4%	134.2%	127.3%

Fans

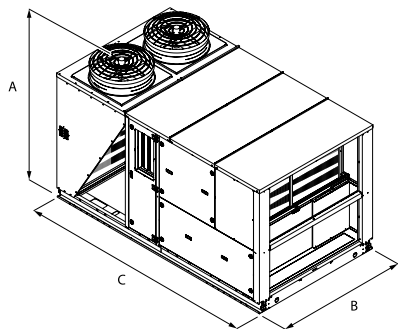
Size			01	02	03	04	05	06	07	08	09	10
Configuration: MB3												
External fans												
Type		type	Axial	Axial	Axial	Axial	Axial	Axial	Axial	Axial	Axial	Axial
Number		no.	1	1	2	2	2	2	2	2	2	2
Size			01	02	03	04	05	06	07	08	09	10
Configuration: MB3												
Internal fans												
Nominal air flow rate		m³/h	3500	4500	5500	7000	8000	9500	11500	14000	15000	16500
Minimum air flow rate		m³/h	2450	3150	3850	4900	5600	6650	8050	9800	10500	11550
Maximum air flow rate		m³/h	3500	4500	5500	7000	8000	9500	11500	14000	15000	16500
Size			01	02	03	04	05	06	07	08	09	10
Configuration: MB3												
Recovery												
Type	H	type	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC
Number	H	no.	1	1	1	1	1	1	1	2	2	2
Size			01	02	03	04	05	06	07	08	09	10
Configuration: MB3												
Exhaust												
Type	H	type	-	-	-	-	-	-	-	-	-	-
Number	H	no.	-	-	-	-	-	-	-	-	-	-
Size			01	02	03	04	05	06	07	08	09	10
Configuration: MB3												
Delivery												
Type		type	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC
Number		no.	1	1	1	1	1	1	1	1	1	2
Maximum useful head (1)		Pa	150	150	200	200	200	250	250	250	300	300
High static pressure (EN14511) (1)		Pa	-	-	-	-	-	-	-	-	-	-

(1) At the nominal/maximum flow rate with a new, clean air filter.

RFE 01-10

General Technical Data

Size	01	02	03	04	05	06	07	08	09	10
Configuration: MB3										
Power supply										
Power supply	H					400V 3 ~ 50Hz				
Compressor										
Type	H	type				Scroll				
Number	H	no.	2	2	2	2	2	2	2	2
Circuits	H	no.	1	1	1	1	1	1	1	1
Refrigerant	H	type				R410A				
Partialisation step	H	no.	3	3	3	3	3	3	3	3



Dimensions

RFE	01	02	03	04	05	06	07	08	09	10
Configuration: MB3										
A	mm	2061	2061	2061	2373	2373	2373	2373	2373	2373
B	mm	1900	1900	1900	2100	2100	2100	2100	2100	2100
C	mm	3400	3400	3400	3400	3400	3400	3400	3400	3400

The dimensions and weights are subject to changes.



ROOF-TOP RFI

Efficiency and sustainability, with R32 refrigerant with low GWP

The RFI range consists of Roof-Top air conditioned independent air conditioning units equipped with heat pump, suitable for shopping centres, shops, offices, production areas. Operation possible with up to 50% fresh air in MB2, MB4, MBT and MBF versions.

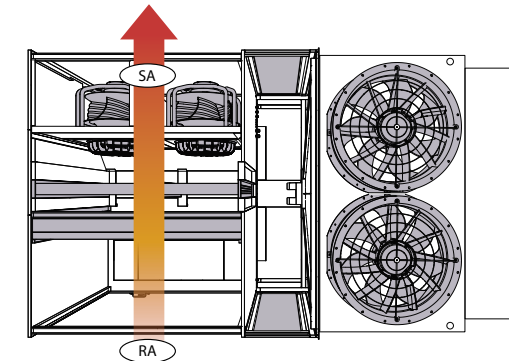
It uses the eco-friendly gas R32, which significantly reduces environmental impact through a reduced amount of refrigerant and has a low global warming potential (GWP). It also allows higher yields and efficiencies thanks to heat energy recovery (MB4 and MBT versions).

