



PRODUCT RANGE **2019**

The image is a conceptual composition. In the upper half, a translucent, crumpled plastic bag floats as if caught in a breeze. Below it, a large, energetic splash of water erupts from the bottom, with multiple streams and droplets captured in mid-air. The water is rendered in various shades of blue and white, emphasizing its movement. The background is a soft, light blue gradient. The text 'Sabiana, il clima amico.' is centered in the lower half, overlaid on the water splash.

Sabiana, il clima amico.



PRODUCT RANGE
2019

Index

Radiant panels

Duck Strip 4.1 Radiant panels	18
Pulsar Radiant Panel	34

Unit heaters

Atlas Unit Heater	44
Atlas ECM Unit Heater with EC Brushless Electronic Motor and Inverter Board	52
Helios Unit Heater	60
Jetstream Induction Flow Optimizer	70
Aix Stainless Steel Unit Heater	74
Atlas STP Door Curtain Unit	78
No-Strat Anti-stratification and Heat Economiser Unit	82
Comfort Circular Unit Heater	86
Polaris Air Conditioner	92
Janus Air Conditioner	96
Elegant ECM Ceiling Air Conditioner	104
Meltemi Door Curtain	112

Fan coils

Carisma CRC Fan coil unit with centrifugal fan with asynchronous motor	128
Carisma CRC-ECM Fan Coil Unit with Centrifugal Fan with EC Brushless Electronic Motor and Inverter Board	140
Carisma CRT-ECM Fan Coil Unit with Tangential Fan with EC Brushless Electronic Motor and Inverter Board	148
Carisma CRR-ECM Residential Fan Coil Unit with Electronic Motor and Inverter Board	154
Carisma CFR Fan Coil Unit with Tangential Fan with Asynchronous Motor	162
Carisma CFR-ECM Fan Coil Unit with Tangential Fan with EC Brushless Electronic Motor	166
Carisma CRC-MVI Fan Coil Unit with Centrifugal Fan with Asynchronous Motor	170
Carisma CRSL High Pressure Fan Coil Unit with Asynchronous Motor	174
Carisma CRSL-ECM High Pressure Fan Coil Unit with EC Brushless Electronic Motor and Inverter Board	182
PMC Multizone Plenum Air distribution system for Carisma CRSL and CRSL-ECM	188
Maestro MTL High Pressure Fan Coil Unit with Asynchronous Motor	192
Maestro MTL-ECM High Pressure Fan Coil Unit with EC Brushless Electronic Motor and Inverter Board	198
Crystall Flex System Electronic Filter	204
Carisma Floor CFP-ECM Trench Convactor Unit	210
Carisma Floor CRP-ECM Trench Convactor	230
SkyStar SK Cassette fan coil unit with asynchronous motor	242
SkyStar SK-ECM Cassette Fan Coil Unit with EC Brushless Electronic Motor and Inverter Board	254
SkyStar Jumbo ECM Fan Coil Unit Cassette with electronic motor and inverter board	264
Carisma Coanda One Way Cassette Fan Coil Unit with Asynchronous Motor	272
Carisma Coanda-ECM One Way Cassette Fan Coil Unit with EC Brushless Electronic Motor and Inverter Board	280
Carisma Fly High Wall Fan Coil Unit	286
Carisma Fly-ECM High Wall Fan Coil Unit with EC Brushless Electronic Motor and Inverter Board	292
Controls for Fan Coils Units	298
Accessories for Carisma range	308

Recovery units

Energy Plus Recovery Unit	320
Energy Smart Recovery Unit	332

Air handling units

Ocean Modular Ducted Unit	352
Zeus Air Handling Unit	372
Titan Air Handling Unit	378
Crystall Duct System Electronic Filter	384
Air Handling Units with Crystall Electrostatic Filters	390

Flues

InoxSabiana 25 Stainless Steel Double Wall Flues	400
InoxSabiana 50 Stainless Steel Double Wall Flues	404
InoxMono Sabiana Stainless Steel Single Wall Flues	408

Heat pumps

Energy Genius Reversible air/water Heat Pump	414
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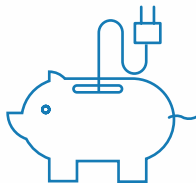
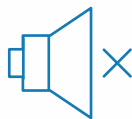
Electric units

Electra 90 / ElectraMatic Electric Unit Heater	422
FSE Electric Fan Convectors	426

Water inspires us.

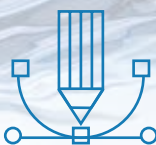


Sabiana is an Italian company that has been specialised in the production and sale of heating and air conditioning products and systems for over 80 years. Sabiana products do not use chemical fluids, but only **water**. A natural element with zero environmental impact, extremely efficient in ensuring a high level of comfort in any environment simply through its heating/cooling and its heat exchange with air.



Sabiana's Research & Development department has always paid great attention to three important aspects: **the level of noise emissions, air quality** and **energy consumption** of its products, with three important firsts:

- 1973 - the first Italian company to introduce radiant ceiling panels in industrial environments, providing heating without any noise.
- 1993 - the first Italian company to apply a patented electronic filter to a wide range of air conditioners.
- 2009 - the first company in the world to use hydronic cassette fan coils with low power consumption electronic motors.



All Sabiana products are also characterised by a sophisticated **design** and a wide range of finishes, which by **combining aesthetics and functionality** make them suitable for any architectural context.



Over 50% of turnover is in **foreign markets**, especially in Europe, North and South America and the Middle East, with over 50 exclusive distributors. In Italy, Sabiana can count on **a network of 44 sales agencies** available to the customer for advice and after-sales support.

History

1929

Sabiana was **founded in 1929** by Franco Binaghi, who is Lombard and addicted to mechanics and Benvenuto Anatrella, an enterprising Tuscan with great entrepreneurial skills. Their partnership, which started with a handshake and immediate mutual understanding, is still honoured with the same enthusiasm by the heirs of the two historic founders. In over 80 years of passion and research, Sabiana pursues its original mission by producing and marketing high quality products, to ensure the best comfort levels in all living and work environments.



Sabiana headquarter in the '40s

The production department in the '60s



1935

In 1935 Sabiana develops and launches **its first electrical unit heater**, inaugurating the production of hot water unit heaters just a few months after the end of the Second World War. These prototypes will lead to the development of the unit heaters that, in 7 different types, still ensure air conditioning in thousands of buildings all over the world.



70s

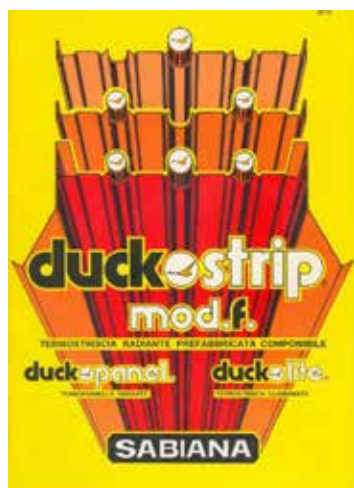
In the early 70s, during the first major global energy crisis, Sabiana proposes **an innovative heating solution with radiant panels** installed at a height of 12 metres for the Alfa Romeo factory in Arese. Although not yet in production, Sabiana accepts the order, delivering and installing the first 10 km of radiant panels. The test is a success. In the following years, it will supply Alfa Romeo with another 20 km of radiant panels, and the product, now permanently in production, will be used in over 30,000 installations, including industrial warehouses, shopping centres, sports and recreational facilities, zootechnical facilities, etc., which are proof of the solution's quality, adopted even in the vast Airbus factory in Toulouse.

Towards the end of the 70s, air conditioning is increasingly required in offices and commercial spaces. The heat convector, designed and sold mainly for domestic use, is gradually replaced by what would later become one of the most popular air conditioning systems and the most important product of the Sabiana range: **the fan coil**.

These are the golden years of Italian Design, in which the iconic names of industrial design become established worldwide. Sabiana begins a successful collaboration with one of these leading industrial designers, **Lorenzo Bonfanti, the winner of the Compasso d'Oro**, leading to the development of the Helios air unit heater, which is still a symbol of how an elegant and timeless product can be designed and marketed, even though it is intended for industrial environments.

Thanks to the innovative design of the **Futura fan coil**, Sabiana becomes popular not only with the most important designers, but also draws the attention of many architects, traditionally very critical regarding any air conditioning units, usually characterised by a strong visual impact and ungraceful aesthetics.

Thanks to the high standards of reliability, low noise and design of its products, Sabiana gains a prominent position in the increasingly competitive air conditioning market, among large multinational companies.



1995

In 1995 Luigi Bontempi designs and patents **the revolutionary Crystal**, an electrostatic filter, which can be installed on all fan coils produced by the company. An innovative solution, which significantly improves the air quality in work environments, capturing numerous pollutants from the air such as smoke, dusts, fibres or microbiological substances such as bacteria or fungi. The filter will then be applied to other products, also thanks to widespread dissemination and training activities implemented by Sabiana, organising several technical meetings dedicated to indoor air quality (IAQ).

The 90s are marked by two other important strategic decisions for the company: **the beginning of an own production of stainless steel flues, the expansion of the range of water-operated air conditioning products**, along with a complete series of very versatile and high quality air handling units, produced either in series or according to specific customer needs and able to meet the ever-increasing demands for indoor comfort.



2004

At the Mostra-Convegno Expo Comfort in Milan, Sabiana presents the **SkyStar Cassette fan coil unit**, the result of great technical and stylistic research aimed at offering cutting-edge products in terms of performance, low noise and control flexibility.

The air intake and diffuser grille is **highly stylish** and is capable of ensuring **excellent performance**, thanks to a meticulous design and extensive laboratory tests. It is the definitive statement of Sabiana in the fan coil industry and places the company at the top of European production, increasing its export share by 45% in 2010.



2009 Sabiana is the first company on the market to introduce **cassette fan coil units with inverter-controlled, permanent magnet, sensorless and brushless synchronous electronic motors.**

The power consumption decreases by over 50% and, thanks to the continuous variation of the air flow rate, it increases the precision of the ambient temperature control, while reducing the perceived average noise level. This revolutionary technology has an immediate market success, and generates 10% of the company's total sales in just two years.

2010 At the Mostra-Convegno Expo Comfort in Milan, Sabiana presents the new **Carisma fan coil unit**, featuring a beautiful design, which reinterprets the iconic Futura style, a product that represents the new generation. Carisma, which ensures high performance in relation to power consumption and noise levels - among the lowest on the market - is produced in **the new factory in Magenta (MI)**, a very modern structure of over 9,000 m2, entirely dedicated to fan coils.



2011 **All Sabiana fan coils are also offered with inverter-controlled electronic motors**, the only ones capable of meeting the class A requirements, which were just introduced voluntarily by Eurovent, the main European performance certification company.

2012 **The production of the new Carisma Fly high wall fan** coil starts. Designed with simple and essential lines, it is entirely manufactured in the Sabiana factories and it comes in a wide range of versions, including several featuring low energy consumption.



2014 On 1 July 2014 Sabiana became a member of the **AFG Group, Arbonia-Forster-Holding AG**, an international group and technological leader in the production of construction materials. In this way, **the company is ready to become a major player in the global market.**

2015 At the beginning of 2015, the new range of **Meltemi door curtains** is developed by Sabiana. Thanks to the performance, that is in compliance with the European regulation No. 327/2011 - ERP 2015 and to a versatile and contemporary design, Meltemi is launched as a top-of-the-range product for the protection of entrances of industrial and commercial environments, as well as sports and recreational facilities, such as shops, supermarkets or cinemas.



2016 In the second half of 2016, Sabiana presents a new air handling product: the **Energy Plus recovery unit**. Such ducted units, equipped with continuous modulation motors with low energy consumption, ensure recovery up to 94%, placing Sabiana among the leading companies in the sector. All units are immediately ERP 2018-certified, in compliance with the European Ecodesign Directive (EU Regulation 1253/14).



Following new acquisitions and a position increasingly focused on the construction industry, AFG becomes **Arbonia Group**. The new international group, also thanks to the contribution of Sabiana, soon confirms its leadership among manufacturers of construction components.

A company of Arbonia Group
ARBONIA ▲



2017

In order to maintain and further improve its position in an increasingly demanding and competitive market, Sabiana undergoes **a major corporate renewal process**, investing in training and acquiring new skills and new professionals.

The new offices built at the Corbetta (MI) headquarters are dedicated to the enhanced Customer Care department.

Two years of research and development, in collaboration with German and Swiss colleagues, lead to the new creation of the new **Energy Smart residential recovery unit**. Entirely designed and built at the Sabiana factories, the new product is presented at the ISH trade fair in Frankfurt, right now successfully.

The performance and ease of installation of Energy Smart place it in the high end of the market, while maintaining a particularly competitive price thanks to its compact size, that is the result of careful design.

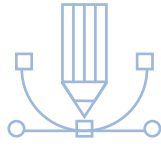
The extensive Energy Smart range comes in vertical and horizontal versions, available both in class A+ and in class A. All units comply with the strict 2018 efficiency limits imposed by regulation 1253/14.



Sabiana today

Today Sabiana is an Italian company that directly employs over **200 people**, with **three factories** near Milan for an overall 50,000 m² of surface area and **turnover of roughly 99 Million Euros** (2018), over 50% of which is in foreign markets. In the last 5 years, on average, 6% of turnover was directed towards investments in new production technologies and in research and development. 85% of the electricity consumed is produced by three photovoltaic systems for an overall 1.36 Megawatts, perfectly integrated in the architectural structure of the buildings.





3D design and **testing and inspection laboratories**, besides allowing for the creation of reliable products that are long-lasting, also ensure the constant development of new products and upgrading of existing ones, to bring them up to date with the continuously evolving reference standards, quality of comfort and the lower energy consumption required for the buildings.





Airbus A380



Sheraton



Intesa San Paolo



Ikea

Large manufacturing companies (Airbus), large hotel chains (Sheraton), large banks (Intesa San Paolo) and large distribution chains (Ikea), to name only a few, which have always been accustomed to a careful choice of every component within the air conditioning system, have chosen to rely on the solutions offered by Sabiana.



Sabiana company is ISO 9001-certified since 1996 with all products in compliance with European standards and directives and, where existing, with quality and control certifications for declared performance. Sabiana is moreover faithful to the deep-rooted promise of its two founders: *"We will always be with you, people whose job is to project,, distribute or install our products, to help you professionally and in such a way that you can take priceless satisfaction in having done a good work".*



Certificato n. 16.05.03

Air handling units

Certificato n. 96.01.182

Fan coils



Certificato n. 0051 - CPR - 0004

Inox25 flues

Certificato n. 0051 - CPR - 0009

Inox50 flues

Certificato n. 0051 - CPR - 0062

InoxMono flues



Certificato n. 0545

Activity code EA 18

Design, manufacturing and servicing of heating and air-conditioning equipment (unit heaters, radiant panels, fan coils and air handling units) and flues.

Main product lines

The wide range of Sabiana products allows specialised designers to find the most suitable solution for their system, relying on the experience and products of a leading European company.



Radiant panels



Unit heaters



Fan coils



Filters



**Recovery units
Door curtains**



Air handling units



Flues



Heat pumps



Electric units

Main product lines



Since 1973, **over 30,000 installations of Sabiana radiant ceiling panels** are proof of the quality of this system, which ensures fully silent heating and cooling, with no air movement, with a uniform temperature throughout the environment, with no danger of fire and great energy savings. There are two main product lines, one for industrial environments and the other one for the service sector.



Since 1950, Sabiana has been producing hot water and steam **unit heaters** for heating industrial and commercial environments, with proprietary production technology and with a wide range of solutions.



Since 1980, Sabiana has been producing **fan coils** featuring a careful design, very low noise levels and power consumption, paying great attention to energy savings. Every fan coil is available with the latest inverter-driven brushless and sensorless electronic motors. Performance is certified by an independent institution (Eurovent).

Eight product lines are available with a wide range of accessories and controls, among which there is an electrostatic filter and a control system with wireless technology, both patented, for comfortable climate control of the most varied work and living environments. The Sabiana fan coil is today one of the reference products in Europe and is at the top of a particularly competitive market.



Since 1990, Sabiana has been producing **air handling units** with an air flow of 1,000 to 80,000 m³/h, made to measure according to individual customer specifications, using efficient configuration and selection software.

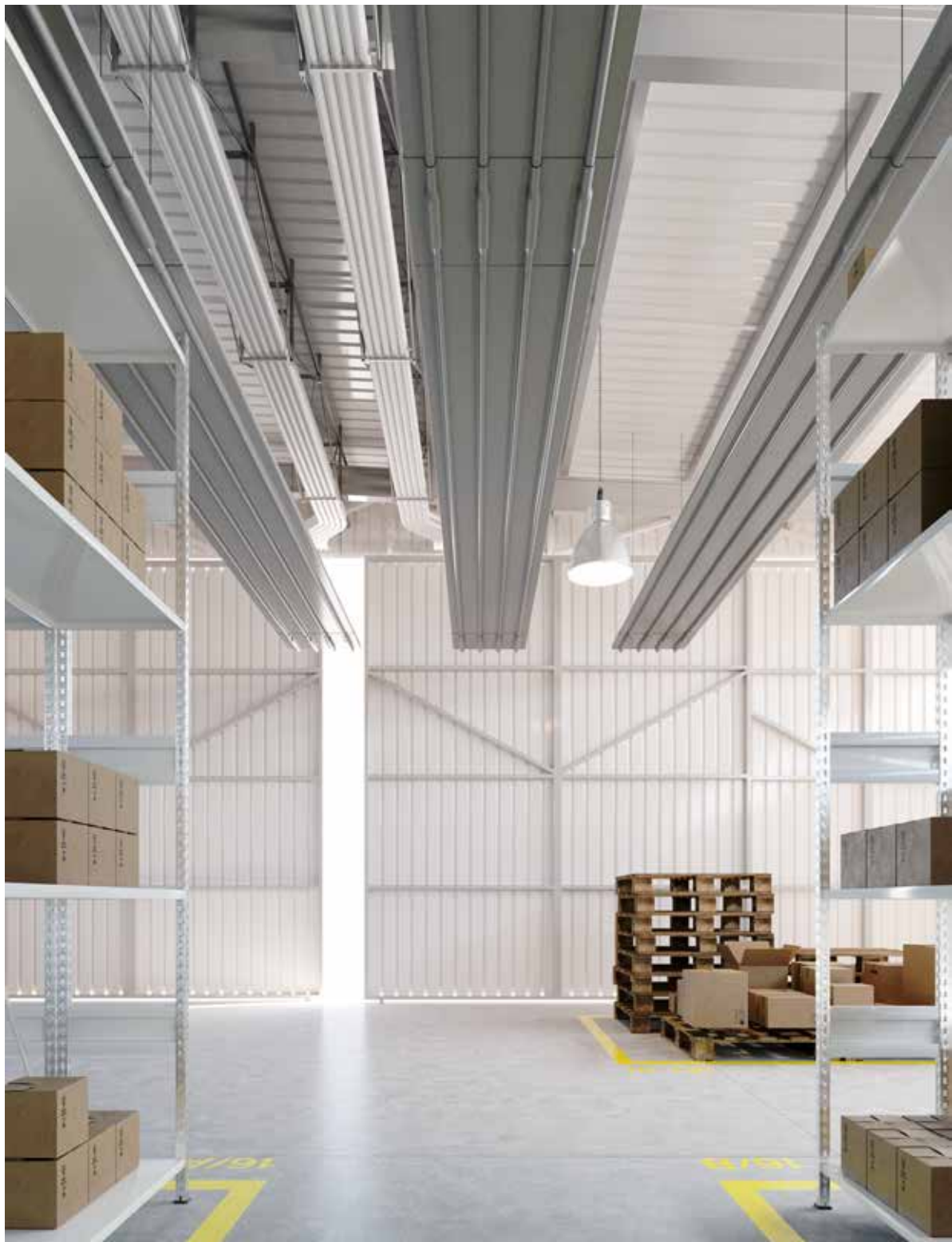
There are three product lines with single and double panels, able to meet the air exchange and air conditioning requirements of the most varied work and living environments, thanks to efficient technical solutions capable of significantly reducing a building's energy consumption (recovery units, inverter-driven motors, electronic filters).



Since 1985, Sabiana has been selling - and since 1997 has been manufacturing - **single and double-wall stainless steel flues** for the evacuation of flue gas from boilers. Along with the steel product lines, there are also the plastic ones, which are suitable for the latest generation of condensing boilers.



Radiant panels





Sabiana has been designing, manufacturing and selling radiant panels since 1971 and it is now the most important European company and the undisputed sector leader. In 2005, the company started to manufacture **Pulsar** radiant panels, conceived and intended to cover the needs of commercial applications.

Since then, over 30,000 installations in all types of environments (small, medium, large industries, shopping centres, airplane hangars, sports and recreational facilities, zoo-technical premises) are testimony to the soundness of the product, with constantly new and highly innovative applications – such as the increasingly popular air conditioning of production facilities in summer – to guarantee the highest levels of comfort throughout the year and unchanged levels of productivity, even during the hot summer months.

Heating by radiation means absolute silence. There is no movement of air, the temperature is the same throughout the entire space and there is no fire hazard. This type of heating saves energy, since it heats people, the walls and the floor directly, while heating the air indirectly, reducing heat stratification to a minimum. This allows for space optimisation, since all the walls and floors remain available to users. They also guarantee efficiency that remains unchanged over time, while the product requires no routine maintenance. Users will have the peace of mind that, year after year, at the start of each season, the product will provide them with unparalleled comfort.

In 2018, Sabiana introduced the new generation of radiant panels, the **Duck Strip 4.1**, which represent the most advanced evolution of hot water radiant ceiling heating systems. The new radiant panels are built in compliance with the European Standard EN 14037 in force and are manufactured according to the National Industry 4.0 Plan, with industrial automation that integrates some new production technologies that improve working conditions and increase the productivity and functional quality of the installations – all this with an eye on energy consumption, creating more efficient systems and reducing any waste of energy according to the typical patterns of **Sustainable energy**.

Duck Strip 4.1

Radiant panels



The new **Sabiana Duck Strip 4.1** radiant panel represents the maximum evolution of hot water radiant ceiling heating systems.

Built in compliance with the European Standard EN 14037 at the Sabiana facilities in Corbetta (MI), **it is manufactured according to the National Industry 4.0 Plan**, with industrial automation that integrates some new production technologies that improve working conditions and increase the productivity and functional quality of the plants; all this with an eye on energy consumption, creating more efficient systems and reducing any waste of energy according to the typical paradigms of Sustainable energy. Since 1971 Sabiana, world leader in the heating and air conditioning industry, has been designing, manufacturing and selling high temperature or hot water radiant panels installed in all types of environments (small, medium and large industry, sport, commercial, recreational and zootechnical facilities, etc.) and designed to ensure the **maximum possible comfort** combined with **high energy consumption savings**.



The high construction standards and the use of high quality raw materials guarantee a product designed to last over the years, without any functional problems and with unchanged thermal efficiency.

These characteristics have led Sabiana Duck Strip radiant panels to being chosen by the most important companies worldwide, those that consider each cost item as a **production investment**.

Sabiana has significantly expanded the range of radiant panel models available with the **introduction of two new versions**; the first one featuring 18 mm diameter pipes (with variable pitches of 75 mm or 100 mm) and the second one featuring 28 mm pipes (with 150 mm pitch), for a total of 18 different types.



Duck Strip 4.1

Series DS-ST18

- **Radiant panel made of** 0.8 mm thick high quality **steel**.
- 18 mm diameter electro-welded steel **pipes** with smooth ends for joining with pressfittings.
- **Pipe/Plate connection** made by spot welding.
- **Pipe pitch** 100 mm (DS-ST18-3) or 75 mm (DS-ST18-4).
- Square section **headers** welded at the factory on the first and final sections.
- Possibility of **raised header**.
- **Angle brackets**.
- **Sheet metal retaining clips** for fastening the fibreglass insulation.
- Shaped and painted **make-up joints** for covering the junction area.
- **Protection** with a special phosphodegreasing process and epoxy-polyester powder coating, dried in a furnace at 180°C – RAL 9016 (white) or RAL 9002 (light grey), in compliance with Directive 76/769/EEC.
- **Fibreglass insulation** available (supplied in bulk rolls) with 30 mm standard thickness, or 40 mm on request:
- **Emission** of the radiant surface $\epsilon = 0,96$.

Serie DS-ST28

- **Radiant panel** made of 1.2 mm thick high quality **steel**.
- 28 mm diameter electro-welded steel **pipes** with smooth ends for joining with pressfittings.
- **Pipe/Plate connection** made by spot welding.
- **Version with special pipe** for high temperature hot water systems (DS-SP).
- **Pipe pitch** 150 mm.
- Square section **headers** welded at the factory on the first and final sections.
- Possibility of **raised header**.
- **Angle brackets**.
- **Sheet metal retaining clips** for fastening the fibreglass insulation.
- Shaped and painted **make-up joints** for covering the junction area.
- **Protection** with a special phosphodegreasing process and epoxy-polyester powder coating, dried in a furnace at 180°C – RAL 9016 (white) or RAL 9002 (light grey), in compliance with Directive 76/769/EEC.
- **Fibreglass insulation** available (supplied in bulk rolls) with 30 mm standard thickness, or 40 mm on request:
- **Emission** of the radiant surface $\epsilon = 0,96$.

Fibreglass insulation available (supplied in bulk rolls) with 30 mm standard thickness, with 25 micron aluminium sheet support.

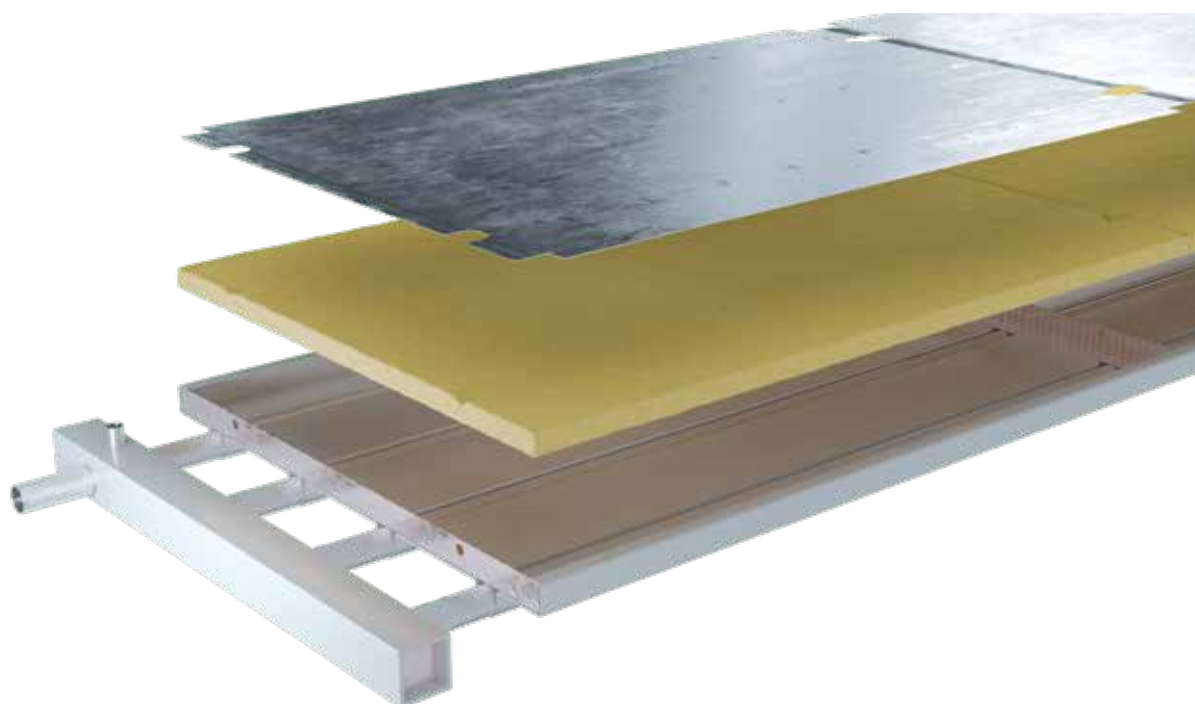
Reaction to fire class

Class: A1 according to Standard EN 13501-1.

Technical characteristics

The totally inorganic nature of the fibreglass ensures a long lasting thermal efficiency, prevention from parasites and rodents, no hygroscopicity and makes be rotproof.

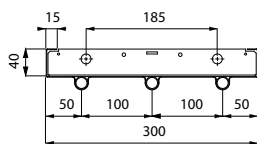
Thickness	30 mm	40 mm
Thermal conductivity in compliance with EN14303	0,036 W/mK	0,034 W/mK
Density	20 kg/m ³	25 kg/m ³
Thermal resistance	0,83 m ² K/W	1,17 m ² K/W



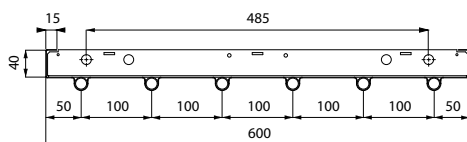
DS-ST18 range

Pipes 18 mm Ø, **100** mm pitch

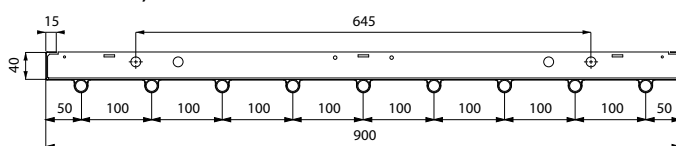
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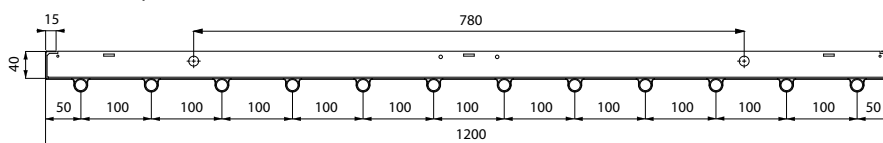
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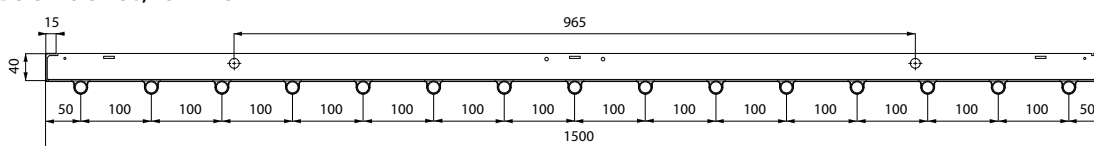
DS-ST18-3-090; 9 PIPES



DS-ST18-3-120; 12 PIPES

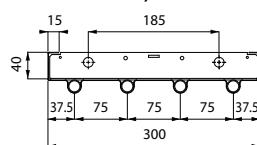


DS-ST18-3-150; 15 PIPES

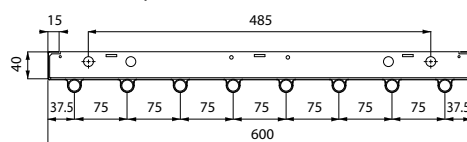


Pipes 18 mm Ø, **75** mm pitch

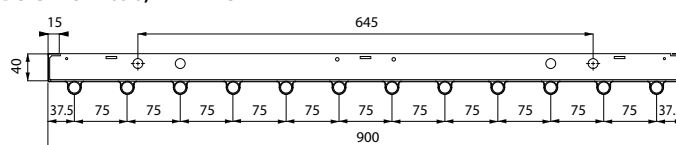
DS-ST18-4-030; 4 PIPES



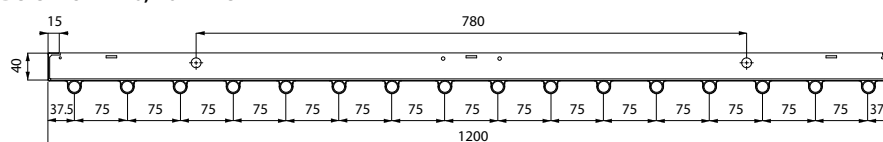
DS-ST18-4-060; 8 PIPES



DS-ST18-4-090; 12 PIPES



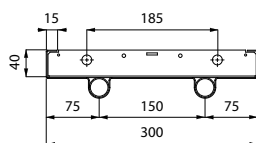
DS-ST18-4-120; 16 PIPES



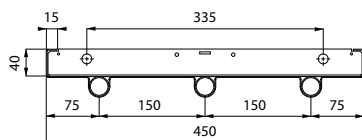
DS-ST28 range

Pipes 28 mm Ø, 150 mm pitch

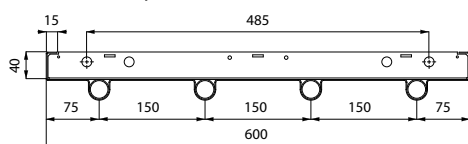
DS-ST28-2-030; 2 PIPES



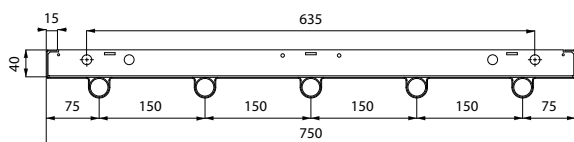
DS-ST28-2-045; 3 PIPES



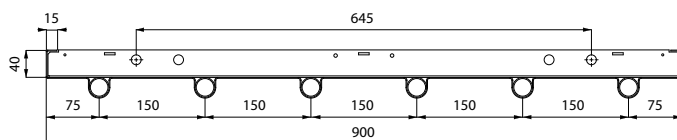
DS-ST28-2-060; 4 PIPES



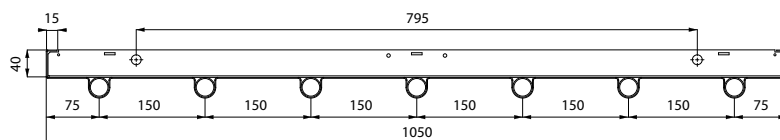
DS-ST28-2-075; 5 PIPES



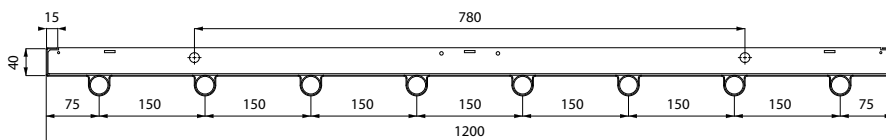
DS-ST28-2-090; 6 PIPES



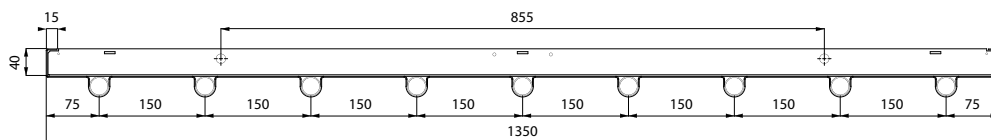
DS-ST28-2-105; 7 PIPES



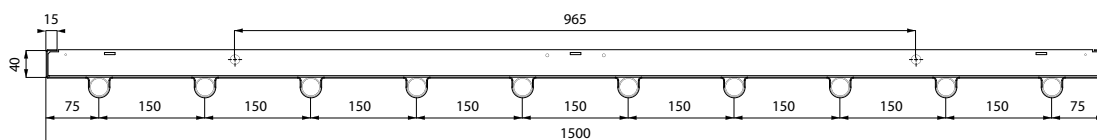
DS-ST28-2-120; 8 PIPES



DS-ST28-2-135; 9 PIPES

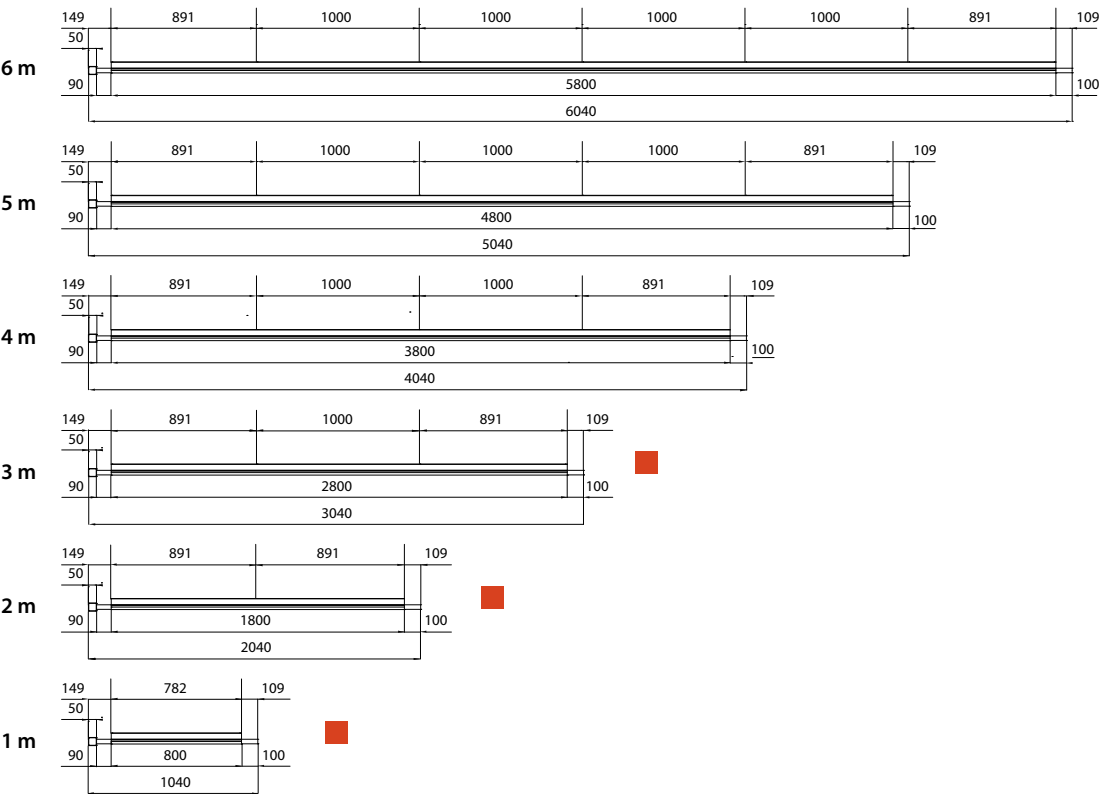


DS-ST28-2-150; 10 PIPES

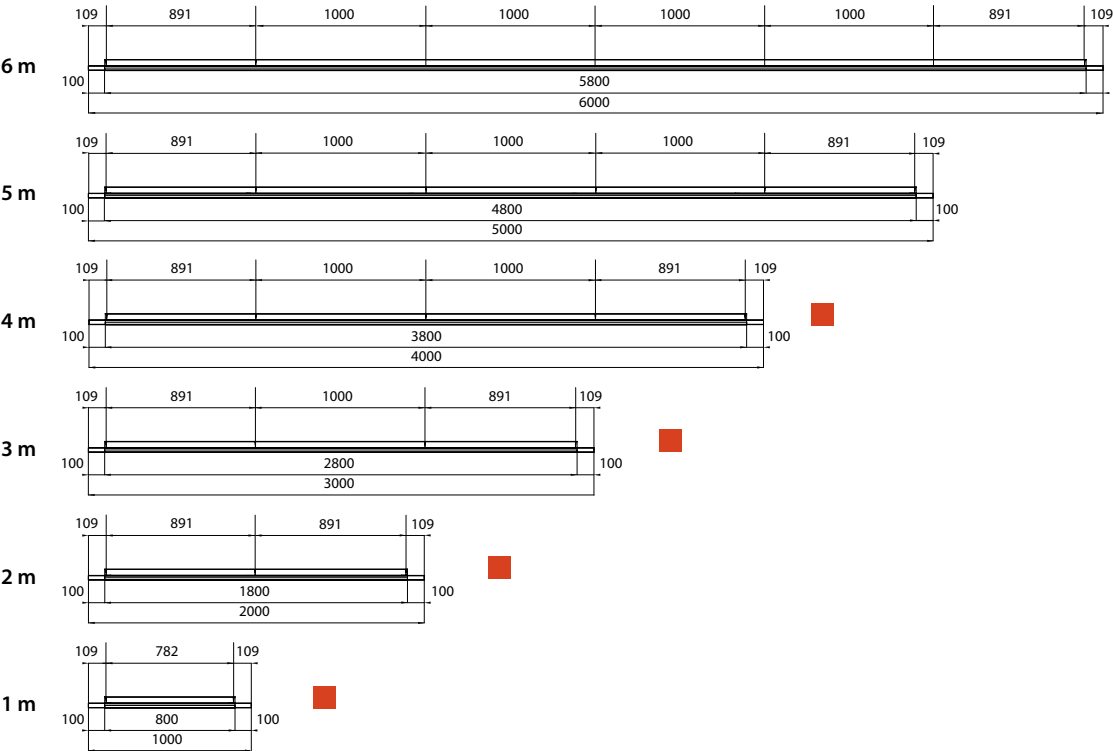


Modular lengths and hanging bracket pitches

Start and final head



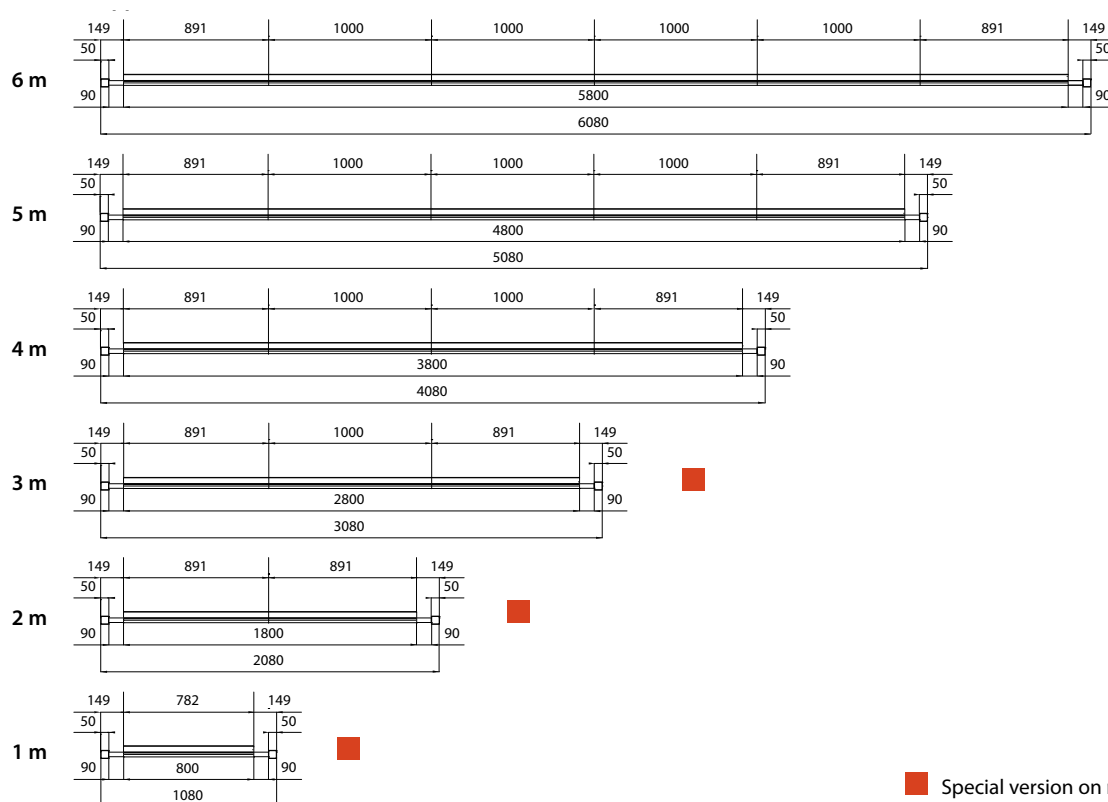
Intermediate



Special version on request

Modular lengths and hanging bracket pitches

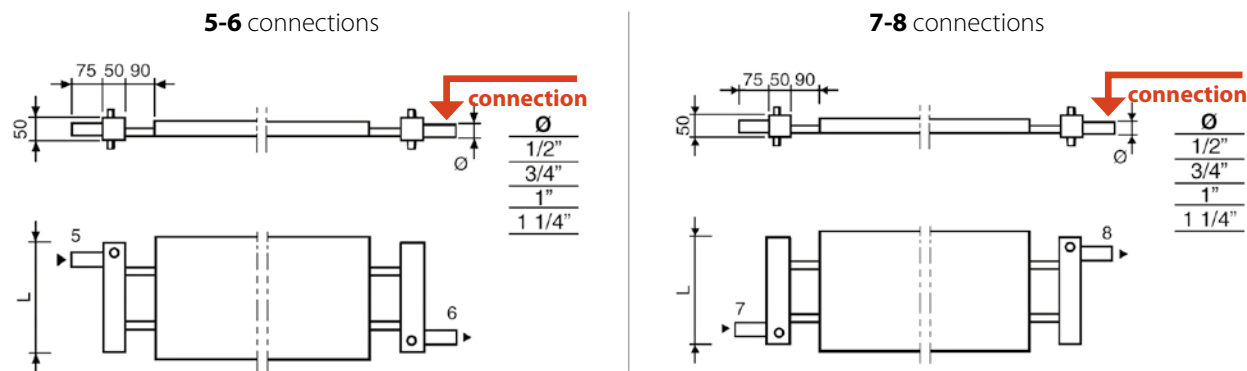
Double heads



Duck Strip 4.1

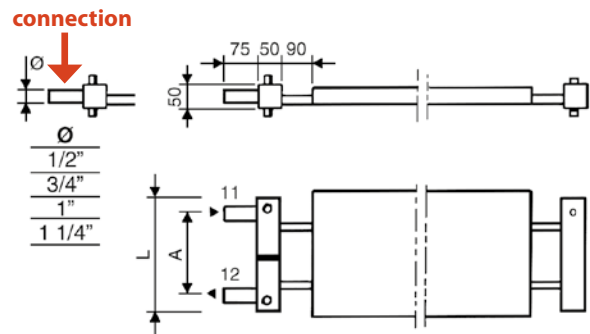
HEADERS AND CONNECTIONS

B Model



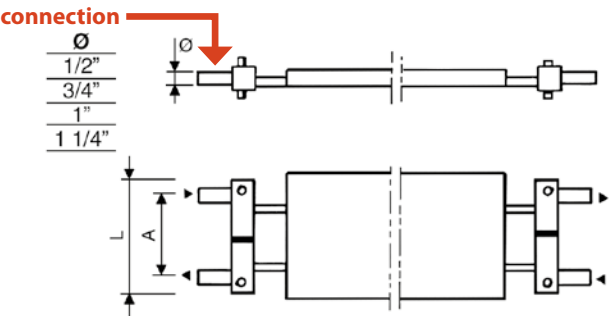
Model	030	045	060	075	090	105	120	135	150
L	300	450	600	750	900	1050	1200	1350	1500

D Model



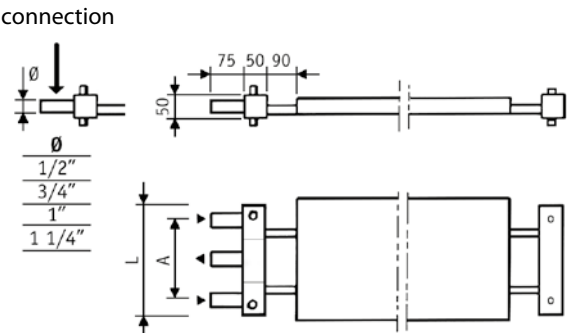
Model	030	045	060	075	090	105	120	135	150
L	300	450	600	750	900	1050	1200	1350	1500
A	200	350	500	650	800	950	1100	1250	1400

D+D Model



D and D+D headers are not suitable for high temperature hot water.
“D” header can be used with hot water up to lines with a maximum length of 50 and using slow and soft opening valves.

G Model



Model	120	135	150
L	1200	1350	1500
A	1100	1250	1400

Model		Radiant panel				Header		
		Weight kg/m		Water content l/m		Weight kg		Water content l
standard	special	standard	special	standard	special	empty	with water	
DS-ST18-3-030	-	4	-	0,57	-	1,00	1,64	0,64
DS-ST18-3-060	-	8	-	1,15	-	2,00	3,33	1,33
DS-ST18-3-090	-	12	-	1,72	-	2,90	4,92	2,02
DS-ST18-3-120	-	16	-	2,29	-	3,80	6,51	2,71
DS-ST18-3-150	-	19	-	2,87	-	4,70	8,10	3,40
DS-ST18-4-030	-	5	-	0,77	-	1,00	1,64	0,64
DS-ST18-4-060	-	9	-	1,53	-	2,00	3,33	1,33
DS-ST18-4-090	-	14	-	2,29	-	2,90	4,92	2,02
DS-ST18-4-120	-	18	-	3,06	-	3,80	6,51	2,71
DS-ST28-2-030	DS-SP28-2-030	6	6,60	0,98	0,91	1,0	1,64	0,64
DS-ST28-2-045	DS-SP28-2-045	9	9,90	1,47	1,36	1,5	2,49	0,99
DS-ST28-2-060	DS-SP28-2-060	11	12,20	1,96	1,81	2,0	3,33	1,33
DS-ST28-2-075	DS-SP28-2-075	14	15,50	2,45	2,26	2,4	4,08	1,68
DS-ST28-2-090	DS-SP28-2-090	16	17,80	2,95	2,71	2,9	4,92	2,02
DS-ST28-2-105	DS-SP28-2-105	19	21,10	3,44	3,17	3,3	5,67	2,37
DS-ST28-2-120	DS-SP28-2-120	22	24,40	3,93	3,62	3,8	6,51	2,71
DS-ST28-2-135	DS-SP28-2-135	24	26,70	4,42	4,07	4,3	7,36	3,06
DS-ST28-2-150	DS-SP28-2-150	27	30,00	4,91	4,52	4,7	8,10	3,40



Duck Strip 4.1 | THERMAL EMISSIONS OF DS-ST18 RADIANT PANELS

Thermal emissions for each meter according to European Standard EN 14037-3

	18-3-030	18-3-060	18-3-090	18-3-120	18-3-150	18-4-030	18-4-060	18-4-090	18-4-120
K	1,933	3,247	4,448	5,731	7,173	2,075	3,354	4,569	5,852
n	1,159	1,157	1,173	1,169	1,164	1,161	1,175	1,182	1,182
Δtm (K)	W/m	W/m	W/m	W/m	W/m	W/m	W/m	W/m	W/m
20	62	104	149	190	234	67	113	158	202
22	70	116	167	213	262	75	127	176	226
24	77	128	185	235	290	83	140	196	250
26	84	141	203	258	318	91	154	215	275
28	92	153	222	282	347	99	168	235	301
30	100	166	240	305	376	108	182	255	326
32	107	179	259	329	405	116	197	275	352
34	115	192	278	354	435	124	211	295	378
36	123	205	298	378	465	133	226	316	404
38	131	218	317	403	495	142	241	337	431
40	139	232	337	428	525	150	256	358	458
42	147	245	357	453	556	159	271	379	485
44	155	259	377	478	587	168	286	400	513
46	163	272	397	503	618	177	302	422	540
48	172	286	417	529	650	186	317	444	568
50	180	300	438	555	681	195	333	466	596
52	188	314	458	581	713	204	348	488	625
54	197	328	479	607	745	213	364	510	653
55	201	335	489	620	761	218	372	521	667
56	205	342	500	634	777	222	380	532	682
58	214	356	521	660	810	231	396	555	711
60	222	371	542	687	842	241	412	578	740
62	231	385	563	714	875	250	428	600	769
64	240	399	585	741	908	259	444	623	798
65	244	406	595	754	925	264	453	635	813
66	248	414	606	768	941	269	461	646	828
68	257	428	628	795	974	278	477	670	858
70	266	443	649	823	1008	288	494	693	888
72	275	458	671	850	1041	297	510	716	918
74	284	472	693	878	1075	307	527	740	948
76	292	487	715	906	1109	317	544	764	978
78	301	502	737	933	1143	326	561	788	1009
80	310	517	759	961	1177	336	578	811	1039
82	319	532	782	990	1212	346	595	836	1070
84	328	547	804	1018	1246	356	612	860	1101
86	338	562	827	1046	1281	366	629	884	1132
88	347	577	849	1075	1315	375	646	908	1163
90	356	592	872	1103	1350	385	663	933	1195
92	365	608	895	1132	1385	395	681	957	1226
94	374	623	918	1161	1420	405	698	982	1258
96	383	638	941	1190	1456	415	716	1007	1289
98	393	654	964	1219	1491	425	733	1031	1321
100	402	669	987	1248	1527	436	751	1056	1353

Δtm (K) = difference between the mean water temperature and the room temperature

K = coefficient related to the heating body
n = exponent related to the heating body

The thermal emissions are calculated according to the following formula: $Q = K (\Delta tm)^n$
 The tests have been carried out by Kermi GmbH laboratory in Plattling, Germany

Thermal emissions for a couple of headers according to European Standard EN 14037-3

	18-3-030	18-3-060	18-3-090	18-3-120	18-3-150
K	0,393	0,779	1,177	1,582	1,962
n	1,216	1,216	1,216	1,216	1,216
Δtm (K)	W	W	W	W	W
20	30	60	90	121	150
22	34	67	101	136	168
24	37	74	112	151	187
26	41	82	124	166	206
28	45	90	135	182	226
30	49	97	147	198	245
32	53	105	159	214	265
34	57	113	171	230	286
36	61	122	184	247	306
38	66	130	196	264	327
40	70	138	209	281	348
42	74	147	222	298	369
44	78	155	235	315	391
46	83	164	248	333	413
48	87	173	261	350	435
50	91	181	274	368	457
52	96	190	287	386	479
54	100	199	301	404	502
55	103	204	308	414	513
56	105	208	314	423	524
58	110	217	328	441	547
60	114	226	342	460	570
62	119	236	356	478	593
64	124	245	370	497	617
65	126	249	377	507	628
66	128	254	384	516	640
68	133	264	398	535	664
70	138	273	413	554	688
72	143	283	427	574	712
74	147	292	441	593	736
76	152	302	456	613	760
78	157	311	471	632	784
80	162	321	485	652	809
82	167	331	500	672	834
84	172	341	515	692	858
86	177	351	530	712	883
88	182	361	545	732	908
90	187	371	560	753	933
92	192	381	575	773	959
94	197	391	590	794	984
96	202	401	606	814	1010
98	207	411	621	835	1035
100	213	421	637	856	1061

	18-4-030	18-4-060	18-4-090	18-4-120
	0,435	0,861	1,305	1,757
	1,235	1,235	1,235	1,235
	W	W	W	W
	35	70	106	142
	40	78	119	160
	44	87	132	178
	49	96	146	196
	53	106	160	215
	58	115	174	234
	63	124	189	254
	68	134	203	274
	73	144	218	294
	78	154	233	314
	83	164	248	334
	88	174	264	355
	93	184	279	376
	98	195	295	397
	104	205	311	419
	109	216	327	441
	114	227	343	462
	120	237	360	485
	123	243	368	496
	125	248	376	507
	131	259	393	529
	137	270	410	552
	142	282	427	575
	148	293	444	598
	151	299	452	609
	154	304	461	621
	159	316	478	644
	165	327	496	668
	171	339	513	691
	177	350	531	715
	183	362	549	739
	189	374	567	763
	195	386	585	787
	201	398	603	812
	207	410	621	836
	213	422	639	861
	219	434	658	886
	225	446	676	911
	232	458	695	936
	238	471	714	961
	244	483	732	986
	250	496	751	1012
	257	508	770	1037

Δtm (K) = difference between the mean water temperature and the room temperature

K = coefficient related to the heating body

n = exponent related to the heating body

The thermal emissions are calculated according to the following fomula: $Q = K (\Delta tm)^n$
The tests have been carried out by Kermi GmbH laboratory in Plattling, Germany

Duck Strip 4.1 | THERMAL EMISSIONS OF DS-ST28 RADIANT PANELS

Thermal emissions for each meter according to European Standard EN 14037-3

	28-2-030	28-2-045	28-2-060	28-2-075	28-2-090	28-2-105	28-2-120	28-2-135	28-2-150
K	1,794	2,514	3,090	3,938	4,750	5,137	5,838	6,472	7,075
n	1,165	1,156	1,165	1,162	1,155	1,169	1,17	1,17	1,17
Δtm (K)	W/m	W/m	W/m	W/m	W/m	W/m	W/m	W/m	W/m
20	59	80	101	128	151	170	194	215	235
22	66	90	113	143	169	191	217	241	263
24	73	99	125	158	187	211	240	267	291
26	80	109	138	174	205	232	264	293	320
28	87	118	150	189	223	253	288	319	349
30	94	128	162	205	241	274	312	346	378
32	102	138	175	221	260	295	337	373	408
34	109	148	188	237	279	317	361	401	438
36	117	158	201	253	298	339	386	428	468
38	124	168	214	270	317	361	412	456	499
40	132	179	227	286	337	383	437	485	530
42	140	189	240	303	356	406	463	513	561
44	147	200	254	320	376	428	489	542	592
46	155	210	267	337	396	451	515	571	624
48	163	221	281	354	415	474	541	600	656
50	171	231	295	371	436	498	568	629	688
52	179	242	308	388	456	521	594	659	720
54	187	253	322	406	476	544	621	689	753
55	191	258	329	415	486	556	635	703	769
56	195	264	336	423	496	568	648	718	785
58	203	275	350	441	517	592	675	749	818
60	212	286	364	459	538	616	703	779	851
62	220	297	379	476	558	640	730	809	885
64	228	308	393	494	579	664	758	840	918
65	232	313	400	503	590	676	772	855	935
66	236	319	407	512	600	688	785	871	952
68	245	330	422	530	621	713	813	902	986
70	253	341	436	549	642	737	841	933	1020
72	262	353	451	567	664	762	870	964	1054
74	270	364	465	585	685	787	898	995	1088
76	279	375	480	604	706	812	926	1027	1123
78	287	387	495	622	728	837	955	1059	1157
80	296	398	509	641	749	862	984	1091	1192
82	304	410	524	659	771	887	1013	1123	1227
84	313	422	539	678	793	912	1042	1155	1262
86	322	433	554	697	815	938	1071	1187	1297
88	330	445	569	716	837	963	1100	1219	1333
90	339	457	584	735	859	989	1129	1252	1368
92	348	468	599	754	881	1015	1158	1284	1404
94	357	480	615	773	903	1041	1188	1317	1440
96	366	492	630	792	925	1067	1218	1350	1476
98	375	504	645	811	947	1093	1247	1383	1512
100	384	516	661	830	970	1119	1277	1416	1548

Δtm (K) = difference between the mean water temperature and the room temperature

K = coefficient related to the heating body
n = exponent related to the heating body

The thermal emissions are calculated according to the following formula: $Q = K (\Delta tm)^n$
 The tests have been carried out by Kermi GmbH laboratory in Plattling, Germany

Thermal emissions of a couple of headers according to European Standard EN 14037-3

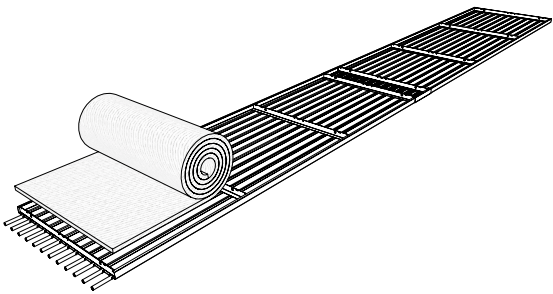
	28-2-030	28-2-045	28-2-060	28-2-075	28-2-090	28-2-105	28-2-120	28-2-135	28-2-150
K	0,377	0,567	0,747	0,944	1,132	1,320	1,526	1,698	1,887
n	1,257	1,257	1,257	1,257	1,257	1,257	1,257	1,257	1,257
Δtm (K)	W	W	W	W	W	W	W	W	W
20	33	49	65	82	98	114	132	147	163
22	37	55	73	92	110	129	149	165	184
24	41	62	81	103	123	143	166	184	205
26	45	68	90	113	136	159	183	204	227
28	50	75	98	124	149	174	201	224	249
30	54	82	107	136	163	190	219	244	271
32	59	88	116	147	177	206	238	265	294
34	63	95	126	159	191	222	257	286	318
36	68	103	135	171	205	239	276	307	341
38	73	110	145	183	219	256	295	329	365
40	78	117	154	195	234	273	315	351	390
42	83	124	164	207	248	290	335	373	414
44	88	132	174	220	263	307	355	395	439
46	93	140	184	232	279	325	376	418	464
48	98	147	194	245	294	343	396	441	490
50	103	155	204	258	309	361	417	464	516
52	108	163	214	271	325	379	438	488	542
54	113	171	225	284	341	397	459	511	568
55	116	175	230	291	349	407	470	523	581
56	119	179	235	297	357	416	481	535	595
58	124	187	246	311	373	435	503	559	621
60	130	195	257	324	389	454	524	584	649
62	135	203	268	338	405	473	547	608	676
64	141	211	278	352	422	492	569	633	703
65	143	215	284	359	430	502	580	645	717
66	146	220	289	366	439	511	591	658	731
68	152	228	300	380	455	531	614	683	759
70	157	237	312	394	472	551	637	708	787
72	163	245	323	408	489	571	660	734	816
74	169	254	334	422	506	591	683	760	844
76	174	262	346	437	524	611	706	786	873
78	180	271	357	451	541	631	729	812	902
80	186	280	369	466	559	651	753	838	931
82	192	289	380	480	576	672	777	864	960
84	198	297	392	495	594	693	801	891	990
86	204	306	404	510	612	713	825	918	1020
88	210	315	415	525	630	734	849	944	1050
90	216	324	427	540	648	755	873	972	1080
92	222	333	439	555	666	776	898	999	1110
94	228	343	451	570	684	798	922	1026	1140
96	234	352	464	586	702	819	947	1054	1171
98	240	361	476	601	721	841	972	1081	1202
100	246	370	488	617	739	862	997	1109	1233

Δtm (K) = difference between the mean water temperature and the room temperature

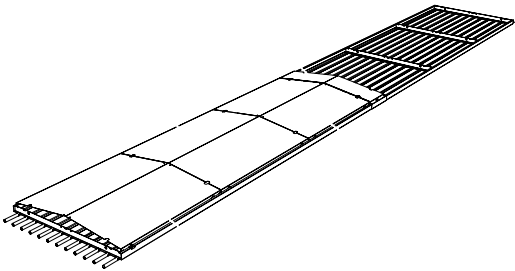
K = coefficient related to the heating body
n = exponent related to the heating body

The thermal emissions are calculated according to the following fomula: $Q = K (\Delta tm)^n$
 The tests have been carried out by Kermi GmbH laboratory in Plattling, Germany

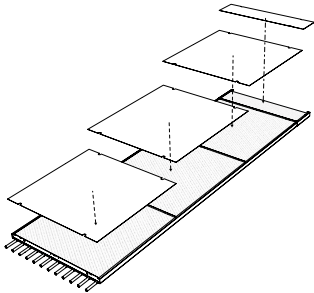
Fibreglass insulation



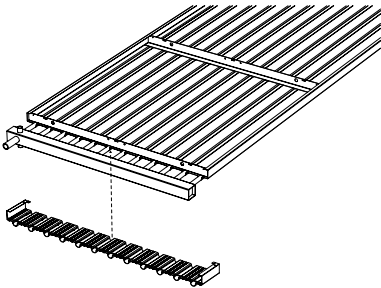
Upper cover panel for gyms



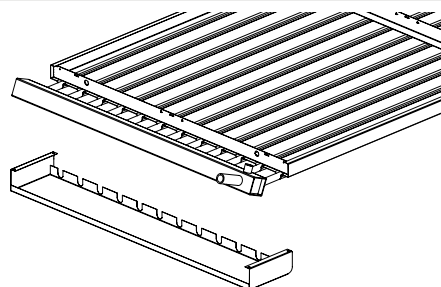
Cover panel



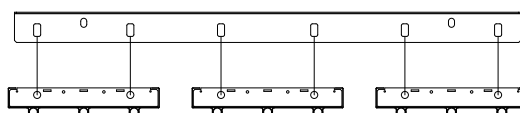
Make-up joint between panel and header



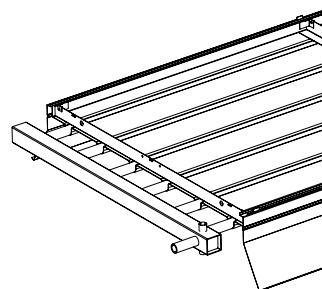
Cover panel with raised header



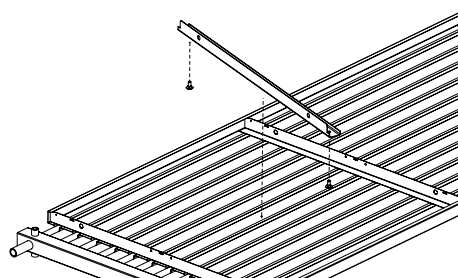
Hanging bracket for hanging multiple panels



Anti-convective side skirt



Hanging bracket (sliding)



Pulsar

Radiant Panel



The **Pulsar Sabiana** ceiling mounted radiant panels are produced in 4 sizes, with a width of 600 mm and a length between 1.2 and 3 m, in 2 standard colours, and others upon request. The panel has a very elegant design, perfectly matching the false ceiling (it is also available in a free hanging version identified by the letter "W"), features simple maintenance, very long life and can be connected in series or in parallel to others panels using flexible pipes supplied upon request.

The panels feature a very interesting construction: modern welding units, without leaving any visible traces, press the galvanized steel pipes into the thick electrogalvanised steel panel, guaranteeing an optimum heat output and a uniform temperature across the entire radiating surface. The product is ideal for many types of environment, especially schools and hospitals.

The panel can be supplied with hot or cold water: in summer, it should be used together with a primary air system, as only sensible cooling is provided.

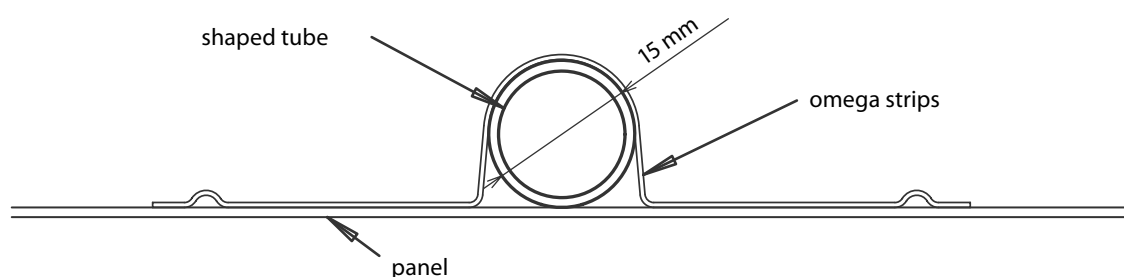
The heating capacity values have been certified by the leading European laboratory in the sector (University of Stuttgart), applying the European EN 14037 standard.

The painting process, using an epoxypolyester resin powder coat dried in a furnace at 180°C, ensures high resistance over time, in compliance with the international standard ISO 2409, certified by tests performed at the Milan Polytechnic University.

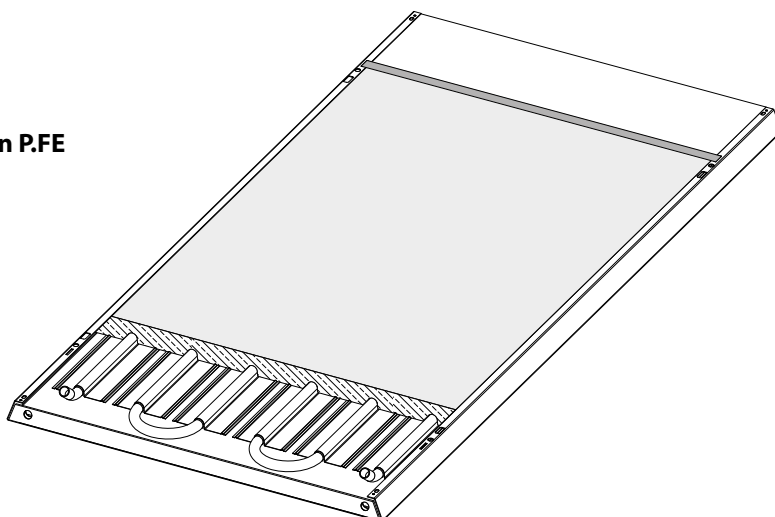


- **The radiant panels are supplied in four sizes**, which can be perfectly integrated into any false ceiling.
- Indeed, **the lengths of 1.20, 1.80, 2.40 and 3.00 m** ensure optimum integration into 600 x 600 mm modular ceilings, the standard dimension for false ceiling panels in Europe.
- **The visible side is perfectly flat**, meaning that the Pulsar radiant panels can match all types of false ceiling panels available on the market.
- **As standard, the panels are supplied in the colour RAL 9016**, with a satin finish created by an epoxy-polyester coat dried in a furnace at 180°C.
- **Other RAL colours are also available** for the architect to choose from.
- The radiant panels are made of a **radiating galvanized steel plate**, 1 mm thick.
- On the panel is fixed a **galvanized steel pipe with 15 mm of external diameter**, 1.2 mm thick.
- **The galvanized omega strips** welded to the panels hold the correct spacing of the tubes and secure the best surface contact between the tube and the panel.
- **The dimensional tolerances of the panels** are in accordance with standard EN 14037-1 (radiant panel length $\pm 3,00$ mm, radiant panel width $\pm 2,00$ mm).
- **The paint complies** with the **European Standard 76/769/EEC**.
- **Fire reaction** class: A1.
- **Emission** of the radiant surface $\varepsilon = 0,96$.
- The radiant panels are supplied with an **insulating layer of mineral wool** (30 mm thick) protected by an aluminium sheet (25 micron thick) to be mounted on the top of the panel.
- **The insulation is in Class A1** according to EN 13501-1 standard.
- **Thermal conductivity 0,037 W/mK** (according to UNI CTI 7745 and UNI FA 112 standard).
- **Density** 14 kg/m³.
- **Thermal resistance** 0,81 m²K/W.

