AIR HANDLING UNITS

Product Catalog

MEKAR®

“ Life is in the Air ”

AIR HANDLING UNITS

Product Catalog

MEKAR®

Rel. 02_03_05

Index

The best environmental control, of the world's tallest building

Burj Khalifa | Dubai

829.80 *meters high*
162 *floor*
344.000 *m²*
58 *lifts*
39.000 *tons of steel*
2.5 *€ milions*
6.000 *special Mekar's FCU*

References and projects developed by Aliseo Group brands

BURJ TOWER - DUBAI, U.A.E. • YAS MARINA HOTEL - ABU DHABI, U.A.E. • BURJ AL ARAB - DUBA
EMIRATES ENGINEERING CENTER - DUBAI, U.A.E. • ROSEWOOD HOTEL - ABU DHABI, U.A.E. • W
ZA, QATAR • MUSCAT AIRPORT - MUSCAT, OMAN • BAHRAIN CITY CENTER - BAHRAIN • DUBAI
NO • PALAZZO REALE VENARIA - TURIN • "S. RAFFAELE" HOSPITAL - ROMA • PIRELLI, SETTIM

AI, U.A.E. • MINISTRY OF DEFENCE - ABU DHABI, U.A.E. • DUBAI MALL PROJECT - DUBAI, U.A.E. •
WORLD TRADE CENTER, QATAR • AL WAKRA HOSPITAL, QATAR • BUSINESS PARK CROWN PLA-
EQUINE HOSPITAL FOR H H SHK MOHAMMED - DUBAI • BASE NATO EUROPE DISTRICT - AVIA-
O TORINESE - TURIN • BANCA D'ITALIA - GENOVA • UNIVERSITY - MILAN • PALAVELA - TURIN

The best environmental control, of the ultimate hotel experience

Burj Al Arab | *Dubai*

7 *stars*
202 *suites*
321 *meters high*
70.000 *m^3*
foundation of **230** *m length*
9.000 *m^2 of steel*
600 *€ milions*
2.000 *special Mekar's FCU*
650 *special Mekar's AHU*

References and projects developed by Aliseo Group brands

HOSPITAL OF MANERBIO - BRESCIA • SAN CAMILLO HOSPITAL - ROME • CISANELLO HOSPITAL - PISA
HOSPITAL DE DIA ONCOLOGIA - PORTUGAL • HOSPITAL LA PAZ - SPAIN • HOSPITAL DO MARCO DE
HOSPITAL DE ALVAIÀZERE - PORTUGAL • AL SABAH HOSPITAL, KUWAIT • HOSPITAL SOUTHMEAD - E
FRESENIUS KABI - ITALY • GROUP SAIDAL INDUSTRIE PHARMACEUTIQUE – ITALY • AUROBINDO PHAR

• HOSPITAL - UDINE • HOSPITAL RUZOMBEROK - CZECH REPUBLIC • HOSPITAL ROOMS - ROMANIA •
CANAVESES - PORTUGAL • LARNACA HOSPITAL - CYPRUS • ONCOLOGICAL HOSPITAL - BULGARIA •
ENGLAND • HOSPITAL WITHY BUSH - ENGLAND • HOSPITAL MATER DEI ONCOLOGY CENTRE - MALTA •
MA – MALTA • DR. SULAMAIN HOSPITAL, SAUDI ARABIA • AL SILLA COMMUNITY HOSPITAL – DUBAI •

The best environmental control, of the FIFA World Cup 2022 stadium

Al Rayyan Stadium | Qatar
FIFA World Cup 2022

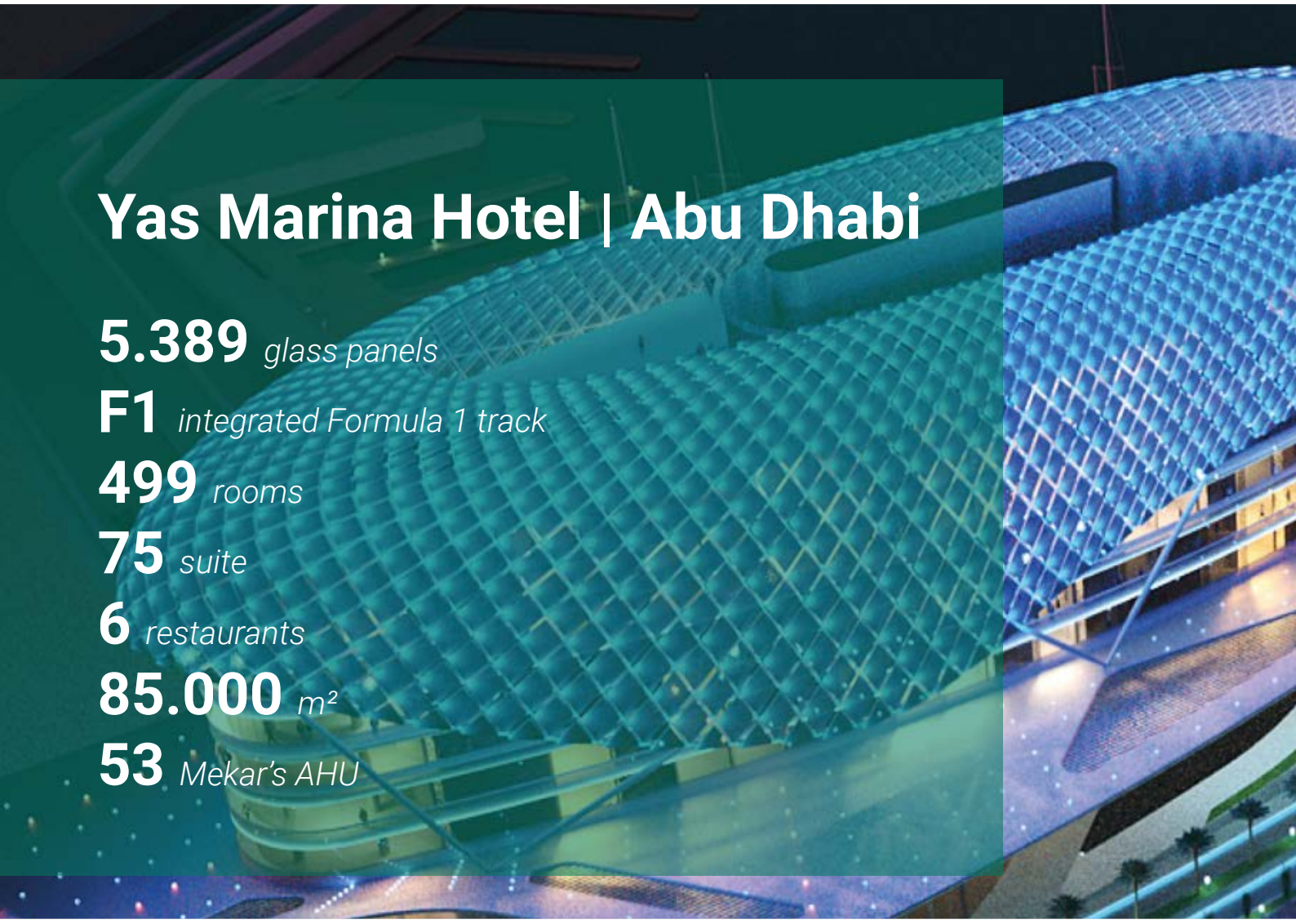
44.740 *seats*
3.400 *parking lots*
GSAS *certificated*
LEED *certificated*
865 *Mekar's FCU*
170 *Mekar's AHU*

References and projects developed by Aliseo Group brands

MASERATI WORKS - MODENA • AERMACCHI WORKS - VARESE • DIESEL - VICENZA • DIADORA W
SEUM - VENICE • INSTITUTE OF PHOTONICS - MILAN • INSTITUTE OF NUCLEAR PHYSIC - FLORENC
NONE • AIRPORT - PISA • METRO - MILAN • UNIVERSITY - SAVONA • HOSPITAL - MILAN • S.S. GIO
NA • AIRPORT - OLBIA • BAULI CONFECTIONERY - VERONA • BARILLA FOOD INDUSTRY - MELFI •

ORKS - TREVISO • DUCATI MOTORS - BOLOGNA • FERRARI STORE - MARANELLO • CORRER MU-
CE • VENDRAMIN PALACE - VENICE • “MOLINO STUCKY” GRAND HOTEL - VENICE • NESTLE’ - FROSI-
VANNI AND PAOLO CIVIL HOSPITAL - VENICE • S. PAOLO STADIUM - NAPLES • UNIVERSITY - VERO-
NEGRONI FOOD INDUSTRY - CREMONA • YOMO FOOD INDUSTRY - MILAN • FIAT WORKS - TURIN •

Best high profile units in the most technologically advanced racing circuit of Formula 1



Yas Marina Hotel | Abu Dhabi

5.389 *glass panels*
F1 *integrated Formula 1 track*
499 *rooms*
75 *suite*
6 *restaurants*
85.000 *m²*
53 *Mekar's AHU*

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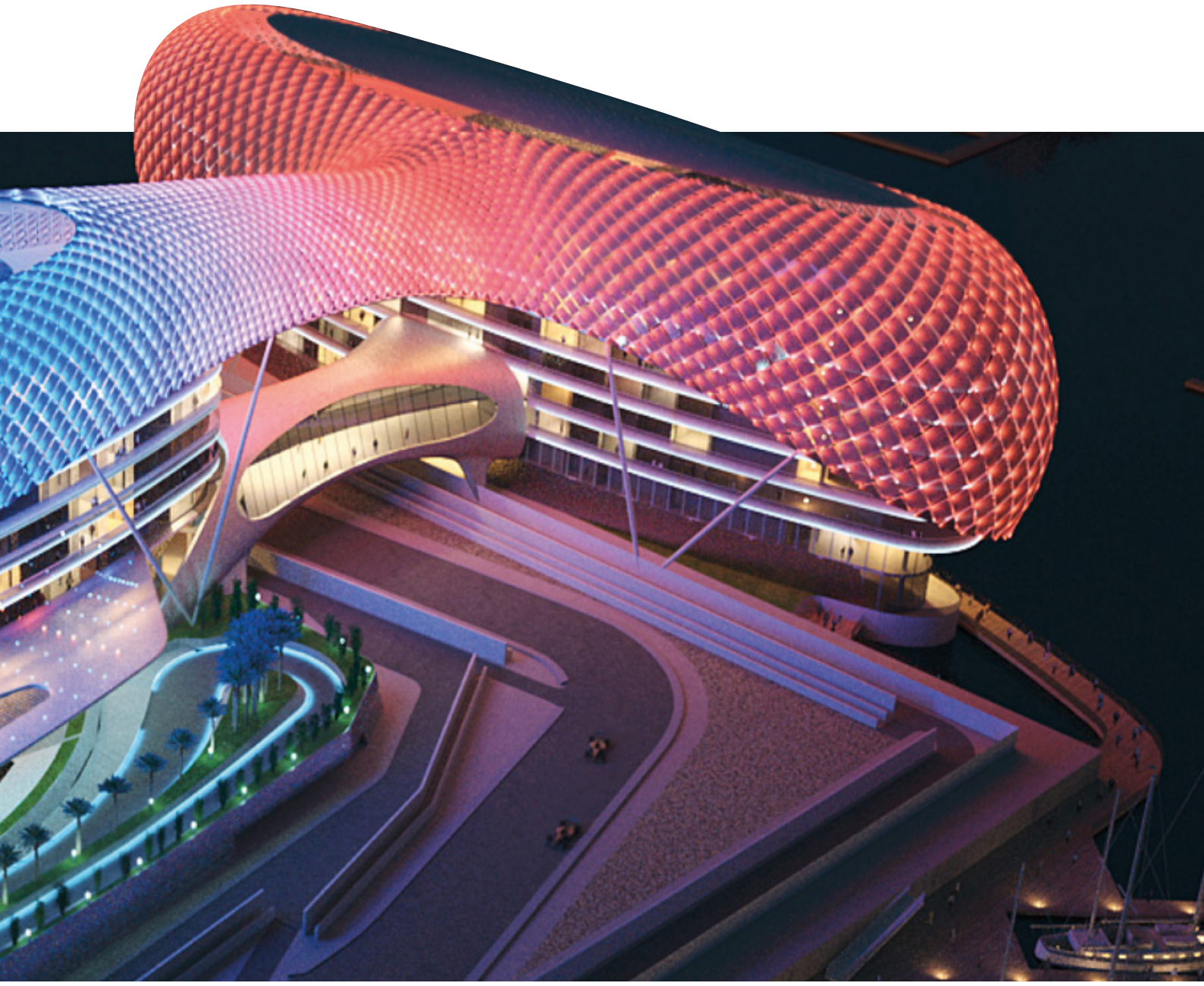

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NEGRONI FOOD INDUSTRY - CREMONA • YOMO FOOD INDUSTRY - MILAN • FIAT WORKS - TURIN •

Tailor made units for a new generation of distinctive luxury

The Royal Atlantis Resort | Dubai

43 *plans*
795 *rooms*
231 *residences*
13 *restaurants*
90 *pools*
173.398 *m²*
1.2 *€ milions*
4.000 *Mekar's FCU*

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HOSPITAL DE ALVAIÀZERE - PORTUGAL • AL SABAH HOSPITAL, KUWAIT • HOSPITAL SOUTHMEAD - E
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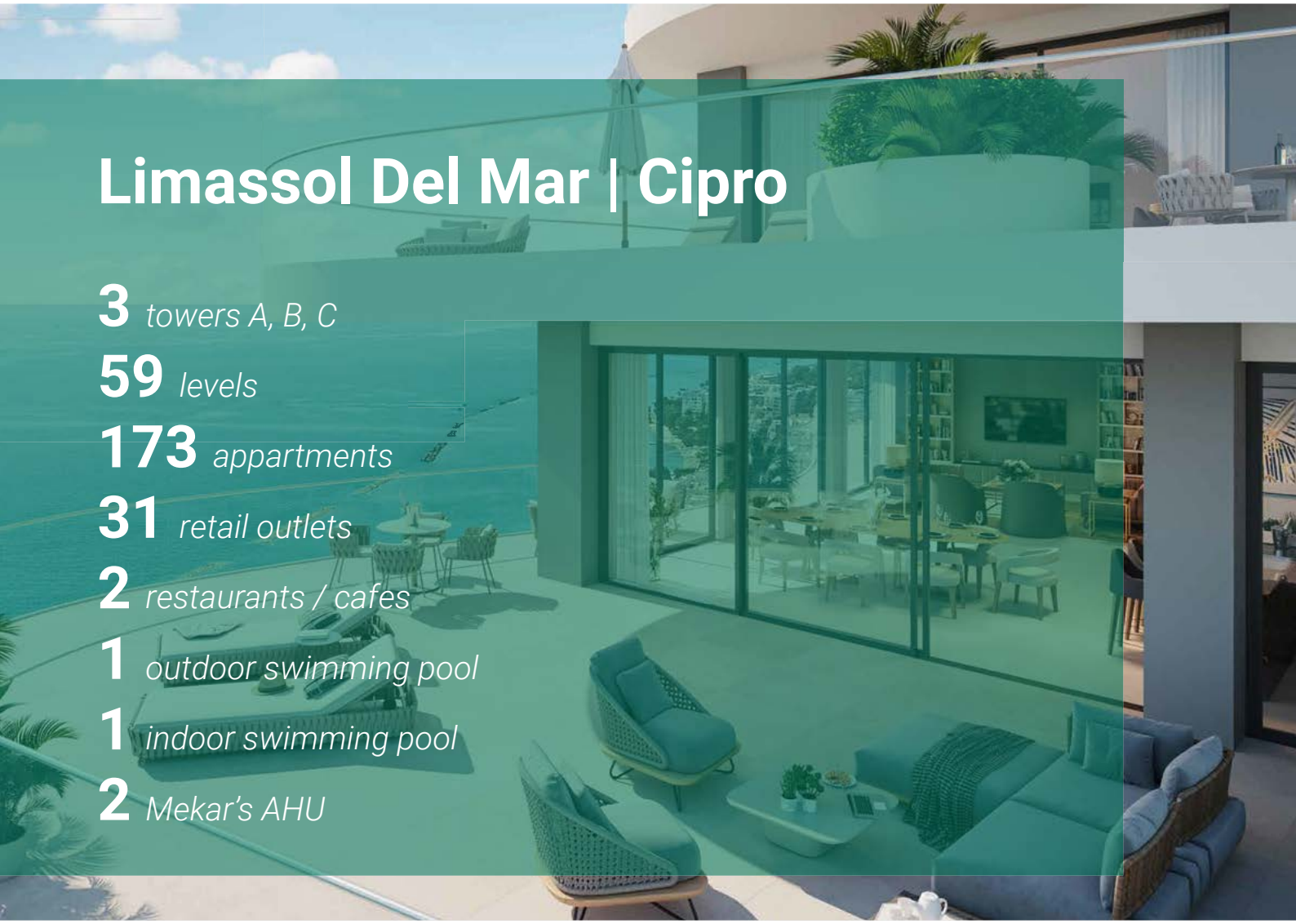
• HOSPITAL - UDINE • HOSPITAL RUZOMBEROK - CZECH REPUBLIC • HOSPITAL ROOMS - ROMANIA •
CANAVESES - PORTUGAL • LARNACA HOSPITAL - CYPRUS • ONCOLOGICAL HOSPITAL - BULGARIA •
ENGLAND • HOSPITAL WITHY BUSH - ENGLAND • HOSPITAL MATER DEI ONCOLOGY CENTRE - MALTA •
MA – MALTA • DR. SULAMAIN HOSPITAL, SAUDI ARABIA • AL SILLA COMMUNITY HOSPITAL – DUBAI •

Tailor made units for a new generation of distinctive luxury



Limassol Del Mar | Cipro

3 *towers A, B, C*
59 *levels*
173 *appartments*
31 *retail outlets*
2 *restaurants / cafes*
1 *outdoor swimming pool*
1 *indoor swimming pool*
2 *Mekar's AHU*

References and projects developed by Aliseo Group brands

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TREVISO

Mekar S.r.l.
Via Monte Grappa, 67
31020 San Zenone
degli Ezzelini
Treviso, Italy

VERONA

Mekar S.r.l.
Viale Caduti sul Lavoro, 25
37063 Isola della Scala
Verona, Italy

AJMAN

Mekar Air Handling Units LLC (factory)
P.O. Box 18500,
Al Jurf, Industrial Area near China Mall,
Ajman, United Arab Emirates

DUBAI

Mekar S.r.l.
The Business Center, Suite 203,
Khalid Bin Waleed Street P.O.Box 24583,
Bur Dubai, United Arab Emirates

JEDDAH

Mekar Air Handling Units LLC (distributor)
Al Mukmal Tower, Mezz Floor,
Ofc. No. 10 (Opp. Saudia City,
next to Danube Hypermarket)
Jeddah, Kingdom of Saudi Arabia

RIYADH

Mekar Air Handling Units LLC (distributor)
Al Saif Building,2nd Floor Above Red Sea,
Showroom in Front of Center Point
King Abdulla Road,
Riyadh, Kingdom of Saudi Arabia

DOHA

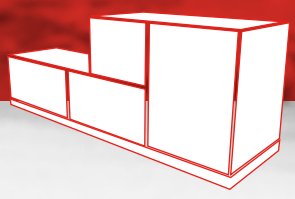
Mekar Air Handling Units WLL (distributor)
Al Riyadh Contracting Building,
Office No-9,Third floor
Doha, Qatar

ABU DHABI

Mekar Air Conditioning Units Trading LLC
Makateb Business Center,
P.O.Box 35243, Level 14,
Office 1412/1413,
Ajman Bank bldg, Tourist Club Area,
Abu Dhabi, U.A.E.

“THE POWER *OF THE GROUP*”

MEKAR®
AIR HANDLING UNITS



Ventilclima®
FAN COIL UNITS

Relying on Mekar *is a guarantee of satisfaction*

Mekar is a dynamic company strongly oriented to technological innovation, specializing in the design, development and production of units and integrated solutions for air treatment.

The Company has as its primary objective the maximum customer satisfaction, for this it aims primarily to guarantee high standards of reliability of its product range and a pre and post-sales assistance service, provided by professionals and technicians highly specialized in the sector.
Mekar employs a widespread network of partners on an international scale, which contribute to the distribution of the product while guaranteeing quality control also through its assistance centers. The aim is quality understood in an absolute sense, certifying and producing according to UNI EN ISO 9001 standards.

Mekar is the ideal partner in the air treatment sector, the innumerable prestigious national and international references are the objective proof of the skills and service that the company is able to guarantee to its customers.


MEKAR

Mission

Our mission

Our mission is clear: to remain faithful to our values and ethical principles that since 1974 have allowed us to grow by doing what we do best: improving the quality of life of our customers, offering optimal comfort guaranteed by innovative solutions and informed decisions.

For over 45 years we have committed ourselves daily to the research, design and production of Made in Italy solutions that provide efficient and high-performing products to improve the psychophysical wellbeing of the occupants and ensure greater environmental sustainability.

Over the years we have adapted and evolved, but our essence has remained integral.
We always get back in the game to better understand the needs of our customers, and we are proud to realize that our values and know-how have won us the trust of a vast and demanding international clientele. Our customers see us as a reliable partner who can supply the most valuable thing in a building: comfort.

Our experience, perseverance and total dedication to full customer satisfaction - ensured by the human capital of our team - have allowed us to achieve important goals over the years, including the privilege of being chosen as the ideal partner in hundreds of projects of unquestionable prestige and international fame.

Applications

Innovative solutions, for every kind of need

The experience and know-how acquired in over 45 years of activity in the sector, wide-ranging flexibility and dynamism that has always characterized our company's DNA and the ever increasing attention paid to the human capital that makes up our team, have garnered us recognition on the market today as a reliable player who offers fully customized solutions according to customer specifications.

Thanks to our engineering, a research laboratory and partnership with the foremost European laboratories, we respond to all sorts of needs, whether it involves air treatment for comfort purposes or specific areas such as industry, manufacturing, naval, hospital, food or oil & gas, where durability, reliability and full operation must always be guaranteed.

With dedication and passion we know how to listen to the needs of our customers, and supply turnkey solutions, guaranteed by years of experience in the sector and by products designed, developed and manufactured entirely in Italy.


Residential


Business


Public


Industrial


Naval


Chemical


Enology


Museum


Hospital


Food


Process


Pharmaceutical

Quality

Quality and performance, certified

Our goal is total customer satisfaction, which is why we have always rigorously applied a meticulous and constant process to improve our products and processes, moving around from the performance aspect through a careful research and development phase supported by advanced testing and verification tools, to finally reach a scrupulous control of the entire corporate process certified according to ISO 9001.

The numerous certifications, including the one concerning the fulfillment of the most stringent health and hygiene requirements that comply with the criteria of DIN1946-4, testify to the primary attention and constant commitment put by Mekar on issues that have always been dear to the company, such as innovation, quality, efficiency and total reliability of the solutions and product ranges offered to the market

Health

Comfort and well-being, in total safety

TÜV NORD

CERTIFICATE

Permission to use the test mark

VOLUNTARY PRODUCT TEST
BASED ON DIN 1946-4:2018 AND VDI 6022-1:2018
– Tested Hygiene Characteristics –

TÜV NORD Systems GmbH & Co. KG, Hamburg (Germany),
hereby confirms that the Air Handling Unit Range
"23MK-H" in Hygienic Version
conforms to the requirements set by DIN 1946-4:2018 and VDI 6022-1:2018.

Mekar S.r.l.,
Isola della Scala (Italy),
is therefore granted the right to use the test mark shown below
in connection with the above-mentioned product.

TÜV NORD Systems GmbH & Co. KG
Test Laboratory for Ventilation, Air Conditioning, Refrigeration
TÜVNORD Digitally signed by Monika Steimle Date: 2023.07.18 07:18:30 +02'00'
Dipl.-Ing. Monika Steimle
Essen, 18 July 2023

The certification is based upon a type examination of an Air Handling Unit and not of a complete system installed in a building.
The validity of the certificate is 15 months.
All regulations concerning test mark use are laid down in the corresponding agreement.

TÜV NORD
Tested
Hygiene Characteristics
Air Handling Unit Range
"23MK-H" (IT)
SEPT/2154/14

DIN 1946-4

Today it is vital for companies to guarantee an ideal healthy climate within various environments, ensuring both comfort and safety, favoring the psychophysical wellbeing of individuals, while improving their health, performance and concentration. Appropriate air management, not only in terms of the temperature but also the purity of the air, in the environments where we live, represents a vital aspect for the well-being of the occupants as it superbly maintains their health conditions.

Mekar set out to give a concrete answer to the primary aspect of user protection by designing, developing and certifying **DIN 1946-4** a dedicated range of units that guarantee a high standard of hygiene, with a broad range of fields of application. These applications include the most common areas such as offices, schools, gyms, spas and shared spaces in general where a healthier and safer environment is created. Then we provide even more sensitive applications for places such as hospitals, clinics, the food and pharmaceutical industries in which absolute levels of hygiene must be guaranteed.

The introduction of innovative technical construction solutions, the use of stainless materials and cutting-edge polymers tested according to **DIN EN ISO 846** and capable of inhibiting bacterial proliferation, have led to the creation of two series of products conforming to the parameters imposed by the **VDI 6022** guidelines. These are ever more widely recognized at the European level as a reference for the state-of-the-art design of public spaces where excellent hygiene and comfort can be ensured to the total benefit of the public well-being.