- with the eco-friendly gas R32
- average occupancy applications
- air treatment, filtration and renewal
- Freecooling mode



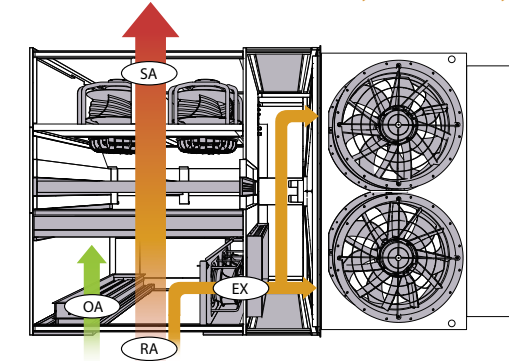
Available configurations

MB1
Single ventilating cross-section for recovery air



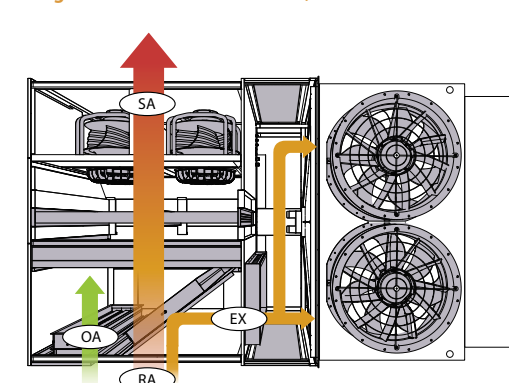
- Recovery air only configuration where no fresh air is required.
- The useful flow and recovery static pressure is provided by the flow ventilating cross-section.

MB4
Double ventilating cross-section (flow and expulsion) for recovery air, external air and exhaust air, thermodynamic recovery.



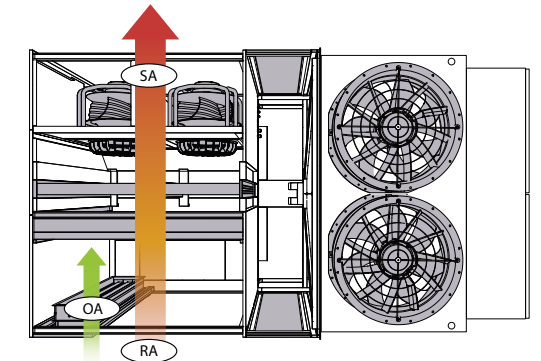
- Recovery, external and exhaust air configuration. The flow ventilating cross-section provides the flow and recovery useful static pressure. The exhaust ventilating cross-section only controls the air flow rate to be expelled, with consequent reduction of the installed ventilation power.
- Thermodynamic recovery is performed by conveying expelled air on the external heat exchangers.
- Possibility of performing freecooling/freeheating.

MBF
Single fan section for return air, outside air and exhaust air



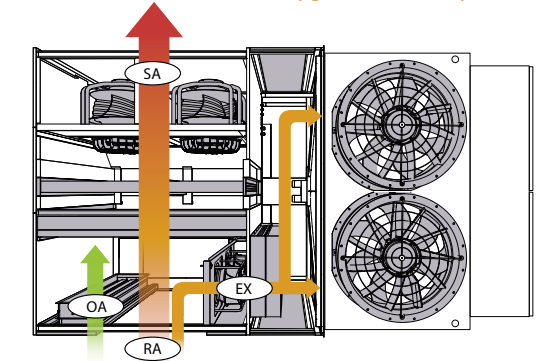
- Recovery, external and exhaust air configuration.
- The flow ventilating cross-section provides the flow and recovery useful static pressure.

MB2
Single ventilating cross-section for recovery and external air



- Recovery and external air configuration. The useful flow and recovery static pressure is provided by the flow ventilating cross-section.
- If there are no extraction systems, the room will be in overpressure.
- Possibility of performing freecooling/freeheating.

MBT
Double ventilating cross-section (flow and expulsion) for recovery air, external air and exhaust air, upgraded thermodynamic recovery.



- Recovery, external and exhaust air configuration. The flow ventilating cross-section provides the flow and recovery useful static pressure. With variable flow rate, in addition to the benefits in terms of environmental comfort, there are also economic benefits as the modulation of the air flow rate leads to a considerable reduction in the electricity consumption of the unit compared to a unit operating with a fixed flow rate. A function can also be enabled that in Economy mode, when the temperature set-point is reached, allows ventilation to be switched off, with considerable economic advantages.