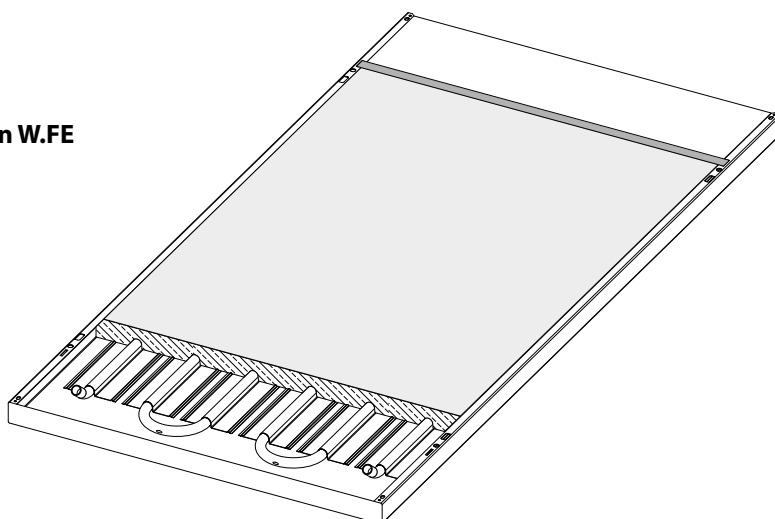
Typical section



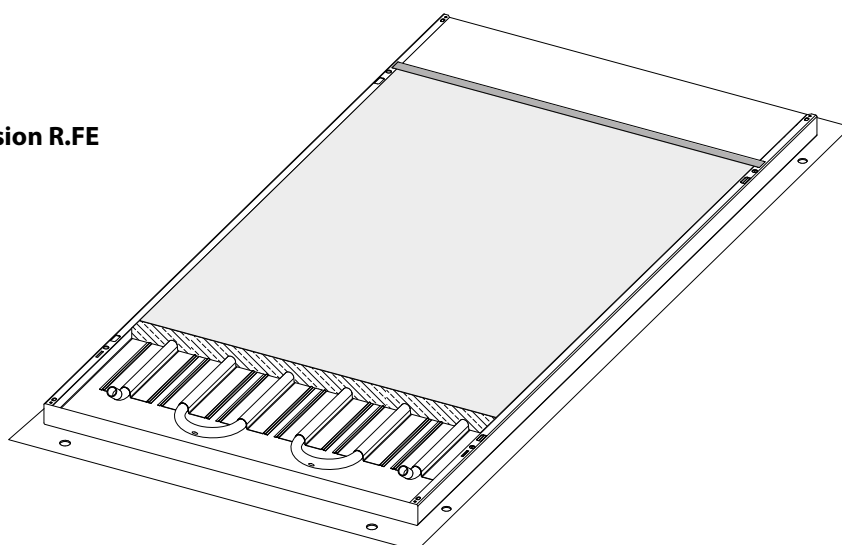
Version P.FE



Version W.FE

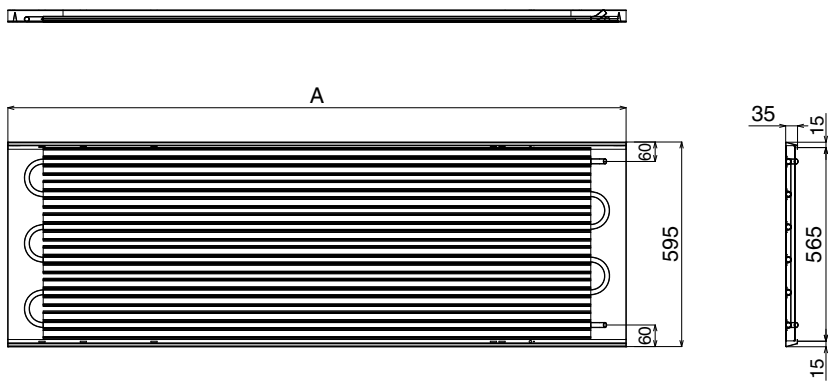


Version R.FE

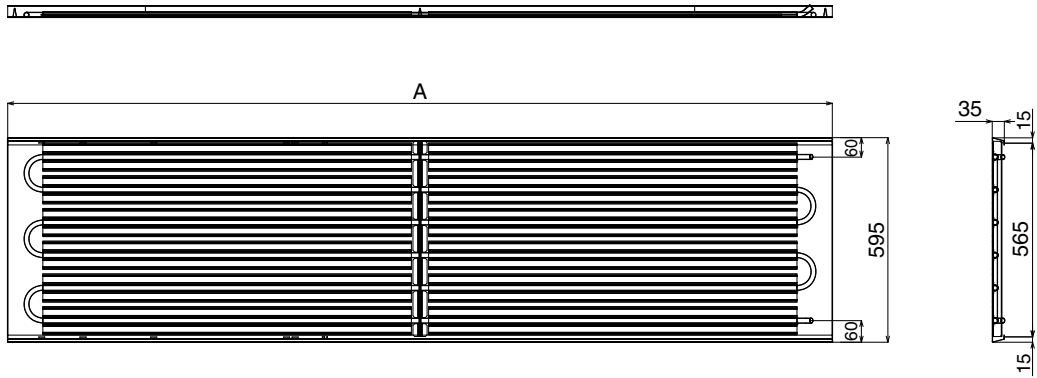


-  Insulation, 30 mm thick (supplied not mounted)
-  Insulation holding strip

Model 1 and 2



Model 3 and 4



Model	Width (A) mm	Weight kg	Water content litres
P.FE 1	1195	13,8	1,3
P.FE 2	1795	20,7	2,0
P.FE 3	2395	27,6	2,8
P.FE 4	2995	34,5	3,5
W.FE 1	1234	13,8	1,3
W.FE 2	1858	20,7	2,0
W.FE 3	2482	27,6	2,8
W.FE 4	3106	34,5	3,5

Thermal emissions in accordance with the European Standard EN 14037-1

Δt_m °C	Emission W/ml	Δt_m °C	Emission W/ml	Δt_m °C	Emission W/ml	Δt_m °C	Emission W/ml	Δt_m °C	Emission W/ml
89	582	75	478	61	376	47	279	33	185
88	574	74	470	60	369	46	272	32	179
87	567	73	463	59	362	45	265	31	172
86	559	72	456	58	355	44	258	30	166
85	552	71	448	57	348	43	251	29	160
84	544	70	441	56	341	42	245	28	153
83	537	69	434	55	334	41	238	27	147
82	529	68	427	54	327	40	231	26	141
81	522	67	419	53	320	39	225	25	134
80	515	66	412	52	313	38	218	24	128
79	507	65	405	51	306	37	211	23	122
78	500	64	398	50	299	36	205	22	116
77	492	63	391	49	292	35	198	21	110
76	485	62	383	48	285	34	192	20	104

Cooling emissions in accordance with the European Standard EN 14037-4

Δt_m °C	Cooling emission			
	with insulation		without insulation	
	W/ml	W/m ²	W/ml	W/m ²
5	24	40	33	56
6	29	49	40	68
7	35	58	48	80
8	40	68	55	92
9	46	77	62	105
10	52	87	70	118
11	57	96	78	130
12	63	106	85	143
13	69	116	93	156
14	75	126	101	169
15	81	136	108	182

Δt_m = difference between the average water temperature and the room temperature.

Pressfittings

(Geberit)



Screw fittings

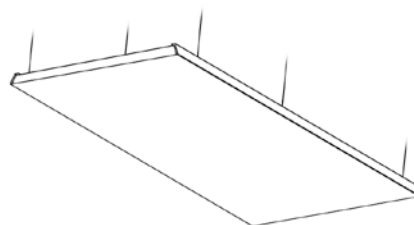
(Caleffi)



Non-active aesthetic panel "P" type

(installed within false ceilings)

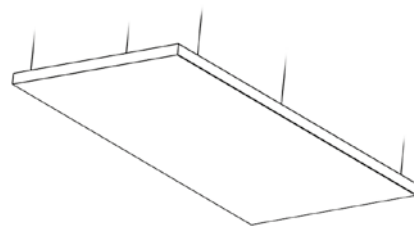
The aesthetic panels are used when the active panels do not need to be installed and when, for aesthetic reasons or local specifications, a non-active panel has to be installed to complete a strip. Can be cut to measure on site.



Non-active aesthetic panel "W" type

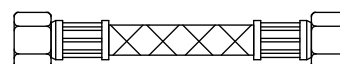
(not installed within false ceilings)

The aesthetic panels are used when the active panels do not need to be installed and when, for aesthetic reasons or local specifications, a non-active panel has to be installed to complete a strip. Can be cut to measure on site.



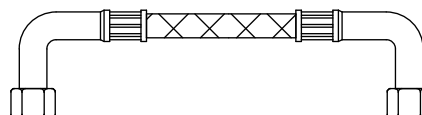
Straight flexible pipe

1/2" female fittings.



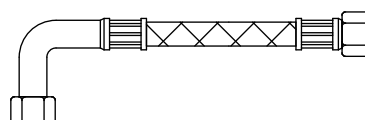
90° flexible pipe

1/2" female fittings

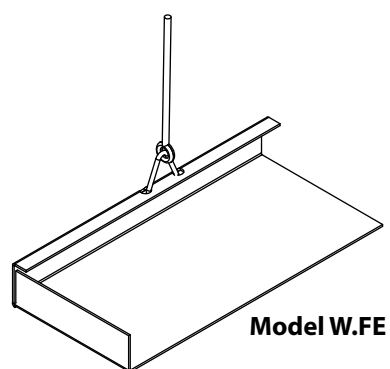
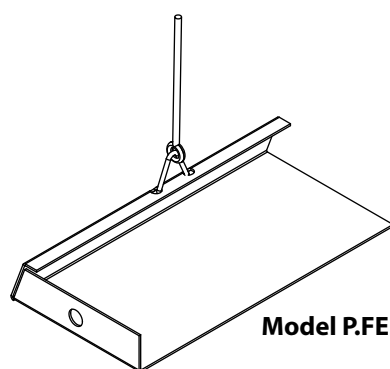
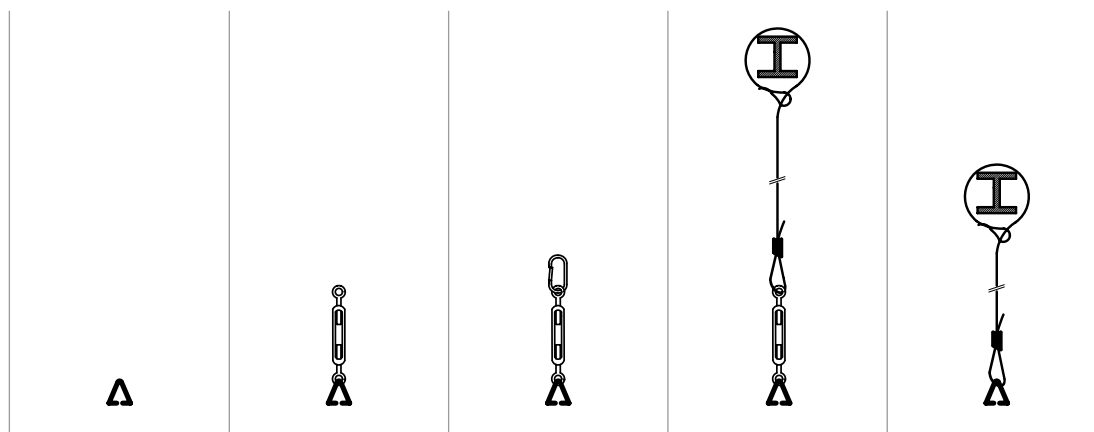


90° / Straight flexible pipe

1/2" female fittings



Hanging systems





Unit heaters



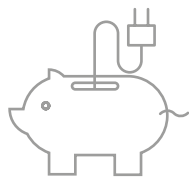


Since 1950 Sabiana has been manufacturing **hot water, superheated water and steam air heaters** for heating industrial and commercial work environments, with proprietary manufacturing technology and a wide range of solutions.

Both in Germany and Italy, the countries where the European manufacturing industry is most developed, above all regarding machinery, the most common heating system for industrial environments uses hot water air heaters connected to a central heating system. The **excellent ratio of indoor comfort to system cost**, continual improvements in efficiency of hot water production, using both condensing boilers and heat pumps, the use of specific solutions such as flow optimisers on the terminal units, as well as **flexible installation** and easy adaptation to new production plant layouts even after installation, mean that still today thousands of designers and businesses propose and adopt this heating solution.

Following increased demand for **low-cost cooling in summer**, a new generation of air heaters fitted with coils designed for use with cold water, has joined the traditional series of hot water air heaters, with the result that **a complete range of solutions** can now be offered to meet all needs.

Sabiana is currently the leading Italian manufacturer of air heaters, and every day competes with its eternal German rivals, helping spread Italian know-how throughout Europe.



All range is compliant with the new ERP 2015 Regulation (EU) No. 327/2011 which requires very low electric consumption ratings in relation to performances provided.

Atlas

Unit Heater



The **Atlas Sabiana** unit heaters have a big "heart": a coil, which has been developed, studied and constructed expressly for heating industrial environments. The increased thickness of the tubes (1 mm steel tube, 0,7 mm copper tube), their large diameter ($\varnothing$ 22 mm) and the excellent ratio between the air flow and the output guarantee a long life and a high environmental comfort. The Atlas unit heaters are produced in 10 sizes from 5 to 120 kW and are available with a 1-row coil for steam and high temperature hot water installations, a 2-row coil for hot water installations and a 3-row coil for low temperature hot water installations.

The coil of Sabiana Atlas unit heaters with steel tubes $\varnothing$ 22 mm and aluminium fins has the following advantages compared with the copper-aluminium small diameter tube coils: the material used for the steel tube, which is very thick (1 mm instead of 0,3 - 0,4 mm), makes the Sabiana coil extremely sturdy and long lasting. The tube's large diameter reduces the water pressure drop: this means that reduced power pumps are installed and a very rapid heating capacity is provided. The Sabiana coil for unit heaters uses a reduced number of tubes to give the same yield: this determines a low resistance to the air flow and consequently an optimum leaving air temperature and a very high throw. The greater spacing between the fins as well as their thickness facilitate cleaning and maintenance operations, which is essential to keep the unit heater efficient.

The steel tube coil is the ideal choice for plants where all tubes and equipment are made of steel because it avoids physical and chemical unbalance due to the interaction of different metals. The special painting coat makes the coil long lasting and increases the thermal output.

The Sabiana coil can be used with hot water, high temperature hot water or steam, even with a high working pressure. As a matter of fact each coil is submitted to two tests at 30 bars. However Sabiana, in order to meet any design and installation need, can offer a complete set of unit heaters with copper tubes and aluminium fins.

This coil has the same features (tube diameter, fin pitch, etc.) of the steel coil but it is built with copper tube 0,7 mm thick, of higher quality and with a total weight which is double compared with the coils normally used for unit heaters. The wide range of products includes 10 different sizes with 1, 2 or 3 rows each.

Upon request, sizes 1 to 6 are available with **the innovative electronic motors** with extremely low energy consumption, controlled by an inverter board and identified by ECM.

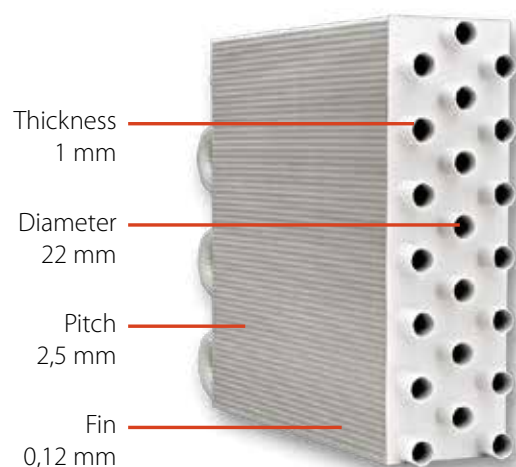
The ECM motors allow to decrease electric consumption compared to traditional asynchronous motors and they enable to adjust the air flow continuously and control the ambient temperature with precision, with further benefits in terms of very low noise levels.



- The **main casing** is manufactured from **galvanized prepainted steel** finished in a light grey colour (RAL 9002) and is assembled from three component parts.
- The **coil** is manufactured from the **highest quality steel or copper tube**. The fins are pressed from aluminium sheet, bonded onto the tubes facilitating the maximum transfer contact available.
- The **fan and motor assembly** is made up of three components: the fan, the motor and the safety guard, which also acts as the main support. The standard motor fitted is a hermetically sealed motor which is maintenance free. The motors are supplied as standard for a three phase 230/400V 50Hz supply, and they are available, according to the size, with 4/6 or 6/8 pole two speed (protection IP55) and with 4 or 6 pole one speed (protection IP44).

A **wide range** of air boxes and accessories is **available**.

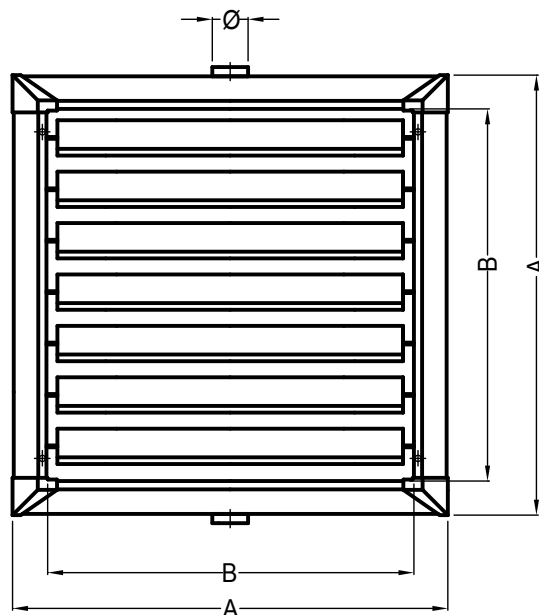
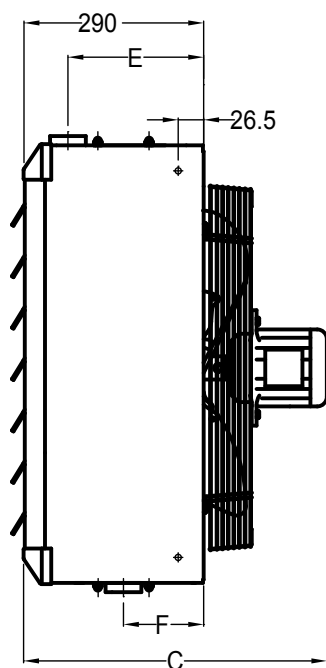
On request: special voltages and special air boxes.



Atlas identification code

Reference: **46A42 SX**

46	A	4	2	SX	SP
Motor 4/6 Pole (1350/1000 r.p.m.)	Range Atlas	Size 4	Rows 2	Coil steel tube	Coil copper tube



Size	A	B	C (C-ATEX)	D	E	F	ø
1	472	336	465 (595)	375	220	130	1 ¼"
2	526	390	465 (595)	429	220	130	1 ¼"
3	580	444	465 (595)	483	220	130	1 ¼"
4	634	498	488 (618)	537	220	130	1 ¼"
5	688	552	488 (618)	591	220	130	1 ¼"
6	742	606	513 (643)	645	220	130	1 ¼"
7	793	657	560 (740)	696	210	140	1 ½"
8	900	764	575 (755)	803	210	140	1 ½"
9	1010	874	595 (775)	913	210	140	1 ½"
10	1117	980	640 (820)	1020	210	140	2"

Size	Weight Kg (ATEX)			Water content liters		
	1R	2R	3R	1R	2R	3R
1	19 (32)	22 (35)	24 (37)	1,3	2,6	3,9
2	22 (35)	25 (37)	27 (40)	1,6	3,2	4,8
3	26 (38)	30 (42)	33 (45)	1,9	3,8	5,7
4	30 (42)	34 (46)	38 (50)	2,3	4,6	6,9
5	33 (47)	40 (54)	44 (58)	3,0	6,0	9,0
6	38 (52)	46 (60)	51 (65)	3,5	7,0	10,5
7	46 (63)	55 (72)	61 (78)	4,3	8,2	12,3
8	55 (71)	66 (82)	73 (89)	5,8	11,1	16,6
9	65 (86)	79 (100)	88 (109)	7,6	14,5	21,8
10	79 (98)	95 (114)	106 (125)	9,6	18,2	27,3

4/6 pole models

Water temperature 85-75°C

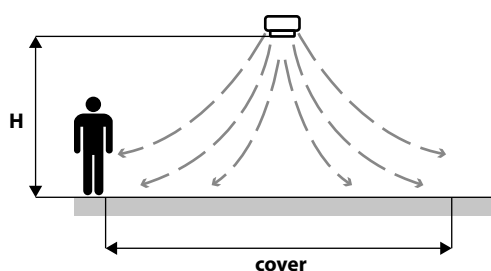
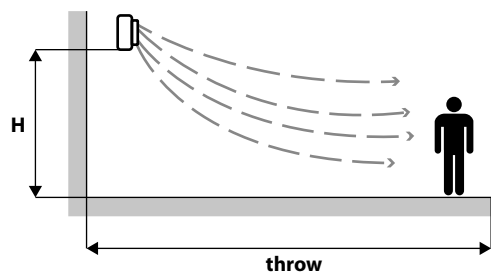
Drop 10°C - Δtm 65°C - Entering air temperature 15°C

Size	Model	Motor speed r.p.m.		Air flow m³/h		Noise level at 5 m * dB(A)		Emission W		Leaving air temp. °C	
		Poles									
		4	6	4	6	4	6	4	6	4	6
1	46A11	1350	1000	1415	1055	56	50	—	—	—	—
	46A12	1350	1000	1340	990	56	50	10,24	8,79	37,4	41,0
	46A13	1350	1000	1195	885	56	50	11,39	9,62	42,9	46,8
2	46A21	1350	1000	2190	1680	59	53	—	—	—	—
	46A22	1350	1000	2010	1570	59	53	13,95	12,36	35,3	38,0
	46A23	1350	1000	1875	1420	59	53	17,52	15,07	42,4	46,0
3	46A31	1350	1000	3325	2510	61	55	—	—	—	—
	46A32	1350	1000	2915	2255	61	55	20,85	18,44	35,9	38,9
	46A33	1350	1000	2610	2040	61	55	25,68	22,41	43,8	47,1
4	46A41	1350	1000	4415	3305	64	57	—	—	—	—
	46A42	1350	1000	3725	2745	64	57	27,86	24,06	36,9	40,6
	46A43	1350	1000	3210	2390	64	57	32,03	27,14	44,2	48,2
5	46A51	1350	1000	5770	4250	66	59	—	—	—	—
	46A52	1350	1000	4800	3500	66	59	34,89	29,94	36,3	40,0
	46A53	1350	1000	4325	3110	66	59	43,06	35,90	44,1	48,8
6	46A61	1350	1000	6590	5065	69	62	—	—	—	—
	46A62	1350	1000	5515	4160	69	62	41,76	36,36	37,2	40,6
	46A63	1350	1000	4900	3620	69	62	50,96	42,98	45,4	49,7

* The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

Size	Poles	Mounting heights			
		horizontal discharge		vertical discharge	
		height m	throw m	height max m	cover m ²
1	4	2,5÷3,5	7,5	3,5	50
	6	2,5÷3	5	3	36
2	4	3÷4	10	4	60
	6	2,5÷3,5	7	3,5	45
3	4	3÷4	13,5	5	70
	6	2,5÷3,5	10	4	50
4	4	3,5÷4,5	16	5,5	75
	6	3÷4	12	4,5	55
5	4	4÷5	18	6	90
	6	3,5÷4,5	13	5	70
6	4	4÷5,5	22	7	120
	6	4÷5	16	6	100

Mounting heights



6/8 pole models

Water temperature 85-75°C

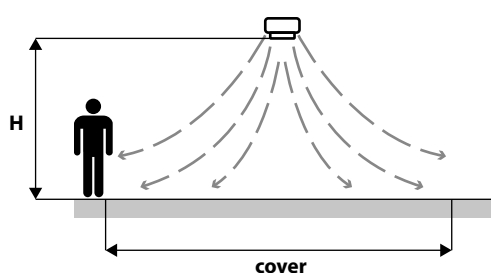
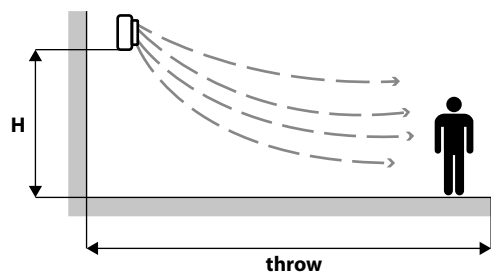
Drop 10°C - Δtm 65°C - Entering air temperature 15°C

Size	Model	Motor speed r.p.m.		Air flow m³/h		Noise level at 5 m * dB(A)		Emission W		Leaving air temp. °C	
		Poles									
		6	8	6	8	6	8	6	8	6	8
1	68A11	900	750	970	860	48	44	—	—	—	—
	68A12	900	750	935	830	48	44	8,54	8,01	41,7	43,2
	68A13	900	750	835	740	48	44	9,29	8,65	47,5	49,2
2	68A21	900	750	1495	1170	50	46	—	—	—	—
	68A22	900	750	1410	1100	50	46	11,70	10,26	39,3	42,3
	68A23	900	750	1290	1025	50	46	14,23	12,41	47,3	50,4
3	68A31	900	750	2100	1620	52	48	—	—	—	—
	68A32	900	750	1880	1470	52	48	16,83	14,74	41,2	44,3
	68A33	900	750	1735	1320	52	48	20,39	17,28	49,4	53,3
4	68A41	900	750	2795	2195	54	50	—	—	—	—
	68A42	900	750	2345	1755	54	50	22,14	18,91	42,6	46,5
	68A43	900	750	2010	1535	54	50	24,47	20,70	50,6	54,4
5	68A51	900	750	3685	2865	56	51	—	—	—	—
	68A52	900	750	3050	2335	56	51	27,87	24,17	41,7	45,3
	68A53	900	750	2785	2100	56	51	33,58	27,27	50,3	54,4
6	68A61	900	750	4445	3550	59	54	—	—	—	—
	68A62	900	750	3710	2960	59	54	34,33	30,37	42,1	45,0
	68A63	900	750	3270	2610	59	54	40,43	35,19	51,2	54,4
7	68A71	900	750	5100	3960	65	59	—	—	—	—
	68A72	900	750	4800	3650	65	59	44,20	38,13	41,9	45,6
	68A73	900	750	4600	3500	65	59	52,35	44,50	48,3	52,2
8	68A81	900	750	7650	5400	67	61	—	—	—	—
	68A82	900	750	6900	4950	67	61	57,57	48,47	39,4	43,6
	68A83	900	750	6300	4500	67	61	70,23	57,52	47,6	52,4
9	68A91	900	750	10600	7600	68	62	—	—	—	—
	68A92	900	750	10200	7200	68	62	82,12	68,82	38,6	43,0
	68A93	900	750	9400	6400	68	62	101,49	81,06	46,6	52,1
10	68A101	900	750	12250	9215	71	65	—	—	—	—
	68A102	900	750	11800	8800	71	65	101,20	86,99	40,1	43,9
	68A103	900	750	11000	7950	71	65	124,93	102,93	48,2	52,9

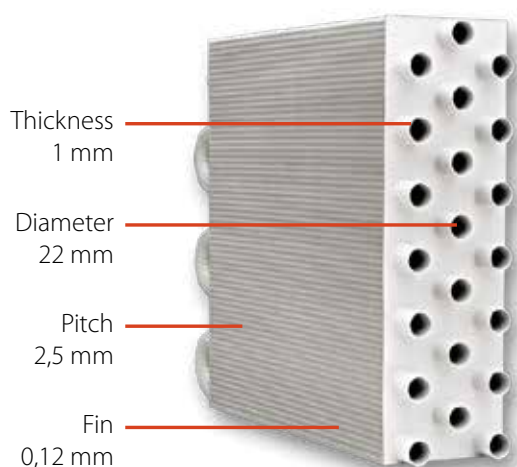
* The sound pressure levels dB(A) are measured at a distance of 5m, directional factor Q = 2, compliant with the EN 3744 standard.

Size	Poles	Mounting heights			
		horizontal discharge		vertical discharge	
		height m	throw m	height max m	cover m ²
1	6	2,5÷3	5	3	36
	8	2,5÷3	4,5	–	–
2	6	2,5÷3,5	7	3,5	45
	8	2,5÷3,5	5,5	–	–
3	6	2,5÷3,5	10	4	50
	8	2,5÷3,5	7	–	–
4	6	3÷4	12	4,5	55
	8	3÷4	8	–	–
5	6	3,5÷4,5	13	5	70
	8	3,5÷4,5	9,5	–	–
6	6	4÷5	16	6	100
	8	4÷5	12	–	–
7	6	4÷5	24	7	120
	8	3,5÷4	18	6	100
8	6	4÷5,5	26	9	160
	8	3,5÷4,5	20	7	130
9	6	4÷6	28	11	200
	8	3,5÷5	21	8	150
10	6	4÷6	30	12	220
	8	4÷5	22	9	160

Mounting heights



Unit Heater with EC Brushless Electronic Motor and Inverter Board



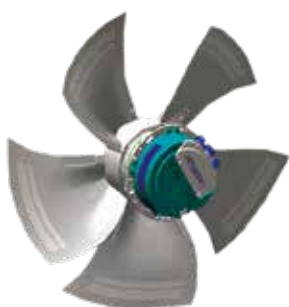
Sabiana Atlas series is available, for the first 6 sizes, in version with electronic motor and inverter board.

For the technical characteristics of the various components refer to Atlas Unit Heater, excluding the Electronic motor.



Electronic motor

Single phase permanent magnet brushless electronic motor (protection IP54). The inverter board that controls the motor operation is powered by single-phase and it generates a frequency modulated wave form power supply. The electric power supply required for the machine is therefore single-phase with voltage of 200 - 240 V and frequency of 50 - 60 Hz.



Helicoidal fan

The fan is made with statically and dynamically balanced plastic or aluminium blades. Its rational high-capacity profile provides the maximum air volume with the minimum energy consumption. The fan hub is secured onto the motor shaft and it is protected by a safety guard.

TECHNICAL SPECIFICATIONS



Water temperature 85-75°C - Drop 10°C - Δtm 65°C - Entering air temperature 15°C

Model		Atlas A-ECM11						Atlas A-ECM12						Atlas A-ECM13					
Inverter Power	V	10	9	8	7	6	5	10	9	8	7	6	5	10	9	8	7	6	5
Speed	r.p.m.	1126	1047	945	852	736	623	1126	1047	945	852	736	623	1126	1047	945	852	736	623
Air flow	m³/h	1260	1100	965	835	695	580	1155	1060	915	800	665	565	1100	1010	870	760	640	545
Thermal emission	kW	5,67	5,35	5,04	4,72	4,33	3,96	9,12	8,74	8,10	7,53	6,81	6,19	11,39	10,83	9,94	9,16	8,23	7,41
Leaving air temperature	°C	28	29	30	32	33	35	38	39	41	43	45	47	45	46	48	50	53	55
Fan	W	78,2	62,0	45,5	33,0	22,5	14,3	78,2	62,0	45,5	33,0	22,5	14,3	78,2	62,0	45,5	33,0	22,5	14,3
Sound pressure (*)	dB(A)	42,0	40,5	38,5	35,5	31,7	27,5	42,0	40,5	38,5	35,5	31,7	27,5	42,0	40,5	38,5	35,5	31,7	27,5
Horizontal discharge: height	m	2,5 ÷ 3,5						2,5 ÷ 3,5						2,5 ÷ 3,5					
Horizontal discharge: throw	m	6,5	6,0	5,5	5,0	4,5	4,0	6,0	5,5	5,0	5,0	4,5	4,0	6,0	5,5	5,0	4,5	4,5	4,0
Vertical discharge: height max.	m	3,5	3,0	2,5	—	—	—	3,0	3,0	2,5	—	—	—	3,0	3,0	2,6	—	—	—
Vertical discharge: cover	m²	40	40	35	—	—	—	40	40	35	—	—	—	40	40	35	—	—	—

Model		Atlas A-ECM21						Atlas A-ECM22						Atlas A-ECM23					
Inverter Power	V	10	9	8	7	6	5	10	9	8	7	6	5	10	9	8	7	6	5
Speed	r.p.m.	1124	1023	918	823	713	601	1124	1023	918	823	713	601	1124	1023	918	823	713	601
Air flow	m³/h	1790	1545	1350	1190	980	780	1650	1450	1255	1080	890	735	1580	1390	1205	1035	855	705
Thermal emission	kW	8,26	7,74	7,29	6,88	6,29	5,61	13,34	12,47	11,58	10,68	9,57	8,55	16,73	15,56	14,31	13,04	11,55	10,15
Leaving air temperature	°C	29	30	31	32	34	36	39	40	42	44	46	49	46	48	50	52	55	57
Fan	W	122,0	92,5	67,0	49,0	34,0	21,5	122,0	92,5	67,0	49,0	34,0	21,5	122,0	92,5	67,0	49,0	34,0	21,5
Sound pressure (*)	dB(A)	47,0	45,5	43,5	40,5	36,7	32,5	47,0	45,5	43,5	40,5	36,7	32,5	47,0	45,5	43,5	40,5	36,7	32,5
Horizontal discharge: height	m	2,5 ÷ 3,5						2,5 ÷ 3,5						2,5 ÷ 3,5					
Horizontal discharge: throw	m	8,0	7,0	6,5	6,0	5,5	5,0	7,5	7,0	5,7	5,5	5,0	4,5	7,0	6,5	6,0	5,5	5,0	4,5
Vertical discharge: height max.	m	4,0	3,5	3,0	—	—	—	3,5	3,5	3,0	—	—	—	3,5	3,0	3,0	—	—	—
Vertical discharge: cover	m²	50	45	45	—	—	—	45	45	45	—	—	—	40	40	40	—	—	—

Model		Atlas A-ECM31						Atlas A-ECM32						Atlas A-ECM33					
Inverter Power	V	10	9	8	7	6	5	10	9	8	7	6	5	10	9	8	7	6	5
Speed	r.p.m.	1126	1047	945	852	736	623	1126	1047	945	852	736	623	1126	1047	945	852	736	623
Air flow	m³/h	2620	2340	2050	1740	1475	1180	2235	2040	1830	1610	1315	1090	2075	1895	1700	1500	1220	1015
Thermal emission	kW	11,76	11,21	10,59	9,82	9,10	8,16	18,36	17,54	16,59	15,50	13,86	12,43	22,60	21,48	20,14	18,68	16,42	14,56
Leaving air temperature	°C	28	29	30	32	33	35	39	40	42	43	46	48	47	48	50	51	54	57
Fan	W	166	136	101	73	50	31,5	166	136	101	73	50	31,5	166	136	101	73	50	31,5
Sound pressure (*)	dB(A)	44,0	44,0	41,5	39,0	35,7	31,0	44,0	44,0	42,0	40,0	36,0	32,0	44,0	44,0	42,0	40,0	36,0	32,0
Horizontal discharge: height	m	2,5 ÷ 3,5						2,5 ÷ 3,5						2,5 ÷ 3,5					
Horizontal discharge: throw	m	12,0	11,0	10,0	8,5	7,5	6,5	10,5	10,0	9,0	8,0	7,0	6,5	10,0	9,5	8,5	8,0	7,0	6,0
Vertical discharge: height max.	m	4,5	4,0	4,0	3,5	—	—	4,0	4,0	3,5	3,5	—	—	4,0	3,5	3,5	—	—	—
Vertical discharge: cover	m²	60	60	55	50	—	—	60	55	50	50	—	—	55	50	50	—	—	—

Model		Atlas A-ECM41						Atlas A-ECM42						Atlas A-ECM43					
Inverter Power	V	10	9	8	7	6	5	10	9	8	7	6	5	10	9	8	7	6	5
Speed	r.p.m.	1059	979	893	798	692	588	1059	979	893	798	692	588	1059	979	893	798	692	588
Air flow	m³/h	3440	3210	2875	2460	2075	1680	2815	2395	2040	1710	1390	1150	2490	2120	1805	1515	1230	1020
Thermal emission	kW	15,48	15,04	14,34	13,39	12,37	11,19	23,68	21,83	20,02	18,18	16,11	14,35	28,40	25,81	23,41	20,96	18,22	16,02
Leaving air temperature	°C	28	29	30	31	32	34	40	42	44	46	49	52	48	51	53	55	58	61
Fan	W	166	131	98,5	70	48	30	166	131	98,5	70	48	30	166	131	98,5	70	48	30
Sound pressure (*)	dB(A)	45,0	45,0	42,5	40,0	36,7	32,0	45,0	45,0	42,5	40,0	36,7	32,0	45,0	45,0	42,5	40,0	36,7	32,0
Horizontal discharge: height	m	3 ÷ 4,5						3 ÷ 4,5						3 ÷ 4,5					
Horizontal discharge: throw	m	14,5	14,0	12,5	11,0	9,5	8,5	12,5	11,0	9,6	8,5	7,0	6,5	11,0	10,0	9,0	8,0	6,5	6,0
Vertical discharge: height max.	m	5,0	5,0	4,5	4,0	—	—	4,5	4,0	4,0	3,5	—	—	4,0	4,0	3,5	—	—	—
Vertical discharge: cover	m²	70	70	65	60	—	—	65	60	55	50	—	—	60	55	50	—	—	—

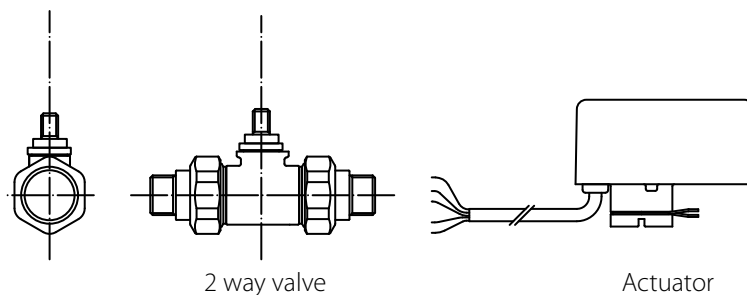
Model		Atlas A-ECM51						Atlas A-ECM52						Atlas A-ECM53					
Inverter Power	V	10	9	8	7	6	5	10	9	8	7	6	5	10	9	8	7	6	5
Speed	r.p.m.	1108	1108	1044	924	800	650	1108	1108	1044	924	800	650	1108	1108	1044	924	800	650
Air flow	m³/h	5130	5130	4600	4045	3340	2575	4010	4010	3695	3185	2705	2060	3455	3455	3185	2745	2330	1775
Thermal emission	kW	21,10	21,10	20,18	19,14	17,60	15,62	32,00	32,00	30,74	28,51	26,17	22,53	38,11	38,11	36,40	33,36	30,17	25,34
Leaving air temperature	°C	27	27	28	29	30	33	38	38	39	41	43	47	47	47	48	51	53	57
Fan	W	265	265	219	156	104	59	265	265	219	156	104	59	265	265	219	156	104	59
Sound pressure (*)	dB(A)	47,0	47,0	46,5	44,0	40,0	35,0	47,0	47,0	46,5	44,0	40,0	35,0	47,0	47,0	46,5	44,0	40,0	35,0
Horizontal discharge: height	m	3 ÷ 4,5						3 ÷ 4,5						3 ÷ 4,5					
Horizontal discharge: throw	m	19,0	19,0	17,0	15,0	12,6	10,0	15,0	15,0	14,0	12,0	10,5	8,0	13,0	13,0	12,0	10,5	9,0	7,0
Vertical discharge: height max.	m	6,0	6,0	5,5	5,0	—	—	5,0	5,0	5,0	4,5	—	—	5,0	5,0	4,5	4,0	—	—
Vertical discharge: cover	m²	85	85	80	80	—	—	80	80	75	70	—	—	75	75	70	65	—	—

Model		Atlas A-ECM61						Atlas A-ECM62						Atlas A-ECM63					
Inverter Power	V	10	9	8	7	6	5	10	9	8	7	6	5	10	9	8	7	6	5
Speed	r.p.m.	1107	1107	1053	930	798	653	1107	1107	1053	930	798	653	1107	1107	1053	930	798	653
Air flow	m³/h	5895	5895	5355	4585	3765	2910	4535	4535	4260	3590	2975	2375	3845	3845	3610	3040	2520	2010
Thermal emission	kW	25,35	25,35	24,34	22,77	20,90	18,53	38,05	38,05	36,83	33,73	30,45	26,86	44,48	44,48	42,86	38,65	34,39	29,69
Leaving air temperature	°C	28	28	28	30	31	34	40	40	40	42	45	48	49	49	50	52	55	58
Fan	W	246	246	211	148	96	59	246	246	211	148	96	59	246	246	211	148	96	59
Sound pressure (*)	dB(A)	48,0	48,0	47,5	45,0	41,0	36,0	48,0	48,0	47,5	45,0	41,0	36,0	48,0	48,0	47,5	45,0	41,0	36,0
Horizontal discharge: height	m	3 ÷ 5						3 ÷ 5						3 ÷ 5					
Horizontal discharge: throw	m	22,0	22,0	20,0	17,0	14,0	11,0	17,0	17,0	16,0	13,5	11,5	9,0	14,5	14,5	13,5	11,5	9,5	8,0
Vertical discharge: height max.	m	6,5	6,5	6,0	5,5	–	–	5,5	5,5	5,0	5,0	–	–	5,0	5,0	5,0	4,5	–	–
Vertical discharge: cover	m²	100	100	95	90	–	–	90	90	90	85	–	–	85	85	85	80	–	–

VA2V 2 way valve

Composed by:

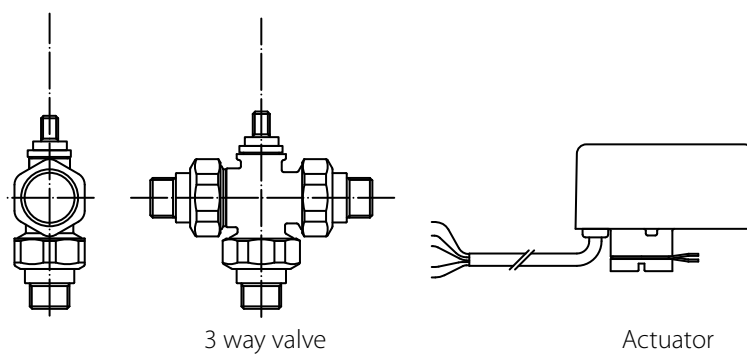
- one 2-way valve
- one ON-OFF 230V actuator



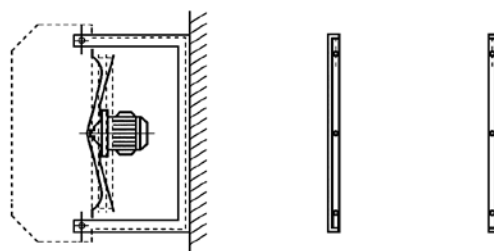
VA3V 3 way valve

Composed by:

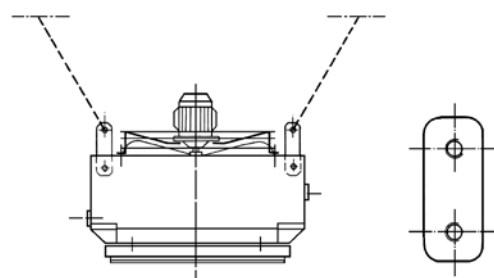
- one 3-way valve
- one ON-OFF 230V actuator



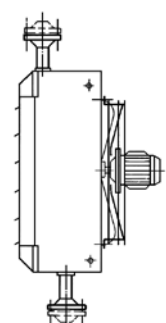
AMP Wall bracket



AS Suspension plate for ceiling installation



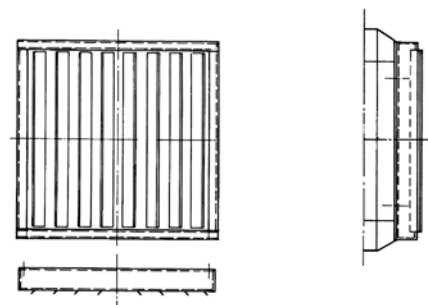
AF Flanged connections PN16 UNI 2282



AD

4 way diffuser

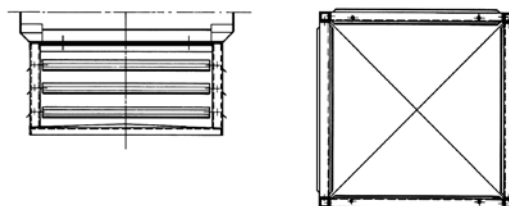
To be used when discharging downflow to create a 4 way discharge pattern
For normal heights of installation



AW4

4 way diffuser

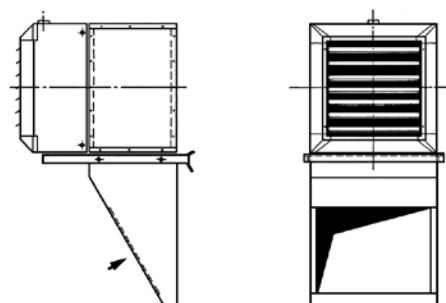
To be used when discharging downflow to create a 4 way discharge pattern
For low heights of installation



ARC

Simple intake hood fitted underneath

Wall bracket included
Prepainted steel thickness 1 mm

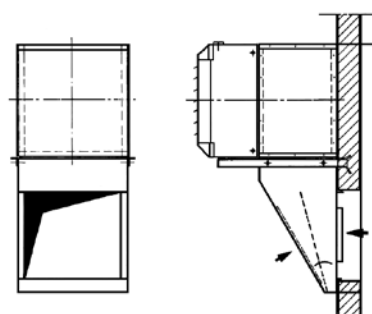


AMC

Double intake hood

with internal/external air mixing, manually controlled damper

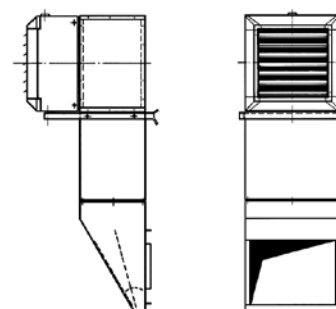
Wall bracket included
Prepainted steel thickness 1 mm



AP

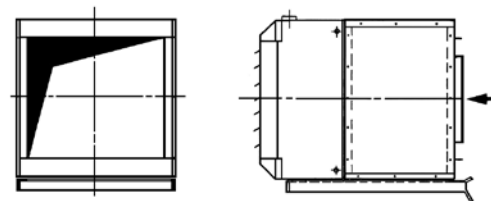
Intermediate section for ARC and AMC air boxes

Prepainted steel thickness 1 mm



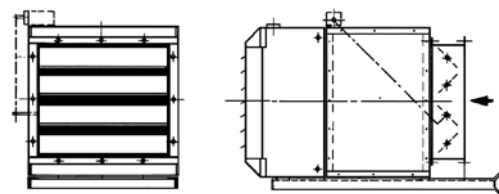
AE Fresh air box

Prepainted steel thickness 1 mm



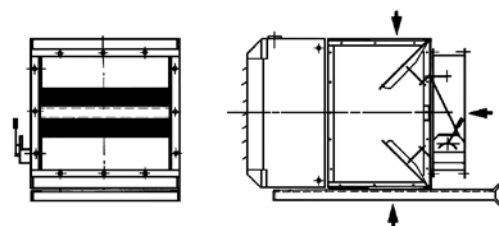
AES Fresh air box with manually operated damper (can be motorized by the customer)

Prepainted steel thickness 1 mm



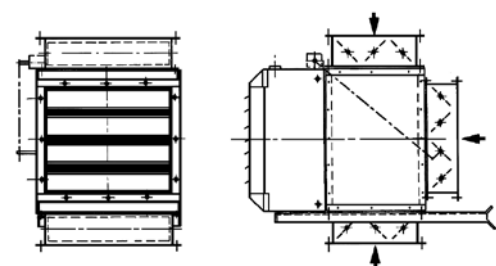
AM Internal/external air mixing box manually controlled

Prepainted steel thickness 1 mm

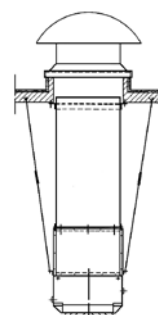


AMS Internal/external air mixing box, manually controlled (can be motorized by customer)

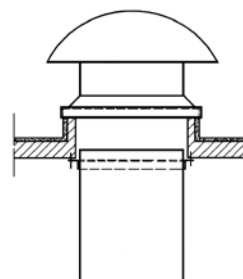
Prepainted steel thickness 1 mm



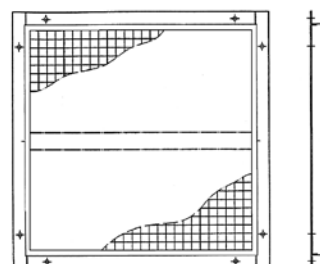
AC Intermediate section for AE - AES - AM - AMS air boxes



AT Roof-mounted air intake

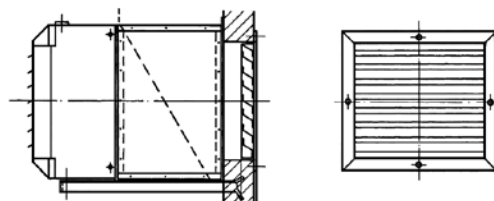


APP Ball protection grid



AG Fresh air intake grille suitable with AE - AES - AMC air boxes

Galvanized steel thickness 1 mm



• **Two speed Delta-Star motors, 4/6 or 6/8 poles, three phase, IP 55, with klixon thermic protection**

DSS

Delta-Star switch

for two speed Delta-Star motors, 4/6 or 6/8 poles

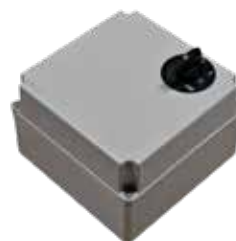


Manual two-position switch

for two speed Delta-Star motors, 4/6 or 6/8 poles

BS 2S
BS 2-ST

without thermostat
with thermostat



Multi-function automatic control panel

for two speed Delta-Star motors, 4/6 or 6/8 poles

BSA-B
BSA-A
BSA-D

without timer
with manual daily timer
with digital weekly timer



• **IP 55 motor protection**

• **Single speed flame proof motor II 2G IIB T4/T3 - compliant with the ATEX Standard**

• **Capacitor for single phase motor (not mounted)**

For each unit must be provided the ADC converter for wall controls

ADCA-M	ADC signal converter for wall controls fitted on the unit	
ADC-S	ADC signal converter for wall controls supplied with separate packaging	
WM-3V	3 speed control	
WM-T	3 speed control with electronic thermostat and manual summer/ winter switch	

Remote control for industrial applications

For each unit must be provided the 4-20 mA / 0-10V signal converter

UH-ECM	EC Base Control	
UH-ECM-CNV	4-20 mA / 0-10V signal converter	
UH-ECM-RLP	Potentiometer to control the speed of the motor	
UH-ECM-NTC	NTC probe with box	

Helios

Unit Heater



The **Helios Sabiana** unit heaters, built with the same criteria of sturdiness and safety that define all Sabiana products, stand out for the splendid design of the casing, made using anodised aluminium bars and polished die-cast corners. They have the same big heart as the Atlas unit heaters: a coil that has been conceived, designed and manufactured specifically for heating industrial environments. The thickness of the pipes, standard in steel, the diameter (Ø 22 mm) and the excellent ratio between the flow-rate of air and the heat output guarantee long life and exceptional comfort.

Helios unit heaters are produced in **6 sizes** from **5 to 60 kW** and are available with a 1-row coil for steam and high temperature hot water installations, a 2-row coil for hot water installations and a 3-row coil for low temperature hot water installations.

The coil of Sabiana Helios unit heaters with steel tubes Ø 22 mm and aluminium fins has the following **advantages** compared with the copperaluminium small diameter tube coils: the material used for the steel tube, which is very thick (1 mm instead of 0,3 - 0,4 mm), makes the Sabiana coil extremely sturdy and long lasting. The tube's big diameter reduces the water pressure drop: this means that reduced power pumps are installed and a very rapid heating capacity is provided. The Sabiana coil for unit heaters uses a reduced number of tubes to give the same yield: this determines a low resistance to the air flow and consequently an optimum leaving air temperature and a very high throw.

The greater spacing between the fins as well as their thickness facilitate cleaning and maintenance operations, which is essential to keep the unit heater efficient.

The steel tube coil is **the ideal choice for plants** where all tubes and equipment are made of steel because it avoids physical and chemical unbalance due to the interaction of different metals.

The special painting coat makes the coil long lasting and increases the thermal output.

The Sabiana coil can be used with hot water, high temperature hot water or steam, even with a high working pressure. As a matter of fact each coil is submitted to two tests at 30 bars.

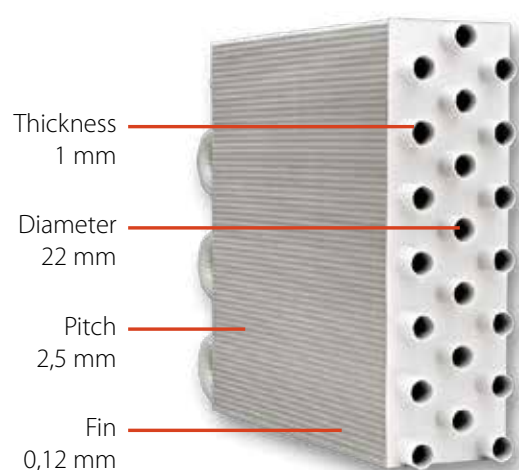
However Sabiana, in order to meet any design and installation need, can offer a complete set of unit heaters with copper tubes and aluminium fins. This coil has the same features (tube diameter, fin pitch, etc.) of the steel coil but it is built with copper tube 0,7 mm thick, of higher quality and with a total weight which is double compared with the coils normally used for unit heaters.

Upon request, all sizes are available with the **innovative electronic motors** with extremely low energy consumption, controlled by an inverter board and identified by ECM.

The ECM motors allow to decrease electric consumption compared to traditional asynchronous motors and they enable to adjust the air flow continuously and control the ambient temperature with precision, with further benefits in terms of very low noise levels.



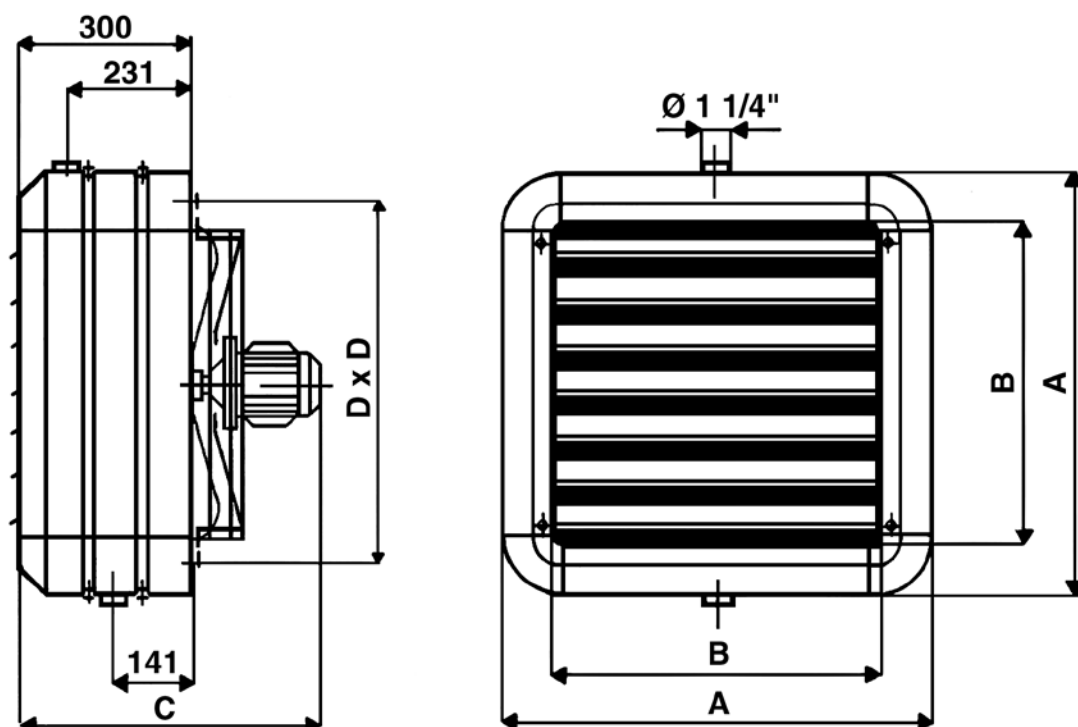
- The **main casing** is manufactured from 4 angular diecast aluminium components and lateral elements made of extruded, anodized aluminium in a silver colour.
- The **coil** is manufactured from the highest **quality steel or copper tube**. The fins are pressed from aluminium sheet and bonded onto the tubes facilitating the maximum transfer contact available.
- The **fan and motor assembly** consists of three components: the fan, the motor and the safety guard, which also acts as the main support. The standard motor is a hermetically sealed motor which is maintenance free. The motors are supplied as standard for a three phase 230/400V 50Hz supply, and they are available, according to the size, with 4/6 or 6/8 pole two speed (protection IP55) and with 4 or 6 pole one speed (protection IP44).



Helios identification code

Reference: 46H53 SX

46	H	5	3	SX	SP
Motor 4/6 pole (1350/1000 r.p.m.)	Range Helios	Size 5	Rows 3	Coil steel tube	Coil copper tube



Size	A	B	C	D
1	486	330	477	406
2	540	384	477	460
3	594	438	477	514
4	648	492	500	568
5	702	546	500	622
6	756	600	525	676

Size	Weight Kg			Water content liters		
	1R	2R	3R	1R	2R	3R
1	19	22	24	1,3	2,6	3,9
2	22	25	27	1,6	3,2	4,8
3	26	30	33	1,9	3,8	5,7
4	30	34	38	2,3	4,6	6,9
5	33	40	44	3,0	6,0	9,0
6	38	46	51	3,5	7,0	10,5

4/6 pole models

Water temperature 85-75°C

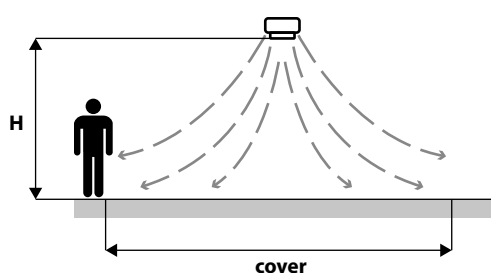
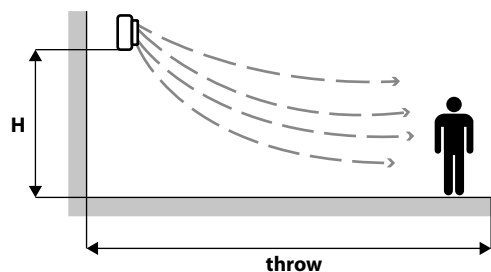
Drop 10°C - Δtm 65°C - Entering air temperature 15°C

Size	Model	Motor speed r.p.m.		Air flow m³/h		Noise level at 5 m * dB(A)		Emission W		Leaving air temp. °C	
		Poles									
		4	6	4	6	4	6	4	6	4	6
1	46H11	1350	1000	1415	1055	56	50	—	—	—	—
	46H12	1350	1000	1340	990	56	50	10,24	8,79	37,40	41,00
	46H13	1350	1000	1195	885	56	50	11,39	9,62	42,90	46,80
2	46H21	1350	1000	2190	1680	59	53	—	—	—	—
	46H22	1350	1000	2010	1570	59	53	13,95	12,36	35,30	38,00
	46H23	1350	1000	1875	1420	59	53	17,52	15,07	42,40	46,00
3	46H31	1350	1000	3325	2510	61	55	—	—	—	—
	46H32	1350	1000	2915	2255	61	55	20,85	18,44	35,90	38,90
	46H33	1350	1000	2610	2040	61	55	25,68	22,41	43,80	47,10
4	46H41	1350	1000	4415	3305	64	57	—	—	—	—
	46H42	1350	1000	3725	2745	64	57	27,86	24,06	36,90	40,60
	46H43	1350	1000	3210	2390	64	57	32,03	27,14	44,20	48,20
5	46H51	1350	1000	5770	4250	66	59	—	—	—	—
	46H52	1350	1000	4800	3500	66	59	34,89	29,94	36,30	40,00
	46H53	1350	1000	4325	3110	66	59	43,06	35,90	44,10	48,80
6	46H61	1350	1000	6590	5065	69	62	—	—	—	—
	46H62	1350	1000	5515	4160	69	62	41,76	36,36	37,20	40,60
	46H63	1350	1000	4900	3620	69	62	50,96	42,98	45,40	49,70

* The sound pressure levels dB(A) are measured at a distance of 5m, directional factor Q = 2, compliant with the EN 3744 standard.

Size	Poles	Mounting heights			
		horizontal discharge		vertical discharge	
		height m	throw m	height max m	cover m ²
1	4	2,5÷3,5	7,5	3,5	50
	6	2,5÷3	5	3	36
2	4	3÷4	10	4	60
	6	2,5÷3,5	7	3,5	45
3	4	3÷4	13,5	5	70
	6	2,5÷3,5	10	4	50
4	4	3,5÷4,5	16	5,5	75
	6	3÷4	12	4,5	55
5	4	4÷5	18	6	90
	6	3,5÷4,5	13	5	70
6	4	4÷5,5	22	7	120
	6	4÷5	16	6	100

Mounting heights



6/8 pole models

Water temperature 85-75°C

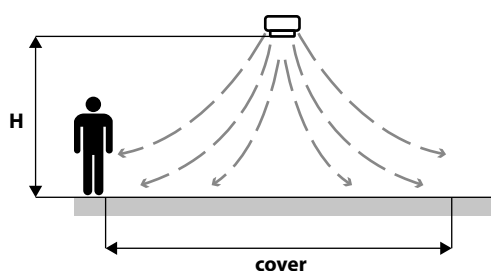
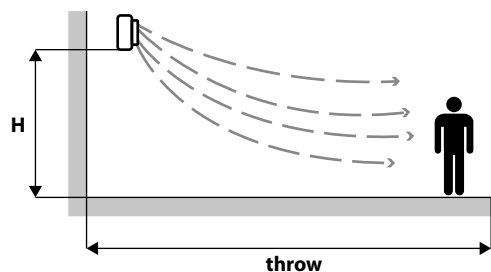
Drop 10°C - Δtm 65°C - Entering air temperature 15°C

Size	Model	Motor speed r.p.m.		Air flow m³/h		Noise level at 5 m * dB(A)		Emission W		Leaving air temp. °C	
		Poles									
		6	8	6	8	6	8	6	8	6	8
1	68H11	900	750	970	860	48	44	—	—	—	—
	68H12	900	750	935	830	48	44	8,54	8,01	41,70	43,20
	68H13	900	750	835	740	48	44	9,29	8,65	47,50	49,20
2	68H21	900	750	1495	1170	50	46	—	—	—	—
	68H22	900	750	1410	1100	50	46	11,70	10,26	39,30	42,30
	68H23	900	750	1290	1025	50	46	14,23	12,41	47,30	50,40
3	68H31	900	750	2100	1620	52	48	—	—	—	—
	68H32	900	750	1880	1470	52	48	16,83	14,74	41,20	44,30
	68H33	900	750	1735	1320	52	48	20,39	17,28	49,40	53,30
4	68H41	900	750	2795	2195	54	50	—	—	—	—
	68H42	900	750	2345	1755	54	50	22,14	18,91	42,60	46,50
	68H43	900	750	2010	1535	54	50	24,47	20,70	50,60	54,40
5	68H51	900	750	3685	2865	56	51	—	—	—	—
	68H52	900	750	3050	2335	56	51	27,87	24,17	41,70	45,30
	68H53	900	750	2785	2100	56	51	33,58	27,27	50,30	54,40
6	68H61	900	750	4445	3550	59	54	—	—	—	—
	68H62	900	750	3710	2960	59	54	34,33	30,37	42,10	45,00
	68H63	900	750	3270	2610	59	54	40,43	35,19	51,20	54,40

* The sound pressure levels dB(A) are measured at a distance of 5m, directional factor Q = 2, compliant with the EN 3744 standard.

Size	Poles	Mounting heights			
		horizontal discharge		vertical discharge	
		height m	throw m	height max m	cover m ²
1	6	2,5÷3	5	3	36
	8	2,5÷3	4,5	–	–
2	6	2,5÷3,5	7	3,5	45
	8	2,5÷3,5	5,5	–	–
3	6	2,5÷3,5	10	4	50
	8	2,5÷3,5	7	–	–
4	6	3÷4	12	4,5	55
	8	3÷4	8	–	–
5	6	3,5÷4,5	13	5	70
	8	3,5÷4,5	9,5	–	–
6	6	4÷5	16	6	100
	8	4÷5	12	–	–

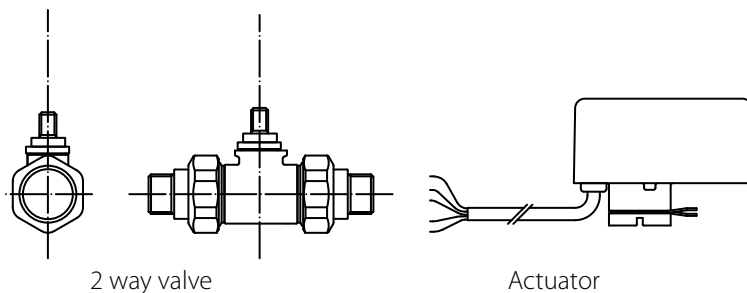
Mounting heights



VA2V 2 way valve

Composed by:

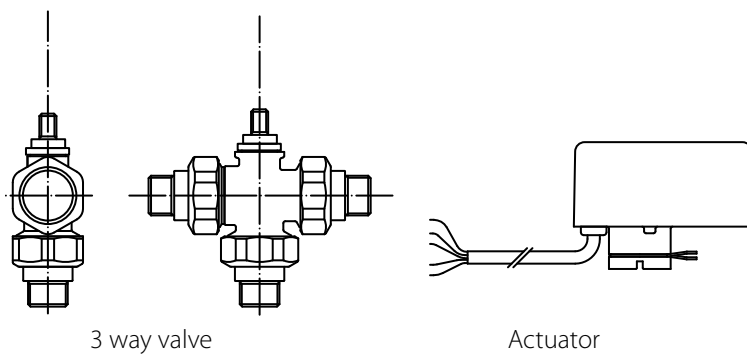
- one 2-way valve
- one ON-OFF 230V actuator



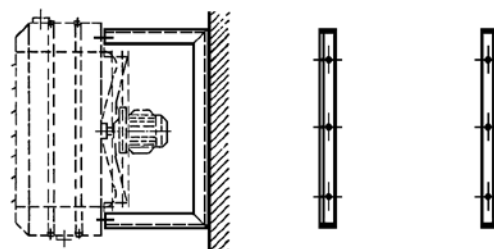
VA3V 3 way valve

Composed by:

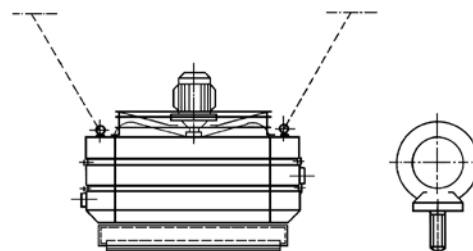
- one 3-way valve
- one ON-OFF 230V actuator



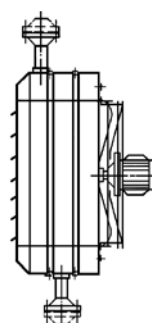
HMP Wall bracket



HS Suspension plate for ceiling installation



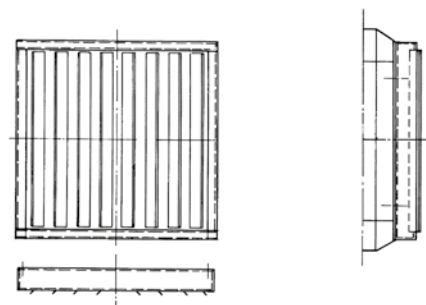
HF Flanged connections PN16 UNI 2282



AD

4 way diffuser

To be used when discharging downflow to create a 4 way discharge pattern.
For normal heights of installation



Controls and special motors

- Two speed Delta-Star motors, 4/6 or 6/8 poles, three phase, IP 55, with klaxon thermic protection

DSS

Delta-Star switch

for two speed Delta-Star motors, 4/6 or 6/8 poles



Manual two-position switch

for two speed Delta-Star motors, 4/6 or 6/8 poles

- **BS 2S** without thermostat
- **BS 2-ST** with thermostat



Multi-function automatic control panel

for two speed Delta-Star motors, 4/6 or 6/8 poles

- **BSA-B** without timer
- **BSA-A** with manual daily timer
- **BSA-D** with digital weekly timer



- **IP 55 motor protection**

- **Capacitor for single phase motor (not mounted)**

Jetstream

Induction Flow Optimizer



The Atlas, Helios, Atlas ECM and Janus 05 unit heaters can be supplied with the innovative **Jetstream** induction flow optimiser, in the manual version or the motorised version for wall-hung or ceiling installation. The lower outlet temperature of the air from the units means less stratification of the hot air in the building and less operating time for the same ambient temperature.

In addition, the increased air throw means greater uniformity of the temperature at floor level, with an expansion of the comfort zone, and consequently the possibility to install smaller and more silent appliances.



The use of the **Jetstream** induction flow optimizer has the following advantages:

a) Energy saving:

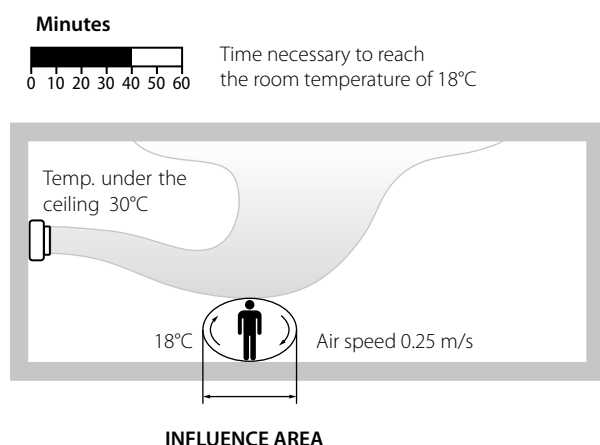
- reduced hot air stratification within the building.
- reduced operating time of the units with the same ambient temperature.

Energy saving varies between a minimum of 5% and a maximum of 15%, with maximum amortization in two seasons.

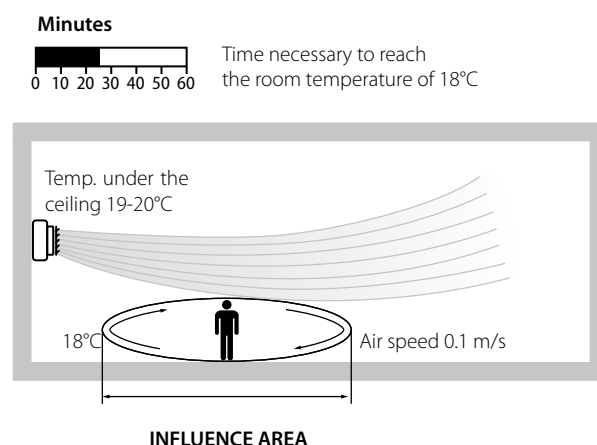
b) Environment comfort advantages:

- increased floor-temperature uniformity with greater comfort area.
- possibility to install smaller and quieter units, due to the increase of the throw.

Air flow produced by a unit heater without induction flow optimizer



Air flow produced by a unit heater with induction flow optimizer



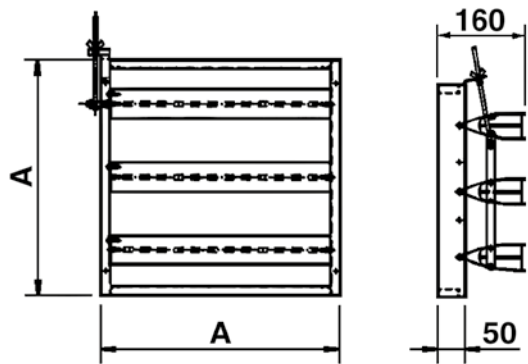
Four versions are available:

- Manual for wall installation (all sizes)
- Manual for ceiling installation (all sizes)
- Motorized for wall installation (sizes 1÷7 only)
- Motorized for ceiling installation (all sizes)

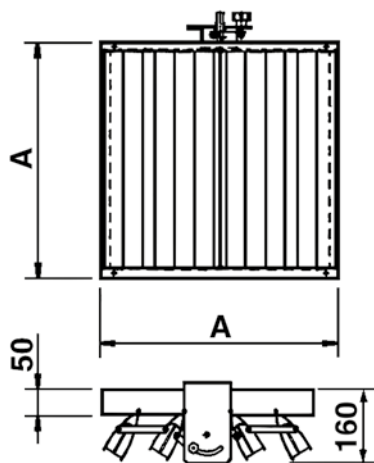
The manually controlled version calls for manual orientation of the fins and for them to be locked using a special threaded rod.

The motorized version is supplied with single phase motor that can be controlled by the remote switch.

O (horizontal discharge)



V (vertical discharge)



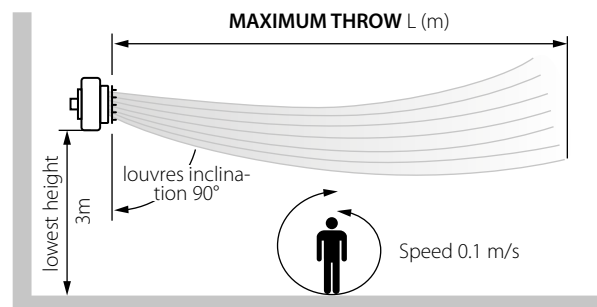
Model		A mm	Weight Kg
O - 1	V - 1	368	1,4
O - 2	V - 2	422	1,7
O - 3	V - 3	476	1,8
O - 4	V - 4	530	2,0
O - 5	V - 5	584	2,2
O - 6	V - 6	638	2,4
O - 7	V - 7	793	2,6
O - 8	V - 8	900	3,0
O - 9	V - 9	1010	3,4
O - 10	V - 10	1117	3,7

Controls

Remote switch

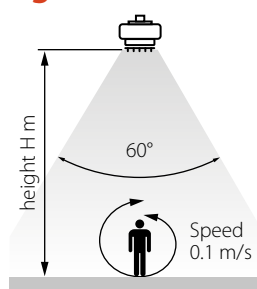


A wall installation for horizontal discharge

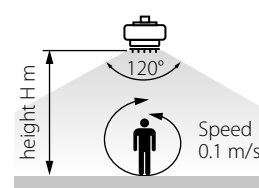


Sabiana unit heater Size	Maximum throw L (m)					
	without Jetstream			with Jetstream		
	4P	6P	8P	4P	6P	8P
1	7,5	5	4,5	12	8	-
2	10	7	5,5	16	11	-
3	13,5	10	7	18	14	-
4	16	12	8	20	15	-
5	18	13	8	23	16	-
6	22	16	12	28	20	-
7	-	24	18	-	28	22
8	-	26	20	-	32	25
9	-	28	21	-	34	26
10	-	30	22	-	37	28

B ceiling installation for vertical discharge



THROW 30° every side



THROW 60° every side

Sabiana unit heater Size	Installation height H (m)								
	without Jetstream			with Jetstream a 60°			with Jetstream a 120°		
	4P	6P	8P	4P	6P	8P	4P	6P	8P
1	4	3	-	5,5	4	-	4	3	-
2	4,5	3,5	-	8	6,5	-	5	4	-
3	5	4	-	11	8	-	6,5	5,5	-
4	5,5	4,5	-	12	9	-	6,5	5,5	-
5	6	5	-	13	10	-	7	6	-
6	7	6	-	14	12	-	8	7	-
7	-	7	6	-	13	11	-	8	7
8	-	9	7	-	15	12	-	10	8
9	-	11	8	-	18	13	-	13	9
10	-	12	9	-	19	14	-	14	10

Aix

Stainless Steel Unit Heater



AIX Sabiana unit heaters are made with stainless steel structures and coils with stainless steel pipes and flanged fittings, and aluminium fins. They are available in four sizes, for a total of eight models. These units can be supplied with hot water, high-temperature hot water and steam.