Safety

Certified solutions, full operation even in the event of an earthquake

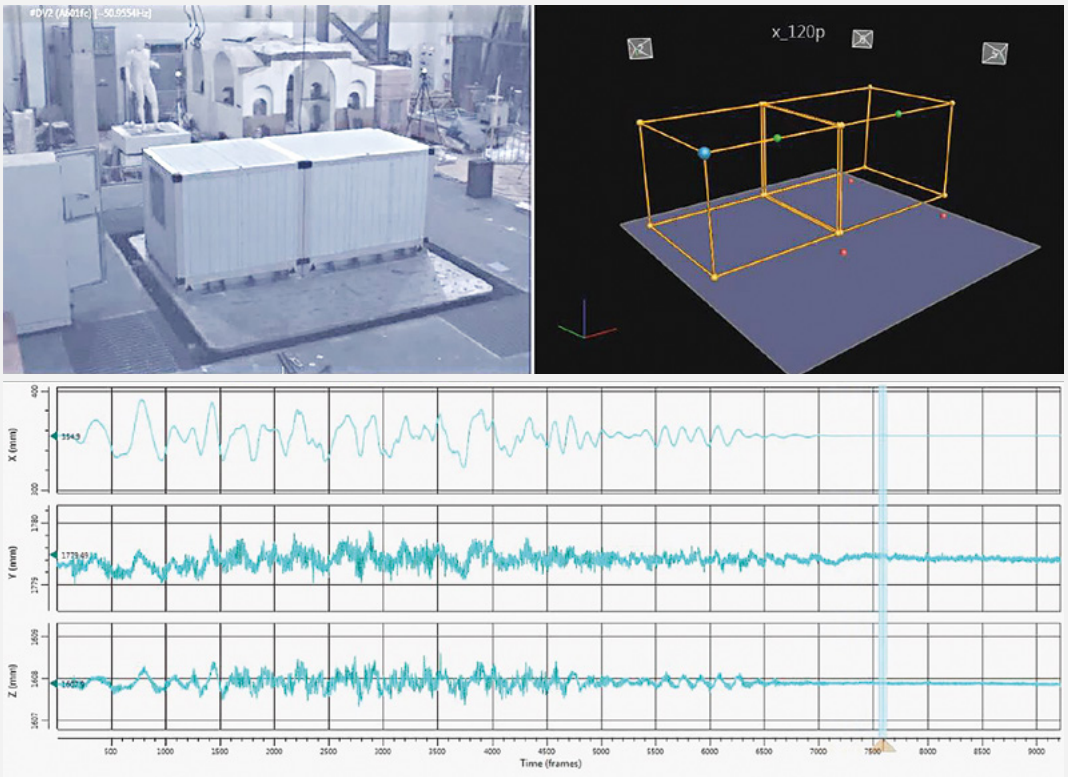
Ensuring the full operation of the systems that guarantee air treatment even in the case of adverse events, such as seismics, is a priority issue for any public building that must guarantee total safety for users and full functionality.

For this reason, as early as 2016, specific seismic tests were performed at the ENEA Research Center in Rome, where the suitability of the AHU Mekar 23MK series was certified for resisting without damage in the case of seismic events, in compliance with UBC97 (Universal Building Code 97).

Seismic tests performed at

ENEA

National agency for new technologies,
energy and sustainable economic development.



Support

Quality and skills, at your service

Every day we do our best to make our brand a synonym and guarantee of reliability, quality and maximum durability. This is why we work constantly to also offer a complete and professional after-sales service. Our team of specialized technicians and a network of international partners support our customers with qualified consultancies aimed at providing technical assistance and ongoing training.

Our professional after-sales service responds in a timely manner to every need, from the formulation of estimates for spare parts to the planning of technical interventions on site; technical consultancies dedicated to the creation of customized solutions, while minimizing inconvenience to the customer and guaranteeing full operation of the environments in which our products are installed.


support


analysis & consulting


installation & testing


spare parts


preventive maintenance


training


technical assistance

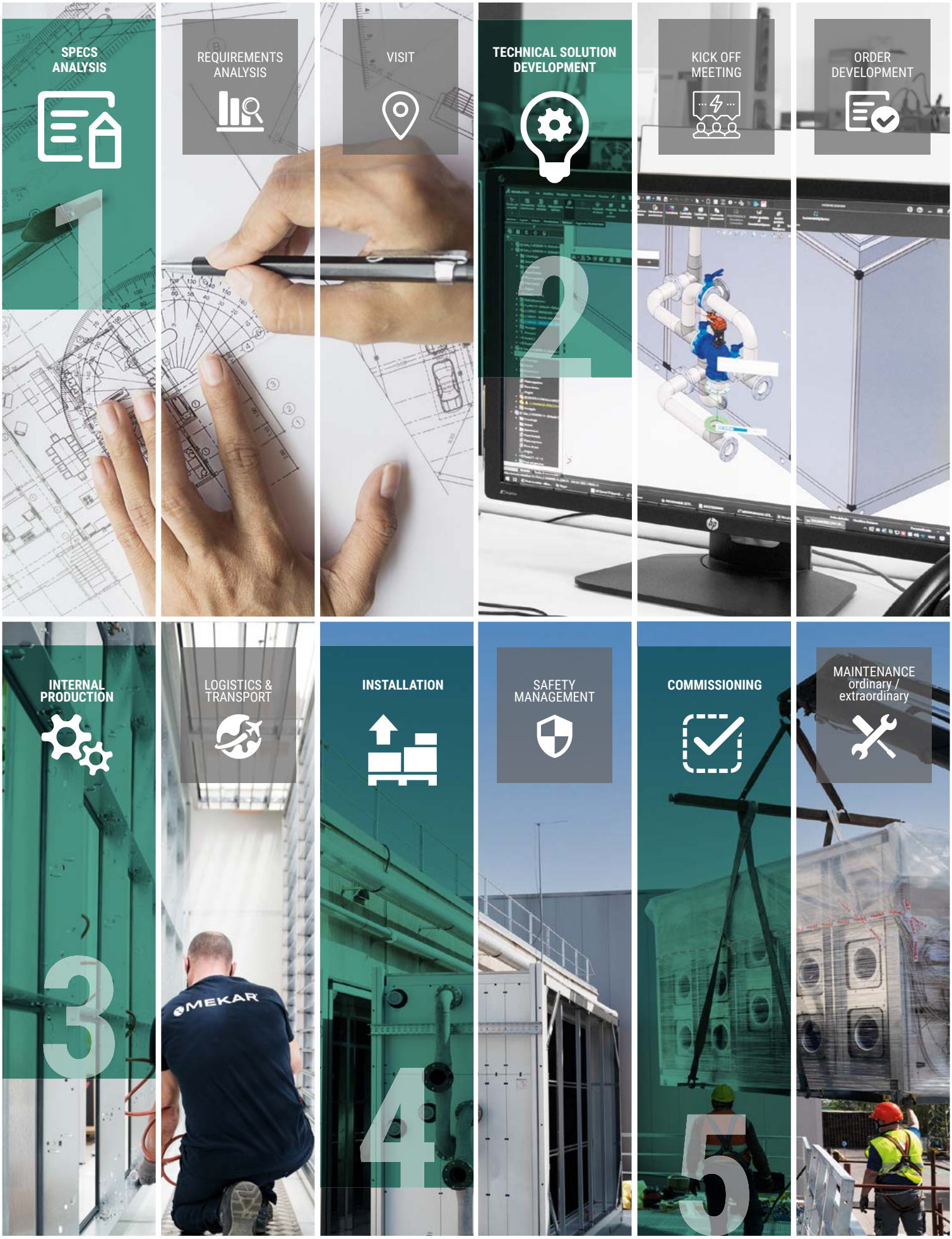

customized warranty solutions

In recent years we have managed many projects on the front line alongside both the designer, through consulting and on-site inspection activities, and the installer, from site logistics to assembly, start-up and maintenance on site.

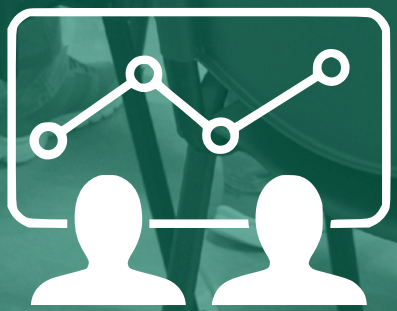
With this working method, MEKAR confirms itself not only as producer and spectator of a process but as the protagonist of a realization that starts from providing advice to designers and ends providing support to the installer on site.

Our high degree of technical preparation, the support through dynamic analysis and product configuration software, a team of skilled workers in construction site activities and our construction flexibility are elements that characterize our approach to the air treatment market.

From concept to installation, *a turnkey solution*


SPECS ANALYSIS
1
REQUIREMENTS ANALYSIS
VISIT
TECHNICAL SOLUTION DEVELOPMENT
2
KICK OFF MEETING
ORDER DEVELOPMENT
INTERNAL PRODUCTION
3
LOGISTICS & TRANSPORT
MEKAR
INSTALLATION
4
SAFETY MANAGEMENT
COMMISSIONING
5
MAINTENANCE ordinary / extraordinary

Training



Continuous training and innovation, also in human capital

We believe the company is made first and foremost of people, for this reason we invest in human capital and training, convinced that only by sharing ideas, solutions and needs can responses be provided to an increasingly evolved and demanding market.

Since 1974 we have evolved and specialized in treating in an excellent way and with conscious choices the most important of the natural elements: the air.
In order to better convey our values and share choices and needs with our partners and our customers, we founded Mekar Academy.

MEKAR Academy

We offer training courses for consultants, designers, installers and specialists in the sector in order to share topics such as product innovations, new solutions, regulatory updates and in order to see first-hand the quality of the products and our services that we want to be able to put at the service of our partners.

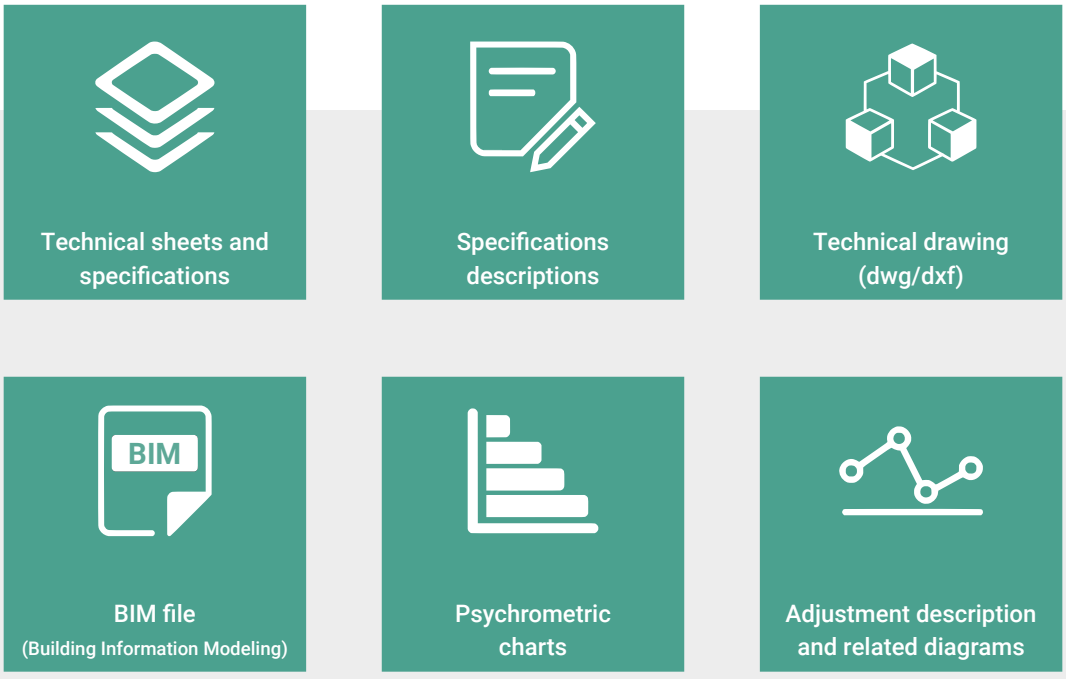
Software

Software Selection

MEKAR has developed an exclusive product configuration and budgeting software, which integrates all the functions in a single easy-to-use tool, from which it will be possible, in a few simple steps, to obtain a complete selection based on your needs. Once the selection is complete, it will be possible to release all the necessary information in different formats, from the performance data, to the dimensional data, from the technical drawings to the BIM contents, up to the detailed economic offer.

The completeness and the transversal functionalities of this powerful calculation tool allow to select in a dynamic and intuitive way a wide variety of possible configurations, composing the unit step by step with the integration of all the relative optional accessories.

Great attention and completeness has also been placed in the regulation and control part of the AHU, which can always be configured using the same instrument through a dedicated section, which offers the possibility of configuring a complete plug&play solution.



The Mekar software can be provided free of charge to professionals in the sector, who can also take advantage of training courses dedicated to the use of the same and organized at the MEKAR-ACADEMY. Furthermore, the Company provides a constant selection support service through its pre-sales office, made up of highly specialized technical profiles able to support the professional in the case of dedicated implementations or assistance in general.

The Group *in numbers*

52
turnover
(€ million)

232
staff

42
export
countries

1.200
special
references

8
branches

26.132
production area
(m^2)

Product range index

23MK

An air handling unit for the service sector

The 23MK air handling series is characterized by sturdiness, flexibility, reliability and a deep industrialization, which guarantees speed in delivery times, whilst not renouncing to extreme versatility and flexible configuration.

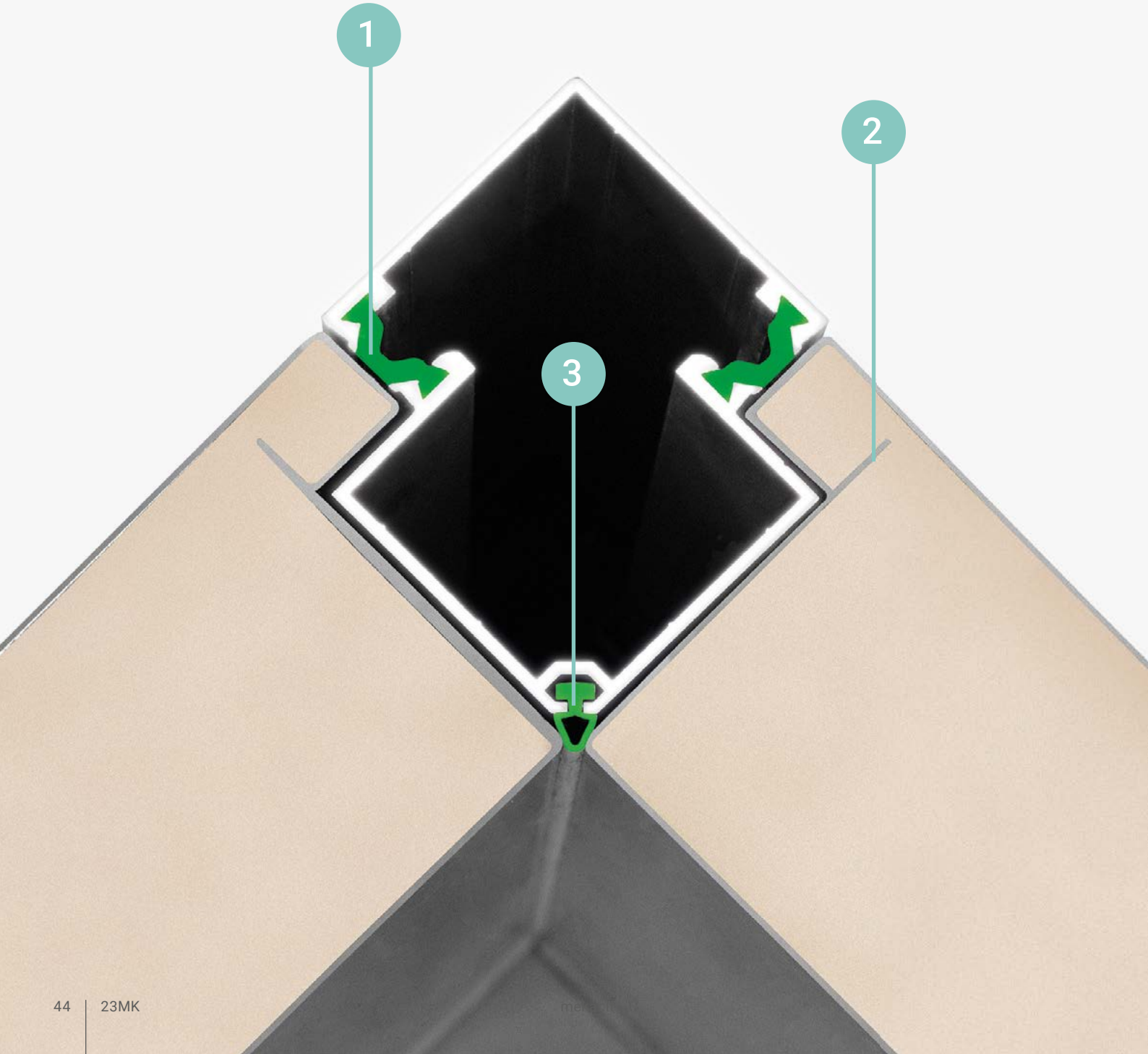
These features make it possible to maximize the combination of required performance, air flow speed on the coils, dimensional compactness and investment containment.

The 23MK air handling units are available for a range of capacities between 1000 and 80000 m^3 / h and with total pressures up to 2500 Pa. However, in specially designed units, higher values of flow rate and pressure can be accomodated for, based on specific customer requirements.

EUROVENT CERTIFIED PERFORMANCE
AHU N° 09.04.418
Range: 23MK Series
www.eurovent-certification.com

MEKAR S.r.l. participates in the ECP programme for AHU. Check ongoing validity of certificate: www.eurovent-certification.com

The details, *make the difference*



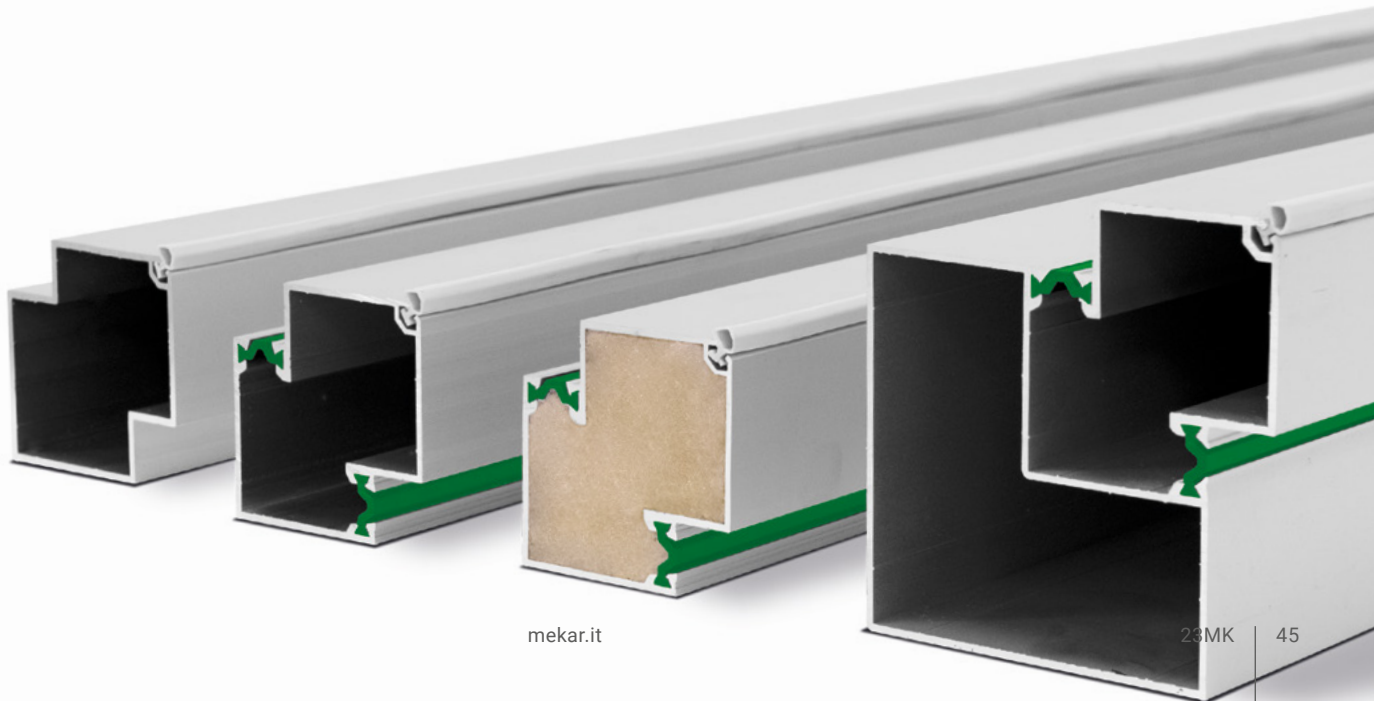
STRUCTURAL PROFILES

Our exclusive Mekar ***"MK-Pro 2.0"*** aluminium profile is specially designed and developed to optimize the construction aspect of the range. Available in the aluminium version with a natural finish or in anodized aluminum; each can come with or without a thermal break.

1 The thermal cut is guaranteed by inserting a breaker segment made of extruded polyamide thermal conductivity 0.30 (W/m°K), which guarantees an optimal compromise between structural strength and maximum insulation capacity. It is also possible to select the profile even in the configuration injected with polyurethane foam density 45 kg/m^3, thermal conductivity 0.024 (W/m°K).

2 The particular conformation of the geometries and the constructive choices adopted make it possible to completely reduce the contact between the external and internal surfaces, thus guaranteeing a total thermal bridge panelling.

3 The sealing gasket directly integrated on the corner profile completely avoids the contact between the treated air inside the unit and the external surface.
In addition, the gasket eliminates the presence of the typical gap between the panels, guaranteeing a continuous surface, free of gaps where dirt can be deposited, for the benefit of a simpler and more effective sanitizing of the surfaces.



The details, *make the difference*

INTERNAL SURFACES

The internal surfaces are completely smooth and free of screws, since all the fixings are confined inside the aluminium profile. This avoids stagnation of dirt and makes maintenance, cleaning and sanitizing operations easier, faster and safer.

ANGULARS AND BASE

Structural corners made of injection-molded PA6 Nylon, reinforced with glass fibre or, alternatively and optionally, made internally in stainless steel. The base is instead made of press-bent sheet metal of high thickness and is selectable in multiple variations in terms of material, thickness, finish and height.

PANELS AND DOORS

In order to preserve the integrity of the insulating materials and facilitate cleaning operations, each screw used to fasten the panels is coupled to an insert made of Nylon, appropriately developed to guarantee the complete integrity of the panelling, even in the face of multiple interventions. The unit can also be configured with multiple types of fixed or adjustable hinges, standard or thermal cut handles, adjustable and with a safety key ,or, with ratchet latches with reinforced omega for doors under pressure.

PANELING

Sandwich panels made in a wide range of materials with a thickness of 60mm (standard) or 100mm (optional). The construction details adopted in the exclusive geometry of the Mekar panel make it possible to reduce contact between the whole internal panel and external panel, guaranteeing an excellent thermal cut thanks to a suitable gasket fixed in the perimeter part of each panel.
The inner lip of the gasket ensures pressure tightness on its stop against the frame.

60 mm
(Standard)

Casing classification
according to EN1886

Mechanical resistance	D1
leakage	L1
filter by-pass	F9
transmittance	T2
thermal bridges	TB2/TB3

100 mm
(Optional)

Casing classification
according to EN1886

Mechanical resistance	D1
leakage	L1
filter by-pass	F9
transmittance	T1
thermal bridges	TB2

THERMAL-ACOUSTIC INSULATION

Configurable in two alternatives, with insulation in injected polyurethane foam density 45 kg/m^3, thermal conductivity 0.024 (W/m°K) and reaction class to fire B2 or with mineral wool insulation density 90 kg/m^3, thermal conductivity 0.039 (W/m°K) which offers excellent performance in terms of thermal / acoustic insulation and excellent fire behaviour with reaction class A1.

Certified acoustic data

our products have been tested at the laboratory Istituto Giordano
(ref. no. test report 377215 - 377220)

The air handling units consist of a casing that contains all the air handling components inside.

The casing panels type can be chosen among various combinatinons of elements, in particular the thickness of double skin sandwich panel (60 or 100 mm), the insulating material type (polyurethane or mineral wool) and inner and outer skin sheet thickness (from 0.6 up to 1 mm).

The combination of these elements allows different noise absorption levels.

MEKAR has tested various combinations of paneling at the Giordano Institute with laboratory measurements of airborne sound insulation according to UNI EN ISO 10120-2: 2010

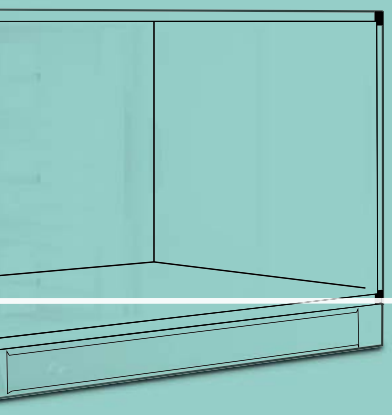
Here are the certified data of some solutions:
Panel “PV06-ZN06-PU-60” Rw = 29 dB
Panel “PV10-ZN08-PU-60” Rw = 31 dB
Panel “PV10-ZN08-LM-60” Rw = 46 dB
Panel “PV10-ZN08-LM-100” Rw = 51 dB

ISTITUTO GIORDANO
BEYOND CERTIFICATION

Innovation and constant search
for maximum efficiency

For over 45 years we have been committed to research, design and production of solutions that aim to provide efficient, reliable and high-performance products in line with the most stringent regulations in force.
To always try to achieve these goals, we strongly value the aspect of continuous evolution and research, in order to develop, evaluate and validate increasingly innovative solutions, which are able to respond to the multiple needs of a constantly changing market. Thanks to dedicated engineering, a team of highly specialized technicians and a profitable collaboration with partners and suppliers, we are now able to offer excellent solutions, which allow us to express the best results obtainable in the world of air treatment, dedicated to the individual specifications dictated by the customer in a timely fashion.

To follow, a brief introduction of some of the solutions that can be implemented in Mekar air handling units, which aim to offer the most innovative solutions available on the market today.