SA: Flow air
RA: Return air
OA: External air
EX: Air expelled

RFI 060M – 085M – 125M

APPLICATIONS FOR THE SERVICE SECTOR
COOLING CAPACITY FROM 57.7 TO 128.1 kW
HEAT CAPACITY FROM 58.1 TO 124.6 kW



See all the features

Roof-top unit with R32 refrigerant

- High power modulation capability
- Inverter compressors and fans
- Enhanced thermodynamic heat recovery
- Different configurations for easy installation



- ✓ Reduced environmental impact
- ✓ Reduced defrosting
- ✓ High efficiency at partial loads

BW2PV: Heating/Integration water coil with pre-painted aluminium louvers
BW3: Water coil for recovery from refrigerated display cabinets with aluminium louvers
BW3PV: Water coil for recovery from refrigerated display cabinets with pre-painted aluminium louvers
V2V: Modulating 2-way valve + connecting pipes
V3V: Modulating 3-way valve + connecting pipes
BE: 2-stage electric heating coil (3 steps)
F7: F7 filters (ISO 16890 ePM1 55%)
F9: F9 filters (ISO 16890 ePM1 80%)
FE1: Electrostatic filters for MB1/MB2 configuration
FE4: Electrostatic filters for MB4/MBT/MBF configuration
SC02: CO2 duct probe
SVOC: VOC duct probe
SC02+SVOC: CO2 + VOC duct probe
ASCO2: Room CO2 probe

ASVOC: Room VOC probe
ASCO2+SAVOC: Room CO2 + VOC probe
STR: Recovery temperature probe
STA: Room temperature probe
STR+SUR: Recovery temperature and humidity probe
STA+SUA: Room temperature and humidity probe
PRT1: Remote panel up to 50m
PRT2: Remote panel up to 200m
AVG: Anti-vibration supports
MIP: Modbus TCP/IP communication protocol (standard)
MRTU: Modbus RTU communication module
BIP: Bacnet IP communication module
BMSTP: Bacnet MS/TP communication module
KON: KONNEX communication module
CAP: Hoods function
CFF: Fire/smoke contact

Performance specifications

Unit input power: at nominal air flow rate, nominal high static pressure and standard fans

MB1					
Size			060	085	125
Configuration: MB1					
Cooling performances					
Cooling capacity	H	kW	57,70	77,70	121,30
Sensible cooling capacity	H	kW	46,30	64,70	88,10
Compressors absorbed power	H	kW	15,80	20,70	38,00
EER compressors	H		3,65	3,75	3,19
Unit input power	H	kW	20,1	26,9	45,5
Heating performances					
Heating capacity	H	kW	58,10	78,30	119,30
Compressors absorbed power	H	kW	12,80	17,30	30,00
Compressor COP	H		4,53	4,53	3,98
Unit input power	H	kW	16,5	22,0	37,4

Cooling performances: Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.
Heating performances: Ambient air 20°C d.b./15°C w.b.; External air 7°C/6°C w.b.

MB2					
Size			060	085	125
Configuration: MB2					
Cooling performances					
Cooling capacity	H	kW	60,40	81,40	127,00
Sensible cooling capacity	H	kW	49,00	68,70	92,10
Compressors absorbed power	H	kW	15,90	20,80	38,40
EER compressors	H		3,79	3,91	3,30
Unit input power	H	kW	20,2	27,0	46,0
Heating performances					
Heating capacity	H	kW	58,50	78,80	119,70
Compressors absorbed power	H	kW	11,70	15,90	27,60
Compressor COP	H		5,02	4,96	4,33
Unit input power	H	kW	15,3	20,6	35,1

Cooling performances: Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external air.
Heating performances: Ambient air 20°C d.b./15°C w.b.; External air 7°C/6°C w.b.; Functioning with 30% of external air.

MB4					
Size			060	085	125
Configuration: MB4					
Cooling performances					
Cooling capacity	H	kW	60,90	81,90	128,10
Sensible cooling capacity	H	kW	49,10	68,80	92,40
Compressors absorbed power	H	kW	15,50	20,40	37,40
EER compressors	H		3,92	4,02	3,42
Unit input power	H	kW	20,5	27,6	46,5
Heating performances					
Heating capacity	H	kW	61,20	82,10	124,60
Compressors absorbed power	H	kW	12,00	16,00	28,00
Compressor COP	H		5,12	5,12	4,45
Unit input power	H	kW	16,4	21,8	37,2

Cooling performances: Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.
Heating performances: Ambient air 20°C d.b./15°C w.b.; External air 7°C/6°C w.b.; Functioning with 30% of external and expelled air.

RFI 060M – 085M – 125M

MBF					
Size			060	085	125
Configuration: MBF					
Cooling performances					
Cooling capacity	H	kW	60,40	81,40	127,00
Sensible cooling capacity	H	kW	49,00	68,70	92,10
Compressors absorbed power	H	kW	15,90	20,80	38,40
EER compressors	H		3,79	3,91	3,30
Unit input power	H	kW	20,2	27,0	46,0
Heating performances					
Heating capacity	H	kW	58,50	78,80	119,70
Compressors absorbed power	H	kW	11,70	15,90	27,60
Compressor COP	H		5,02	4,96	4,33
Unit input power	H	kW	15,3	20,6	35,1

Cooling performances: Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external air.
Heating performances: Ambient air 20°C d.b./15°C w.b.; External air 7°C/6°C w.b.; Functioning with 30% of external air.