They are especially suitable for working environments in which these types of system configurations are required.



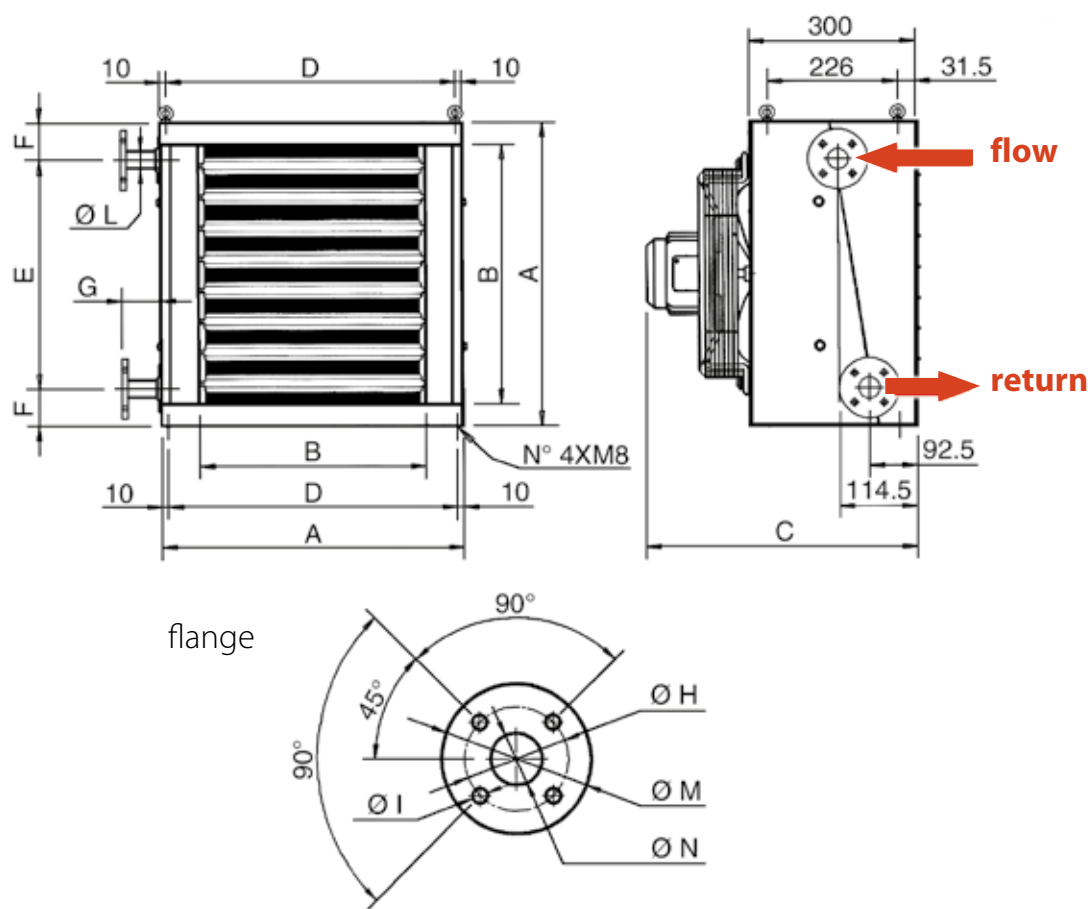
- The **main casing** is manufactured from AISI 304 stainless steel, 1 mm thick.
- The **adjustable louvres** are held firm by spring loaded pivots and they are mounted in horizontal position on the front part of the unit.
- **Coil:** the fins are pressed from aluminium sheet, bonded onto the AISI 304 stainless steel tubes facilitating the maximum transfer contact. The AIX units are supplied with flanged connections.
- The **standard motor** is hermetically sealed and is maintenance free. The motor is 2 speeds, 3 phase, single voltage, 400V 50Hz, protection IP55, with klaxon thermal protection.



AIX identification code

Reference: 46I42

46	I	4	2
Motor 4/6 pole (1350/1000 r.p.m.)	Range Aix	Size 4	Rows 2



Model	A	B	C	D	E	F	G	ØH	ØI	ØL	ØM	ØN
46 I 21-22	526	393	468	506	330	98	66	65	14	1 ½"	95	15
46 I 41-42	636	501	468	616	497	69.5	66	85	14	1"	115	25
46 I 61-62	743	609	468	723	588	77.5	56	100	18	1 ¼"	140	32
68 I 91-92	1011	877	576	991	832	89.5	87	110	18	1 ½"	150	40

Model	Weight Kg		Water content liters	
	1R	2R	1R	2R
46 I 21-22	26	30	1,7	2,5
46 I 41-42	33	38	2,9	4,2
46 I 61-62	45	51	5,3	5,9
68 I 91-92	82	92	8,2	12

Heating emission

Model		46 I 21		46 I 41		46 I 61		68 I 91	
Mounting height	m	2.5 ÷ 4		3 ÷ 4.5		3 ÷ 5		3.5 ÷ 5.5	
Speed	r.p.m.	1350	1000	1350	1000	1350	1000	900	700
Air flow	m³/h	2300	1500	3900	2600	6900	4400	10200	7600
Throw	m	11	7.5	16	12	25	18	28	21
Noise level at 5 m (*)	dB(A)	59	51	64	54	69	60	68	62
Steam 3 bars	kW	14,30	11,90	23,40	19,80	37,00	31,00	68,40	60,50
Entering air temperature +15°C	Leaving air temp. °C	33,3	38,3	32,6	37,4	30,8	35,7	34,7	38,4
Steam 6 bars	kW	16,50	13,80	27,00	22,90	42,70	35,90	79,00	70,00
Entering air temperature +15°C	Leaving air temp. °C	36,1	42	35,4	40,9	33,2	39	37,8	42,1

Modello		46 I 22		46 I 42		46 I 62		68 I 92	
Mounting height	m	2.5 ÷ 4		3 ÷ 4.5		3 ÷ 5		3.5 ÷ 5.5	
Speed	r.p.m.	1350	1000	1350	1000	1350	1000	900	700
Air flow	m³/h	2100	1400	3600	2400	6300	4100	9200	7000
Throw	m	11	7.5	16	12	25	18	28	21
Noise level at 5 m (*)	dB(A)	59	51	64	54	69	60	68	62
Water temperature 85/75°C	kW	13,00	10,60	21,10	17,20	36,50	29,30	59,20	51,40
Entering air temperature +15°C	Leaving air temp. °C	33,2	37,3	32,2	36,1	32	36	33,9	36,6
Water temperature 130/100°C	kW	18,90	15,40	302,00	247,00	533,00	43,00	841,00	74,00
Entering air temperature +15°C	Leaving air temp. °C	41,5	47,3	39,7	45,3	39,9	45,8	41,9	46,1

(*) = The sound pressure levels dB(A) are measured at a distance of 5m, directional factor Q = 2, compliant with the EN 3744 standard.

Controls

DSS **Delta-Star switch**
for two speed Delta-Star motors, 4/6 or 6/8 poles.

Manual two-position switch
for two speed Delta-Star motors, 4/6 or 6/8 poles.

BS 2S without thermostat
BS 2-ST with thermostat

Multi-function automatic control panel
for two speed Delta-Star motors, 4/6 or 6/8 poles.

BSA-B without timer
BSA-A with manual daily timer
BSA-D with digital weekly timer

Atlas STP

Door Curtain Unit



The **Atlas STP** door curtain units, supplied with hot water, are fitted with special diffusers that create a curtain of hot air. Installed above the door, they deliver a constant vertical flow of air, representing a barrier that, by thermodynamic effect, stops the infiltration of air from the outside, and mixes the residual cold currents. Available in three sizes, with two speed and 1, 2, 3 row coils.

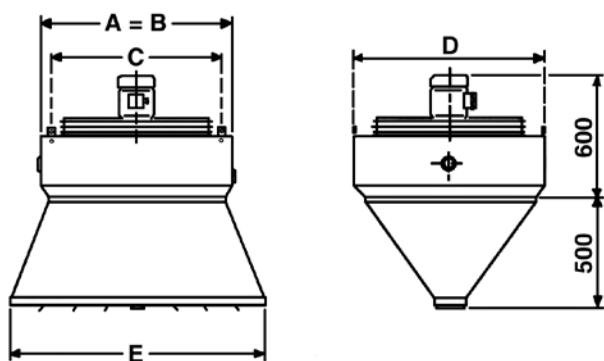
- The **main casing** is **manufactured from galvanized prepainted steel** finished in light grey colour (RAL 9002), and is assembled from three component parts, which are assembled using self-tapping screws in order to allow quick maintenance on the coil.
- **Fishtail diffuser** produced from steel sheet with manually adjustable louvres for individual requirements.
- Coil manufactured from high quality steel or copper tube 22 mm of diameter to reduce resistance with mechanically bonded aluminium fins for high efficient heat transfer. Available in 1, 2 or 3 rows.
- **The fan** consists of aluminium helicoidal blades statically and dynamically balanced with a cast alloy hub, keyed into the motor shaft and mounted onto the casing with antivibration rubber mounting blocks. The motor is supplied as standard for a three phase, 400V 50Hz, class B, IP55, 6/8 poles two speed: 900 r.p.m. (6 poles) or 700 r.p.m. (8 poles).

Identification code

Reference: 68A71 SX / STP

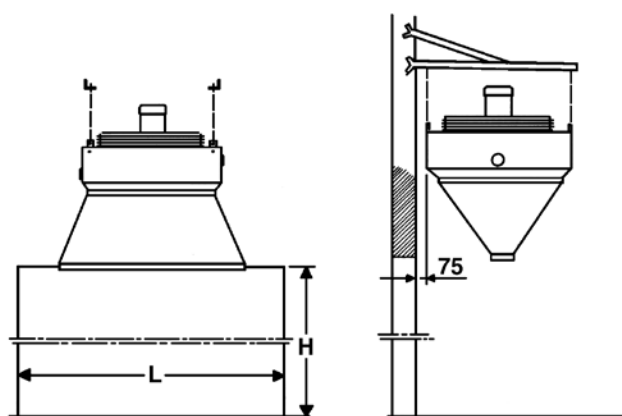
68	A	7	1	SX	SP	/ STP
Motor 6/8 pole	Range Atlas	Size 7	Rows 1	Coil steel tube	Coil copper tube	Type STP





Size	Dimensions				Rows	Weight	Water content
	A=B	C	D	E			
	mm						
7	793	696	793	1000	1	62	4,3
					2	70	8,2
					3	76	12,3
8	900	803	900	1200	1	75	5,8
					2	86	11,1
					3	93	16,6
9	1010	913	1010	1400	1	90	7,6
					2	104	14,5
					3	113	21,8

Correct selection of the door curtain



Size	Motor pole	Door height H (m)	Door width L (m)
7	6	3,0 ÷ 4,0	1,5
8	6	3,5 ÷ 4,5	2,0
9	6	4,5 ÷ 5,5	2,5
7	8	2,5 ÷ 3,0	1,5
8	8	3,0 ÷ 3,5	1,8
9	8	3,5 ÷ 4,5	2,0

Entering air temperature 15°C

Size	Model							Emission							
								Water temperature 85-70°C				Water temperature 140-100°C			
		Motor speed r.p.m.	Air flow m³/h	Noise level at 5 m * dB(A)	kW		Leaving air temperature °C		kW		Leaving air temperature °C				
		Poles													
6	8	6	8	6	8	6	8	6	8	6	8	6	8	6	8
7	68A71/STP	900	750	4435	3440	69	63	—	—	—	—	39,42	35,03	41,0	44,8
	68A72/STP	900	750	4175	3175	69	63	38,15	32,87	41,7	45,3	62,72	54,06	59,0	64,8
	68A73/STP	900	750	4000	3045	69	63	44,87	38,06	47,8	51,5	—	—	—	—
8	68A81/STP	900	750	6655	4700	69	64	—	—	—	—	50,62	43,35	37,2	42,0
	68A82/STP	900	750	6000	4300	69	64	49,08	41,20	38,9	43,0	80,12	67,29	54,1	60,8
	68A83/STP	900	750	5480	3915	69	64	59,42	48,49	46,7	51,2	—	—	—	—
9	68A91/STP	900	750	9220	6610	70	65	—	—	—	—	70,80	61,10	37,5	42,0
	68A92/STP	900	750	8870	6260	70	65	70,79	59,10	38,3	42,6	116,23	96,92	53,3	60,3
	68A93/STP	900	750	8170	5560	70	65	86,68	69,00	46,0	51,3	—	—	—	—

* = The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

No-Strat

Anti-stratification and Heat Economiser Unit



No-Strat, an anti-air-stratification unit, recirculates the hot air downwards, hot air that in large spaces heated with warm air (for example, using hot air generators) tends to stratify towards the top. The temperature controller fitted on the appliance can be used to set the air temperature at which the **No-Strat** starts operation. In addition, it can be used to increase the recirculation air rate and improve the uniformity of the ambient temperature.

The series includes 8 models, with flow-rates from 3.500 to 14.000 m³/h.

- The **casing** is manufactured from galvanised prepainted steel sheet (1 mm thick) finished in light grey colour (RAL 9002). The adjustable louvres are held firm by spring loaded pivots.
- The fan assembly is made up of the **aluminium helicoidal fan**, the safety guard support and the three phase V400/3 electric motor with 4 or 6 poles, protection IP44.
- A **room thermostat** is mounted on the unit for the automatic on/off switching of the motor in accordance with the temperature under the ceiling.
- **3-phase power switch** V400/3 with built-in overload protection.



- 1

Three phase electric motor
- 2

Motor support with safety guard
- 3

Aluminium fan
- 4

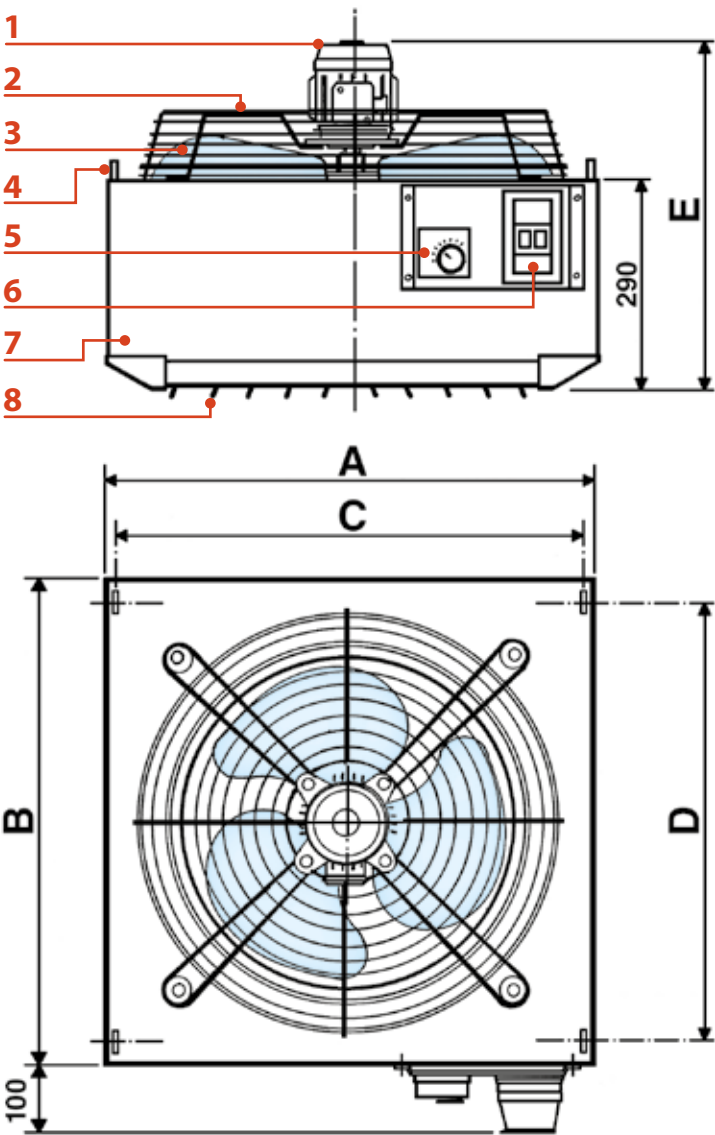
Brackets
- 5

Ambient thermostat
- 6

Switch with thermal relay
- 7

Galvanised and prepainted steel case
- 8

Adjustable louvres



Model		A	B	C	D	E	Weight kg
DNS-450/4	DNS-450/6	634	634	629	537	488	20
DNS-500/4	DNS-500/6	688	688	683	591	488	23
DNS-550/4	DNS-550/6	742	742	737	645	513	25
-	DNS-650/6	900	900	895	803	575	33
-	DNS-750/6	1010	1010	1005	913	595	42

Model	Motor speed r.p.m.	Air flow m ³ /h	Installation height m	Surface m ²	Noise level at 5 m * dB(A)
DNS-450/4	1400	4300	4,5 ÷ 6,5	100	61
DNS-450/6	900	2800	3,5 ÷ 6	60	52
DNS-500/4	1400	5500	5 ÷ 8	150	66
DNS-500/6	900	3750	4 ÷ 8	90	56
DNS-550/4	1400	6300	6,5 ÷ 9	200	69
DNS-550/6	900	4600	5 ÷ 8,5	120	60
DNS-650/6	900	9100	6,5 ÷ 11	300	67
DNS-750/6	900	13200	7 ÷ 13	400	68

(*) = The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

Comfort

Circular Unit Heater



Comfort Sabiana circular unit heaters, for ceiling installation only, are especially suitable for high rooms, even if the optimum ratio between the air flow-rate and the heat output make them suitable for any manufacturing environment.

The large coil and the fan downstream of the coil ensure optimum mixing of the air in the environment, meaning less stratification of the hot air than with traditional unit heaters.

Two different diffusers ensure perfect control of the air flow, with the possibility on the more common diffusers to tilt each louvre in the desired direction.

The Comfort unit heaters are made in 10 sizes, with heat outputs from 17 to 107 kW, and one or two speeds motors.

- The **casing** is made of spun steel on both top and bottom sections which is designed to give greater strength and quieter operation. The casing is then finished with an epoxy, polyester powder coating of light grey, RAL 9002.
- The **circular coil** is constructed of copper tubes with aluminium fins.
- The **helicoidal fan** is statically and dynamically balanced, the rational high-capacity profile provides maximum air volume with a minimum power consumption.
- **Standard motors are three phase 400 V**, closed frame, flange mounted, pre-greased bearings. Available with single speed at 4 and 6 pole (IP44), with double speed double wiring at 4/6 pole (IP44) or with two speed Delta-Star motors at 6/8 pole (IP55).

On request:

- **Flanged connections.**
- **Steam execution.**



Comfort

Comfort identification code

Reference: 6Z-415

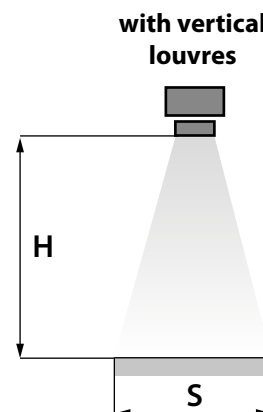
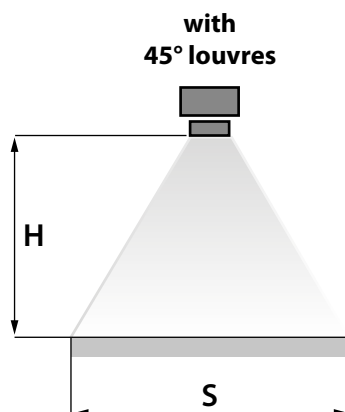
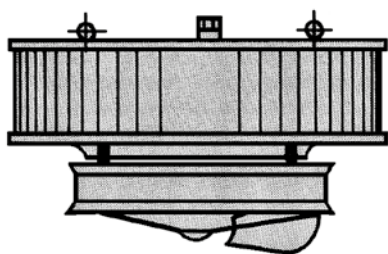
6	Z	4	15
Motor 6 pole (900 r.p.m.)	Range Comfort	Size 4	N° of circuits



This is the most commonly used model; made of eight separately adjustable large louvers, shaped so as to be able to cover the whole outlet area and therefore adaptable for minimum to maximum heights.

This diffuser allows the air to be directed more easily to the areas where it is required most, or conversely, if you do not require air to one particular corner you can close down one, two or three vanes and restrict the distribution.

Mounting heights and area of air distribution



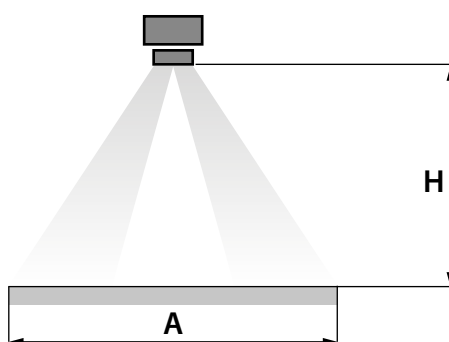
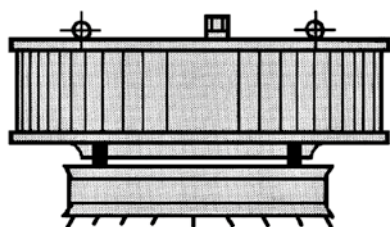
Size	1400 r.p.m. motor speed			
	45° louvres		Vertical louvres	
	H suggested m	S diameter m	H suggested m	S diameter m
0	3÷5	15÷21	4÷6	7,5÷10,5
1	3,5÷5,5	16,5÷21	4,5÷6,5	9÷12
2	4÷6	18÷25,5	5÷7	10,5÷13,5
3	4÷6,5	18÷27	5,5÷8	10,5÷15
4	4÷7	18÷28,5	6÷9	10,5÷16,5
5	–	–	–	–
6	–	–	–	–
7	–	–	–	–
8	–	–	–	–
9	–	–	–	–

Size	900 r.p.m. motor speed			
	45° louvres		Vertical louvres	
	H suggested m	S diameter m	H suggested m	S diameter m
0	2,5÷4	10,5÷16,5	3,5÷5	6÷9
1	3÷4,5	12÷18	4÷5,5	7,5÷10,5
2	3÷5	12÷19,5	4,5÷6,5	9÷12
3	3,5÷5,5	15÷22,5	5÷7	9÷13,5
4	3,5÷6	15÷24	5,5÷8	10,5÷15
5	4÷6,5	16,5÷25,5	5,5÷8,5	10,5÷15
6	4÷8	16,5÷28,5	6÷10	12÷18
7	4÷8	16,5÷28,5	6÷10	12÷18
8	5÷11	18÷31,5	6,5÷14	13,5÷19,5
9	5÷11	18÷33	6,5÷14	13,5÷21



It is designed to give a two way or corridor distribution, suitable for corridor or gangway areas, between storage racks etc., generally mounted at any height depending upon the length of corridor required.

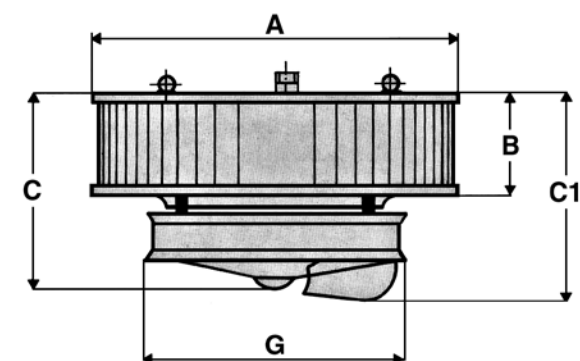
Mounting heights and area of air distribution



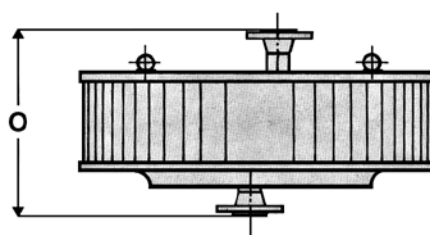
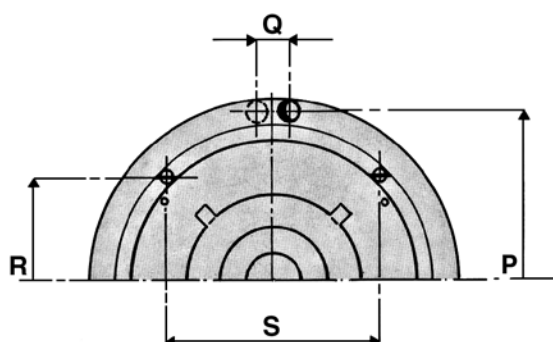
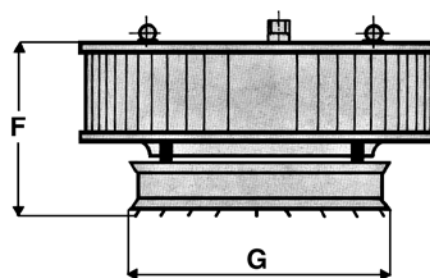
Size	1400 r.p.m. motor speed	
	H suggested m	Zone m A ÷ B
0	3÷6	15x6÷10x4
1	3÷6	16x7÷10x5
2	3,5÷7	18x8 ÷14x5
3	3,5÷8	20x10÷14x6
4	4÷9	22x10÷15x7
5	–	–
6	–	–
7	–	–
8	–	–
9	–	–

900 r.p.m. motor speed	
H suggested m	Zone m A ÷ B
2,5÷5	13x5÷9x4
2,5÷5	14x6÷10x4
3÷6	16x7÷10x4
3÷6,5	17x8÷13x5
3,5÷7	20x10÷15x5
4÷8	22x10÷16x5
4÷10	24x10÷18x6
4÷11	24x11÷20x8
6÷15	26x12÷22x10
6÷15	26x12÷22x10

DRA



T2



Version with PN 16 flanges

Size	A	B	C	C1	F	G	O	P	Q	R	S	Connections Ø	Weight kg	Water content Liters
0	680	180	430	560	380	560	331	612	62	350	350	1 ¼"	31	1,2
1	780	180	430	560	380	560	331	702	62	421	421	1 ¼"	36	1,3
2	780	280	530	660	480	560	431	702	62	421	421	1 ¼"	42	1,9
3	880	280	530	700	480	660	435	802	68	491	491	1 ½"	52	2,4
4	880	380	630	760	580	660	535	802	68	491	491	1 ½"	58	3,2
5	1080	380	630	870	580	760	539	1005	80	755	440	2"	75	4,3
6	1080	455	705	945	655	760	614	1005	80	755	440	2"	85	5,2
7	1080	555	805	1045	755	760	714	1005	80	755	440	2"	95	5,9
8	1080	555	815	1055	765	760	714	1005	80	755	440	2"	97	5,9
9	1080	605	865	1105	815	760	765	1005	80	755	440	2"	106	6,5

The units with steam coils are supplied with connections for welding; on request they can be supplied with flanges.

Water temperature 85-75°C
Drop 10°C - Δtm 65°C - Entering air temperature 15°C

Size	Motor speed r.p.m.	Model ref.	Air flow m³/h	Noise level at 5 m (*) dB(A)	Emission W	Leaving air temperature °C
0	1400	4Z-007	3.000	56	24.400	39
1	1400	4Z-107	3.400	60	28.400	39
2	1400	4Z-211	5.100	63	41.800	39
3	1400	4Z-311	6.000	65	48.800	39
4	1400	4Z-415	7.800	66	64.400	39
0	900	6Z-007	2.000	48	19.100	43
1	900	6Z-107	2.400	52	22.100	42
2	900	6Z-211	3.700	54	32.700	41
3	950	6Z-311	4.400	55	38.000	40
4	950	6Z-415	5.700	56	50.200	41
5	930	6Z-515	7.100	63	61.500	40
6	930	6Z-618	9.000	64	77.800	40
7	930	6Z-722	9.900	65	92.000	42
8	930	6Z-822	11.000	65	107.000	44
9	930	6Z-924	12.000	66	115.100	44

Thermal emission with motor running at 700 r.p.m.:

Watt = 0.85 x Watt with motor at 900 r.p.m.

Air = 0.70 x air flow with motor at 900 r.p.m.

(*) = The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

On request: double speed motor, single tension.

Polaris

Air Conditioner



Polaris Sabiana circular unit heaters, for ceiling installation only, are especially suitable for high rooms, even if the optimum ratio between the air flow-rate and the heat / cool output make them suitable for any manufacturing environment.

The large coil and the fan downstream of the coil ensure optimum mixing of the air in the environment, meaning less stratification of the hot air than with traditional unit heaters.

When supplied with cold water they can also be used in the summer months, thus allowing cooling at very reasonable costs.

The Polaris unit heaters are made in 9 sizes, all fitted with very silent two speeds motors, heat outputs from 17 to 107 kW and cooling capacities from 2 to 20 kW.

- The **casing** is made of spun steel on both top and bottom sections which is designed to give greater strength and quieter operation. The casing is then finished with an epoxy, polyester powder coating of light grey, RAL 9002.
- The **circular coil** is constructed of copper tubes with aluminium fins.
- The **helicoidal fan** is statically and dynamically balanced, the rational high-capacity profile provides maximum air volume with a minimum power consumption.
- **Standard motors are three phase 400 V**, closed frame, flange mounted, pre-greased bearings, protection IP 55. Available with two speed Delta-Star motors at 6/8 pole.

On request:

- **Delta-Star switch** for two speed Delta-Star motors, 6/8 poles, with klaxon thermic protection.

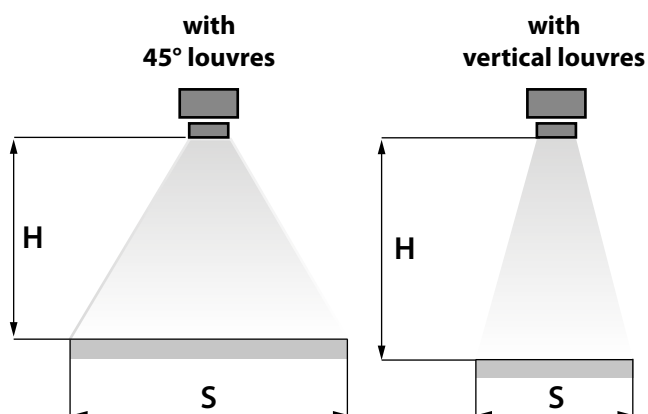




Made of eight separately adjustable large louvers, shaped so as to be able to cover the whole outlet area and therefore adaptable for minimum to maximum heights.

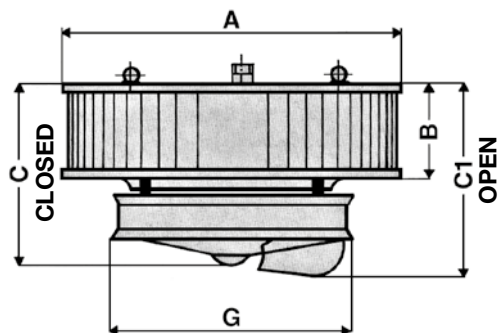
This diffuser allows the air to be directed more easily to the areas where it is required most, or conversely, if you do not require air to one particular corner you can close down one, two or three vanes and restrict the distribution.

Mounting heights and area of air distribution



Size	900 r.p.m. motor speed			
	45° louvres		Vertical louvres	
	H suggested m	S diameter m	H suggested m	S diameter m
0	2,5÷4	10,5÷16,5	3,5÷5	6÷9
1	3÷4,5	12÷18	4÷5,5	7,5÷10,5
3	3,5÷5,5	15÷22,5	5÷7	9÷13,5
4	3,5÷6	15÷24	5,5÷8	10,5÷15
5	4÷6,5	16,5÷25,5	5,5÷8,5	10,5÷15
6	4÷8	16,5÷28,5	6÷10	12÷18
7	4÷8	16,5÷28,5	6÷10	12÷18
8	5÷11	18÷31,5	6,5÷14	13,5÷19,5
9	5÷11	18÷33	6,5÷14	13,5÷21

Dimensions, weight, water content



Dimensions						Weight	Water content
A	B	C	C1	G	Connections		
mm	mm	mm	mm	mm	ø	kg	litri
680	180	430	560	560	1 ¼"	31	1,2
780	180	430	560	560	1 ¼"	36	1,3
880	280	530	700	660	1 ½"	52	2,4
880	380	630	760	660	1 ½"	58	3,2
1080	380	630	870	760	2"	75	4,3
1080	455	705	945	760	2"	85	5,2
1080	555	805	1045	760	2"	95	5,9
1080	555	815	1055	760	2"	97	5,9
1080	605	865	1105	760	2"	106	6,5

Size	Model	Noise level at 5 m (*) dB(A)		Air flow m ³ /h	
		930 r.p.m.	800 r.p.m.	930 r.p.m.	800 r.p.m.
0	P.007	48	46	2000	1400
1	P.107	52	49	2400	1680
3	P.311	55	52	4400	3080
4	P.415	56	53	5700	4000
5	P.515	63	58	7100	4970
6	P.618	64	59	9000	6300
7	P.722	65	60	9900	6930
8	P.822	65	60	11000	7700
9	P.924	66	61	12000	8400

Heating			
Water temperature 85/70 °C - Entering air temperature 15 °C			
W		Leaving air temp. °C	
930 r.p.m.	800 r.p.m.	930 r.p.m.	800 r.p.m.
17600	15100	41	47
20400	17400	40	46
35300	30000	38	44
46700	39600	39	44
57100	48500	39	44
72200	61400	38	44
85600	72700	40	46
99500	84500	43	48
106700	90700	42	47

Size	Model	Noise level at 5 m (*) dB(A)		Air flow m ³ /h	
		930 r.p.m.	800 r.p.m.	930 r.p.m.	800 r.p.m.
0	P.007	48	46	2000	1400
1	P.107	52	49	2400	1680
3	P.311	55	52	4400	3080
4	P.415	56	53	5700	4000
5	P.515	63	58	7100	4970
6	P.618	64	59	9000	6300
7	P.722	65	60	9900	6930
8	P.822	65	60	11000	7700
9	P.924	66	61	12000	8400

Cooling	
Relative humidity 55%	
Water temperature 11/15 °C - Entering air temperature 28 °C	
W	
930 r.p.m.	800 r.p.m.
3100	2700
4000	3500
7500	6600
10900	9500
13600	11900
17200	15000
18900	16500
22000	19000
23700	20600

(*) = The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

Janus

Air Conditioner



Janus unit heaters can be used to economically cool industrial, commercial and sporting facilities, transforming a traditional heating system using unit heaters into a system that can also be used in the summer months, significantly improving the working conditions.

The condensate collection tray is built into the appliance, while two-speed motors are fitted as standard. Upon request, controls with thermostat can also be supplied.

The Janus unit heaters are made in 4 sizes, each with 3 and 4 row coils, for a total of 8 models, with heat outputs from 16 to 104 kW and cooling capacities from 5 to 28 kW.

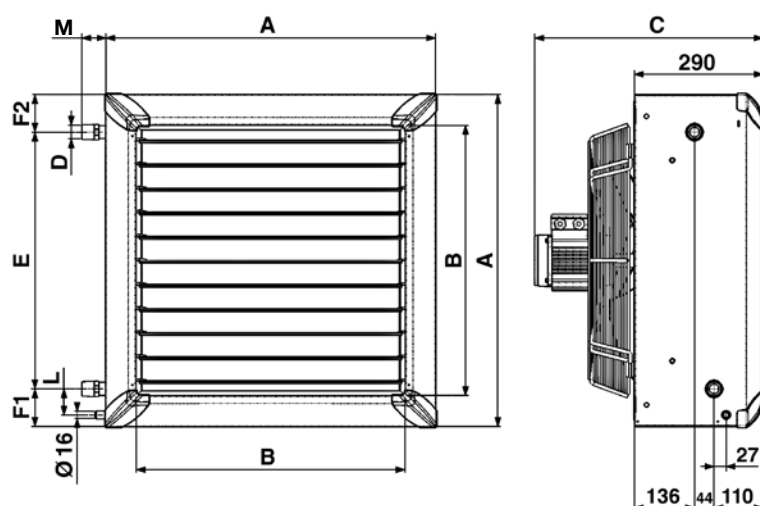
- The **main casing** is **manufactured from galvanized prepainted steel** (1 mm thick) finished in light grey (RAL 9002), and it is assembled from three component parts, assembled with self-tapping screws for quick maintenance on the heat coil. The use of hot dip galvanised and pre-painted steel ensures consistency and excellent protection against corrosion.
- The **standard motor** fitted is a hermetically sealed and is maintenance free. The motor is 2 speeds, 3 phase, single voltage 400V/50Hz, protection IP55, class B, with klixon thermal protection that is triggered in the event of overheating. The rotation speed can be reduced by passing from delta to star connection.
- **Coil** with large heating surfaces with copper pipe and in aluminium fins.
- The **condensate collection tray** is fitted inside the unit. Made from galvanized steel insulated with polyolefin (PO) foam (class M1).

Janus identification code

Reference: **46F43**

46	F	4	3
Motor 4/6 pole (1350/1000 r.p.m.)	Range Janus	Size 4	Rows 3





Model	A	B	C	D	E	F1	F2	L	M
46 F 23/24	526	390	500	1"	376	78	71	58	55
46 F 43/44	634	498	500	1"	476	76	83	58	55
68 F 63/64	742	606	525	1"	576	83	83	58	55
68 F 93/94	1010	874	650	1 ¼"	818	90	100	67	63

Model	Weight Kg		Water content liters	
	3R	4R	3R	4R
46 F 23/24	25,0	26,0	1,7	2,2
46 F 43/44	32,5	34,0	2,7	3,4
68 F 63/64	42,5	44,5	4,0	5,1
68 F 93/94	77,0	81,0	7,6	9,8

Heating emission

Model		46 F 23		46 F 24		46 F 43		46 F4 4	
Mounting height	m	2.5 ÷ 4				3 ÷ 4.5			
Speed	r.p.m.	1350	1000	1350	1000	1350	1000	1350	1000
Air flow	m³/h	2000	1365	1800	1270	3450	2290	3100	2000
Throw	m	11	7,5	10	6,5	16	12	15	11
Noise level at 5 m (*)	dB(A)	59	51	59	51	64	54	64	54
Water temperature 45/40 °C - Δt 5 °C Entering air temperature +15 °C	kW	8,47	6,65	9,66	7,62	14,44	11,15	16,55	12,27
	Leaving air temp. °C	27,4	29,3	30,7	32,6	27,3	29,2	30,6	32,9
Water temperaturte 85/75 °C - Δt 10 °C Entering air temperature +15 °C	kW	20,75	16,23	23,58	18,52	35,15	27,08	40,14	29,66
	Leaving air temp. °C	43,4	49,8	53,3	57,7	44,8	49,6	52,9	58,4
Water temperaturte 90/70 °C - Δt 20 °C Entering air temperature +15 °C	kW	19,86	15,63	22,76	18,00	33,86	26,26	39,04	29,10
	Leaving air temp. °C	44,0	48,5	52,0	56,5	43,7	48,5	51,8	57,6

Model		68 F 63		68 F 64		68 F 93		68 F 94	
Mounting height	m	3 ÷ 5				3.5÷ 5.5			
Speed	r.p.m.	950	750	950	750	950	750	950	750
Air flow	m³/h	3930	3050	3510	2650	7500	5800	6800	5100
Throw	m	16	12	15	11	26	20	25	19
Noise level at 5 m (*)	dB(A)	60	52	60	52	66	60	66	60
Water temperature 45/40 °C - Δt 5 °C Entering air temperature +15 °C	kW	18,81	15,77	20,67	16,95	37,97	32,04	42,29	34,43
	Leaving air temp. °C	29,0	30,4	32,2	33,7	29,8	31,2	33,2	34,8
Water temperaturte 85/75 °C - Δt 10 °C Entering air temperature +15 °C	kW	45,46	38,07	49,79	40,75	92,37	77,80	102,66	83,31
	Leaving air temp. °C	48,8	52,1	56,5	60,0	51,0	54,2	59,2	62,8
Water temperaturte 90/70 °C - Δt 20 °C Entering air temperature +15 °C	kW	44,38	37,26	48,95	40,28	89,39	75,66	100,11	81,73
	Leaving air temp. °C	48,0	51,3	55,8	59,5	49,9	53,2	58,1	61,9

(*) = The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

Cooling emission

Modello		46 F23	46 F24	46 F43	46 F44
Mounting height	m	2.5 ÷ 4		3 ÷ 4.5	
Speed	r.p.m.	1000	1000	1000	1000
Air flow	m³/h	1365	1270	2290	2000
Throw	m	7,5	6,5	12	11
Noise level at 5 m (*)	dB(A)	51	51	54	54
Water temperature 7/12 °C - Δt 5 °C Entering air temperature +28 °C - R.H. 55%	kW Total	5,00	6,08	8,62	10,28
	kW Sensible	3,57	4,14	6,05	6,78
	Leaving air temp. °C	20,1	18,1	20,0	17,7
Water temperature 11/15 °C - Δt 4 °C Entering air temperature +28 °C - R.H. 55%	kW Total	3,57	4,27	6,21	7,32
	kW Sensible	3,25	3,62	5,43	5,86
	Leaving air temp. °C	20,8	19,4	20,8	19,1
Water temperature 9/14 °C - Δt 5 °C Entering air temperature +28 °C - R.H. 55%	kW Total	4,02	4,90	6,93	8,34
	kW Sensible	3,31	3,79	5,51	6,11
	Leaving air temp. °C	20,6	19,0	20,7	18,7

Modello		68 F63	68 F64	68 F93	68 F94
Mounting height	m	3 ÷ 5		3.5 ÷ 5.5	
Speed	r.p.m.	750	750	750	750
Air flow	m³/h	3050	2650	5800	5100
Throw	m	12	11	20	19
Noise level at 5 m (*)	dB(A)	52	52	60	60
Water temperature 7/12 °C - Δt 5 °C Entering air temperature +28 °C - R.H. 55%	kW Total	13,08	15,28	23,24	26,89
	kW Sensible	8,79	9,78	16,09	17,75
	Leaving air temp. °C	19,9	16,8	19,6	17,4
Water temperature 11/15 °C - Δt 4 °C Entering air temperature +28 °C - R.H. 55%	kW Total	9,33	10,89	16,56	19,08
	kW Sensible	7,61	8,28	14,28	15,38
	Leaving air temp. °C	20,3	18,5	20,5	18,9
Water temperature 9/14 °C - Δt 5 °C Entering air temperature +28 °C - R.H. 55%	kW Total	10,62	12,51	18,76	21,74
	kW Sensible	7,91	8,75	14,66	16,07
	Leaving air temp. °C	20,0	18,0	20,3	18,4

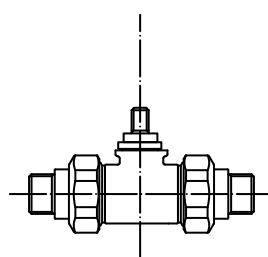
(*) = The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

VA2V

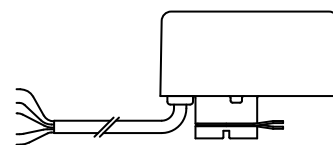
2 way valve

Composed by:

- one 2-way valve
- one ON-OFF 230V actuator



2 way valve



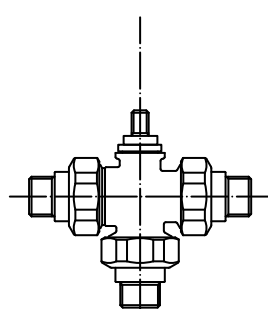
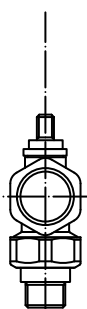
Actuator

VA3V

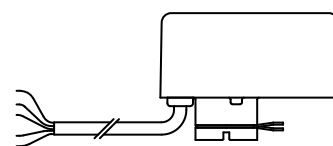
3 way valve

Composed by:

- one 3-way valve
- one ON-OFF 230V actuator



3 way valve



Actuator

KIT-VA

Extension kit

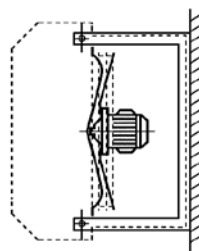
To be used with water valves (mandatory).



AMP

Wall bracket

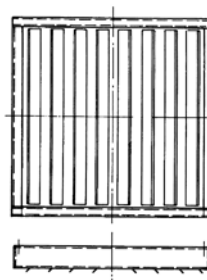
Horizontal discharge



AD

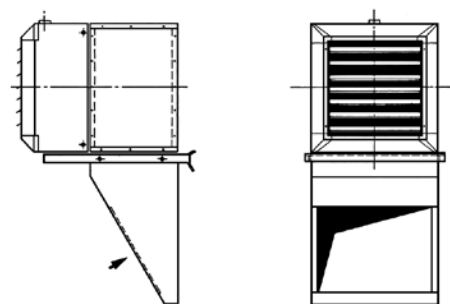
4 way diffuser

To be used when discharging downflow to create a 4 way discharge pattern



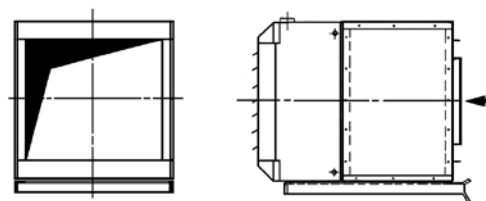
ARC Simple intake hood fitted underneath

Wall bracket included
Prepainted steel thickness 1 mm



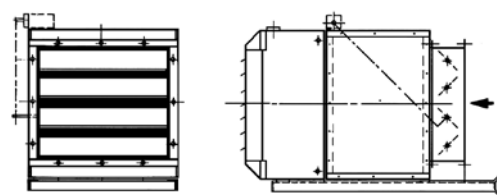
AE Fresh air box

Prepainted steel thickness 1 mm



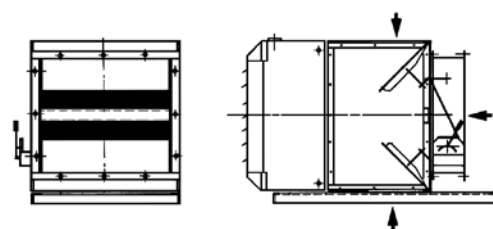
AES Fresh air box with manually operated damper (can be motorized by the customer)

Prepainted steel thickness 1 mm.



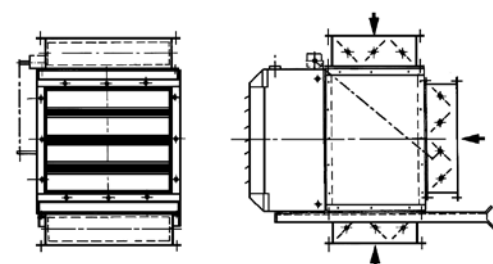
AM Internal/external air mixing box manually controlled

Prepainted steel thickness 1 mm.

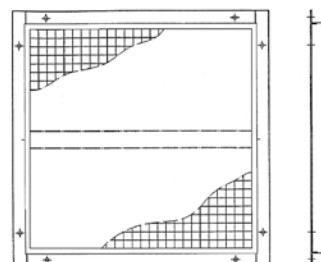


AMS Internal/external air mixing box, manually controlled (can be motorized by customer)

Prepainted steel thickness 1 mm

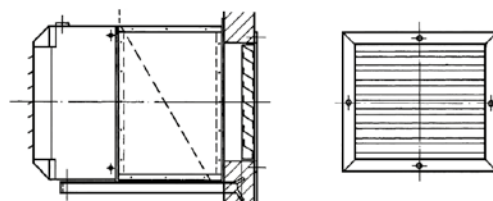


APP Ball protection grid



AG External air intake grille suitable with AE and AES air boxes

Prepainted steel thickness 1 mm



Controls

DSS Delta-Star switch for two speed Delta-Star motors, 4/6 or 6/8 poles



BS 3-ST Manual three-position switch with thermostat for two speed Delta-Star motors, 4/6 or 6/8 poles, with klixon thermic protection



Elegant ECM

Ceiling Air Conditioner



Elegant ECM air conditioners allow to heat and cool very economically small and medium areas, like shops, show rooms, workshops, supermarkets.

The range is made up of 12 models:

RE-ECM version, for heating only, is made up of **8 models**, and **PE-ECM** version, for heating and cooling, is made up of **4 models**.

All models are for ceiling installation and for hot/chilled water supply.

The **Elegant ECM** series uses an innovative brushless synchronous permanent magnet electric motor controlled by an inverter card that is directly installed on the unit.

The intake of the air is from the bottom side of the unit and the air supply is from the 4 lateral grids which have individually controllable louvers for the best distribution of the air.

The condensate drain is made through an electronically controlled micro-pump, supplied on every standard PE-ECM model.

Different remote controls of the air flow and of the room temperature are available and it is possible to control up to 8 units with only one remote control.

All the **Elegant ECM** units can be supplied with a wide range of controls using the **Modbus RTU - RS 485** communication protocol.



Beside the low installation and running cost, the **Elegant ECM Sabiana** air conditioners offer the following advantages:

- they take up a small amount of the valuable space in the room, there is not any ducting system and the walls are free.
- they are versatile and provide flexibility of installation: also where there is no false ceiling it is possible to distribute the air evenly.
- they provide easy control and are easily installed.

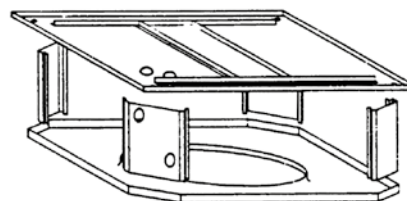


Casing

Made of steel on both top and bottom sections and it is then finished with an epoxy-polyester powder coating dried at 180°, in white RAL 9016.

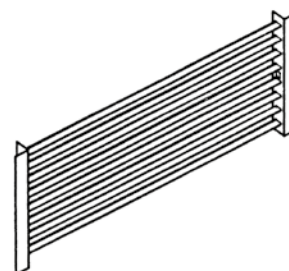
The lower casing is also the condensate collection tray.

The components are assembled with screws and so it is possible to quickly dismantle it for inspection when needed.



Outlet grids

The discharge of the air is obtained through 4 grids on the 4 lateral sides. They are comprised by a frame in which the louvres are individually adjustable. It is very easy to take off these grids, allowing for easy maintenance of the coil and of the condensate tray.



Electronic motor

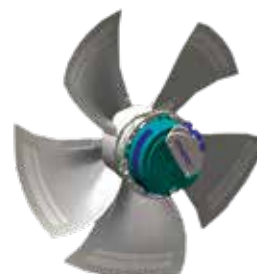
Three phase permanent magnet brushless electronic motor.

The inverter board that controls the motor operation is powered by 230 Volt, single-phase and it generates a frequency modulated wave form power supply. The electric power supply required for the machine is therefore single-phase with voltage of 230-240V and frequency of 50-60Hz.



Helicoidal fan

The fan is made with statically and dynamically balanced plastic blades. Its rational high-capacity profile provides the maximum air volume with the minimum energy consumption. The fan hub is secured onto the motor shaft and it is protected by a safety guard.



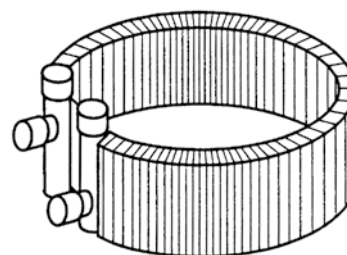
Coil

The coil is constructed of copper tubes with aluminium fins and steel headers.

The supply and return connections have a female threading, 1" diameter, and they allow the connection either vertically from above or horizontally from a side.

The coil is supplied in two versions: with 1 row and with 2 rows.

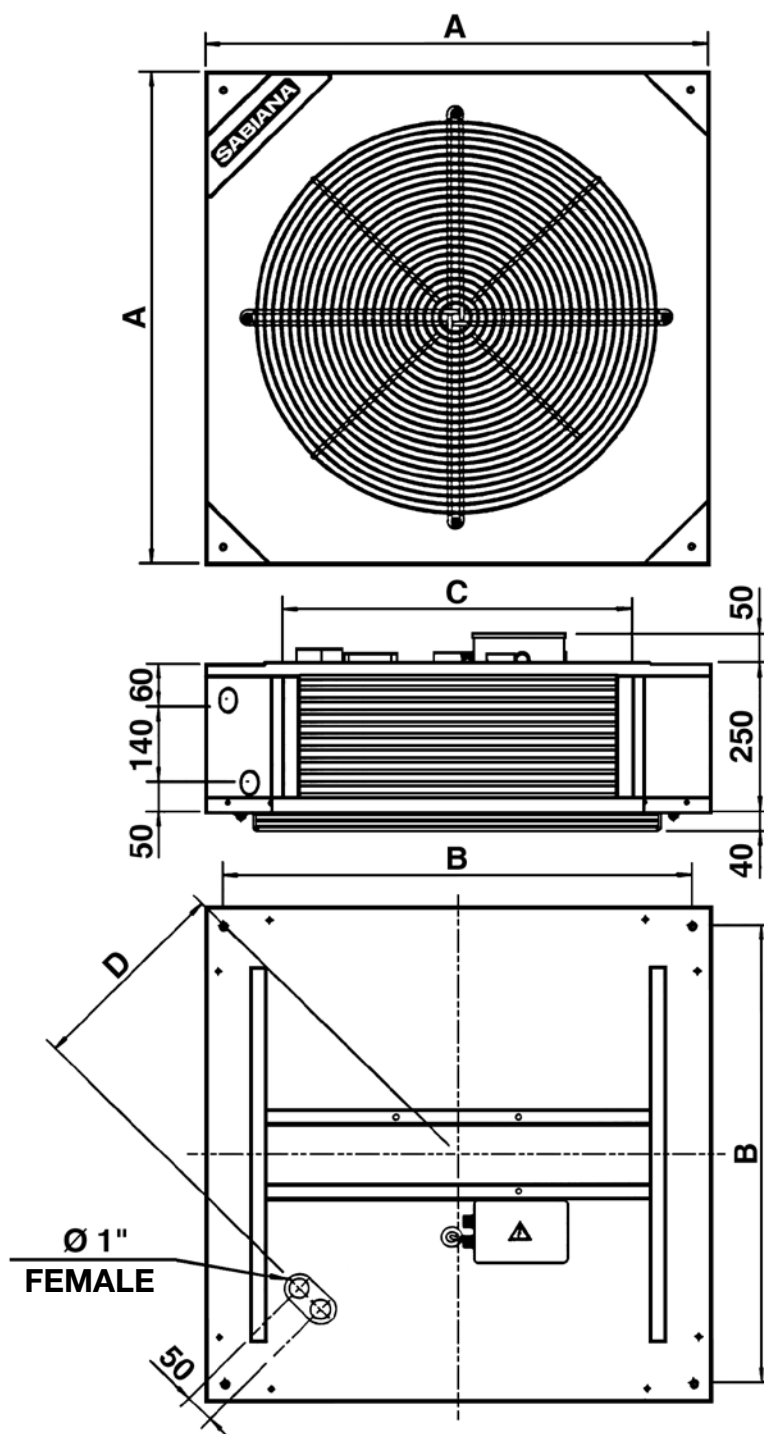
The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.



Condensate micro-pump

The PE-ECM model for cooling is always supplied with an integral micropump (discharge head 3m, water flow 6l/h). The pump is installed in the condensate collected tray. This pump controls the level of the condensate collected in the tray and drain it when necessary.





with 1 row coil (only heating)

Model		RE-ECM			
		11	21	31	41
Dimensions (mm)	A	600	750	750	830
	B	540	690	690	770
	C	330	480	480	560
	D	220	287	300	344
Weight (kg)		26	31	32	38
Water content (Liters)		0,8	1,1	1,1	1,3

with 2 row coil (heating and cooling)

Model		RE-ECM / PE-ECM			
		12	22	32	42
Dimensions (mm)	A	600	750	750	830
	B	540	690	690	770
	C	330	480	480	560
	D	220	287	300	344
Weight (kg)		28	34	35	40
Water content (Liters)		1,8	2,4	2,4	2,7

RE-ECM units (heating only)

The following standard rating conditions are used:

HEATING (winter mode)

Entering air temperature: +20°C

Water temperature: +70/60°C

Model		RE-ECM 11						RE-ECM 12					
Inverter Power (V)		5	6	7	8	9	10	5	6	7	8	9	10
Air flow	m ³ /h	1045	1265	1465	1635	1805	1890	1005	1215	1410	1570	1735	1820
Heating	kW	5,88	6,60	7,20	7,67	8,14	8,36	9,56	10,88	12,01	12,88	13,74	14,15
Dp Heating	kPa	11,2	13,8	16,2	18,1	20,2	21,1	6,90	8,80	10,5	11,9	13,3	14,1
Sound power Lw	dB(A)	44	48	52	54	56	57	44	48	52	54	56	57
Sound pressure Lp (*)	dB(A)	35	39	43	45	47	48	35	39	43	45	47	48
Sound pressure Lp (**)	dB(A)	31	35	39	41	43	44	31	35	39	41	43	44
Fan	W	16	24	37	51	69	81	16	24	37	51	69	81

Model		RE-ECM 21						RE-ECM 22					
Inverter Power (V)		5	6	7	8	9	10	5	6	7	8	9	10
Air flow	m ³ /h	1380	1645	1925	2175	2415	2600	1325	1580	1850	2090	2320	2500
Heating	kW	7,59	8,46	9,32	10,03	10,68	11,18	12,64	14,26	15,81	17,13	18,31	19,20
Dp Heating	kPa	7,9	9,6	11,4	13,0	14,6	15,9	13,0	16,2	19,5	22,5	25,4	27,7
Sound power Lw	dB(A)	48	51	54	57	60	62	48	51	54	57	60	62
Sound pressure Lp (*)	dB(A)	39	42	45	48	51	53	39	42	45	48	51	53
Sound pressure Lp (**)	dB(A)	35	38	41	44	47	49	35	38	41	44	47	49
Fan	W	23	36	55	75	104	136	23	36	55	75	104	136

Model		RE-ECM 31						RE-ECM 32					
Inverter Power (V)		5	6	7	8	9	10	5	6	7	8	9	10
Air flow	m ³ /h	1880	2245	2560	2890	3140	3180	1810	2160	2460	2780	3020	3060
Heating	kW	8,70	9,71	10,50	11,29	11,85	11,95	14,97	16,80	18,24	19,68	20,71	20,89
Dp Heating	kPa	10,5	12,7	14,7	16,7	18,2	18,5	14,2	17,5	20,2	23,2	25,4	25,8
Sound power Lw	dB(A)	50	53	56	59	61	61	50	53	56	59	61	61
Sound pressure Lp (*)	dB(A)	41	44	47	50	52	52	41	44	47	50	52	52
Sound pressure Lp (**)	dB(A)	37	40	43	46	48	48	37	40	43	46	48	48
Fan	W	37	59	86	121	162	164	37	59	86	121	162	164

Model		RE-ECM 41						RE-ECM 42					
Inverter Power (V)		5	6	7	8	9	10	5	6	7	8	9	10
Air flow	m ³ /h	2475	3090	3515	3995	4450	4680	2380	2970	3380	3840	4280	4500
Heating	kW	10,40	11,84	12,75	13,72	14,57	14,99	17,49	20,08	21,71	23,44	25,00	25,73
Dp Heating	kPa	6,4	8,1	9,2	10,5	11,7	12,4	4,8	6,2	7,1	8,2	9,2	9,7
Sound power Lw	dB(A)	47	51	54	57	59	60	47	51	54	57	59	60
Sound pressure Lp (*)	dB(A)	38	42	45	48	50	51	38	42	45	48	50	51
Sound pressure Lp (**)	dB(A)	34	38	41	44	46	47	34	38	41	44	46	47
Fan	W	32	54	77	108	150	174	32	54	77	108	150	174

(*) = Measurement performed at 3 meter from the source,
room volume of 500m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission).

(**) = Measurement performed at 3 meter from the source,
room volume of 1500m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission).

PE-ECM units (heating and cooling)

The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27°C bulbo secco 50% U.R.

Water temperature: +7°C entrata +12°C uscita

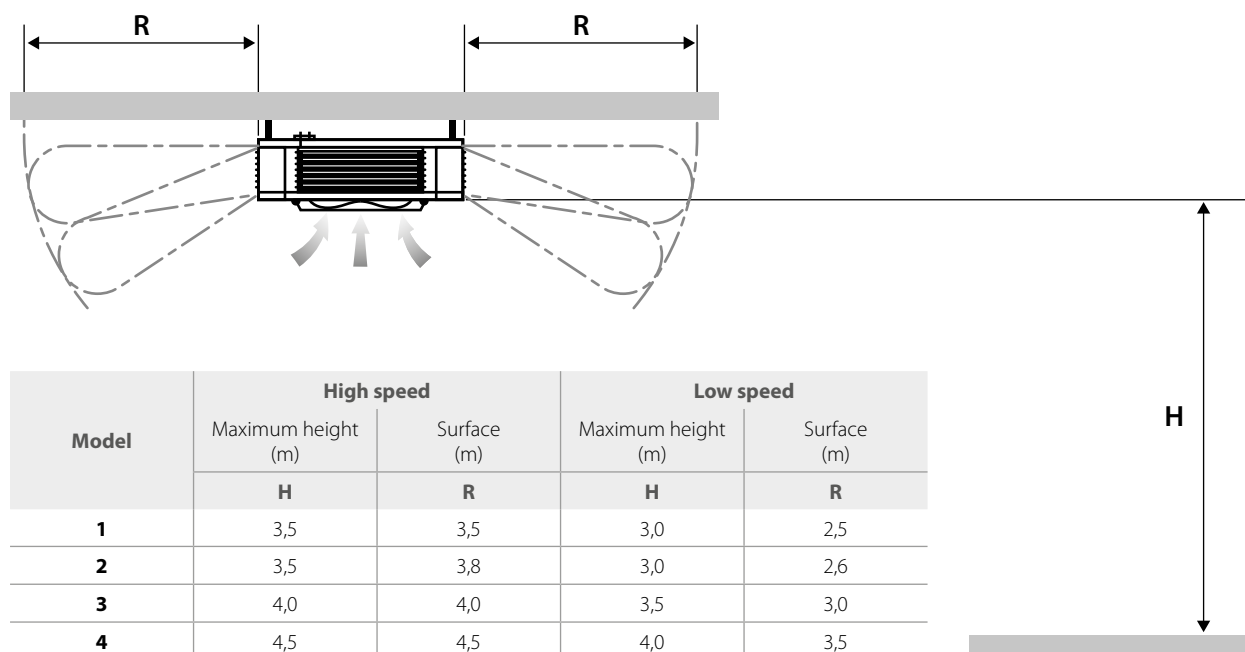
HEATING (winter mode)

Entering air temperature: +20°C

Water temperature: +70/60°C

Model		PE-ECM 12						PE-ECM 22					
Inverter Power (V)		5	6	7	8	9	10	5	6	7	8	9	10
Air flow	m³/h	1005	1215	1410	1570	1735	1820	1325	1580	1850	2090	2320	2500
Cooling total emission	kW	3,89	4,30	4,65	4,80	5,17	5,20	5,31	5,83	6,33	6,74	7,13	7,38
Cooling sensible emission	kW	3,14	3,58	3,98	4,23	4,61	4,71	4,14	4,68	5,22	5,68	6,12	6,44
Heating	kW	9,56	10,88	12,01	12,88	13,74	14,15	12,64	14,26	15,81	17,13	18,31	19,20
Dp Raffreddamento	kPa	6,3	7,6	8,8	9,3	10,6	10,7	12,7	15,0	17,4	19,4	21,5	22,9
Dp Heating	kPa	6,9	8,8	10,5	11,9	13,3	14,1	13,0	16,2	19,5	22,5	25,4	27,7
Sound power Lw	dB(A)	44	48	52	54	56	57	48	51	54	57	60	62
Sound pressure Lp (*)	dB(A)	35	39	43	45	47	48	39	42	45	48	51	53
Sound pressure Lp (**)	dB(A)	31	35	39	41	43	44	35	38	41	44	47	49
Fan	W	16	24	37	51	69	81	23	36	55	75	104	136

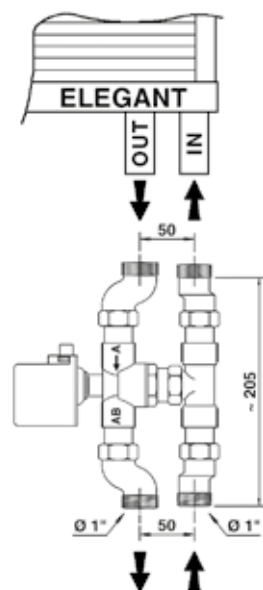
Model		PE-ECM 32						PE-ECM 42					
Inverter Power (V)		5	6	7	8	9	10	5	6	7	8	9	10
Air flow	m³/h	1810	2160	2460	2780	3020	3060	2380	2970	3380	3840	4280	4500
Cooling total emission	kW	6,43	7,01	7,51	7,99	8,41	8,52	7,19	8,09	8,84	9,32	9,83	10,07
Cooling sensible emission	kW	5,21	5,87	6,44	7,02	7,50	7,60	6,40	7,53	8,40	9,15	9,83	10,07
Heating	kW	14,97	16,80	18,24	19,68	20,71	20,89	17,49	20,08	21,71	23,44	25,00	25,73
Dp Raffreddamento	kPa	16,3	19,0	21,5	24,1	26,4	27,0	7,6	9,4	11,0	12,1	13,4	14,0
Dp Heating	kPa	14,2	17,5	20,2	23,2	25,4	25,8	4,8	6,2	7,1	8,2	9,2	9,7
Sound power Lw	dB(A)	50	53	56	59	61	61	47	51	54	57	59	60
Sound pressure Lp (*)	dB(A)	41	44	47	50	52	52	38	42	45	48	50	51
Sound pressure Lp (**)	dB(A)	37	40	43	46	48	48	34	38	41	44	46	47
Fan	W	37	59	86	121	162	164	32	54	77	108	150	174



3-way valve kit

Comprised of:

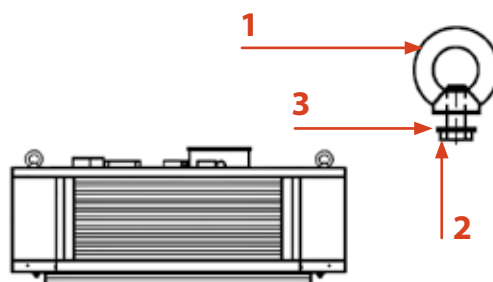
- one 3-way valve 3/4" Kvs 4,7
- one actuator
- pipe connections



Hanging brackets

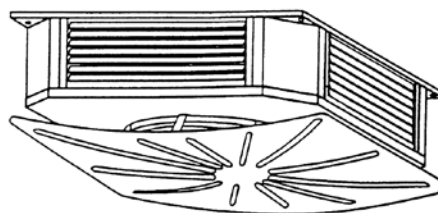
Comprised of 4 eye bolts and screws.

- 1** Washer for screw M8
- 2** Screw M8 x 16
- 3** Eye bolt female M8



Cover panel

To be mounted on the fan guard.



Wall electronic controls

For each unit must be provided the ADC converter or the UPE-AU power unit for wall controls

WM-3V	3 speed control (to be used with ADC-M or ADC-S only)
WM-T	3 speed control with electronic thermostat and summer/winter switch (to be used with ADC-M or ADC-S only)
WM-TQR	3 speed control with electronic thermostat and centralized/manual summer/winter switch (to be used with ADC-M or ADC-S only)
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPEM-AU or UPE-AU only)
T-MB	Wall control (to be used with UPEM-AU or UPE-AU only)
T2T	Electromechanical thermostat with summer/winter switch (only for 2 pipe units) (to be used with ADC-M or ADC-S only)
ADC-M	ADC signal converter for wall controls fitted on the unit, for WM-3V, WM-T, WM-TQR and T2T controls
ADC-S	ADC signal converter for wall controls supplied with separate packaging, for WM-3V, WM-T, WM-TQR and T2T controls
UPEM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UPE-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit

Electronic controls for MBE boards

MBE-M	MBE electronic board fitted on the unit
MBE-S	MBE electronic board supplied with separate packaging
T-MB	Wall control (to be used with MBE board only)
PSM-DI	Multifunction control (to be used with MBE board only)

Sabianet management system for a network of Elegant ECM

Sabianet	Hardware/software supervisory system (to be used with MBE board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

Meltemi

Door Curtain



The range of **Meltemi Sabiana** door curtains offers the maximum flexibility in the protection of doors and open access compartments.

The door curtains are available in the air ventilation version, with hot water coil and with electric resistance, the **3 different versions** are supplied in **35 different models** with lengths from 1125 mm to 2185 mm that are suitable for door heights from 2,5 m to 4,5 m in commercial installations.

Thanks to their modularity, the door curtain units **can be connected together** to give a continual air barrier of the desired length to protect large doors.

Cabinet

It consists of cold galvanised steel plate panels painted with oven-dried epoxy powders, colour RAL 9003. The side closures are made of plastic.

Fan assembly

LU/LU-ECM Models: made up of plastic tangential fans installed on a rubber support with rolling bearing and coupled with the electric motor mounted on the structure side.

LC/LI Models: it consists of double inlet centrifugal fans directly fitted on the motor shaft.

Electric motor

LU/LC/LI Models: single-phase motor with capacitor inserted permanently, automatic reset internal thermal protection, class of protection IP 20. Power supply 230V - 50Hz. Two speeds are available.

LU-ECM Model: three phase permanent magnet brushless electronic motor that is controlled with reconstructed current according to a BLAC sinusoidal wave. The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a switching system, it generates a three-phase frequency modulated, wave form power supply. The electric power supply required for the unit is therefore single-phase 230 - 240 V and 50 - 60 Hz.

Coil (W versions with hot water)

The **"W series"** units are complete with a water coil (for heating only), made with copper pipes with aluminium fins bonded to the pipes by mechanical expansion.

LU/LU-ECM models are equipped with 1 row coil, **LC/LI** models are equipped with 2 row coils. Maximum water temperature 80°C, maximum operating pressure 10 bar.

Electric resistance (E versions)

The **"E series"** units come with filament electric resistances supported by mica spacers, with external bearing structure made of galvanised sheet.

Electronic controls

The units come with integrated control system specifically designed for every type of operation (see Electronic controls page).





The **LU** series door curtains have been designed for installation **near small entrances of offices and commercial environments**.

The unit comes with integrated control system specifically designed for every type of operation:

LU-A: air ventilation only, it is equipped with a control located on board, which can be easily accessed from the bottom. This includes a step-by-step control button to switch the device on and off and select the air speed.

LU-W/E: operation with hot water or electric coil. It is equipped with a remote control system (supplied with the unit) or it can be combined with a wall mounted T-MB control with display (optional).