Focus Point

Efficiency

Air quality

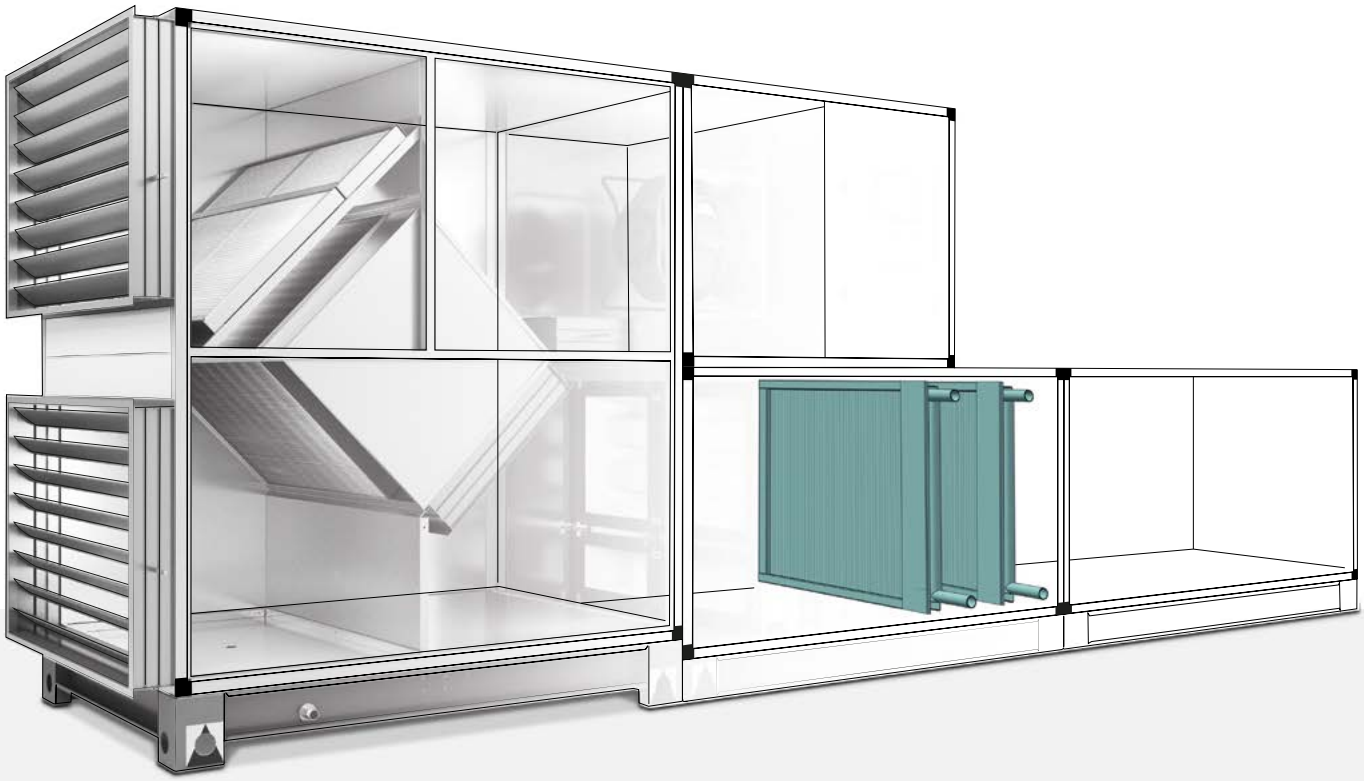
Reliability

Energy saving

Punctual management

Focus Point

Oval Tube Technology

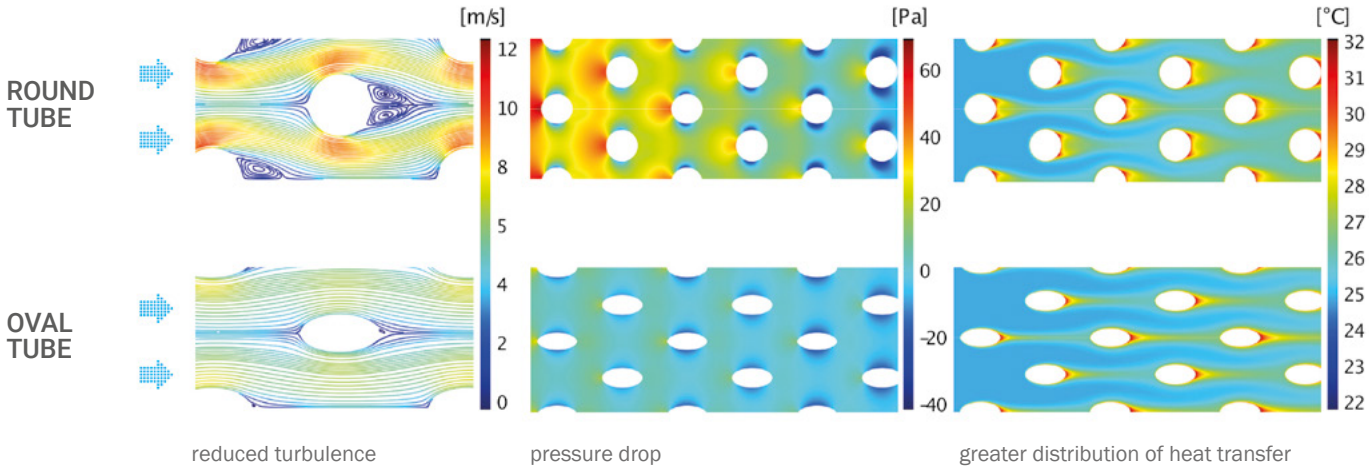


Reduction in consumption

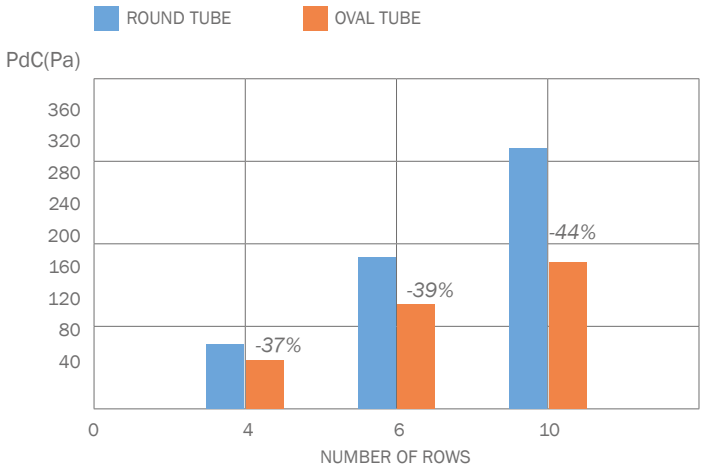
Energy efficiency in buildings is forcing heat-carrying fluid generators to work with increasingly lower thermal levels in order to increase the performance of the generators themselves. Consequently, for the same power output, the heat exchange coil of the AHU requires a greater surface area to the detriment of the pressure drop and therefore, of the overall electrical absorption of the AHU.

It is for these reasons that MEKAR, as an alternative to the traditional round tube heat exchangers, proposes the OVAL TUBE, technology which guarantees an improvement in performance up to 15% and a reduction in airside pressure losses over 40%.

Round tube vs oval tube

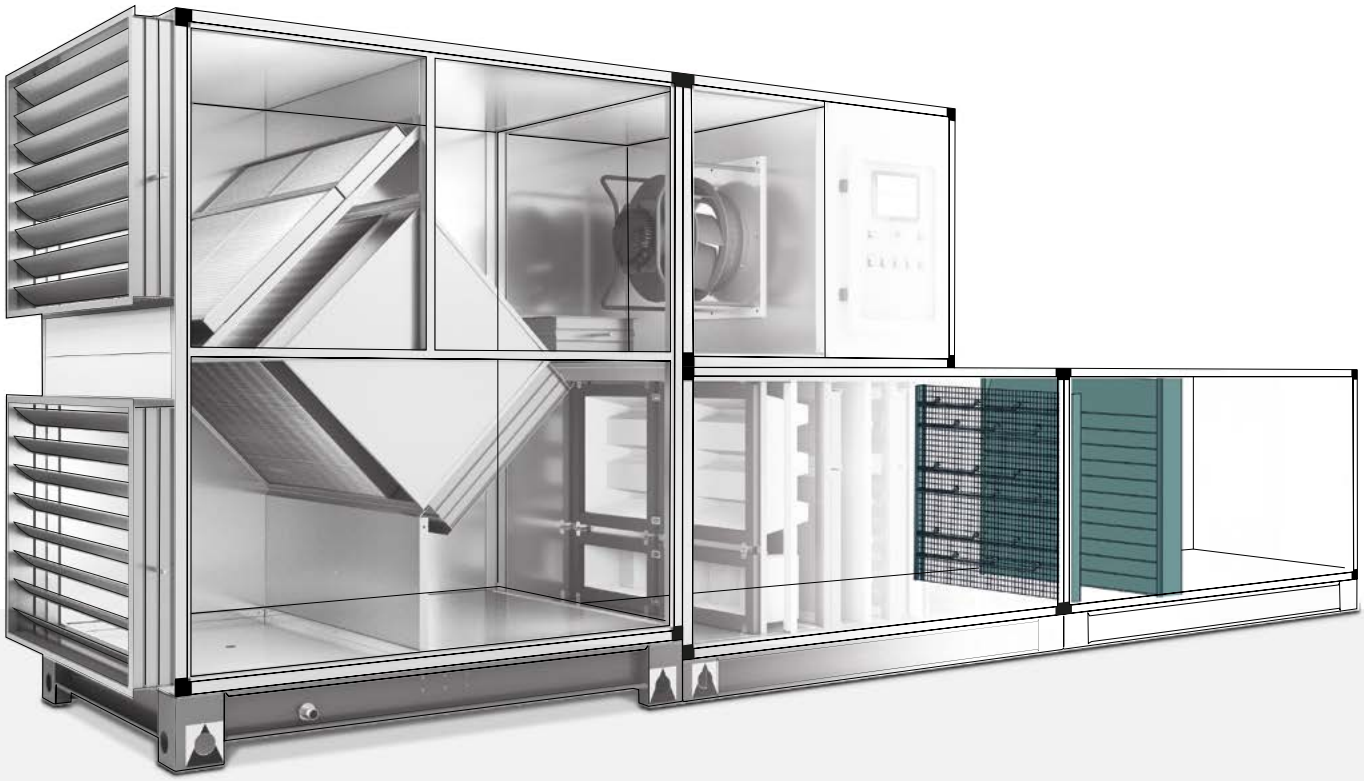


Air side pressure drop



Focus Point

Hybrid adiabatic humidification



Compact dimensions and high humidification effeciency - Higienic certification

Water is a precious commodity and the efficiency of humidification systems inside CTAs is important to avoid waste especially in production systems with reverse osmosis.

Adiabatic humidification systems combine the use of atomization nozzles, capable of generating a homogeneous mist, which evaporates along the process at a subsequent stage composed of ceramic elements that absorb the remaining water and completely re-evaporate it.
The features and the main benefits of this innovative system are listed below:

- 95% humidification efficiency.
- Reduced absorption lengths (from 60 cm).
- Low air side pressure drop (40 Pa at 2 / ms).
- Absence of aerosol components in the air.
- Institut Fresenius and VDI 6022 certification.
- Patented silver ionization group.
- Reduced electricity consumption.
- Reduced maintenance.
- Easy and quick installation.

Two adiabatic methods, cleverly combined.

Hybrid humidification is based exclusively on the advantages of two types of humidification: atomization and evaporation. In this way, there is a lasting solution to the problems that may occur in the event of the separate use of these techniques. In terms of hygiene, energy efficiency and cost, the humidification system is the first choice.

Atomization

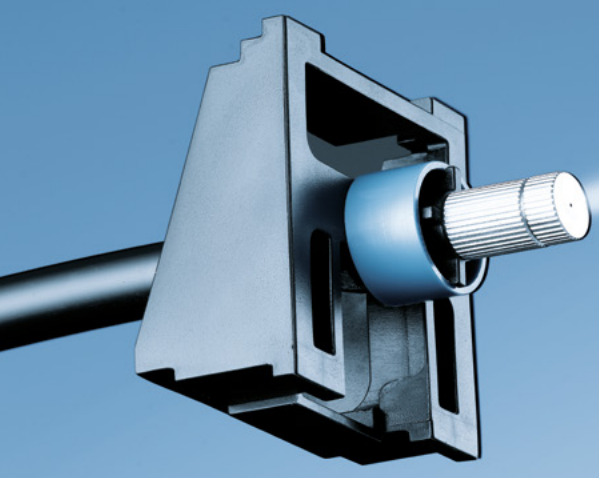
Humidification water is atomized by low-pressure molecular atomizers. The atomising nozzles have an adjustable spray mist and are optimally distributed over the entire section of the appliance. This arrangement allows a high evaporation effect and a homogeneous distribution of humidity.

Evaporation

The patented evaporation unit in high-quality ceramic is located at the end of the humidification section. It captures the humidification water and achieves the best possible post-evaporation. The ceramic allows the maximum use of the precious humidification water. At the same time, it prevents the accumulation of water in the downstream components.
Hybrid humidification always guarantees air free of aerosols, making it more hygenic.

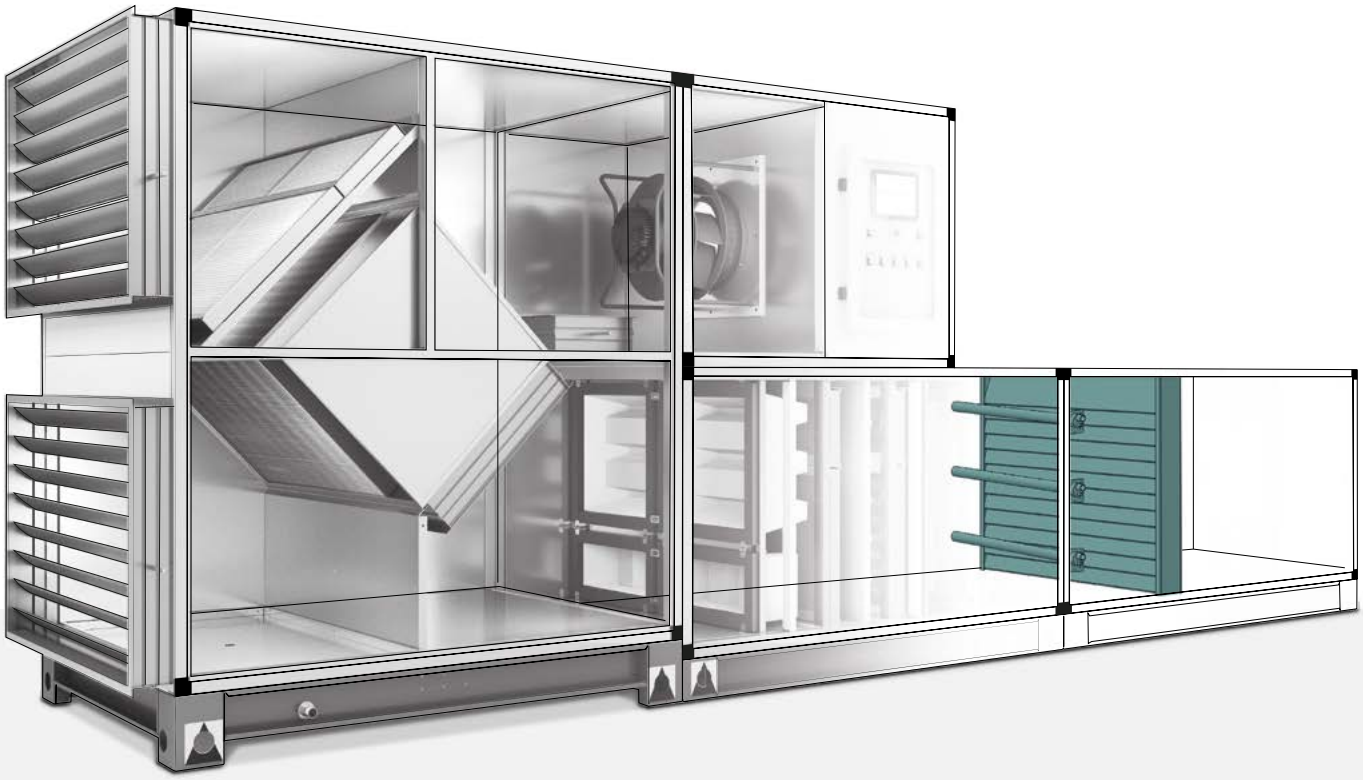
Adjustable molecular atomizing nozzles

Low-pressure operation already allows considerable energy savings, thanks to low compression work.
Low-pressure molecular nozzles work in the range of 2 to 10 bar in an absolutely wear-free way.
The nozzle itself is housed on a flexible carrier clip that can be adjusted in a straight position or with an angle of 15°.
The nozzle spray cone can therefore, be directed so that even the humidification water reaches the evaporation ceramic completely in the peripheral critical areas.



Focus Point

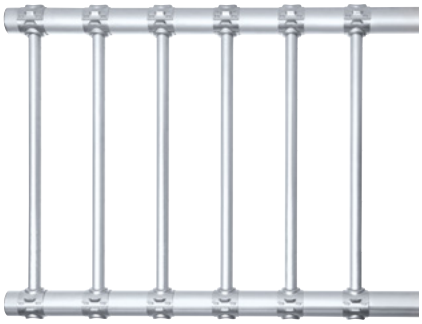
Compact isothermal humidification



Compact dimensions and
high humidification effeciency

Always with great attention to space, MEKAR offers a multi-lance steam distribution system that reduces absorption distances compared to traditional steam distribution systems.
The patented central flow injector nozzles extract the steam from the centre of the distribution pipes, where it is hot and drier. In this way, it is ensured that the steam is introduced into the humidification section without the formation of droplets. Otherwise, when the steam touches the cooler outer surfaces of the tubes, it may condense.

A uniform distribution of the nozzles through the entire distribution system ensures a homogeneous exit in the airflow and reduces the humidification path compared to traditional steam pipes.



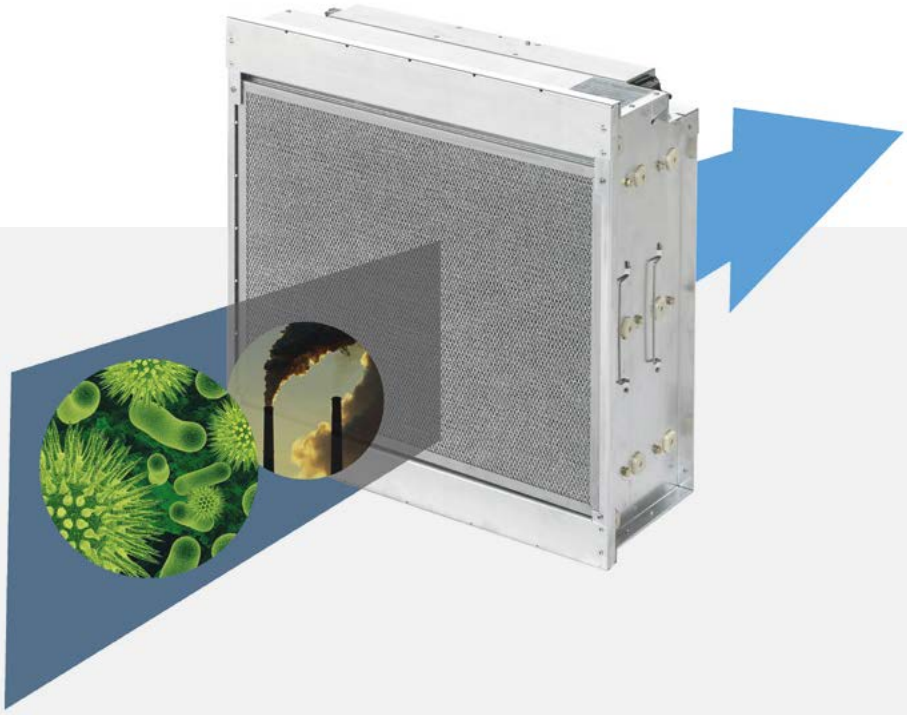
Focus Point

Electrostatic filtration

Reduction in consumption
and maintenance cost

With the ultimate aim of guaranteeing a filtration characterized by maximum efficiencies and able to meet the increasingly stringent energy-saving requirements, Mekar can also supply units equipped with an innovative type of extremely high-performance filters and certified according to UNI EN ISO16890. The high-efficiency electrostatic filtration systems are already widely used and tested in civil and industrial environments and are based on the phenomenon of electrostatic precipitation characterized by different advantages which include:

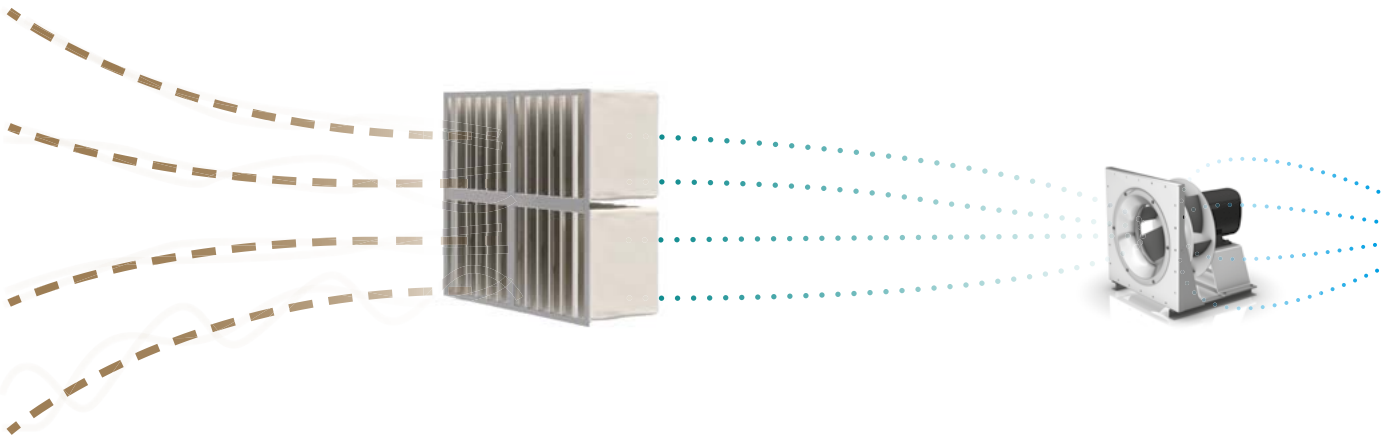
1. Extremely high filtration efficiencies, with efficiencies greater than 99%.
2. Contemporary removal of microorganisms such as bacteria, yeasts, moulds and germs.
3. Negligible pressure drop through the filter.
4. Duration of filters equal to the useful life of the entire unit, with minimum maintenance requirements.
5. A very high degree of product reliability



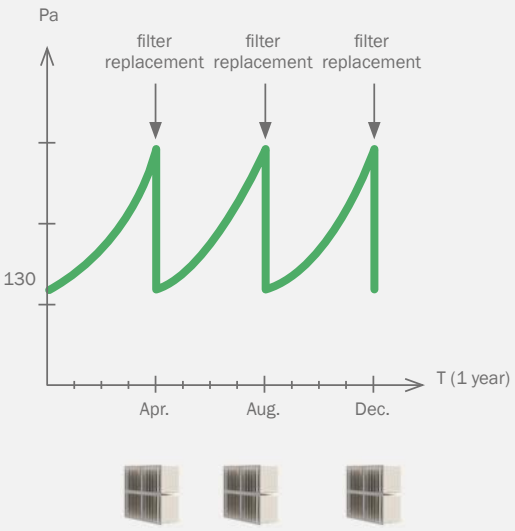
All this allows the recovery in a very short time of the major initial investment compared to a traditional filtration system, for example of the pocket type, thanks to the reduction of the electric consumption of the ventilating sections. Since the pressure drop is very low, the costs for maintenance are extremely inferior since periodic replacement of the filters is not necessary.
Practical cases show that the return on investment typically occurs in a few months.
With the new UNI EN ISO 16890 classification, the electrostatic filter proposed by MEKAR is the only air filter with real energy classification A + overtime.

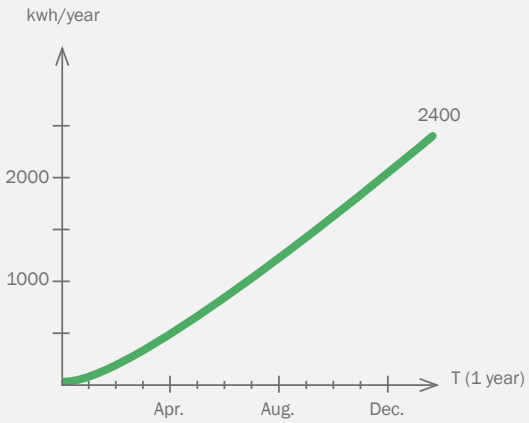
Case Study

Unit equipped with pocket filter

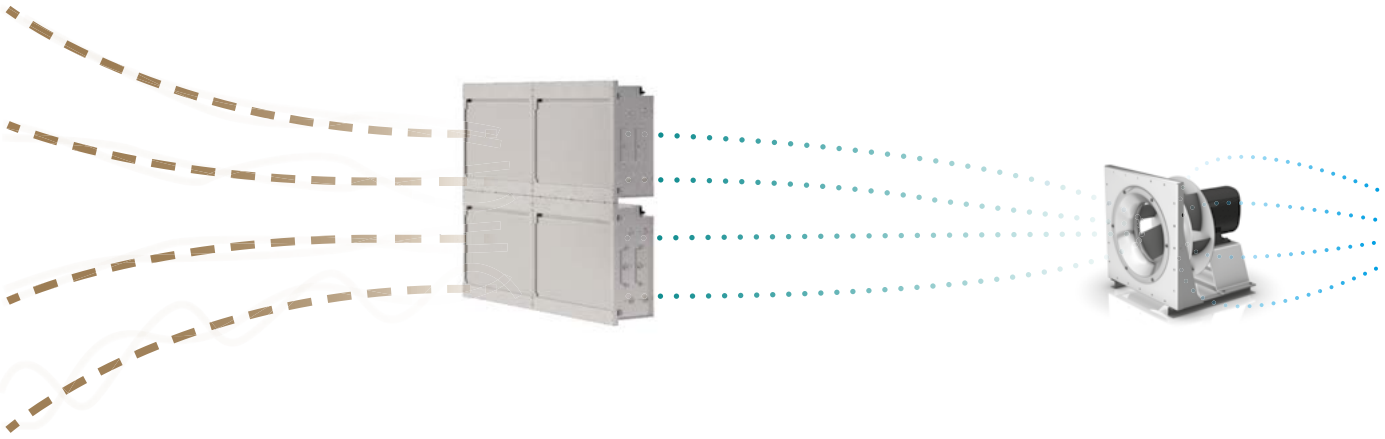


Energy Class	Annual consumption (kwh/a)	Filtration class EN ISO 16890	Initial Pressure Drop (Pa)	Final Pressure Drop (Pa)	Annual replacement
C	2400	ePM_1 70%	130	300	3



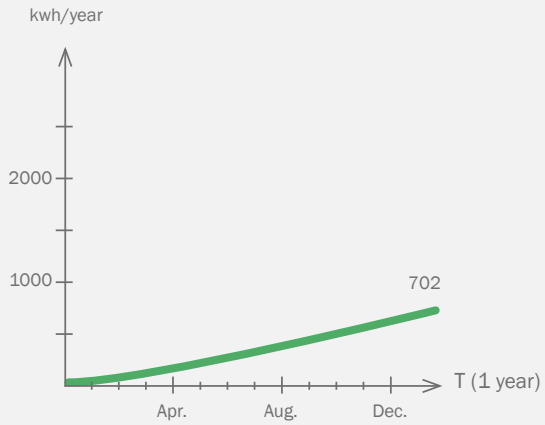


Unit equipped with electrostatic filter



Energy Class	Annual consumption (kwh/a)	Filtration class EN ISO 16890	Initial Pressure Drop (Pa)	Final Pressure Drop (Pa)	Annual replacement
A+	702	ePM_1 70%	44	64	0

Data refer to the single filter cell with an air flow of 3,400 m^3 / h and operation of 6,000 hours.