MBT					
Size			060	085	125
Configuration: MBT					
Cooling performances					
Cooling capacity	H	kW	66,00	88,80	139,10
Sensible cooling capacity	H	kW	51,50	72,20	97,00
Compressors absorbed power	H	kW	15,50	20,50	37,50
EER compressors	H		4,25	4,34	3,71
Unit input power	H	kW	20,5	27,7	46,6
Heating performances					
Heating capacity	H	kW	65,90	88,50	134,40
Compressors absorbed power	H	kW	12,50	16,60	29,10
Compressor COP	H		5,29	5,32	4,62
Unit input power	H	kW	16,9	22,4	38,3

Cooling performances: Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.
Heating performances: Ambient air 20°C d.b./15°C w.b.; External air 7°C/6°C w.b.; Functioning with 30% of external and expelled air.

Energy index

Size			060	085	125
Energy index					
SEER	H	W/W	5,94	6,41	5,81
ηsc	H	%	234,60	253,50	229,20
SCOP	H	W/W	3,74	3,83	3,59
ηsh	H	%	146,70	150,30	140,70

In MB1 configuration according to EN 14825:2022

Indices For Access To Incentives

Size			060	085	125
Configuration: MB1					
Indices for access to incentives					
Cooling capacity	H	kW	58,60	79,00	-
EER	H	W/W	3,10	3,14	-
Heating capacity	H	kW	56,90	76,70	-
COP	H	W/W	3,71	3,73	-

In MB1 configuration according to EN 14511-3:2022

General technical data

Size			060	085	125
Power supply					
Power supply	H		400V~3 50Hz	400V~3 50Hz	400V~3 50Hz
Compressor					
Type	H	type	Scroll	Scroll	Scroll
Number	H	no.	2	2	2
Circuits	H	no.	2	2	2
Refrigerant	H	type	R32	R32	R32
Compressor regulation	H	Type	Inverter	Inverter	Inverter
Sound data					
Sound power level	H	dB(A)	84,0	85,0	89,0

Sound power in MB1 configuration at nominal operating conditions calculated on the basis of measurements in accordance with UNI EN ISO 9614-1/2

Fans

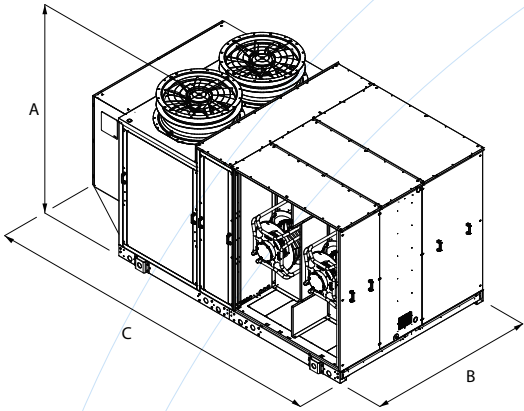
External fans					
Size		060		085	125
Configuration: MB1, MB2, MB4, MBF, MBT					
External fans					
Type	H	type	Assiali EC	Assiali EC	Assiali EC
Number	H	no.	2	2	2

Internal flow fans							
Size		060		085		125	
Configuration: MB1, MB2, MB4, MBF, MBT							
Delivery							
Type	H	type	Plug fan EC				
Number	H	no.	1	2		2	
Nominal air flow rate	H	m³/h	12700	17500		23000	
Minimum air flow rate	H	m³/h	9500	13000		17000	
Maximum air flow rate	H	m³/h	14000	20500		25500	
Nominal high static pressure (EN14511)	H	Pa	200	200		250	

Expulsion fan MB4					
Size		060		085	125
Configuration: MB4					
Exhaust					
Type	H	type	Plug fan EC		
Number	H	no.	1	2	3
Nominal useful head	H	Pa	100	100	125

Expulsion fan MBT					
Size		060		085	125
Configuration: MBT					
Exhaust					
Type	H	type		Plug fan EC	
Number	H	no.	1	2	3
Nominal useful head	H	Pa	100	100	125

Dimensions



Size			060	085	125
Dimensions and weights					
A	H	mm	1570	1900	2165
B	H	mm	2200	2200	2200
C	H	mm	3305	3905	3905
Empty weight	H	kg	1193	1518	1597

Empty weight: in MB1 configuration without accessories

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