Recommended installation height: 2.5 metres

Installation: horizontal

Lengths available: 1 and 1.5 metres

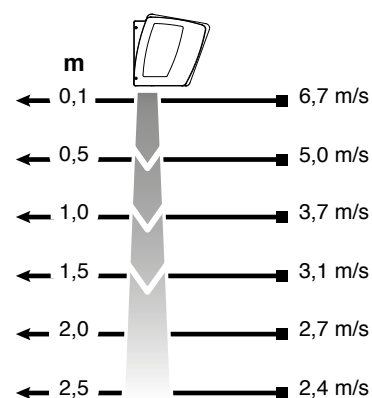
Electric resistance:

LU-10E 3 kW 230V 1 Ph or 400V 3 Ph

LU-15E 6 kW 400V 3Ph

1 row hot water coil

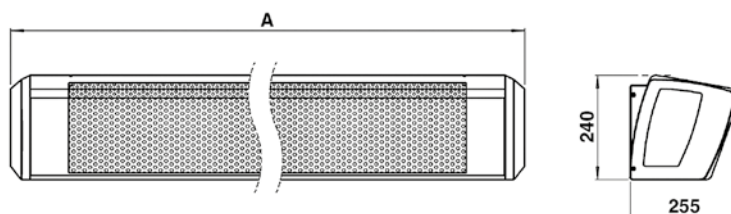
Complete with electrical connection cable with Schuko CEE 7/7 plug



Dimensions, weigh, water content

Dimensions (mm)

Model	LU-10	LU-15
A	1144	1644



Weight (kg)

Model	Weight with packaging		Weight without packaging	
	LU-10	LU-15	LU-10	LU-15
LU-A	16,4	23,1	14	20
LU-W	18,4	26,1	16	23
LU-E	18,4	26,1	16	23

Water content (litres)

Model	LU-10	LU-15
	0,65	0,95

ventilation only

Model		LU-10A		LU-15A	
Speed		max	min	max	min
Installation height	m	2,5	2,5	2,5	2,5
Length	mm	1144	1144	1644	1644
Air flow	m ³ /h	1260	760	1900	1090
Sound pressure (***)	dB(A)	49	39	50	39
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~
Motor absorption	W	86	63	134	86
	A	0,37	0,27	0,58	0,39
Weight	kg	14	14	20	20

with hot water coil

Model		LU-10W		LU-15W	
Speed		max	min	max	min
Installation height	m	2,5	2,5	2,5	2,5
Length	mm	1144	1144	1644	1644
Air flow	m ³ /h	1150	740	1750	1050
Heating (*)	kW	5,87	4,56	8,94	6,65
Heating (**)	kW	3,36	2,63	5,06	3,79
Sound pressure (***)	dB(A)	49	39	50	39
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~
Motor absorption	W	86	63	134	86
	A	0,37	0,27	0,58	0,39
Weight	kg	16	16	23	23

with electric resistance

Model		LU-10E-230		LU-10E-400		LU-15E	
Speed		max	min	max	min	max	min
Installation height	m	2,5	2,5	2,5	2,5	2,5	2,5
Length	mm	1144	1144	1144	1144	1644	1644
Air flow	m ³ /h	1260	760	1260	760	1900	1090
Electric resistance - 1 st stage	kW	2	2	2	2	3	3
Electric resistance - 2 nd stage	kW	3	3	3	3	6	6
Sound pressure (***)	dB(A)	49	39	49	39	50	39
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~
Electric resistance voltage	V	230 V ~	230 V ~	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph
Motor absorption	W	86	63	86	63	134	86
	A	0,37	0,27	0,37	0,27	0,58	0,39
Electric resistance absorption - 1 st stage	A	8,7	8,7	3,0	3,0	4,5	4,5
Electric resistance absorption - 2 nd stage	A	13,1	13,1	4,5	4,5	9,0	9,0
Weight	kg	16	16	16	16	23	23

(*) = Air temperature 18 °C – Water temperature 80/60 °C.

(**) = Air temperature 18 °C – Water temperature 60/40 °C.

(***) = The sound pressure levels dB(A) are measured at a distance of 3 m, directional factor Q = 2, according to EN 3744..



The **LU-ECM** series door curtains have been designed for installation **near small entrances of offices and commercial environments**.

The unit comes with integrated control system specifically designed for every type of operation:

LU-ECM-A: air ventilation only. It is equipped with a remote control system (supplied with the unit) or it can be combined with a wall mounted T-MB control with display (optional).

LU-ECM-W/E: operation with hot water or electric coil. It is equipped with a remote control system (supplied with the unit) or it can be combined with a wall mounted T-MB control with display (optional).

Recommended installation height: 2,5 metri

Installation: horizontal

Lengths available: 1 and 1.5 and 2 metres

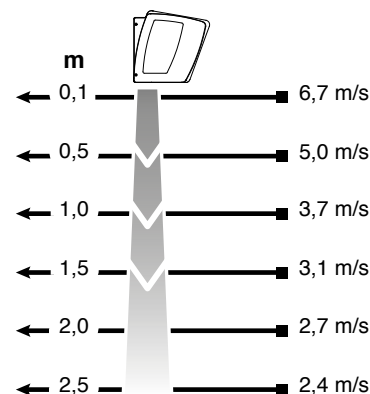
Electric resistance:

LU-ECM-10E 3 kW 230V 1 Ph or 400V 3 Ph

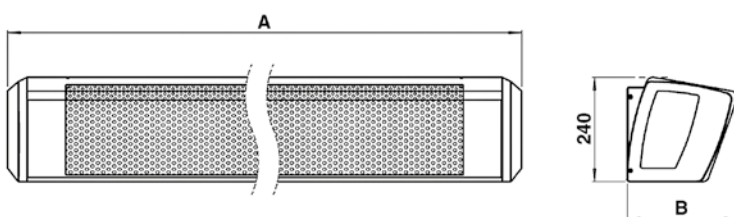
LU-ECM-15E / LU-ECM-20E 6 kW 400V 3Ph

1 row hot water coil

Complete with electrical connection cable with Schuko CEE 7/7 plug



Dimension, weight, water content



Dimension (mm)

Model	LU-ECM-10	LU-ECM-15	LU-ECM-20
A	1144	1644	2150
B	255	255	275

Water content (litres)

Model	LU-ECM-10	LU-ECM-15	LU-ECM-20
	0,65	0,95	1,30

Weight (kg)

Model	Weight with packaging			Weight without packaging		
	LU-ECM-10	LU-ECM-15	LU-ECM-20	LU-ECM-10	LU-ECM-15	LU-ECM-20
LU-A	16,4	23,1	33,0	14	20	29
LU-W	18,4	26,1	36,0	16	23	32
LU-E	18,4	26,1	37,0	16	23	33

ventilation only

Model		LU-ECM-10A		LU-ECM-15A		LU-ECM-20A	
Speed		max	min	max	min	max	min
Installation height	m	2,5	2,5	2,5	2,5	2,5	2,5
Length	mm	1144	1144	1644	1644	2150	2150
Air flow	m ³ /h	1260	760	1900	1090	2560	1450
Sound pressure (***)	dB(A)	49	39	50	39	52	41
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~
Motor absorption	W	64,8	25,5	113,0	49,8	165,0	53,5
	A	0,55	0,22	0,92	0,42	1,30	0,46
Weight	kg	14	14	20	20	29	29

with hot water coil

Model		LU-ECM-10W		LU-ECM-15W		LU-ECM-20W	
Speed		max	min	max	min	max	min
Installation height	m	2,5	2,5	2,5	2,5	2,5	2,5
Length	mm	1144	1144	1644	1644	2150	2150
Air flow	m ³ /h	1150	740	1750	1050	2250	1310
Heating (*)	kW	5,87	4,56	8,94	6,65	12,19	8,81
Heating (**)	kW	3,36	2,63	5,06	3,79	7,02	5,11
Sound pressure (***)	dB(A)	49	39	50	39	52	41
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~
Motor absorption	W	46,9	19,8	81,2	36,4	120,5	38,5
	A	0,39	0,18	0,69	0,32	0,97	0,35
Weight	kg	16	16	23	23	32	32

with electric resistance

Model		LU-ECM-10E-230		LU-ECM-10E-400		LU-ECM-15E		LU-ECM-20E	
Speed		max	min	max	min	max	min	max	min
Installation height	m	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
Length	mm	1144	1144	1144	1144	1644	1644	2150	2150
Air flow	m ³ /h	1260	760	1260	760	1900	1090	2310	1305
Electric resistance - 1 st stage	kW	2	2	2	2	3	3	3	3
Electric resistance - 2 nd stage	kW	3	3	3	3	6	6	6	6
Sound pressure (***)	dB(A)	49	39	49	39	50	39	52	41
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~
Electric resistance voltage	V	230 V ~	230 V ~	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph
Motor absorption	W	52	22	52	22	89	40	132	42,4
	A	0,43	0,19	0,43	0,19	0,75	0,35	1,06	0,39
Electric resistance absorption - 1 st stage	A	8,7	8,7	3,0	3,0	4,5	4,5	4,5	4,5
Electric resistance absorption - 2 nd stage	A	13,1	13,1	4,5	4,5	9,0	9,0	9,0	9,0
Weight	kg	16	16	16	16	23	23	33	33

(*) = Air temperature 18 °C – Water temperature 80/60 °C.

(**) = Air temperature 18 °C – Water temperature 60/40 °C.

(***) = The sound pressure levels dB(A) are measured at a distance of 3 m, directional factor Q = 2, according to EN 3744.



The **LC** door curtains are intended to be installed **near entrances of shops or shopping centres**.

The unit comes with integrated control system specifically designed for every type of operation:

LC-A: air ventilation only, it is provided with wall mounted remote control. The control allows to switch the door barrier on and off and to set the speed required (high or low) by pressing a step-by-step button.

LC-W/E: operation with hot water or electric coil. The unit comes with remote control with T-MB wall mounted display.

Recommended installation height: 3.5 metres

Installation: horizontal

Lengths available: 1, 1.5, and 2 metres

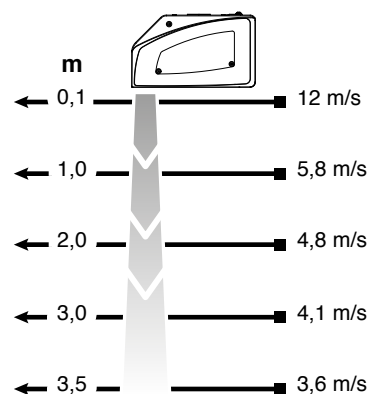
Electric resistance:

LC-10E 8 kW 400V 3Ph

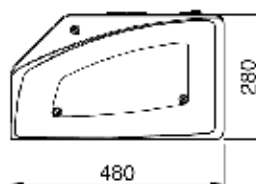
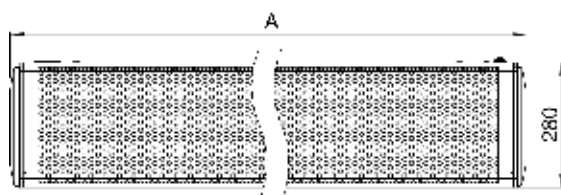
LC-15E 12 kW 400V 3Ph

LC-20E 16 kW 400V 3Ph

2 row hot water coil



Dimension, weight, water content



Dimension (mm)

Model	LC-10	LC-15	LC-20
A	1125	1625	2160

Water content (litres)

Model	LC-10	LC-15	LC-20
	1,40	2,10	2,85

Weight (kg)

Model	Weight with packaging			Weight without packaging		
	LC-10	LC-15	LC-20	LC-10	LC-15	LC-20
LC-A	34,5	45,6	78,5	31	41	60
LC-W	39,5	51,6	86,5	36	47	68
LC-E	37,5	49,6	83,5	34	45	65

ventilation only

Model		LC-10A		LC-15A		LC-20A	
Speed		max	min	max	min	max	min
Installation height	m	3,5	3,5	3,5	3,5	3,5	3,5
Length	mm	1125	1125	1625	1625	2160	2160
Air flow	m ³ /h	2100	1200	3150	1500	4200	2400
Sound pressure (***)	dB(A)	52	38	56	38	54	38
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~
Motor absorption	W	330	230	540	200	660	460
	A	1,57	1,15	2,35	1,00	3,14	2,30
Weight	kg	31	31	41	41	60	60

with hot water coil

Model		LC-10W		LC-15W		LC-20W	
Speed		max	min	max	min	max	min
Installation height	m	3,5	3,5	3,5	3,5	3,5	3,5
Length	mm	1125	1125	1625	1625	2160	2160
Air flow	m ³ /h	1900	1100	3000	1500	4000	2200
Heating (*)	kW	18,46	12,44	27,59	17,49	38,59	26,21
Heating (**)	kW	10,29	7,07	15,51	10,04	22,26	15,34
Sound pressure (***)	dB(A)	52	38	56	38	54	38
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~
Motor absorption	W	330	230	540	200	660	460
	A	1,57	1,15	2,35	1,00	3,14	2,30
Weight	kg	36	36	47	47	68	68

with electric resistance

Model		LC-10E		LC-15E		LC-20E	
Speed		max	min	max	min	max	min
Installation height	m	3,5	3,5	3,5	3,5	3,5	3,5
Length	mm	1125	1125	1625	1625	2160	2160
Air flow	m ³ /h	2100	1200	3150	1500	4200	2400
Electric resistance - 1 st stage	kW	4	4	6	6	8	8
Electric resistance - 2 nd stage	kW	8	8	12	12	16	16
Sound pressure (***)	dB(A)	52	38	56	38	54	38
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~
Electric resistance voltage	V	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph
Motor absorption	W	330	230	540	200	660	460
	A	1,57	1,15	2,35	1,00	3,14	2,30
Electric resistance absorption - 1 st stage	A	6	6	9	9	12	12
Electric resistance absorption - 2 nd stage	A	12	12	18	18	24	24
Weight	kg	34	34	45	45	65	65

(*) = Air temperature 18 °C – Water temperature 80/60 °C.

(**) = Air temperature 18 °C – Water temperature 60/40 °C.

(***) = The sound pressure levels dB(A) are measured at a distance of 3 m, directional factor Q = 2, according to EN 3744.



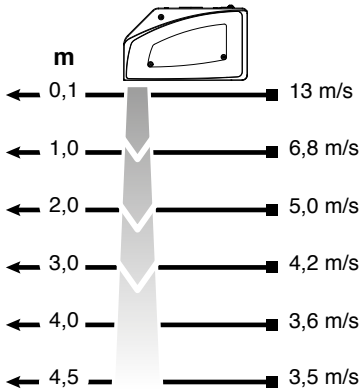
The **LI** door curtains are intended to be installed **near industrial entrances or doors**, i.e. wherever the installation height must be up to 4.5 metres (maximum).

The unit comes with integrated control system specifically designed for every type of operation:

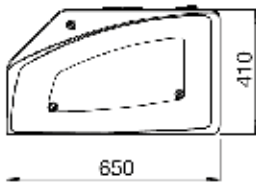
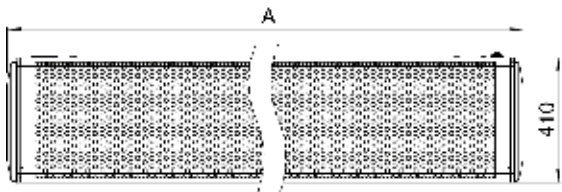
LI-A: air ventilation only, it is provided with wall mounted remote control. The control allows to switch the door barrier on and off and to set the speed required (high or low) by pressing a step-by-step button.

LI-W/E: operation with hot water or electric coil. The unit comes with remote control with T-MB wall mounted display.

- Recommended installation height:** 4.5 metres
- Installation:** horizontal
- Lengths available:** 1, 1.5, and 2 metres
- Electric resistance:**
 - LI-10E** 11 kW 400V 3Ph
 - LI-15E** 18 kW 400V 3Ph
 - LI-20E** 22 kW 400V 3Ph
- 2 row hot water coil**



Dimension, weight, water content



Dimension (mm)

Model	LI-10	LI-15	LI-20
A	1150	1650	2185

Water content (litres)

Model	LI-10	LI-15	LI-20
	1,65	2,55	3,40

Weight (kg)

Model	Weight with packaging			Weight without packaging		
	LI-10	LI-15	LI-20	LI-10	LI-15	LI-20
LI-A	45,9	67,1	110,0	42	62	88
LI-W	51,9	74,1	120,0	48	69	98
LI-E	50,9	73,1	118,0	47	68	96

ventilation only

Model		LI-10A		LI-15A		LI-20A	
Speed		max	min	max	min	max	min
Installation height	m	4,5	4,5	4,5	4,5	4,5	4,5
Length	mm	1150	1150	1650	1650	2185	2185
Air flow	m ³ /h	3500	2600	5500	3250	7000	5200
Sound pressure (***)	dB(A)	58	49	58	50	60	51
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~
Motor absorption	W	600	400	940	520	1200	800
	A	2,63	1,80	4,20	2,40	5,26	3,60
Weight	kg	42	42	62	62	88	88

with hot water coil

Model		LI-10W		LI-15W		LI-20W	
Speed		max	min	max	min	max	min
Installation height	m	4,5	4,5	4,5	4,5	4,5	4,5
Length	mm	1150	1150	1650	1650	2185	2185
Air flow	m ³ /h	3500	2600	5500	3250	7000	5200
Heating (*)	kW	27,32	23,06	42,03	30,96	57,65	48,47
Heating (**)	kW	15,25	12,95	22,94	17,16	32,49	27,57
Sound pressure (***)	dB(A)	58	49	58	50	60	51
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~
Motor absorption	W	600	400	940	520	1200	800
	A	2,63	1,80	4,20	2,40	5,26	3,60
Weight	kg	48	48	69	69	98	98

with electric resistance

Model		LI-10E		LI-15E		LI-20E	
Speed		max	min	max	min	max	min
Installation height	m	4,5	4,5	4,5	4,5	4,5	4,5
Length	mm	1150	1150	1650	1650	2185	2185
Air flow	m ³ /h	3500	2600	5500	3250	7000	5200
Electric resistance - 1 st stage	kW	7	7	12	12	14	14
Electric resistance - 2 nd stage	kW	11	11	18	18	22	22
Sound pressure (***)	dB(A)	58	49	58	50	60	51
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~
Electric resistance voltage	V	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph
Motor absorption	W	600	400	940	520	1200	800
	A	2,63	1,80	4,20	2,40	5,26	3,60
Electric resistance absorption - 1 st stage	A	10,2	10,2	17,5	17,5	20,5	20,5
Electric resistance absorption - 2 nd stage	A	16,0	16,0	26,1	26,1	32,0	32,0
Weight	kg	47	47	68	68	96	96

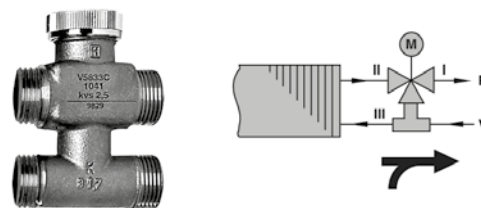
(*) = Air temperature 18 °C – Water temperature 80/60 °C.

(**) = Air temperature 18 °C – Water temperature 60/40 °C.

(***) = The sound pressure levels dB(A) are measured at a distance of 3 m, directional factor Q = 2, according to EN 3744.

3 way valve

Three way ON-OFF valves with electric control.



2 way valve

Two way ON-OFF valves with electric control.



DSC

Door contact sensor kit

As soon as the door is open, the DSC door switch provides the consent for the air curtain operation (ventilation, valve opening, internal resistance supply) and denies it as soon as the door is closed.

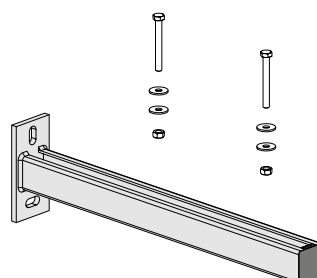


ST

Suspension brackets kit

(LC and LI models only, included for LU model)

The Kit consists of brackets and of the fixing elements (except wall fixing plugs).

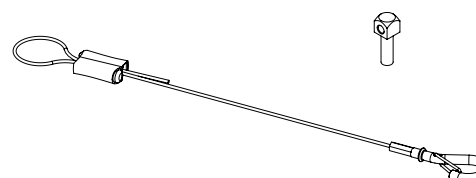


CAV

Suspension bracket kit with wires

(LC and LI models only)

The Kit consists of steel wires with hook and of fixing eye-bolts (except ceiling fixing elements).



PR-LC

Plenum for concealed installation with aesthetic frame (LC model only)

The plenum with aesthetic frame allows the concealed installation of the LC Curtain model. Thanks to this option, the Air Curtains do not interfere with the harmony of the ambient where they are installed.





LU-A Control system

The units are equipped, as standard, with electronic board to manage:

- High/Low speed ON button.
- ON indication and failure LED.
- Terminals for "Door Contact" external connection.
- Terminals for connecting a remote ON/OFF switch.
- Dip switch to set the post-ventilation delay time of the door closure fan.



LU-W/E and LU-ECM-A/W/E Control systems

The units are equipped, as standard, with electronic board, receiver unit for remote control and **RR03-LU** remote control to manage:

- ON/OFF unit.
- Fan speed selection.
- Water valve ON/OFF actuator ("W" version).
- Activation of the electric resistance 1st and 2nd stage ("E" version).
- Door interlock.
- Remote ON/OFF interlock.



Several units can be controlled in Master/Slave mode.



Control (accessory) for LU-W/E and LU-ECM-A/W/E versions

The units can be managed by the **T-MB** control.



LC-A and LI-A Control systems

Wall-mounted remote control (provided as standard):

- High/Low speed-Standby ON button.
- ON indication or Standby LED.
- "Door Contact" external connection terminals.
- Terminals for connecting a remote ON/OFF switch.
- Dip switch to set the post-ventilation delay time of the door closure fan.



LC-W/E and LI-W/E Control systems

The units are equipped, as standard, with electronic board and T-MB control to manage:

- ON/OFF unit.
- Fan speed selection.
- Operating mode selection (ventilation only or with heating coil).
- Air temperature set-point configuration.
- Water valve ON/OFF actuator ("W" version).
- Activation of the electric resistance 1st and 2nd stage ("E" version).
- Door interlock.
- Remote ON/OFF interlock.

Several units can be controlled in Master/Slave mode.



Fan coils





Sabiana has been making fan coils since 1980, units that stand out for their **attractive design** and very low noise and power consumption, responding to current demand for **energy saving** and **indoor comfort**.

In 1994 the company acquired the patent to exclusively manufacture one of the most innovative components ever developed for hydronic terminal units, one that is still widely used today and is part of a product designed to air-condition a wide variety of different environments, with the result of **significantly improving indoor air quality** (IAQ) and, by reducing the amount of outside air needed in the system, decreasing air-conditioning costs. The name of this electronic filter - **Crystall** - is quite symbolic, and is used to identify this specific type of solution.

In 2004 a new generation of **cassettes** was introduced, designed for installation in false ceilings, featuring a modern design, different colours and different aesthetic solutions, leading the company to soon become one of the European leaders in the production of fan coils and helping it expand its market to other continents.

In 2009, Sabiana was the first company in the world to introduce **inverter-driven brushless and sensorless motors** in its cassette units, with power consumption below 10 watts in the most common operating conditions.

Continuous adjustment of air flow-rate also means much more precise control over indoor temperature.

Sabiana obtained the Eurovent certification in 1996. Eurovent is an independent body recognized in all Europe that ensures total reliability and transparency of performances.



The following pages illustrate all the solutions that are currently available, both featuring traditional asynchronous motors and electronically controlled motors, with performance certified by the independent institute **EUROVENT**.



Carisma Collection





Carisma is the result of a great commitment of energy and resources, with the aim of offering an innovative product in terms of design, performance, low noise, energy saving and functionality.

Upon request, **innovative electronic motors** with extremely low energy consumption, controlled by an inverter board and identified by ECM, are available with centrifugal and tangential fan. The ECM motors allow electrical consumption to be decreased by more than 50% compared to traditional asynchronous motors. They enable continuous air flow control and precise control over the ambient temperature, with further benefits in terms of very low noise levels thanks to the reduced average working speed.

The 5 models (for wall and ceiling installation, with casing and concealed) and the different available coils (with three or four rows for two pipe systems, one or two rows for four pipe systems) offer great installation flexibility and allow the use of low temperature hot water, in line with the development of modern boilers and heat pumps. As a special option, the Carisma range can be fitted with the **Crystall patented electronic filter** featuring a class D rating according to Standard UNI 11254, with similar performances to the initial ones of a traditional mechanical filter featuring a class F9 rating according to Standard UNI EN 779.

A full range of controls is available for rapidly obtaining correct ambient temperature and desired performances and comfort. The Carisma model is complemented with a full range of accessories: various types of adjustment valves, sturdy support feet, rear covering panel for glass installation, additional electric heater, auxiliary condensate pump, fresh air intake louver, air inlet/outlet diffusers for concealed systems.

Carisma CRC

Fan coil unit with centrifugal fan with asynchronous motor



Range includes **9 air flow rates** (from 105 to 1500 m³/h) and **5 models** (for wall and ceiling installation, with casing and concealed), each equipped with 3 or 4 row coil and with the possibility to add a 1 or 2 row coil for 4 pipe systems.

It is the most comprehensive range, perfectly suited to meet all of the climate control needs of work environments such as offices, shops, restaurants and hotel rooms featuring ducted installations with available pressure **up to 50 Pa**.

Outer casing: made with strong synthetic lateral corners and from galvanized and prepainted front steel panel. The plastic top grid has fixed louvres and is reversible in order to distribute the air in two different directions.

Standard colours:

- Lateral corners and top grid: **Pantone Cool Grey 1C (light grey)**
- Front panel: **RAL 9003 (white)**
- Other colours on request.

Inner casing: made from 1 mm galvanized steel insulated with 3 mm polyolefin (PO) foam (class M1)..

Filter: polypropylene cellular fabric regenerating filter. The filter frame of galvanized steel is inserted into special plastic sliding guides fastened to the internal structure for easy insertion and removal of the filter. Filter presence is highlighted by a plastic front cover featuring the same colour as the top grid.

Fan assembly: the fans have aluminium or plastic blades directly keyed on the motor with double aspiration and they are dynamically and statically balanced during manufacture in order to have an extremely quiet operation.

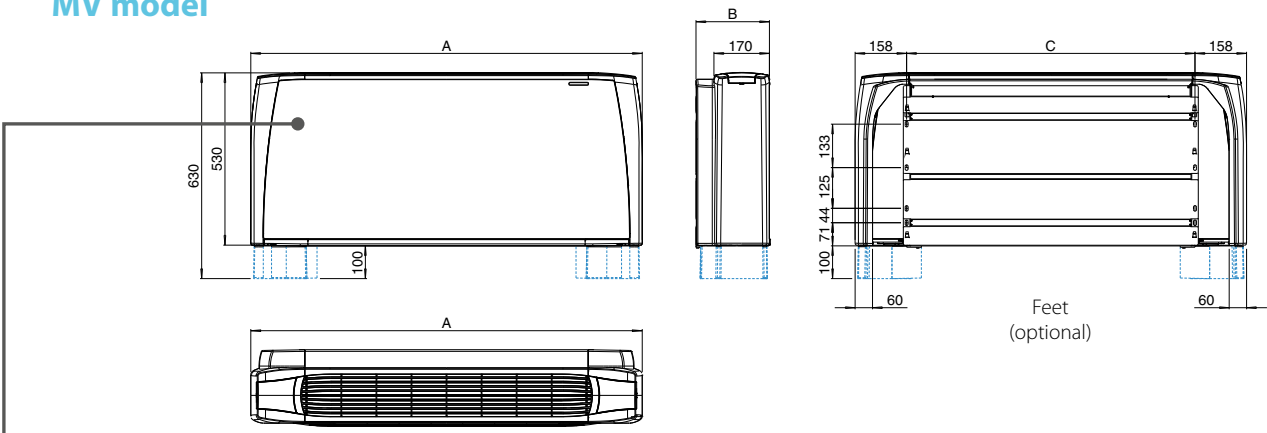
Electric motor: the motor is wired for single phase and has six speeds, three of which are connected, with capacitor. The motor is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings. Internal thermal protection with automatic reset, protection IP 20, class B.

Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The coil has two 1/2 inch BSP internal connections and 1/8 inch BSP air vent and drain. The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

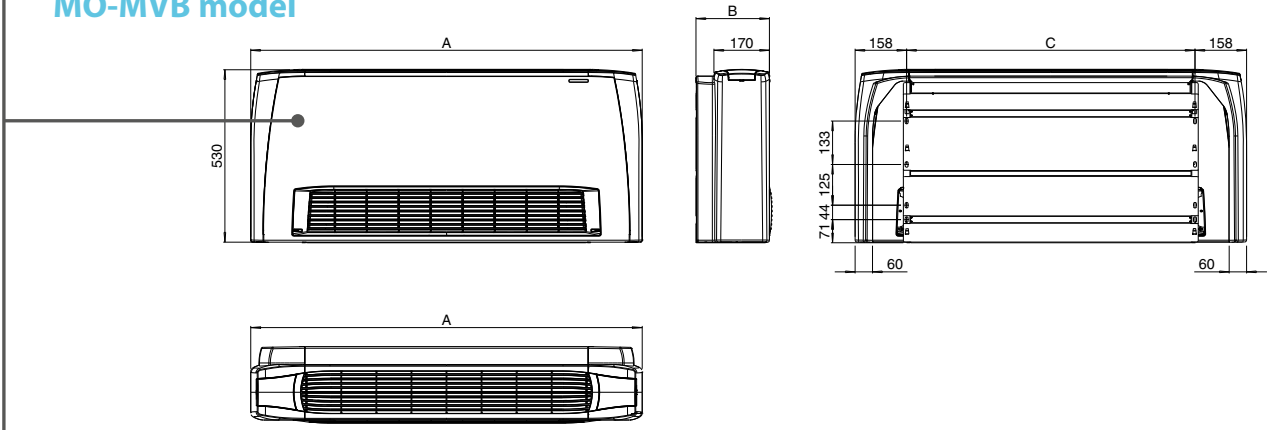
Flow and return pipe connections are situated at the same end on the left side looking at the unit. On request we can deliver the unit with the connections on the right end side. This operation can also be easily carried out on site during installation.

Condensate collection tray: made from plastic with an "L"-shaped plastic fitted on the inner casing; in the MO-MVB and IV-IO model the tray is insulated with 3 mm polyolefin (PO) foam (class M1). The outside diameter of the condensate discharge pipe is 15 mm.

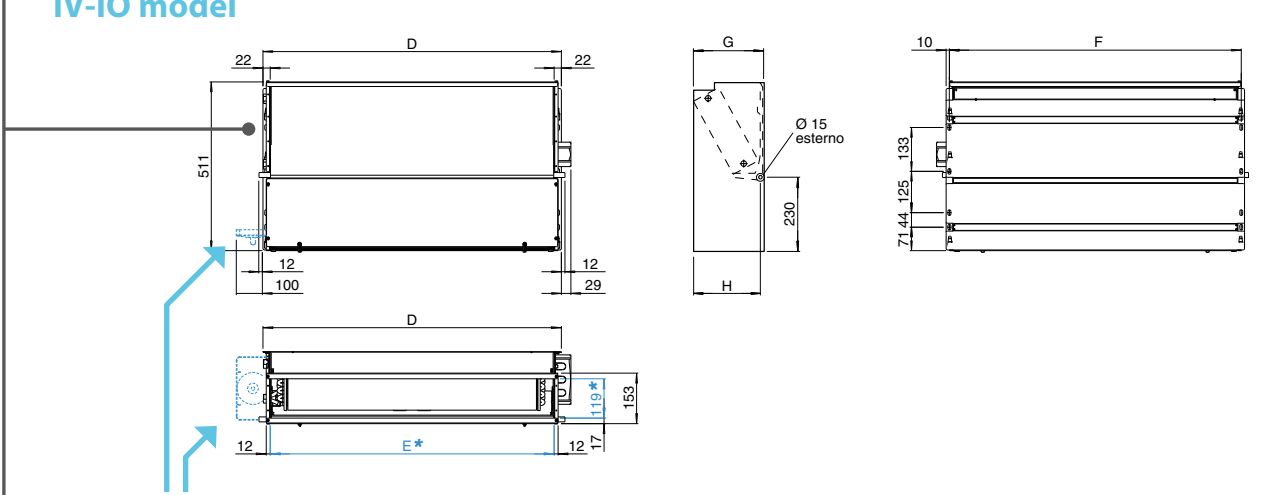
MV model



MO-MVB model



IV-IO model

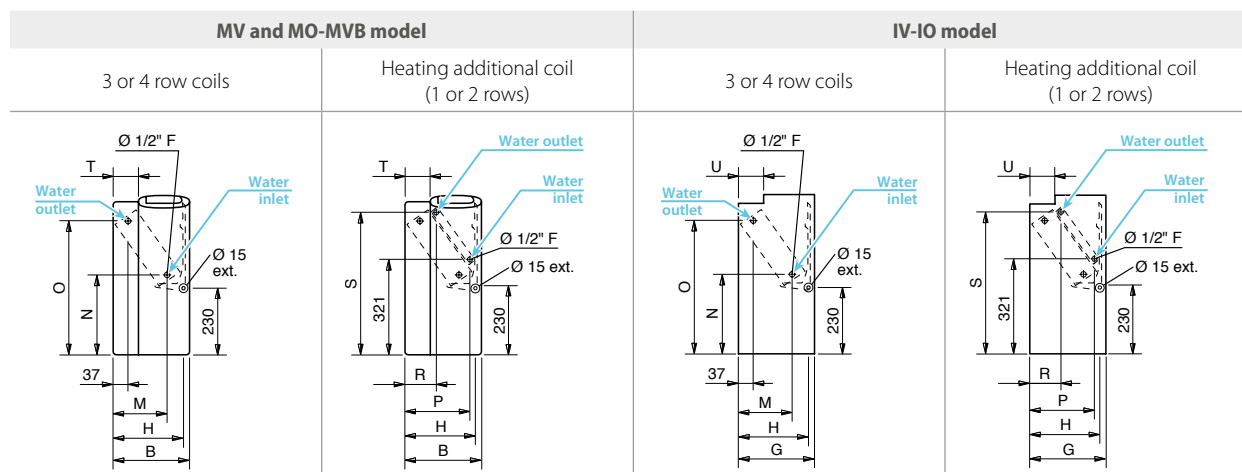


Auxiliary condensate tray (optional)

Coil connections on the left

* Supply frame dimension = E x 119 mm

Coil connections



Dimension (mm)

Model	1	2	3	4	5	6	7	8	9
A	670	770	985	985	1200	1200	1415	1415	1415
B	225	225	225	225	225	225	225	255	255
C	354	454	669	669	884	884	1099	1099	1099
D	374	474	689	689	904	904	1119	1119	1119
E	330	430	645	645	860	860	1075	1075	1075
F	354	454	669	669	884	884	1099	1099	1099
G	218	218	218	218	218	218	218	248	248
H	205	205	205	205	205	205	205	235	235
M	145	145	145	145	145	145	145	170	170
N	260	260	260	260	260	260	260	270	270
O	460	460	460	460	460	460	460	450	450
P	185	185	185	185	185	185	185	210	210
R	105	105	105	105	105	105	105	110	110
S	475	475	475	475	475	475	475	465	465
T	55	55	55	55	55	55	55	85	85
U	65	65	65	65	65	65	65	95	95

Weight (kg)

	Model	Weight with packaging									Weight without packaging								
		1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
MV MO-MVB	ROWS	3	15,5	17,2	21,4	22,5	26,9	27,7	32,1	35,9	13,9	15,4	19,1	20,2	24,1	24,9	28,8	32,0	32,2
		3+1	16,2	18,0	22,6	23,7	28,4	29,2	33,9	37,7	14,6	16,2	20,3	21,4	25,6	26,4	30,6	33,8	34,0
		3+2	16,7	18,6	23,3	24,4	29,3	30,1	35,0	38,6	15,1	16,8	21,0	22,1	26,5	27,3	31,7	34,9	35,1
		4	16,0	18,0	22,4	23,5	28,1	29,0	33,6	37,2	14,4	16,2	20,1	21,2	25,3	26,2	30,3	33,5	33,7
		4+1	16,7	18,8	23,6	24,7	29,6	30,5	35,4	39,0	15,1	17,0	21,3	22,4	26,8	27,7	32,1	35,3	35,5
IV-IO	ROWS	3	12,2	13,6	17,1	18,1	21,9	22,8	27,0	30,4	10,6	11,8	15,3	16,3	19,6	20,5	24,2	27,1	27,3
		3+1	12,9	14,4	18,3	19,3	23,4	24,3	28,8	32,2	11,3	12,6	16,5	17,5	21,1	22,0	26,0	28,9	29,1
		3+2	13,4	15,0	19,0	20,0	24,3	25,2	29,9	33,3	11,8	13,2	17,2	18,2	22,0	22,9	27,1	30,0	30,2
		4	12,7	14,4	18,1	19,1	23,1	24,1	28,5	31,7	11,1	12,6	16,3	17,3	20,8	21,8	25,7	28,6	28,8
		4+1	13,4	15,2	19,3	20,3	24,6	25,6	30,3	33,5	11,8	13,4	17,5	18,5	22,3	23,3	27,5	30,4	30,6

Water content (litres)

Modello		1	2	3	4	5	6	7	8	9
ROWS	3	0,5	0,6	0,9	0,9	1,3	1,6	1,7	1,9	1,9
	4	0,7	0,8	1,3	1,3	1,7	2,2	2,4	2,8	2,8
	+1	0,2	0,2	0,3	0,3	0,4	0,5	0,5	0,6	0,6
	+2	0,4	0,4	0,6	0,6	0,8	1,0	1,0	1,2	1,2

Units with 3 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model		CRC 13						CRC 23						CRC 33					
		1 (E)	2	3	4 (E)	5	6 (E)	1 (E)	2	3 (E)	4	5 (E)	6	1	2 (E)	3 (E)	4	5 (E)	6
Speed		MIN			MED		MAX	MIN		MED		MAX		MIN	MED		MAX		
Air flow	m³/h	105	125	150	175	195	220	145	170	220	250	295	340	185	235	270	325	385	440
Cooling total emission (E)	kW	0,57	0,66	0,75	0,84	0,91	1,00	0,90	0,99	1,23	1,35	1,53	1,70	1,27	1,55	1,76	2,04	2,35	2,61
Cooling sensible emission (E)	kW	0,45	0,53	0,60	0,69	0,75	0,83	0,68	0,76	0,95	1,06	1,21	1,36	0,92	1,13	1,30	1,51	1,76	1,97
Heating (E)	kW	0,64	0,76	0,86	0,98	1,07	1,19	0,94	1,06	1,34	1,49	1,70	1,92	1,26	1,56	1,79	2,10	2,44	2,74
Heating - Water 70-60 °C	kW	1,31	1,53	1,75	1,99	2,18	2,42	1,90	2,14	2,70	3,00	3,44	3,89	2,54	3,14	3,61	4,24	4,92	5,52
Dp Cooling (E)	kPa	2,5	3,0	3,8	4,7	5,4	6,3	2,5	3,0	4,4	5,3	6,5	7,9	6,6	9,4	11,8	15,3	19,7	23,8
Dp Heating (E)	kPa	0,9	1,1	1,4	1,8	2,1	2,5	2,2	2,8	4,2	5,0	6,4	7,9	5,4	7,8	10,0	13,2	17,1	21,0
Fan (E)	W	16	19	21	25	29	33	14	16	22	26	32	40	15	20	25	32	41	49
Sound power (E)	dB(A)	32	34	36	39	42	45	30	33	40	43	47	51	31	36	40	45	49	52
Sound pressure (*)	dB(A)	23	25	27	30	33	36	21	24	31	34	38	42	22	27	31	36	40	43
1 row heating additional coil (Water 70/60 °C)	Heating (E) kW	0,63	0,71	0,79	0,89	0,96	1,04	0,94	1,04	1,25	1,36	1,52	1,68	1,35	1,59	1,77	2	2,26	2,48
	Dp Heat. (E) kPa	0,7	0,9	1,0	1,3	1,5	1,7	1,7	2,0	2,8	3,3	4,0	4,8	3,9	5,2	6,3	7,8	9,7	11,4

Model		CRC 43						CRC 53						CRC63					
		1	2 (E)	3 (E)	4	5 (E)	6	1	2 (E)	3	4 (E)	5 (E)	6	1 (E)	2	3 (E)	4	5 (E)	6
Speed			MIN	MED		MAX			MIN		MED		MAX	MIN		MED		MAX	
Air flow	m³/h	185	265	335	400	485	570	250	315	420	495	545	650	415	505	590	680	760	830
Cooling total emission (E)	kW	1,25	1,71	2,11	2,43	2,83	3,19	1,66	2,01	2,55	2,90	3,13	3,58	2,50	2,94	3,32	3,70	4,01	4,26
Cooling sensible emission (E)	kW	0,91	1,26	1,57	1,82	2,15	2,45	1,22	1,49	1,91	2,19	2,38	2,76	1,87	2,23	2,54	2,86	3,12	3,35
Heating (E)	kW	1,25	1,74	2,18	2,52	2,97	3,41	1,65	2,02	2,61	3,00	3,24	3,75	2,56	3,05	3,45	3,90	4,26	4,56
Heating - Water 70-60 °C	kW	2,51	3,51	4,36	5,08	6,00	6,87	3,32	4,07	5,26	6,04	6,54	7,57	5,17	6,15	6,96	7,87	8,61	9,22
Dp Cooling (E)	kPa	6,5	11,2	16,2	20,8	27,2	33,8	4,1	5,8	8,8	11,1	12,7	16,2	8,6	11,4	14,1	17,2	19,8	22,1
Dp Heating (E)	kPa	5,3	9,5	14,0	18,2	24,3	30,8	3,4	4,8	7,5	9,6	11,0	14,2	7,3	9,9	12,3	15,2	17,8	20,1
Fan (E)	W	14	21	28	34	44	57	18	22	32	39	46	61	37	46	55	67	78	88
Sound power (E)	dB(A)	27	33	39	43	47	52	26	31	37	41	43	48	37	42	46	49	52	54
Sound pressure (*)	dB(A)	18	24	30	34	38	43	17	22	28	32	34	39	28	33	37	40	43	45
1 row heating additional coil (Water 70/60 °C)	Heating (E) kW	1,34	1,73	2,06	2,32	2,65	2,88	1,77	2,07	2,53	2,83	3,03	3,42	2,50	2,87	3,19	3,54	3,81	4,04
	Dp Heat. (E) kPa	3,9	6,0	8,2	10,1	12,8	14,8	1,2	1,6	2,3	2,8	3,2	3,9	3,2	4,1	4,9	5,8	6,7	7,4

Model		CRC 73						CRC 83						CRC 93					
		1	2 (E)	3	4 (E)	5	6 (E)	1	2 (E)	3	4 (E)	5	6 (E)	1	2 (E)	3	4 (E)	5	6 (E)
Speed			MIN		MED		MAX		MIN		MED		MAX		MIN		MED		MAX
Air flow	m³/h	445	535	630	735	840	925	510	655	815	1020	1100	1200	735	830	980	1210	1365	1500
Cooling total emission (E)	kW	2,82	3,29	3,74	4,21	4,66	5,01	3,01	3,68	4,32	5,09	5,36	5,69	4,00	4,38	4,95	5,74	6,21	6,56
Cooling sensible emission (E)	kW	2,08	2,45	2,80	3,19	3,56	3,85	2,27	2,82	3,35	4,02	4,26	4,55	3,08	3,40	3,89	4,60	5,03	5,37
Heating (E)	kW	2,83	3,34	3,83	4,33	4,83	5,23	3,22	4,02	4,78	5,75	6,11	6,55	4,42	4,86	5,58	6,62	7,26	7,78
Heating - Water 70-60 °C	kW	5,71	6,72	7,67	8,73	9,76	10,55	6,49	8,11	9,67	11,63	12,36	13,25	8,87	9,82	11,29	13,39	14,70	15,74
Dp Cooling (E)	kPa	12,3	16,2	20,3	25,1	30,1	34,2	7,2	10,3	13,8	18,4	20,2	22,5	11,8	13,8	17,3	22,4	25,9	28,6
Dp Heating (E)	kPa	10,1	13,5	17,2	21,3	25,9	29,7	5,6	8,3	11,3	15,6	17,3	19,6	9,8	11,6	14,8	19,9	23,5	26,5
Fan (E)	W	44	54	66	79	92	103	47	62	81	105	116	130	78	92	108	134	152	176
Sound power (E)	dB(A)	38	42	47	51	54	56	39	45	50	56	58	60	47	50	54	58	62	64
Sound pressure (*)	dB(A)	29	33	38	42	45	47	30	36	41	47	49	51	38	41	45	49	53	55
1 row heating additional coil (Water 70/60 °C)	Heating (E) kW	2,89	3,29	3,68	4,09	4,49	4,79	3,03	3,60	4,17	4,86	5,11	5,41	3,89	4,22	4,74	5,46	5,90	6,23
	Dp Heat. (E) kPa	3,4	4,3	5,2	6,3	7,4	8,3	3,7	5,0	6,5	8,5	9,3	10,3	5,8	6,7	8,2	10,5	12,0	13,2

(E) = EUROVENT certified performance.

MIN-MED-MAX = Standard connected speeds.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Units with 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model		CRC 14						CRC 24						CRC 34					
		1 (E)	2	3	4 (E)	5	6 (E)	1 (E)	2	3 (E)	4	5 (E)	6	1	2 (E)	3 (E)	4	5 (E)	6
Speed		MIN			MED		MAX	MIN		MED		MAX		MIN	MED		MAX		
Air flow	m³/h	105	125	150	175	195	220	145	170	220	250	295	340	185	235	270	325	385	440
Cooling total emission (E)	kW	0,65	0,77	0,87	1,00	1,08	1,20	1,00	1,11	1,41	1,56	1,78	2,00	1,32	1,63	1,87	2,17	2,53	2,83
Cooling sensible emission (E)	kW	0,49	0,58	0,66	0,77	0,84	0,94	0,73	0,82	1,05	1,17	1,35	1,53	0,95	1,18	1,36	1,59	1,86	2,09
Heating (E)	kW	0,69	0,80	0,92	1,07	1,17	1,31	0,99	1,11	1,43	1,60	1,83	2,08	1,30	1,62	1,87	2,19	2,59	2,88
Heating - Water 70-60 °C	kW	1,38	1,62	1,86	2,15	2,36	2,63	1,98	2,24	2,88	3,22	3,69	4,19	2,60	3,23	3,73	4,40	5,14	5,80
Dp Cooling (E)	kPa	1,9	2,5	3,2	4,0	4,7	5,6	4,9	6,1	9,1	11,0	13,9	17,2	3,7	5,3	6,7	8,8	11,5	14,1
Dp Heating (E)	kPa	1,7	2,2	2,8	3,7	4,3	5,3	4,0	4,9	7,6	9,3	11,8	14,8	2,8	4,2	5,4	7,1	9,8	11,5
Fan (E)	W	16	19	21	25	29	33	14	16	22	26	32	40	15	20	25	32	41	49
Sound power (E)	dB(A)	32	34	36	39	42	45	30	33	40	43	47	51	31	36	40	45	49	52
Sound pressure (*)	dB(A)	23	25	27	30	33	36	21	24	31	34	38	42	22	27	31	36	40	43
1 row heating additional coil (Water 70/60 °C)	Heating (E) kW	0,63	0,71	0,79	0,89	0,96	1,04	0,94	1,04	1,25	1,36	1,52	1,68	1,35	1,59	1,77	2,00	2,26	2,48
	Dp Heat. (E) kPa	0,7	0,9	1,0	1,3	1,5	1,7	1,7	2,0	2,8	3,3	4,0	4,8	3,9	5,2	6,3	7,8	9,7	11,4

Model		CRC 44						CRC 54						CRC 64					
		1	2 (E)	3 (E)	4	5 (E)	6	1	2 (E)	3	4 (E)	5 (E)	6	1 (E)	2	3 (E)	4	5 (E)	6
Speed			MIN	MED		MAX			MIN		MED		MAX	MIN		MED		MAX	
Air flow	m³/h	185	265	335	400	485	570	250	315	420	495	545	650	415	505	590	680	760	830
Cooling total emission (E)	kW	1,31	1,81	2,25	2,62	3,08	3,50	1,77	2,17	2,79	3,21	3,49	4,03	2,79	3,34	3,81	4,31	4,71	5,04
Cooling sensible emission (E)	kW	0,94	1,32	1,65	1,93	2,30	2,63	1,28	1,58	2,04	2,36	2,58	3,01	2,03	2,45	2,81	3,20	3,52	3,79
Heating (E)	kW	1,28	1,80	2,27	2,64	3,14	3,62	1,71	2,10	2,74	3,16	3,46	4,01	2,82	3,39	3,90	4,46	4,92	5,31
Heating - Water 70-60 °C	kW	2,57	3,62	4,56	5,32	6,33	7,30	3,44	4,23	5,51	6,37	6,97	8,07	5,66	6,81	7,85	8,98	9,90	10,68
Dp Cooling (E)	kPa	3,4	6,1	9,0	11,7	15,5	19,6	7,3	10,4	16,3	20,8	24,2	31,3	14,4	19,7	24,8	30,9	36,2	40,9
Dp Heating (E)	kPa	2,6	5,0	7,2	9,4	12,8	16,4	5,6	8,1	12,9	16,6	19,5	25,2	11,9	16,5	21,1	26,8	31,8	36,3
Fan (E)	W	14	21	28	34	44	57	18	22	32	39	46	61	37	46	55	67	78	88
Sound power (E)	dB(A)	27	33	39	43	47	52	26	31	37	41	43	48	37	42	46	49	52	54
Sound pressure (*)	dB(A)	18	24	30	34	38	43	17	22	28	32	34	39	28	33	37	40	43	45
1 row heating additional coil (Water 70/60 °C)	Heating (E) kW	1,34	1,73	2,06	2,32	2,65	2,88	1,77	2,07	2,53	2,83	3,03	3,42	2,50	2,87	3,19	3,54	3,81	4,04
	Dp Heat. (E) kPa	3,9	6,0	8,2	10,1	12,8	14,8	1,2	1,6	2,3	2,8	3,2	3,9	3,2	4,1	4,9	5,8	6,7	7,4

Model		CRC 74						CRC 84						CRC 94					
		1	2 (E)	3	4 (E)	5	6 (E)	1	2 (E)	3	4 (E)	5	6 (E)	1	2 (E)	3	4 (E)	5	6 (E)
Speed			MIN		MED		MAX		MIN		MED		MAX	MIN	MED		MAX		
Air flow	m³/h	445	535	630	735	840	925	510	655	815	1020	1100	1200	735	830	980	1210	1365	1500
Cooling total emission (E)	kW	2,99	3,51	4,01	4,56	5,08	5,48	3,22	3,97	4,72	5,63	5,94	6,34	4,34	4,79	5,45	6,41	6,98	7,42
Cooling sensible emission (E)	kW	2,18	2,57	2,96	3,39	3,80	4,13	2,38	2,98	3,58	4,33	4,59	4,93	3,28	3,63	4,18	4,98	5,48	5,87
Heating (E)	kW	2,95	3,49	4,03	4,62	5,15	5,59	3,37	4,26	5,14	6,27	6,60	7,20	4,70	5,23	6,01	7,18	7,93	8,52
Heating - Water 70-60 °C	kW	5,93	7,02	8,12	9,30	10,38	11,26	6,78	8,55	10,37	12,52	13,34	14,36	9,47	10,55	12,13	14,52	16,02	17,23
Dp Cooling (E)	kPa	9,5	12,5	15,9	20,0	24,2	27,7	9,6	14,0	19,0	26,0	28,6	32,2	8,9	10,6	13,4	17,8	20,7	23,2
Dp Heating (E)	kPa	7,5	10,1	13,1	16,6	20,1	23,2	8,5	12,8	17,9	24,9	27,8	31,7	8,3	10,0	12,8	17,6	20,9	23,7
Fan (E)	W	44	54	66	79	92	103	47	62	81	105	116	130	78	92	108	134	152	176
Sound power (E)	dB(A)	38	42	47	51	54	56	39	45	50	56	58	60	47	50	54	58	62	64
Sound pressure (*)	dB(A)	29	33	38	42	45	47	30	36	41	47	49	51	38	41	45	49	53	55
1 row heating additional coil (Water 70/60 °C)	Heating (E) kW	2,89	3,29	3,68	4,09	4,49	4,79	3,03	3,60	4,17	4,86	5,11	5,41	3,89	4,22	4,74	5,46	5,90	6,23
	Dp Heat. (E) kPa	3,4	4,3	5,2	6,3	7,4	8,3	3,7	5,0	6,5	8,5	9,3	10,3	5,8	6,7	8,2	10,5	12,0	13,2

(E) = EUROVENT certified performance.

MIN-MED-MAX = Standard connected speeds.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Breeze Frame Kit | FOR CARISMA CRC WALL CONCEALED INSTALLATION



The Carisma Breeze frame kit is available in **3 sizes** and allows the installation of **recessed** Carisma fan coils.

The kit includes a top closing panel that prevents the access to technical spaces and coil ensuring **the safety of the end user**.



The aesthetic frame includes:

- the closing frame;
- air supply louver;
- front panel;
- air intake grid.

The **air supply louver** is made of extruded aluminum with satin finish.

Perimeter frame, front panel and **intake grid** are made of steel painted with epoxy polyester coat, dried in a furnace at 180°, colour RAL 9003. It is possible to repaint the entire frame of the same color as the wall.

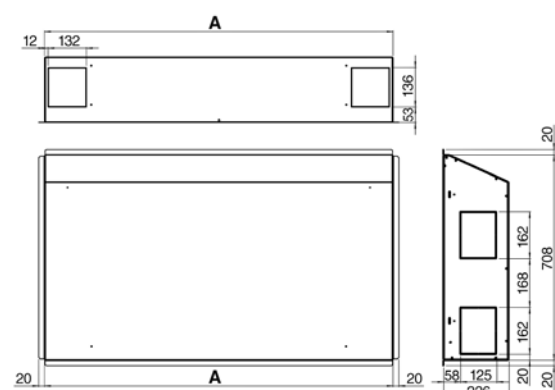
The **recessed box** is made of galvanized steel with opening for the electrical and hydraulic connections.

Aesthetic frame dimensions



Size	Measurement A
2	837
3/4	1052
5/6	1267

Recessed box dimensions



Size	Measurement A
2	771
3/4	986
5/6	1201

Indoor Air Quality



The **Crystall Sabiana** electrostatic filter matches the need for better air conditioning with the concepts of space and design. With this filter the various stages of air treatment are combined in one appliance.

Thanks to this new patented filter (efficiency compliant with new Standard UNI 11254), air pollutants such as cigarette smoke, dust (PM10, PM2.5), pollen and most biological organisms **are eliminated**.

In addition, as fresh air is not being introduced to obtain the best climatic conditions, there are consequential energy savings.

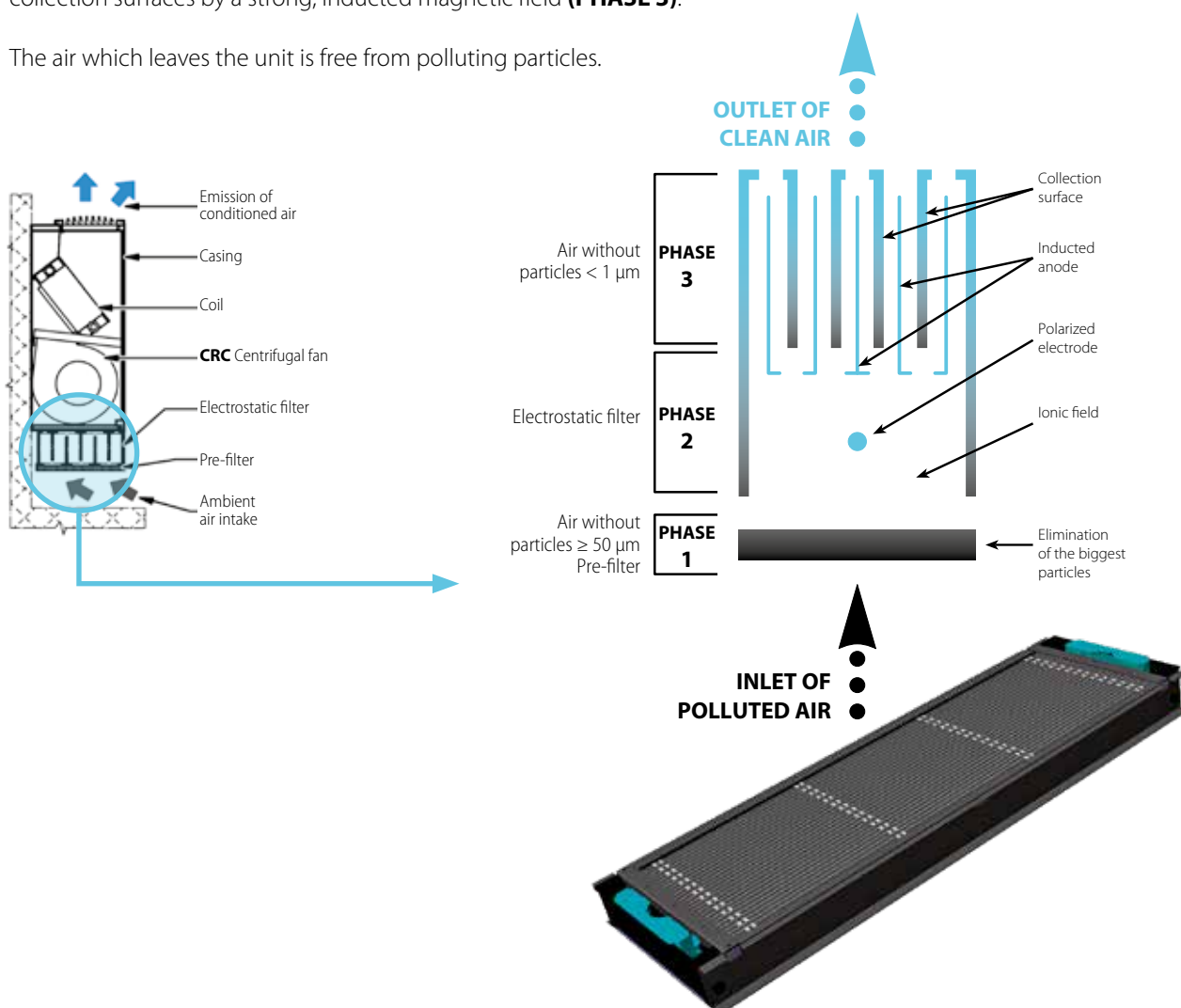
Operating principle of the Crystall electronic filter

The air is sucked in and first passes a mechanical prefilter, which stops away particles of more than 50 μm (dust, insects, etc.). Then the smallest particles (50÷0.01 μm) are exposed to an intensive ionic field and are polarized (**PHASE 1**).

The charged particles passing through the second filter section, are pushed back by the anode and attracted by the collection surfaces by a strong, induced magnetic field (**PHASE 2**).

The charged particles passing through the second filter section, are pushed back by the anode and attracted by the collection surfaces by a strong, induced magnetic field (**PHASE 3**).

The air which leaves the unit is free from polluting particles.



Electronic controls included

Standard MV-MVB models	
CB	3 speed control
CB-T	3 speed control with electronic thermostat and manual summer/winter switch
CB-C	3 speed control with electronic thermostat and centralized summer/winter switch
CB-AUT	Automatic 3 speed control with electronic thermostat and centralized/manual summer/winter switch

N.B.: if the electrostatic filter or the electric heater is mounted, use the **"IAQ"** controls.

Wall electronic controls

Standard MV, MO-MVB and IV-IO models	
WM-3V	3 speed control
WM-T	3 speed control with electronic thermostat and manual summer/winter switch
WM-TQR	3 speed control with electronic thermostat and centralized/manual summer/winter switch
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-503	Automatic speed control with electronic thermostat to be mounted in the 503 box (to be used with UP-503 only)
T2T	Electromechanical thermostat with summer/winter switch (only for 2 pipe units)
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit
UP-503	Power unit for WM-503 remote controls, not fitted on the unit

Electronic controls for MB boards

MB-M	MB electronic board fitted on the unit
MB-S	MB electronic board supplied with separate packaging
T-MB	Wall control (to be used with MB board only)
T-MB-M	Control fitted on the unit, for MV/MVB models with left connections (available with right connections, to be used with MB board and UP-AU board only)
T-MB-S	Control supplied with separate packaging, for MV/MVB models with left connections (available with right connections, to be used with MB board and UP-AU board only)
RM-RT03	RT03 infra-red remote control with fitted receiver, for MV/MO-MVB models (to be used with MB board only)
RS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RM	Receiver for RT03 infra-red remote control fitted on the unit, for MV/MO-MVB models (to be used with MB board only)
RS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Sabianet management system for a network of fan coils

Sabianet	Hardware/software supervisory system (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems

UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

Built-in electronic control



**T-MB
Wall electronic control**



**WM-TQR
Wall electronic control**



Carisma CRC-ECM

Fan Coil Unit with Centrifugal Fan with EC Brushless Electronic Motor and Inverter Board

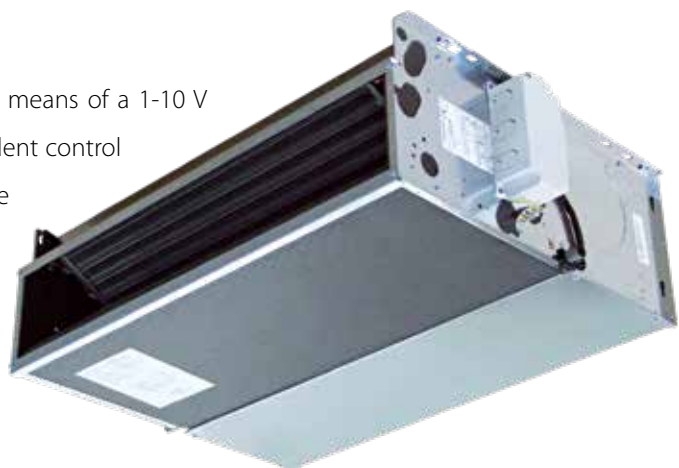


Range includes **5 air flow rates** (from 115 to 1395 m³/h) and **5 models** (for wall and ceiling installation, with casing and concealed), each equipped with 3 or 4 row coil and with the possibility to add a 1 or 2 row coil for 4 pipe systems. This is the series with the **lowest electrical consumption** in relation to both heat performance as well as working static performance and is particularly suited to satisfying the strictest energy consumption needs **of class A** buildings, and to ensuring excellent acoustic comfort.

The ECM range makes use of the excellent experience gained with the SkyStar Cassette fan coils with inverter board, first in the world in production since 2009, and which have had great success on all markets.

The innovative **brushless** and **sensorless** type synchronous electronic motor with permanent magnets, is controlled by an inverter board designed and developed in Italy. The board is mounted on the unit, closed to the motor, without the need to be cooled down by the air flow.

The air flow rate can be varied **in continuously** by means of a 1-10 V signal generated by Sabiana controls or by independent control systems. The continuous air flow control improves the acoustic comfort and allows a more punctual reply to the variation of the thermal loads and a greater stability of the requested ambient temperature.



The extreme efficiency, also at low speed, makes possible a great reduction in electric consumption (50% less in comparison to CRC AC motor) with absorption values under normal operating conditions that **do not exceed 16 Watt**.

The excellent values of the CRC range in terms of sound levels have been maintained **in all working conditions**, without any resonance phenomenon at any frequency.

The full compliance with the Electromagnetic Compatibility Directive and with the other severe Standards in force is certified by an independent institute.

For the technical characteristics of the various components refer to Carisma CRC Fan Coil Unit, except for Electronic motor:

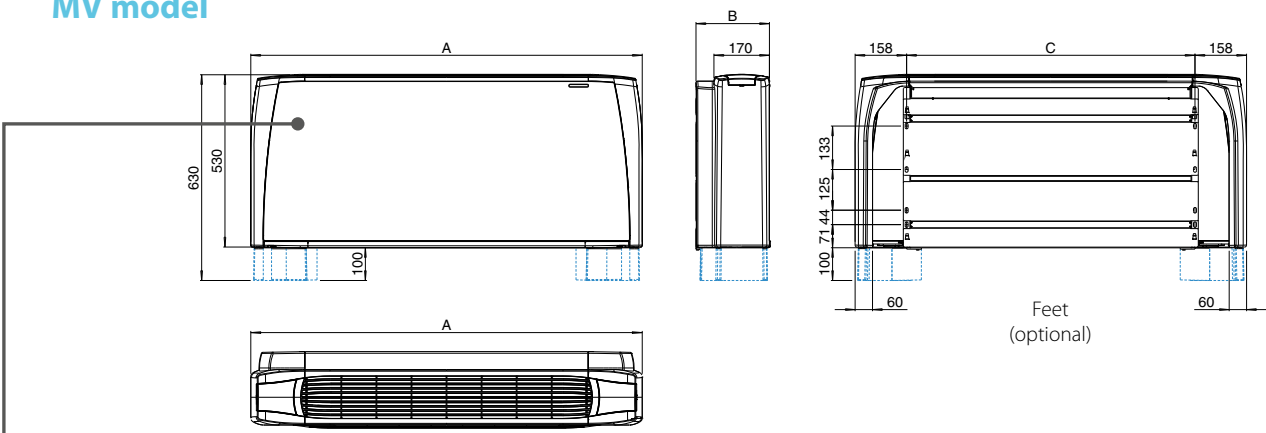
Three phase permanent magnet brushless electronic motor that is controlled with current reconstructed according to a **BLAC** sinusoidal wave.

The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply.

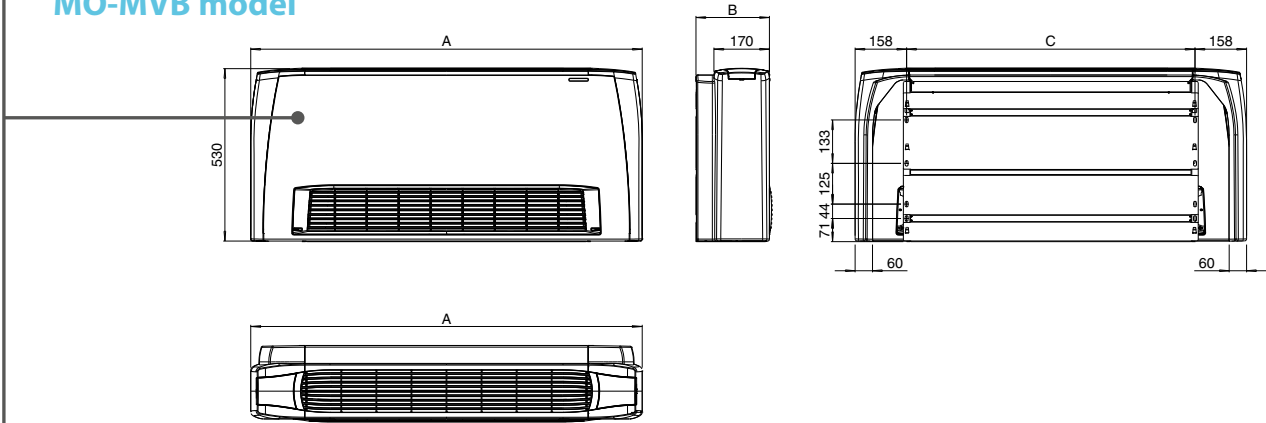
The electric power supply required for the machine is therefore single-phase with voltage of **230 - 240 V** and frequency of **50 - 60 Hz**.