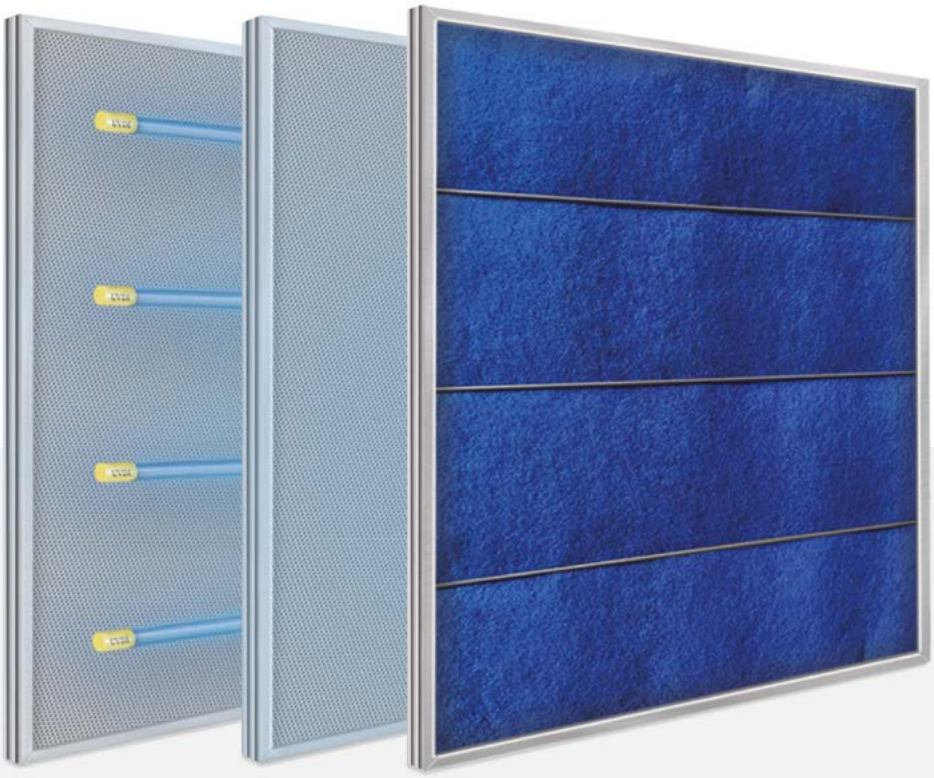


Focus Point

Photo-Catalytic Oxidation System

High air sanitation

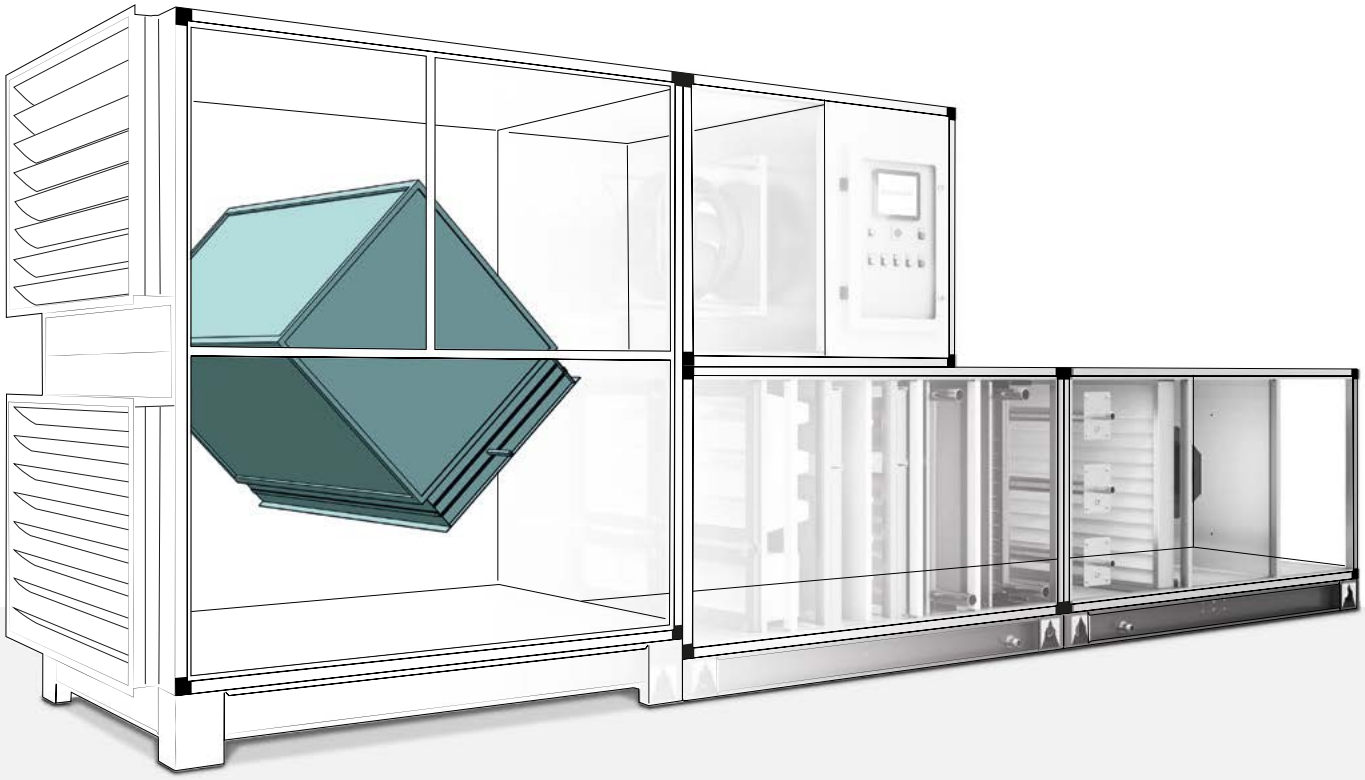
The Photo-Catalytic Oxidation System is a technology studied for over 20 years and applied and validated in multiple applications on an international scale. It is mainly based on the use of titanium dioxide as a photographic catalyst in synergy with a powerful UVC light capable of generating powerful oxidizing hydroxyl radicals and superoxide ions that destroy gaseous contaminants.
All reactions occur on the surface of the photo-catalyst in the airflow path ensuring 100% contact with all contaminants



The mechanism of operation occurs through a chemical and biological destruction deriving from a photocatalytic oxidation process (PCO) that reduces and destroys gaseous contaminants, VOCs and odour molecules. Everything happens through a powerful UVC light, able to break down the DNA of all biological microorganisms (moulds/fungi, bacteria and viruses) making them no longer vital and therefore no longer able to reproduce, proliferate and infect.

This process, besides being particularly efficient, guarantees the total absence of ozone.

Innovation and constant search
for maximum efficiency



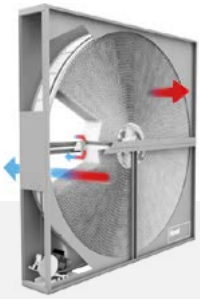
We never stop and want to achieve the best possible outcome for you

For us, efficiency means guaranteeing ideal comfort while reducing energy expenditure, in order to limit operating costs and preserve the environment by reducing CO_2 emissions.

To achieve this goal, we rely on innovative design choices, which we apply rigorously and consistently in our product ranges in order to be able to provide solutions capable of meeting the ever-increasing demands for high efficiency required today by the market.

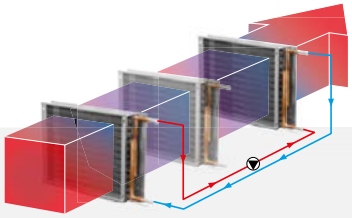
CURRENT PLATE HEAT EXCHANGERS

An aluminium plate heat exchanger in counter-current that allows to increasing the volume of exchanged air, guaranteeing very high recovery efficiency, reducing the overall dimensions, ensuring robustness and high resistance values to the differential pressure with a recovery efficiency up to 93% .
Through such high-efficiency values, it is possible to compensate the electric consumption values of the fans, thus allowing to configure more compact air handling units.



ROTARY ENTHALPIC HEAT EXCHANGERS

Rotary heat exchangers that allow the exchange not only of heat but also of humidity. Utilising a desiccant wheel to transfer sensitive and latent thermal energy with very high efficiency.
Aluminium matrix coated for moisture transmission in winter and summer, consisting of a cylindrical rotor and a containment frame complete with special seals to minimize the leakage between the inflow and expulsion air flows.
Also available with specific treatments to work in an aggressive atmosphere, such as applications located in coastal areas.



SINGLE-FLOW ENERGY TRANSFER SYSTEM

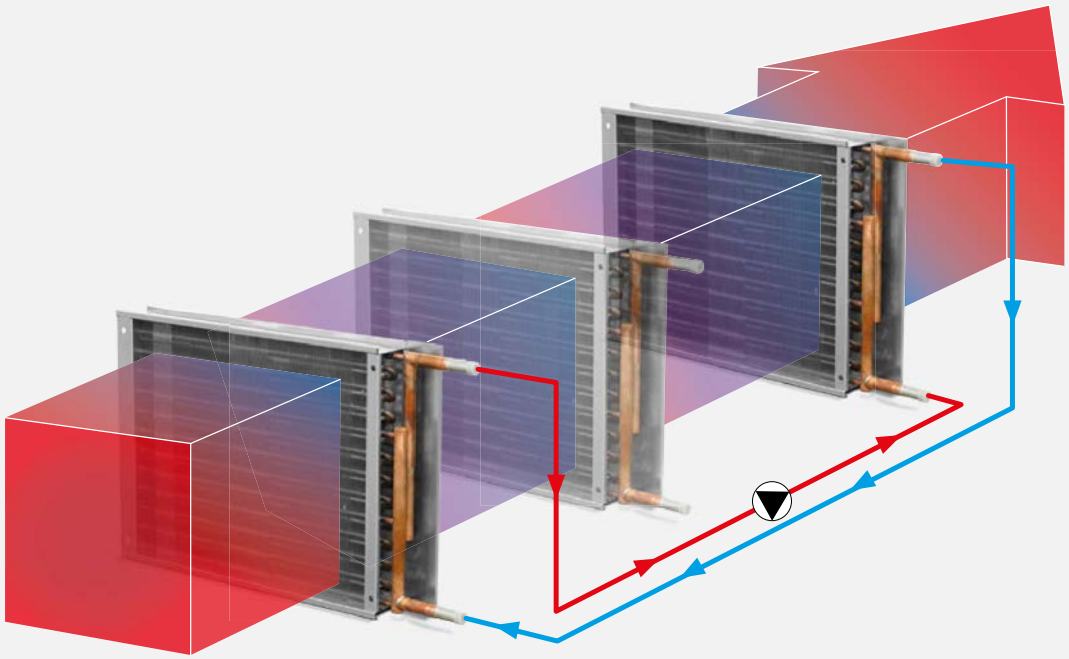
The use of the S.E.T. System allows significant energy savings with double benefits: eliminating post-heating needs in the summer and reducing the need for refrigeration compared to traditional cross-flow recovery systems.
The level of COP in recovery is very high, and it is essentially due to an important power recovered in the face of very low-pressure drops, offering higher seasonal energy savings compared to traditional recovery systems.

Focus Point

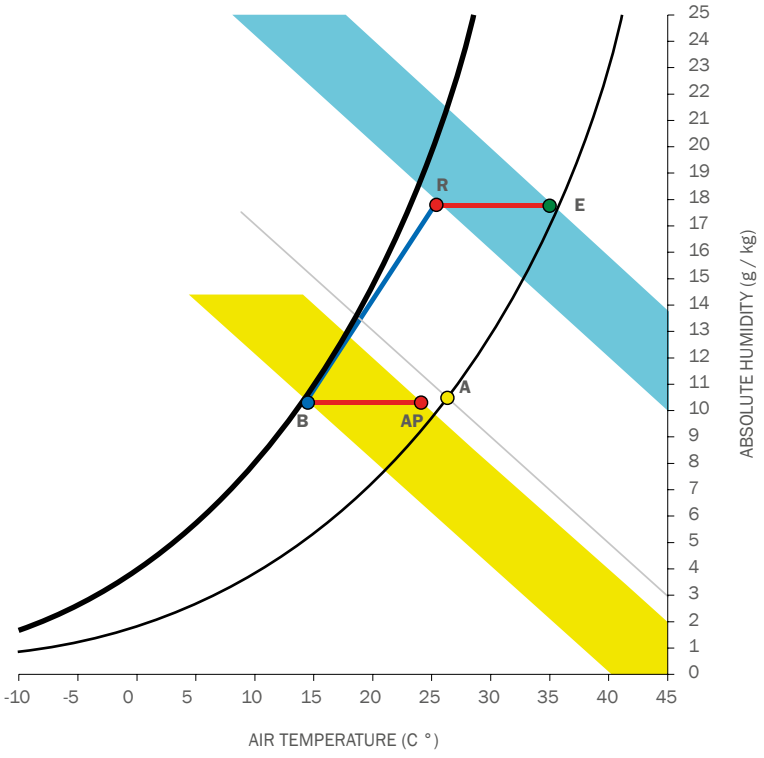
Single-flow energy transfer system

The S.E.T. system consists of a dual coil system hydraulically circulated on the summer cooling coil: in which the heat of the hot air entering the system is captured by the first coil and then transferred, via a circulator, to the post-heating coil. There is ,therefore, a double benefit: both the reduction of the post-heating requirement and the reduction of the cooling requirement through the pre-cooling operated by the first coil.

The SET. System is a recovery system that can only be used in the summer season. The heat recovery unit in the summer season is mainly bypassed to allow the correct operation of the S.E.T. System.



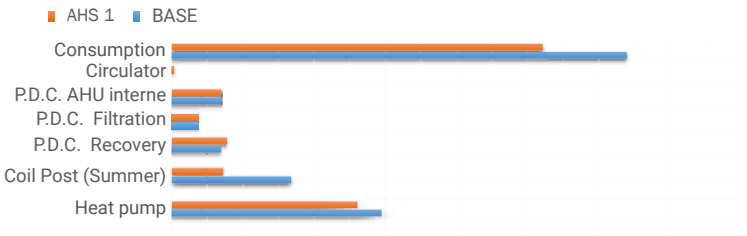
Transformation Psicro-metrica S.E.T. System

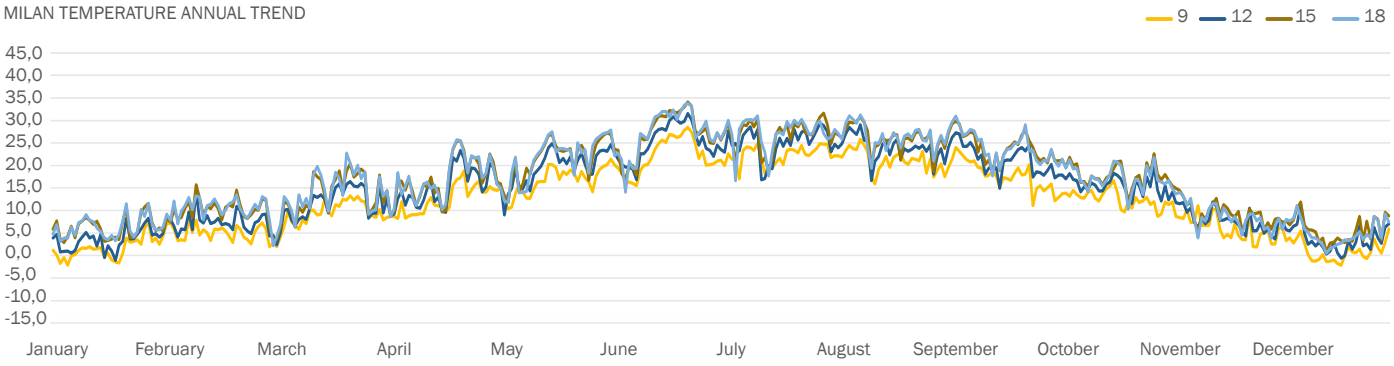


The share of pre-cooling energy (E-R) is transferred to the post-heating (B-AP)

Annual energy analysis

The following data refer to:
AHU flow: 10.000 cm/h, City: Milano, Costs Energy Consumption: 0.17 €/kW, Methane Cost: 0.85 €/mc
Summer Post: Boiler/Boiler | Filter: Fiber/Fiber | Coil: Round/Round

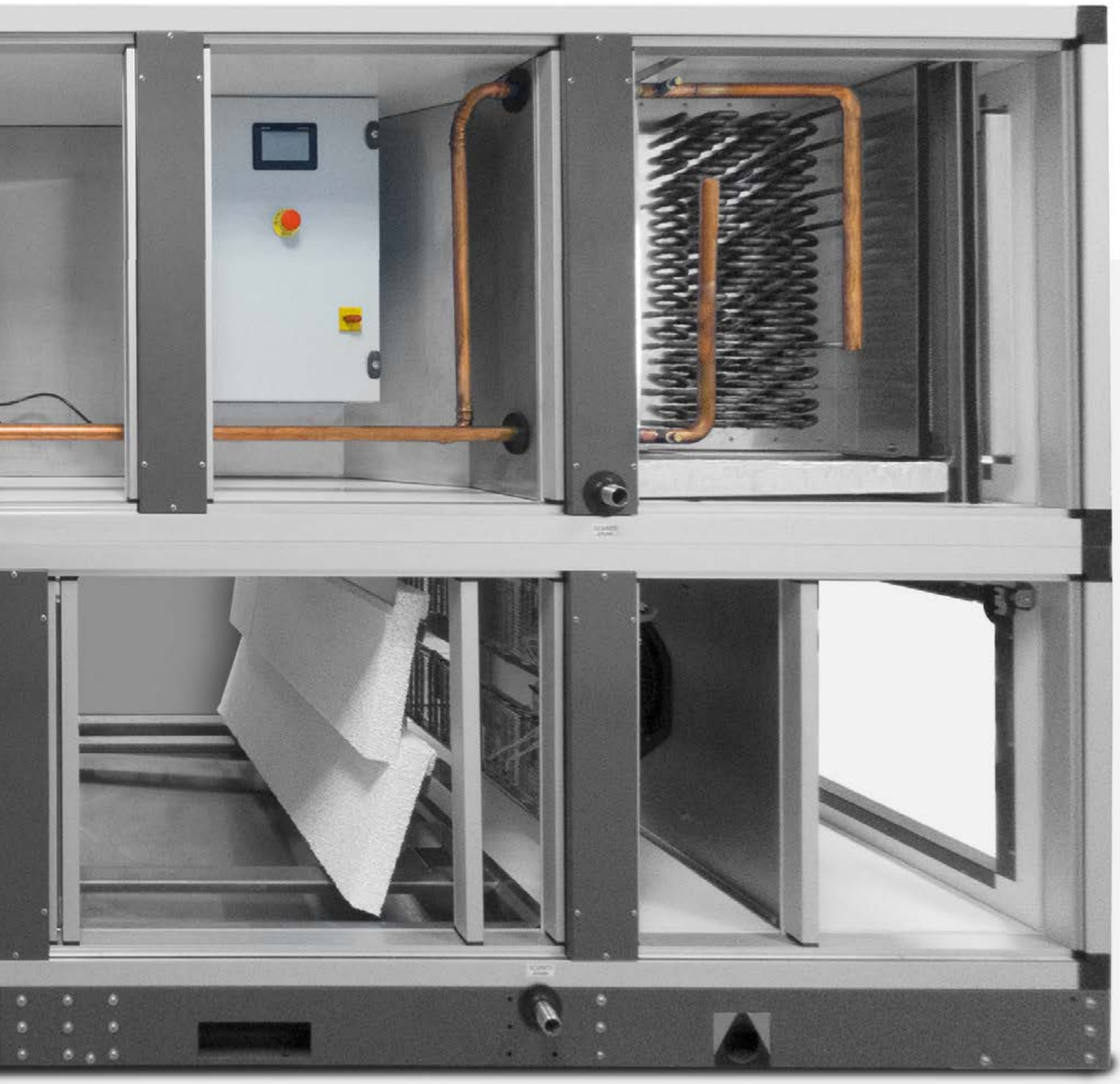




Technical solution with
combined hydronic recovery solution

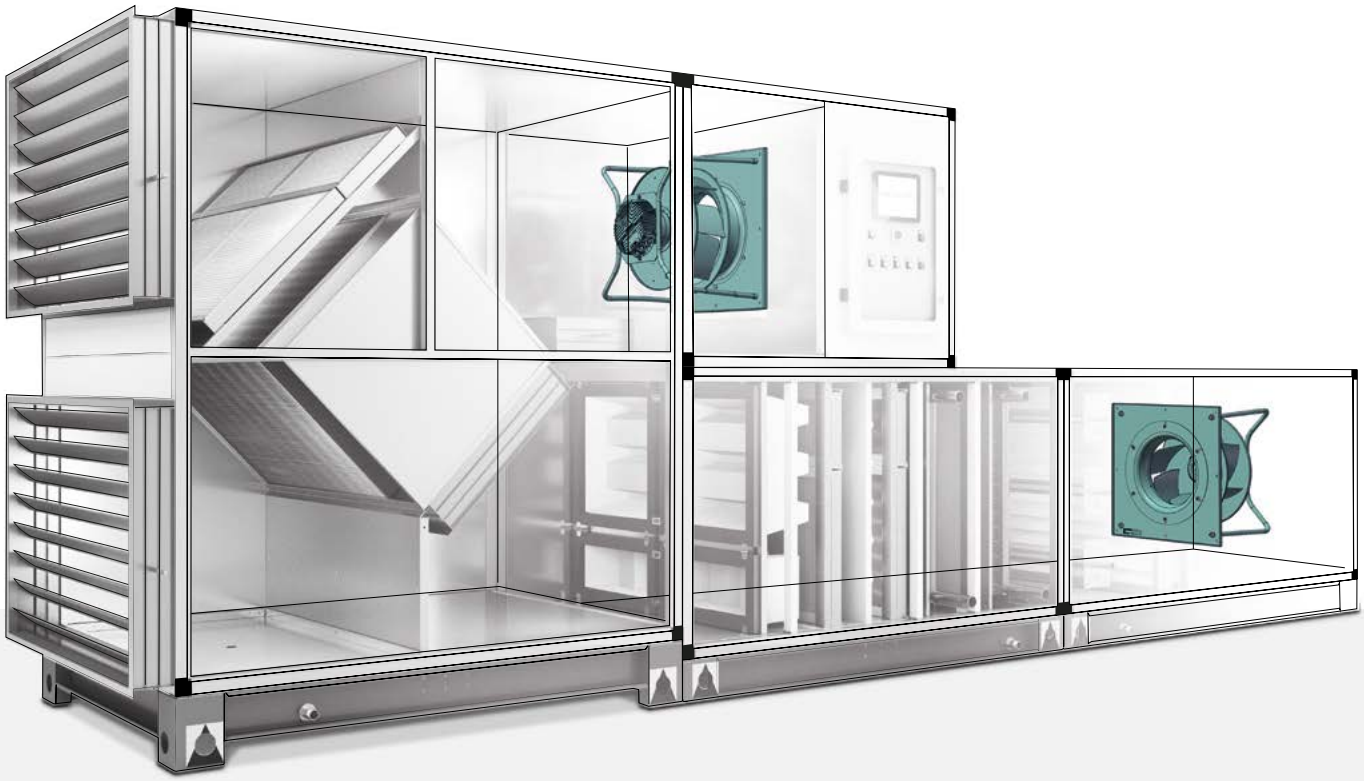
Technical solution for air handling units treating primary air with recovery coils.
Compared to traditional recovery configurations, the benefit of this solution is the absolute guarantee of the absence of contamination between the supply and return flows, the significant reduction in annual consumption and the compactness of the units

The possibility of creating customized solutions, in configuration and dimensions, make it a highly flexible product for every use.



Focus Point

Fan Wall system



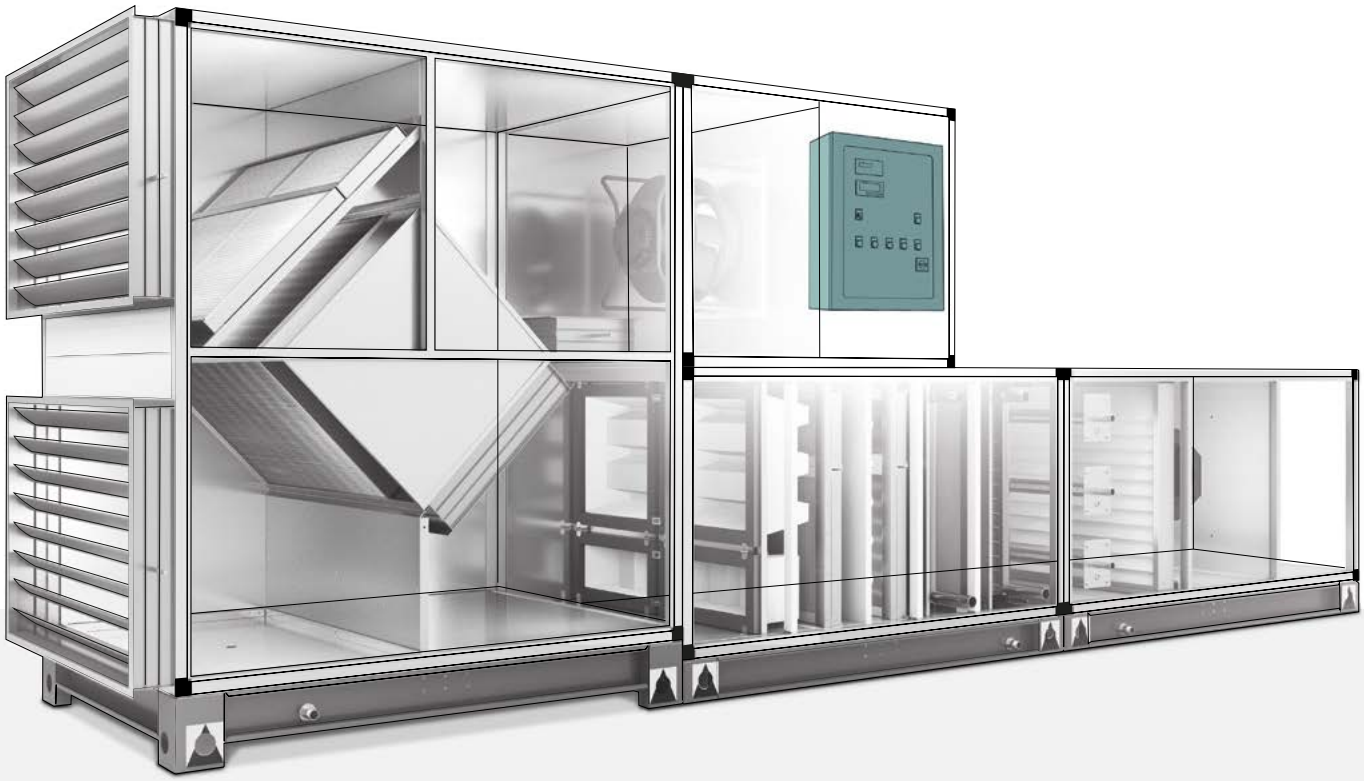
Reduction in consumption
and compact dimensions

The Mekar range of products, in addition to being equipped with high-performance plug fan or external rotor motor fans, can also be configured with the innovative Fan Wall System solution that ensures significant benefits including:

- Redundancy and guarantee of operations.
- Ease of maintenance and handling.
- Reduction of consumption.
- Greater compactness of the unit.
- Uniformity of the airflow on the exchangers

Focus Point

Control system



DeviceNet EtherNet/IP PROFINET PROFIBUS KNX WebServer

M-Bus Modbus BACnet CANopen LonWorks SNMP

We aim to provide integrated, functional and complete solutions capable of responding to the most specific needs, with considerable added value and reliability for our customers.