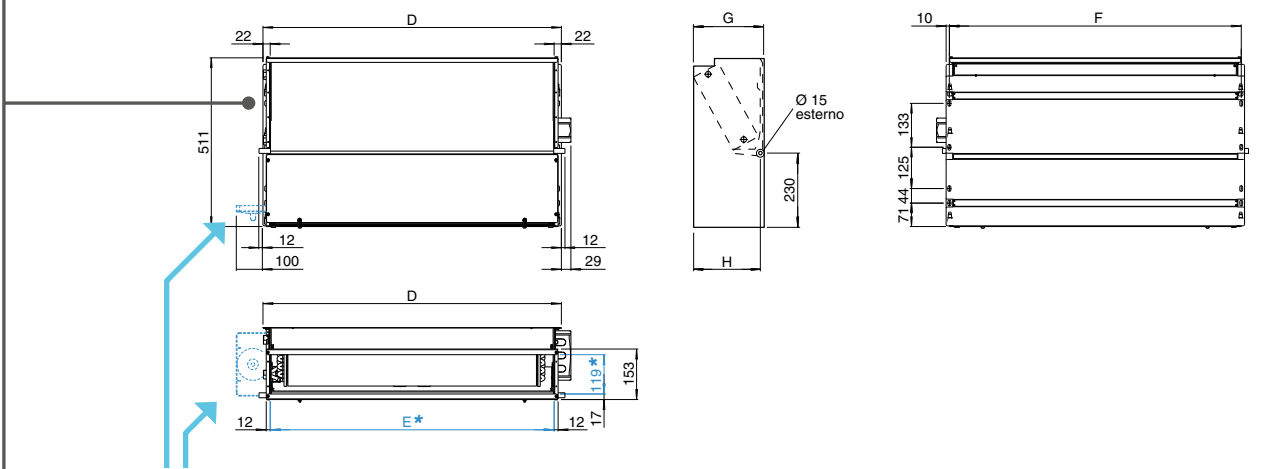
MV model



MO-MVB model



IV-IO model



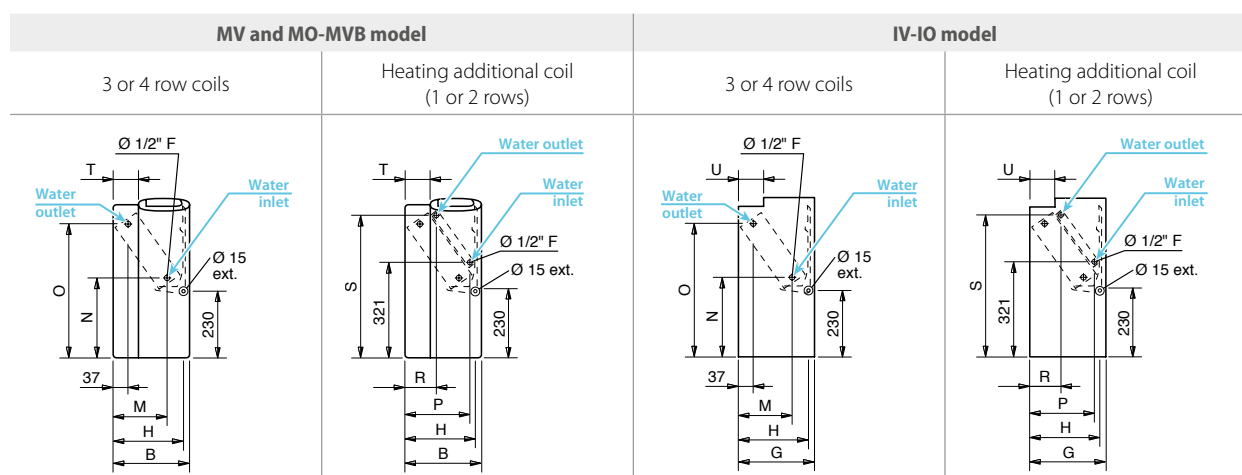
Auxiliary condensate tray (optional)

Coil connections on the left

* Supply frame dimension = E x 119 mm

DIMENSIONS, WEIGHT, WATER CONTENT

Coil connections



Dimension (mm)

Model	2	4	6	7	9
A	770	985	1200	1415	1415
B	225	225	225	225	255
C	454	669	884	1099	1099
D	474	689	904	1119	1119
E	430	645	860	1075	1075
F	454	669	884	1099	1099
G	218	218	218	218	248
H	205	205	205	205	235
M	145	145	145	145	170
N	260	260	260	260	270
O	460	460	460	460	450
P	185	185	185	185	210
R	105	105	105	105	110
S	475	475	475	475	465
T	55	55	55	55	85
U	65	65	65	65	95

Weight (kg)

			Weight with packaging					Weight without packaging				
	Model		2	4	6	7	9	2	4	6	7	9
MV MO-MVB	ROWS	3	17,2	22,5	27,7	32,1	35,9	15,4	20,2	24,9	28,8	32,2
		3+1	18,0	23,7	29,2	33,9	37,7	16,2	21,4	26,4	30,6	34,0
		3+2	18,6	24,4	30,1	35,0	38,8	16,8	22,1	27,3	31,7	35,1
		4	18,0	23,5	29,0	33,6	37,4	16,2	21,2	26,2	30,3	33,7
		4+1	18,8	24,7	30,5	35,4	39,2	17,0	22,4	27,7	32,1	35,5
IV-IO	ROWS	3	13,6	18,1	22,8	27,0	30,4	11,8	16,3	20,5	24,2	27,3
		3+1	14,4	19,3	24,3	28,8	32,2	12,6	17,5	22,0	26,0	29,1
		3+2	15,0	20,0	25,2	29,9	33,3	13,2	18,2	22,9	27,1	30,2
		4	14,4	19,1	24,1	28,5	31,9	12,6	17,3	21,8	25,7	28,8
		4+1	15,2	20,3	25,6	30,3	33,7	13,4	18,5	23,3	27,5	30,6

Water content (litres)

Model		2	4	6	7	9
ROWS	3	0,6	0,9	1,6	1,7	1,9
	4	0,8	1,3	2,2	2,4	2,8
	+1	0,2	0,3	0,5	0,5	0,6
	+2	0,4	0,6	1,0	1,0	1,2

Units with 3 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model		CRC-ECM 23					CRC-ECM 43					CRC-ECM 63				
Inverter Power (V)		1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)
Speed		MIN		MED		MAX	MIN		MED		MAX	MIN		MED		MAX
Air flow	m³/h	120	170	220	270	330	210	280	350	430	515	305	395	495	610	735
Cooling total emission (E)	kW	0,73	0,97	1,18	1,37	1,59	1,41	1,80	2,18	2,57	2,95	1,96	2,44	2,93	3,44	3,96
Cooling sensible emission (E)	kW	0,55	0,74	0,92	1,09	1,28	1,03	1,33	1,64	1,95	2,26	1,46	1,83	2,22	2,64	3,08
Heating (E)	kW	0,77	1,04	1,29	1,52	1,80	1,42	1,84	2,26	2,69	3,14	1,96	2,46	3,00	3,55	4,14
Heating - Water 70-60 °C	kW	1,55	2,10	2,61	3,09	3,64	2,85	3,70	4,55	5,43	6,33	3,95	4,97	6,04	7,17	8,37
Dp Cooling (E)	kPa	2,2	3,6	5,1	6,7	8,6	7,9	12,0	17,0	22,6	28,9	5,5	8,0	11,1	14,8	19,0
Dp Heating (E)	kPa	1,6	2,7	3,9	5,2	7,0	6,6	10,4	14,9	20,4	26,7	4,5	6,8	9,6	12,9	17,0
Fan (E)	W	7	9	11	15	21	6	9	12	17	25	7	10	15	22	32
Sound power (E)	dB(A)	30	36	41	47	51	30	36	42	47	51	33	38	44	49	54
Sound pressure (*)	dB(A)	21	27	32	38	42	21	27	33	38	42	24	29	35	40	45
1 row heating additional coil (Water 70/60 °C)	Heating (E) kW	0,81	1,04	1,23	1,42	1,63	1,47	1,79	2,11	2,42	2,74	2,00	2,40	2,80	3,24	3,68
	Dp Heat. (E) kPa	1,3	1,9	2,6	3,4	4,3	4,5	6,4	8,5	10,9	13,6	1,5	2,1	2,8	3,6	4,5

Model			CRC-ECM 73					CRC-ECM 93					
Inverter Power (V)			1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)	
Speed			MIN		MED		MAX	MIN		MED		MAX	
Air flow			m³/h	400	500	610	755	890	605	785	945	1175	1395
Cooling total emission (E)			kW	2,60	3,13	3,68	4,36	4,94	3,45	4,22	4,82	5,60	6,26
Cooling sensible emission (E)			kW	1,92	2,33	2,77	3,32	3,80	2,63	3,28	3,79	4,49	5,10
Heating (E)			kW	2,56	3,13	3,72	4,43	5,08	3,74	4,65	5,41	6,46	7,38
Heating - Water 70-60 °C			kW	5,16	6,30	7,50	8,94	10,25	7,55	9,40	10,94	13,06	14,95
Dp Cooling (E)			kPa	10,5	14,5	19,4	26,1	32,6	8,9	12,7	16,1	21,1	25,9
Dp Heating (E)			kPa	8,5	12,1	16,4	22,2	28,3	7,3	10,7	14,0	19,1	24,2
Fan (E)			W	9,0	13,0	18,5	28,5	41,0	16,0	25,0	41,0	65,0	99,0
Sound power (E)			dB(A)	37	43	48	53	57	44	50	55	60	64
Sound pressure (*)			dB(A)	28	34	39	44	48	35	41	46	51	55
1 row heating additional coil (Water 70/60 °C)	Heating (E)	kW	2,65	3,10	3,56	4,13	4,63	3,40	4,08	4,62	5,35	5,98	
	Dp Heat. (E)	kPa	2,9	3,9	4,9	6,4	7,8	4,6	6,3	7,8	10,1	12,3	

(E) = EUROVENT certified performance.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Units with 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model		CRC-ECM 24					CRC-ECM 44					CRC-ECM 64				
Inverter Power (V)		1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)
Speed		MIN		MED		MAX	MIN		MED		MAX	MIN		MED		MAX
Air flow	m ³ /h	115	160	210	260	325	200	265	340	415	505	290	375	475	590	720
Cooling total emission (E)	kW	0,77	1,06	1,32	1,57	1,86	1,43	1,83	2,27	2,71	3,17	2,05	2,59	3,19	3,84	4,51
Cooling sensible emission (E)	kW	0,56	0,78	0,98	1,19	1,42	1,03	1,34	1,67	2,02	2,39	1,48	1,89	2,34	2,84	3,38
Heating (E)	kW	0,78	1,08	1,37	1,65	1,98	1,42	1,83	2,30	2,77	3,32	2,02	2,59	3,23	3,93	4,68
Heating - Water 70-60 °C	kW	1,57	2,18	2,75	3,33	4,01	2,83	3,67	4,59	5,57	6,60	4,05	5,21	6,48	7,90	9,43
Dp Cooling (E)	kPa	3,2	5,5	8,0	11,0	14,8	4,0	6,1	8,9	12,3	16,1	8,2	12,4	17,8	24,8	33,0
Dp Heating (E)	kPa	2,6	4,7	7,1	9,9	13,6	3,1	4,9	7,3	10,2	13,7	6,6	10,3	15,1	21,4	29,1
Fan (E)	W	7,0	8,8	11,0	14,6	21,0	6,0	9,0	12,0	17,0	25,0	7,0	10,0	15,0	22,0	32,0
Sound power (E)	dB(A)	30	36	41	47	51	30	36	42	47	51	33	38	44	49	54
Sound pressure (*)	dB(A)	21	27	32	38	42	21	27	33	38	42	24	29	35	40	45
1 row heating additional coil (Water 70/60 °C)	Heating (E) kW	0,81	1,04	1,23	1,42	1,63	1,47	1,79	2,11	2,42	2,74	2,00	2,40	2,80	3,24	3,68
	Dp Heat. (E) kPa	1,3	1,9	2,6	3,4	4,3	4,5	6,4	8,5	10,9	13,6	1,5	2,1	2,8	3,6	4,5

Model		CRC-ECM 74					CRC-ECM 94				
Inverter Power (V)		1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)
Speed		MIN		MED		MAX	MIN		MED		MAX
Air flow	m ³ /h	380	475	585	735	875	575	755	910	1145	1365
Cooling total emission (E)	kW	2,61	3,20	3,82	4,61	5,30	3,59	4,49	5,21	6,18	7,04
Cooling sensible emission (E)	kW	1,90	2,34	2,82	3,44	3,99	2,69	3,40	3,99	4,81	5,53
Heating (E)	kW	2,57	3,17	3,84	4,66	5,43	3,76	4,81	5,63	6,84	7,93
Heating - Water 70-60 °C	kW	5,16	6,38	7,73	9,39	10,93	7,58	9,69	11,37	13,82	16,03
Dp Cooling (E)	kPa	7,3	10,5	14,3	20,0	25,6	6,3	9,3	12,1	16,4	20,8
Dp Heating (E)	kPa	5,9	8,6	12,0	16,9	22,0	5,6	8,7	11,4	16,1	20,9
Fan (E)	W	9,0	13,0	18,5	28,5	41,0	16,0	25,0	41,0	65,0	99,0
Sound power (E)	dB(A)	37	43	48	53	57	44	50	55	60	64
Sound pressure (*)	dB(A)	28	34	39	44	48	35	41	46	51	55
1 row heating additional coil (Water 70/60 °C)	Heating (E) kW	2,65	3,10	3,56	4,13	4,63	3,40	4,08	4,62	5,35	5,98
	Dp Heat. (E) kPa	2,9	3,9	4,9	6,4	7,8	4,6	6,3	7,8	10,1	12,3

(E) = EUROVENT certified performance.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Electronic controls included

MV-MVB model	
CB-T-ECM	Continuous fan speed control with electronic thermostat and summer/winter switch

N.B.: if the electrostatic filter is mounted (CRC-ECM only), use the "IAQ" controls.

Wall electronic controls

MV, MO-MVB and IV-IO model	
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-S-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and LCD display
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit

Electronic controls for MB boards

Versione MV, MO-MVB e IV-IO	
MB-ECM-M	MB electronic board fitted on the unit
MB-ECM-S	MB electronic board supplied with separate packaging
T-MB	Wall control (to be used with MB board only)
T-MB-M	Control fitted on the unit, for MV/MVB models with left connections (available with right connections, to be used with MB board and UP-AU board only)
T-MB-S	Control supplied with separate packaging, for MV/MVB models with left connections (available with right connections, to be used with MB board and UP-AU board only)
RM-RT03	RT03 infra-red remote control with fitted receiver, for MV/MO-MVB models (to be used with MB board only)
RS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RM	Receiver for RT03 infra-red remote control fitted on the unit, for MV/MO-MVB models (to be used with MB board only)
RS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Sabianet management system for a network of fan coils	
Sabianet	Hardware/software supervisory system (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

CB-T-ECM control



**WM-AU control
and Power Unit**



Carisma CRT-ECM

Fan Coil Unit with Tangential Fan with EC Brushless Electronic Motor and Inverter Board



Range includes **5 air flow rates** (from 95 to 900 m³/h) and **5 models** (for wall and ceiling installation, with casing and concealed), each equipped with 3 row coil and with the possibility to add a 1 row coil for 4 pipe systems.

With electrical consumption less than 8 W on the entire range at the lowest speed, it can be considered to be **the best fan coil on the market** in electrical consumption. Therefore, it is particularly suited whenever there are low environmental thermal requirements and the focus is on consumption and acoustic comfort.

The ECM range makes use of the excellent experience gained with the SkyStar Cassette fan coils with inverter board, first in the world in production since 2009, and which have had great success on all markets.

The innovative **brushless** and **sensorless** type synchronous electronic motor with permanent magnets, is controlled by an inverter board designed and developed in Italy.

The board is mounted on the unit, closed to the motor, without the need to be cooled down by the air flow.

The air flow rate can be varied **in continuous** by means of a 1-10 V signal generated by Sabiana controls or by independent control systems.

The continuous air flow control improves the acoustic comfort and allows a more punctual reply to the variation of the thermal loads and a greater stability of the requested ambient temperature.

The extreme efficiency, also at low speed, makes possible a great reduction in electric consumption with absorption values under normal operating conditions that **do not exceed 8 Watt**.

The excellent values in terms of sound levels have been maintained in all working conditions, without any resonance phenomenon at any frequency.

The full compliance with the Electromagnetic Compatibility Directive and with the other strict Standards in force is certified by an independent institute.

Outer casing: made with strong synthetic lateral corners and from galvanized and prepainted front steel panel. The plastic top grid has fixed louvres and is reversible in order to distribute the air in two different directions.

Standard colours:

- Lateral corners and top grid: **Pantone Cool Grey 1C (light grey)**
- Front panel: **RAL 9003 (white)**
- Other colours on request.

Inner casing: made from 1 mm galvanized steel insulated with 3 mm polyolefin (PO) foam (class M1).

Filter: polypropylene cellular fabric regenerating filter. The filter frame of galvanized steel is inserted into special plastic sliding guides fastened to the internal structure for easy insertion and removal of the filter. Filter presence is highlighted by a plastic front cover featuring the same colour as the top grid.

Fan assembly: the tangential fan assembly is composed of two fan shrouds: an external one in ABS and an internal one of perforated, shaped steel. The fan has an external diameter of 120mm and is the length of the coil. The fins are concave and are positioned in a spiral shape along the whole length of the fan.

Electronic motor: three phase permanent magnet brushless electronic motor that is controlled with current reconstructed according to a **BLAC** sinusoidal wave.

The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply.

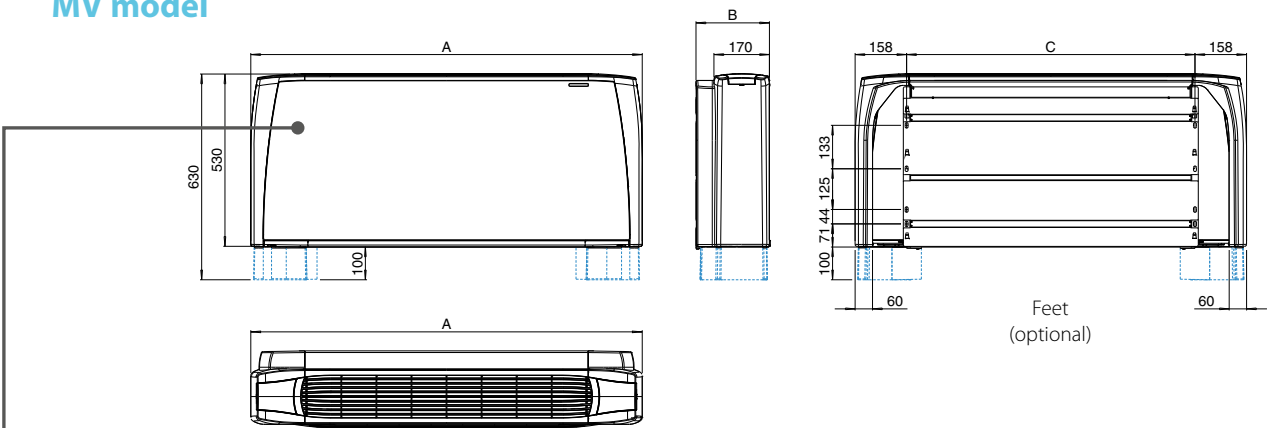
The electric power supply required for the machine is therefore single-phase with voltage of **230 - 240 V** and frequency of **50 - 60 Hz**.

Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The coil has two 1/2inch BSP internal connections and 1/8 inch BSP air vent and drain. The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

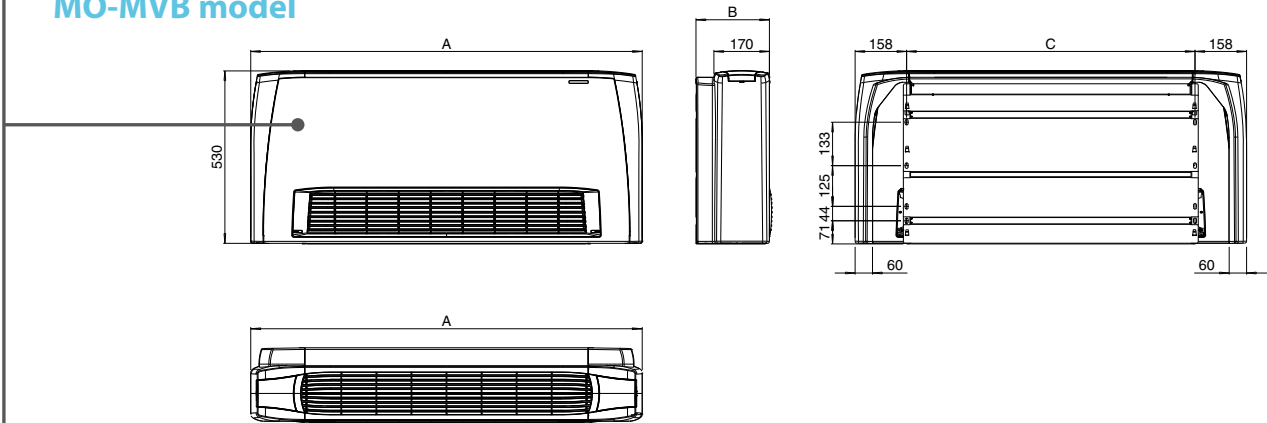
Flow and return pipe connections are situated at the same end on the left side looking at the unit. On request we can deliver the unit with the connections on the right end side: this must be specified on the order as this operation can not be carried out on site during installation.

Condensate collection tray: made from plastic with an "L"-shaped plastic fitted on the inner casing; in the MO-MVB and IV-IO model the tray is insulated with 3 mm polyolefin (PO) foam (class M1). The outside diameter of the condensate discharge pipe is 15 mm.

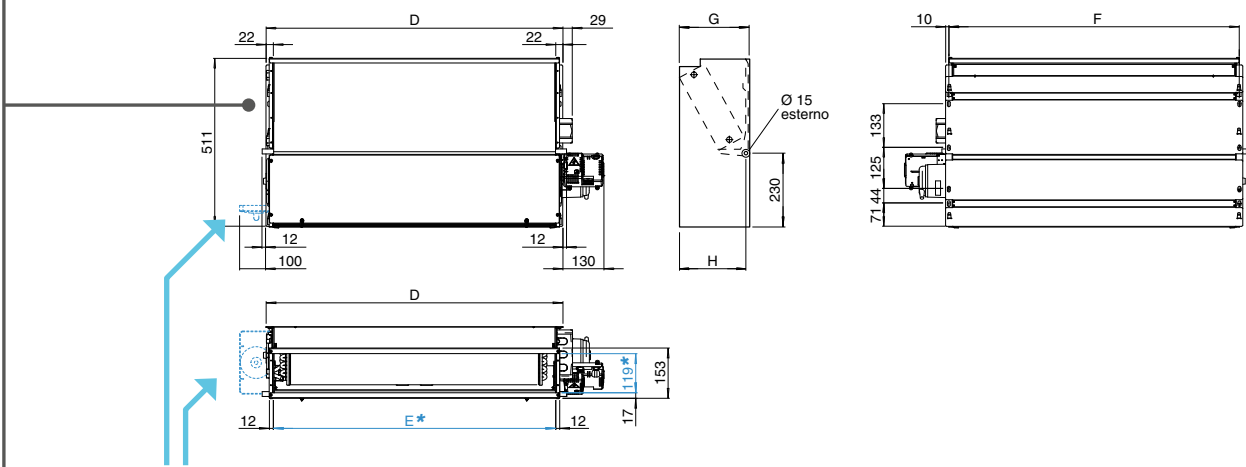
MV model



MO-MVB model



IV-IO model

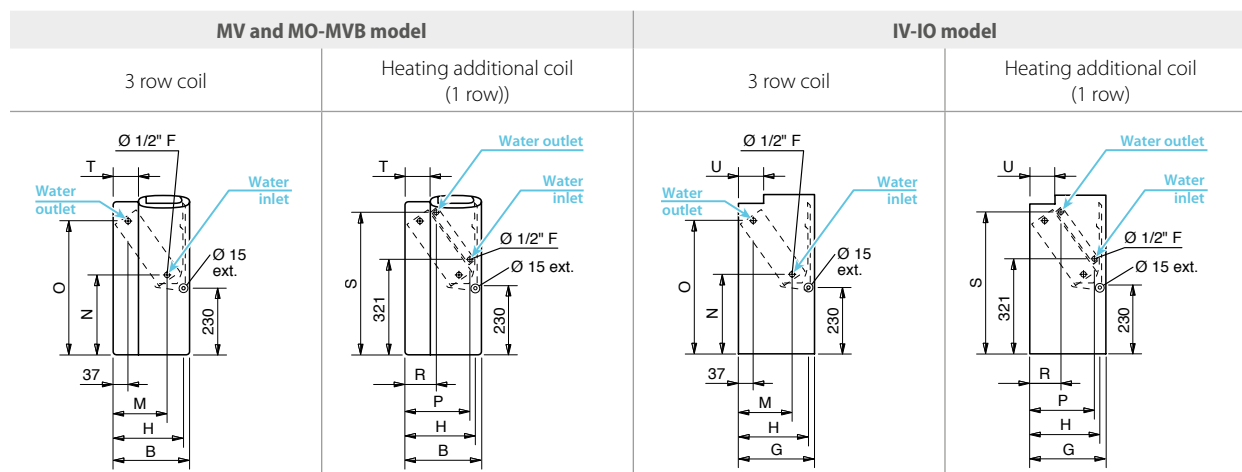


Auxiliary condensate tray (optional)

Coil connections on the left

* Supply frame dimension = E x 119 mm

Coil connections



Dimension (mm)

Model	1	2	3	5	7
A	670	770	985	1200	1415
B	225	225	225	225	225
C	354	454	669	884	1099
D	374	474	689	904	1119
E	330	430	645	860	1075
F	354	454	669	884	1099
G	218	218	218	218	218
H	205	205	205	205	205
M	145	145	145	145	145
N	260	260	260	260	260
O	460	460	460	460	460
P	185	185	185	185	185
R	105	105	105	105	105
S	475	475	475	475	475
T	55	55	55	55	55
U	65	65	65	65	65

Weight (kg)

	Model		Weight with packaging					Weight without packaging				
			1	2	3	5	7	1	2	3	5	7
MV MO-MVB	ROWS	3	14,8	16,2	19,6	24,2	28,7	13,2	14,4	17,3	21,4	25,4
		3+1	15,5	17,0	20,8	25,7	30,5	13,9	15,2	18,5	22,9	27,2
IV-IO	ROWS	3	11,5	12,6	15,3	19,2	23,6	9,9	10,8	13,5	16,9	20,8
		3+1	12,2	13,4	16,5	20,7	25,4	10,6	11,6	14,7	18,4	22,6

Water content (litres)

Model		1	2	3	5	7
ROWS	3	0,5	0,6	0,9	1,3	1,7
	3+1	0,2	0,2	0,3	0,4	0,5

Units with 3 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Entering water temperature: +50 °C
 Water flow rate as for the cooling conditions

Model		CRT-ECM 13			CRT-ECM 23			CRT-ECM 33			CRT-ECM 53			CRT-ECM 73		
Inverter Power (V)		1 (E)	5 (E)	10 (E)	1 (E)	5 (E)	10 (E)	1 (E)	5 (E)	10 (E)	1 (E)	5 (E)	10 (E)	1 (E)	5 (E)	10 (E)
Speed		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m ³ /h	105	165	240	150	215	305	220	325	450	295	460	675	400	630	900
Cooling total emission (E)	kW	0,55	0,76	0,99	0,85	1,11	1,41	1,37	1,88	2,38	1,83	2,62	3,49	2,48	3,57	4,67
Cooling sensible emission (E)	kW	0,44	0,63	0,86	0,66	0,88	1,15	1,02	1,43	1,85	1,37	2,01	2,74	1,85	2,73	3,65
Heating (E)	kW	0,80	1,10	1,48	1,17	1,52	1,96	1,79	2,45	3,12	2,39	3,45	4,63	3,14	4,57	6,06
Heating - Water 70-60 °C	kW	1,39	1,95	2,63	2,01	2,63	3,41	3,05	4,17	5,32	4,07	5,88	7,92	5,31	7,74	10,31
Dp Cooling (E)	kPa	0,8	1,4	2,2	2,1	3,4	5,2	7,4	12,9	19,7	4,8	9,1	15,0	9,6	18,2	29,1
Dp Heating (E)	kPa	0,7	1,1	1,8	1,7	2,7	4,2	6,2	10,4	16,0	3,9	7,4	12,1	7,7	15,0	24,0
Fan (E)	W	4,0	6,0	10,0	4,5	6,5	11,5	5,0	8,5	16,0	6,0	11,5	26,0	7,0	15,0	38,0
Sound power (E)	dB(A)	29	39	48	33	43	49	33	42	49	35	46	53	37	48	56
Sound pressure (*)	dB(A)	20	30	39	24	34	40	24	33	40	26	37	44	28	39	47

Units with 1 row additional coil

4 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +70 °C E.W.T. +60 °C L.W.T.

Model		CRT-ECM 13+1			CRT-ECM 23+1			CRT-ECM 33+1			CRT-ECM 53+1			CRT-ECM 73+1		
Inverter Power (V)		1 (E)	5 (E)	10 (E)	1 (E)	5 (E)	10 (E)	1 (E)	5 (E)	10 (E)	1 (E)	5 (E)	10 (E)	1 (E)	5 (E)	10 (E)
Speed		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m ³ /h	95	150	225	135	195	285	200	295	415	270	420	640	355	565	820
Cooling total emission (E)	kW	0,51	0,72	0,95	0,78	1,02	1,34	1,25	1,71	2,22	1,69	2,44	3,35	2,26	3,29	4,35
Cooling sensible emission (E)	kW	0,40	0,60	0,81	0,60	0,81	1,09	0,93	1,30	1,73	1,26	1,85	2,62	1,68	2,50	3,37
Heating (E)	kW	0,62	0,85	1,09	0,98	1,23	1,57	1,54	2,00	2,51	2,05	2,76	3,67	2,67	3,68	4,72
Dp Cooling (E)	kPa	0,8	1,5	2,3	1,8	2,9	4,8	6,1	10,6	16,8	4,2	8,0	14,0	8,2	15,8	25,7
Dp Heating (E)	kPa	0,7	1,1	1,8	1,7	2,5	3,9	4,9	7,8	11,6	1,6	2,7	4,4	3,0	5,2	8,1
Fan (E)	W	4,0	6,0	10,0	4,5	6,5	11,5	5,0	8,5	16,0	6,0	11,5	26,0	7,0	15,0	38,0
Sound power (E)	dB(A)	31	39	48	33	43	49	33	42	49	35	46	53	37	48	56
Sound pressure (*)	dB(A)	22	30	39	24	34	40	24	33	40	26	37	44	28	39	47

(E) = EUROVENT certified performance.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Electronic controls included

MV-MVB model	
CB-T-ECM	Continuous fan speed control with electronic thermostat and summer/winter switch

N.B.: in caso di filtro elettrostatico (solo CRC-ECM), utilizzare i corrispettivi "IAQ".

Wall electronic controls

MV, MO-MVB and IV-IO model	
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-S-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and LCD display
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit

Electronic controls for MB boards

MV, MO-MVB and IV-IO model	
MB-ECM-M	MB electronic board fitted on the unit
MB-ECM-S	MB electronic board supplied with separate packaging
T-MB	Wall control (to be used with MB board only)
T-MB-M	Control fitted on the unit, for MV/MVB models with left connections (available with right connections, to be used with MB board and UP-AU board only)
T-MB-S	Control supplied with separate packaging, for MV/MVB models with left connections (available with right connections, to be used with MB board and UP-AU board only)
RM-RT03	RT03 infra-red remote control with fitted receiver, for MV/MO-MVB models (to be used with MB board only)
RS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RM	Receiver for RT03 infra-red remote control fitted on the unit, for MV/MO-MVB models (to be used with MB board only)
RS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

Carisma CRR-ECM

Residential Fan Coil Unit with Electronic Motor and Inverter Board



Range includes **4 air flow rates** (from 90 to 550 m³/h) and **2 model** (a parete da incasso), both bequipped with 3 row coil.

The **CRR** series was created to offer a **residential** fan coil with a sophisticated design and low depth (**183 mm**) and a specially silent tangential fan assembly.



Outer casing: made with strong synthetic lateral corners and from galvanized and prepainted front steel panel. The plastic top grid has fixed louvres and is reversible in order to distribute the air in two different directions.

Standard colours:

- Lateral corners and top grid: **Pantone Cool Grey 1C (light grey)**
- Front panel: **RAL 9003 (white)**
- Other colours on request.

Inner casing: made from 1 mm galvanized steel insulated with 3 mm polyolefin (PO) foam (class M1).

Filter: polypropylene cellular fabric regenerating filter.

The filter frame of galvanized steel is inserted into special plastic sliding guides fastened to the internal structure for easy insertion and removal of the filter. Filter presence is highlighted by a plastic front cover featuring the same colour as the top grid.

Fan assembly: the tangential fan assembly is composed of two fan shrouds: an external one in ABS and an internal one of perforated, shaped steel. The fan has an external diameter of 120mm and is the length of the coil. The fins are concave and are positioned in a spiral shape along the whole length of the fan.

Electronic motor: three phase permanent magnet brushless electronic motor that is controlled with current reconstructed according to a **BLAC** sinusoidal wave. The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply. The electric power supply required for the machine is therefore single-phase with voltage of **230 - 240 V** and frequency of **50 - 60 Hz**.

Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The coil has two 1/2 inch BSP internal connections and 1/8 inch BSP air vent and drain. The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

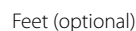
Flow and return pipe connections are situated at the same end on the left side looking at the unit.

On request we can deliver the unit with the connections on the right end side: this must be specified on the order as this operation can not be carried out on site during installation.

Condensate collection tray: made from plastic fitted on the inner casing.

The outside diameter of the condensate discharge pipe is 15 mm.

MV model



IV model



Coil connections



Dimension (mm)

Model	1	2	3	4
A	670	770	985	1200
B	354	454	669	884
C	374	474	689	904
D	330	430	645	860

Weight (kg)

Model	Weight with packaging				Weight without packaging			
	1	2	3	4	1	2	3	4
MV model	13,4	15,1	18,9	22,7	11,6	13,1	16,6	20,1
IV model	11,3	13,0	16,8	20,6	9,7	11,2	14,6	18,2

Water content (litres)

Model	1	2	3	4
	0,5	0,6	0,9	1,3

Units with 3 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.

Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C

Entering water temperature: +45/40 °C

Model		CRR-ECM 1					CRR-ECM 2				
Inverter Power (V)		1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)
Speed		MIN		MED		MAX	MIN		MED		MAX
Air flow	m ³ /h	90	120	145	180	210	100	135	170	210	245
Cooling total emission (E)	kW	0,51	0,62	0,71	0,81	0,89	0,65	0,81	0,95	1,10	1,21
Cooling sensible emission (E)	kW	0,39	0,50	0,58	0,68	0,76	0,47	0,60	0,72	0,85	0,95
Heating (E)	kW	0,56	0,67	0,75	0,89	1,00	0,78	0,93	1,09	1,30	1,46
Dp Cooling (E)	kPa	0,90	1,30	1,60	2,10	2,40	1,60	2,40	3,20	4,20	5,00
Dp Heating (E)	kPa	1,10	1,50	1,90	2,50	3,10	1,80	2,50	3,30	4,50	5,60
Fan (E)	W	5	5	6	8	10	5	6	6	8	10
Sound power (E)	Lw dB(A)	32	36	40	44	48	32	36	39	43	47
Sound pressure (*)	Lp dB(A)	23	27	31	35	39	23	27	30	34	38

Model		CRR-ECM 3					CRR-ECM 4				
Inverter Power (V)		1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)
Speed		MIN		MED		MAX	MIN		MED		MAX
Air flow	m ³ /h	170	225	280	350	410	240	320	390	470	550
Cooling total emission (E)	kW	1,17	1,45	1,70	1,99	2,20	1,61	2,00	2,30	2,62	2,90
Cooling sensible emission (E)	kW	0,83	1,04	1,24	1,47	1,64	1,15	1,45	1,69	1,94	2,17
Heating (E)	kW	1,33	1,56	1,82	2,18	2,47	1,85	2,18	2,50	2,90	3,28
Dp Cooling (E)	kPa	6,20	9,10	12,20	16,20	19,40	4,40	6,50	8,50	10,70	12,80
Dp Heating (E)	kPa	6,30	8,40	11,20	15,50	19,40	4,60	6,20	7,90	10,30	12,90
Fan (E)	W	5	7	8	11	15	6	7	10	14	22
Sound power (E)	Lw dB(A)	34	38	42	46	50	34	38	43	48	51
Sound pressure (*)	Lp dB(A)	25	29	33	37	41	25	29	34	39	42

(E) = EUROVENT certified performance.

MIN-MED-MAX = Standard connected speeds.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.



The **Carisma Breeze frame kit** is available in **3 sizes** and allows the installation of **recessed** CarismaCRR-ECM IV model fan coils.

The **kit** includes a top closing panel that prevents the access to technical spaces and coil ensuring **the safety of the end user**.



The aesthetic frame includes:

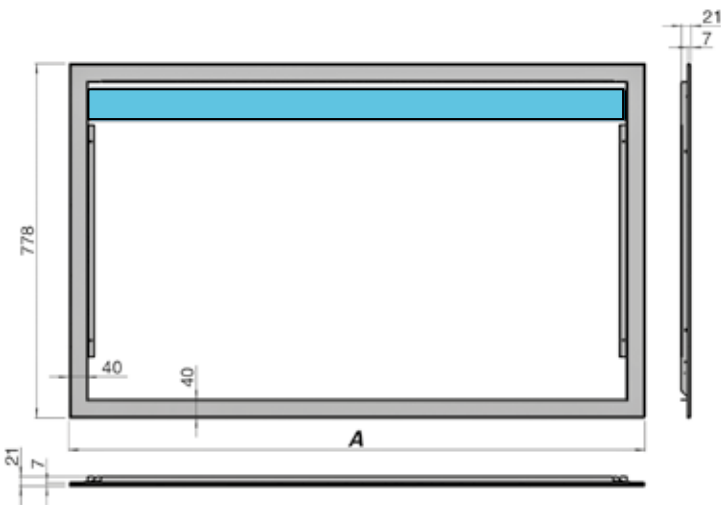
- the closing frame;
- air supply louvre;
- front panel;
- air intake grid.

The air supply louvre is made of extruded aluminum with satin finish.

Perimeter frame, front panel and intake grid are made of steel painted with epoxy polyester coat, dried in a furnace at 180°, colour RAL 9003. It is possible to repaint the entire frame of the same color as the wall.

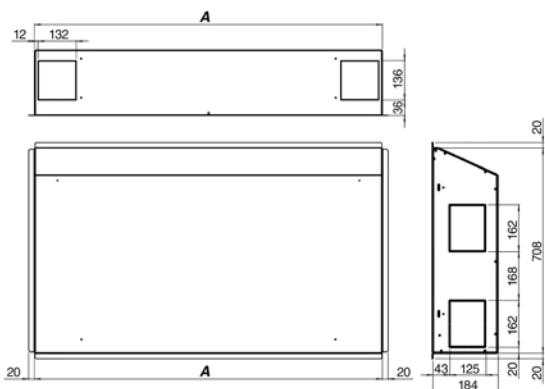
The recessed box is made of galvanized steel with opening for the electrical and hydraulic connections.

Aesthetic frame dimensions



Size	Measurement A
2	837
3	1052
4	1267

Recessed box dimensions



Size	Measurement A
2	771
3	986
4	1201

Electronic controls included

MV-MVB model	
CB-T-ECM	Continuous fan speed control with electronic thermostat and summer/winter switch

Wall electronic controls

MV, MO-MVB and IV-IO models	
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-S-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and LCD display
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

Carisma CFR

Fan Coil Unit with Tangential Fan with Asynchronous Motor



Carisma CFR fan coils are designed to meet the frequent requirement in homes **of combining the typical qualities of radiators**, such as reduced depth and quiet operation, **with the typical quality of fan coils** for controlling the climate in environments all year round with a high comfort air outlet temperature.

They are available into **two main versions**: with front radial panel or with front panel for covering only. In winter, the first solution provides both a convective and radiant thermal exchange, **further improving the feeling of well being**.

On demand, recessed versions, horizontal ceiling mounted versions and 4 pipe systems are available for installation in non residential buildings.



Carisma CFR fan coils are available in two models:

- with coil for **MV** and **IV-IO** models;
- with coil coupled to a radiant element for **MVR** models.

MV and IV-IO models, aided by the water coil only, meet all the typical requirements of a fan coil with especially reduced size.

MVR model, in addition to the water coil, includes an integrated radiant element which enhances the efficiency of the unit, providing in winter both a convective and radiant static thermal exchange.

Frontal panel and removable lateral corners (to inspect the compartment, electric or hydraulic connections) in galvanised steel painted with oven-dried epoxy powders RAL 9010.

Casing in high resistance galvanised steel.

Coil:

- **Coil** in copper pipes and aluminium fins with high efficiency turbulence. Eurokonus 3/4" threaded fittings, comply with the new requirements of EU standards; the headers are equipped with air vent and water drains. The coil is equipped with a sensor to detect water temperature. **The standard position of the hydraulic connections is on the left side looking at the unit from the front. However the coils are reversible: the side of the connections can therefore be inverted on site. Right side connections are possible on demand.** The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.
- **Radiant element (MVR models only)** connected in parallel to the coil and equipped with a thermostatic valve which opens when the water reaches a temperature of 29°C.



Carisma CFR

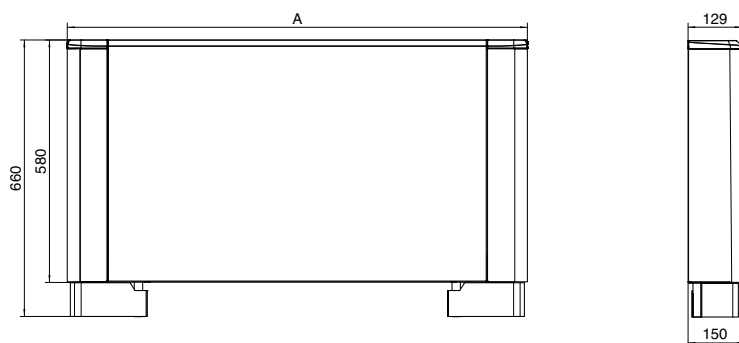
Fan assembly including tangential fan in synthetic material with offset fins (extremely silent) mounted on EPDM anti-vibration supports. Statically and dynamically balanced rotor, coupled directly on the motor shaft.

Single-phase resin pack **electric motor** mounted on EPDM anti-vibration supports with sensor for HALL effect.

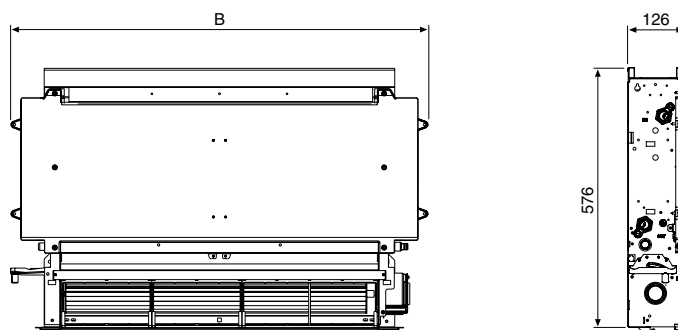
Reversible **supply air grid** in galvanised steel painted with oven-dried epoxy powders RAL 9010. Large size with high mechanical resistance.

Condensate collection tray in shockproof PVC, easily removable for periodical cleaning. Condensate collection tray in shockproof ABS for horizontal installation (optional).

MV-MVR model



IV-IO model



Dimension (mm)

Model	1	2	3	4
A	698	898	1.098	1.298
B	525	725	925	1.125

Weight(kg)

Model	Weight with packaging				Weight without packaging			
	1	2	3	4	1	2	3	4
MV	15,0	17,0	20,0	23,0	12,5	14,0	16,5	19,5
MVR	17,0	19,5	24,0	27,5	14,5	16,5	20,5	23,5
IV-IO	11,5	15,0	18,5	22,0	9,0	12,0	15,0	18,0

Water content (litri)

Model	Coil				Radiant element			
	1	2	3	4	1	2	3	4
MV	0,47	0,80	1,13	1,46	–	–	–	–
MVR	0,47	0,80	1,13	1,46	0,30	0,50	0,70	0,90
IV-IO	0,47	0,80	1,13	1,46	–	–	–	–

The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27°C d.b. +19°C w.b.
Water temperature: +7°C E.W.T. +12°C L.W.T.

HEATING (winter mode)

Entering air temperature: +20°C
Water temperature: +40°C E.W.T.
Water flow rate as for the cooling conditions

Model		CFR 1			CFR 2			CFR 3			CFR 4		
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Speed													
Air flow	m ³ /h	100	125	160	170	230	320	180	270	460	370	450	575
Cooling total emission (E)	kW	0,38	0,72	0,83	0,92	1,36	1,76	1,51	2,11	2,56	1,99	2,70	3,31
Cooling sensible emission (E)	kW	0,26	0,51	0,65	0,66	1,04	1,27	1,11	1,57	1,96	1,55	2,10	2,56
Heating (E)	kW	0,64	0,84	1,05	1,25	1,65	2,31	1,75	2,56	3,12	2,21	3,10	4,10
Dp Cooling (E)	kPa	3,8	10,6	13,1	2,4	5,5	8,2	7,5	14,2	19,0	7,3	13,8	18,7
Dp Heating (E)	kPa	3,2	8,8	10,9	2,0	4,6	6,8	6,2	11,8	15,8	6,1	11,5	15,5
Fan (E)	W	6	10	17	9	18	28	9	21	35	17	27	38
Sound power (E)	dB(A)	38	45	52	39	46	53	41	47	53	39	45	53
Sound pressure (*)	dB(A)	29	36	43	30	37	44	32	38	44	30	36	44

(E) = Eurovent certified performance.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Carisma CFR-ECM

Fan Coil Unit with Tangential Fan with EC Brushless Electronic Motor



Carisma CFR fan coils are designed to meet the frequent requirement in homes **of combining the typical qualities of radiators**, such as reduced depth and quiet operation, **with the typical quality of fan coils** for controlling the climate in environments all year round with a high comfort air outlet temperature.

They are available into **two main versions**: with front radial panel or with front panel for covering only. In winter, the first solution provides both a convective and radiant thermal exchange, **further improving the feeling of well being**.

All models are supplied with **low energy consumption electronic motors**.

On demand, recessed versions, horizontal ceiling mounted versions and 4 pipe systems are available for installation in non residential buildings.

Carisma CFR-ECM fan coils are available in two models:

- with coil for **MV** and **IV-IO** models;
- with coil coupled to a radiant element for **MVR** models.

MV and IV-IO models, aided by the water coil only, meet all the typical requirements of a fan coil with especially reduced size.

MVR model, in addition to the water coil, includes an integrated radiant element which enhances the efficiency of the unit, providing in winter both a convective and radiant static thermal exchange.

Frontal panel and removable lateral corners (to inspect the compartment, electric or hydraulic connections) in galvanised steel painted with oven-dried epoxy powders RAL 9010.

Casing in high resistance galvanised steel.

Coil:

- **Coil** in copper pipes and aluminium fins with high efficiency turbulence. Eurokonus 3/4" threaded fittings, comply with the new requirements of EU standards; the headers are equipped with air vent and water drains. The coil is equipped with a sensor to detect water temperature. **The standard position of the hydraulic connections is on the left side looking at the unit from the front. However the coils are reversible: the side of the connections can therefore be inverted on site. Right side connections are possible on demand.** The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.
- **Radiant element (MVR models only)** connected in parallel to the coil and equipped with a thermostatic valve which opens when the water reaches a temperature of 29°C.



Carisma CFR

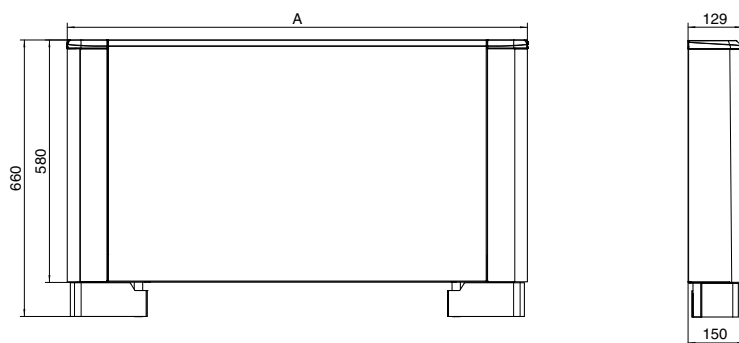
Fan assembly including tangential fan in synthetic material with offset fins (extremely silent) mounted on EPDM anti-vibration supports. Statically and dynamically balanced rotor, coupled directly on the motor shaft.

High efficiency EC **electric motor** BLDC for speed continuous control, with resin pack mounted on EPDM anti-vibration supports.

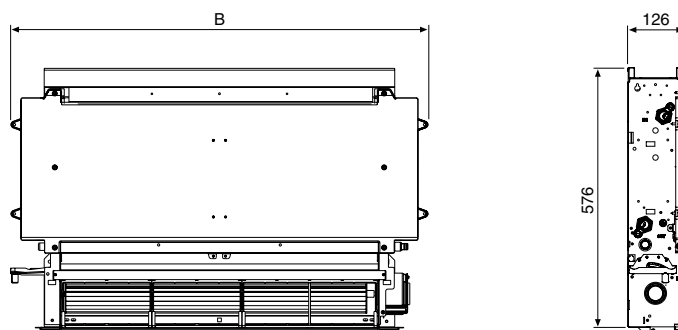
Reversible **supply air grid** in galvanised steel painted with oven-dried epoxy powders RAL 9010. Large size with high mechanical resistance.

Condensate collection tray in shockproof PVC, easily removable for periodical cleaning. Condensate collection tray in shockproof ABS for horizontal installation (optional).

MV-MVR model



IV-IO model



Dimension (mm)

Model	1	2	3	4
A	698	898	1098	1298
B	525	725	925	1125

Weight (kg)

Model	Weight with packaging				Weight without packaging			
	1	2	3	4	1	2	3	4
MV	15,0	17,0	20,0	23,0	12,5	14,0	16,5	19,5
MVR	17,0	19,5	24,0	27,5	14,5	16,5	20,5	23,5
IV-IO	11,5	15,0	18,5	22,0	9,0	12,0	15,0	18,0

Water content (litri)

Model	Coil				Radiant element			
	1	2	3	4	1	2	3	4
MV	0,47	0,80	1,13	1,46	–	–	–	–
MVR	0,47	0,80	1,13	1,46	0,30	0,50	0,70	0,90
IV-IO	0,47	0,80	1,13	1,46	–	–	–	–

The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27°C d.b. +19°C w.b.
Water temperature: +7°C E.W.T. +12°C L.W.T.

HEATING (winter mode)

Entering air temperature: +20°C
Water temperature: +40°C E.W.T.
Water flow rate as for the cooling conditions

Model		CFR-ECM 1			CFR-ECM 2			CFR-ECM 3			CFR-ECM 4		
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Speed													
Air flow	m ³ /h	100	125	160	170	230	320	180	270	460	370	450	575
Cooling total emission (E)	kW	0,38	0,72	0,83	0,92	1,36	1,76	1,51	2,11	2,56	1,99	2,70	3,31
Cooling sensible emission (E)	kW	0,26	0,51	0,65	0,66	1,04	1,27	1,11	1,57	1,96	1,55	2,10	2,56
Heating (E)	kW	0,64	0,84	1,05	1,25	1,65	2,31	1,75	2,56	3,12	2,21	3,10	4,10
Dp Cooling (E)	kPa	3,8	10,6	13,1	2,4	5,5	8,2	7,5	14,2	19,0	7,3	13,8	18,7
Dp Heating (E)	kPa	3,2	8,8	10,9	2,0	4,6	6,8	6,2	11,8	15,8	6,1	11,5	15,5
Fan (E)	W	5	7	11	6	9	19	7	11	20	8	12	24
Sound power (E)	dB(A)	38	45	52	39	46	53	41	47	53	39	45	53
Sound pressure (*)	dB(A)	29	36	43	30	37	44	32	38	44	30	36	44

(E) = Eurovent certified performance.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Carisma CRC-MVI

Fan Coil Unit with Centrifugal Fan with Asynchronous Motor



Range includes **5 air flow rates** (from 145 to 925 m³/h) each equipped with 4 row coil and with the possibility to add a 1 row coil for 4 pipe systems.

It includes some models from the CRC series but with a **particularly sturdy casing**, suited for installation in public places where there is a high risk of damage and improper use of the fan coil.



Casing: in galvanised steel plate, pre-painted in RAL 9002 (light grey), thickness 1.2 mm with built-in safety closures and keys for opening the front panel.

Output grills: in grey-finished extruded aluminium.

Inner casing: made from 1 mm galvanized steel insulated with 3 mm polyolefin (PO) foam (class M1).

Filter: polypropylene cellular fabric regenerating filter.

Fan assembly: the fans have aluminium or plastic blades directly keyed on the motor with double aspiration and they are dynamically and statically balanced during manufacture in order to have an extremely quiet operation.

Electric motor: the motor is wired for single phase and has six speeds, three of which are connected, with capacitor. The motor is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings. Internal thermal protection with automatic reset, protection IP 20, class B.

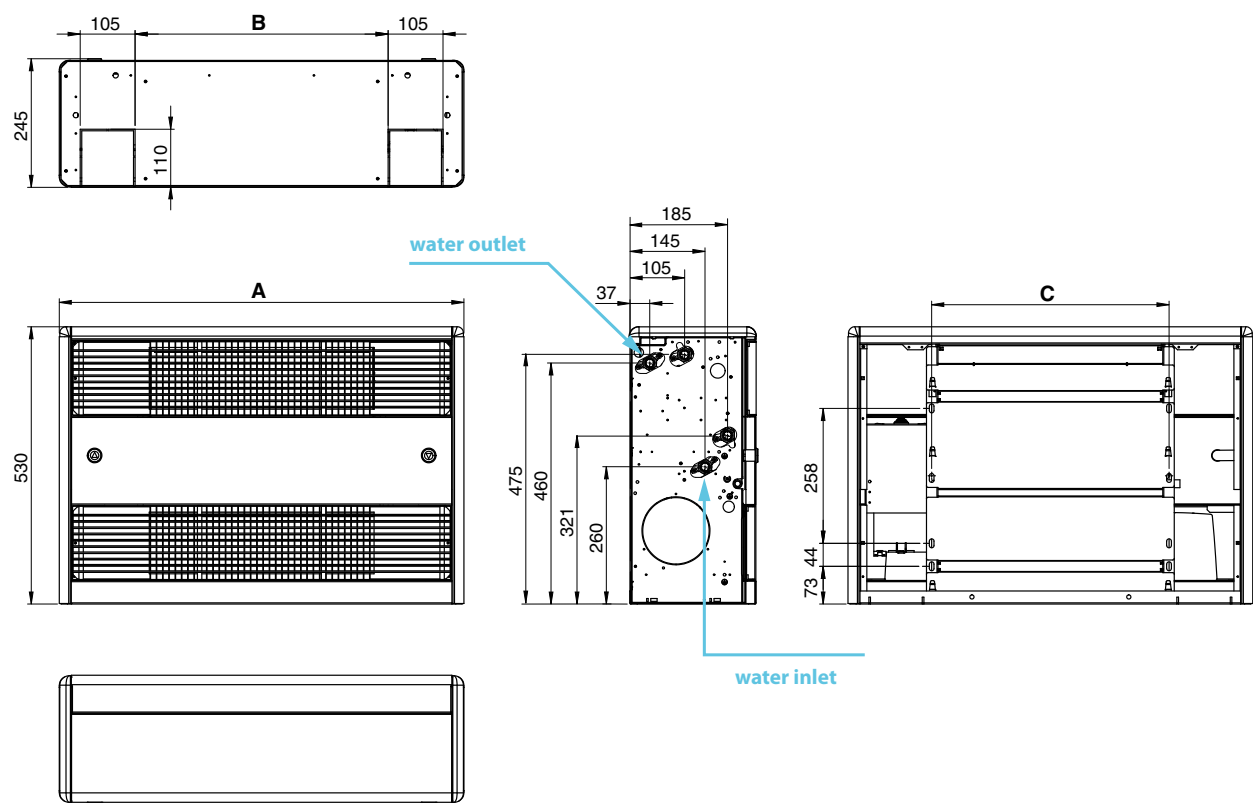
Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The coil has two 1/2inch BSP internal connections and 1/8 inch BSP air vent and drain. The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

Condensate collection tray: made from plastic fitted on the inner casing; the tray is insulated with 3 mm polyolefin (PO) foam (class M1).

The outside diameter of the condensate discharge pipe is 15 mm.

Carisma CRC-MVI

DIMENSIONS, WEIGHT AND WATER CONTENT



Dimension (mm)

Model	CRC 24 MVI	CRC 44 MVI	CRC 54 MVI	CRC 64 MVI	CRC 74 MVI
A	775	990	1.205	1.205	1.420
B	487	702	917	917	1132
C	454	669	884	884	1099

Weight (kg)

Model		Weight with packaging					Weight without packaging				
		CRC 24 MVI	CRC 44 MVI	CRC 54 MVI	CRC 64 MVI	CRC 74 MVI	CRC 24 MVI	CRC 44 MVI	CRC 54 MVI	CRC 64 MVI	CRC 74 MVI
ROWS	4	25,0	32,5	39,1	40,0	46,6	23,0	29,5	36,1	37,0	42,6
	4+1	25,8	33,7	40,6	41,5	48,4	23,8	30,7	37,6	38,5	44,4

Water content (litri)

Model		CRC 24 MVI	CRC 44 MVI	CRC 54 MVI	CRC 64 MVI	CRC 74 MVI
ROWS	4	0,8	1,3	1,7	2,2	2,4
	4+1	0,2	0,3	0,4	0,5	0,5

Units with 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27°C d.b.

Water temperature: +7°C E.W.T.

+19°C w.b.

+12°C L.W.T.

HEATING (winter mode)

Entering air temperature: +20°C

Water temperature: +45°C E.W.T.

+40°C L.W.T.

Model		CRC 24 MVI						CRC 44 MVI						CRC 54 MVI					
Speed		1 (E)	2	3 (E)	4	5 (E)	6	1	2 (E)	3 (E)	4	5 (E)	6	1	2 (E)	3	4 (E)	5 (E)	6
		MIN		MED		MAX			MIN	MED		MAX			MIN		MED	MAX	
Air Flow	m ³ /h	145	170	220	250	295	340	185	265	335	400	485	570	250	315	420	495	545	650
Cooling total emission (E)	kW	1,00	1,11	1,41	1,56	1,78	2,00	1,31	1,81	2,25	2,62	3,08	3,50	1,77	2,17	2,79	3,21	3,49	4,03
Cooling sensible emission (E)	kW	0,73	0,82	1,05	1,17	1,35	1,53	0,94	1,32	1,65	1,93	2,30	2,63	1,28	1,58	2,04	2,36	2,58	3,01
Heating (E)	kW	0,99	1,11	1,43	1,60	1,83	2,08	1,28	1,80	2,27	2,64	3,14	3,62	1,71	2,10	2,74	3,16	3,46	4,01
Heating - Water 70-60 °C	kW	1,98	2,24	2,88	3,22	3,69	4,19	2,57	3,62	4,56	5,32	6,33	7,30	3,44	4,23	5,51	6,37	6,97	8,07
Dp Cooling (E)	kPa	4,9	6,1	9,1	11,0	13,9	17,2	3,4	6,1	9,0	11,7	15,5	19,6	7,3	10,4	16,3	20,8	24,2	31,3
Dp Heating (E)	kPa	4,0	4,9	7,6	9,3	11,8	14,8	2,6	5,0	7,2	9,4	12,8	16,4	5,6	8,1	12,9	16,6	19,5	25,2
Fan (E)	W	14	16	22	26	32	40	14	21	28	34	44	57	18	22	32	39	46	61
Sound power (E)	dB(A)	30	33	40	43	47	51	27	33	39	43	47	52	26	31	37	41	43	48
Sound pressure (*)	dB(A)	21	24	31	34	38	42	18	24	30	34	38	43	17	22	28	32	34	39
1 row heating additional coil (Water 70/60 °C)	Heating (E) kW	0,94	1,04	1,25	1,36	1,52	1,68	1,34	1,73	2,06	2,32	2,65	2,88	1,77	2,07	2,53	2,83	3,03	3,42
	Dp Heat. (E) kPa	1,7	2,0	2,8	3,3	4,0	4,8	3,9	6,0	8,2	10,1	12,8	14,8	1,2	1,6	2,3	2,8	3,2	3,9

Model		CRC 64 MVI						CRC 74 MVI					
Speed		1 (E)	2	3 (E)	4	5 (E)	6	1	2 (E)	3	4 (E)	5	6 (E)
		MIN		MED		MAX			MIN		MED		MAX
Air Flow	m ³ /h	415	505	590	680	760	830	445	535	630	735	840	925
Cooling total emission (E)	kW	2,79	3,34	3,81	4,31	4,71	5,04	2,99	3,51	4,01	4,56	5,08	5,48
Cooling sensible emission (E)	kW	2,03	2,45	2,81	3,20	3,52	3,79	2,18	2,57	2,96	3,39	3,80	4,13
Heating (E)	kW	2,82	3,39	3,90	4,46	4,92	5,31	2,95	3,49	4,03	4,62	5,15	5,59
Heating - Water 70-60 °C	kW	5,66	6,81	7,85	8,98	9,90	10,68	5,93	7,02	8,12	9,30	10,38	11,26
Dp Cooling (E)	kPa	14,4	19,7	24,8	30,9	36,2	40,9	9,5	12,5	15,9	20,0	24,2	27,7
Dp Heating (E)	kPa	11,9	16,5	21,1	26,8	31,8	36,3	7,5	10,1	13,1	16,6	20,1	23,2
Fan (E)	W	37	46	55	67	78	88	44	54	66	79	92	103
Sound power (E)	dB(A)	37	42	46	49	52	54	38	42	47	51	54	56
Sound pressure (*)	dB(A)	28	33	37	40	43	45	29	33	38	42	45	47
1 row heating additional coil (Water 70/60 °C)	Heating (E) kW	2,50	2,87	3,19	3,54	3,81	4,04	2,89	3,29	3,68	4,09	4,49	4,79
	Dp Heat. (E) kPa	3,2	4,1	4,9	5,8	6,7	7,4	3,4	4,3	5,2	6,3	7,4	8,3

(E) = Eurovent certified performance.

MIN-MED-MAX = Standard connected speeds.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Wall electronic controls

Can be connected only to wall controls for Fan Coil Units with asynchronous motors (infra-red remote control excluded)

PSM-DI	Multifunction control
Sabianet	Management system for a network of fan coils

Accessories

PLH	Plinth
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Carisma CRSL

High Pressure Fan Coil Unit with Asynchronous Motor



Range includes **7 air flow rates** (from 340 to 2100 m³/h) each equipped with 3 or 4 row coil and with the possibility to add a 1 or 2 row coil for 4 pipe systems.

It is the perfect range to meet all air-conditioning requirements of work environments like offices, shops, restaurants and hotel rooms featuring ducted installations with available pressure **up to 80 Pa**.

All range is compliant with the new **(EU) Regulation No. 327/2011** which requires **very low electric consumption ratings** in relation to performances provided.

Casing: made from 1 mm galvanized steel insulated with 3 mm polyolefin (PO) foam (class M1).

Filter: polypropylene cellular fabric regenerating filter. The filter frame of galvanized steel is inserted into special plastic sliding guides fastened to the internal structure for easy insertion and removal of the filter.

Fan assembly: the fans have aluminium or plastic blades directly keyed on the motor with double aspiration and they are dynamically and statically balanced during manufacture in order to have an extremely quiet operation.

Electric motor: the motor is wired for single phase and has five speeds, with capacitor.

The motor is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings.

Internal thermal protection with automatic reset, protection IP 20, class B.

Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process.

The coil has two 1/2inch BSP internal connections and 1/8 inch BSP air vent and drain.

The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

Flow and return pipe connections are situated at the same end on the left side looking at the unit.

On request we can deliver the unit with the connections on the right end side.

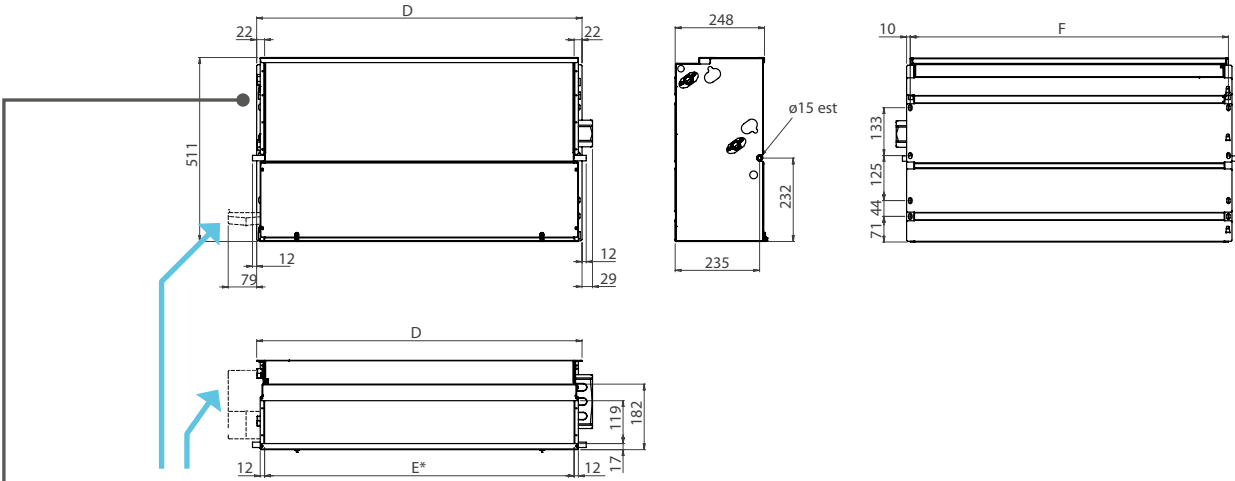
This operation can also be easily carried out on site during installation.

Condensate collection tray: "L"-shaped, fitted on the inner casing, for size 1÷4 made of plastic and for sizes 5÷7, made in painted steel; the tray is insulated with 3 mm polyolefin (PO) foam (class M1).

The outside diameter of the condensate discharge pipe is 15 mm.



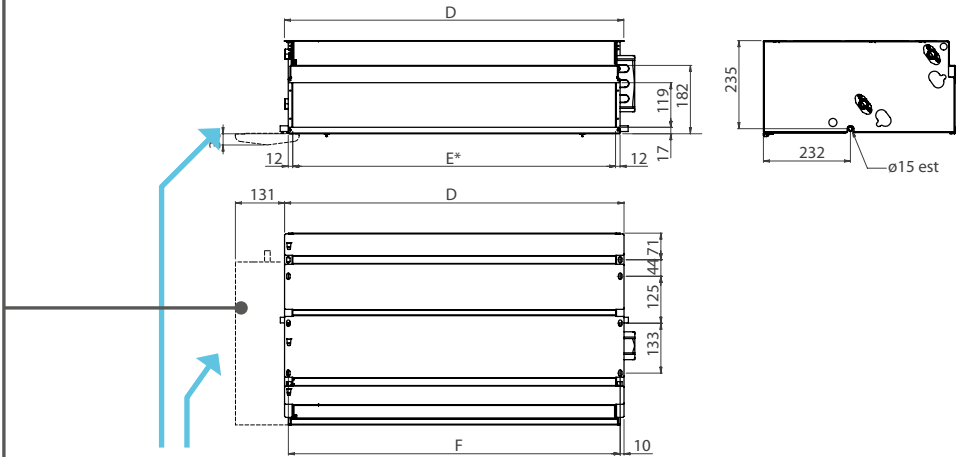
Vertical Installation



Auxiliary condensate tray (optional)

* Supply frame dimension = E x 119 mm

Horizontal Installation

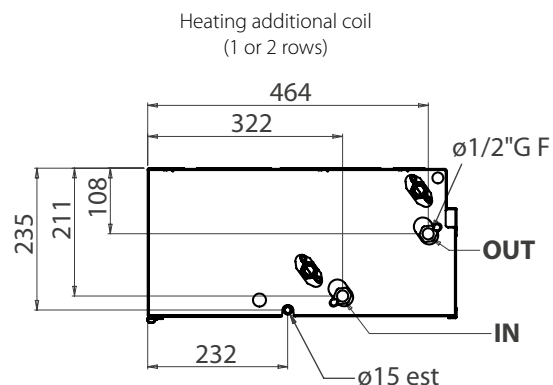
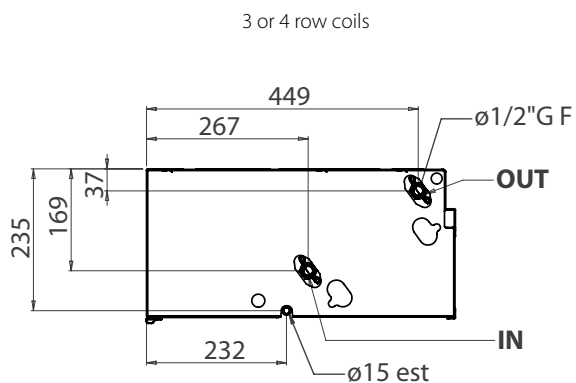


Auxiliary condensate tray (optional)

Coil connections on the left

* Supply frame dimension = E x 119 mm

Coil connections



Dimension (mm)

Model	1	2	3	4	5	6	7
D	689	904	1119	1119	1334	1549	1549
E	645	860	1075	1075	1290	1505	1505
F	669	884	1099	1099	1314	1529	1529

Weight (kg)

Model	Weight with packaging							Weight without packaging						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3	19,5	26,4	29,5	30,9	42,4	52,2	52,4	18,5	25,4	26,5	27,9	38,4	47,2	47,4
3+1	20,7	27,9	31,3	32,7	44,3	54,5	54,7	19,7	26,9	28,3	29,7	40,3	49,5	49,7
3+2	21,4	28,8	32,4	33,8	-	-	-	20,4	27,8	29,4	30,8	-	-	-
4	20,5	27,7	30,9	32,0	43,8	53,9	54,1	19,5	26,7	27,9	29,0	39,8	48,9	49,1
4+1	21,7	29,2	32,7	33,8	45,7	56,2	56,4	20,7	28,2	29,7	30,8	41,7	51,2	51,4

Water content (litres)

	1	2	3	4	5	6	7
3	0,9	1,6	1,9	1,9	2,6	3,2	3,2
4	1,3	2,2	2,8	2,8	3,4	4,2	4,2
+1	0,3	0,5	0,6	0,6	0,8	0,9	0,9
+2	0,6	1,0	1,2	1,2	-	-	-

Units with 3 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model		CRSL 13			CRSL 23			CRSL 33			CRSL 43		
Velocità (E)		1	4	5	1	4	5	1	4	5	1	4	5
Portata aria (E)	m³/h	205	290	315	395	575	625	380	720	790	600	850	980
Prevalenza utile (E)	Pa	25	50	58	26	50	58	14	50	60	23	50	65
Raffreddamento resa totale (E)	kW	1,43	1,88	2,00	2,57	3,40	3,60	2,68	4,42	4,72	3,85	4,97	5,47
Raffreddamento resa sensibile (E)	kW	1,01	1,35	1,44	1,85	2,53	2,70	1,90	3,30	3,55	2,82	3,77	4,22
Riscaldamento (E)	kW	1,43	1,96	2,11	2,67	3,70	3,98	2,71	4,82	5,22	4,10	5,56	6,27
Dp Raffreddamento (E)	kPa	11	17	20	10,6	17,7	19,6	6,3	15,7	17,7	12,2	19,4	23,2
Dp Riscaldamento (E)	kPa	9	16	18	8,9	16,1	18,3	5,1	14,3	16,6	10,7	18,6	23,0
Assorbimento Motore (E)	W	27	45	51	59	87	94	50	96	110	88	122	148
Potenza sonora mandata (E)	dB(A)	34	42	43	38	47	49	36	48	51	44	52	55
Potenza sonora ripresa + irraggiata (E)	dB(A)	42	50	52	45	55	56	43	56	58	51	59	62
Pressione sonora mandata (*)	dB(A)	25	33	34	29	38	40	27	39	42	35	43	46
Pressione sonora ripresa + irraggiata (*)	dB(A)	33	41	43	36	46	47	34	47	49	42	50	53
Codice Plenum (E)		9069191			9069222			9066368			9066368		

Model		CRSL 53			CRSL 63			CRSL 73		
Speed (E)		1	4	5	1	4	5	1	3	4
Air flow (E)	m³/h	475	810	970	580	1120	1240	905	1270	1425
Available pressure (E)	Pa	18	50	70	15	50	60	26	50	63
Cooling total emission (E)	kW	3,30	5,04	5,72	3,99	6,62	7,11	5,58	7,11	7,70
Cooling sensible emission (E)	kW	2,31	3,64	4,19	2,83	4,94	5,36	4,06	5,37	5,89
Heating (E)	kW	3,33	5,36	6,25	3,94	6,96	7,58	5,82	7,73	8,49
Dp Cooling (E)	kPa	12,2	26,3	33,1	6,6	16,4	18,7	12,2	18,8	21,7
Dp Heating (E)	kPa	9,7	23,0	30,4	5,1	14,2	16,5	10,3	17,1	20,2
Fan (E)	W	65	110	140	69	125	145	155	177	186
Sound power outlet (E)	dB(A)	37	48	53	38	50	52	46	53	56
Sound power inlet + radiated (E)	dB(A)	43	56	60	46	58	60	53	60	63
Sound pressure outlet (*)	dB(A)	28	39	44	29	41	43	37	44	47
Sound pressure inlet + radiated (*)	dB(A)	34	47	51	37	49	51	44	51	54
Plenum code (E)		9069195			9069196			9069196		

(E) = EUROVENT certified performance.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Units with 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model		CRSL 14			CRSL 24			CRSL 34			CRSL 44		
Speed (E)		1	4	5	1	4	5	1	4	5	1	4	5
Air flow (E)	m³/h	205	290	315	395	575	625	380	720	790	600	850	980
Available pressure (E)	Pa	25	50	58	26	50	58	14	50	60	23	50	65
Cooling total emission (E)	kW	1,54	2,07	2,22	2,93	4,01	4,28	2,89	4,99	5,36	4,10	5,36	5,94
Cooling sensible emission (E)	kW	1,07	1,46	1,57	2,03	2,84	3,04	2,00	3,55	3,84	2,95	3,97	4,46
Heating (E)	kW	1,49	2,07	2,23	2,85	4,02	4,34	2,76	4,99	5,42	4,22	5,77	6,55
Dp Cooling (E)	kPa	5,6	9,7	11,0	15,8	27,9	31,3	11,8	31,7	36,1	7,9	12,9	15,6
Dp Heating (E)	kPa	5,1	9,2	10,5	12,3	22,8	26,2	8,6	24,9	28,9	6,6	11,5	14,5
Fan (E)	W	27	45	51	59	87	94	50	96	110	89	120	146
Sound power outlet (E)	dB(A)	34	42	43	38	47	49	36	48	51	44	52	55
Sound power inlet + radiated (E)	dB(A)	42	50	52	45	55	56	43	56	58	51	59	62
Sound pressure outlet (*)	dB(A)	25	33	34	29	38	40	27	39	42	35	43	46
Sound pressure inlet + radiated (*)	dB(A)	33	41	43	36	46	47	34	47	49	42	50	53
Plenum code (E)		9069191			9069222			9066368			9066368		

Model		CRSL 54			CRSL 64			CRSL 74		
Speed (E)		1	4	5	1	4	5	1	3	4
Air flow (E)	m³/h	475	810	970	580	1120	1240	905	1270	1425
Available pressure (E)	Pa	18	50	70	15	50	60	26	50	63
Cooling total emission (E)	kW	3,48	5,44	6,22	4,23	7,25	7,82	6,10	7,92	8,62
Cooling sensible emission (E)	kW	2,43	3,89	4,52	2,96	5,26	5,72	4,34	5,80	6,38
Heating (E)	kW	3,41	5,57	6,54	4,17	7,63	8,34	6,30	8,52	9,42
Dp Cooling (E)	kPa	6,3	14,2	18,1	5,1	13,6	15,6	10,1	16,1	18,7
Dp Heating (E)	kPa	5,2	12,5	16,7	4,3	12,7	15,0	9,0	15,6	18,6
Fan (E)	W	65	110	140	66	125	145	155	177	186
Sound power outlet (E)	dB(A)	37	48	53	38	50	52	46	53	56
Sound power inlet + radiated (E)	dB(A)	43	56	60	46	58	60	53	60	63
Sound pressure outlet (*)	dB(A)	28	39	44	29	41	43	37	44	47
Sound pressure inlet + radiated (*)	dB(A)	34	47	51	37	49	51	44	51	54
Plenum code (E)		9069195			9069196			9069196		

(E) = EUROVENT certified performance.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Wall electronic controls

Standard models	
WM-3V	3 speed control
WM-T	3 speed control with electronic thermostat and manual summer/winter switch
WM-TQR	3 speed control with electronic thermostat and centralized/manual summer/winter switch
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-503	Automatic speed control with electronic thermostat to be mounted in the 503 box
T2T	Electromechanical thermostat with summer/winter switch (only for 2 pipe units)
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit
UP-503	Power unit for WM-503 remote controls, not fitted on the unit

Electronic controls for MB boards

MB-M	MB electronic board fitted on the unit
MB-S	MB electronic board supplied with separate packaging
T-MB	Wall control (to be used with MB board only)
RS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Sabianet management system for a network of fan coils

Sabianet	Hardware/software supervisory system (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied (with separate packaging)
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

WM-AU
Wall electronic controls



T2T
Wall electronic controls



RT03
Infra-red remote control



Carisma CRSL-ECM

High Pressure Fan Coil Unit with EC Brushless Electronic Motor and Inverter Board



Range includes **4 air flow rates** (from 330 to 2460 m³/h) each equipped with 3 or 4 row coil and with the possibility to add a 1 or 2 row coil for 4 pipe systems.

In high pressure ducted fan coils, the ability **to continuously vary** the air flow gives great regulation and control flexibility, at the same time **ensuring** excellent environmental conditions and extremely low electrical consumption.

The ECM range makes use of the excellent experience gained with the SkyStar Cassette fan coils with inverter board, first in the world in production since 2009, and which have had great success on all markets.

The innovative synchronous electronic motor with permanent magnets, is controlled by an inverter board designed and developed in Italy.

The board is mounted on the unit, closed to the motor, without the need to be cooled down by the air flow.