For this reason, over the years MEKAR has also specialized in the supply of units complete with regulation and controls, all made directly in the company by highly qualified personnel and technicians specialized and able to satisfy any control request. A complete 360° service, which ranges from the development of the customer's specific requests, to the design and parameterization, complete with control panels in order to provide accurate performance within the design parameters.

The configuration of the functionalities and accessories can be done directly through the Mekar selection software, which allows the configuration of the solution in terms of regulation more suited to one's needs

The possibility of offering complete adjustment units, in addition to guaranteeing the customer a Plug&Play solution, allows the use of a product that has been fully tested and calibrated directly in the company, allowing not only a considerable saving in installation time but also a greater guarantee of functionality and reliability of the product, all managed by an internal team

Mekar, through its network of service centres distributed throughout the national territory, and thanks to specialized internal technicians, is also able to offer a complete support service as far as concerns on-site assistance, whether it relates to start-up or to assistance services in general.


USCITA
SCARICO
DRAIN


MEKAR

23MK-H

Air handling unit for hospital applications

When the application of air handling units is in a critical field, such as a hospital environment, the cleanliness and hygiene requirements that must be guaranteed become stringent.

Mekar has developed and certified a specially dedicated range able to comply with the specifications of the DIN 1946-4 standard. This standard applies to planning, construction, testing and operation (including maintenance) of ventilation and air conditioning systems in buildings and in health care rooms: in which medical examinations, treatments and surgical operations are performed on people, as well as, in directly connected rooms.

DIN 1946-4

EUROVENT CERTIFIED PERFORMANCE
AHU N° 09.04.418
Range: 23MK Series
www.eurovent-certification.com

MEKAR S.r.l. participates in the ECP programme for AHU. Check ongoing validity of certificate: www.eurovent-certification.com

23MK-H

Air handling unit for hospital applications

TÜV NORD

CERTIFICATE

Permission to use the test mark

VOLUNTARY PRODUCT TEST
BASED ON DIN 1946-4:2018 AND VDI 6022-1:2018
– Tested Hygiene Characteristics –

TÜV NORD Systems GmbH & Co. KG, Hamburg (Germany),

hereby confirms that the Air Handling Unit Range

"23MK-H" in Hygienic Version

conforms to the requirements set by DIN 1946-4:2018 and VDI 6022-1:2018.

Mekar S.r.l.,
Isola della Scala (Italy),

is therefore granted the right to use the test mark shown below
in connection with the above-mentioned product.

TÜV NORD Systems GmbH & Co. KG
Test Laboratory for Ventilation, Air Conditioning, Refrigeration

TÜVNORD Digitally signed by Steimle Monika Date: 2023.07.18 07:18:30 +02'00'

Dipl.-Ing. Monika Steimle

Essen, 18 July 2023

The certification is based upon a type examination of an Air Handling Unit
and not of a complete system installed in a building.
The validity of the certificate is 15 months.
All regulations concerning test mark use are laid down in the corresponding agreement.

TÜV NORD
TÜV NORD Systems GmbH & Co. KG
Voluntary Product Test based on DIN 1946-4:2018 and VDI 6022-1:2018
Tested
Hygiene Characteristics
Air Handling Unit Range
"23MK-H" (IT)
SEPT/2154/14

DIN 1946-4

The H series guarantees construction standards certified according to this legislation, in particular:

- Internal surfaces and components in AISI 304 steel.
- Smooth internal surfaces to ensure complete product sanitation.
- Minimum space of respect at the various sections.
- Simplification and facilitation of access necessary for maintenance and cleaning.
- Extractable components (coils, fans, silencers, etc.).
- Dampers conforming to class 2 EN 1751.
- Double or triple filtration stage (F7, F9 and H13); UV-C lamps.
- Steam humidifiers.
- Inclined tanks and draining bottoms.
- Extractable components to facilitate maintenance and cleaning operations.
- Use of intrinsically safe and hypoallergenic materials.
- Full guarantee of operation and high efficiency.
- Fans in stand-by and directly coupled.
- High degree of resistance to air leakage.

Dust accumulation limits

Smooth monobloc filter frames

The filter cells (of the rigid pocket type in the example, but the solution is validly applicable also to absolute filters) are fixed to a smooth frame made of sandwich panelling; this guarantees maximum rigidity, and therefore maximum sealing of the gaskets, without presenting gaps and sharp edges where dust can deposit. The frame is also more easily washable than standard frames.

Frame and internal profile with double seal

The inside of the plant is completely smooth, with few joints and no visible screws. The gasket mounted on the aluminium profiles prevents the contact between the air and the angular profile, improving the cutting of the thermal bridges, further reducing air leaks and preventing the accumulation of dust by eliminating the cracks.

“Plug” type fans (without auger)

The absence of the auger limits the interstices where dust can accumulate and in any case the fan is completely visible, controllable and clean. The “plug” type fan is also better suited to a configuration of the pressurized air handling unit as it ensures a more uniform distribution of the air on the downstream components.

Adequate filtration

Air cleaning classes for particles according to ISO 14644-1

Class		Maximum concentration limit in number of particles / m^3 of air					
ISO (N)	F.S.209 D	0.1 µm	0.2 µm	0.3 µm	0.5 µm	1 µm	5 µm
ISO 1		10	2				
ISO 2		100	24	10	4		
ISO 3	1	1'000	237	102	35	8	
ISO 4	10	10'000	2'370	1'020	352	83	
ISO 5	100	100'000	23'700	10'200	3'520	832	29
ISO 6	1'000	1'000'000	237'000	102'000	35'200	8'320	293
ISO 7	10'000				352'000	83'200	2'930
ISO 8	100'000				3'520'000	832'000	29'300
ISO 9					35'200'000	8'320'000	293'000

Sequence of filtration classes in the cleanroom

Air cleaning class (ISO 14644-1)	Degree of air cleaning (F.S.209 D)	Air spares (vol / h)	Sequence of filtration classes for the various stages				
			I	II	III	IV	V *
ISO 3	1	360-600	G4	F8		H12	U17
ISO 4	10	300-540	G4	F8		H10	U16
ISO 5	100	240-480	G4	F7	F9		U16
ISO 6	1'000	40-120	G3	F7	F9		H14
ISO 7	10'000	20-40	G3	F6	F8	H13	
ISO 8	100'000	10-20	G3	F6	F8	H12	

* The last stage in the cleanroom, not in the plant

High sanitation

Condensate collection tanks
The tanks are inclined completely to avoid water stagnation. The tanks inclined bottom allows for complete drainage. They are always made of stainless steel.

Central steam humidifiers and with local generator and immersed electrodes
Steam is intrinsically safe. Where there is a centralized steam production plant, the distributor tube is fed with superheated steam through a modulating control valve. For small systems it is possible to provide a saturated steam generator with immersed electrodes, with modulating operation.

Water humidifiers
A high-pressure pump allows the cold water to be sprayed into very fine drops, which immediately evaporates, leaving the inside of the plant practically dry. The nozzles can be partialised and the water flow is regulated by an inverter to obtain a modulating operation of the humidifier. Demineralized water must be used.

Dedicated sanitary sealants
The sealant, although to a modest extent, is used to ensure the air or water tightness of some components. The sealant used is anti-bacterial, anti-mould and does not contain any components which are dangerous or allergenic.

UVC lamps
he germicidal ultraviolet radiation is characterized by a band of wavelengths such as to destroy bacteria, viruses and other microorganisms, modifying their DNA or RNA and then inactivating them and preventing their reproduction. This principle allows air disinfection.

Internal construction

The maintenance of the hygienic level is guaranteed by a series of technical and design solutions, designed to ensure a high ease of cleaning operations. All surfaces and materials applied are characterized by a particular predisposition to maintain a perfect hygienic condition.
The inner part is made of AISI 304 or 316 steel and includes draining bottom panels and the dedicated drain for collecting the cleaning/disinfectant liquid. This guarantees a high standard of hygiene, through the complete drainage of liquids favored by the particular inclination of the panels

Removable coils

The coils are mounted on guides and are free to be removed from both sides of the control unit once the corresponding panel has been removed.

Silent septum

The silencer septa are mounted horizontally to be individually removed laterally after removing the relative panel. Mineral wool is wrapped in waterproof plastic material and contained by a micro-perforated sheet. In this way, there can be no release of fibre into the air flow and the silencer septa are washable.

Fan motor units

The fan motor unit can be completely removed from the side for cleaning or maintenance operations.

Operating safety

Anallergic Materials (Latex Free)

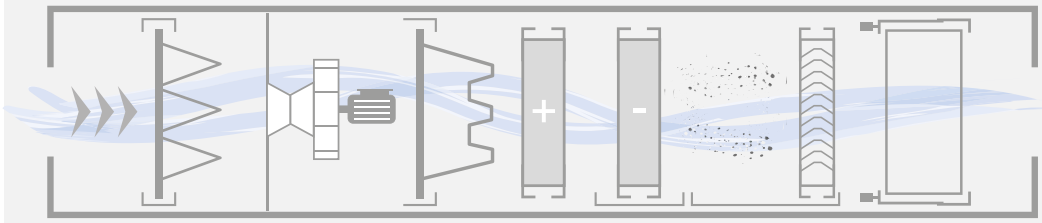
All materials and components installed on the machine are latex-free.

Ventilating sections

Dual fan 100% compartmentalized.
Where a complete standby unit cannot be provided, it can be considered the solution to the only safety fan unit.
The fans never work simultaneously. The inlet and outlet dampers of the stopped fan are closed. If the fan flow switch in operation indicates a lack of airflow, its dampers will close, those of the other fan will open and will start running. The fan in alarm can also be inspected while the other fan is running, therefore without stopping the control unit.

Leak-proofing

In this type of application the absolute degree of air leakage must always be guaranteed. To avoid contamination, the unit always works at positive pressure, therefore any air leaks are from the central sytem to outside, thus excluding the danger of infiltration of untreated air from the outside towards the central system.
In this type of application the suction and prefilter are positioned upstream of the fan, all the other components downstream.



Negative pressure

Positive pressure *

* Positive pressure: any air leaks are from the central to the outside and therefore the risk of infiltration of unfiltered air from the outside into the central unit itself which can then be sent to the environment to be conditioned is excluded. Suction and prefilter upstream of the fan, all the other components downstream.

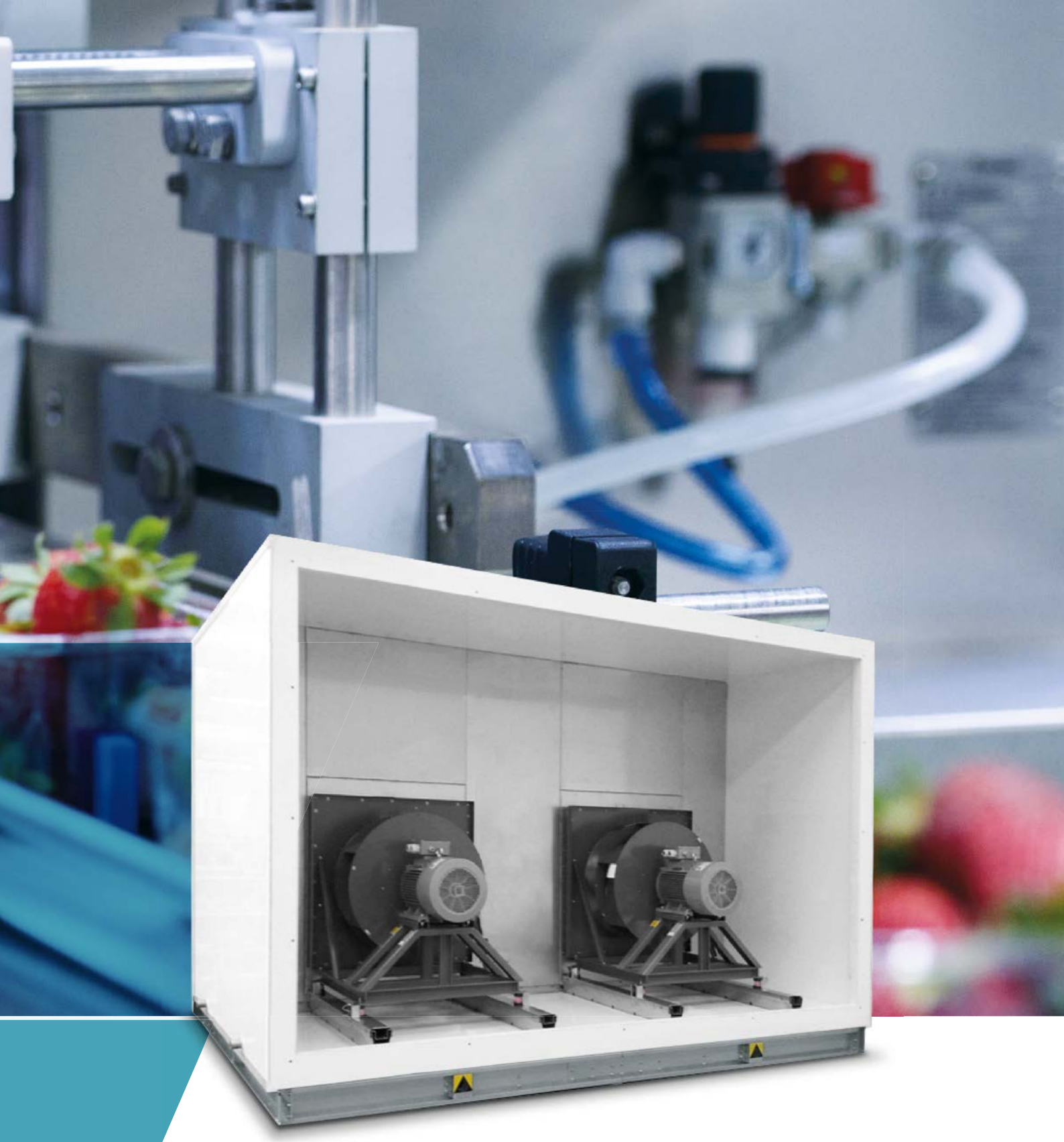
23MK-Food

Air handling unit for the food industry

The food sector as well as requiring a construction standard that guarantees the highest level of hygiene in line with the H series, must be able to guarantee the absence of structural thermal bridges due to the low operating temperatures in which it is customary to operate in these areas.

The use of structural profiles in AISI 304 or AISI 316 stainless steel, oversized panel thicknesses or fiberglass solutions, allow, depending on the specific application, to create units dedicated to giving concrete answers to the many needs of the food industry.

Mekar has always been recognized on the market as a reliable, flexible and dynamic partner able, thanks to its skills and know-how, to provide solutions for every application need. As evidence of this, the countless references made in cross-cutting areas and with important brands in the food industry, both nationally and internationally.



DIN 1946-4

EUROVENT CERTIFIED PERFORMANCE
AHU N° 09.04.418
Range: 23MK Series
www.eurovent-certification.com

MEKAR S.r.l. participates in the ECP programme for AHU. Check ongoing validity of certificate: www.eurovent-certification.com

Dedicated solution *for food industry*

A solution dedicated to food processing industry (preheat chamber for vegetables) suitable to work up to 130°C with full factory controls fitted, air diffusion system and electronic filtration.


MEKAR

Fiberglass solution for food industry


MEKAR

23MK-Pharma

Air handling unit for the pharmaceutical industry

The pharmaceutical sector imposes very hygienic technical solutions that avoid the transmission of pathogenic components in the environment.

MEKAR guarantees a construction standard and technical solutions in line with the specifications of this sector. In particular:

- DIN 1946-4 certified construction standards.
- VDI 6022 certified filtrations.
- HEPA filtration.
- Germicidal lamps.
- Dedicated climate control for precise maintenance of ambient overpressure.
- Maintenance of thermo-hygrometric conditions with low relative humidity % using drying wheels.

Moreover, in order to increase antibacterial performance, MEKAR has a new film coating with antibacterial properties.

DIN 1946-4

EUROVENT CERTIFIED PERFORMANCE
AHU N° 09.04.418
Range: 23MK Series
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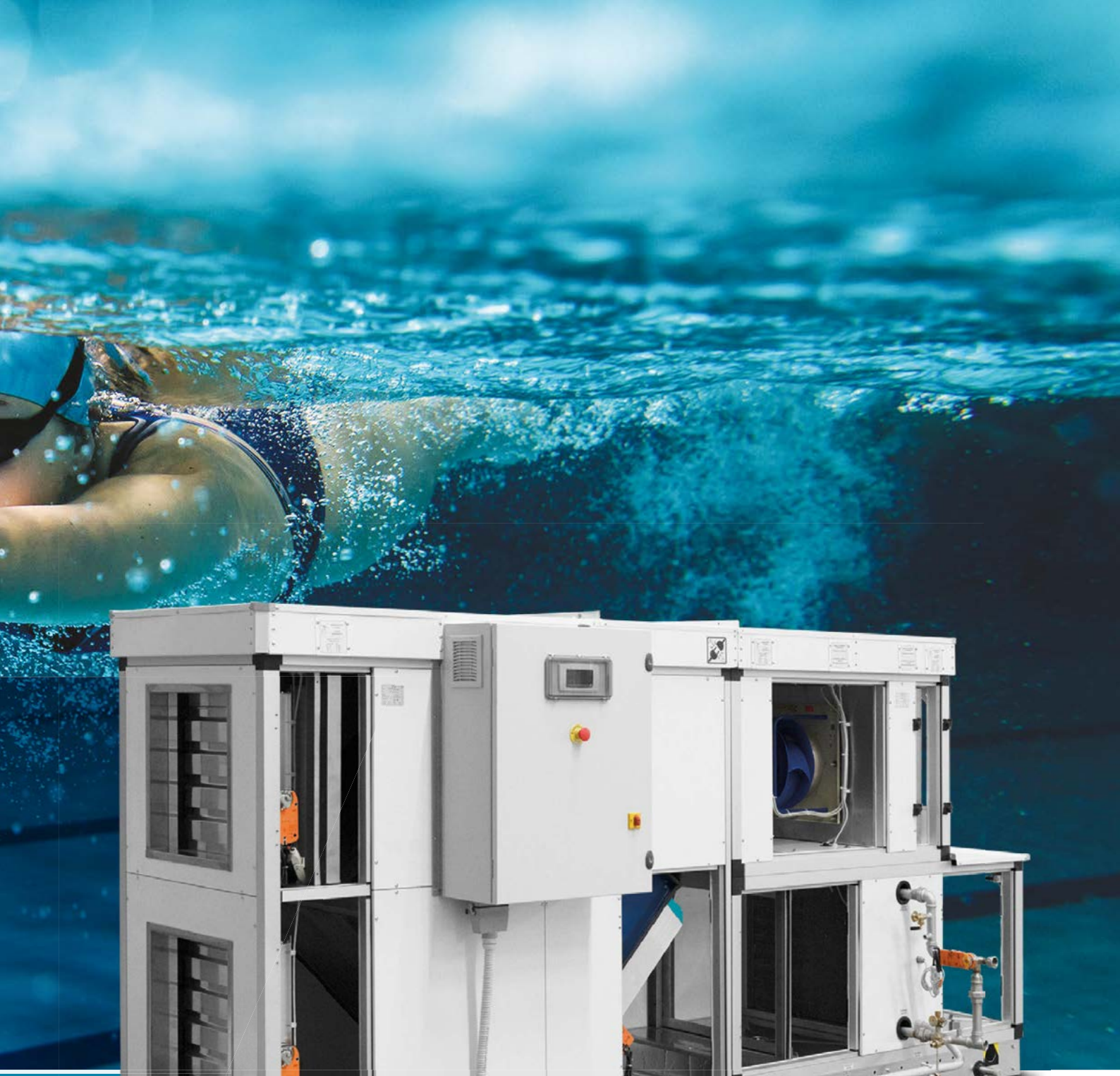
23MK-Pool

Air handling unit for pools and SPA

The indoor pool is an energy-intensive application context and this is why the air treatment has a fundamental function both in maintaining the thermo-hygrometric conditions necessary for user comfort and for energy recovery.

We believe that each project must be examined and treated with dedicated units based on the following variables: climate location, type, period and method of use, water and air temperature, relative air humidity, tank surface, ambient air volume, air exchange.

Together with a dedicated technical solution based on the above variables and depending on the chloride concentrations, MEKAR can also have construction standards suitable for the application that prefer anodized aluminum, AISI 304 or AISI 316 stainless steel and high resistance epoxy paints. The choice can be directed to a dehumidification unit with only ventilation or with an integrated cooling circuit.



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23MK-Marine

Air handling unit for naval and offshore application

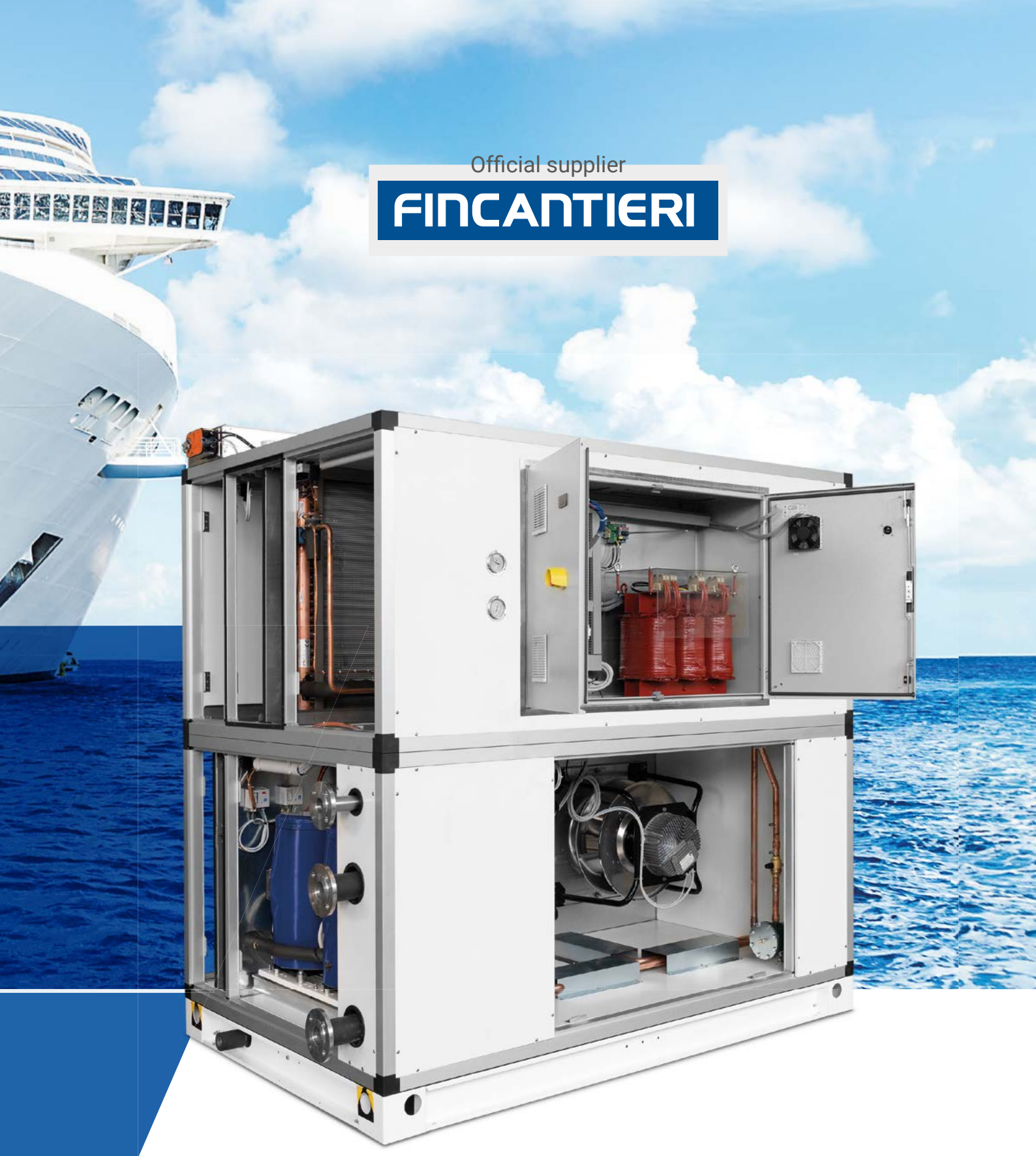
Mekar is able to offer solutions for use in the marine and offshore sectors, both in terms of climate comfort and in terms of maintaining optimal operating conditions in technical or service rooms.

The products developed are always the result of an intense collaboration between the Company and the Customer, in order to be able to offer the most suitable solution to guarantee total functionality, durability and extreme reliability, in compliance with the most stringent health and safety regulations specified by the shipowner.

Mekar, as a company of the Aliseo Group, can take advantage of highly qualified transversal skills also in the field of refrigeration, allowing it to offer integrated turnkey solutions, efficiency and compactness, all characterized by an extreme degree of customization, both in terms of size, constructive and performance.

Official supplier

FINCANTIERI



MEKAR S.r.l. participates in the ECP programme for AHU. Check ongoing validity of certificate: www.eurovent-certification.com

23MK-Ecology

Air handling unit for catering

Dedicated solutions for the ecology sector, require the need to guarantee the healthiness and neutrality of the working environment in an efficient and continuous manner, whilst reducing the environmental impact through the removal of polluting substances such as oil vapors, fumes and odors present in the extracted air volumes.

Thanks to an accurate sizing of the filtering stages and the adoption of innovative technical devices such as electrostatic filters, the units of the 23MK-Ecology series ensure not only maximum efficiency but also a significant reduction in operating costs, thanks to a lower demand of ordinary and extraordinary maintenance, guaranteed by the constructive choices specifically adopted for this area.

MEKAR S.r.l. participates in the ECP programme for AHU. Check ongoing validity of certificate: www.eurovent-certification.com

23MK-HiTech

Air handling units for industry

Dedicated and fully customized solutions for different industrial applications.

Mekar, thanks to its know-how and to the marked flexibility and dynamism that has always characterized its engineering, is able to find turnkey solutions with different purposes.
For example, the increase in production efficiency, energy saving, the safeguarding of wear and tear for equipment and technical systems, the recovery of energy sources that are differently dispersed, high temperature treatments or the need to guarantee a strictly constant climate control and absolute air quality.

Numerous and transversal are the references in the industrial world, in which Mekar has succeeded in developing, designing and providing solutions aimed at satisfying the specific requests of the Customer, with innovative and cutting-edge proposals.

EUROVENT CERTIFIED PERFORMANCE
AHU N° 09.04.418
Range: 23MK Series
www.eurovent-certification.com

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31MK

Air handling unit with reduced thickness

The 31MK series air handling units are configurable units to satisfy, with the adoption of the appropriate components, the functions for the air to be introduced into the environment for mixing, filtration, heating, cooling and ventilation.

The typical application of the 31MK series is the conditioning of offices, shops, public buildings, common parts of residential buildings, industrial environments and in all environments where it is necessary to keep the height of the machine as low as possible. The series consists of 10 sizes, developed on two heights, 400 and 560 mm and 7 widths, for a range of capacities between 1000 and 8100 m3/h, and with total pressures up to 1000 Pa.

The 31MK series is characterized by a reduced height as it is specifically designed for false ceiling installations that do not require dedicated technical spaces, making the entire surface of the rooms usable. The inspection and access to the components is therefore ensured from below.

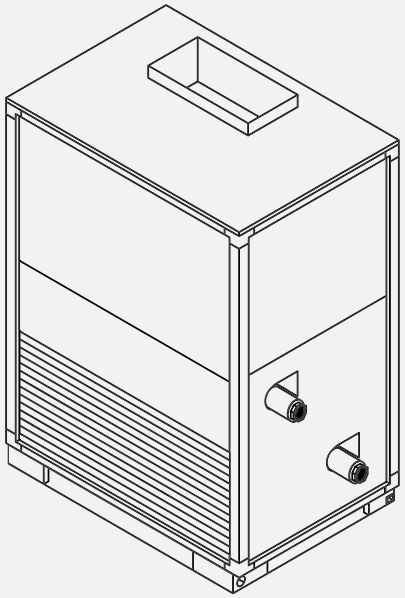
24MK
Cabinet air handling units

The 24MK series air handling units are modular sectional units that can be configured to meet the following functions, with the use of the appropriate components: filtration, heating, cooling, the mixture of ambient air with external air and ventilation for the air to be introduced into the environment.

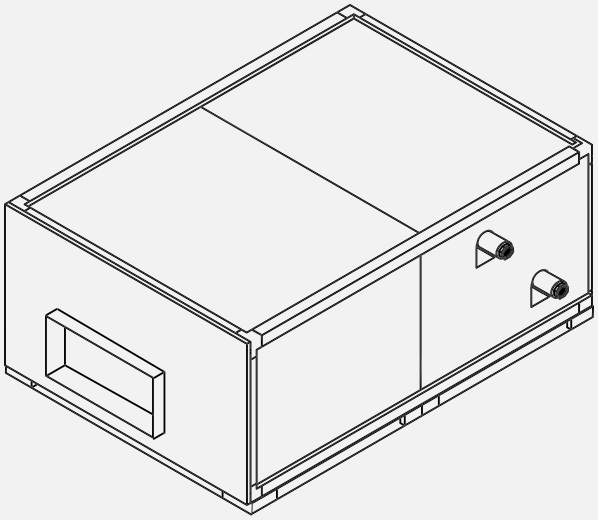
This range is available in 8 sizes for a range of air flow rates between 1,700 and 25,000 m3/h (maximum flow 18,900 m3/h in case of air conditioning) with total pressures up to 1000 Pa.

Configurations

Type A orientation



Type B orientation



The construction consists of an aluminium frame and sandwich infill panels 25mm thick. The surfaces of the panels are in pre-painted sheet metal, externally and internally galvanized with a sheet thickness of 0.5 mm. Thermo-acoustic insulation is guaranteed by 45 kg/m³ density polyurethane foam.

Although the use is often required in a vertical cabinet configuration, the series is characterized by two other possible installation configurations: vertical "L" and horizontal. Both versions have been designed to minimize the overall dimensions and therefore make the most of the useful space: in height for horizontal installation (typically on the ceiling) and in depth for vertical installation, especially when the unit is leaning against a wall.

The base unit can be configured in various ways according to the needs, however the typically supplied version is normally composed of:
• 48mm thick corrugated synthetic filter. Eff. G4 easily removable with removable inspection panel.
• Double-use coil for heating and /or cooling applications from 2/4/6 Rows P3012 complete with peraluman condensation collection tank.
• Motor-ventilating unit with one or more forward-bladed fans, three-phase electric motor with a belt drive with a variable pulley from standstill. Optional directly connected fan fans ECM fan.

The base unit is normally supplied monoblock to the advantage of better thermal insulation (the junction between the fan section and the treatment is missing) and the assembly times on site.

Performance technical data

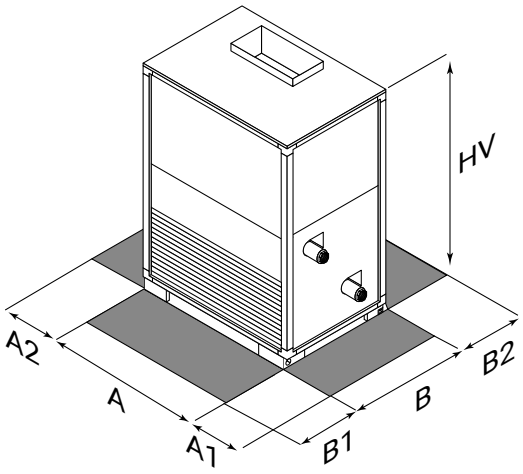
					01	02	03	04	05	06	07	08
VENTILATORE / FAN VENTILATEUR / VENTILATOR / VENTILADOR												
Portata aria nominale Nominal airflow Débit d'air nominal Nennluftstrom Caudal de aire nominal			**(1)**	m^3/h	2500	2800	3900	5100	7200	10300	14900	18900
Portata aria minima Minimum air flow rate Débit d'air minimum Minimaler Luftdurchsatz Capacidad mínima de aire				m^3/h	1742	1960	2737	3655	5132	7278	10544	13608
Portata aria massima (solo riscaldamento) Maximum air flow (Heating only) Débit d'air maximum (chauffage uniquement) Maximaler Luftdurchsatz (nur Heizung) Capacidad máxima de aire (solo calefacción)				m^3/h	2900	3600	5000	6700	9000	12500	19400	25000
Numero ventilatori Fans number Nombre de ventilateurs Anzahl der Ventilatoren Número de ventiladores					1	1	1	1	1	1	2	2
Dimensione standard girante Impeller standard size Dimensions standard de la turbine Standardgröße Laufrad Tamaño estándar del impulsor					9-7	10-8	12-9	15-11	15-15	18-18	18-13	18-18
Tipo motore standard Standard motor type Type de moteur standard Standardtyp Motor Tipo de motor estándar					Motori 4 Poli IP55 Classe F con Alimentazione 400V / 3 fasi / 50Hz 4-pole IP55 Class F motors with 400V / 3 phase / 50Hz Moteurs 4 pôles IP55 Classe F avec alimentation 400V / 3 phases / 50Hz 4-Polige Motoren IP55 Klasse F mit Stromversorgung 400 V / 3-phasig / 50 Hz Motores IP55 Clase F de 4 polos con fuente de alimentación de 400V / trifásica / 50Hz						
Potenza minima motore elettrico installato Minimum electric motor power installed Puissance minimum du moteur électrique installé Minimale Leistung installierter Elektromotor Potencia mínima del motor eléctrico instalado				kW	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3
Potenza massima motore elettrico installato Maximum electric motor power installed Puissance maximum du moteur électrique installé Maximale Leistung installierter Elektromotor Potencia máxima del motor eléctrico instalado				kW	0.75	1.1	1.5	2.2	3	4	5.5	7.5
POTENZE IN RISCALDAMENTO E RAFFREDDAMENTO / POWER IN HEATING AND COOLING PUISSANCES EN CHAUFFAGE ET EN REFROIDISSEMENT / HEIZ- UND KÜHLLEISTUNGEN / POTENCIAS EN CALEFACCIÓN Y REFRIGERACIÓN												
Potenza frigorifera totale Total cooling capacity Puissance frigorifique totale Kälteleistung gesamt Potencia frigorífica total	4	Ranghi / Rows / Rangs / Rohrreihen / Rangos	**(1)**	kW	12.60	14.30	19.10	25.30	33.80	52.10	75.00	96.40
	6	Ranghi / Rows / Rangs / Rohrreihen / Rangos	**(2)**	kW	23.20	26.30	35.90	47.50	67.20	93.10	140.00	179.40
Potenza frigorifera sensibile Sensible cooling capacity Puissance frigorifique totale sensible Kälteleistung Potencia frigorífica total sensible	4	Ranghi / Rows / Rangs / Rohrreihen / Rangos	**(1)**	kW	9.80	11.10	15.10	20.00	27.40	37.50	58.50	75.20
	6	Ranghi / Rows / Rangs / Rohrreihen / Rangos	**(2)**	kW	14.40	16.00	22.20	29.40	41.00	57.70	85.40	109.40
Potenza termica Heating capacity Puissance thermique Heizleistung Potencia térmica	2	Ranghi / Rows / Rangs / Rohrreihen / Rangos	**(3)**	kW	22.10	25.00	35.30	45.50	66.70	92.50	136.70	175.10
	4	Ranghi / Rows / Rangs / Rohrreihen / Rangos	**(4)**	kW	15.00	16.80	23.00	30.40	41.70	61.80	89.10	114.10
	6	Ranghi / Rows / Rangs / Rohrreihen / Rangos	**(4)**	kW	18.30	20.60	28.40	37.40	52.80	74.70	109.30	139.60
Portata acqua Water flow Débit d'eau Wassermenge Caudal de agua	2	Ranghi / Rows / Rangs / Rohrreihen / Rangos	**(3)**	l/h	1899	2195	3098	4092	5862	8128	12010	15390
	4	Ranghi / Rows / Rangs / Rohrreihen / Rangos	**(4)**	l/h	2167	2452	3284	4352	5816	8956	12887	16566
	6	Ranghi / Rows / Rangs / Rohrreihen / Rangos	**(4)**	l/h	3988	4521	6176	8157	11554	16004	24062	30841
Perdita di carico lato acqua Water pressure drop Pertes charge côté eau wasserseitiger Druckverlust Pérdida de carga lado agua	2	Ranghi / Rows / Rangs / Rohrreihen / Rangos	**(3)**	kPa	3	4	6	8	18	5	11	17
	4	Ranghi / Rows / Rangs / Rohrreihen / Rangos	**(4)**	kPa	30	41	15	18	7	32	28	39
	6	Ranghi / Rows / Rangs / Rohrreihen / Rangos	**(4)**	kPa	30	41	22	28	31	14	40	50

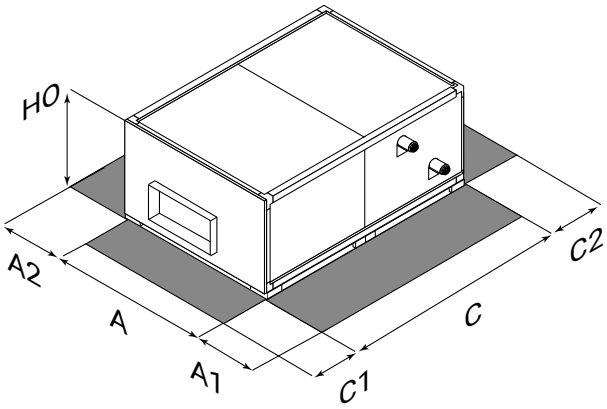
(1) aria entrante 26°C 50% U.R.; acqua 7-12°C /inlet air 26°C 50% U.R.; water 7-12°C / air en entrée 26°C 50% H.R. ; eau 7-12°C / Eintretende Luft 26 °C 50 % RH; Wasser 7-12 °C / aire entrante 26°C 50% RU; agua 7-12°C
(2) aria entrante 30°C 50% U.R.; acqua 7-12°C / inlet air 30°C 50% U.R.; water 7-12°C / air en entrée 30°C 50% U.R.; eau 7-12°C / Eintretende Luft 30° C 50% r.F.; Wasser 7-12° C / aire entrante 30°C 50% U.R.; agua 7-12°C
(3) aria entrante 20°C 50% U.R.; acqua 80-70°C / inlet air 20°C 50% U.R.; water 80-70°C / air en entrée 20°C 50% U.R.; eau 80-70°C / Eintretende Luft 20° C 50% r.F.; Wasser 80-70° C / aire entrante 20°C 50% U.R.; agua 80-70°C
(4) aria entrante 20°C 50% U.R.; acqua entrante 45°C / inlet air 20°C 50% U.R.; inlet water 45°C / air en entrée 20°C 50% U.R.; eau en entrée 45°C / Eintretende Luft 20° C 50% r.F.; Eintretendes Wasser 45° C / aire entrante 20°C 50% U.R.; agua entrante 45°C

Performance technical data

				01	02	03	04	05	06	07	08
A			mm	940	1020	1180	1260	1660	1900	2620	2860
C			mm	1180	1180	1260	1340	1340	1580	1580	1660
HO		**(5)**	mm	760	760	840	920	920	1080	1080	1160
B			mm	700	700	780	860	860	1020	1020	1100
HV - 1 scambiatore/coil/batterie/Wärmetauscher/batería			mm	1400	1400	1560	1720	1720	2040	2040	2200
HV - 2 scambiatore/coil/batterie/Wärmetauscher/batería			mm	1640	1640	1800	1960	1960	2280	2280	2520
A1			mm	940	1020	1180	1260	1660	1900	2620	2860
A2			mm	600	600	600	600	600	600	600	600
B1			mm	600	600	600	700	850	1000	1000	1000
B2		**(6)**	mm	600	600	600	700	850	1000	1000	1000
C1 - C2			mm	600	600	600	700	850	1000	1000	1000
Peso Weight Poids Gewicht Peso	2R	scambiatore coil batterie Wärmetauscher batería	kg	85	93	115	136	172	227	305	416
	4R	scambiatore coil batterie Wärmetauscher batería	kg	90	99	121	137	165	221	303	405
	6R	scambiatore coil batterie Wärmetauscher batería	kg	95	106	131	150	184	248	337	442
	4R+2	scambiatore coil batterie Wärmetauscher batería	kg	101	111	136	157	189	255	347	466
	6R+2	scambiatore coil batterie Wärmetauscher batería	kg	106	118	146	170	208	282	381	503

(5) ridurre di 60 mm per versione da controsoffitto / 60 mm reduction for false ceiling version / Réduire de 60 mm par version faux plafond / Für Zwischendeckenversion um 60 mm reduzieren / Reducir en 60 mm por versión de falso techo
(6) non tassativa / not mandatory / non exhaustif /nicht verpflichtend / no taxativa





Spazi liberi necessari attorno all'unità / Necessary access space around unit / Espaces libres nécessaires autour de l'unité / Erforderliche Abstände rund um das Gerät / Distancias requeridas alrededor de la unidad

10MK
High efficiency heat recovery unit

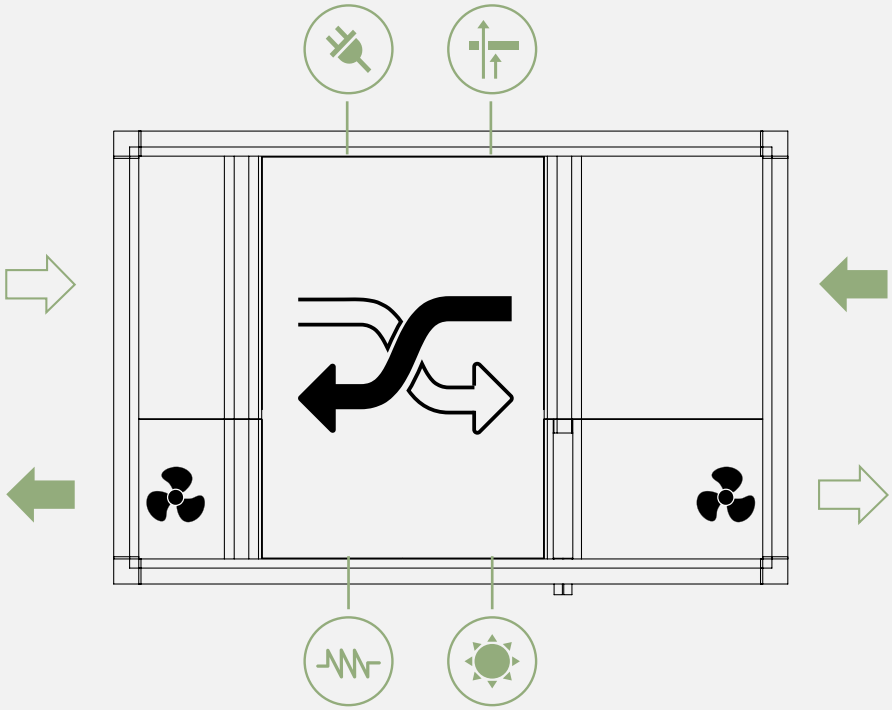
The 10MK series of recuperators has been developed in order to guarantee a comfortable and healthy environment aiming at maximum efficiency, ensuring a high energy saving and relative reduction in operating costs.

The range consists of 6 sizes for the series equipped with asynchronous motors, and 8 sizes for the series equipped with innovative brushless motors. The units are suitable for horizontal installation, with an air flow range from 320 to 4700 m3/h and recovery efficiencies up to over 90%.

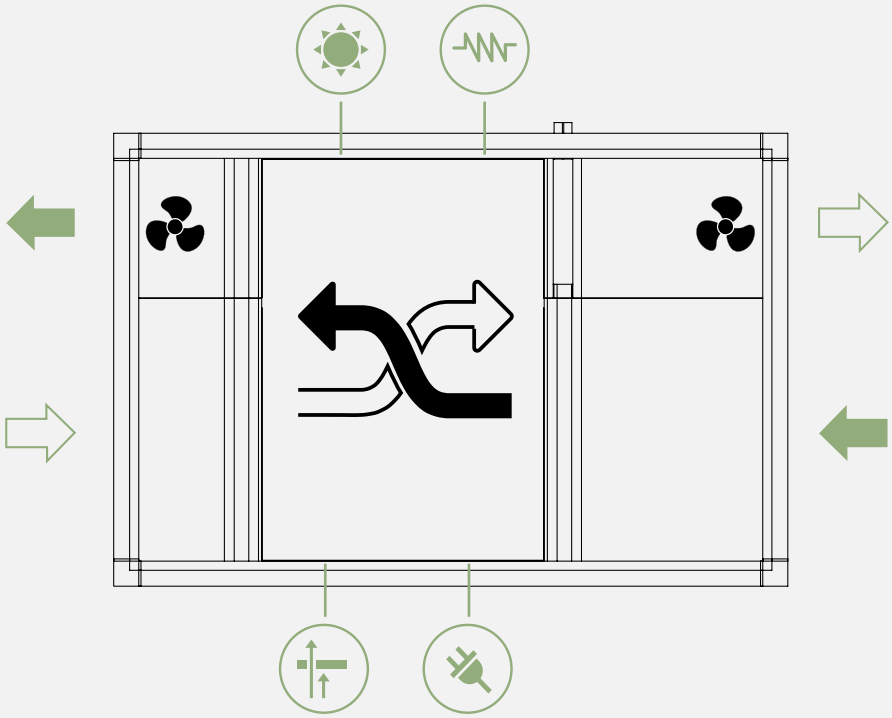
The wide range of capacities and configurations satisfies multiple application requirements for different areas ranging from residential to industrial. These series of recuperators have been suitably sized in order to comply with the requirements of the European Ecodesign Directive (EU Regulation 1253/14).

Configurations

Type A orientation



Type B orientation

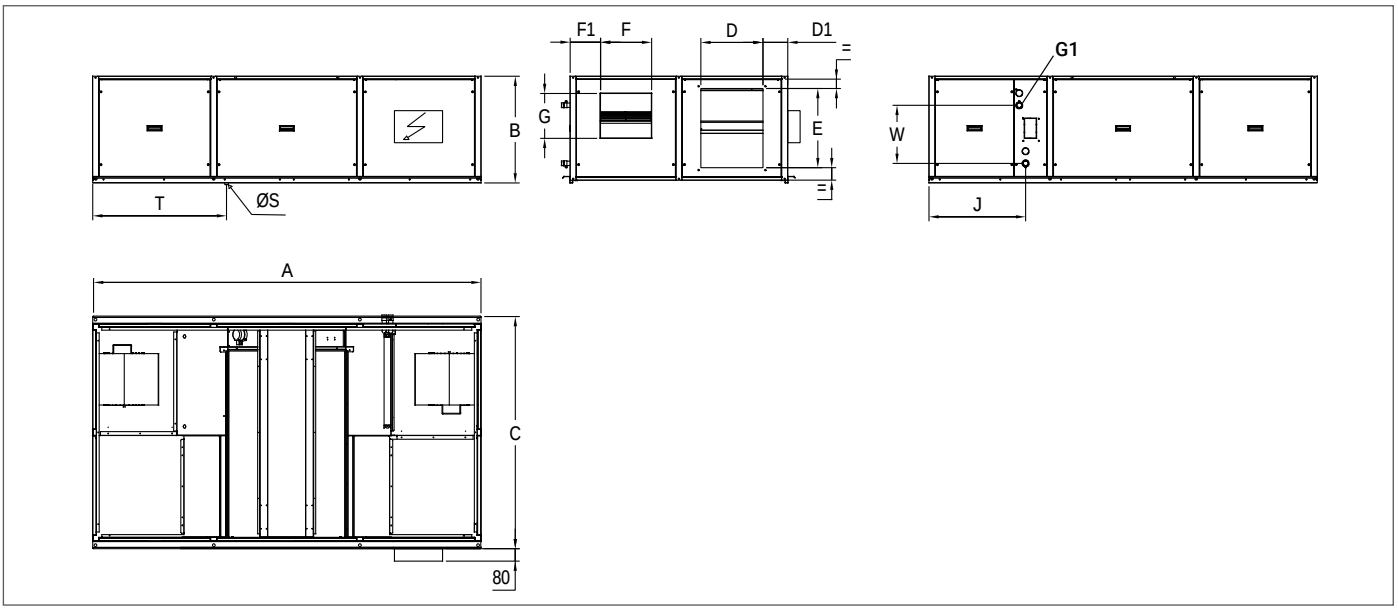


The orientations shown are related to the machine viewed from above

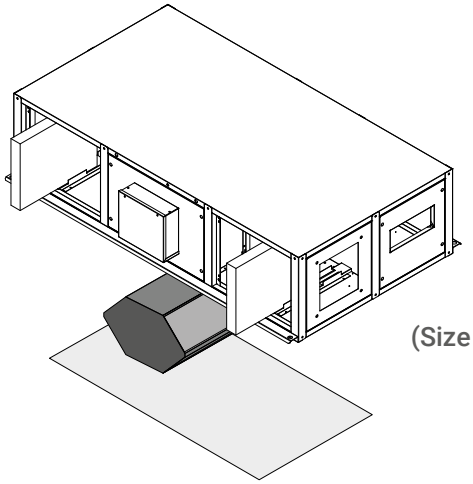
expelled air | fresh air | electric socket | air filter | electrical resistance | heating

Dimensions and accessibility

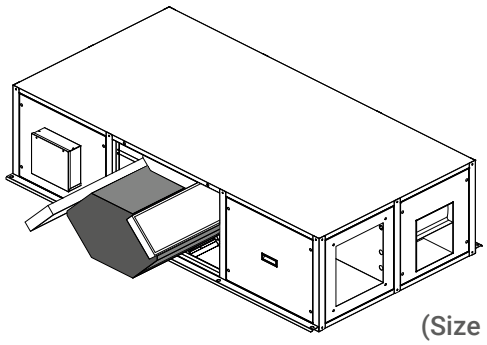
			1	2	3	4	5	6	7	8
Lunghezza / Lenght / Longueur / Länge / Longitud	A	mm	1480	1940	1940	2200	2200	2500	2500	2500
Altezza / Height / Hauteur / Höhe / Altura	B	mm	380	480	480	550	550	680	680	680
Profondità / Depth / Profondeur / Tiefe / Profundidad	C	mm	800	990	990	1000	1400	1400	1400	1700
	D	mm	200	300	300	300	500	400	500	500
	D1	mm	110	100	100	100	100	150	100	185
	E	mm	210	310	310	410	410	510	510	510
	F	mm	230	230	230	230	300	330	405	405
	F1	mm	90	140	140	145	215	195	158	232
	G	mm	70	210	260	260	260	290	405	405
	G1	Ø inch	3/4”	3/4”	3/4”	3/4”	3/4”	3/4”	1”	1”
	S	Ø inch	1/2”	1/2”	1/2”	1/2”	1/2”	1/2”	1/2”	1/2”
	T	mm	355	697	697	778	779	863	863	863
	J	mm	412	550	550	550	550	620	620	620
	W	mm	177	190	190	265	350	375	375	375
Peso / Weight / Poids / Gewicht / Peso		kg	90	140	150	170	200	230	260	300



Accessibility (filters and exchanger)



(Size 1)



(Size 2÷8)