The air flow rate can be varied **in continuously** by means of a 1-10 V signal generated by Sabiana controls or by independent control systems.

The continuous air flow control improves the acoustic comfort and allows a quicker response to the variation of the thermal loads and a greater stability of the requested ambient temperature.

The extreme efficiency, also at low speed, makes it possible to greatly reduce electrical consumption (in comparison to CRSL AC motor) under normal operating conditions.

The excellent values of the CRSL-ECM range in terms of sound levels have been maintained **in all working conditions**, without any resonance phenomenon at any frequency.

The full compliance with the Electromagnetic Compatibility Directive and with the other severe Standards in force is certified by an independent institute.

For the technical characteristics of the various components refer to Carisma CRSL, **except for Electronic motor**:

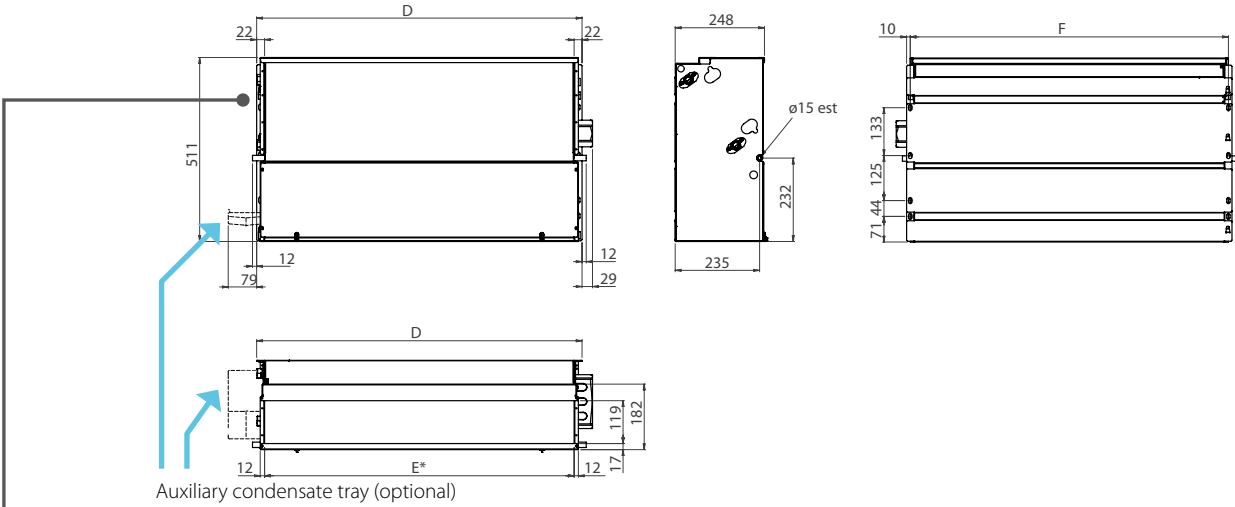
Three phase permanent magnet electronic motor that is controlled with current reconstructed according to a **BLAC** sinusoidal wave.

The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply.

The electric power supply required for the machine is therefore single-phase with voltage of **230 V** and frequency of **50 - 60 Hz**.

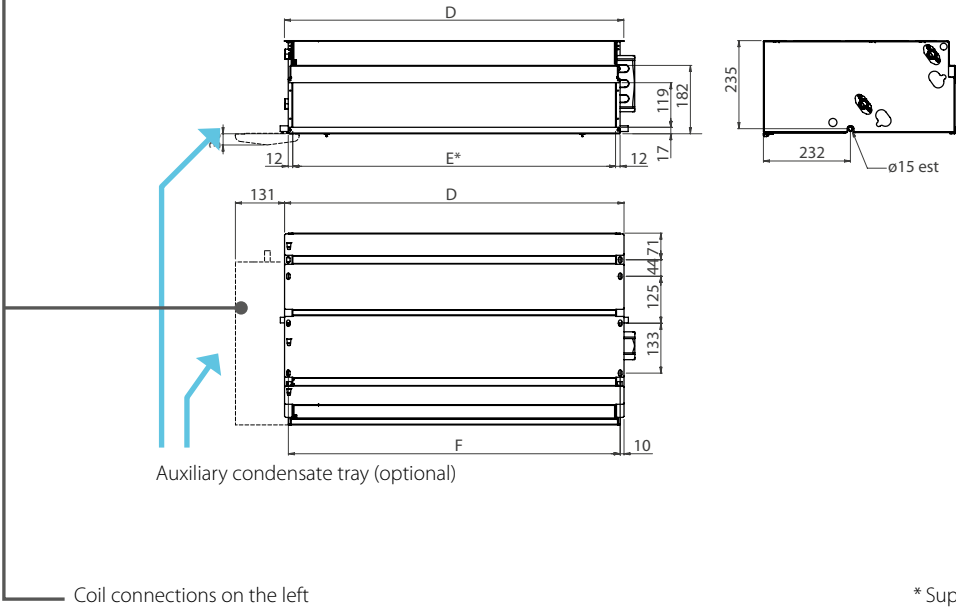


Vertical Installation



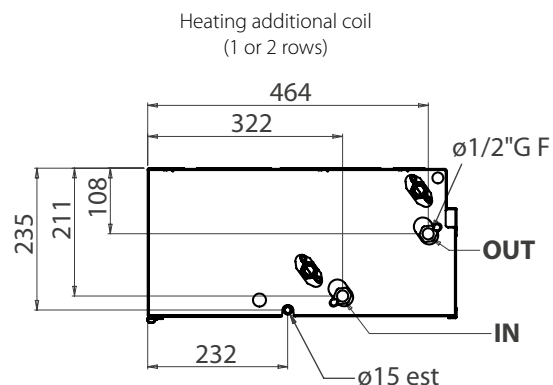
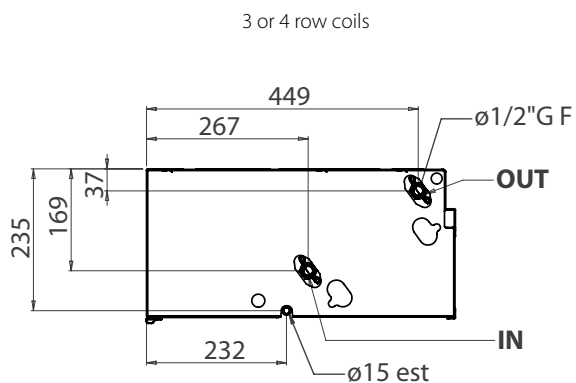
* Supply frame dimension = E x 119 mm

Horizontal Installation



* Supply frame dimension = E x 119 mm

Coil connections



Dimension (mm)

Model	1	2	4	7
D	689	904	1119	1549
E	645	860	1075	1505
F	669	884	1099	1529

Weight (kg)

Model	Weight with packaging				Weight without packaging			
	1	2	4	7	1	2	4	7
3	18,9	25,6	29,4	49,9	17,9	24,6	26,4	44,9
3+1	20,1	27,1	31,2	52,2	19,1	26,1	28,2	47,2
3+2	20,8	28,0	32,3	-	19,8	27,0	29,3	-
4	19,9	26,9	30,5	51,6	18,9	25,9	27,5	46,6
4+1	21,1	28,4	32,3	53,9	20,1	27,4	29,3	48,9

Water content (litres)

	1	2	4	7
3	0,9	1,6	1,9	3,2
4	1,3	2,2	2,8	4,2
+1	0,3	0,5	0,6	0,9
+2	0,6	1,0	1,2	-

Units with 3 and 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model	CRSL-ECM 13			CRSL-ECM 23			CRSL-ECM 43			CRSL-ECM 73		
Inverter Power (V)	4	6,3	8	4	6,5	8,5	3,5	7	9	2,5	5	8
Speed (E)	1	2	3	1	2	3	1	2	3	1	2	3
Air flow (E) m ³ /h	240	305	360	430	540	630	595	850	980	900	1175	1410
Available pressure (E) Pa	32	50	68	34	50	70	24	50	66	30	50	72
Cooling total emission (E) kW	1,64	1,97	2,23	2,72	3,21	3,55	3,84	4,94	5,43	5,66	6,81	7,67
Cooling sensible emission (E) kW	1,17	1,42	1,63	1,99	2,38	2,68	2,83	3,77	4,21	4,15	5,11	5,86
Heating (E) kW	1,65	2,05	2,37	2,88	3,51	4,00	4,07	5,56	6,27	5,69	7,09	8,24
Dp Cooling (E) kPa	13,3	18,7	23,5	11,5	15,6	18,9	11,8	18,9	22,5	12,1	17,1	21,4
Dp Heating (E) kPa	11,6	17,0	22,1	10,2	14,6	18,5	10,6	18,6	23,0	9,8	14,6	19,1
Fan (E) W	18	29	39	26	43	64	30	67	98	52	100	155
Sound power outlet (E) dB(A)	38	44	48	38	47	49	44	52	55	47	54	57
Sound power inlet + radiated (E) dB(A)	45	51	55	45	55	58	51	59	62	54	61	64
Sound pressure outlet (*) dB(A)	29	35	39	29	38	40	35	43	46	38	45	48
Sound pressure inlet + radiated (*) dB(A)	36	42	46	36	46	49	42	50	53	45	52	55
Plenum code (E)	9069191			9069222			9066368			9069196		

Model	CRSL-ECM 14			CRSL-ECM 24			CRSL-ECM 44			CRSL-ECM 74		
Inverter Power (V)	4	6,3	8	4	6,5	8,5	3,5	7	9	2,5	5	8
Speed (E)	1	2	3	1	2	3	1	2	3	1	2	3
Air flow (E) m ³ /h	240	305	360	430	540	630	595	850	980	900	1175	1410
Available pressure (E) Pa	32	50	68	34	50	70	24	50	66	30	50	72
Cooling total emission (E) kW	1,77	2,17	2,48	3,14	3,79	4,25	4,09	5,34	5,91	6,12	7,46	8,47
Cooling sensible emission (E) kW	1,25	1,54	1,78	2,20	2,68	3,04	2,95	3,97	4,45	4,40	5,48	6,33
Heating (E) kW	1,73	2,17	2,52	3,08	3,80	4,37	4,19	5,77	6,55	6,26	7,96	9,35
Dp Cooling (E) kPa	7,2	10,3	13,2	17,5	24,7	30,6	7,7	12,6	15,2	9,9	14,3	18,1
Dp Heating (E) kPa	6,7	9,9	13,1	14,1	20,6	26,6	6,5	11,5	14,5	8,9	13,8	18,4
Fan (E) W	18	29	39	26	43	64	30	67	98	52	100	155
Sound power outlet (E) dB(A)	38	44	48	38	47	49	44	52	55	47	54	57
Sound power inlet + radiated (E) dB(A)	45	51	55	45	55	58	51	59	62	54	61	64
Sound pressure outlet (*) dB(A)	29	35	39	29	38	40	35	43	46	38	45	48
Sound pressure inlet + radiated (*) dB(A)	36	42	46	36	46	49	42	50	53	45	52	55
Plenum code (E)	9069191			9069222			9066368			9069196		

(E) = EUROVENT certified performance.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0,5 sec.

Wall electronic controls

Standard models	
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-S-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and liquid crystal display
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit

Electronic controls for MB boards

MB-ECM-M	MB electronic board fitted on the unit
MB-ECM-S	MB electronic board supplied with separate packaging
T-MB	Wall control (to be used with MB board only)
RS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Sabianet management system for a network of fan coils	
Sabianet	Hardware/software supervisory system (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

PMC Multizone Plenum

Air distribution system for Carisma CRSL and CRSL-ECM



Carisma Multizone is an advanced air distribution system suitable for centralised installations where the comfort of each environment must be adapted to individual needs.

It can be fitted on Carisma CRSL and Carisma CRSL-ECM ducted fan coils.

The **Multizone** system comprises a plenum with spigots, modulating dampers and electronic control for managing different temperatures through varying the air flows in each of the air-conditioned zones.

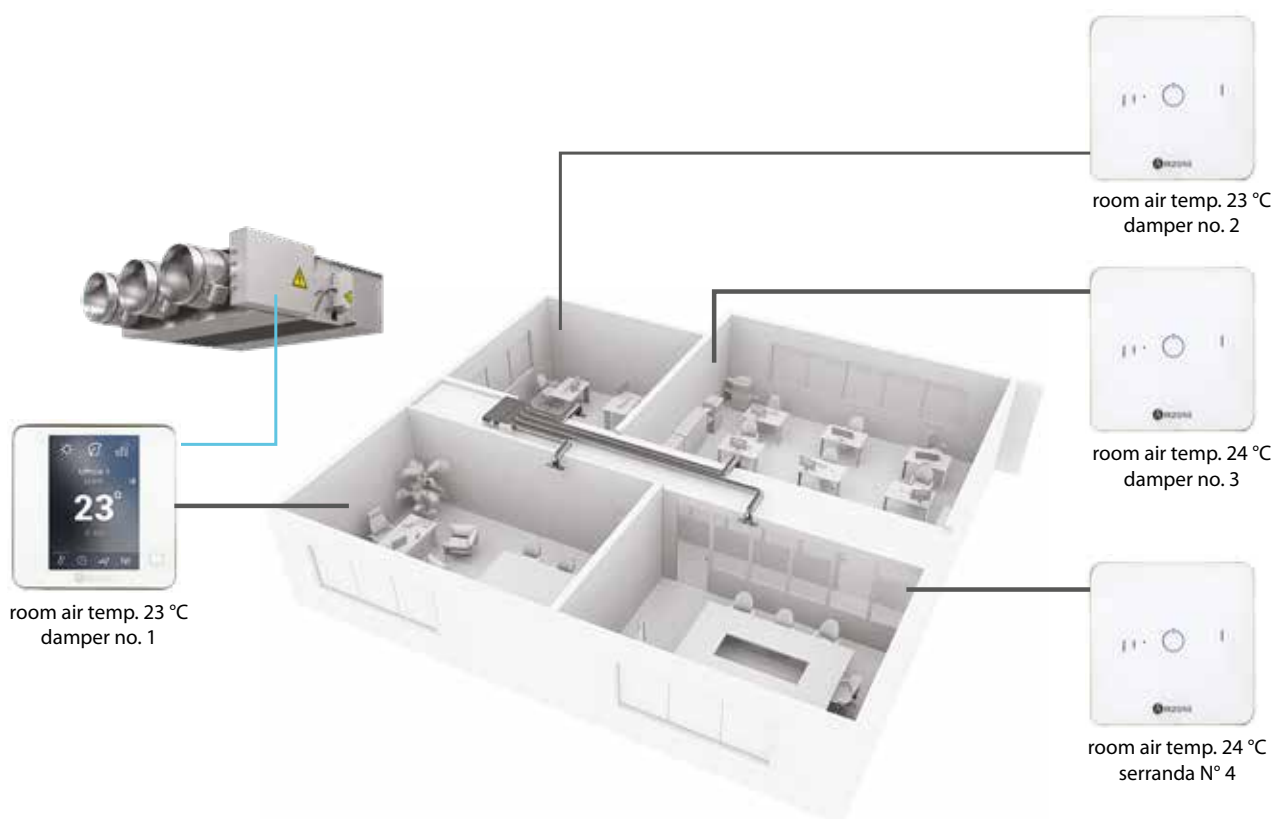
The controls allow separate programming for the different zones; the system can also interface with supervisory systems via Modbus.

The modulating dampers are motorised, adjustable and are managed by the electronic control.

The plenum is delivered complete with all components (power board, control for asynchronous or ECM motors and motorised dampers) already assembled, while the thermostat and sensors must be ordered separately; the plenum is fitted with a male terminal block for quick connections to the female terminal block on the fan coil.

Each system requires one **Multizone wall control** (which also serves as the zone sensor) plus one **Zone sensor** for each zone, up to a maximum of four per system (five zones in total, including the Multizone wired wall control); the plenum, wall control and zone sensors must be connected using the Multizone communication cable (available in 10 m or 100 m lengths).

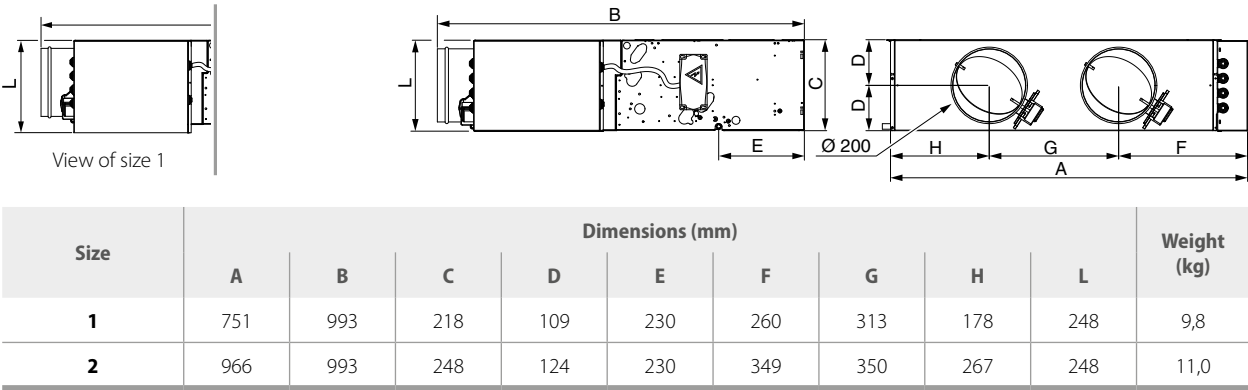
Benefits: as well as improving aesthetics, with one ducted indoor unit is possible to air-condition several rooms, independently managing fan speed and air flow.



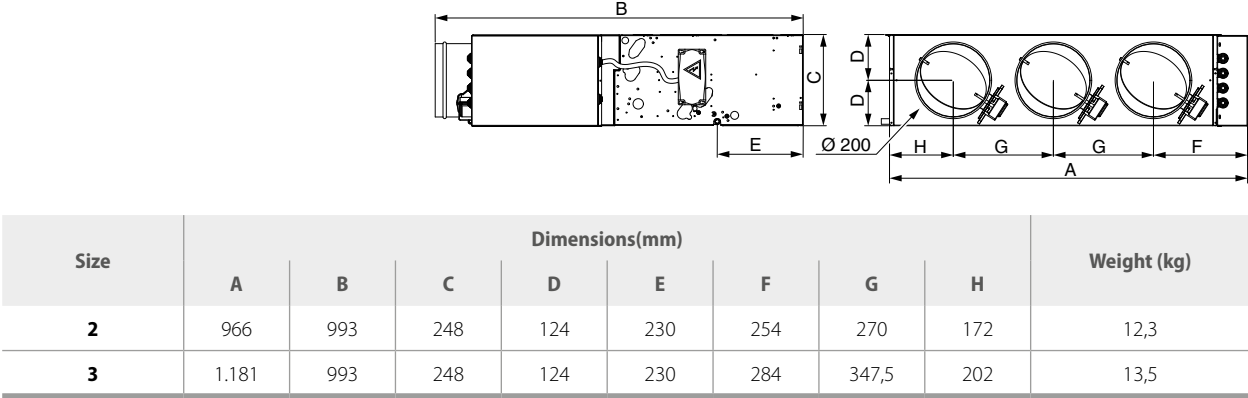
PMC Multizone Plenum

DIMENSIONS AND WEIGHT

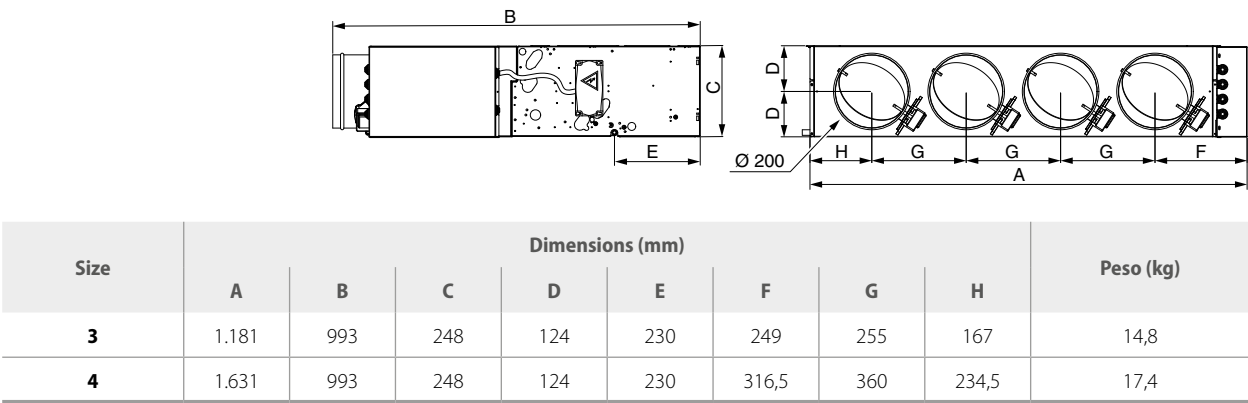
Plenum with two spigots for CRSL / CRSL-ECM - sizes 1 and 2



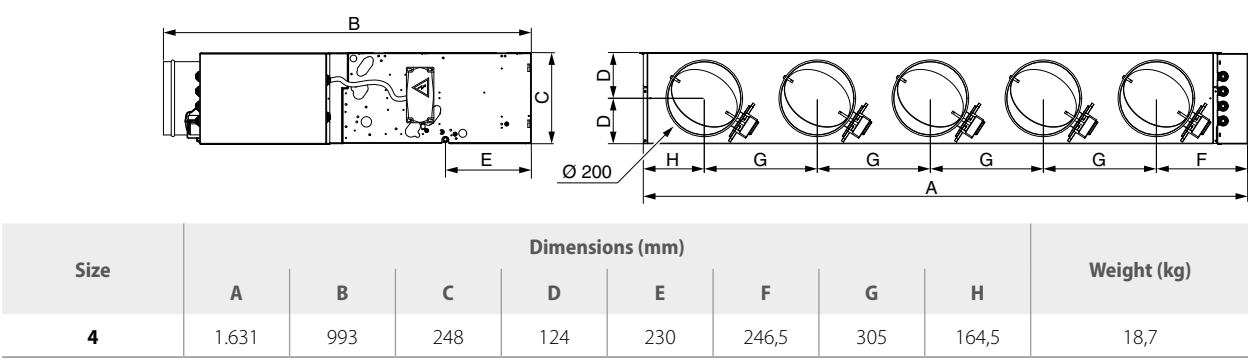
Plenum with three spigots for CRSL / CRSL-ECM - sizes 2 and 3



Plenum with four spigots for CRSL / CRSL-ECM - sizes 3 and 4



Plenum with five spigots for CRSL - size 4



Controls

MZ-WM Multizone wall control

Wall thermostat with tempered glass touchscreen and steel casing

- Zone thermostat.
- ON/OFF programming for each.
- Definition of hourly temperature set point profile for each zone.
- Programming of seasonal change-over.
- Energy Saving mode with setpoint limitation.
- Humidity sensor.
- Wall-mounted using the support supplied.



MZ-SZ Zone sensor

Wall sensor with steel and glass casing with touch buttons

- Zone ON/OFF.
- Room temperature and relative humidity reading.
- Temperature set point adjustment $\pm 3^\circ\text{C}$.



Accessories

MZ-C10 Multizone communication cable, 10 m

(for connecting the thermostats or receivers to the board)



MZ-C100 Multizone communication cable, 100 m

(for connecting the thermostats or receivers to the board)



Maestro MTL

High Pressure Fan Coil Unit with Asynchronous Motor



The **Maestro high pressure** fan coils are produced in 7 sizes.

Designed and built for concealed installations, they have small dimensions, are very silent and have a particularly interesting price in relation to their performance (all sizes, even at the lowest speed, have a residual pressure head of at least **160 Pa**).

They are suitable for climate control for small and medium commercial and sports environments or for large civil environments and integrate perfectly in regular false ceilings.

The sizes 1÷5 are equipped with **5 speed** fans, 3 of which are connected to the terminal board while the sizes 6-7 are equipped with **3 speed** fans.

The base models call for a 4 row coil but upon request, units with 3 row coils or additional coils (for 4 pipe systems) with one or two rows can be provided.

A complete set of accessories solves any type of system problem.

Casing: made of galvanized steel, 1 mm thick for sizes 1÷3 and 1,2 mm for sizes 4÷7, insulated with 10 mm polyolefin (PO) foam (class M1).

Fan assembly: consists of quiet centrifugal fans with two impellers (made of plastic for sizes 1÷5 and made of aluminium for sizes 6÷7) and a directly driven single phase motor (230V 50Hz).



Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process.

The Maestro Sabiana range is available with the combination of either 3 or 4 row coils (sizes 1÷5) with the possibility to add a 1 or 2 row coil (3+1, 4+1, 3+2, 4+2 versions for 4 pipe systems), and 4 or 6 row coils (sizes 6-7) with the possibility to add a 2 row coil (4+2, 6+2 versions for 4 pipe systems).



The connections are on the left hand side looking from the air inlet of the unit (see picture).

On request or on site the connections can be moved to the other side.

The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

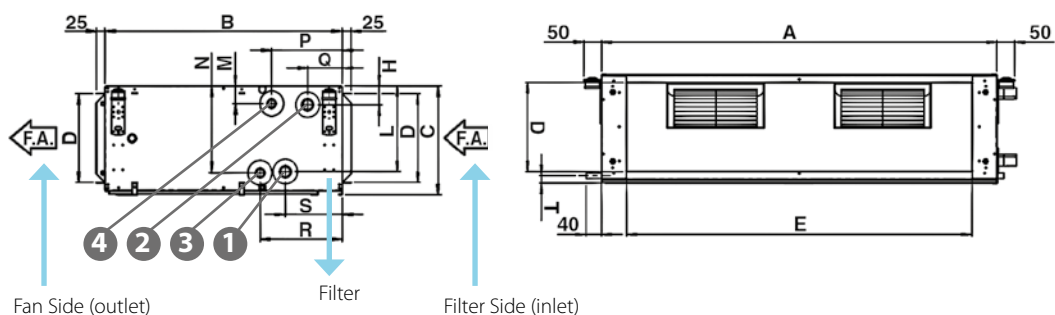
Filter: polypropylene cellular fabric regenerating filter.

The filter frame of galvanized steel is inserted into sliding guides fastened to the internal structure for easy insertion and removal of the filter.

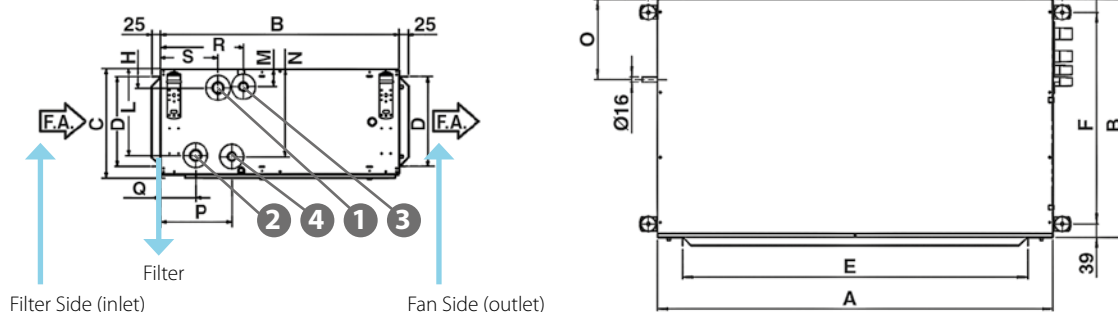
Condensate collection tray: made from galvanized steel insulated with 3 mm polyolefin (PO) foam (class M1).

All range is compliant with the new **(EU) Regulation No. 327/2011** which requires **very low electric consumption ratings** in relation to performances provided.

Left connections (standard)



Right connections (on request)



Model	Dimensions (mm)			
	O	P	Q	R
MTL 1÷5	209	103	169	243
MTL 6-7	304	154	264	338

Model	Dimensions											Coil			
												Main		Additional	
	A	B	C	D	E	F	G	H	L	M	N	1	2	3	4
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	IN	OUT	IN	OUT
MTL 1	1133	698	310	255	991	620	1185	54	245	50	249	3/4"	3/4"	3/4"	3/4"
MTL 2	1133	698	310	255	991	620	1185	54	245	50	249	1"	1"	3/4"	3/4"
MTL 3	1133	698	360	305	991	620	1185	54	295	50	299	1"	1"	3/4"	3/4"
MTL 4	1445	853	360	293	1302	775	1497	58	291	54	295	1 1/4"	1 1/4"	1"	1"
MTL 5	1445	853	435	368	1302	775	1497	58	367	54	370	1 1/4"	1 1/4"	1"	1"
MTL 6	1535	1100	488	421	1393	1022	1587	59	416	55	421	1 1/4"	1 1/4"	1"	1"
MTL 7	1535	1100	588	521	1393	1022	1587	59	516	55	521	1 1/4"	1 1/4"	1"	1"

Model	Weight without packaging (kg)						Weight with packaging (kg)						Water content (litres)			
	3R	3+1R	3+2R	4R	4+1R	4+2R	3R	3+1R	3+2R	4R	4+1R	4+2R	3R	4R	1R	2R
MTL 1	45	48	50	47	50	51	48	51	53	50	53	54	2,0	2,6	0,9	1,5
MTL 2	46	50	52	48	51	53	49	53	55	51	54	56	2,9	3,7	1,1	1,8
MTL 3	54	58	60	56	60	62	57	61	63	59	63	65	3,5	4,6	1,4	2,4
MTL 4	75	80	83	78	83	86	79	84	87	82	87	90	4,7	6,0	2,0	3,2
MTL 5	85	90	94	88	94	98	89	94	98	92	98	102	5,7	7,1	2,7	4,1
	4R	4+2R	6R	6+2R	4R	4+2R	6R	6+2R	4R	4+2R	6R	6+2R	4R	6R	2R	
MTL 6	124	134	130	140	127	137	133	143	7,6	11,1	4,1					
MTL 7	140	152	148	160	143	155	151	163	9,7	13,8	5,5					

Units with 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model MTL		14			24			34			44			54 (**)			64 (**)			74 (**)		
Speed (E)		1	3	5	1	3	5	1	3	5	1	3	5	1	3	5	1	3	5	1	3	5
Air flow (E)	m ³ /h	790	1125	1410	840	1410	1825	1710	2075	2440	2070	2580	3020	2740	3280	3850	1880	3385	4800	3925	5070	7100
Available pressure (E)	Pa	25	50	75	15	50	80	30	50	70	35	50	70	35	50	70	150	150	150	150	150	150
Cooling total emission (E)	kW	4,17	5,21	5,92	4,99	7,01	8,15	8,71	9,76	10,71	10,90	12,40	13,60	14,54	16,19	17,76	12,42	18,73	22,89	21,54	25,33	30,63
Cooling sensible emission (E)	kW	3,25	4,26	5,03	3,66	5,48	6,62	6,67	7,68	8,65	8,25	9,70	10,90	11,21	12,80	14,37	8,88	14,16	17,98	16,05	19,46	24,53
Heating (E)	kW	4,98	6,44	7,67	5,57	8,27	10,10	10,20	11,75	13,19	12,79	14,92	16,53	17,67	20,32	22,93	20,86	33,52	43,60	39,34	47,85	61,14
Dp Cooling (E)	kPa	5,1	7,6	9,6	6,9	12,7	16,8	16,0	19,8	23,4	13,9	17,7	20,9	13,3	16,3	19,4	7,4	15,3	22,6	14,4	19,3	27,6
Dp Heating (E)	kPa	5,2	8,2	11,3	6,2	17,0	18,3	15,6	23,0	24,8	13,4	17,7	21,3	14,2	18,3	22,8	3,9	9,1	14,7	8,5	12,1	18,8
Fan (E)	W	115	154	191	170	230	285	350	420	470	390	490	570	500	617	760	574	778	1304	1518	1758	2460
Sound power outlet (E)	dB(A)	44	52	58	44	56	61	57	62	65	59	63	66	63	67	70	63	71	77	71	75	81
Sound power inlet + radiated (E)	dB(A)	47	55	60	47	59	64	60	64	67	61	65	68	65	69	72	-	-	-	-	-	-
Sound pressure outlet (*)	dB(A)	35	43	49	35	47	52	48	53	56	50	54	57	54	58	61	54	62	68	62	66	72
Sound pressure inlet + radiated (*)	dB(A)	38	46	51	38	50	55	51	55	58	52	56	59	56	60	63	-	-	-	-	-	-
Plenum code (E)		9034200			9034200			9034220			9034230			9034240			9034280			9034290		

Units with additional coil

4 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +65 °C E.W.T. +55 °C L.W.T.

Model MTL		14+1			24+1			34+1			44+1			54+1 (**)			64+2 (**)			74+2 (**)		
Speed (E)		1	3	5	1	3	5	1	3	5	1	3	5	1	3	5	1	3	5	1	3	5
Air flow (E)	m ³ /h	770	1090	1350	840	1390	1775	1680	2045	2390	2055	2545	2960	2700	3245	3800	1860	3330	4680	3920	5040	6980
Available pressure (E)	Pa	25	50	75	15	50	80	30	50	70	35	50	70	35	50	70	150	150	150	150	150	150
Cooling total emission (E)	kW	4,09	5,11	5,79	4,99	6,96	8,03	8,61	9,67	10,58	10,85	12,34	13,46	13,75	15,31	16,73	12,33	18,56	22,52	21,53	25,25	30,36
Cooling sensible emission (E)	kW	3,18	4,16	4,87	3,66	5,42	6,49	6,58	7,60	8,51	8,21	9,61	10,72	10,62	12,13	13,56	8,81	14,02	17,62	16,05	19,39	24,28
Heating (E)	kW	3,96	4,87	5,47	4,63	6,28	7,16	7,62	8,47	9,20	9,83	11,07	12,00	12,67	14,00	15,28	19,81	29,78	37,13	35,50	41,88	51,31
Dp Cooling (E)	kPa	4,90	7,30	9,20	6,90	12,50	16,30	15,70	19,40	22,90	13,80	17,40	20,50	12,00	14,70	17,40	7,30	15,00	22,00	14,40	19,10	27,10
Dp Heating (E)	kPa	11,7	17,0	21,0	14,5	25,2	31,9	15,9	19,3	22,3	27,6	34,1	39,5	26,0	31,1	36,3	11,9	24,9	37,0	23,8	32,0	46,1
Fan (E)	W	115	154	191	170	230	285	350	420	470	390	490	570	500	617	760	565	750	1327	1499	1727	2376
Sound power outlet (E)	dB(A)	44	52	58	44	56	61	57	62	65	59	63	66	63	67	70	63	71	77	71	75	81
Sound power inlet + radiated (E)	dB(A)	47	55	60	47	59	64	60	64	67	61	65	68	65	72	72	-	-	-	-	-	-
Sound pressure outlet (*)	dB(A)	35	43	49	35	47	52	48	53	56	50	54	57	54	58	61	54	62	68	62	66	72
Sound pressure inlet + radiated (*)	dB(A)	38	46	51	38	50	55	51	55	58	52	56	59	56	60	63	-	-	-	-	-	-
Plenum code (E)		9034200			9034200			9034220			9034230			9034240			9034280			9034290		

(E) = EUROVENT certified performance.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

(**) = Models not covered by EUROVENT certification program.

Kit 230V

Main and auxiliary coil valve kit

(to be used only with ON/OFF 230 V controls: QCV-MB, WM-T and WM-TQR)

230 V, ON-OFF valve.



Kit 24V

Main and auxiliary coil valve kit

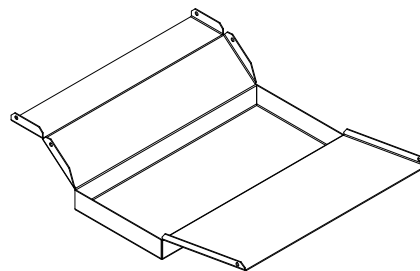
(to be used only with QCV-MB modulating valve control board)

Valve with 3 points - 24 Volt actuator.



BCM

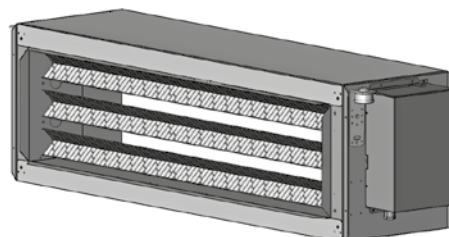
External auxiliary condensate collection tray



BEM

Electric coil

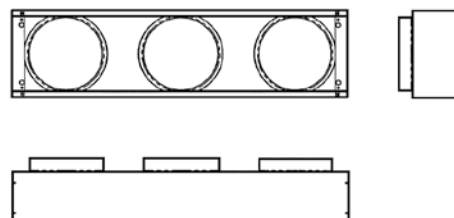
Consists of electric resistances and a security thermostat, which are inside a galvanized steel and insulated casing.



PMM

Intake/supply spigot plenum

Intake/supply spigot plenum with 3 spigots (Sizes 1 - 2 - 3) or 4 spigots (Sizes 4 - 5)..

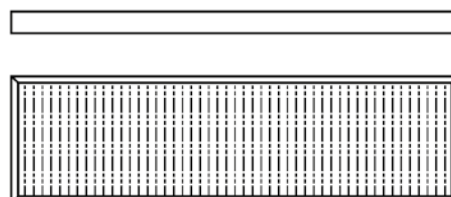


SFM

G3 synthetic filter

The filter is a washable synthetic fibre, flame-proof according to Class F1 DIN 53438.

Efficiency of ASHRAE 84%, Eurovent EU3.

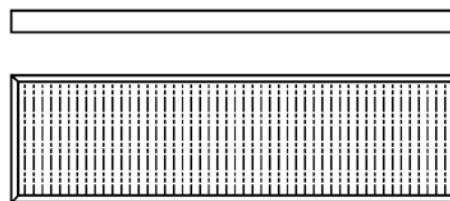


SFM-F6

F6 Synthetic Filter

(for sizes 6 ÷ 7 only)

High efficiency compact filter in glass microfiber paper, Class F6 according to EN779.



GAV

Antivibrating connection

Intake/supply antivibrating connection, made of two galvanized frames and a PVC flexible connection.



Electronic controls included

COM	Speed selector with 4 positions: OFF, first speed, second speed, third speed
WM-3V	3 speed control
WM-T	3 speed control with electronic thermostat and manual summer/winter switch
WM-TQR	3 speed control with electronic thermostat and centralized/manual summer/winter switch
SEL-S	Receiving board for centralized control

Electronic controls for MB boards

QCV-MB	MB version control board (T-MB wall control included)
PSM-DI	Multifunction control (to be used with QCV-MB control board only)

Sabianet management system for a network of fan coils

Sabianet	Sabianet (to be used with QCV-MB control board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

NOTE: for more information about Controls, please see the dedicated pages.

Maestro MTL-ECM

High Pressure Fan Coil Unit with EC Brushless Electronic Motor and Inverter Board



The **Maestro MTL-ECM high pressure** fan coils are produced in 4 sizes.

Designed and built for concealed installations, they have small dimensions, are very silent and have a particularly interesting price in relation to their performance (all sizes, even at the lowest speed, have a residual pressure head of at least **160 Pa**).

They are suitable for climate control for small and medium commercial and sports environments or for large civil environments and integrate perfectly in regular false ceilings.

In high pressure ducted fan coils, the ability to **continuously** vary the air flow gives great regulation and control flexibility, at the same time ensuring excellent environmental conditions and extremely low electrical consumption.

The ECM range makes use of the excellent experience gained with the SkyStar Cassette fan coils with inverter board, first in the world in production since 2009, and which have had great success on all markets.

The innovative electronic motor with permanent magnets, is controlled electronic board (inverter).

The air flow rate can be varied **in continuously** by means of a 1-10 V signal generated by Sabiana controls or by independent control systems.

The continuous air flow control improves the acoustic comfort and allows a more punctual reply to the variation of the thermal loads and a greater stability of the requested ambient temperature.

The extreme efficiency, also at low speed, makes possible a great reduction in electric consumption (in comparison to the yet efficient MTL motor) under normal operating conditions. The excellent values of the MTL-ECM range have been maintained **in all working conditions**, without any resonance phenomenon at any frequency.

The full compliance with the Electromagnetic Compatibility Directive and with the other severe Standards in force is certified by an independent institute.

For the technical characteristics of the various components refer to High Pressure Fan Coil Maestro MTL unit, except for **Electronic motor**:

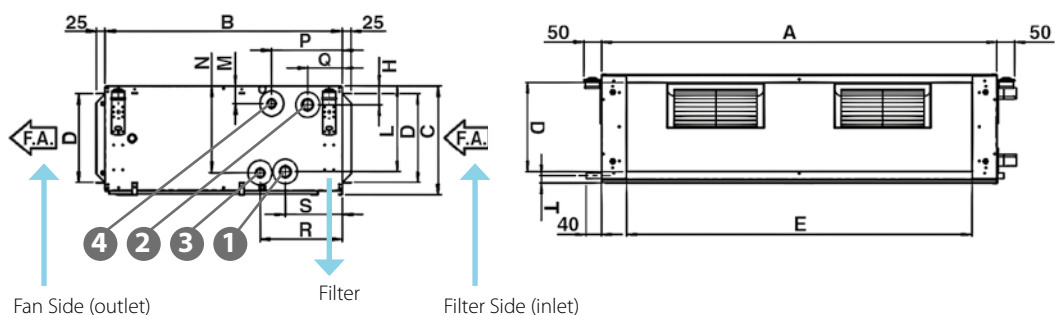
three phase permanent magnet electronic one that is controlled with current reconstructed according to a **BLAC** sinusoidal wave.

The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply. The electric power supply required for the machine is therefore single-phase with voltage of **230 V** and frequency of **50 - 60 Hz**.

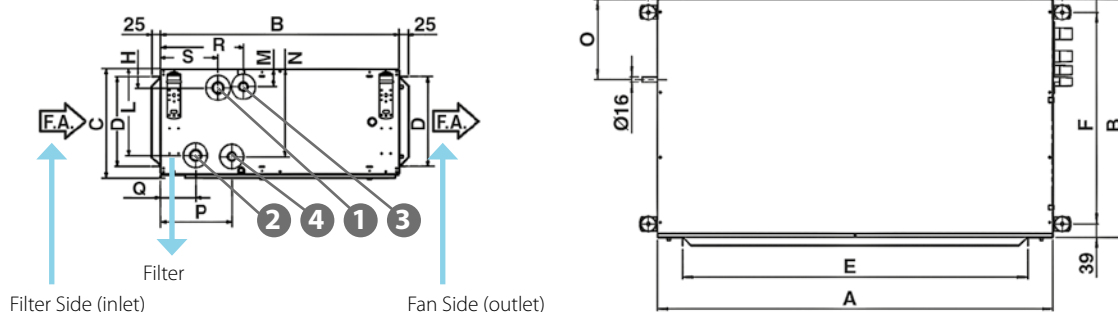
All range is compliant with the new **(EU) Regulation No. 327/2011** which requires very low electric consumption ratings in relation to performances provided.



Left connections (standard)



Right connections (on request)



Model	Dimensions (mm)			
	O	P	Q	R
MTL-ECM 1+4	209	103	169	243

Model	Dimensions											Coil			
												Main		Additional	
	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	L mm	M mm	N mm	1 IN	2 OUT	3 IN	4 OUT
MTL-ECM 1	1133	698	310	255	991	620	1185	54	245	50	249	3/4"	3/4"	3/4"	3/4"
MTL-ECM 2	1133	698	310	255	991	620	1185	54	245	50	249	1"	1"	3/4"	3/4"
MTL-ECM 3	1133	698	360	305	991	620	1185	54	295	50	299	1"	1"	3/4"	3/4"
MTL-ECM 4	1445	853	360	293	1302	775	1497	58	291	54	295	1 1/4"	1 1/4"	1"	1"

Model	Weight without packaging (kg)						Weight with packaging (kg)						Water content (litri)			
	3R	3+1R	3+2R	4R	4+1R	4+2R	3R	3+1R	3+2R	4R	4+1R	4+2R	3R	4R	1R	2R
MTL-ECM 1	45	48	50	47	50	51	48	51	53	50	53	54	2,0	2,6	0,9	1,5
MTL-ECM 2	46	50	52	48	51	53	49	53	55	51	54	56	2,9	3,7	1,1	1,8
MTL-ECM 3	54	58	60	56	60	62	57	61	63	59	63	65	3,5	4,6	1,4	2,4
MTL-ECM 4	75	80	83	78	83	86	79	84	87	82	87	90	4,7	6,0	2,0	3,2

Units with 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model MTL-ECM		14			24			34			44		
Tensione Pilotaggio Inverter (E)	V	4,5	7	9	4	6	8	4,5	6,5	8	5,5	7,5	10
Speed (E)		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow (E)	m³/h	780	1100	1310	940	1360	1780	1380	1950	2390	1840	2440	3080
Available pressure (E)	Pa	26	50	70	24	50	85	25	50	75	28	50	80
Cooling total emission (E)	kW	4,14	5,11	5,61	5,44	6,86	7,94	7,87	9,70	10,81	10,47	12,39	13,99
Cooling sensible emission (E)	kW	3,24	4,18	4,72	4,08	5,36	6,44	5,93	7,61	8,72	7,90	9,65	11,23
Heating (E)	kW	5,18	6,80	7,76	6,42	8,64	10,62	8,64	11,25	13,06	12,13	15,15	18,08
Dp Cooling (E)	kPa	4,9	7,2	8,7	7,7	11,8	15,8	11,7	17,4	21,6	12,2	16,9	21,7
Dp Heating (E)	kPa	5,3	8,7	11,1	7,5	12,9	18,8	10,1	16,4	21,4	11,6	17,4	23,9
Fan (E)	W	40	88	144	44	110	225	80	195	340	110	253	530
Sound power outlet (E)	dB(A)	45	52	59	45	55	61	52	60	64	55	62	67
Sound power inlet + radiated (E)	dB(A)	48	55	61	48	57	63	55	62	66	58	64	69
Sound pressure outlet (*)	dB(A)	36	43	50	36	46	52	43	51	55	46	53	58
Sound pressure inlet + radiated (*)	dB(A)	39	46	52	39	48	54	46	53	57	49	55	60
Plenum code (E)		9034200			9034200			9034220			9034230		

Units with additional coil

4 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +65 °C E.W.T. +55 °C L.W.T.

Model MTL-ECM		14+1			24+1			34+1			44+1		
Tensione Pilotaggio Inverter (E)	V	4,5	7	9	4	6	8	4,5	6,5	8	5,5	7,5	10
Speed (E)		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow (E)	m³/h	750	1040	1250	920	1340	1750	1350	1920	2350	1810	2400	3040
Available pressure (E)	Pa	26	50	72	24	50	85	25	50	75	28	50	80
Cooling total emission (E)	kW	4,04	4,94	5,46	5,36	6,79	7,87	7,76	9,59	10,70	10,36	12,27	13,90
Cooling sensible emission (E)	kW	3,14	4,01	4,55	4,01	5,30	6,35	5,83	7,51	8,61	7,79	9,53	11,13
Heating (E)	kW	3,43	4,18	4,62	4,33	5,42	6,25	5,90	7,20	8,02	8,06	9,48	10,75
Dp Cooling (E)	kPa	4,6	6,8	8,3	7,5	11,6	15,5	11,4	17,1	21,2	12,0	16,6	21,4
Dp Heating (E)	kPa	9,4	13,4	16,0	13,6	20,4	26,4	9,9	14,3	17,3	19,6	26,3	33,0
Fan (E)	W	40	88	144	44	115	225	80	200	340	110	253	530
Sound power outlet (E)	dB(A)	45	52	59	45	55	61	52	60	64	55	62	67
Sound power inlet + radiated (E)	dB(A)	48	55	61	48	57	63	55	62	66	58	64	69
Sound pressure outlet (*)	dB(A)	36	43	50	36	46	52	43	51	55	46	53	58
Sound pressure inlet + radiated (*)	dB(A)	39	46	52	39	48	54	46	53	57	49	55	60
Plenum code (E)		9034200			9034200			9034220			9034230		

(E) = EUROVENT certified performance.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Kit 230V

Main and auxiliary coil valve kit

(to be used only QCV-MB control board, WM-AU and T-MB controls)

230 V, ON-OFF valve.



Kit 24V

Main and auxiliary coil valve kit

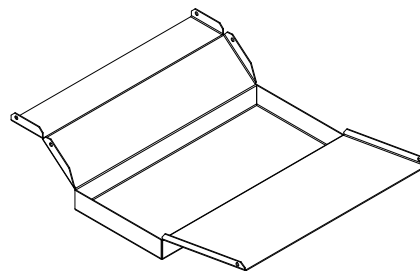
(to be used only with QCV-MB control board)

Valve with 3 points - 24 Volt actuator.



BCM

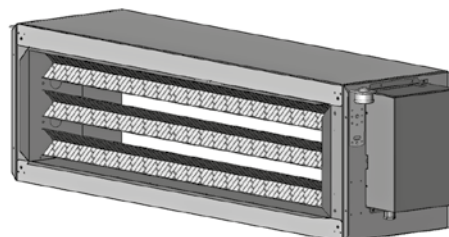
External auxiliary condensate collection tray



BEM

Electric coil

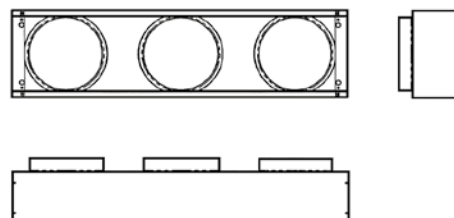
Consists of electric resistances and a security thermostat, which are inside a galvanized steel and insulated casing.



PMM

Intake/supply spigot plenum

Intake/supply spigot plenum with 3 spigots (Sizes 1 - 2 - 3) or 4 spigots (Sizes 4).

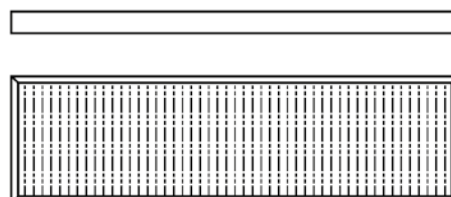


SFM

G3 synthetic filter

The filter is a washable synthetic fibre, flame-proof according to Class F1 DIN 53438.

Efficiency of ASHRAE 84%, Eurovent EU3.



GAV**Antivibrating connection**

Intake/supply antivibrating connection, made of two galvanized frames and a PVC flexible connection.



Wall electronic controls

Standard models	
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
UPMM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit

Electronic controls for MB boards

QCV-MB	MB version control board (T-MB wall control included)
PSM-DI	Multifunction control (to be used with QCV-MB control board only)

Sabianet management system for a network of fan coils	
Sabianet	Sabianet (to be used with QCV-MB control board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

Crystall Flex System

Electronic Filter



The **Crystall Flex System** is an innovative filtering system, designed to be easily installed downstream from horizontal concealed fan coils.

Created especially for the hotel industry, it can be perfectly added to different structures such as nursing homes and retirement homes and, more generally, wherever a high level of comfort and air quality is needed.

It is made up of **3 elements**:

- patented electronic plate filter ("Femec" type);
- electronic control and power board;
- high voltage flexible connection cable.

The system has been designed to reduce the indoor recirculation of various types of pollutants found in the ducting of air-conditioning systems.

As a result, it is ideal for various types of environments, such as schools, hospitals and rest homes (corridors, waiting rooms, wards), doctors' surgeries, hotels and anywhere indoor air quality needs to be improved.

There are many reasons why pollutants can be found in ducts. The main one is the lack of cleaning and maintenance of the ducts, together with other factors such as incorrect equilibrium and/or pressurisation, the circulation of air between different rooms when the system is off, the lack of suitable filters or the air being bypassed around the filtering cells inside the air handling unit, the lack of attention paid when replacing the filters, the presence of favourable conditions in terms of temperature and humidity for the proliferation of bacterial organisms, etc.

While pollution in ducts can be reduced through periodical maintenance, in reality this is rarely done due to the considerable costs, the difficulty in accessing the systems or the impossibility of shutting down the system for an extended period.

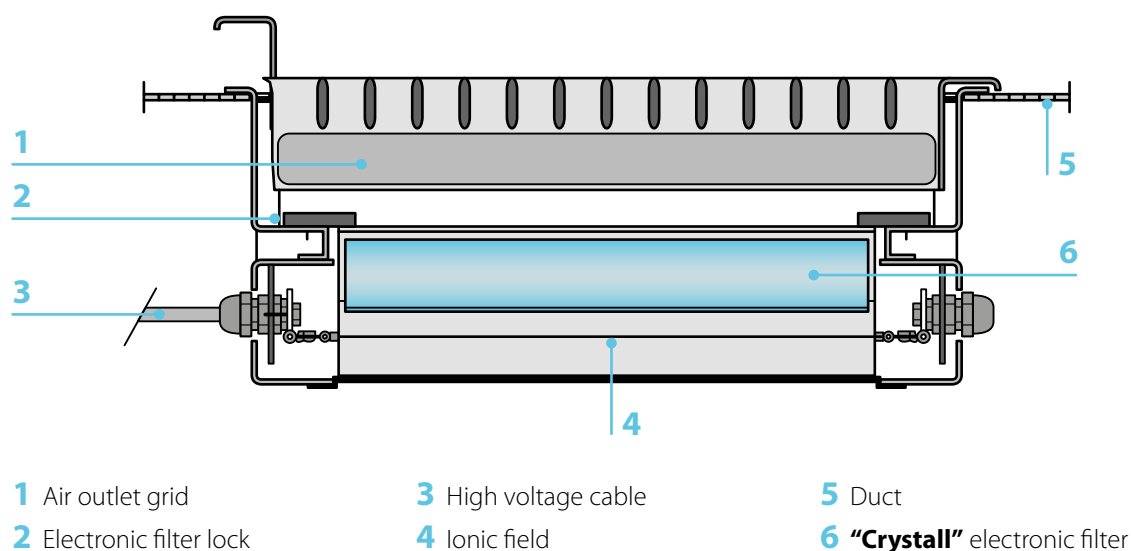
One possible alternative solution that significantly reduces the health risks and drastically cuts the costs of maintenance on ducts involves the installation of active electrostatic filters immediately before the air is introduced into the room.

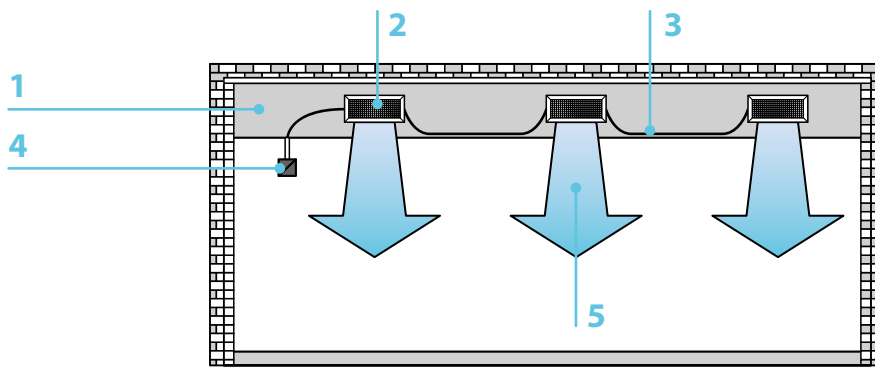
Electronic filters are known to be very effective in trapping particles, fibres, biological substances, etc., even when these are very small in diameter (less than 1 micron), while only causing a moderate pressure drop in the passing air, both initially (when the filter is clean) and over time when there is dirt on the surfaces.

The bactericide action of electronic filters prevents the proliferation of biological substances (bacteria, mould, yeast, etc.) on the surfaces of the transiting dust, even if these are not trapped by the filter (other “mechanical” filtering systems may, on the other hand, represent a support that is favourable to the proliferation of biological substances).

The **Crystall Flex System** is consequently an effective, reliable and simple product.

Furthermore, it has extremely low maintenance costs: it never needs replacing and can be washed and sanitised using ordinary detergents, without any decline in efficiency or product life.





- 1 Duct
- 2 Air outlet grid
- 3 Shielded high voltage cable
- 4 Power supply and control box
- 5 Air outlet

Advantages of the Crystall Flex System:

- Installation possible on existing systems
- Low impact on the thermal and aerodynamic equilibrium of the system
- Reduced pressure drop even when the filter is dirty
- Significant bactericide action on biological pollutants
- No cost for replacing the filters (the filters are totally regenerable by simply washing them)
- Very low additional energy costs
- Simple and fast maintenance
- No system downtime for the maintenance of the filtering units
- Remote power supply that can power multiple filtering units at the same time.

Tests and Certification

The Crystall system has been the subject of numerous trials and efficiency and effectiveness tests to assess the functions and performance of the systems in real conditions.

At the Turin Polytechnic Department of Energy, efficiency and load loss tests were performed using the EN779 international filter classification standards, where applicable.

The University of Ancona carried out over 180 laboratory tests on microbiological substances (total airborne microbiological load), including bacteria, mould, fungi, etc., which confirmed, through the statistical analysis of the data taken from the Fischer test, the effectiveness of the Crystall electronic filter in reducing the bacterial load.

Other tests have been carried out **in the SABIANA laboratories** on the flow-rate, pressure drop, electrical safety and instrumental efficiency of the filtration process on microparticles by numerically counting the most common particle size categories in various rooms.

The particles monitored had the diameters specified by the WHO (World Health Organization) and the EPA (Environmental Protection Agency) as being the most harmful to our health (<2.5 micron PM 2.5), with volumetric counts (number/m³) being performed in a common living environment, using a laser particle counter (LPC).

The Crystall electronic filter is made up of two main elements.

The first is comprised of an electronic plate filter and is inside a special bearing structure that is designed and shaped based on the type of intended application.

The structural element, therefore defines the type of application, allowing its installation downstream of horizontal flushmounted fan coils (PM-CRY).

The second element is the supply and control equipment that contains the circuit board and connection terminals.



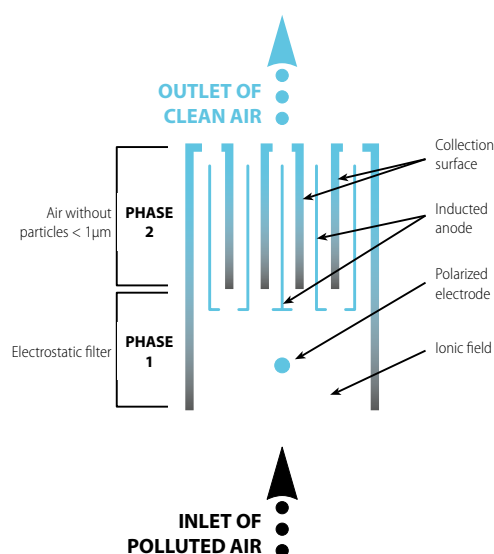
Active plate electronic filter Femec type

The filter element is made up of two sections:

the first is comprised of tungsten electrodes and insulating elements; the second section, meant for capturing polluting particles, is made of paired and suitably shaped special aluminium sheets, making up the collection manifold.

This section can be easily removed for effortless maintenance. The filter's operating principle is extremely simple. Pollutants cross the first section made up of electrodes and electronically charged by the electrical field produced (ionization). The particles are then collected on the filter plates that are in opposite polarity.

Due to the high voltage inside the filter an intense and disparate electrical field is generated with an avalanche effect called a "corona discharge".



Electronics board

This mainly contains the filter circuit board.

The equipment is supplied with 230V and is capable of generating a high voltage but low intensity current (max 3 mA) needed to produce the ionizing field. A single unit can supply several terminals based on the total filter surface used. The equipment is supplied with a remotable alarm status contact and, locally, with a failure indicator light.



Connection cable

It is made up of a special AWG-22 wire with external insulation suitable for high voltage use.

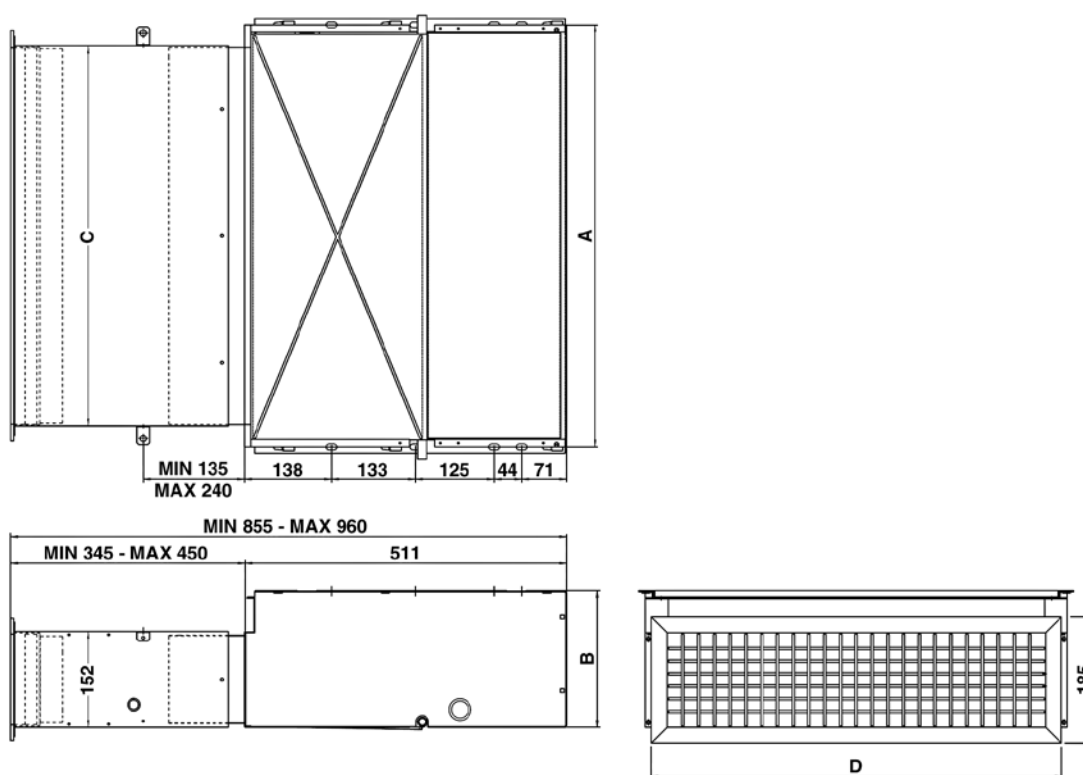
Crystall Flex System | DIMENSIONS

This type of equipment was specifically created to be able to be inserted downstream of Sabiana **Carisma CRC (IO model)** horizontal concealed fan coils and Sabiana **Carisma CRSL** ducted fan coils.

By adapting the duct and/or the outlet grid, it can also be installed downstream of existing fan coils.

The structure is made of galvanised plate and is comprised of:

- an adjustable length of duct work;
- a Femec type electrostatic filter;
- an electronic filter control unit that can be installed on the side of the duct work or on the side of the fan coil;
- an aluminium outlet grill with a double row of fins.

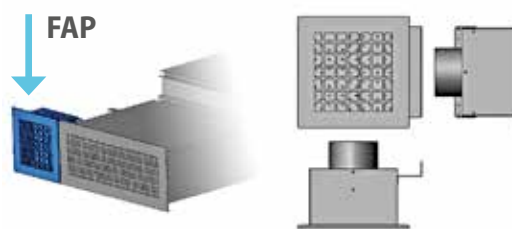


Model	suitable for		Dimensions			
	Carisma CRC IO model	Carisma CRSL	A	B	C	D
	Size	Size	mm	mm	mm	mm
PM-CRY-2	2	-	454	218	400	435
PM-CRY-3-4	3 - 4	1	669	218	600	635
PM-CRY-5-6	5 - 6	-	884	218	800	835
PM-CRY-4S	-	2	884	248	800	835
PM-CRY-7	7	-	1099	218	1000	1035
PM-CRY-8-9	8 - 9	3	1099	248	1000	1035

Accessories

FAP

Fresh air intake kit



Wall electronic controls

WM-TQR



WM-AU



Functions	Identification	
	WM-TQR	WM-AU
ON-OFF switch	✓	✓
ON-OFF switch for Crystall electrostatic filter or electric heater	✓	✓
Manual 3 speed switch	✓	✓
Manual/Automatic 3 speed selection		✓
Summer/Winter switch	✓	✓
Remote centralized Summer/Winter switch or by an automatic change-over fitted on the water pipe	✓	✓
Automatic Summer/Winter switch with neutral zone for 4 pipe installation with 2 valves		✓
Room thermostat for fan control (ON-OFF)	✓	✓
Room thermostat for 1 valve control (2 pipe installation)	✓	✓
Room thermostat for 2 valve control (4 pipe installation)	✓	✓
Simultaneous thermostatic control of the valves and fan		✓
Room thermostat for chilled water valve (SUMMER) and electric heater (WINTER) control (in winter only the electric heater is working)	✓	✓
Installation of electronic low temperature cut-out thermostat (TME)	✓	✓

Carisma Floor CFP-ECM

Trench Convactor Unit



Cooling and Heating

Carisma Floor CFP-ECM trench convectors represent a combination of innovative aesthetics and functionality in an air conditioning system.

They are designed to **efficiently heat, cool** and **ventilate** buildings with large windows or doors.

The air flow skims the window in such a way that the units can be placed where people leave. In doing so the design flexibility is increased.

The wide range of models includes **solutions which can be customised** depending on architectural requirements with diffusion grids in a variety of materials and colours.

The standard lengths available are 7, in 2 or 4 pipe versions. It is possible to adapt the thermal and sound performances to every design requirements, thanks to the innovative fan coil group modularity.

Several combinations are available: out of standard lengths of 50 mm pitch included

All the units are supplied with low energy consumption electronic motors.

A large variety of control and regulation accessories is available.

Floor trench convectors are used inside **private homes, on verandas, in public offices and buildings and in exhibition and commercial areas.**

CFP-ECM 130-330



CFP-ECM 175-350



Walkable **floor casing**, in galvanised steel sheet, coated with Anthracite grey (RAL 7016) powder paint, with external height adjustable system preassembled with an antivibrating device. Condensate collection tray integrated in floor casing, including two frontal connections along the drain side Ø15 mm.

Coil consisting of copper pipes and aluminium fins, painted Anthracite grey (RAL 7016) and housed, with acoustic decoupling, in transversal galvanised and painted steel frame. Euroconus connection, front or lateral side, with connection nut (int. thread .") and air venting.

Tangential fan, with protective cover, 24V EC motors freely adjustable (0 – 10 V) pre-wired and ready for connection.

Aluminium roll-up grid consisting of stable profiles, anodised in natural colours, with 20 x 6 mm slats. Grid with overall height of 20 mm and free 70% transversal section, inserted in floor casing and acoustically insulated by rubber gaskets. Perimeter listel with finish similar to the cover grid (except for the wooden grids).

Mounting protective wooden cover with a **protective profile** of the perimeter listels to protect the fan coils during installation.

The Carisma CFP-ECM units are supplied without regulation board (accessory available in the "Controls and Accessories" section).

CFP-ECM 2T version

Standard versions

7 Lengths with width: 330 mm and height 130 mm: 900 - 1200 - 1400 - 1700 - 2000 - 2500 - 3000

7 Lengths with width: 350 mm and height 175 mm: 1000 - 1200 - 1400 - 1700 - 2000 - 2500 - 3000

Special lengths on request (50 mm pitch)

Aluminium roll-up grid.

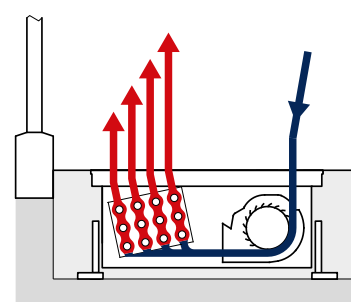
Identifications and models

Dimensions			Model
Casing Length L (mm)	Casing Height H (mm)	Casing Width T (mm)	
900	130	330	CFP-ECM 2T 900-130-330
1000	175	350	CFP-ECM 2T 1000-175-350
1200	130	330	CFP-ECM 2T 1200-130-330
	175	350	CFP-ECM 2T 1200-175-350
1400	130	330	CFP-ECM 2T 1400-130-330
	175	350	CFP-ECM 2T 1400-175-350
1700	130	330	CFP-ECM 2T 1700-130-330
	175	350	CFP-ECM 2T 1700-175-350
2000	130	330	CFP-ECM 2T 2000-130-330
	175	350	CFP-ECM 2T 2000-175-350
2500	130	330	CFP-ECM 2T 2500-130-330
	175	350	CFP-ECM 2T 2500-175-350
3000	130	330	CFP-ECM 2T 3000-130-330
	175	350	CFP-ECM 2T 3000-175-350

Operating principle

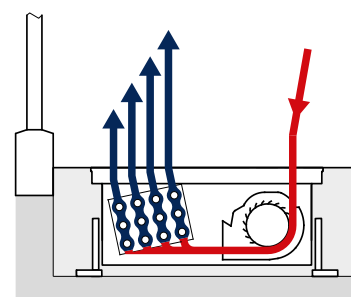
Forced heating convection

The cold air which skims the windows is suctioned and heated by the coil.
The heated air rises, creating a curtain.



Forced cooling convection

Installation in front of the window surfaces efficiently contrasts the diffusion of heat due to solar radiation.



Version CFP-ECM 4T

Standard versions

7 Lengths with width: 330 mm and height 130 mm: 900 - 1200 - 1400 - 1700 - 2000 - 2500 - 3000

7 Lengths with width: 350 mm and height 175 mm: 1000 - 1200 - 1400 - 1700 - 2000 - 2500 - 3000

Special lengths on request (50 mm pitch)

Aluminium roll-up grid.

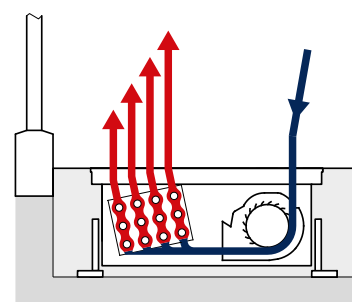
Identifications and models

Dimensions			Model
Casing Length L (mm)	Casing Height H (mm)	Casing Width T (mm)	
900	130	330	CFP-ECM 4T 900-130-330
1000	175	350	CFP-ECM 4T 1000-175-350
1200	130	330	CFP-ECM 4T 1200-130-330
	175	350	CFP-ECM 4T 1200-175-350
1400	130	330	CFP-ECM 4T 1400-130-330
	175	350	CFP-ECM 4T 1400-175-350
1700	130	330	CFP-ECM 4T 1700-130-330
	175	350	CFP-ECM 4T 1700-175-350
2000	130	330	CFP-ECM 4T 2000-130-330
	175	350	CFP-ECM 4T 2000-175-350
2500	130	330	CFP-ECM 4T 2500-130-330
	175	350	CFP-ECM 4T 2500-175-350
3000	130	330	CFP-ECM 4T 3000-130-330
	175	350	CFP-ECM 4T 3000-175-350

Operating principle

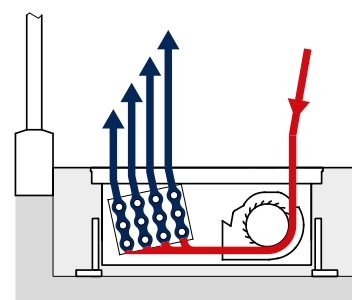
Forced heating convection

The cold air which skims the windows is suctioned and heated by the coil.
The heated air rises, creating a curtain.



Forced cooling convection

Installation in front of the window surfaces efficiently contrasts the diffusion of heat due to solar radiation.