Performance technical data

			SHE-ECM								HHE-ECM							
Motore ECM - ECM motor Moteur ECM - ECM-Motor - Motor ECM			1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Portata aria nominale Nominal airflow Débit d'air nominal Nennluftstrom Caudal de aire nominal		m^3/h	400	750	1000	1500	2050	3200	3800	4700	320	600	800	1200	1600	2500	3500	4300
Pressione statica utile nominale Nominal external static pressure Pression statique utile nominale Nominaler externer statischer Druck Presión estática útil nominal		Pa	160	120	130	160	120	180	200	200	165	150	160	160	150	250	200	200
Pressione statica utile massima Maximum external static pressure Pression statique utile maxi Maximaler externer statischer Druck Presión estática máxima útil		Pa	340	210	520	500	540	375	330	200	380	300	600	450	600	440	350	220
VENTILATORE / FAN VENTILATEUR / VENTILATOR / VENTILADOR																		
Tipologia motore Motor typology Typologie du moteur Motorentyp Tipología de motor			ECM															
N° velocità Speed Number Numèro de vitesse Anzahl der Geschwindigkeitsstufen No. de velocidades	(1)		Multiple															
Controllo ventilazione Fan control Contrôle de la ventilation Ventilatorsteuerung Control de ventilacion	(1)		0-10V															
Potenza assorbita nominale totale Total nominal power input Puissance absorbée totale nominale Gesamtnennleistung Potencia absorbida nominal total		kW	0.16	0.30	0.49	0.76	0.84	1.77	1.78	2.19	0.16	0.24	0.32	0.53	0.61	1.32	1.87	2.27
Corrente assorbita nominale totale Total nominal load amperage Courant absorbé nominal total Gesamtnennstrom Corriente absorbida nominal total		A	0.7	1.3	2.1	3.2	3.6	7.5	7.6	9.3	0.7	1.0	1.4	2.2	2.6	5.6	8.0	9.6
Efficienza statica dei ventilatori secondo (UE) n.327/2011 Static efficency of fans (UE) n.327/2011 Efficacité statique des ventilateurs selon (EU) n.327 / 2011 Statischer Wirkungsgrad von Lüftern gemäß (EU) Nr. 327/2011 Eficiencia estática de los ventiladores según (UE) n. 327/2011		%	32.7	32.7	53.2	53.2	55.9	59.8	66.9	66.9	32.73	32.73	53.2	53.2	55.9	59.8	66.9	66.9
Potenza assorbita massima totale Total full load power input Puissance absorbée totale maximale Gesamtleistungsaufnahme bei Vollast Potencia absorbida máxima total		kW	0.56	0.56	2.12	2.12	2.12	2.35	2.07	2.07	0.56	0.56	2.12	2.12	2.12	2.35	2.07	2.07
Corrente assorbita massima totale Total full load amperage Courant absorbé maximal total Gesamtstromaufnahme bei Vollast Corriente absorbida máxima total		A	2.4	2.4	9.0	9.0	9.0	10.0	8.8	8.8	2.4	2.4	9.0	9.0	9.0	10.0	8.8	8.8
Alimentazione elettrica Power supply Alimentation électrique Stromversorgung Fuente de alimentación		V/ph/Hz	230/1/50		230/1/50-60						230/1/50		230/1/50-60					
RECUPERATORE DI CALORE / HEAT RECOVERY UNITS RÉCUPÉRATEURS DE CHALEUR / WÄRMERÜCKGEWINNUNG / RECUPERADOR DE CALOR																		
Efficienza termica invernale Winter thermal efficiency Efficacité thermique hivernale Wärmewirkungsgrad im Winter Eficiencia térmica invernal	(2)	%	83.6	82.9	81.6	83.3	83.7	86.8	84.1	84.2	90.2	91.1	90.0	90.0	90.4	91.5	90.1	90.2
Efficienza termica estiva Summer thermal efficiency Efficacité thermique d'été Termischer Wirkungsgrad im Sommer Eficiencia térmica de verano	(3)	%	75.5	75.9	74.5	75.1	75.6	78.0	75.0	75.1	79.6	80.1	78.7	79.2	79.8	80.0	78.4	78.5
Efficienza termica a secco Dry thermal efficiency Efficacité thermique sèche Trockener thermischer Wirkungsgrad Eficiencia térmica seca	(4)	%	75.9	76.4	75.0	75.6	76.0	76.3	75.5	75.6	83.1	83.7	82.2	82.7	83.3	83.5	81.8	81.9

(1)	Multiple = Multivelocità > 3 / Multispeed > 3 / Multi-vitesses > 3 / Mehrfache Geschwindigkeit > 3 / Multivelocidad > 3 0-10V = Da potenziometro o tastiera / By potentiometer or control panel / Par clavier ou potentiomètre / über Potentiometer oder Bediengerät / Desde potenciómetro o teclado	
(2)	Aria esterna, aria ambiente / Outside air, ambient air / Air extérieur, air ambiance / Aussenluft, umgebungsluft / Aire exterior, aire ambiente	-5°C 80% UR / 20°C 50% UR
(3)	Aria esterna, aria ambiente / Outside air, ambient air / Air extérieur, air ambiance / Aussenluft, umgebungsluft / Aire exterior, aire ambiente	32°C 50% UR / 26°C 50% UR
(4)	Secondo regolamento UE 1253/2014: alla pressione nominale; condizioni di temperatura e umidità riferite a EN 308 / Refeer to EU 1253/2014 regulation: at nominal pressure; air conditions refer to EN 308 standard / Selon le règlement UE 1253/2014: à la pression nominale; conditions de température et d'humidité selon EN 308 / Gemäß EU-Verordnung 1253/2014: bei Nenndruck; Temperatur- und Feuchtigkeitsbedingungen gemäß EN 308 / Según el reglamento UE 1253/2014: a presión nominal; condiciones de temperatura y humedad referidas a EN 308.	

Motore ECM - ECM motor Moteur ECM - ECM-Motor - Motor ECM		SHE-ECM								HHE-ECM							
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Portata aria nominale Nominal airflow Débit d'air nominal Nennluftstrom Caudal de aire nominal	m^3/h	400	750	1000	1500	2050	3200	3800	4700	320	600	800	1200	1600	2500	3500	4300
Pressione statica utile nominale Nominal external static pressure Pression statique utile nominale Nominaler externer statischer Druck Presión estática útil nominal	Pa	160	120	130	160	120	180	200	200	165	150	160	160	150	250	200	200
Pressione statica utile massima Maximum external static pressure Pression statique utile maxi Maximaler externer statischer Druck Presión estática máxima útil	Pa	340	210	520	500	540	375	330	200	380	300	600	450	600	440	350	220
VENTILATORE / FAN VENTILATEUR / VENTILATOR / VENTILADOR																	
Tipologia motore Motor typology Typologie du moteur Motorentyp Tipología de motor		ECM															
N° velocità Speed Number Numèro de vitesse Anzahl der Geschwindigkeitsstufen No. de velocidades **(1)**		Multiple															
Controllo ventilazione Fan control Contrôle de la ventilation Ventilatorsteuerung Control de ventilacion **(1)**		0-10V															
Potenza assorbita nominale totale Total nominal power input Puissance absorbée totale nominale Gesamtnennleistung Potencia absorbida nominal total	kW	0.16	0.30	0.49	0.76	0.84	1.77	1.78	2.19	0.16	0.24	0.32	0.53	0.61	1.32	1.87	2.27
Corrente assorbita nominale totale Total nominal load amperage Courant absorbé nominal total Gesamtnennstrom Corriente absorbida nominal total	A	0.7	1.3	2.1	3.2	3.6	7.5	7.6	9.3	0.7	1.0	1.4	2.2	2.6	5.6	8.0	9.6
Efficienza statica dei ventilatori secondo (UE) n.327/2011 Static efficency of fans (UE) n.327/2011 Efficacité statique des ventilateurs selon (EU) n.327 / 2011 Statischer Wirkungsgrad von Lüftern gemäß (EU) Nr. 327/2011 Eficiencia estática de los ventiladores según (UE) n. 327/2011	%	32.7	32.7	53.2	53.2	55.9	59.8	66.9	66.9	32.73	32.73	53.2	53.2	55.9	59.8	66.9	66.9
Potenza assorbita massima totale Total full load power input Puissance absorbée totale maximale Gesamtleistungsaufnahme bei Vollast Potencia absorbida máxima total	kW	0.56	0.56	2.12	2.12	2.12	2.35	2.07	2.07	0.56	0.56	2.12	2.12	2.12	2.35	2.07	2.07
Corrente assorbita massima totale Total full load amperage Courant absorbé maximal total Gesamtstromaufnahme bei Vollast Corriente absorbida máxima total	A	2.4	2.4	9.0	9.0	9.0	10.0	8.8	8.8	2.4	2.4	9.0	9.0	9.0	10.0	8.8	8.8
Alimentazione elettrica Power supply Alimentation électrique Stromversorgung Fuente de alimentación	V/ph/Hz	230/1/50		230/1/50-60						230/1/50		230/1/50-60					
RECUPERATORE DI CALORE / HEAT RECOVERY UNITS RÉCUPÉRATEURS DE CHALEUR / WÄRMERÜCKGEWINNUNG / RECUPERADOR DE CALOR																	
Efficienza termica invernale Winter thermal efficiency Efficacité thermique hivernale Wärmewirkungsgrad im Winter Eficiencia térmica invernal **(2)**	%	83.6	82.9	81.6	83.3	83.7	86.8	84.1	84.2	90.2	91.1	90.0	90.0	90.4	91.5	90.1	90.2
Efficienza termica estiva Summer thermal efficiency Efficacité thermique d'été Termischer Wirkungsgrad im Sommer Eficiencia térmica de verano **(3)**	%	75.5	75.9	74.5	75.1	75.6	78.0	75.0	75.1	79.6	80.1	78.7	79.2	79.8	80.0	78.4	78.5
Efficienza termica a secco Dry thermal efficiency Efficacité thermique sèche Trockener thermischer Wirkungsgrad Eficiencia térmica seca **(4)**	%	75.9	76.4	75.0	75.6	76.0	76.3	75.5	75.6	83.1	83.7	82.2	82.7	83.3	83.5	81.8	81.9

(1)	Multiple = Multivelocità > 3 / Multispeed > 3 / Multi-vitesses > 3 / Mehrfache Geschwindigkeit > 3 / Multivelocidad > 3 0-10V = Da potenziometro o tastiera / By potentiometer or control panel / Par clavier ou potentiomètre / über Potentiometer oder Bediengerät / Desde potenciómetro o teclado	
(2)	Aria esterna, aria ambiente / Outside air, ambient air / Air extérieur, air ambiance / Aussenluft, umgebungsluft / Aire exterior, aire ambiente	-5°C 80% UR / 20°C 50% UR
(3)	Aria esterna, aria ambiente / Outside air, ambient air / Air extérieur, air ambiance / Aussenluft, umgebungsluft / Aire exterior, aire ambiente	32°C 50% UR / 26°C 50% UR
(4)	Secondo regolamento UE 1253/2014: alla pressione nominale; condizioni di temperatura e umidità riferite a EN 308 / Refeer to EU 1253/2014 regulation: at nominal pressure; air conditions refer to EN 308 standard / Selon le règlement UE 1253/2014: à la pression nominale; conditions de température et d'humidité selon EN 308 / Gemäß EU-Verordnung 1253/2014: bei Nenndruck; Temperatur- und Feuchtigkeitsbedingungen gemäß EN 308 / Según el reglamento UE 1253/2014: a presión nominal; condiciones de temperatura y humedad referidas a EN 308.	

07MK
Ductable fan coil units

The ductable fan coil units of the 07MK series are available in 4 construction versions, 7 power sizes, in the horizontal or vertical version and with air flow rates ranging from 480 to 8,000 m3/h, thermal outputs from 2.8 to 56 kW and cooling capacities from 2.5 to 42 kW.

The units are particularly suitable for use in small and medium rooms for civil, commercial or industrial applications. The modularity of the basic components makes the units suitable for typical installation in false ceilings.

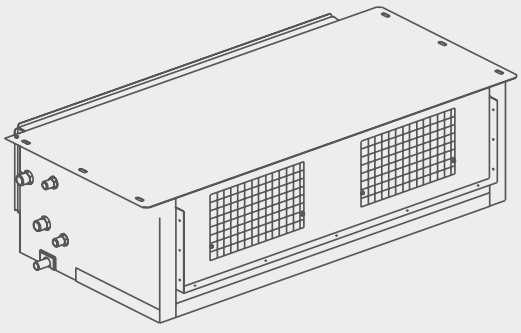
Configurations

The ductable air handling units of the 07MK series are available in 4 construction versions, 7 power sizes, in the horizontal or vertical version and with air flow rates ranging from 480 to 8,000 m^3/h, thermal outputs from 2.8 to 56 kW and cooling capacities from 2.5 to 42 kW.

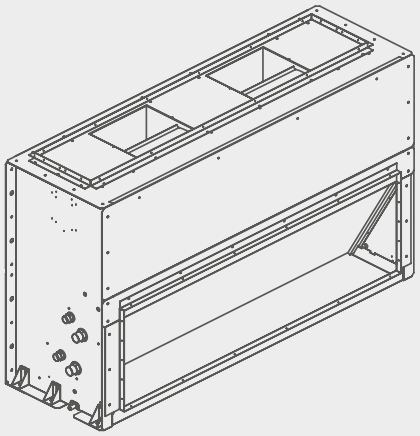
The units are particularly suitable for use in small and medium rooms for civil, commercial or industrial applications. The modularity of the basic components makes the units suitable for typical installation in false ceilings.

versions	
07MK-H	horizontal installation, asynchronous motor
07MK-ECM-H	horizontal installation, ECM motor
07MK-V	vertical installation, asynchronous motor
07MK-ECM-H	vertical installation, ECM motor

Horizontal installation



Vertical installation



Performance technical data

2 tubi - pipes - tubes Leiter - tubos				3R scambiatore - coil - batterie Wärmetauscher - batería					4R	
				10	20	30	40	50	60 (*)	70 (*)
7/12 °C 27 °C d.b. 19 °C w.b.	Potenza frigorifera totale Total cooling capacity Puissance frigorifique totale Kälteleistung gesamt Potencia frigorífica total		W 7	-	5063	-	-	-	-	-
			W 6	-	5040	-	-	-	-	-
			W 5	-	**4974**	-	-	-	-	-
		(E)	W 4	**2735**	**4711**	-	-	-	-	-
			W 3	2714	4412	**6936**	**8277**	**10850**	23488	42068
			W 2	**2683**	**4084**	**6797**	**8066**	**9764**	21629	39655
			W 1	**2543**	3678	**6536**	**7596**	**8081**	19816	35610
	Potenza frigorifera sensibile Sensible cooling capacity Puissance frigorifique sensible Sensible Kälteleistung Potencia frigorífica total sensible		W 7	-	3753	-	-	-	-	-
			W 6	-	3740	-	-	-	-	-
			W 5	-	**3684**	-	-	-	-	-
		(E)	W 4	**2025**	**3471**	-	-	-	-	-
			W 3	2014	3232	**5216**	**6187**	**8250**	16918	30788
			W 2	**1983**	**2964**	**5107**	**6016**	**7334**	15469	28875
			W 1	**1873**	2648	**4856**	**5626**	**5971**	14096	25670
	Portata acqua Water flow Débit d'eau Wassermenge Flujo de agua		l/h 7	-	892	-	-	-	-	-
			l/h 6	-	887	-	-	-	-	-
			l/h 5	-	875	-	-	-	-	-
			l/h 4	487	828	-	-	-	-	-
			l/h 3	484	777	1225	1459	1936	4200	7550
			l/h 2	479	720	1197	1418	1736	3858	7081
			l/h 1	454	650	1143	1336	1438	3517	6352
	Perdite di carico lato acqua Water pressure drop Pertes charge côté eau Wasserseitiger Druckverlust Caídas de presión lado agua		kPa 7	-	25,4	-	-	-	-	-
			kPa 6	-	25,1	-	-	-	-	-
			kPa 5	-	**24,5**	-	-	-	-	-
		(E)	kPa 4	**13,5**	**22,2**	-	-	-	-	-
			kPa 3	13,4	19,9	**28,3**	**27,7**	**23,9**	34,4	36,4
			kPa 2	**13,1**	**17,4**	**27,2**	**26,3**	**19,7**	29,6	32,5
			kPa 1	**12,0**	14,5	**25,0**	**23,7**	**14,1**	25,1	26,9
45/40 °C 20 °C	Potenza termica Heating capacity Puissance thermique Heizleistung Energía térmica		W 7	-	5490	-	-	-	-	-
			W 6	-	5450	-	-	-	-	-
			W 5	-	**5370**	-	-	-	-	-
		(E)	W 4	**3080**	**5060**	-	-	-	-	-
			W 3	3060	4720	**7660**	**9040**	**12430**	25450	46880
			W 2	**3030**	**4350**	**7470**	**8760**	**11010**	23210	43630
			W 1	**2860**	3900	**7100**	**8210**	**8960**	20970	38670
	Portata acqua Water flow Débit d'eau Wassermenge Flujo de agua		l/h 7	-	956	-	-	-	-	-
			l/h 6	-	950	-	-	-	-	-
			l/h 5	-	936	-	-	-	-	-
			l/h 4	537	881	-	-	-	-	-
			l/h 3	534	822	1335	1575	2165	4433	8166
			l/h 2	527	758	1301	1526	1918	4042	7604
			l/h 1	498	679	1237	1430	1562	3652	6736
	Perdite di carico lato acqua Water pressure drop Pertes charge côté eau Wasserseitiger Druckverlust Caídas de presión lado agua		kPa 7	-	23,6	-	-	-	-	-
			kPa 6	-	23,3	-	-	-	-	-
			kPa 5	-	**22,7**	-	-	-	-	-
		(E)	kPa 4	**13,2**	**20,5**	-	-	-	-	-
			kPa 3	13,1	18,1	**27,1**	**26,1**	**24,0**	31,1	34,5
			kPa 2	**12,8**	**15,7**	**25,9**	**24,7**	**19,4**	26,5	30,4
			kPa 1	**11,6**	12,9	**23,7**	**22,0**	**13,5**	22,1	24,5
50 °C 20 °C	Potenza termica Heating capacity Puissance thermique Heizleistung Energía térmica		W 7	-	6540	-	-	-	-	-
			W 6	-	6500	-	-	-	-	-
			W 5	-	6410	-	-	-	-	-
			W 4	3660	6030	-	-	-	-	-
			W 3	3640	5640	9120	10770	14730	30440	55840
			W 2	3600	5200	8890	10440	13070	27750	52020
			W 1	3400	4660	8450	9790	10670	25100	46190
	Portata acqua Water flow Débit d'eau Wassermenge Flujo de agua		l/h 7	-	892	-	-	-	-	-
			l/h 6	-	887	-	-	-	-	-
			l/h 5	-	875	-	-	-	-	-
			l/h 4	487	828	-	-	-	-	-
			l/h 3	484	777	1225	1459	1936	4200	7550
			l/h 2	479	720	1197	1418	1736	3858	7081
			l/h 1	454	650	1143	1336	1438	3517	6352
	Perdite di carico lato acqua Water pressure drop Pertes charge côté eau Wasserseitiger Druckverlust Caídas de presión lado agua		kPa 7	-	20,7	-	-	-	-	-
			kPa 6	-	20,4	-	-	-	-	-
			kPa 5	-	20,0	-	-	-	-	-
			kPa 4	11,0	18,1	-	-	-	-	-
			kPa 3	10,9	16,2	23,1	22,5	19,4	28,0	29,7
			kPa 2	10,7	14,2	22,1	21,4	16,0	24,1	26,5
			kPa 1	9,7	11,8	20,4	19,3	11,5	20,5	21,9

***** Unità non soggette a certificazione Eurovent per limiti di definizione - Units not subject to Eurovent certification due to definition limits - Unités non soumises à la certification Eurovent par liòites de définition Geräte, die aufgrund von Definitionsgrenzen nicht der Eurovent-Zertifizierung unterliegen - Unidades no sujetas a certificación Eurovent debido a criterios de medida

- Il test per la rilevazione del livello di potenza sonora è stato eseguito in accordo con la **normativa EN 16583:2015** / **Livello di pressione sonora:** considerata 8,6 dB(A) inferiore rispetto alla potenza sonora in una stanza di 90 m³ con un tempo di riverbero di 0,5 sec. / **Valori tensione ammissibile:** ~230V / 1ph / 50-60Hz
- The sound power level test has been performed **according to EN 16583:2015 standard** / **Sound pressure level:** 8,6 dB(A) lower that the sound power level for a room of 90 m³ with a reverberation time of 0,5 sec. / **Supported power supply:** ~230V / 1ph / 50-60Hz
- Le test de détection du niveau de puissance acoustique a été réalisé conformément à la norme EN 16583: 2015 / **Niveau de pression sonore:** considéré de 8,6 dB(A) plus faible que le niveau de puissance acoustique d'une pièce de 90 m³, avec un temps de réverbération de 0,5 sec. / **Valeurs de tension admissibles:** ~230V / 1ph / 50-60Hz
- Der Test zur Erfassung des Schallleistungspegels wurde gemäß der Norm EN 16583: 2015 durchgeführt / **Schall-Druckpegel:** Schall-Druckpegel: 8,6 dB (A) unter dem Schalldruck in einem Raum von 90 m³mit einer Nachhallzeit von 0,5 s. / **Unterstützte Stromversorgung:** ~230V / 1ph / 50-60Hz
- La prueba de nivel acústico se realizó de acuerdo con la **norma EN 16583:2015** / **Nivel de presión sonora:** se considera 8,6 dB (A) inferior a la potencia acústica en una sala de 90 m³ con un tiempo de reverberación de 0,5 seg. / **Valores de voltaje admisibles:** ~230V / 1ph / 50-60Hz

velocità cablate / wired speed / vitesse câblée / verkabelte Geschwindigkeitsstufe / velocidades cableadas **(E)** = Eurovent

Performance technical data

			3R scambiatore - coil - batterie Wärmetauscher - batería					4R	
2 tubi - pipes - tubes Leiter - tubos			**10**	**20**	**30**	**40**	**50**	**60 (*)**	**70 (*)**
Portata aria Air flow Débit d'air Luftstrom Flujo de aire		m^3/h 7	-	970	-	-	-	-	-
		m^3/h 6	-	962	-	-	-	-	-
		m^3/h 5	-	**944**	-	-	-	-	-
	(E)	m^3/h 4	**541**	**873**	-	-	-	-	-
		m^3/h 3	536	800	**1419**	**1326**	**2401**	4134	7985
		m^3/h 2	**528**	**721**	**1371**	**1276**	**2041**	3676	7279
		m^3/h 1	**491**	629	**1282**	**1200**	**1560**	3242	6246
Pressione statica Static pressure Pression statique Statischer Druck Presión estática		Pa 7	-	64	-	-	-	-	-
		Pa 6	-	62	-	-	-	-	-
		Pa 5	-	**59**	-	-	-	-	-
	(E)	Pa 4	**54**	**50**	-	-	-	-	-
		Pa 3	52	42	**55**	**56**	**70**	122	121
		Pa 2	**50**	**34**	**50**	**50**	**50**	100	100
		Pa 1	**44**	26	**44**	**42**	**29**	76	77
Livello di potenza sonora aspirazione + radiata Sound power level inlet + radiated Niveaux de puissance acoustique aspiration + rayonné Schallleistungspegel Austritt und Abgestrahlt Nivel de potencia acústica de admisión + resonancia		dB(A) 7	-	65	-	-	-	-	-
		dB(A) 6	-	64	-	-	-	-	-
		dB(A) 5	-	**63**	-	-	-	-	-
	(E)	dB(A) 4	**58**	**62**	-	-	-	-	-
		dB(A) 3	57	61	**63**	**65**	**71**	70	72
		dB(A) 2	**57**	**59**	**62**	**64**	**68**	66	67
		dB(A) 1	**56**	57	**60**	**62**	**62**	61	62
Livello di potenza sonora mandata Sound power level outlet Niveaux de puissance acoustique soufflage Schallleistungspegel Austritt Nivel de potencia sonora de salida		dB(A) 7	-	65	-	-	-	-	-
		dB(A) 6	-	64	-	-	-	-	-
		dB(A) 5	-	**64**	-	-	-	-	-
	(E)	dB(A) 4	**61**	**60**	-	-	-	-	-
		dB(A) 3	61	58	**66**	**66**	**70**	74	75
		dB(A) 2	**60**	**56**	**65**	**65**	**67**	69	70
		dB(A) 1	**58**	55	**62**	**63**	**63**	64	65
Livello di pressione sonora aspirazione + radiata Sound pressure level inlet + radiated Niveau de pression acoustique aspiration + rayonné Schalldruckpegel Eintritt und Abgestrahlt Nivel de presión sonora de admisión + resonancia		dB(A) 7	-	56	-	-	-	-	-
		dB(A) 6	-	55	-	-	-	-	-
		dB(A) 5	-	54	-	-	-	-	-
		dB(A) 4	49	53	-	-	-	-	-
		dB(A) 3	48	52	54	56	62	61	63
		dB(A) 2	48	50	53	55	59	57	58
		dB(A) 1	47	48	51	53	53	52	53
Livello di pressione sonora mandata Sound pressure level outlet Niveau de pression acoustique soufflage Schalldruckpegel Austritt Nivel de presión sonora de salida		dB(A) 7	-	56	-	-	-	-	-
		dB(A) 6	-	55	-	-	-	-	-
		dB(A) 5	-	55	-	-	-	-	-
		dB(A) 4	52	51	-	-	-	-	-
		dB(A) 3	52	49	57	57	61	65	66
		dB(A) 2	51	47	56	56	58	60	61
		dB(A) 1	49	46	53	54	54	55	56

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- Il test per la rilevazione del livello di potenza sonora è stato eseguito in accordo con la **normativa EN 16583:2015** / **Livello di pressione sonora:** considerata 8,6 dB(A) inferiore rispetto alla potenza sonora in una stanza di 90 m^3 con un tempo di riverbero di 0,5 sec. / **Valori tensione ammissibile:** ~230V / 1ph / 50-60Hz
- The sound power level test has been performed **according to EN 16583:2015 standard** / **Sound pressure level:** 8,6 dB(A) lower that the sound power level for a room of 90 m^3 with a reverberation time of 0,5 sec. / **Supported power supply:** ~230V / 1ph / 50-60Hz
- Le test de détection du niveau de puissance acoustique a été réalisé conformément à la norme EN 16583: 2015 / **Niveau de pression sonore:** considéré de 8,6 dB(A) plus faible que le niveau de puissance acoustique d'une pièce de 90 m^3, avec un temps de réverbération de 0,5 sec. / **Valeurs de tension admissibles:** ~230V / 1ph / 50-60Hz
- Der Test zur Erfassung des Schallleistungspegels wurde gemäß der Norm EN 16583: 2015 durchgeführt / **Schall-Druckpegel:** Schall-Druckpegel: 8,6 dB (A) unter dem Schalldruck in einem Raum von 90 m^3mit einer Nachhallzeit von 0,5 s. / **Unterstützte Stromversorgung:** ~230V / 1ph / 50-60Hz
- La prueba de nivel acústico se realizó de acuerdo con la **norma EN 16583:2015** / **Nivel de presión sonora:** se considera 8,6 dB (A) inferior a la potencia acústica en una sala de 90 m^3 con un tiempo de reverberación de 0,5 seg. / **Valores de voltaje admisibles:** ~230V / 1ph / 50-60Hz

velocità cablate / wired speed / vitesse câblée / verkabelte Geschwindigkeitsstufe / velocidades cableadas **(E)** = Eurovent