Carisma Floor CFP-ECM | CONSTRUCTION FEATURES

CFP-ECM 2T version

Casing length 900 mm

Casing height 130 mm

2 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 2T 900-130-330			
Casing length L	mm	900			
Casing width T	mm	330			
Fan motor drive signal EC	V	3	5	7	10
Air flow QV	m ³ /h	80	143	193	229
Cooling sensible emission: ΔT_m 17,5 K – 7/12 °C	(Sensible emission) W	199	517	705	830
Cooling sensible emission: ΔT_m 12,5 K – 12/17 °C	(ensible emission) W	164	357	515	651
Cooling sensible emission: ΔT_m 10,0 K – 16/18 °C	(ensible emission) W	145	283	407	507
Sound power L_w	dB(A)	29	36	47	57
Sound pressure L_p (*)	dB(A)	20	27	38	48
Weight M	kg	17,33			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 2T 900-130-330			
Casing length L	mm	900			
Casing width T	mm	330			
Fan motor drive signal EC	V	3	5	7	10
Air flow QV	m ³ /h	80	143	193	229
Heating sensible emission: ΔT_m 50,0 K – 75/65 °C	W	899	1588	2278	3024
Heating sensible emission: ΔT_m 30,0 K – 55/45 °C	W	536	947	1358	1804
Heating sensible emission: ΔT_m 22,5 K – 45/40 °C	W	404	714	1024	1360
Sound power L_w	dB(A)	29	36	47	57
Sound pressure L_p (*)	dB(A)	20	27	38	48
Weight M	kg	17,33			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

CONSTRUCTION FEATURES

CFP-ECM 2T version

Casing length 1000 mm

Casing height 175 mm

2 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 2T 1000-175-350			
Casing length L	mm	1000			
Casing width T	mm	350			
Fan motor drive signal EC	V	3	5	7	10
Air flow QV	m³/h	204	279	347	455
Cooling sensible emission: ΔT_m 17,5 K – 7/12 °C	(Sensible emission) W	568	842	1057	1510
Cooling sensible emission: ΔT_m 12,5 K – 12/17 °C	(Sensible emission) W	454	621	806	1012
Cooling sensible emission: ΔT_m 10,0 K – 16/18 °C	(Sensible emission) W	404	617	825	1067
Sound power L_w	dB(A)	38	43	49	58
Sound pressure L_p (*)	dB(A)	29	34	40	49
Weight M	kg	21,13			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 2T 1000-175-350			
Casing length L	mm	1000			
Casing width T	mm	350			
Fan motor drive signal EC	V	3	5	7	10
Air flow QV	m³/h	204	279	347	455
Heating sensible emission: ΔT_m 50,0 K – 75/65 °C	W	2322	3165	3988	5187
Heating sensible emission: ΔT_m 30,0 K – 55/45 °C	W	1385	1887	2379	3093
Heating sensible emission: ΔT_m 22,5 K – 45/40 °C	W	1044	1423	1793	2332
Sound power L_w	dB(A)	38	43	49	58
Sound pressure L_p (*)	dB(A)	29	34	40	49
Peso M	kg	21,13			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec

Carisma Floor CFP-ECM | CONSTRUCTION FEATURES

CFP-ECM 2T version

Casing length **1200 mm**

Casing height **130 mm / 175 mm**

2 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 2T 1200-130-330				CFP-ECM 2T 1200-175-350			
Casing length L	mm	1200				1200			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m ³ /h	125	231	323	373	264	370	460	607
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission) W	309	835	1178	1351	735	1116	1404	2015
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission) W	255	576	860	1060	588	823	1071	1350
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission) W	226	456	681	826	523	818	1095	1424
Sound power L_w	dB(A)	30	38	49	56	35	41	48	57
Sound pressure L_p (*)	dB(A)	21	29	40	47	26	32	39	48
Weight M	kg	22,18				24,94			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 2T 1200-130-330				CFP-ECM 2T 1200-175-350			
Casing length L	mm	1200				1200			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m ³ /h	125	231	323	373	264	370	460	607
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	1561	2799	4006	4736	3190	4348	5479	7126
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	931	1669	2389	2825	1902	2593	3268	4250
Heating sensible emission: ΔTm 22,5 K – 45/40 °C	W	702	1259	1801	2130	1434	1955	2464	3204
Sound power L_w	dB(A)	30	38	49	56	35	41	48	57
Sound pressure L_p (*)	dB(A)	21	29	40	47	26	32	39	48
Weight M	kg	22,18				24,94			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

CFP-ECM 2T version

Casing length 1400 mm
Casing height 130 mm / 175 mm

2 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 2T 1400-130-330				CFP-ECM 2T 1400-175-350			
Casing length L	mm	1400				1400			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m³/h	158	284	396	432	290	412	513	678
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission) W	390	1027	1448	1564	806	1242	1563	2250
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission) W	322	708	1058	1227	645	915	1193	1508
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission) W	285	561	837	956	573	911	1220	1591
Sound power L_w	dB(A)	32	39	50	56	33	40	47	57
Sound pressure L_p (*)	dB(A)	23	30	41	47	24	31	38	48
Weight M	kg	25,75				28,04			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 2T 1400-130-330				CFP-ECM 2T 1400-175-350			
Casing length L	mm	1400				1400			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m³/h	158	284	396	432	290	412	513	678
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	1968	3529	4985	5655	3624	4939	6225	8095
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	1174	2105	2973	3373	2161	2946	3713	4828
Heating sensible emission: ΔTm 22,5 K – 45/40 °C	W	885	1587	2241	2543	1629	2221	2799	3640
Sound power L_w	dB(A)	32	39	50	56	33	40	47	57
Sound pressure L_p (*)	dB(A)	23	30	41	47	24	31	38	48
Weight M	kg	25,75				28,04			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Carisma Floor CFP-ECM | CONSTRUCTION FEATURES

CFP-ECM 2T version

Casing length **1700 mm**

Casing height **130 mm / 175 mm**

2 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 2T 1700-130-330				CFP-ECM 2T 1700-175-350			
Casing length L	mm	1700				1700			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m ³ /h	191	353	471	489	382	560	699	930
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission) W	474	1276	1719	1770	1062	1689	2131	3086
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission) W	391	880	1256	1389	849	1245	1625	2068
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission) W	346	697	994	1082	755	1238	1663	2181
Sound power L_w	dB(A)	32	39	50	55	40	46	52	63
Sound pressure L_p (*)	dB(A)	23	30	41	46	31	37	43	54
Weight M	kg	31				35,78			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 2T 1700-130-330				CFP-ECM 2T 1700-175-350			
Casing length L	mm	1700				1700			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m ³ /h	191	353	471	489	382	560	699	930
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	2485	4434	5970	6513	5143	7009	8834	11489
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	1482	2644	3560	3884	3067	4180	5269	6852
Heating sensible emission: ΔTm 22,5 K – 45/40 °C	W	1117	1994	2684	2929	2312	3152	3972	5166
Sound power L_w	dB(A)	32	39	50	55	40	46	52	63
Sound pressure L_p (*)	dB(A)	23	30	41	46	31	37	43	54
Weight M	kg	31				35,78			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

CFP-ECM 2T version

Casing length 2000 mm
Casing height 130 mm / 175 mm

2 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 2T 2000-130-330				CFP-ECM 2T 2000-175-350			
Casing length L	mm	2000				2000			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m³/h	232	439	578	660	447	675	845	1130
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission) W	575	1588	2110	2388	1242	2036	2575	3749
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission) W	474	1096	1541	1874	993	1501	1964	2512
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission) W	420	868	1220	1460	883	1493	2009	2650
Sound power L_w	dB(A)	32	40	51	58	38	44	51	61
Sound pressure L_p (*)	dB(A)	23	31	42	49	29	35	42	52
Weight M	kg	36,78				41,48			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 2T 2000-130-330				CFP-ECM 2T 2000-175-350			
Casing length L	mm	2000				2000			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m³/h	232	439	578	660	447	675	845	1130
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	2980	5383	7727	9489	6445	8748	11071	14397
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	1777	3211	4608	5659	3844	5239	6603	8586
Heating sensible emission: ΔTm 22,5 K – 45/40 °C	W	1340	2421	3474	4267	2898	3950	4978	6474
Sound power L_w	dB(A)	32	40	51	58	38	44	51	61
Sound pressure L_p (*)	dB(A)	23	31	42	49	29	35	42	52
Weight M	kg	36,78				41,48			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Carisma Floor CFP-ECM | CONSTRUCTION FEATURES

CFP-ECM 2T version

Casing length **2500 mm**

Casing height **130 mm / 175 mm**

2 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 2T 2500-130-330				CFP-ECM 2T 2500-175-350			
Casing length L	mm	2500				2500			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m ³ /h	305	580	739	770	602	917	1148	1538
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission) W	755	2098	2698	2787	1675	2766	3499	5102
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission) W	622	1448	1971	2186	1339	2039	2669	3419
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission) W	551	1146	1560	1703	1191	2029	2730	3607
Sound power L_w	dB(A)	33	41	52	58	39	45	51	61
Sound pressure L_p (*)	dB(A)	24	32	43	49	30	36	42	52
Weight M	kg	45,63				53,11			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 2T 2500-130-330				CFP-ECM 2T 2500-175-350			
Casing length L	mm	2500				2500			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m ³ /h	305	580	739	770	602	917	1148	1538
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	3910	7075	9859	11237	8832	12037	15171	19729
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	2332	4219	5880	6702	5267	7179	9048	11766
Heating sensible emission: ΔTm 22,5 K – 45/40 °C	W	1758	3181	4433	5063	3971	5412	6822	8871
Sound power L_w	dB(A)	33	41	52	58	39	45	51	61
Sound pressure L_p (*)	dB(A)	24	32	43	49	30	36	42	52
Weight M	kg	45,63				53,11			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

CFP-ECM 2T version

Casing length 3000 mm
Casing height 130 mm / 175 mm

2 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 2T 3000-130-330				CFP-ECM 2T 3000-175-350			
Casing length L	mm	3000				3000			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m³/h	365	693	810	855	751	1143	1430	1916
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission) W	905	2506	3094	3122	2087	3446	4359	6355
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission) W	746	1729	2281	2427	1668	2540	3325	4259
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission) W	661	1369	1804	1891	1483	2527	3401	4493
Sound power L_w	dB(A)	33	41	52	57	36	42	49	60
Sound pressure L_p (*)	dB(A)	24	32	43	48	27	33	40	51
Weight M	kg	53,74				62,6			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 2T 3000-130-330				CFP-ECM 2T 3000-175-350			
Casing length L	mm	3000				3000			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m³/h	365	693	810	855	751	1143	1430	1916
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	4553	8242	11158	12190	11002	14995	18898	24577
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	2715	4915	6655	7270	6561	8943	11271	14648
Heating sensible emission: ΔTm 22,5 K – 45/40 °C	W	2047	3706	5017	5481	4947	6742	8498	11051
Sound power L_w	dB(A)	33	41	52	57	36	42	49	60
Sound pressure L_p (*)	dB(A)	24	32	43	48	27	33	40	51
Weight M	kg	53,74				62,6			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Carisma Floor CFP-ECM | CONSTRUCTION FEATURES

CFP-ECM 4T version

Casing length **900 mm**

Casing height **130 mm**

4 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 4T 900-130-330			
Casing length L	mm	900			
Casing width T	mm	330			
Fan motor drive signal EC	V	3	5	7	10
Air flow QV	m ³ /h	68	113	149	171
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission) W	169	410	545	620
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission) W	139	283	398	487
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission) W	123	224	315	379
Sound power L_w	dB(A)	29	36	47	57
Sound pressure L_p (*)	dB(A)	20	27	38	48
Weight M	kg	16,76			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 4T 900-130-330			
Casing length L	mm	900			
Casing width T	mm	330			
Fan motor drive signal EC	V	3	5	7	10
Air flow QV	m ³ /h	68	113	149	171
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	664	1137	1580	1999
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	396	678	942	1192
Heating sensible emission: ΔTm 22,5 K – 45/40 °C	W	298	511	710	899
Sound power L_w	dB(A)	29	36	47	57
Sound pressure L_p (*)	dB(A)	20	27	38	48
Weight M	kg	16,76			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

CONSTRUCTION FEATURES

CFP-ECM 4T version

Casing length 1000 mm

Casing height 175 mm

4 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 4T 1000-175-350			
Casing length L	mm	1000			
Casing width T	mm	350			
Fan motor drive signal EC	V	3	5	7	10
Air flow QV	m³/h	161	216	265	342
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission) W	449	651	808	1133
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission) W	359	480	616	759
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission) W	319	477	630	801
Sound power L_w	dB(A)	40	44	50	59
Sound pressure L_p (*)	dB(A)	31	35	41	50
Weight M	kg	20,15			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 4T 1000-175-350			
Lunghezza canale L	mm	1000			
Larghezza canale T	mm	350			
Tensione di comando motore EC	V	3	5	7	10
Portata aria QV	m³/h	161	216	265	342
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	1529	2984	2627	3416
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	912	1243	1567	2037
Heating sensible emission: ΔTm 22,5 K – 45/40 °C	W	688	937	1181	1536
Sound power L_w	dB(A)	40	44	50	59
Sound pressure L_p (*)	dB(A)	31	35	41	50
Weight M	kg	20,15			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Carisma Floor CFP-ECM | CONSTRUCTION FEATURES

CFP-ECM 4T version

Casing length **1200 mm**

Casing height **130 mm / 175 mm**

4 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 4T 1200-130-330				CFP-ECM 4T 1200-175-350			
Casing length L	mm	1200				1200			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m ³ /h	103	184	250	279	227	311	382	495
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission) W	255	667	913	1010	632	937	1166	1642
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission) W	210	460	667	792	505	691	889	1101
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission) W	186	364	528	617	449	687	910	1161
Sound power L_w	dB(A)	30	38	49	56	37	42	48	58
Sound pressure L_p (*)	dB(A)	21	29	40	47	28	33	39	49
Weight M	kg	21,1				23,96			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 4T 1200-130-330				CFP-ECM 4T 1200-175-350			
Casing length L	mm	1200				1200			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m ³ /h	103	184	250	279	227	311	382	495
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	1131	1974	2761	3355	2232	3042	3834	4987
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	675	1177	1647	2001	1331	1814	2287	2974
Heating sensible emission: ΔTm 22,5 K – 45/40 °C	W	509	888	1241	1508	1004	1368	1724	2242
Sound power L_w	dB(A)	30	38	49	56	37	42	48	58
Sound pressure L_p (*)	dB(A)	21	29	40	47	28	33	39	49
Weight M	kg	21,1				23,96			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

CONSTRUCTION FEATURES

CFP-ECM 4T version

Casing length 1400 mm
Casing height 130 mm / 175 mm

4 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 4T 1400-130-330				CFP-ECM 4T 1400-175-350			
Casing length L	mm	1400				1400			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m³/h	132	236	323	362	258	357	440	571
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission) W	327	855	1179	1309	717	1077	1341	1894
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission) W	269	590	861	1027	573	794	1023	1269
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission) W	239	467	681	800	510	790	1046	1339
Sound power L_w	dB(A)	30	38	49	56	35	41	48	57
Sound pressure L_p (*)	dB(A)	21	29	40	47	26	32	39	48
Weight M	kg	24,41				27,05			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 4T 1400-130-330				CFP-ECM 4T 1400-175-350			
Casing length L	mm	1400				1400			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m³/h	132	236	323	362	258	357	440	571
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	1491	2616	3649	4009	2584	3521	4438	5772
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	890	1560	2176	2391	1541	2100	2647	3442
Heating sensible emission: ΔTm 22,5 K – 45/40 °C	W	671	1176	1641	1803	1162	1583	1996	2595
Sound power L_w	dB(A)	30	38	49	56	35	41	48	57
Sound pressure L_p (*)	dB(A)	21	29	40	47	26	32	39	48
Weight M	kg	24,41				27,05			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Carisma Floor CFP-ECM | CONSTRUCTION FEATURES

CFP-ECM 4T version

Casing length **1700 mm**

Casing height **130 mm / 175 mm**

4 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 4T 1700-130-330				CFP-ECM 4T 1700-175-350			
Casing length L	mm	1700				1700			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m ³ /h	179	323	432	442	360	515	625	830
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission) W	445	1168	1576	1600	1001	1552	1937	2754
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission) W	366	806	1151	1256	800	1144	1478	1846
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission) W	324	638	911	978	711	1138	1511	1947
Sound power L_w	dB(A)	32	39	50	55	41	47	53	63
Sound pressure L_p (*)	dB(A)	23	30	41	46	32	38	44	54
Weight M	kg	30,46				34,8			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 4T 1700-130-330				CFP-ECM 4T 1700-175-350			
Casing length L	mm	1700				1700			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m ³ /h	179	323	432	442	360	515	625	830
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	2079	3655	4890	5247	3767	5134	6471	8415
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	1240	2180	2917	3129	2247	3062	3859	5019
Heating sensible emission: ΔTm 22,5 K – 45/40 °C	W	935	1643	2199	2359	1694	2309	2910	3784
Sound power L_w	dB(A)	32	39	50	55	41	47	53	63
Sound pressure L_p (*)	dB(A)	23	30	41	46	32	38	44	54
Weight M	kg	30,46				34,8			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

CFP-ECM 4T version

Casing length 2000 mm
Casing height 130 mm / 175 mm

4 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 4T 2000-130-330				CFP-ECM 4T 2000-175-350			
Casing length L	mm	2000				2000			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m³/h	211	391	519	613	422	634	793	1050
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission) W	523	1416	1897	2218	1174	1913	2418	3482
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission) W	431	977	1386	1740	939	1410	1844	2333
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission) W	382	773	1096	1355	835	1403	1886	2461
Sound power L_w	dB(A)	32	40	51	59	39	45	51	62
Sound pressure L_p (*)	dB(A)	23	31	42	50	30	36	42	53
Weight M	kg	35,7				40,5			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 4T 2000-130-330				CFP-ECM 4T 2000-175-350			
Casing length L	mm	2000				2000			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m³/h	211	391	519	613	422	634	793	1050
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	2407	4282	6071	7562	4809	6554	8260	10742
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	1435	2554	3621	4510	2868	3909	4926	6407
Heating sensible emission: ΔTm 22,5 K – 45/40 °C	W	1082	1926	2730	3400	2162	2947	3714	4830
Sound power L_w	dB(A)	32	40	51	59	39	45	51	62
Sound pressure L_p (*)	dB(A)	23	31	42	50	30	36	42	53
Weight M	kg	35,7				40,5			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Carisma Floor CFP-ECM | CONSTRUCTION FEATURES

CFP-ECM 4T version

Casing length **2500 mm**

Casing height **130 mm / 175 mm**

4 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 4T 2500-130-330				CFP-ECM 4T 2500-175-350			
Casing length L	mm	2500				2500			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m ³ /h	284	539	697	738	530	806	1009	1351
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission) W	704	1950	2545	2670	1475	2431	3075	4482
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission) W	580	1346	1859	2094	1179	1792	2346	3003
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission) W	514	1065	1471	1631	1048	1783	2399	3168
Sound power L_w	dB(A)	33	41	52	58	35	42	49	60
Sound pressure L_p (*)	dB(A)	24	32	43	49	26	33	40	51
Weight M	kg	44,56				49,04			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 4T 2500-130-330				CFP-ECM 4T 2500-175-350			
Casing length L	mm	2500				2500			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m ³ /h	284	539	697	738	530	806	1009	1351
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	3243	5847	8207	9425	6198	8447	10646	13844
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	1934	3487	4895	5621	3696	5038	6349	8257
Heating sensible emission: ΔTm 22,5 K – 45/40 °C	W	1458	2629	3690	4238	2787	3798	4787	6225
Sound power L_w	dB(A)	33	41	52	58	35	42	49	60
Sound pressure L_p (*)	dB(A)	24	32	43	49	26	33	40	51
Weight M	kg	44,56				49,04			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

CONSTRUCTION FEATURES

CFP-ECM 4T version

Casing length 3000 mm
Casing height 130 mm / 175 mm

4 pipe system.

The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING

Entering air temperature: +27°C d.b.

R.H.: 50 %

Model		CFP-ECM 4T 3000-130-330				CFP-ECM 4T 3000-175-350			
Casing length L	mm	3000				3000			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m³/h	365	693	810	855	721	1098	1373	1840
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission) W	905	2506	3094	3122	2004	3310	4187	6104
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission) W	746	1729	2281	2427	1602	2440	3194	4091
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission) W	661	1369	1804	1891	1425	2427	3266	4315
Sound power L_w	dB(A)	33	41	52	57	36	43	49	60
Sound pressure L_p (*)	dB(A)	24	32	43	48	27	34	40	51
Weight M	kg	53,74				62,6			

HEATING

Entering air temperature: +20°C

Model		CFP-ECM 4T 3000-130-330				CFP-ECM 4T 3000-175-350			
Casing length L	mm	3000				3000			
Casing width T	mm	330				350			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow QV	m³/h	365	693	810	855	721	1098	1373	1840
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	4007	7286	9908	10898	8349	11378	14341	18650
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	2390	4345	5909	6500	4979	6786	8553	11123
Heating sensible emission: ΔTm 22,5 K – 45/40 °C	W	1802	3276	4455	4900	3754	5116	6448	8386
Sound power L_w	dB(A)	33	41	52	57	36	43	49	60
Sound pressure L_p (*)	dB(A)	24	32	43	48	27	34	40	51
Weight M	kg	53,74				62,6			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Carisma Floor CRP-ECM

Trench Convector



for Heating only

Carisma Floor CRP-ECM trench convectors represent a combination of innovative aesthetics and functionality in an heating system.

They are designed to efficiently **heat and ventilate** buildings with large windows or doors.

The wide range of models includes **solutions which can be customised** depending on architectural requirements with diffusion grids in a variety of materials and colours.

All the units are supplied with low energy consumption electronic motors.

A large variety of control and regulation accessories is available.

Floor trench convectors are used **inside private homes, on verandas, in public offices and buildings and in exhibition and commercial areas.**

TECHNICAL CHARACTERISTICS

Walkable floor casing, in galvanised steel sheet, coated with Anthracite grey (RAL 7016) powder paint, with external height adjustable system preassembled with an antivibrating device.

Coil consisting of copper pipes and aluminium fins, painted Anthracite grey (RAL 7016) and housed, with acoustic decoupling, in transversal galvanised and painted steel frame. Euroconus connection, front or ambient side, with connection nut (int. thread $\frac{3}{4}$ ") and air venting.



Tangential fan, protective cover, 24V EC motors freely adjustable (0 – 10 V) pre-wired and ready for connection.

Aluminium roll-up grid consisting of stable profiles, anodised in natural colours, with 20 x 6 mm slats. Grid with overall height of 20 mm and free 70% transversal section, inserted in floor casing and acoustically insulated by rubber gaskets. Perimeter listel with finish of cover grid.

Mounting cover with a **protective profile** of the perimeter listels to protect the fan coils during installation.



Standard models

5 Widths: 185, 210, 260, 310 and 360 mm.

1 Height: 110 mm.

12 Lengths: 1250, 1500, 1750, 2000, 2250, 2500, 2750, 3000, 3250, 3500, 3750 and 4000 mm.

Aluminium roll-up grid.

Identifications and models

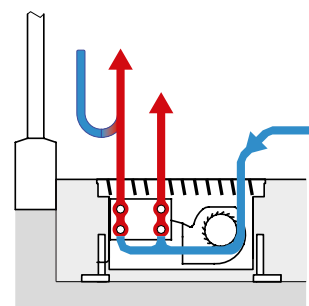
Dimension			Dimension		
Casing Length L (mm)	Casing Height H (mm)	Model	Casing Length L (mm)	Casing Height H (mm)	Model
1250	185	CRP-ECM 1250-110-185	2750	185	CRP-ECM 2750-110-185
	210	CRP-ECM 1250-110-210		210	CRP-ECM 2750-110-210
	260	CRP-ECM 1250-110-260		260	CRP-ECM 2750-110-260
	310	CRP-ECM 1250-110-310		310	CRP-ECM 2750-110-310
	360	CRP-ECM 1250-110-360		360	CRP-ECM 2750-110-360
1500	185	CRP-ECM 1500-110-185	3000	185	CRP-ECM 3000-110-185
	210	CRP-ECM 1500-110-210		210	CRP-ECM 3000-110-210
	260	CRP-ECM 1500-110-260		260	CRP-ECM 3000-110-260
	310	CRP-ECM 1500-110-310		310	CRP-ECM 3000-110-310
	360	CRP-ECM 1500-110-360		360	CRP-ECM 3000-110-360
1750	185	CRP-ECM 1750-110-185	3250	185	CRP-ECM 3250-110-185
	210	CRP-ECM 1750-110-210		210	CRP-ECM 3250-110-210
	260	CRP-ECM 1750-110-260		260	CRP-ECM 3250-110-260
	310	CRP-ECM 1750-110-310		310	CRP-ECM 3250-110-310
	360	CRP-ECM 1750-110-360		360	CRP-ECM 3250-110-360
2000	185	CRP-ECM 2000-110-185	3500	185	CRP-ECM 3500-110-185
	210	CRP-ECM 2000-110-210		210	CRP-ECM 3500-110-210
	260	CRP-ECM 2000-110-260		260	CRP-ECM 3500-110-260
	310	CRP-ECM 2000-110-310		310	CRP-ECM 3500-110-310
	360	CRP-ECM 2000-110-360		360	CRP-ECM 3500-110-360
2250	185	CRP-ECM 2250-110-185	3750	185	CRP-ECM 3750-110-185
	210	CRP-ECM 2250-110-210		210	CRP-ECM 3750-110-210
	260	CRP-ECM 2250-110-260		260	CRP-ECM 3750-110-260
	310	CRP-ECM 2250-110-310		310	CRP-ECM 3750-110-310
	360	CRP-ECM 2250-110-360		360	CRP-ECM 3750-110-360
2500	185	CRP-ECM 2500-110-185	4000	185	CRP-ECM 4000-110-185
	210	CRP-ECM 2500-110-210		210	CRP-ECM 4000-110-210
	260	CRP-ECM 2500-110-260		260	CRP-ECM 4000-110-260
	310	CRP-ECM 2500-110-310		310	CRP-ECM 4000-110-310
	360	CRP-ECM 2500-110-360		360	CRP-ECM 4000-110-360

Note: the 185 dimension is not available for the A3-A4 side connections.

Operating principle

Forced heating convection

The cold air is suctioned from the ambient and heated by the coil. The heated air rises, creating a shield to cold air among the window and the ambient.



Casing lenght **1250 mm**
Casing height **110 mm**

2 pipe system.

The rated thermal emissions are referred to the following operating conditions:

HEATING (winter mode)

Air temperature: +20°C

Model CRP-ECM		1250-110-185					1250-110-210				
Casing lenght L	mm	1250					1250				
Casing width T	mm	185					210				
Fan motor drive signal EC	V	0	3	5	8	10	0	3	5	8	10
Air flow QV	m³/h	–	57	101	171	252	–	57	101	171	252
Heating sensible emission: ΔT_m 50,0 K – 75/65 °C	W	148	529	725	962	1082	194	572	803	1065	1214
Heating sensible emission: ΔT_m 30,0 K – 55/45 °C	W	54	316	432	574	645	90	341	479	635	724
Heating sensible emission: ΔT_m 22,5 K – 45/40 °C	W	32	238	326	433	486	60	257	361	479	546
Sound power L_w	dB(A)	–	27	30	40	46	–	27	30	40	46
Sound pressure L_p (*)	dB(A)	–	18	21	31	37	–	18	21	31	37
Exponent n	–	1,93	1,00	1,00	1,00	1,00	1,48	1,00	1,00	1,00	1,00
Weight M	kg	12,6					13,5				

Model CRP-ECM		1250-110-260					1250-110-310				
Casing lenght L	mm	1250					1250				
Casing width T	mm	260					310				
Fan motor drive signal EC	V	0	3	5	8	10	0	3	5	8	10
Air flow QV	m³/h	–	57	101	171	252	–	57	101	171	252
Heating sensible emission: ΔT_m 50,0 K – 75/65 °C	W	264	694	1015	1319	1520	295	827	1094	1542	1722
Heating sensible emission: ΔT_m 30,0 K – 55/45 °C	W	128	414	605	787	906	140	493	653	920	1027
Heating sensible emission: ΔT_m 22,5 K – 45/40 °C	W	86	312	457	593	683	93	372	492	693	774
Sound power L_w	dB(A)	–	27	30	40	46	–	27	30	40	46
Sound pressure L_p (*)	dB(A)	–	18	21	31	37	–	18	21	31	37
Exponent n	–	1,40	1,00	1,00	1,00	1,00	1,41	1,00	1,00	1,00	1,00
Weight M	kg	15,4					11,1				

Model CRP-ECM		1250-110-360				
Casing lenght L	mm	1250				
Casing width T	mm	360				
Fan motor drive signal EC	V	0	3	5	8	10
Air flow QV	m³/h	–	57	101	171	252
Heating sensible emission: ΔT_m 50,0 K – 75/65 °C	W	326	976	1340	1695	1984
Heating sensible emission: ΔT_m 30,0 K – 55/45 °C	W	155	582	799	1011	1183
Heating sensible emission: ΔT_m 22,5 K – 45/40 °C	W	103	439	602	762	892
Sound power L_w	dB(A)	–	27	30	40	46
Sound pressure L_p (*)	dB(A)	–	18	21	31	37
Exponent n	–	1,44	1,00	1,00	1,00	1,00
Weight M	kg	19,6				

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Carisma Floor CRP-ECM | CONSTRUCTION FEATURES

Casing lenght **2000 mm**
Casing height **110 mm**

2 pipe system.

The rated thermal emissions are referred to the following operating conditions:

HEATING (winter mode)

Air temperature: +20°C

Model CRP-ECM		2000-110-185					2000-110-210				
Casing lenght L	mm	2000					2000				
Casing width T	mm	185					210				
Fan motor drive signal EC	V	0	3	5	8	10	0	3	5	8	10
Air flow QV	m³/h	–	114	202	342	504	–	57	101	171	252
Heating sensible emission: ΔT_m 50,0 K – 75/65 °C	W	290	1053	1443	1918	2156	382	1136	1598	2121	2418
Heating sensible emission: ΔT_m 30,0 K – 55/45 °C	W	107	628	861	1144	1286	178	677	953	1265	1442
Heating sensible emission: ΔT_m 22,5 K – 45/40 °C	W	62	473	649	862	969	117	511	719	954	1087
Sound power L_w	dB(A)	–	29	33	43	49	–	29	33	43	49
Sound pressure L_p (*)	dB(A)	–	20	24	34	40	–	20	24	34	40
Exponent n	–	1,93	1,00	1,00	1,00	1,00	1,48	1,00	1,00	1,00	1,00
Weight M	kg	20,1					21,7				

Model CRP-ECM		2000-110-260					2000-110-310				
Casing lenght L	mm	2000					2000				
Casing width T	mm	260					310				
Fan motor drive signal EC	V	0	3	5	8	10	0	3	5	8	10
Air flow QV	m³/h	–	114	202	342	504	–	114	202	342	504
Heating sensible emission: ΔT_m 50,0 K – 75/65 °C	W	519	1378	2020	2627	3027	580	1643	2177	3072	3431
Heating sensible emission: ΔT_m 30,0 K – 55/45 °C	W	252	822	1205	1567	1805	274	980	1299	1832	2046
Heating sensible emission: ΔT_m 22,5 K – 45/40 °C	W	170	619	908	1181	1361	182	739	979	1381	1543
Sound power L_w	dB(A)	–	29	33	43	49	–	29	33	43	49
Sound pressure L_p (*)	dB(A)	–	20	24	34	40	–	20	24	34	40
Exponent n	–	1,40	1,00	1,00	1,00	1,00	1,41	1,00	1,00	1,00	1,00
Weight M	kg	24,6					27,7				

Model CRP-ECM		2000-110-360				
Casing lenght L	mm	2000				
Casing width T	mm	360				
Fan motor drive signal EC	V	0	3	5	8	10
Air flow QV	m³/h	–	114	202	342	504
Heating sensible emission: ΔT_m 50,0 K – 75/65 °C	W	641	1941	2667	3376	3953
Heating sensible emission: ΔT_m 30,0 K – 55/45 °C	W	305	1157	1591	2014	2358
Heating sensible emission: ΔT_m 22,5 K – 45/40 °C	W	203	873	1199	1516	1778
Sound power L_w	dB(A)	–	29	33	43	49
Sound pressure L_p (*)	dB(A)	–	20	24	34	40
Exponent n	–	1,44	1,00	1,00	1,00	1,00
Weight M	kg	31,2				

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

CONSTRUCTION FEATURES

Casing lenght **2750 mm**
Casing height **110 mm**

2 pipe system.

The rated thermal emissions are referred to the following operating conditions:

HEATING (winter mode)

Air temperature: +20°C

Model CRP-ECM		2750-110-185					2750-110-210				
Casing lenght L	mm	2750					2750				
Casing width T	mm	185					210				
Fan motor drive signal EC	V	0	3	5	8	10	0	3	5	8	10
Air flow QV	m³/h	–	171	303	513	756	–	171	303	513	756
Heating sensible emission: ΔT_m 50,0 K – 75/65 °C	W	433	1576	2162	2873	3230	569	1700	2393	3177	3623
Heating sensible emission: ΔT_m 30,0 K – 55/45 °C	W	160	940	1289	1714	1926	265	1014	1427	1895	2161
Heating sensible emission: ΔT_m 22,5 K – 45/40 °C	W	93	709	972	1292	1452	174	764	1076	1428	1629
Sound power L_w	dB(A)	–	31	35	45	51	–	31	35	45	51
Sound pressure L_p (*)	dB(A)	–	22	26	36	42	–	22	26	36	42
Exponent n	–	1,93	1,00	1,00	1,00	1,00	1,48	1,00	1,00	1,00	1,00
Weight M	kg	27,7					29,9				

Modello CRP-ECM		2750-110-260					2750-110-310				
Casing lenght L	mm	2750					2750				
Casing width T	mm	260					310				
Fan motor drive signal EC	V	0	3	5	8	10	0	3	5	8	10
Air flow QV	m³/h	–	171	303	513	756	–	171	303	513	756
Heating sensible emission: ΔT_m 50,0 K – 75/65 °C	W	774	2062	3025	3935	4535	865	2459	3260	4602	5139
Heating sensible emission: ΔT_m 30,0 K – 55/45 °C	W	375	1230	1804	2347	2704	409	1466	1944	2745	3065
Heating sensible emission: ΔT_m 22,5 K – 45/40 °C	W	253	927	1360	1769	2039	272	1106	1466	2069	2311
Sound power L_w	dB(A)	–	31	35	45	51	–	31	35	45	51
Sound pressure L_p (*)	dB(A)	–	22	26	36	42	–	22	26	36	42
Exponent n	–	1,40	1,00	1,00	1,00	1,00	1,41	1,00	1,00	1,00	1,00
Weight M	kg	33,8					38,1				

Model CRP-ECM		2750-110-360				
Lunghezza canale L	mm	2750				
Larghezza canale T	mm	360				
Tensione di comando motore EC	V	0	3	5	8	10
Portata aria QV	m³/h	–	171	303	513	756
Riscaldamento: ΔT_m 50,0 K – 75/65 °C	W	956	2905	3995	5058	5923
Riscaldamento: ΔT_m 30,0 K – 55/45 °C	W	454	1733	2382	3016	3532
Riscaldamento: ΔT_m 22,5 K – 45/40 °C	W	303	1306	1796	2274	2663
Potenza sonora L_w	dB(A)	–	31	35	45	51
Pressione sonora L_p (*)	dB(A)	–	22	26	36	42
Exponent n	–	1,44	1,00	1,00	1,00	1,00
Peso M	kg	42,9				

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

NOTE: for lenghts that are different from 1250, 2000 and 2750 mm, please see the Technical Guide.

VM/VS **Front connections valve kit (CFP-ECM only)**

Consisting of:

- Lower valve body with k_v factory preset:
 - DN 15 external thread with euroconus $\frac{3}{4}$ "
 - M30 x 1,5
 - Galvanised, protective cap.
- Adjustable return lockshield:
 - DN 15 external thread with euroconus $\frac{3}{4}$ "
 - Galvanised.



VM/VS **Side connection valve kit**

Consisting of:

- Lower valve body with k_v factory preset:
 - DN 15 external thread with euroconus $\frac{3}{4}$ "
 - M30 x 1,5
 - Galvanised, protective cap.
- Adjustable return lockshield:
 - DN 15 external thread with euroconus $\frac{3}{4}$ "
 - Galvanised.



VS-A1-A2-OF **ON-OFF valve (for CFP-ECM only)**

ON-OFF 2-way valve not fitted, with actuator 230V (to be used with MB board only), frontal connections A1-A2



VS-A3-A4-OF **ON-OFF valve (for CFP-ECM only)**

ON-OFF 2-way valve not fitted, with actuator 230V (to be used with MB board only), side connections A3-A4



ATT-24V **Thermoelectric actuator**

Power supply: 24 V DC.
 Control signal: 0-10V DC.
 Absorption: 2 W.
 Absorbed current: 80 mA.
 Max inrush current: 350 mA (max. 2 min).
 Protection rating: IP 54.
 Adjustment stroke: 4mm.
 Including VA80 valve adaptor and 5 m connection cable.
 Normally closed in absence of current.



CVSG **Empty casing**

The range and minimum and special lengths of the casings vary for the different models.

Dimensions:

- Heights: 110, 130, 155 mm
- Widths: 185, 210, 260, 310, 330, 360 mm
- Variable lengths: 200–3000 mm

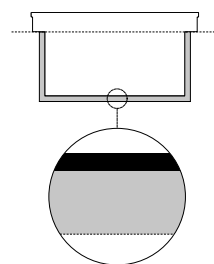
Material: galvanised steel painted Anthracite grey (RAL 7016 opaque) with natural anodised aluminium casing.



TS

Casing sound absorbtion lining

4 mm sound absorbtion lining installed in the factory on the outer surface of the casing.



FVM

Air intake filter

Intake filter PPI 30 dark 3 mm thick.



Top Grills

They are attractively shaped, solid and robust. There are pratically no limits to how they can be integrated into the architectural design of the room. It is possible to choose between various profile forms, materials, colours and surface finishings. The grills can be easily removed for cleaning and then returned to their original positions.

GAA

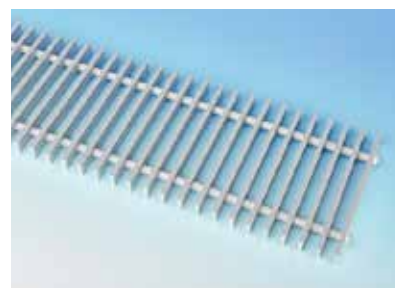
Flexible aluminium roll-up grille

Dimension:

- Length up to 3000 mm
- Height: 20 mm
- Bar width: 6 mm
- Bar spacing: 14 mm
- Open cross-section: 70%

Anodised in natural or colour, powder-coated in RAL colours (Bronze, Dark Silver, Brass, Black).

Cut surfaces in aluminium colour if linear grille is in two pieces. Aluminium profiles.



GAI

Stainless steel roll-up grille

Dimension:

- Length up to 3000 mm
- Height: 20 mm
- Bar width: 10 mm
- Bar spacing: 16 mm
- Open cross-section: 60%



GLE

Wooden roll-up grille

Dimension:

- Length up to 3000 mm
- Height: 20 mm
- Bar width: 12 mm
- Bar spacing: 16 mm
- Open cross-section: 55%

Light oak, ash and beech oiled versions.



GLA

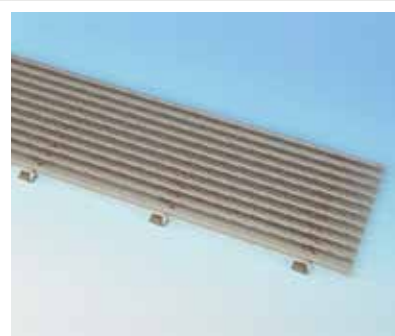
Aluminium linear grille

Dimension:

- Length up to 3000 mm
- Height: 20 mm
- Bar width: 6 mm
- Bar spacing: 10 mm
- Open cross-section: 60%

Anodised in natural or colour, powder-coated in RAL colours (Bronze, Dark Silver, Brass, Black).

Longitudinal profile bars are fixedly connected to aluminium angle profiles by means of a pressure process every 200-300 mm. Aluminium profiles.



Management system with TAD digital ambient thermostat

TAD

Digital ambient thermostat

Programmable ambient thermostat, including fan control.
With large LCD display to control up to 6 trench convectors.
Energy-saving backlighting.
Configurable timing program.
Heating/cooling control.
Power supply via BUS cable.
Colour similar to RAL 9010.



LPV-100-24

Power supply

24VDC 4.2A (190x52x37 mm)



SRM

SRM regulation and control board, fitted on the unit (for CFP-ECM only)

It must be coupled to TAD digital ambient thermostat.



KNX

KNX board

To be integrated in a Sabiana control card for KNX network connection.
1 single board necessary for integrated group of trench convectors (up to 6).



STAR

Air temperature sensor

NTC 10 K ambient temperature sensor with plastic cap, including 3 m cable + installation material.



STAC-2

Minimum probe

To detect supply temperature, including 2 m cable + installation material.



STAC-5

Minimum probe

To detect supply temperature, including 5 m cable + installation material.



LPR

Dew point detector (for CFP-ECM only)

24 V DC power supply.
Max absorbed current 3 mA.
Application range: from 10% to 100% R.H.
Including cable gland and board connector.

Management system with TAD digital ambient thermostat

LCF

Contact detector for windows (must be coupled to transmission receiver)

Power supply: 13 V lithium battery type CR2032.

- Transmission type: X2D protocol.
- Transmission frequency 868 MHz.
- Signal coverage up to 300 m (in open field).
- Protection rating IP 40



SPR

Presence sensor (must be coupled to transmission receiver)

230 V power supply with phase and neutral.

Transmission frequency 868 MHz.

1 - 2 channels depending on function.

3 pre-installed cables to connect switches, ON/OFF buttons.

1 wired phase inlet for detector or button.

Up to 16 two-way receivers and an optional number of one-way receivers.

Operating temperature: from -5 °C to 40 °C.



RTR

Transmission receiver

For window contact detectors and presence sensors.

Power supply by control card.

Up to 2x20 recordable emitters.

Signal coverage up to 100m (open field).



Management system with MB board

MB-CFP Regulation and control board, not fitted on the unit (for CFP-ECM only)

It must be coupled to TAD digital ambient thermostat.



T-MB Wall control

(to be used with MB-CFP board only)



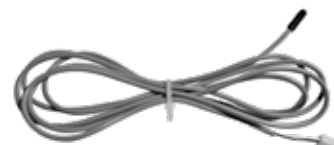
PSM-DI Multifunction control panel

(to be used with MB-CFP board only)



T2 T2 accessory for units with MB-CFP board, without valves

NTC probe (to be used as Change-over) to be coupled to MB-CFP board and to be placed on the water supply pipe.



Sabianet Sabianet management system

For MB version only.



Router-S Router for Sabianet (default) or for BMS systems not provided by Sabiana.



SIOS 8 Relay output board for Sabianet



Further special models

Angle models

Available with all models and all casing sizes.
The α angle can vary from 50° to 320° .
When placing the order, you must supply a detailed drawing or a shape.
Feasibility only after technical inspection.
The trench convector must be transportable.



Curved models

Minimum curvature radius R: 1000 mm.
When placing the order, you must supply a detailed drawing or a shape.
Feasibility only after technical inspection.
The trench convector must be transportable.



Models with column

Available with all models and all casing sizes.
When placing the order, you must supply a detailed drawing or a shape.
Feasibility only after technical inspection.
The trench convector must be transportable.



SkyStar SK

Cassette fan coil unit with asynchronous motor



Innovating and beautiful design, **seven different sizes**, high control flexibility, easy maintenance: the **SkyStar chilled water Cassette** is the result of an extended technical and design development aimed at achieving the highest level in terms of performance, silent operation and control possibilities.

The air diffuser has an highly attractive aesthetical appearance, very innovative, and is also able to offer the best air distribution performance thanks to in-depth computer studies and laboratory tests.

The 4 smaller sizes are designed to fit into **600x600 mm false ceiling** standard modules. The 3 bigger sizes have a **dimension of 800x800 mm** which allows the best outcome in terms of quietness and of price/performance ratio for these high capacity models.



In addition to temperature and speed standard controls, **automatic** speed selection is also available.

More than one unit can be connected to a single control, and the unit control panel can be installed in a remote position that **facilitates** the maintenance operation.

All the SkyStar units can be supplied in **MB version**. This version allows a wide range of controls, including the infra-red remote control, which can manage one single unit or several units by using the **Modbus RTU - RS 485** communication protocol.

The units can be connected to the most common automatic building management systems.



Air diffusers

Intake grid, frame and adjustable air distribution louvers on each side, made from ABS.

HTA version

white ABS, RAL 9003



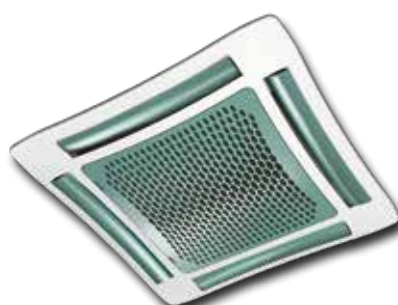
HTB version

intake grid, frame and louvers in a colour of choice



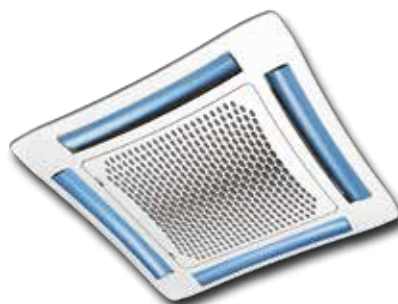
HTC version

intake grid and louvers in a colour of choice, plus white ABS frame RAL 9003



HTD version

louvers in a colour of choice, while the grid and frame are made from ABS, RAL 9003



MD-600 / MD-800 version

metal diffuser painted in RAL 9003 white colour to perfectly fit into the false ceiling standard modules without overlapping parts



Casing: made of galvanized steel with internal thermal insulation with polyolefin (PO) foam (class M1) and external anti-condensate lining.

Control panel: made of an external metallic box with control electronic board and easily accessible terminal board.

Fan assembly: the fan assembly, which is mounted on anti-vibrating supports, is extremely silent.

The radial fan has been designed to optimise performance, using wing profile blades with a shape that reduces turbulence, increasing efficiency and reducing noise.

The single air inlet radial fan is connected to a 6 speed electric motor with single phase 230 V / 50 Hz supply, class B insulation and integrated Klixon thermal contact for motor protection.

The units are supplied with 3 standard speeds connected and it is possible to change them on site if necessary.

Coil: made of copper tubes with bonded aluminium fins for maximum transfer contact. The coils have 1, 2 or 3 rows for 2 pipe models and 2+1 rows for 4 pipe models (the heating row is on the inside part of the coil).

For 4 pipe systems two versions are available:

- **SK 04, SK 14, SK 24, SK 34, SK 44, SK 54, SK 64** supply an higher heating emission;
- **SK 26, SK 36, SK 56, SK 66** supply an higher cooling emission.

The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

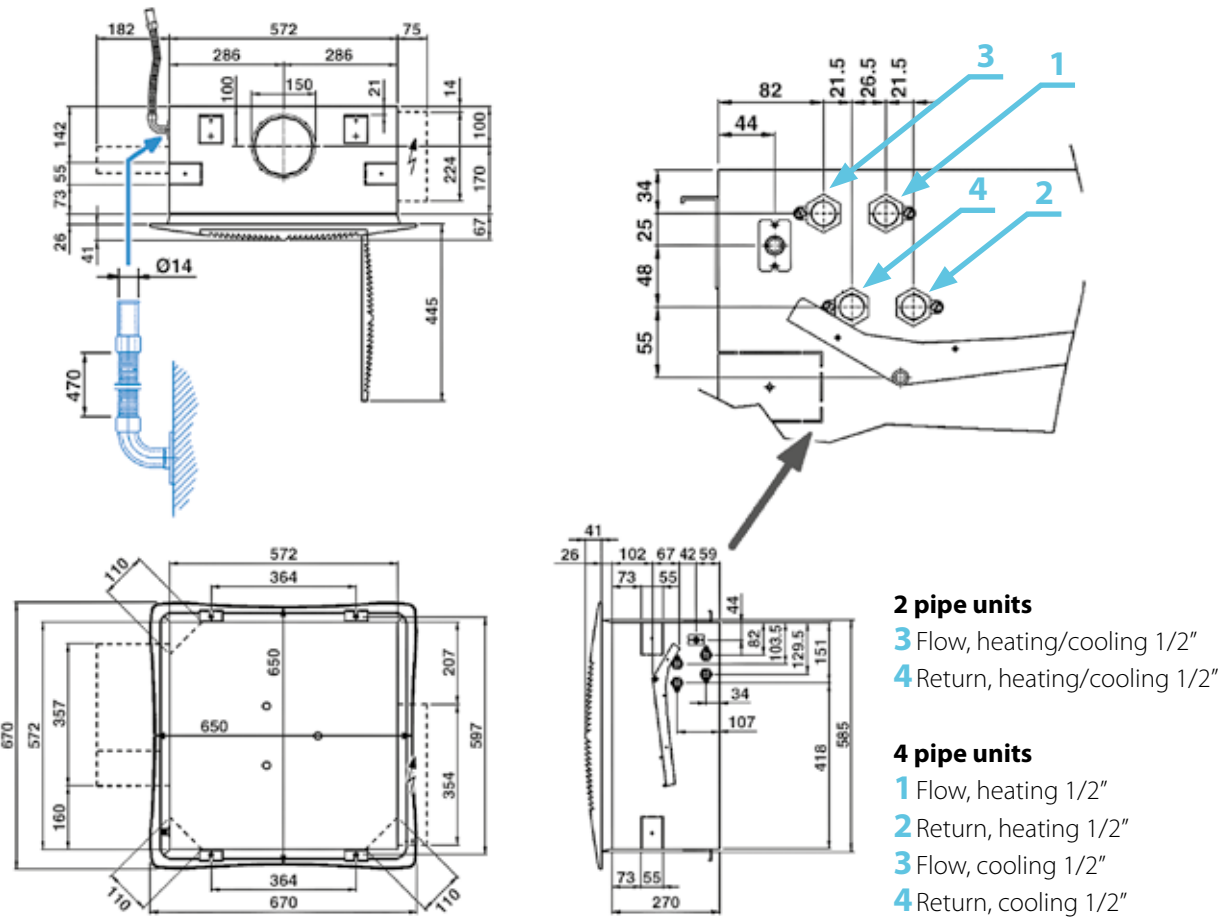
Condensate collection tray: high density ABS polystyrene foam condensate tray, shaped in order to optimize the air diffusion, fire retardant rating B1 to DIN 4102.

Air filter: synthetic washable filter, easily removable.

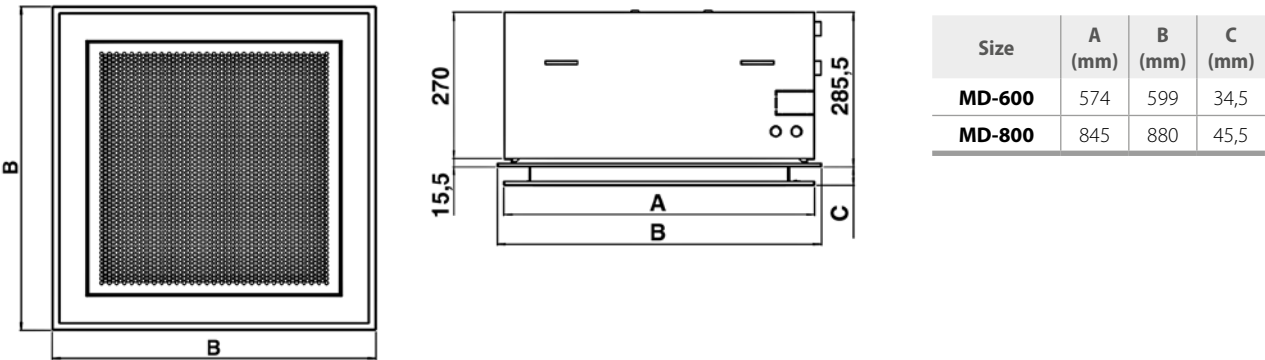
Condensate pump: float switch centrifugal pump with 650 mm of maximum head, built into the unit and wired to the control panel on the outside of the casing.

Valve set: two or three way valves for ON/OFF operation, with pipe mounting kit and thermostatic actuator.

SK 02-04 / SK 12-14 / SK 22-24-26 / SK 32-34-36
(Version 600 x 600)



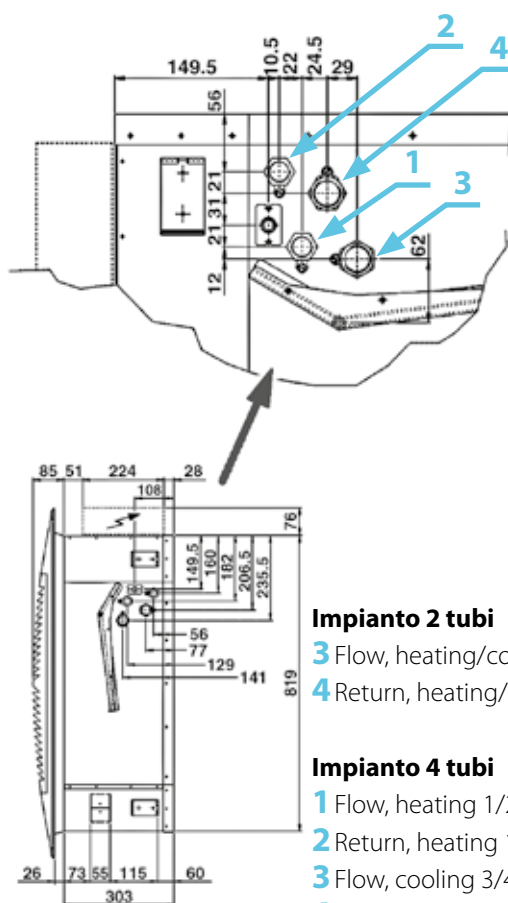
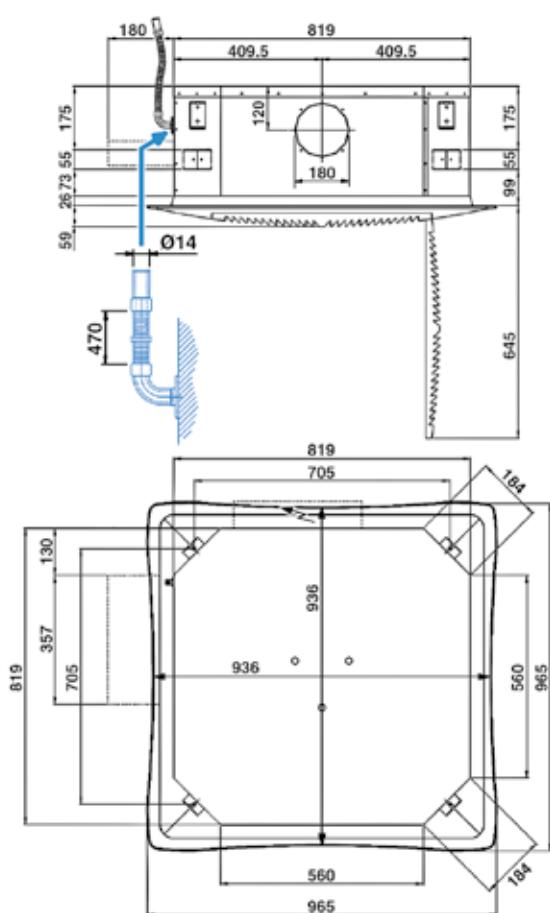
MD-600 / MD-800 metal diffuser



Size	A (mm)	B (mm)	C (mm)
MD-600	574	599	34,5
MD-800	845	880	45,5

Model	Unit		Diffuser		Packed unit dimensions (mm)			
	Weight packed unit	Weight unpacked unit	Weight packed unit	Weight unpacked unit				
	kg	kg	kg	kg	A	B	C	D
SK 02 - 12	28	22	6	3	790	350	750	150
SK 04 - 14	30	24						
SK 22 - 24 - 26								
SK 32 - 34 - 36								

SK 42-44 / SK 52-54-56 / SK 62-64-66
(Version 800 x 800)



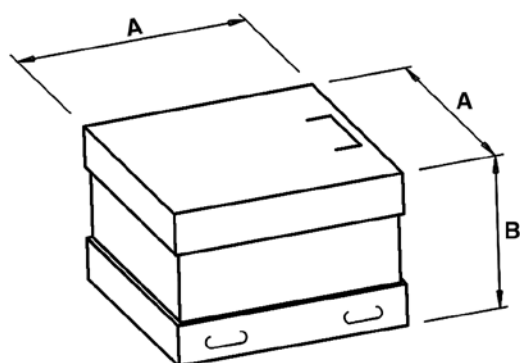
Impianto 2 tubi

- 3 Flow, heating/cooling 3/4"
- 4 Return, heating/cooling 3/4"

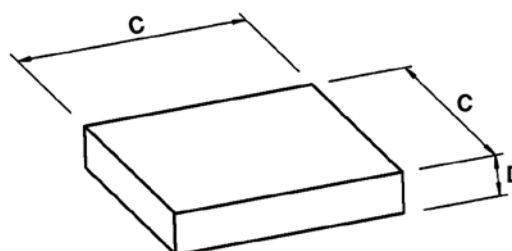
Impianto 4 tubi

- 1 Flow, heating 1/2"
- 2 Return, heating 1/2"
- 3 Flow, cooling 3/4"
- 4 Return, cooling 3/4"

Unit



Diffuser



Model	Unit		Diffuser		Packed unit dimensions (mm)			
	Weight packed unit	Weight unpacked unit	Weight packed unit	Weight unpacked unit				
	kg	kg	kg	kg	A	B	C	D
SK 42	44	36	10	6	1050	400	1000	200
SK 44	47	39						
SK 52 - 54 - 56								
SK 62 - 64 - 66								

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27°C d.b.

+19°C w.b.

Water temperature: +7°C E.W.T.

+12°C L.W.T.

HEATING (winter mode)

Entering air temperature: +20°C

Water temperature: +45°C E.W.T.

+40°C L.W.T.

Model		SK 02			SK 12			SK 22			SK 32		
Speed		1	2	3	1	2	3	1	2	3	1	2	3
Air flow	m ³ /h	310	420	610	310	420	520	320	500	710	430	610	880
Cooling total emission(E)	kW	1,25	1,60	1,92	1,82	2,31	2,64	2,23	3,30	4,26	2,91	3,82	4,93
Cooling sensible emission (E)	kW	0,99	1,29	1,58	1,33	1,72	2,00	1,55	2,35	3,11	2,05	2,75	3,65
Heating (E)	kW	1,38	1,80	2,24	1,85	2,42	2,80	2,12	3,28	4,37	2,85	3,85	5,15
Heating - Water 70-60°C	kW	2,80	3,66	4,56	4,19	4,91	5,68	4,83	6,96	9,25	6,10	8,25	10,63
Dp Cooling (E)	kPa	4,5	7,0	10,0	4,9	7,6	9,7	6,4	13,0	20,9	7,5	12,4	19,7
Dp Heating (E)	kPa	4,4	7,2	10,7	4,3	6,9	9,0	2,8	6,1	10,2	6,2	10,6	17,8
Sound power Lw (E)	dB(A)	33	40	49	33	40	45	33	45	53	41	49	59
Sound pressure Lp (*)	dB(A)	24	31	40	24	31	36	24	36	44	32	40	50
Fan (E)	W	25	32	57	25	32	44	25	44	68	32	57	90
	A	0,11	0,15	0,27	0,11	0,15	0,20	0,11	0,20	0,32	0,15	0,27	0,45
Water content	l	0,8	0,8	0,8	1,4	1,4	1,4	2,1	2,1	2,1	2,1	2,1	2,1
Dimensions	mm	575 x 575 x 275											

Model		SK 42			SK 52			SK 62		
Speed		1	2	3	1	2	3	1	2	3
Air flow	m ³ /h	630	820	1140	710	970	1500	710	1280	1820
Cooling total emission(E)	kW	4,18	4,86	6,08	5,27	6,72	9,39	5,27	8,36	10,93
Cooling sensible emission (E)	kW	3,00	3,53	4,51	3,42	4,42	6,36	3,67	6,00	8,08
Heating (E)	kW	4,27	5,03	6,50	4,92	6,40	9,23	5,12	8,55	11,72
Heating - Water 70-60°C	kW	8,61	10,16	13,14	10,25	13,43	19,76	10,25	17,26	23,68
Dp Cooling (E)	kPa	10,9	14,3	21,6	9,4	14,7	26,9	9,4	21,8	35,6
Dp Heating (E)	kPa	7,0	9,4	15,0	7,1	11,4	22,0	7,6	19,2	33,8
Sound power Lw (E)	dB(A)	33	40	48	34	40	53	34	48	58
Sound pressure Lp (*)	dB(A)	24	31	39	25	31	44	25	39	49
Fan (E)	W	33	48	77	42	63	120	42	95	170
	A	0,15	0,23	0,36	0,18	0,28	0,53	0,18	0,42	0,74
Water content	l	3,0	3,0	3,0	4,0	4,0	4,0	4,0	4,0	4,0
Dimensions	mm	820 x 820 x 303								

(E) = Eurovent certified performance.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

4 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27°C d.b.

Water temperature: +7°C E.W.T.

+19°C w.b.

+12°C L.W.T.

HEATING (winter mode)

Entering air temperature: +20°C

Water temperature: +65°C E.W.T.

+55°C L.W.T.

Model		SK 04			SK 14			SK 24			SK 26			SK 34			SK 36		
Speed		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Air flow	m ³ /h	310	420	610	310	420	520	310	500	710	320	500	710	430	610	880	430	610	880
Cooling total emission (E)	kW	1,49	1,93	2,27	1,83	2,33	2,66	1,83	2,61	3,27	2,07	3,02	3,86	2,33	2,96	3,72	2,69	3,47	4,44
Cooling sensible emission (E)	kW	1,13	1,52	1,84	1,32	1,68	1,94	1,32	1,94	2,49	1,47	2,20	2,88	1,72	2,23	2,88	1,94	2,56	3,37
Dp Cooling (E)	kPa	6,0	10,0	13,5	4,6	6,9	8,8	4,6	8,8	13,4	4,0	7,0	10,5	7,2	11,2	17,0	6,0	9,0	14,0
Heating (E)	kW	1,72	2,23	2,66	2,13	2,66	3,04	2,13	3,04	3,86	1,73	2,71	2,91	2,61	3,33	4,19	2,14	2,66	3,29
Dp Riscaldamento (E)	kPa	5,2	8,3	11,4	4,6	6,8	8,7	4,6	8,7	13,3	2,6	4,6	6,7	6,4	9,9	15,0	3,9	5,7	8,4
Sound power Lw (E)	dB(A)	33	40	49	33	40	45	33	45	53	33	45	53	41	49	59	41	49	59
Sound pressure Lp (*)	dB(A)	24	31	40	24	31	36	24	36	44	24	36	44	32	40	50	32	40	50
Fan (E)	W	25	32	57	25	32	44	25	44	68	25	44	68	32	57	90	32	57	90
	A	0,11	0,15	0,27	0,11	0,15	0,20	0,11	0,20	0,32	0,11	0,20	0,32	0,15	0,27	0,45	0,15	0,27	0,45
Cooling water content	l	1,0	1,0	1,0	1,4	1,4	1,4	1,4	1,4	1,4	1,7	1,7	1,7	1,4	1,4	1,4	1,7	1,7	1,7
Heating water content	l	0,6	0,6	0,6	0,7	0,7	0,7	0,7	0,7	0,7	0,5	0,5	0,5	0,7	0,7	0,7	0,5	0,5	0,5
Dimensions	mm	575 x 575 x 275																	

Model		SK 44			SK 54			SK 56			SK 64			SK 66		
Speed		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Air flow	m ³ /h	630	820	1140	710	970	1500	710	970	1500	710	1280	1820	710	1225	1730
Cooling total emission (E)	kW	4,11	4,98	6,26	4,48	5,60	7,59	4,95	6,27	8,65	4,48	6,84	8,72	4,95	7,75	9,69
Cooling sensible emission (E)	kW	2,93	3,60	4,61	3,21	4,09	5,71	3,49	4,49	6,37	3,21	5,09	6,67	3,49	5,64	7,26
Dp Cooling (E)	kPa	8,8	12,5	18,9	10,3	15,4	26,9	9,0	14,0	25,0	10,3	22,1	34,7	9,0	20,0	32,0
Heating (E)	kW	5,21	6,33	8,02	5,69	7,15	9,66	4,59	5,63	7,50	5,69	8,80	11,16	4,59	6,78	9,48
Dp Riscaldamento (E)	kPa	7,9	11,2	17,2	9,3	14,0	24,0	4,9	7,0	11,8	9,3	20,3	31,2	4,9	9,9	15,0
Sound power Lw (E)	dB(A)	33	40	48	34	40	53	34	40	53	34	48	58	34	48	58
Sound pressure Lp (*)	dB(A)	24	31	39	25	31	44	25	31	44	25	39	49	25	39	49
Fan (E)	W	33	48	77	42	63	120	42	63	120	42	95	170	42	95	170
	A	0,15	0,23	0,36	0,18	0,28	0,53	0,18	0,28	0,53	0,18	0,42	0,74	0,18	0,42	0,74
Cooling water content	l	3,0	3,0	3,0	3,0	3,0	3,0	3,6	3,6	3,6	3,0	3,0	3,0	3,6	3,6	3,6
Heating water content	l	1,4	1,4	1,4	1,4	1,4	1,4	1,1	1,1	1,1	1,4	1,4	1,4	1,1	1,1	1,1
Dimensions	mm	820 x 820 x 303														

(E) = Eurovent certified performance.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

SK-MB All the SkyStar units can be supplied in MB version. This version allows a wide range of controls, including the infra-red remote control, which can manage one single unit or several units by using the Modbus RTU - RS 485 communication protocol.

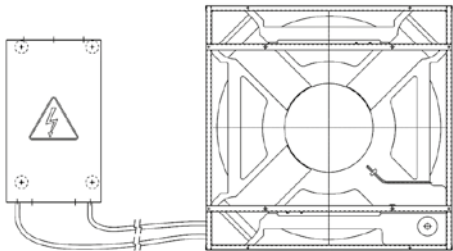


SK-E The Cassette 2 pipe models are available with electric heater that is controlled in place of the heating coil valve. The electric heater is controlled in place of the hot water valve and not as integration to it. The electric heater is hermetically sealed and supplied inside the coil pipes and therefore can be only factory mounted. The electric heaters of the units are for single phase 230V supply.

Model	Emission
SK 12-E	1500 W
SK 22-E / SK 32-E	2500 W
SK 42-E / SK 52-E / SK 62-E	3000 W

Unit with remote electric board

On request the Skystar cassettes are available with electric control panel reachable from below and with the electric board that can be placed in a remote position.

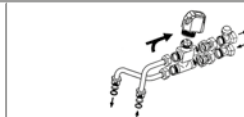


MCT The **MCT** version has been designed for all environments where false ceilings are not featured or cannot be constructed. The cover cabinet fits perfectly to the air intake and outlet diffuser, maintaining the appealing design that defines the SkyStar series. The water fittings can be turned to point upwards. The **MCT** series includes 7 models, with an installation height of up to 5 m, thanks to the highly flexible adjustment of the air distribution louvers. All the technical specifications described on the previous pages remain the same, while keeping in mind that the **MCT** series features one coil only (two pipe systems), there is no possibility of fresh air intake, there is no possibility of additional electric heater. The **MCT** version features a special casing delivered in separate packaging; this must only be fitted after having installed the SkyStar unit and completed the water and electrical connections.

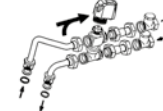


**3 way ON-OFF valves
with micrometric lockshield valve**

Valve set, 3 ways, ON-OFF, with thermoelectric actuator.
The set includes connection pipes and holders.



SK 02-04 / 12-14 / 22-24-26 / 32-34-36



SK 42-44 / 52-54-56 / 62-64-66

**2 way ON-OFF valves
with micrometric lockshield valve**

Valve set, 2 ways, ON-OFF, with thermoelectric actuator.
The set includes connection pipes and holders.



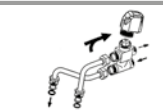
SK 02-04 / 12-14 / 22-24-26 / 32-34-36



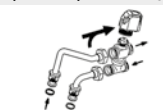
SK 42-44 / 52-54-56 / 62-64-66

**3 way ON-OFF valves
with simplified kit**

Valve set, 3 ways, ON-OFF, with thermoelectric actuator.
The set includes connection pipes.



SK 02-04 / 12-14 / 22-24-26 / 32-34-36



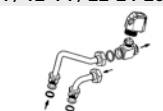
SK 42-44 / 52-54-56 / 62-64-66

**2 way ON-OFF valves
with simplified kit**

Valve set, 2 ways, ON-OFF, with thermoelectric actuator.
The set includes connection pipes.



SK 02-04 / 12-14 / 22-24-26 / 32-34-36



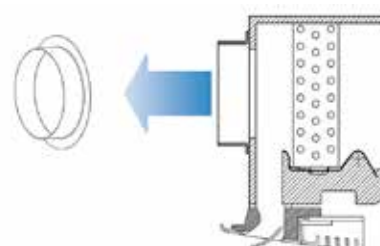
SK 42-44 / 52-54-56 / 62-64-66

**V20VSK Balancing valves independent from the
system pressure**

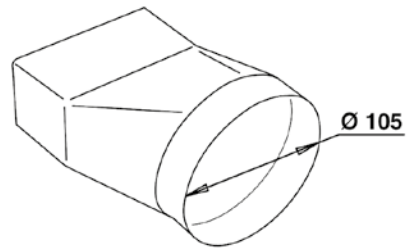
(for main and additional coil)



CDA Air distribution connection

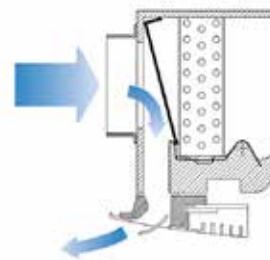


CAP Fresh air connection



PRT Fresh air kit

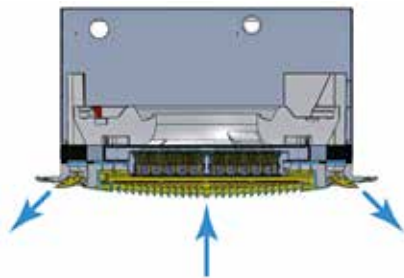
This is used to introduce fresh air into the environment directly through the diffuser.



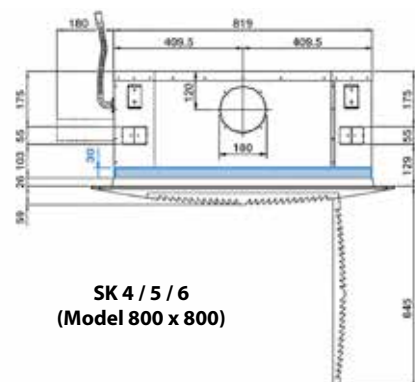
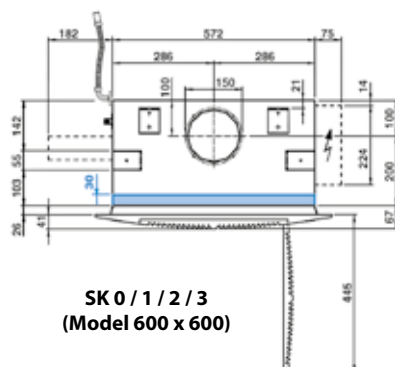
IAQ accessory

SK / SK-ECM Cassette can be equipped with the innovative plate type electrostatic filter, **Crystall**, combining air treatment and purifying in a single product.

The electronic filter is **patented and certified** according to Standard UNI 11254.



Dimensions



Wall electronic controls

SK version	
WM-3V	3 speed control
WM-T	3 speed control with electronic thermostat and manual summer/winter switch
WM-TQR	3 speed control with electronic thermostat and centralized/manual summer/winter switch
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-503	Automatic speed control with electronic thermostat to be mounted in the 503 box (to be used with UP-503 only)
T2T	Electromechanical thermostat with summer/winter switch (only for 2 pipe units)
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit
UP-503	Power unit for WM-503 remote controls, not fitted on the unit

Electronic controls

SK-MB version	
T-MB	Wall control (to be used with SK-MB version only)
RCS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with SK-MB version only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with SK-MB version only)
RCS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with SK-MB version only)
RS	Receiver for RT03 infra-red remote control, MD-600 and MD-800 metal diffuser supplied with separate packaging (to be used with SK-MB version only)
PSM-DI	Multifunction control (to be used with SK-MB version only)

Sabianet management system for a network of fan coils	
Sabianet	Sabianet (to be used with SK-MB version only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for wall round or square box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

SkyStar SK-ECM

Cassette Fan Coil Unit with EC Brushless Electronic Motor and Inverter Board



The **SkyStar SK-ECM** series, available in **5 models**, uses an innovative brushless synchronous permanent magnet electronic motor controlled by an inverter board that is directly installed on the unit.

The air flow can be varied **continuously** with a 1-10 V signal from Sabiana controls or by independent controllers (programmable controllers with a 1-10 V output). The extreme efficiency, also at a low speed, makes it possible to greatly reduce the electric consumption (more **than 75% less** in comparison to a traditional motor) with absorption values, under normal operating conditions, that are **no greater than 10 Watt** in the entire range.



The brushless motor is characterised by a constant synchronous speed, independently of the applied load, that depends only on the motor power supply frequency, which is modulated by the inverter.