					(3+1)R scambiatore - coil - batterie Wärmetauscher - batería					(4+2)R	
4 tubi - pipes - tubes Leiter - tubos					**10**	**20**	**30**	**40**	**50**	**60 (*)**	**70 (*)**
7/12°C 27°C d.b. 19°C w.b.	Potenza frigorifera totale Total cooling capacity Puissance frigorifique totale Kälteleistung gesamt Potencia frigorífica total	(E)	W	7	-	4943	-	-	-	-	-
			W	6	-	4920	-	-	-	-	-
			W	5	-	**4854**	-	-	-	-	-
			W	4	**2665**	**4631**	-	-	-	-	-
			W	3	2654	4362	**6776**	**8117**	**10650**	22958	40818
			W	2	**2623**	**4044**	**6657**	**7926**	**9644**	21409	38985
			W	1	**2493**	3658	**6376**	**7506**	**8031**	19636	35350
	Potenza frigorifera sensibile Sensible cooling capacity Puissance frigorifique sensible Sensible Kälteleistung Potencia frigorífica total sensible	(E)	W	7	-	3653	-	-	-	-	-
			W	6	-	3640	-	-	-	-	-
			W	5	-	**3584**	-	-	-	-	-
			W	4	**1975**	**3411**	-	-	-	-	-
			W	3	1964	3192	**5076**	**6047**	**8080**	16498	29758
			W	2	1933	**2944**	**4987**	**5906**	**7244**	15299	28335
			W	1	1833	2638	**4756**	**6016**	**5931**	13956	25470
	Portata acqua Water flow Débit d'eau Wassermenge Flujo de agua		l/h	7	-	871	-	-	-	-	-
			l/h	6	-	866	-	-	-	-	-
			l/h	5	-	855	-	-	-	-	-
			l/h	4	475	815	-	-	-	-	-
			l/h	3	473	768	1198	1431	1900	4109	7335
			l/h	2	468	714	1172	1394	1718	3820	6966
			l/h	1	446	647	1123	1320	1430	3487	6308
	Perdite di carico lato acqua Water pressure drop Pertes charge côté eau Wasserseitiger Druckverlust Caídas de presión lado agua	(E)	kPa	7	-	24,3	-	-	-	-	-
			kPa	6	-	24,1	-	-	-	-	-
			kPa	5	-	**23,5**	-	-	-	-	-
			kPa	4	**13,0**	**21,6**	-	-	-	-	-
			kPa	3	12,8	19,5	**27,2**	**26,7**	**23,1**	33,1	34,6
			kPa	2	**12,6**	**17,1**	**26,2**	**25,5**	**19,3**	29,1	31,6
			kPa	1	**11,6**	14,4	**24,3**	**23,2**	**14,0**	24,8	26,5
65/55°C 20°C	Potenza termica Heating capacity Puissance thermique Heizleistung Energía térmica	(E)	W	7	-	4440	-	-	-	-	-
			W	6	-	4420	-	-	-	-	-
			W	5	-	**4360**	-	-	-	-	-
			W	4	**2560**	**4180**	-	-	-	-	-
			W	3	2550	3960	**6130**	**7240**	**9810**	29570	52860
			W	2	**2530**	**3710**	**6010**	**7070**	**8930**	27580	50280
			W	1	**2420**	3400	**5770**	**6730**	**7560**	25290	45700
	Portata acqua Water flow Débit d'eau Wassermenge Flujo de agua		l/h	7	-	389	-	-	-	-	-
			l/h	6	-	387	-	-	-	-	-
			l/h	5	-	383	-	-	-	-	-
			l/h	4	225	366	-	-	-	-	-
			l/h	3	224	347	537	635	860	2593	4634
			l/h	2	222	326	526	619	783	2418	4408
			l/h	1	212	298	506	590	663	2217	4006
	Perdite di carico lato acqua Water pressure drop Pertes charge côté eau Wasserseitiger Druckverlust Caídas de presión lado agua	(E)	kPa	7	-	10,0	-	-	-	-	-
			kPa	6	-	9,9	-	-	-	-	-
			kPa	5	-	**9,7**	-	-	-	-	-
			kPa	4	**18,3**	**9,0**	-	-	-	-	-
			kPa	3	18,2	8,2	**21,0**	**10,8**	**21,7**	20,8	22,3
			kPa	2	**17,9**	**7,3**	**20,3**	**10,4**	**18,4**	18,0	20,4
			kPa	1	**16,6**	6,3	**18,9**	**9,5**	**13,7**	15,5	17,3
70/60°C 20°C	Potenza termica Heating capacity Puissance thermique Heizleistung Energía térmica		W	7	-	5030	-	-	-	-	-
			W	6	-	5000	-	-	-	-	-
			W	5	-	4940	-	-	-	-	-
			W	4	2900	4730	-	-	-	-	-
			W	3	2890	4490	6930	8200	11110	33410	59740
			W	2	2860	4210	6800	8010	10110	31150	56820
			W	1	2740	3850	6530	7620	8560	28560	51630
	Portata acqua Water flow Débit d'eau Wassermenge Flujo de agua		l/h	7	-	442	-	-	-	-	-
			l/h	6	-	439	-	-	-	-	-
			l/h	5	-	434	-	-	-	-	-
			l/h	4	255	416	-	-	-	-	-
			l/h	3	253	394	609	720	976	2935	5247
			l/h	2	251	369	597	703	888	2737	4990
			l/h	1	240	338	574	670	752	1509	4536
	Perdite di carico lato acqua Water pressure drop Pertes charge côté eau Wasserseitiger Druckverlust Caídas de presión lado agua		kPa	7	-	12,3	-	-	-	-	-
			kPa	6	-	12,2	-	-	-	-	-
			kPa	5	-	11,9	-	-	-	-	-
			kPa	4	22,4	11,0	-	-	-	-	-
			kPa	3	22,2	10,0	25,7	13,3	26,6	24,9	27,2
			kPa	2	21,9	8,9	24,8	12,7	22,6	22,0	24,9
			kPa	1	20,2	7,7	23,2	11,7	16,8	18,9	21,1

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velocità cablate / wired speed / vitesse câblée / verkabelte Geschwindigkeitsstufe / velocidades cableadas **(E)** = Eurovent

Performance technical data

				(3+1)R scambiatore - coil - batterie Wärmetauscher - batería					(4+2)R	
4 tubi - pipes - tubes Leiter - tubos			**10**	**20**	**30**	**40**	**50**	**60 (*)**	**70 (*)**
Portata aria Air flow Débit d'air Luftstrom Flujo de aire		m^3/h	7	-	939	-	-	-	-	-
		m^3/h	6	-	932	-	-	-	-	-
		m^3/h	5	-	**914**	-	-	-	-	-
	(E)	m^3/h	4	**523**	**749**	-	-	-	-	-
		m^3/h	3	519	690	**1372**	**1595**	**2335**	4009	7657
		m^3/h	2	**512**	**608**	**1330**	**1536**	**2010**	3627	7112
		m^3/h	1	**478**	535	**1249**	**1422**	**1547**	3206	6186
Pressione statica Static pressure Pression statique Statischer Druck Presión estática		Pa	7	-	64	-	-	-	-	-
		Pa	6	-	62	-	-	-	-	-
		Pa	5	-	**59**	-	-	-	-	-
	(E)	Pa	4	**54**	**50**	-	-	-	-	-
		Pa	3	52	42	**55**	**56**	**70**	122	121
		Pa	2	**50**	**34**	**50**	**50**	**50**	100	100
		Pa	1	**44**	26	**44**	**42**	**29**	76	77
Livello di potenza sonora aspirazione + radiata Sound power level inlet + radiated Niveaux de puissance acoustique aspiration + rayonné Schallleistungspegel Austritt und Abgestrahlt Nivel de potencia acústica de admisión + resonancia		dB(A)	7	-	64	-	-	-	-	-
		dB(A)	6	-	63	-	-	-	-	-
		dB(A)	5	-	**62**	-	-	-	-	-
	(E)	dB(A)	4	**58**	**60**	-	-	-	-	-
		dB(A)	3	57	59	**63**	**65**	**71**	70	72
		dB(A)	2	**57**	**57**	**62**	**64**	**68**	66	67
		dB(A)	1	**56**	56	**60**	**62**	**62**	61	62
Livello di potenza sonora mandata Sound power level outlet Niveaux de puissance acoustique soufflage Schallleistungspegel Austritt Nivel de potencia sonora de salida		dB(A)	7	-	63	-	-	-	-	-
		dB(A)	6	-	62	-	-	-	-	-
		dB(A)	5	-	**63**	-	-	-	-	-
	(E)	dB(A)	4	**61**	**60**	-	-	-	-	-
		dB(A)	3	61	58	**66**	**66**	**70**	74	75
		dB(A)	2	**60**	**56**	**65**	**65**	**67**	69	70
		dB(A)	1	**58**	55	**62**	**63**	**63**	64	65
Livello di pressione sonora aspirazione + radiata Sound pressure level inlet + radiated Niveau de pression acoustique aspiration + rayonné Schalldruckpegel Eintritt und Abgestrahlt Nivel de presión sonora de admisión + resonancia		dB(A)	7	-	55	-	-	-	-	-
		dB(A)	6	-	54	-	-	-	-	-
		dB(A)	5	-	53	-	-	-	-	-
		dB(A)	4	49	51	-	-	-	-	-
		dB(A)	3	48	50	54	56	62	61	63
		dB(A)	2	48	48	53	55	59	57	58
		dB(A)	1	47	47	51	53	53	52	53
Livello di pressione sonora mandata Sound pressure level outlet Niveau de pression acoustique soufflage Schalldruckpegel Austritt Nivel de presión sonora de salida		dB(A)	7	-	54	-	-	-	-	-
		dB(A)	6	-	53	-	-	-	-	-
		dB(A)	5	-	52	-	-	-	-	-
		dB(A)	4	52	51	-	-	-	-	-
		dB(A)	3	52	49	57	57	61	65	66
		dB(A)	2	51	47	56	56	58	60	61
		dB(A)	1	49	46	53	54	54	55	56

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- The sound power level test has been performed **according to EN 16583:2015 standard** / **Sound pressure level:** 8,6 dB(A) lower that the sound power level for a room of 90 m^3 with a reverberation time of 0,5 sec. / **Supported power supply:** ~230V / 1ph / 50-60Hz
- Le test de détection du niveau de puissance acoustique a été réalisé conformément à la norme EN 16583: 2015 / **Niveau de pression sonore:** considéré de 8,6 dB(A) plus faible que le niveau de puissance acoustique d'une pièce de 90 m^3, avec un temps de réverbération de 0,5 sec. / **Valeurs de tension admissibles:** ~230V / 1ph / 50-60Hz
- Der Test zur Erfassung des Schallleistungspegels wurde gemäß der Norm EN 16583: 2015 durchgeführt / **Schall-Druckpegel:** Schall-Druckpegel: 8,6 dB (A) unter dem Schalldruck in einem Raum von 90 m^3mit einer Nachhallzeit von 0,5 s. / **Unterstützte Stromversorgung:** ~230V / 1ph / 50-60Hz
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Motore asincrono - Asynchronous motor Moteur asynchrone - Asynchronmotor - Motor asíncrono				10	20	30	40	50	60 (*)	70 (*)
Potenza assorbita dal motore del ventilatore Motor fan absorbed power Puissance absorbée par le moteur de ventilateur **(E)** Vom Lüftermotor aufgenommene Leistung Potencia absorbida por el motor del ventilador	W	7		-	137	-	-	-	-	-
	W	6		-	130	-	-	-	-	-
	W	5		-	**126**	-	-	-	-	-
	W	4		**105**	**119**	-	-	-	-	-
	W	3		106	118	**204**	**265**	**430**	992	1932
	W	2		**107**	**116**	**173**	**236**	**366**	861	1615
	W	1		**107**	112	**164**	**216**	**299**	684	1410
Corrente assorbita dal motore del ventilatore Motor fan absorbed current Courant absorbé par le moteur du ventilateur Vom Lüftermotor aufgenommener Strom Corriente absorbida por el motor del ventilador	A	7		-	0,64	-	-	-	-	-
	A	6		-	0,63	-	-	-	-	-
	A	5		-	0,59	-	-	-	-	-
	A	4		0,51	0,55	-	-	-	-	-
	A	3		0,51	0,54	1,12	1,36	1,90	4,52	9,00
	A	2		0,51	0,54	0,87	1,14	1,67	3,95	7,90
	A	1		0,49	0,52	0,79	1,07	1,45	3,25	6,50
Tensione di alimentazione Power supply Tension d'alimentation Stromversorgung Tensión de alimentación				~230V / 1ph / 50-60Hz						

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Motore ECM - ECM motor Moteur ECM - ECM-Motor - Motor ECM				10	20	30	40	50	60 (*)	70 (*)
Potenza assorbita dal motore del ventilatore Motor fan absorbed power Puissance absorbée par le moteur de ventilateur **(E)** Vom Lüftermotor aufgenommene Leistung Potencia absorbida por el motor del ventilador	W	7		-	118	-	-	-	-	-
	W	6		-	113	-	-	-	-	-
	W	5		-	**112**	-	-	-	-	-
	W	4		**81**	**92**	-	-	-	-	-
	W	3		78	74	**161**	**172**	**345**	656	1285
	W	2		**75**	**58**	**145**	**151**	**224**	475	990
	W	1		**63**	43	**124**	**122**	**117**	336	673
Corrente assorbita dal motore del ventilatore Motor fan absorbed current Courant absorbé par le moteur du ventilateur Vom Lüftermotor aufgenommener Strom Corriente absorbida por el motor del ventilador	A	7		-	0,99	-	-	-	-	-
	A	6		-	0,98	-	-	-	-	-
	A	5		-	0,97	-	-	-	-	-
	A	4		0,66	0,78	-	-	-	-	-
	A	3		0,61	0,60	1,26	1,22	1,92	2,81	5,52
	A	2		0,58	0,47	1,19	1,04	1,07	2,05	4,26
	A	1		0,48	0,35	1,01	0,88	0,54	1,46	2,93
Tensione di controllo velocità (Vcc) Speed control voltage (Vdc) Tension de contrôle de vitesse (Vcc) Drehzahlregelspannung (Vcc) Voltaje de control de velocidad (Vcc)	Vdc	7		-	8,80	-	-	-	-	-
	Vdc	6		-	8,70	-	-	-	-	-
	Vdc	5		-	8,30	-	-	-	-	-
	Vdc	4		8,70	7,10	-	-	-	-	-
	Vdc	3		8,50	6,00	6,80	6,20	7,20	5,70	5,40
	Vdc	2		8,30	4,70	6,30	5,50	5,90	4,30	4,30
	Vdc	1		7,40	3,00	5,50	4,50	4,40	3,20	3,20
Tensione di alimentazione Power supply Tension d'alimentation Stromversorgung Tensión de alimentación				~230V / 1ph / 50-60Hz						

***** Unità non soggette a certificazione Eurovent per limiti di definizione - Units not subject to Eurovent certification due to definition limits - Unités non soumises à la certification Eurovent par liòites de définition
Geräte, die aufgrund von Definitionsgrenzen nicht der Eurovent-Zertifizierung unterliegen - Unidades no sujetas a certificación Eurovent debido a criterios de medida

velocità cablate / wired speed / vitesse câblée / verkabelte Geschwindigkeitsstufe / velocidades cableadas **(E)** = Eurovent

01MK
Centrifugal extract fan box

Construction features

Bearing structure:

01MK-A single paneling unit: shaped galvanized steel profiles, ABS angular profiles and galvanized steel panels internally coated with polyester, 10 mm thick.

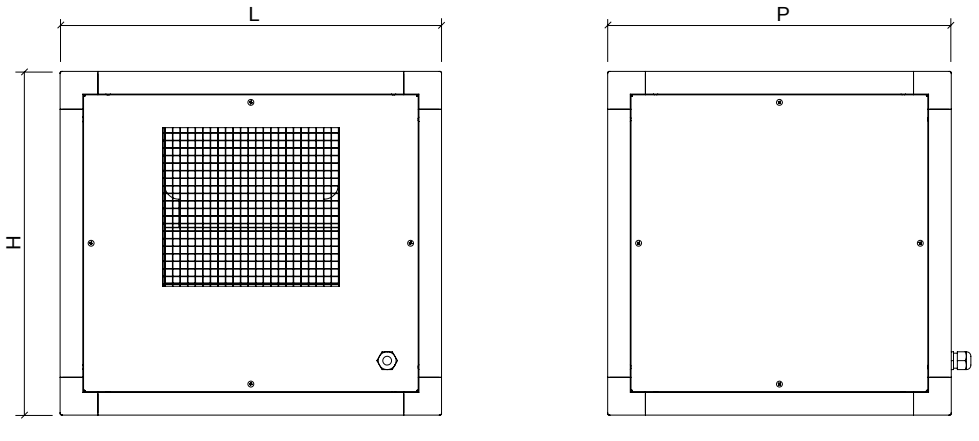
01MK-B double paneling unit: extruded aluminum profiles, ABS corner pieces and double paneling panels with 45 kg / m^3 density expanded polyurethane.

Ventilating sections

Forward blades double suction fan with single-phase asynchronous motor directly coupled to 3 speeds.
Single speed motors are available on request.

Dimensions

			MOD. A				MOD. B			
			02	05	07	08	02	05	07	08
Lunghezza / Lenght / Longueur / Länge / Longitud	L	mm	505	605	705	805	505	605	705	805
Altezza / Height / Hauteur / Höhe / Altura	H	mm	455	505	555	655	455	505	555	655
Profondità / Depth / Profondeur / Tiefe / Profundidad	P	mm	455	505	555	655	455	505	555	655



Performance technical data

		02	05	07	08
Tipologia dichiarata Declared typology Typologie déclarée deklarierte Type Tipología declarada		UVNR-UVU *NRVU-UVU*	UVNR-UVU *NRVU-UVU*	UVNR-UVU *NRVU-UVU*	UVNR-UVU *NRVU-UVU*
Tipo di azionamento installato o prescritto Type of drive installed or intended to be installed Type de contrôle de vitesse installé ou prescrit Antriebstyp installiert oder vorgeschrieben Tipo de unidad instalada o de proyecto		Multivelocità / Multispeed / Multi-vitesses / Mehrfache Geschwindigkeit / Multivelocidad			
Tipologia sistema di recupero HRS Type of HRS Systèmes de récupération HRS Art des Wärmerückgewinnungssystems Tipología de sistema de recuperación HRS		Assente - *Absent*			
Efficienza termica del sistema Thermal efficiency of heat recovery Efficacité thermique du système Wirkungsgrad der Wärmerückgewinnung Eficiencia térmica del sistema	%	Non disponibile / Unavailable / Non disponible / Nicht verfügbar / No disponible			
Portata aria nominale UVNR-UVU Nominal flow rate NRVU-UVU Débit d'air nominal NRVU-UVU Nennluftstrom NRVU-UVU Caudal de aire nominal NRVU-UVU	m^3/s	0,381	0,629	0,780	0,890
Potenza elettrica assorbita effettiva Effective electric power input Puissance électrique nominale absorbée Effektive elektrische Leistungsaufnahme Consumo efectivo de energía eléctrica	kW	0,280	0,538	0,857	0,724
Potenza specifica interna dei componenti della ventilazione (SFPint) Internal specific fan power of ventilation components (SFPint) Puissance spécifique des composants internes de ventilation (SFPint) Interne spezifische Leistung von Lüftungskomponenten (SFPint) Potencia interna específica de los componentes de ventilación (SFPint)	$W/(m^3/s)$	229	221	197	134
Velocità frontale alla portata nominale Air speed at the air flow rate Vitesse frontale au débit nominal Luftgeschwindigkeit bei gewähltem Luftstrom Velocidad del aire en contraposición al caudal nominal del aire	m/s	7,7	8,0	8,1	6,6
Pressione esterna nominale (Δps, ext) Nominal external pressure (Dps, ext) Pression nominale externe (Δps, ext) Nennaußendruck (Δps, ext) Presión externa nominal (Δps, ext)	Pa	202	298	371	285
Perdita di pressione dei componenti interni della ventilazione (Δps,int) Internal pressure drop of ventilation components (Dps, int) Perte de pression des composants internes de la ventilation (Δps,int) Druckverlust der internen Lüftungskomponenten (Δps, int) Pérdida de carga de los componentes internos de la ventilación (Δps, int)	Pa	64	70	67	47
Efficienza statica dei ventilatori secondo (UE) n.327/2011 Static efficency of fans according to (UE) n.327/2011 Efficacité statique des ventilateurs selon (EU) n.327 / 2011 Statischer Wirkungsgrad von Lüftern gemäß (EU) Nr. 327/2011 Eficiencia estática de los ventiladores según (UE) n. 327/2011	%	34,2	36,1	37,2	36,8
Massimo trafilamento esterno dell'involucro Declared maximum external leakage rates of the casing of ventilation units Fuite externe maximale du boîtier Maximale externe Leckage des Gehäuses Fuga externa máxima del envolvente	%	≤ 3%	≤ 3%	≤ 3%	≤ 3%
Prestazione energetica o classificazione energetica dei filtri Energy performance or energy rating of the filters Performance énergétique ou classification énergétique des filtre Energieeffizienz oder Energieklassifizierung der Filter Rendimiento energético o clasificación energética de filtros		Assente - *Absent*			
Descrizione del segnale visivo dei filtri Description of the visual signal of the filters Description du signal visuel des filtres Beschreibung des visuellen Signals der Filter Descripción de la señal visual de los filtros		Assente - *Absent*			
Livello di potenza sonora irradiato dall'involucro Sound power level (LWA) Niveaux de puissance acoustique rayonné Schallleistungspegel, der vom Gehäuse abgestrahlt wird Nivel de potencia acústica transmitida por el envolvente	dB(A)	67	57	61	74
Tipologia di ventilatore Fan typology Type de ventilateur Ventilatortyp Tipología de ventilador	-	7/7	9/9	10/10	12/12
Numero velocità Speed number Numéro de vitesse Nummer der Geschwindigkeitsstufe Número de velocidad	n.	3	3	3	3
Classe motore Motor class Classe de moteur Motorklasse Clase de motor	-	F	F	F	F
Grado protezione motore Motor protection grade Degré de protection du moteur Motorschutzklasse Grado de protección del motor	IP	IP20	IP20	IP20	IP20
Potenza nominale resa Nominal power Puissance nominale Nennleistung Potencia nominal	W	145	370	550	735

Performance technical data

		02	05	07	08
Numero poli motore Number of motor poles Nombre de pôles moteur Motorpolzahl Número de polos de ventilador	n.	4	4	4	6
Potenza massima assorbita Maximum absorbed power Max. Puissance absorbée maximale Leistungsaufnahme Potencia máxima absorbida	W	460	900	1520	1780
Corrente massima assorbita Maximum absorbed current Courant maximum absorbé maximale Stromaufnahme Corriente máxima absorbida	A	2,10	4,00	7,14	8,47
Temperatura minima aria di utilizzo Minimum air operating temperature Température mini de l'air Mindestlufttemperatur Temperatura mínima del aire de uso	°C	-10	-10	-10	-10
Temperatura massima aria di utilizzo Maximum air operating temperature Température max de l'air Maximale Betriebslufttemperatur Temperatura máxima del aire de funcionamiento	°C	40	40	40	40
Numero di giri massimo al minuto Maximum R.P.M. nombre maximum de tours par minute maximale Umdrehungen pro Minute Número máximo de revoluciones por minuto	1/min	1080	755	710	550
Alimentazione elettrica Power supply Alimentation électrique Stromversorgung Fuente de alimentación		230V/1ph/50-60Hz			

Pressione statica disponibile - Static pressure available Pression statique disponibles - Verfügbarer statischer Druck - Presion estatica disponible			02	05	07	08
Massima velocità Maximum speed Vitesse maximale Höchstgeschwindigkeit Velocidad máxima	20 Pa	m^3/h	1862	2850	/	/
	40 Pa	m^3/h	1840	2865	/	/
	60 Pa	m^3/h	1803	2880	/	5307
	80 Pa	m^3/h	1763	2882	/	5296
	100 Pa	m^3/h	1716	2875	/	5276
	120 Pa	m^3/h	1666	2868	/	5256
	140 Pa	m^3/h	1615	2841	3564	5192
	160 Pa	m^3/h	1553	2783	3551	5080
	200 Pa	m^3/h	1398	2667	3474	4841
	250 Pa	m^3/h	1163	2445	3356	4212
	300 Pa	m^3/h	/	2149	3209	/
Media velocità Medium speed Vitesse moyenne Mittlere Geschwindigkeit Velocidad media	20 Pa	m^3/h	1488	1988	/	/
	40 Pa	m^3/h	1490	2013	/	/
	60 Pa	m^3/h	1493	2037	2742	4247
	80 Pa	m^3/h	1476	2037	2743	4299
	100 Pa	m^3/h	1437	2022	2743	4305
	120 Pa	m^3/h	1399	2008	2742	4310
	140 Pa	m^3/h	1361	1970	2740	4315
	160 Pa	m^3/h	1308	1907	2733	4321
	200 Pa	m^3/h	1175	1780	2718	4118
	250 Pa	m^3/h	/	1596	2598	3690
	300 Pa	m^3/h	/	/	2416	/
Minima velocità Minimum speed Vitesse minimale Mindestgeschwindigkeit Velocidad mínima	20 Pa	m^3/h	1123	1540	/	/
	40 Pa	m^3/h	1134	1541	/	/
	60 Pa	m^3/h	1145	1537	2232	3460
	80 Pa	m^3/h	1142	1518	2233	3507
	100 Pa	m^3/h	1134	1498	2226	3520
	120 Pa	m^3/h	1126	1472	2218	3534
	140 Pa	m^3/h	1096	1424	2211	3547
	160 Pa	m^3/h	1048	1375	2179	3561
	200 Pa	m^3/h	/	1270	2062	3521
	250 Pa	m^3/h	/	/	1912	2917
	300 Pa	m^3/h	/	/	1752	1807

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