It consumes less because:

- The motor always works at its point of maximum efficiency.
- In the brushless motor, the rotor's permanent magnets generate the magnetising power autonomously.
- The motor always operates at the synchronous speed, as a result there are no induced currents that reduce efficiency

The main advantages are

- Large reduction in energy consumption, thanks to an optimal response to the thermal load of the environment during every moment of the day.
- Operating silence at all rotation speeds.
- Ability to operate at any rotation speed.

All the SkyStar SK-ECM units can be supplied in MB version. This version allows a wide range of controls, including the infra-red remote control, which can manage one single unit or several units by using the **Modbus RTU - RS 485** communication protocol.



Air diffusers

Intake grid, frame and adjustable air distribution louvers on each side, made from ABS.

HTA version

white ABS, RAL 9003



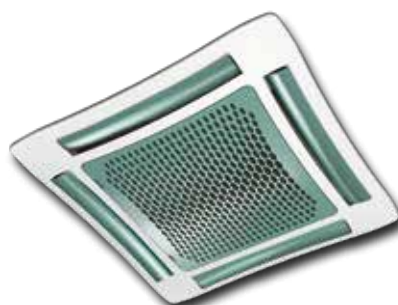
HTB version

intake grid, frame and louvers in a colour of choice



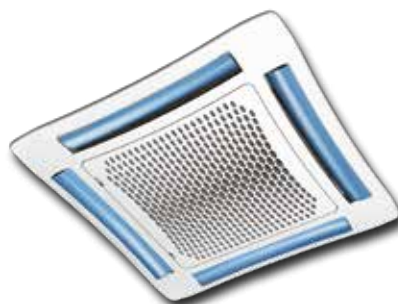
HTC version

intake grid and louvers in a colour of choice, plus white ABS frame RAL 9003



HTD version

louvers in a colour of choice, while the grid and frame are made from ABS, RAL 9003



MD-600 / MD-800 version

metal diffuser painted in RAL 9003 white colour to perfectly fit into the false ceiling standard modules without overlapping parts



Casing: made from galvanized steel with internal thermal insulation with polyolefin (PO) foam (class M1) and external anti-condensate lining.

Control equipment:

SK-ECM version: it consists of the pump control circuit board and the inverter circuit board.

SK-ECM-MB version: it consists of the MB board (that integrates pump control) and the inverter board.

Fan assembly: the fan assembly, which is mounted on anti-vibrating supports, is extremely silent.

The radial fan has been designed to optimise performance, using wing profile blades with a shape that reduces turbulence, increasing efficiency and reducing noise.

The fans are connected to a three phase permanent magnet brushless electronic motor that is controlled with reconstructed current according to a **BLAC** sinusoidal wave.

The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply.

The electric power supply required for the machine is therefore single-phase with voltage of **230 - 240 V** and frequency of **50 - 60 Hz**.

Coil: made of copper tubes with bonded aluminium fins for maximum transfer contact. The coils have 2 or 3 rows for 2 pipe models and 2+1 rows for 4 pipe models (the heating row is on the inside part of the coil).

For 4 pipe systems two versions are available

- **SK 14, SK 44** supply an higher heating emission
- **SK 26, SK 36, SK 56** supply an higher cooling emission.

The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion

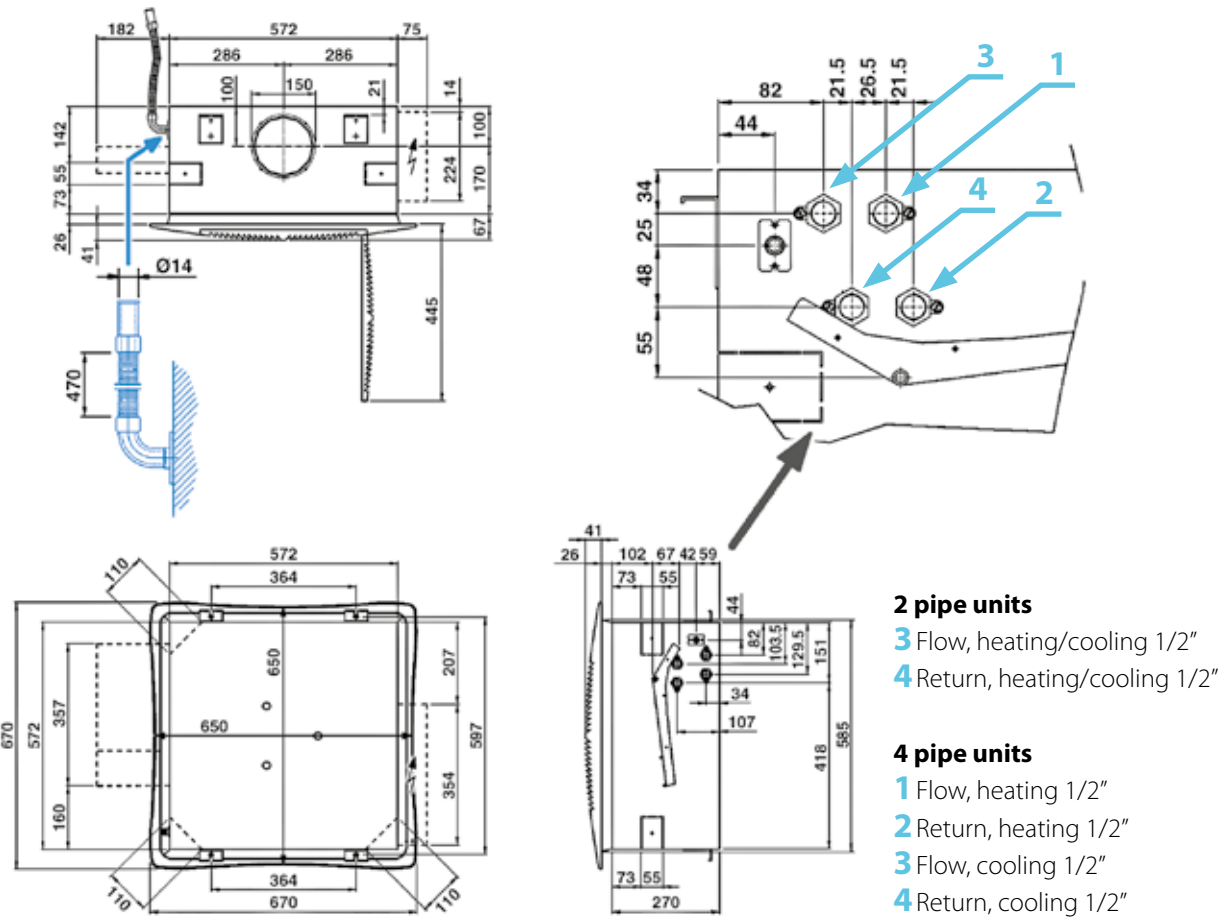
Condensate collection tray: high density ABS polystyrene foam condensate tray, shaped in order to optimize the air diffusion, fire retardant rating B1 to DIN 4102.

Air filter: synthetic washable filter, easily removable.

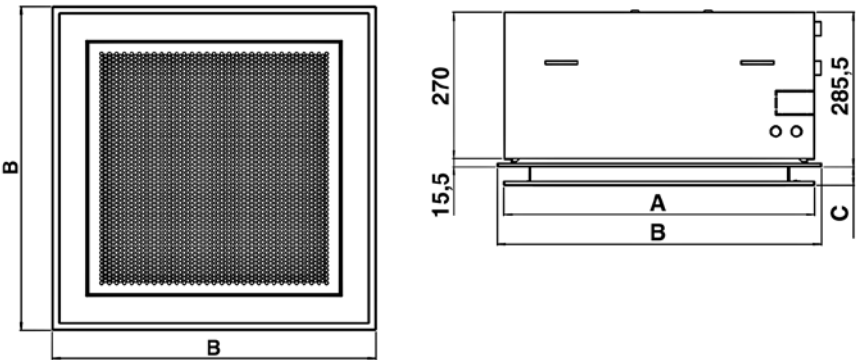
Condensate pump: float switch centrifugal pump with 650 mm of maximum head, built into the unit and wired to the control panel on the outside of the casing

Valve set: two or three way valves for ON/OFF operation, with pipe mounting kit and thermostatic actuator.

SK 12-14 / SK 22-26 / SK 32-36
(Version 600 x 600)



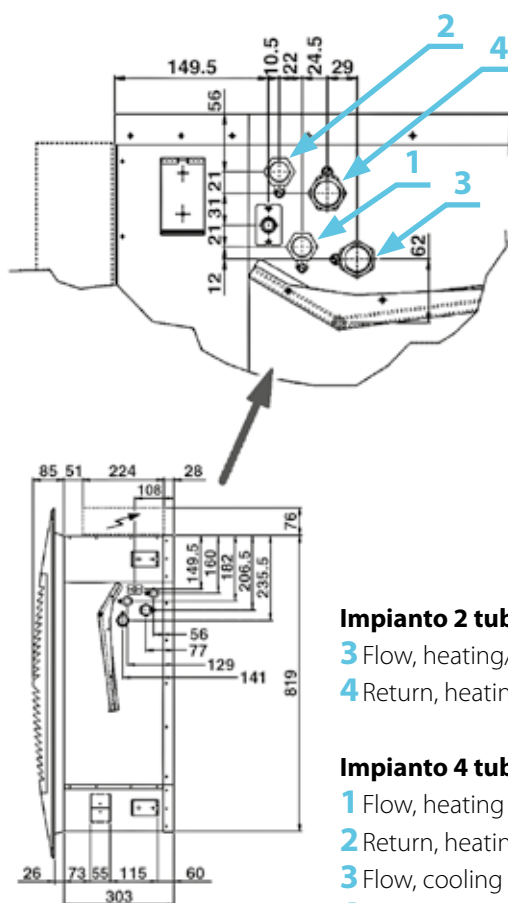
MD-600 / MD-800 metal diffuser



Size	A (mm)	B (mm)	C (mm)
MD-600	574	599	34,5
MD-800	845	880	45,5

Model	Unit		Diffuser		Packed unit dimensions (mm)			
	Weight packed unit	Weight unpacked unit	Weight packed unit	Weight unpacked unit				
	kg	kg	kg	kg	A	B	C	D
SK 12	28	22	6	3	790	350	750	150
SK 14	30	24						
SK 22 - 26								
SK 32 - 36								

SK 42-44 / SK 52-56
(Version 800 x 800)

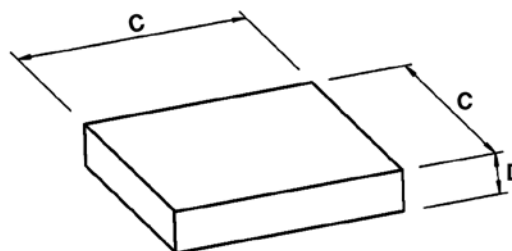


3 Flow, heating/cooling 3/4"

4 Return, heating/cooling 3/4"

- 1 Flow, heating 1/2"
- 2 Return, heating 1/2"
- 3 Flow, cooling 3/4"
- 4 Return, cooling 3/4"

Diffuser

SkyStar SK-ECM | 259

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27°C d.b.

+19°C w.b.

Water temperature: +7°C E.W.T.

+12°C L.W.T.

HEATING (winter mode)

Entering air temperature: +20°C

Water temperature: +45°C E.W.T.

+40°C L.W.T.

Model		SK-ECM 12			SK-ECM 22			SK-ECM 32			SK-ECM 42			SK-ECM 52		
Inverter Power (V)		1	5	10	1	5	10	1	5	10	1	5	10	1	5	10
Speed		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m³/h	310	380	535	310	445	710	360	610	880	630	870	1165	710	1130	1770
Cooling total emission (E)	kW	1,84	2,16	2,73	2,24	3,04	4,30	2,55	3,85	4,96	4,20	5,13	6,30	5,28	7,69	10,69
Cooling sensible emission (E)	kW	1,35	1,60	2,07	1,57	2,16	3,15	1,80	2,79	3,68	3,02	3,75	4,69	3,68	5,50	7,83
Heating (E)	kW	1,85	2,22	2,87	2,12	2,98	4,36	2,46	3,85	5,15	4,27	5,30	6,70	4,90	7,34	10,56
Heating - Water 70-60 °C	kW	3,75	4,51	5,82	4,28	6,01	8,81	4,96	7,79	10,42	8,61	10,72	13,54	9,87	14,82	21,37
Dp Cooling (E)	kPa	4,9	6,6	10,1	4,6	11,0	15,1	5,9	12,4	19,7	10,9	15,6	22,7	9,4	18,5	33,0
Dp Heating (E)	kPa	4,3	5,9	9,4	3,6	6,6	13,2	4,7	10,6	17,8	9,6	14,2	21,6	7,0	14,6	28,1
Fan (E)	W	5	8	16	5	11	31	7	21	62	10	17	33	10	32	108
Sound power Lw (E)	dB(A)	33	39	47	33	43	54	37	50	60	33	39	48	34	47	57
Sound pressure Lp (*)	dB(A)	24	30	38	24	34	45	28	41	51	24	30	39	25	38	48
Water content	l	1,4	1,4	1,4	2,1	2,1	2,1	2,1	2,1	2,1	3,0	3,0	3,0	4,0	4,0	4,0
Dimensions	mm	575 x 575 x 275									820 x 820 x 303					

4 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27°C d.b.

+19°C w.b.

Water temperature: +7°C E.W.T.

+12°C L.W.T.

HEATING (winter mode)

Entering air temperature: +20°C

Water temperature: +65°C E.W.T.

+55°C L.W.T.

Model		SK-ECM 14			SK-ECM 26			SK-ECM 36			SK-ECM 44			SK-ECM 56		
Inverter Power (V)		1	5	10	1	5	10	1	5	10	1	5	10	1	5	10
Speed		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m³/h	310	380	535	310	445	710	360	610	880	630	870	1165	710	1130	1770
Cooling total emission (E)	kW	1,85	2,17	2,75	2,09	2,81	3,90	2,37	3,51	4,47	4,29	5,29	6,48	4,97	7,14	9,76
Cooling sensible emission (E)	kW	1,34	1,59	2,06	1,49	2,03	2,92	1,70	2,60	3,40	3,07	3,82	4,80	3,51	5,17	7,29
Heating (E)	kW	2,13	2,51	3,18	1,73	2,20	2,91	1,92	2,66	3,29	5,41	6,65	8,24	4,58	6,27	8,33
Dp Cooling (E)	kPa	4,6	6,2	9,5	3,3	5,6	10,3	4,1	8,4	13,1	9,4	13,6	19,8	8,8	17,0	30,1
Dp Heating (E)	kPa	4,6	6,1	9,4	2,6	4,1	6,7	3,2	5,7	8,4	8,5	12,3	18,1	4,9	8,6	14,3
Fan (E)	W	5	8	16	5	11	31	7	21	62	10	17	33	10	32	108
Sound power Lw (E)	dB(A)	33	39	47	33	43	54	37	50	60	33	39	48	34	47	57
Sound pressure Lp (*)	dB(A)	24	30	38	24	34	45	28	41	51	24	30	39	25	38	48
Cooling water content	l	1,4	1,4	1,4	1,7	1,7	1,7	1,7	1,7	1,7	3,0	3,0	3,0	3,6	3,6	3,6
Heating water content	l	0,7	0,7	0,7	0,5	0,5	0,5	0,5	0,5	0,5	1,4	1,4	1,4	1,1	1,1	1,1
Dimensions	mm	575 x 575 x 275									820 x 820 x 303					

(E) = Eurovent certified performance.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

SK-ECM-MB All the SkyStar ECM units can be supplied in MB version.

This version allows a wide range of controls, including the infra-red remote control, which can manage one single unit or several units by using the Modbus RTU - RS 485 communication protocol.

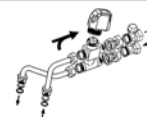


SK-ECM-E The Cassette 2 pipe models are available with electric heater that is controlled in place of the heating coil valve. The electric heater is controlled in place of the hot water valve and not as integration to it. The electric heater is hermetically sealed and supplied inside the coil pipes and therefore can be only factory mounted. The electric heater of the units are for single phase 230V supply.

ECM Model	Emission
SK 12-E	1500 W
SK 22-E / SK 32-E	2500 W
SK 42-E / SK 52-E	3000 W

MCT The **MCT** version has been designed for all environments where false ceilings are not featured or cannot be constructed. The cover cabinet fits perfectly to the air intake and outlet diffuser, maintaining the appealing design that defines the SkyStar series. The water fittings can be turned to point upwards. The **MCT** series includes 7 models, with an installation height of up to 5 m, thanks to the highly flexible adjustment of the air distribution louvers. All the technical specifications described on the previous pages remain the same, while keeping in mind that the **MCT** series features one coil only (two pipe systems), there is no possibility of fresh air intake, there is no possibility of additional electric heater. The **MCT** version features a special casing delivered in separate packaging; this must only be fitted after having installed the SkyStar unit and completed the water and electrical connections.





SK 12-14 / 22-26 / 32-36



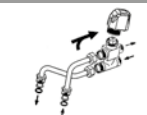
SK 42-44 / 52-56



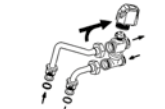
SK 12-14 / 22-26 / 32-36



SK 42-44 / 52-56



SK 12-14 / 22-26 / 32-36



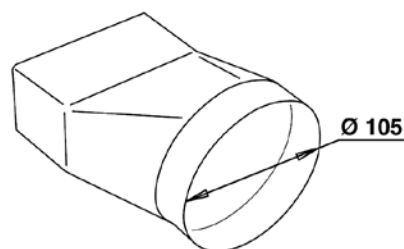
SK 42-44 / 52-56



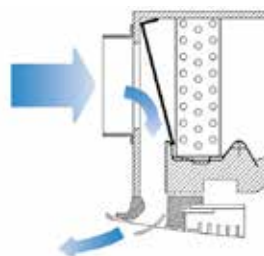
SK 12-14 / 22-26 / 32-36



SK 42-44 / 52-56

CAP Fresh air connection**PRT Fresh air kit**

This is used to introduce fresh air into the environment directly through the diffuser.



Wall electronic controls

SK-ECM version	
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-S-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and liquid crystal display
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit

Electronic controls

SK-ECM-MB version	
T-MB	Wall control (to be used with SK-ECM-MB version only)
RCS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with SK-ECM-MB version only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with SK-ECM-MB version only)
RCS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with SK-ECM-MB version only)
RS	Receiver for RT03 infra-red remote control, MD-600 and MD-800 metal diffuser supplied with separate packaging (to be used with SK-ECM-MB version only)
PSM-DI	Multifunction control (to be used with SK-ECM-MB version only)

Sabianet management system for a network of fan coils	
Sabianet	Sabianet (to be used with SK-ECM-MB version only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for wall round or square box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

SkyStar Jumbo ECM

Fan Coil Unit Cassette with electronic motor and inverter board



Innovating and beautiful design, perfect to meet all air-conditioning requirements of wide environments, **4 different versions**, high control flexibility, easy maintenance: the new cassette fan coil unit **SkyStar Jumbo ECM** is the result of an extended technical and design development aimed at achieving the highest level in terms of performance, silent operation and control possibility.

The range **SkyStar Jumbo ECM** uses an innovative brushless synchronous permanent magnet electric motor controlled by an inverter board that is directly installed on the unit.

The air flow can be varied **continuously** with a 1-10 V signal from **Sabiana** controls or by independent controllers (programmable controllers with a 1-10 V output). The extreme efficiency, also at a low speed, makes possible a great reduction in electric consumption (more than **75% less** in comparison to a traditional motor) with absorption values, under normal operating conditions, that are **no greater than 20 Watt** in the entire range.

The brushless motor is characterised by a constant synchronous speed, independently of the applied load, that depends only on the motor power supply frequency, which is modulated by the inverter.

It consumes less because:

- The motor always works at its point of maximum efficiency.
- In the brushless motor, the rotor's permanent magnets generate the magnetising power autonomously.
- The motor always operates at the synchronous speed, as a result there are no induced currents that reduce efficiency.

The main advantages are:

- Large reduction in energy consumption, thanks to an optimal response to the thermal load of the environment during every moment of the day.
- Operating silence at all rotation speeds.
- Ability to operate at any rotation speed.

All the units **SkyStar Jumbo ECM** can be supplied in **MB** version. This version includes a wide range of controls, including the infra-red remote control, which allow managing one single unit or several units by using the Bus communication protocol.

In the MB version it is possible to control at the same time the (motorized) outlet louvers with the infra-red remote-control or with the T-MB wall control.



Casing: is made of galvanized steel with internal thermal insulation with polyolefin (PO) foam (class M1) and external anti-condensate lining.

Control panel:

SK-ECM / SK-ECM-E version:

it consists of the pump control circuit board and the inverter circuit board.

SK-ECM-MB / SK-ECM-MB-E version:

it consists of the MB electronic board (that integrates pump control) and the inverter board.

The diffusion louvers are adjustable with the infra-red remote control or with T-MB wall control.

Fan assembly: secured on anti-vibration mountings, is particularly silent.

The radial fan has been designed to optimise performance, using wing profile blades with a shape that reduces turbulence, increasing efficiency and reducing noise.

The fans are connected to a three phase permanent magnet brushless electronic motor that is controlled with reconstructed current according to a BLAC sinusoidal wave.

The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a switching system, it generates a three-phase frequency modulated, wave form power supply.

The electric power supply required for the machine is therefore single-phase with voltage of 230 - 240 V and frequency of 50 - 60 Hz.

Coil: made of copper tubes with bonded aluminium fins for maximum transfer contact. 3 row coil for 2 pipe models and 2,5 + 1/2 row coil for 4 pipe models (the heating row is on the inside part of the coil).

The heat exchanger is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

Condensate collection tray: high density polystyrene foam condensate tray, shaped in order to optimize the air diffusion. Fire retardant rating B1 to DIN 4102.

Filter: easy access to the filter that is available in both versions, the G0 filter (synthetic regenerable washable) and in the **F7 filter** (to change at the end of its life-cycle).

Condensate pump: float switch centrifugal pump with 650 mm of maximum head, integral to the unit and wired to the control panel on the outside of the casing.

Valve set: two or three way valves for ON/OFF operation, with pipe mounting kit and ball valves.

Air intake and distribution grids

Intake grids, frame and adjustable air distribution louvers on each side, made of ABS.

HTA version

in white ABS, RAL 9003

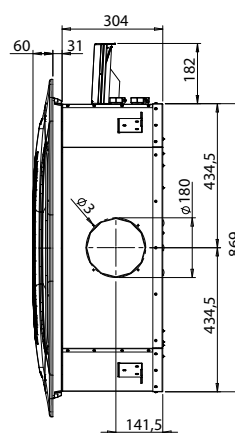
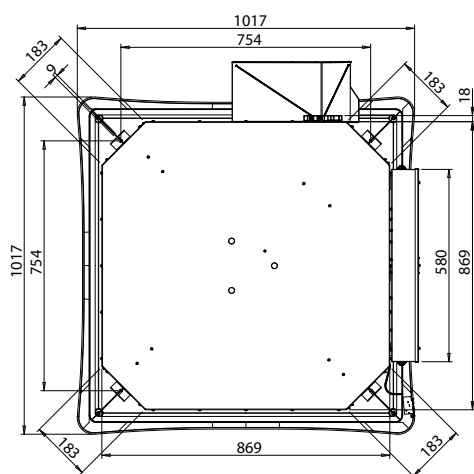
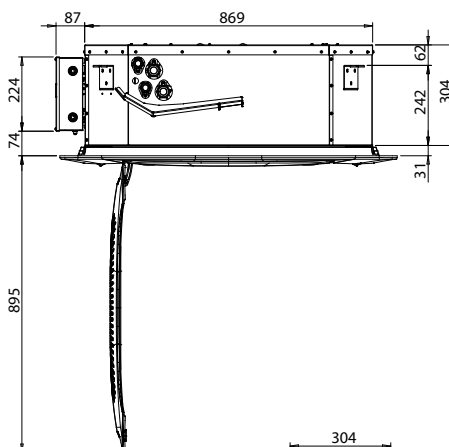
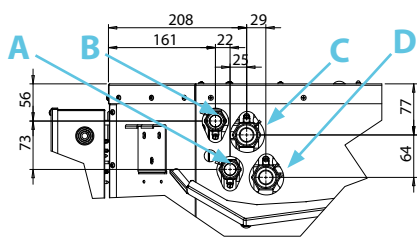


HTB version

in ABS one single color to choose



SK 72-76 / SK 82-86



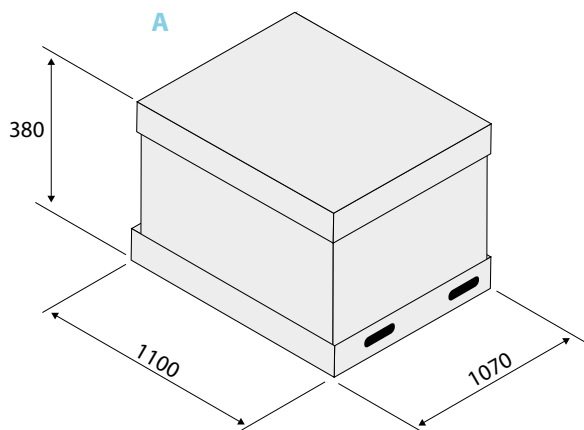
2 pipe unit

- A Flow, heating/cooling 1"
- B Return, heating/cooling 1"

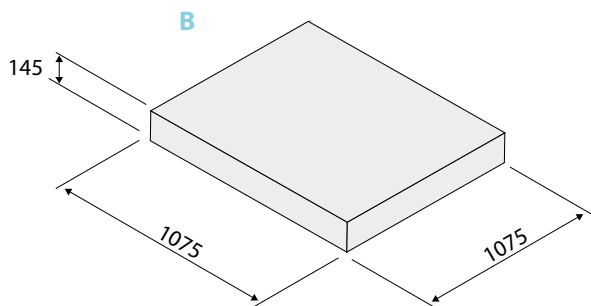
2 pipe unit

- A Flow, cooling 1"
- B Return, cooling 1"
- C Flow, heating 3/4"
- D Return, heating 3/4"

Unit



Diffuser



Model	SK-ECM 72	SK-ECM 76	SK-ECM 82	SK-ECM 86
Weight with packaging kg	52			
Weight without packaging kg	42			

Model	SK-ECM 72	SK-ECM 76	SK-ECM 82	SK-ECM 86
Weight with packaging kg	9,4			
Weight without packaging kg	7,5			

2 pipe unit. The following standard rating conditions are used:

COOLING

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING

Entering air temperature: +20 °C d.b.
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model		SK-ECM 72					SK-ECM 82				
Speed		1	3	5	7,5	10	1	3	5	7,5	10
		MIN		MED		MAX	MIN		MED		MAX
Air flow	mc/h	790	1040	1290	1600	1905	1025	1340	1650	2060	2480
Cooling total emission (E)	kW	6,36	7,95	9,43	11,10	12,60	7,86	9,72	11,38	13,35	15,13
Cooling sensible emission (E)	kW	4,45	5,65	6,77	8,09	9,31	5,58	7,00	8,30	9,88	11,41
Heating (E)	kW	6,18	7,93	9,59	11,55	13,39	7,82	9,91	11,86	14,29	16,40
Dp Cooling (E)	kPa	6,6	9,8	13,4	18,0	22,7	9,6	14,1	18,8	25,2	31,8
Dp Heating (E)	kPa	5,4	8,4	11,8	16,5	21,5	8,2	12,5	17,3	24,2	31,0
Motor power input (E)	W	13	22	35	59	93	21	38	64	113	183
Sound power Lw (E)	dB(A)	38	44	49	54	58	44	50	55	60	64
Sound pressure (*)	dB(A)	29	35	40	45	49	35	41	46	51	55
Water content	l	4,6					4,6				
Dimensions	mm	816x816x303									

4 pipe unit. The following standard rating conditions are used:

COOLING

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING

Entering air temperature: +20 °C d.b.
Water temperature: +65 °C E.W.T. +55 °C L.W.T.

Model		SK-ECM 76					SK-ECM 86				
Speed		1	3	5	7,5	10	1	3	5	7,5	10
		MIN		MED		MAX	MIN		MED		MAX
Air flow	mc/h	790	1040	1290	1600	1905	1025	1340	1650	2060	2440
Cooling total emission (E)	kW	6,07	7,53	8,86	10,35	11,61	7,45	9,10	10,59	12,30	13,59
Cooling sensible emission (E)	kW	4,33	5,46	6,53	7,74	8,87	5,40	6,73	7,96	9,44	10,68
Heating (E)	kW	6,01	7,27	8,40	9,63	10,55	7,19	8,62	9,80	11,05	12,17
Dp Cooling (E)	kPa	7,0	10,3	13,8	18,3	22,6	10,1	14,5	19,1	25,2	30,4
Dp Heating (E)	kPa	7,2	10,2	13,2	16,9	19,9	10,0	13,8	17,4	21,6	25,7
Motor power input (E)	W	13	22	35	59	93	21	38	64	113	183
Sound power Lw (E)	dB(A)	38	44	49	54	58	44	50	55	60	64
Sound pressure (*)	dB(A)	29	35	40	45	49	35	41	46	51	55
Cooling water content	l	3,6					3,6				
Heating water content	l	1,2					1,2				
Dimensions	mm	816x816x303									

(E) = EUROVENT certified performance

(*) = The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m³ room and a reverberation time of 0,5 sec.

SK-ECM-MB

All the **SkyStar Jumbo ECM** units can be supplied in **MB** version.

This version includes a wide range of controls, including the infra-red remote control, which allows managing one single unit or several units by using the Bus communication protocol.



SK-ECM-E

SK-ECM-MB-E

The 2 pipe model Cassette units are available with electric heater. The electric heater is controlled in place of the hot water valve and not as integration to it.

The electric heaters are hermetically sealed and supplied inside the coil pipes and therefore can be only factory mounted. The electric heaters of the unit can be for 230Vac 1Ph 50-60Hz or 400Vac 3Ph 50-60Hz supply.

ECM model	Power installed
All models	3000 W

Wall controls

SK-ECM version	
WM-AU	Automatic 3 speed progressive switch with electronic thermostat and Summer/Winter switch. (To use with UPM-AU or with UP AU only)
T-MB	T-MB wall control (To use with UPM-AU or with UP-AU only)
WM-S-ECM	Control with automatic continuous speed control, with electronic thermostat, Summer/Winter switch and LCD display
UPM-AU	UP-AU power unit fitted on the unit, for WM-AU e T-MB remote controls
UP-AU	UP-AU power unit not fitted on the unit, for WM-AU e T-MB remote controls

Electronic controls

SK-ECM-MB version	
T-MB	Wall control (to use with SK-ECM-MB version only)
RT03	RT03 infra-red remote control with separate packaging (to use with SK-ECM-MB version only)
PSM-DI	Multifunction control panel to control until 60 multifunction units (to use with SK-ECM-MB version only)

Hardware/software supervisory system for a network of more Fan Coil units	
Sabianet	Sabianet (to use with SK-ECM-MB version only)
Router-S	Router for Sabianet (default) or for BMS systems, not provided by Sabiana
SIOS	8 relay output board for Sabianet

Carisma Coanda

One Way Cassette Fan Coil Unit with Asynchronous Motor



The **Carisma Coanda** one way Cassette fan coil units are available in **3 sizes**.

Thanks to the particular air handling section, the units generate an airflow **with a “coanda” effect**.

The unit is suitable for installation in a suspended ceiling.

Air intake is from the bottom while the air supply is parallel to the ceiling, through practical and functional intake and outlet grids.

The “coanda” effect creates **excellent circulation of the air** inside the room.



Every unit can be supplied with 1 coil (2 pipe system) and possibly an electric heating element, or with 2 coils (4 pipe system) with one or two rows heating coil, for low temperature hot water.

Fresh air may be mixed with room air.

A **condensate pump** may also be supplied as an accessory.

In addition to the conventional temperature and speed control systems, there is also the possibility of **automatic** speed selection and to control operation of each unit through a single remote control with central supervisor software installed on a PC (**called Sabianet**).



Casing: made from 1 mm galvanized steel insulated with 6 mm polyolefin (PO) foam (class M1).

Diffuser with intake grid: in prepainted metal sheet in RAL 9003 colour with intake grid that can be opened for inspection and maintenance of the air filter.

Air filter: polypropylene cellular fabric regenerating filter.

Fan assembly: the fans have aluminium or plastic blades directly keyed on the motor with double aspiration and they are dynamically and statically balanced during manufacture in order to have an extremely quiet operation.

Electric motor: the motor is wired for single phase and has **six speeds, three of which are connected**, with capacitor. The motor is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings. Internal thermal protection with automatic reset, protection IP 20, class B.

Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process.

The coil has two 1/2 inch BSP internal connections and 1/8 inch BSP air vent and drain.

The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

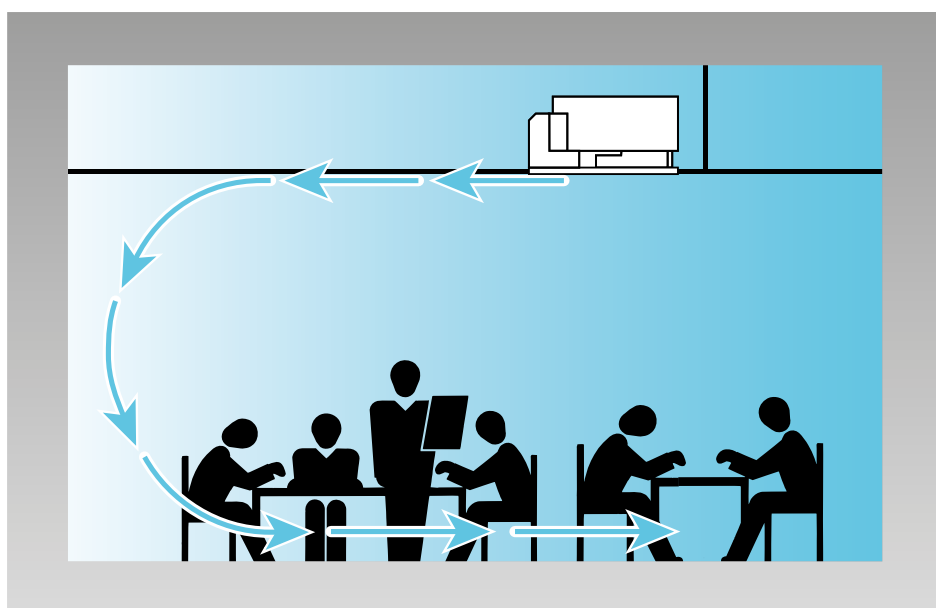
The connection side cannot be changed on site.

Condensate collection tray: made from plastic with an “L”-shape fitted on the inner casing; the tray is insulated with 3 mm polyolefin (PO) foam (class M1).

The outside diameter of the condensate discharge pipe is 15 mm

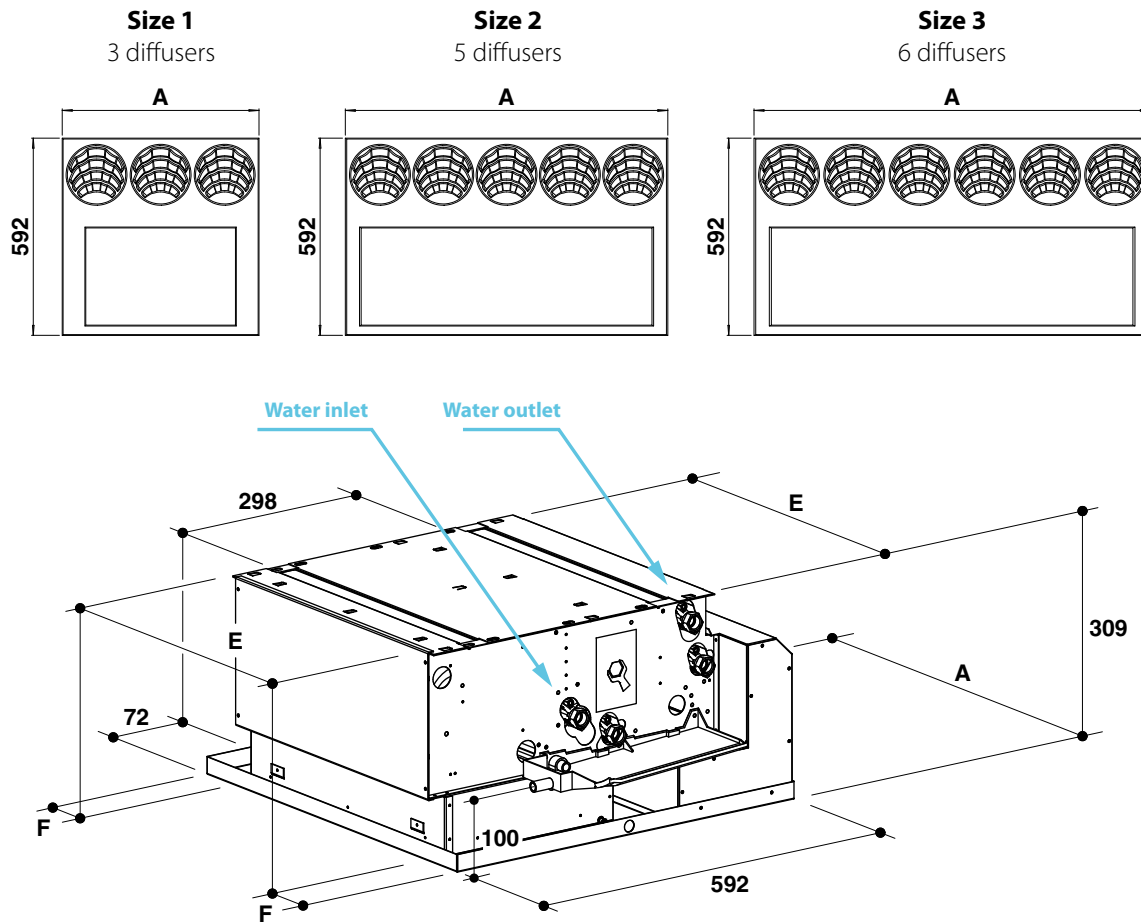
Round diffuser: the units are supplied with round diffusers suitably designed to generate an airflow with “coanda” effect.

The direction of diffuser air flow can be adjusted on site.



The “coanda” effect creates excellent circulation of the air inside the room.

DIMENSIONS, WEIGHT, WATER CONTENT



Dimension (mm)

Model	1	2	3
A	592	970	1192
E	454	884	1099
F	78,0	43,0	46,5
W	750	1130	1350

Weight (kg)

		Weight with packaging			Weight without packaging		
ROWS	Model	1	2	3	1	2	3
	3	18	34	44	16	33	42
	3+1	20	40	51	19	38	48
	3+2	23	46	58	22	43	54
	4	20	37	48	18	35	45
	4+1	23	42	54	21	40	51

Water content (litres)

		1	2	3
ROWS	3	0,6	1,3	1,7
	4	0,8	1,7	2,4
	+1	0,2	0,4	0,5
	+2	0,4	0,8	1,0

Units with 3 and 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model		CCN 13						CCN 23						CCN 33					
		1 (E)	2 (E)	3	4	5 (E)	6	1 (E)	2 (E)	3	4 (E)	5	6	1 (E)	2	3 (E)	4 (E)	5	6
		MIN	MED			MAX		MIN	MED		MAX			MIN		MED	MAX		
Speed																			
Air flow	m ³ /h	140	180	220	245	280	305	200	240	305	380	470	560	290	360	440	540	620	680
Cooling total emission (E)	kW	0,86	1,04	1,23	1,32	1,45	1,54	1,35	1,59	1,94	2,33	2,75	3,15	1,94	2,34	2,80	3,28	3,68	3,97
Cooling sensible emission (E)	kW	0,64	0,79	0,95	1,02	1,13	1,21	0,98	1,16	1,43	1,73	2,07	2,40	1,41	1,71	2,07	2,45	2,76	2,99
Heating (E)	kW	0,91	1,12	1,34	1,45	1,62	1,75	1,33	1,59	1,96	2,38	2,86	3,29	1,91	2,32	2,80	3,34	3,77	4,07
Heating - Water 70-60 °C	kW	1,84	2,26	2,71	2,94	3,29	3,54	2,68	3,20	3,95	4,79	5,77	6,64	3,85	4,67	5,65	6,73	7,61	8,20
Dp Cooling (E)	kPa	2,4	3,3	4,5	5,1	6,1	6,8	2,9	3,9	5,5	7,6	10,3	13,1	6,4	8,8	12,1	16,2	19,8	22,7
Dp Heating (E)	kPa	2,1	3,0	4,2	4,8	5,9	6,7	2,3	3,1	4,5	6,4	8,8	11,3	5,1	7,1	9,9	13,5	16,8	19,1
Fan (E)	W	16	22	32	38	49	66	24	27	34	44	57	71	27	33	42	59	72	84
Sound power (E)	dB(A)	35	41	46	49	52	55	33	36	42	48	54	57	35	41	46	52	55	57
Sound pressure (*)	dB(A)	26	32	37	40	43	46	24	27	33	39	45	48	26	32	37	43	46	48

Model		CCN 14						CCN 24						CCN 34					
		1 (E)	2 (E)	3	4	5 (E)	6	1 (E)	2 (E)	3	4 (E)	5	6	1	2 (E)	3	4 (E)	5 (E)	6
		MIN	MED			MAX		MIN	MED		MAX				MIN		MED	MAX	
Speed																			
Air flow	m ³ /h	140	180	220	245	280	305	200	240	305	380	470	560	290	360	440	540	620	680
Cooling total emission (E)	kW	0,95	1,17	1,40	1,52	1,69	1,80	1,42	1,69	2,09	2,53	3,03	3,51	2,02	2,46	2,96	3,50	3,95	4,28
Cooling sensible emission (E)	kW	0,69	0,86	1,04	1,13	1,26	1,36	1,02	1,21	1,51	1,84	2,22	2,59	1,45	1,78	2,15	2,57	2,91	3,17
Heating (E)	kW	0,95	1,18	1,43	1,56	1,74	1,88	1,41	1,69	2,12	2,60	3,17	3,71	1,97	2,40	2,92	3,40	3,97	4,33
Heating - Water 70-60 °C	kW	1,92	2,37	2,89	3,14	3,52	3,80	2,82	3,40	4,25	5,22	6,37	7,46	3,96	4,83	5,87	7,04	8,00	8,72
Dp Cooling (E)	kPa	4,7	6,6	9,2	10,6	12,9	14,6	4,4	6,0	8,6	12,1	16,8	21,7	4,7	6,7	9,3	12,6	15,5	17,9
Dp Heating (E)	kPa	3,7	5,4	7,7	8,9	10,8	12,4	3,5	4,9	7,2	10,4	14,7	19,4	3,7	5,3	7,4	10,2	12,7	14,8
Fan (E)	W	16	22	32	38	49	66	24	27	34	44	57	71	27	33	42	59	72	84
Sound power (E)	dB(A)	35	41	46	49	52	55	33	36	42	48	54	57	35	41	46	52	55	57
Sound pressure (*)	dB(A)	26	32	37	40	43	46	24	27	33	39	45	48	26	32	37	43	46	48

(E) = EUROVENT certified performance.

MIN-MED-MAX = Standard connected speeds.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Units with 1 row additional coil

4 pipe units The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +65 °C E.W.T. +55 °C L.W.T.

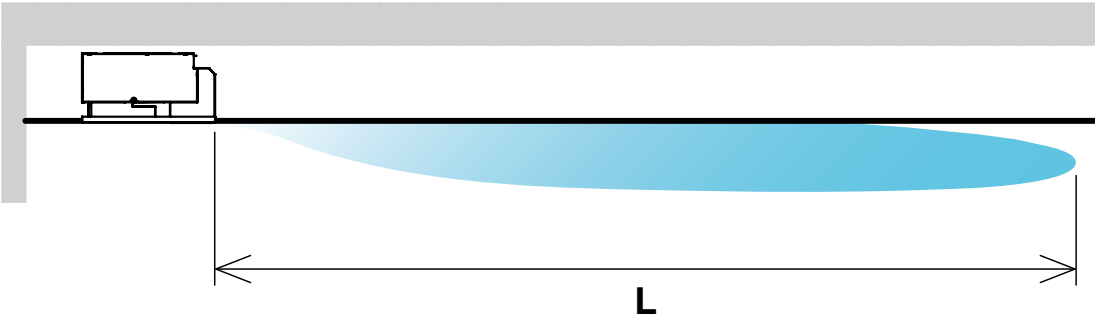
Model	CCN 13+1						CCN 23+1						CCN 33+1					
	1 (E)	2 (E)	3	4	5 (E)	6	1 (E)	2 (E)	3	4 (E)	5	6	1 (E)	2	3 (E)	4 (E)	5	6
Speed	MIN	MED			MAX		MIN	MED		MAX			MIN		MED	MAX		
Air flow m ³ /h	140	180	220	245	280	305	200	240	305	380	470	560	290	360	440	540	620	680
Cooling total emission (E) kW	0,86	1,04	1,23	1,32	1,45	1,54	1,35	1,59	1,94	2,33	2,75	3,15	1,94	2,34	2,80	3,28	3,68	3,97
Cooling sensible emission (E) kW	0,64	0,79	0,95	1,02	1,13	1,21	0,98	1,16	1,43	1,73	2,07	2,40	1,41	1,71	2,07	2,45	2,76	2,99
Heating (E) kW	0,81	0,95	1,10	1,17	1,28	1,36	1,31	1,50	1,77	2,06	2,39	2,69	1,86	2,17	2,52	2,89	3,19	3,41
Dp Cooling (E) kPa	2,4	3,3	4,5	5,1	6,1	6,8	2,88	3,87	5,50	7,56	10,26	13,07	6,4	8,8	12,1	16,2	19,8	22,7
Dp Heating (E) kPa	1,3	1,7	2,2	2,5	2,9	3,2	0,73	0,94	1,25	1,63	2,11	2,61	1,6	2,1	2,7	3,5	4,1	4,7
Fan (E) W	16	22	32	38	49	66	24	27	34	44	57	71	27	33	42	59	72	84
Sound power (E) dB(A)	35	41	46	49	52	55	33	36	42	48	54	57	35	41	46	52	55	57
Sound pressure (*) dB(A)	26	32	37	40	43	46	24	27	33	39	45	48	26	32	37	43	46	48

(E) = EUROVENT certified performance.

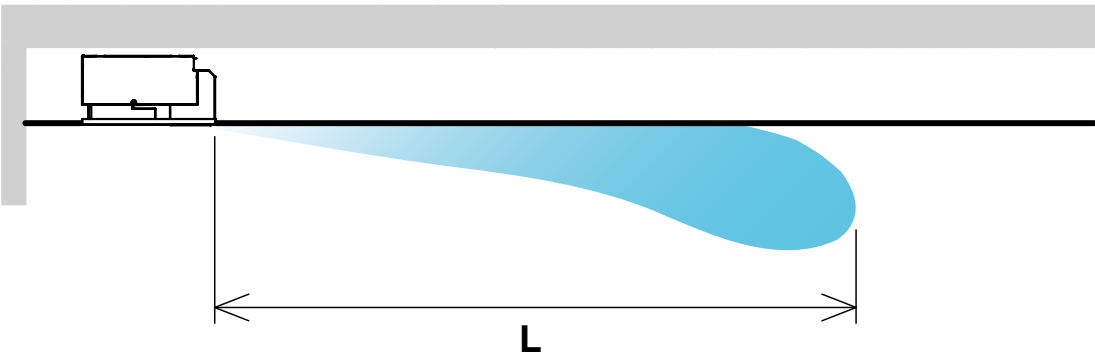
MIN-MED-MAX = Standard connected speeds.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

C1 heating



C2 cooling



Model		CCN 1	CCN 2	CCN 3
Installation height (m)	Min.	2,6	2,6	2,6
	Max.	3,2	3,2	3,5

Model		CCN 1						CCN 2						CCN 3					
Speed		1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Air throw L (m)	C1	3,6	4,5	5,8	6,3	6,8	7,2	4	5	6,1	7	8	9	4,5	5,2	6,3	7,5	8,8	9,5
	C2	3	3,6	4,6	5	5,4	5,7	3,2	4	4,8	5,6	6,4	7,2	3,6	4,1	5	6	7	7,6

Other available versions

CCN-H The version CCN-H is available as a variant. It is equipped with a low air intake grid and a frontal air outlet grid that is mounted on a telescopic plenum. This version produces the same emissions as those of the CCN standard versions and it lets also the air intake from an ambient to an another one.



Wall electronic controls

Standard models	
WM-3V	3 speed control
WM-T	3 speed control with electronic thermostat and manual summer/winter switch
WM-TQR	3 speed control with electronic thermostat and centralized/manual summer/winter switch
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-503	Automatic speed control with electronic thermostat to be mounted in the 503 box (to be used with UP-503 only)
T2T	Electromechanical thermostat with summer/winter switch (only for 2 pipe units)
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit
UP-503	Power unit for WM-503 remote controls, not fitted on the unit

Electronic controls for MB boards

MB-M	MB electronic board fitted on the unit
MB-S	MB electronic board supplied with separate packaging
T-MB	Wall control (to be used with MB board only)
RS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Sabianet management system for a network of fan coils

Sabianet	Sabianet (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

Carisma Coanda-ECM

One Way Cassette Fan Coil Unit with EC Brushless Electronic Motor and Inverter Board



The **Carisma Coanda-ECM** one way Cassette fan coil units are available in **3 sizes**.

Thanks to the particular air handling section, the units generate an airflow **with a “coanda” effect**.

The variable flow rate enhances the product’s main virtues: **excellent air circulation**, with a high degree of comfort, especially during the summer months.



Every unit is supplied with an electronic motor with extremely low energy consumption, **brushless** and **sensorless** type, controlled by an inverter board.

By continuously varying the air flow, the ambient temperature can be more precisely monitored and regulated, **saving over 50%** of the electricity used and reducing the average perceived noise level.

Every unit can be supplied with 1 coil (2 pipe system) and possibly an electric heating element, or with 2 coils (4 pipe system) with one or two rows heating coil, for low temperature hot water.

Fresh air may be mixed with room air.

A **condensate pump** may also be supplied as an accessory.

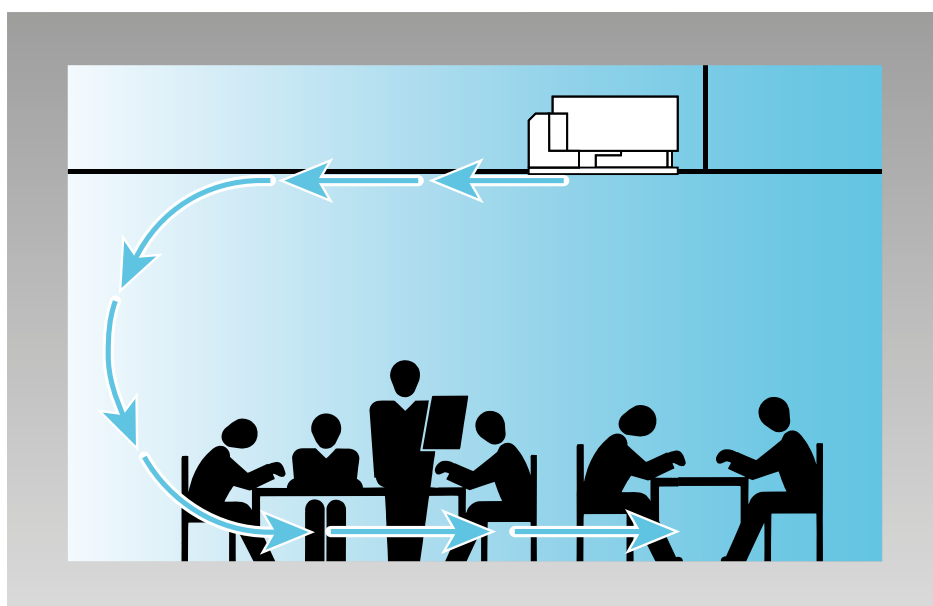
In addition to the conventional temperature and speed control systems, there is also the possibility to **control operation** of each unit through a single remote control with central supervisor software installed on a PC (**called Sabianet**).

For the technical characteristics of the various components refer to Carisma COANDA Fan Coil Unit, except for Electronic motor:

Three phase permanent magnet brushless electronic motor that is controlled with current reconstructed according to a **BLAC** sinusoidal wave.

The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply.

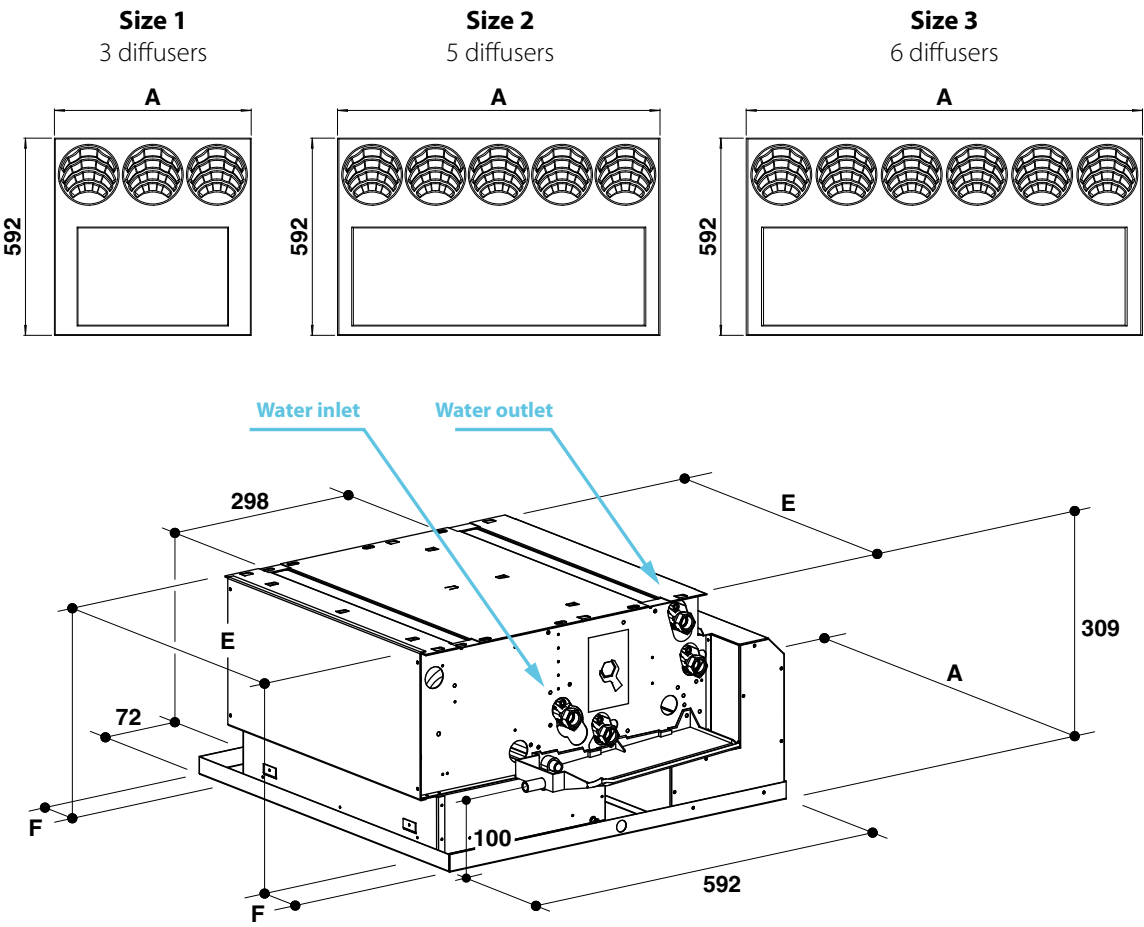
The electric power supply required for the machine is therefore single-phase with voltage of **230 - 240 V** and frequency of **50 - 60 Hz**.



The "coanda" effect creates excellent circulation of the air inside the room.

Carisma Coanda ECM

DIMENSIONS, WEIGHT, WATER CONTENT



Dimension (mm)

Model	1	2	3
A	592	970	1192
E	454	884	1099
F	78,0	43,0	46,5
W	750	1130	1350

Weight (kg)

		Weight with packaging			Weight without packaging		
Model		1	2	3	1	2	3
ROWS	3	18	34	44	16	33	42
	3+1	20	40	51	19	38	48
	3+2	23	46	58	22	43	54
	4	20	37	48	18	35	45
	4+1	23	42	54	21	40	51

Water content (litres)

Model		1	2	3
ROWS	3	0,6	1,3	1,7
	4	0,8	1,7	2,4
	+1	0,2	0,4	0,5
	+2	0,4	0,8	1,0

Units with 3 and 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

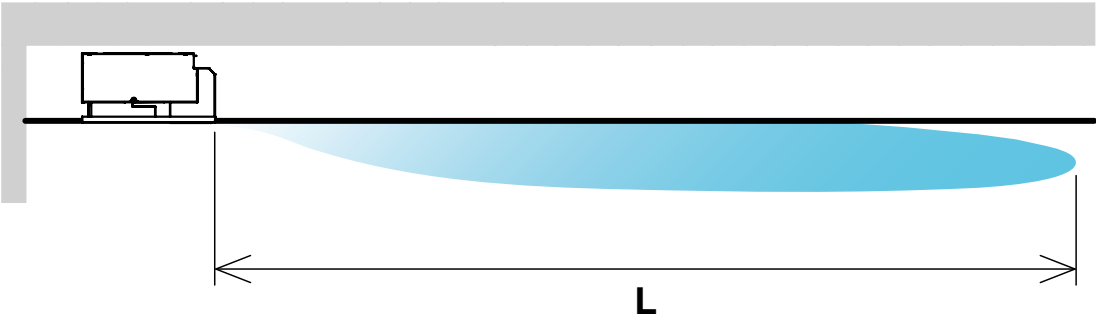
Model	CCN-ECM 13					CCN-ECM 23					CCN-ECM 33				
Inverter Power (V)	1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)
Speed	MIN		MED		MAX	MIN		MED		MAX	MIN		MED		MAX
Air flow m ³ /h	130	165	205	250	295	215	295	370	450	540	275	345	430	525	620
Cooling total emission (E) kW	0,81	0,99	1,17	1,35	1,53	1,45	1,90	2,29	2,71	3,12	1,86	2,30	2,76	3,25	3,71
Cooling sensible emission (E) kW	0,61	0,75	0,90	1,05	1,21	1,06	1,41	1,71	2,05	2,37	1,36	1,69	2,04	2,42	2,79
Heating (E) kW	0,85	1,05	1,26	1,47	1,70	1,43	1,90	2,32	2,78	3,21	1,82	2,26	2,74	3,27	3,77
Heating - Water 70-60 °C kW	1,72	2,12	2,54	2,98	3,44	2,88	3,82	4,67	5,60	6,49	3,65	4,54	5,53	6,59	7,61
Dp Cooling (E) kPa	2,1	3,0	4,0	5,2	6,5	3,2	5,2	7,3	9,8	12,6	5,8	8,4	11,7	15,7	19,8
Dp Heating (E) kPa	1,9	2,7	3,7	4,9	6,4	2,6	4,3	6,1	8,4	10,9	4,6	6,8	9,6	13,0	16,8
Fan (E) W	8	11	14	21	29	8	11	16	24	37	10	13	19	29	42
Sound power (E) dB(A)	35	41	46	51	55	34	40	46	52	56	36	42	48	54	58
Sound pressure (*) dB(A)	26	32	37	42	46	25	31	37	43	47	27	33	39	45	49

Model	CCN-ECM 14					CCN-ECM 24					CCN-ECM 34				
Inverter Power (V)	1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)
Speed	MIN		MED		MAX	MIN		MED		MAX	MIN		MED		MAX
Air flow m ³ /h	130	165	205	250	295	215	295	370	450	540	275	345	430	525	620
Cooling total emission (E) kW	0,90	1,11	1,33	1,55	1,78	1,54	2,04	2,49	2,98	3,46	1,94	2,41	2,92	3,46	3,98
Cooling sensible emission (E) kW	0,66	0,81	0,98	1,16	1,35	1,11	1,48	1,82	2,19	2,56	1,40	1,75	2,13	2,54	2,94
Heating (E) kW	0,89	1,10	1,34	1,58	1,85	1,52	2,05	2,53	3,07	3,62	1,87	2,34	2,85	3,42	3,97
Heating - Water 70-60 °C kW	1,78	2,22	2,68	3,19	3,69	3,04	4,11	5,08	6,17	7,27	3,75	4,70	5,74	6,89	8,00
Dp Cooling (E) kPa	4,1	5,9	8,1	10,9	13,9	5,0	8,2	11,6	15,9	20,8	4,3	6,4	8,9	12,1	15,5
Dp Heating (E) kPa	3,3	4,8	6,7	9,2	11,8	4,0	6,8	9,9	13,9	18,5	3,4	5,0	7,1	9,8	12,7
Fan (E) W	8	11	14	21	29	8	11	16	24	37	10	13	19	29	42
Sound power (E) dB(A)	35	41	46	51	55	34	40	46	52	56	36	42	48	54	58
Sound pressure (*) dB(A)	26	32	37	42	46	25	31	37	43	47	27	33	39	45	49

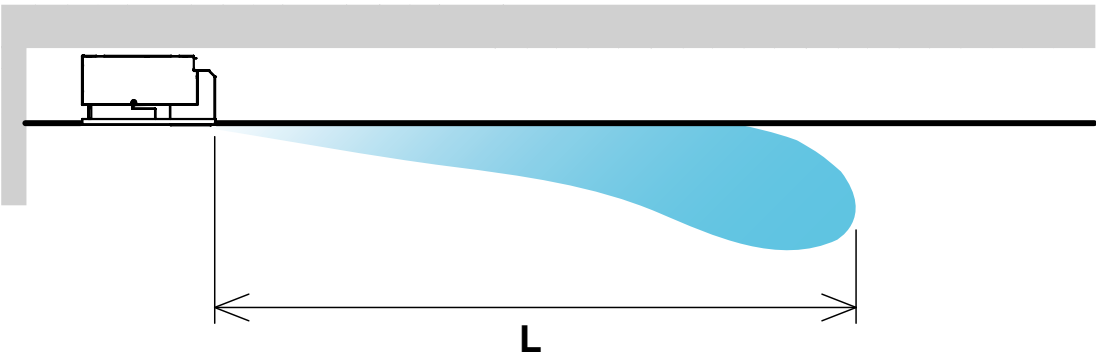
(E) = EUROVENT certified performance.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

C1 heating



C2 cooling



Model		CCN 1	CCN 2	CCN 3
Installation height (m)	Min.	2,6	2,6	2,6
	Max.	3,2	3,2	3,5

Model		CCN 1						CCN 2						CCN 3					
Speed		1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Air throw L (m)	C1	3,6	4,5	5,8	6,3	6,8	7,2	4	5	6,1	7	8	9	4,5	5,2	6,3	7,5	8,8	9,5
	C2	3	3,6	4,6	5	5,4	5,7	3,2	4	4,8	5,6	6,4	7,2	3,6	4,1	5	6	7	7,6

Other available versions

CCN-ECM-H The version CCN-ECM-H is available as a variant. It is equipped with a low air intake grid and a frontal air outlet grid that is mounted on a telescopic plenum. This version produces the same emissions as those of the CCN-ECM standard versions and it lets also the air intake from an ambient to an another one.



Wall electronic controls

Versione Standard	
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-S-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and liquid crystal display
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit

Electronic controls for MB boards

MB-ECM-M	MB electronic board fitted on the unit
MB-ECM-S	MB electronic board supplied with separate packaging
T-MB	Wall control (to be used with MB board only)
RS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Sabianet management system for a network of fan coils	
Sabianet	Hardware/software supervisory system (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX system

KNX Systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

Carisma Fly

High Wall Fan Coil Unit



Carisma Fly is the high wall fan coil unit **designed and manufactured in Italy** by Sabiana, in 4 sizes and many different models.

Fly is easy to install like a standard fan coil: without decreasing the emission and without any extra frame, 2 way or 3 way valves and condensate pump can be mounted into the casing.

The **modern and appealing** design of the unit in RAL 9003 colour allows the use of Fly in any environment.

Fly is **available with standard AC motors or low energy EC motors** and in the following versions:

with wired wall control, infra-red remote control, MB electronic board for Modbus management and electric heating coil.

The units are for 2 pipe installations only.

All the Fly models perform very low electric consumption and extremely quite sound levels according to the request of today's new projects.



Versions: all versions are available without valves, with 2 way valve or with 3 way valve fitted in the unit.

There are four sizes available in the following versions:

CVP	without infra-red remote control and without valve;
CVP-2V	without infra-red remote control with fitted 2 way valve;
CVP-3V	without infra-red remote control with fitted 3 way valve.
CVP-T	with infra-red remote control and without valve;
CVP-T-2V	with infra-red remote control with fitted 2 way valve;
CVP-T-3V	with infra-red remote control with fitted 3 way valve.
CVP-MB	with MB board and without valve;
CVP-MB-2V	with MB board with fitted 2 way valve;
CVP-MB-3V	with MB board with fitted 3 way valve.

Casing: made of auto-extinguishing ABS UL94 HB plastic RAL 9003 with high specifications and great resistance to aging. The diffusion flap is adjusted manually in CVP model, with remote control in CVP-T model and with T-MB control in CVP-MB model.

Filter: washable-regenerable synthetic filter, readily accessible.

Fan assembly: made of plastic tangential fan.

Electric motor: the motor is for single phase supply and has six speeds, three of which are connected, with capacitor. The motor is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings. Internal thermal protection with automatic reset, protection IP 20, class B. The speeds connected in the factory are indicated by "MIN, MED and MAX" in the following tables.

Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process.

The coil has two 1/2 inch BSP internal connections and 1/8 inch BSP air vent and drain.

The heat exchanger is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

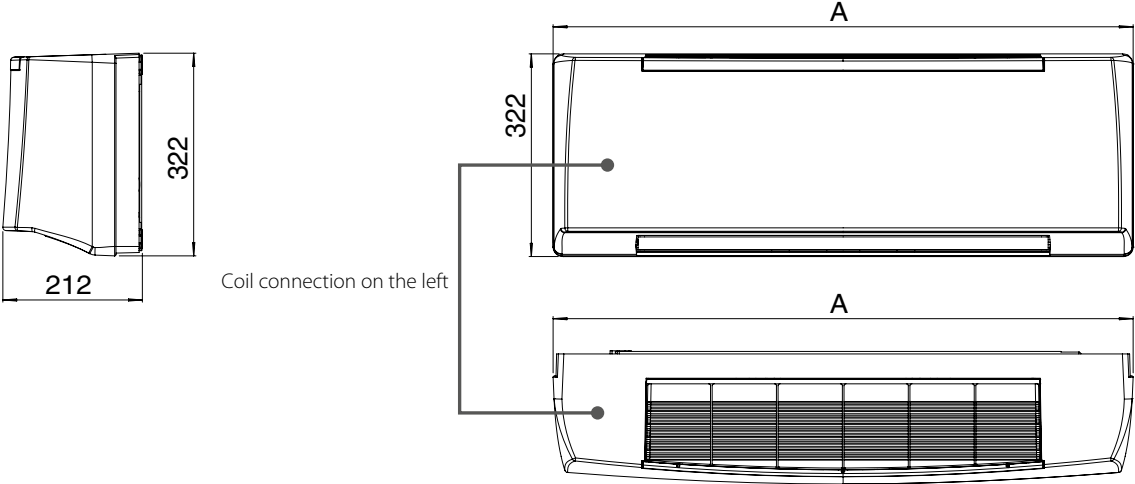
The connections are on the left side facing the unit only.

Condensate collection tray: made from polypropylene; the outside diameter of the condensate discharge pipe is 16mm.

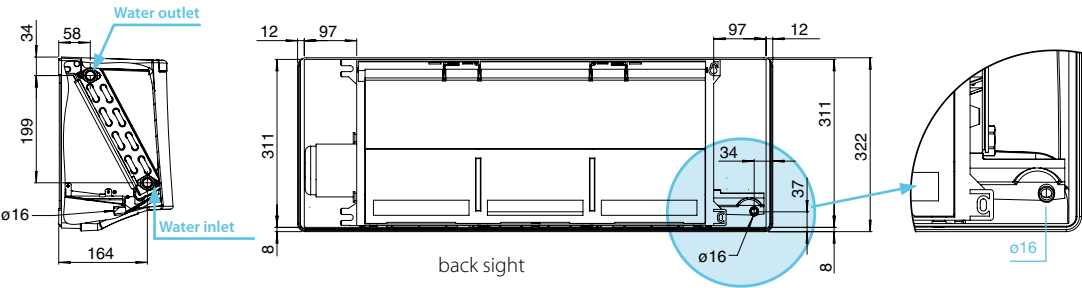
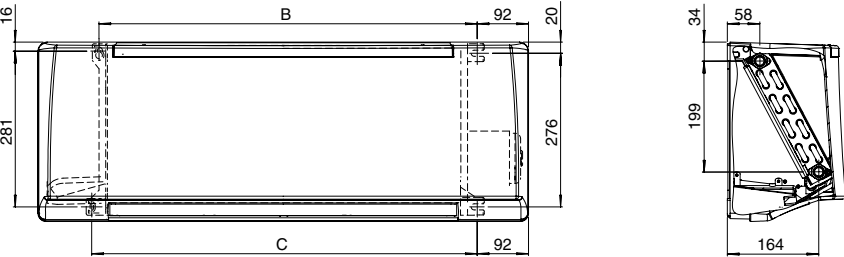
Installation template: a cardboard installation template is supplied with every unit to help the mounting on the wall.

Carisma Fly

DIMENSIONS, WEIGHT, WATER CONTENT



Mounting dimensions



Model	Weight without valves Kg	Weight with valves Kg	Water content Litres	A mm	B mm	C mm
1	10	11	0,85	880	678	691
2	10	11	0,85	880	678	691
3	13	14	1,28	1185	983	996
4	13	14	1,28	1185	983	996

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model		1						2					
Speed		1 (E)	2 (E)	3	4 (E)	5	6	1 (E)	2	3 (E)	4	5 (E)	6
		MIN	MED		MAX			MIN		MED		MAX	
Air flow	m ³ /h	205	270	340	375	470	500	250	305	365	400	480	545
Cooling total emission (E)	kW	1,23	1,49	1,74	1,85	2,13	2,20	1,42	1,62	1,82	1,93	2,16	2,32
Cooling sensible emission (E)	kW	0,91	1,13	1,34	1,44	1,70	1,77	1,06	1,23	1,41	1,51	1,73	1,89
Heating (E)	kW	1,34	1,68	2,02	2,18	2,58	2,71	1,58	1,85	2,13	2,29	2,62	2,88
Dp Cooling (E)	kPa	4,8	6,8	9,0	10,1	12,9	13,8	6,2	7,9	9,8	10,8	13,2	15,1
Dp Heating (E)	kPa	4,5	6,8	9,4	10,8	14,7	15,9	6,1	8,1	10,4	11,8	15,1	17,8
Fan (E)	W	12	14	17	18	24	30	12	14	18	20	24	32
Sound power Lw (E)	dB(A)	35	41	46	48	52	53	39	43	47	49	53	55
Sound pressure Lp (*)	dB(A)	26	32	37	39	43	44	30	34	38	40	44	46

Model		3						4					
Speed		1 (E)	2 (E)	3	4 (E)	5	6	1	2 (E)	3	4 (E)	5	6 (E)
		MIN	MED		MAX				MIN		MED		MAX
Air flow	m ³ /h	280	375	480	545	730	780	300	440	500	610	675	790
Cooling total emission (E)	kW	1,87	2,30	2,75	3,00	3,59	3,73	1,97	2,60	2,83	3,23	3,43	3,76
Cooling sensible emission (E)	kW	1,33	1,67	2,03	2,24	2,77	2,90	1,41	1,91	2,10	2,44	2,62	2,93
Heating (E)	kW	1,89	2,37	2,93	3,23	4,04	4,24	2,00	2,73	3,02	3,53	3,80	4,28
Dp Cooling (E)	kPa	11,2	16,2	22,5	26,3	36,4	39,1	14,1	23,0	27,2	34,0	38,5	45,1
Dp Heating (E)	kPa	9,1	13,8	20,1	24,1	35,9	39,2	12,7	22,2	26,7	35,2	40,4	49,8
Fan (E)	W	16	21	26	29	38	46	17	23	27	32	35	48
Sound power Lw (E)	dB(A)	35	40	45	48	55	57	36	43	46	51	54	57
Sound pressure Lp (*)	dB(A)	26	31	36	39	46	48	27	34	37	42	45	48

(E) = EUROVENT certified performance.

MIN-MED-MAX = Standard connected speeds.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Fly models with electric heater

All versions are available without valves, with 2 way valve or with 3 way valve fitted in the unit.
There are four sizes available in the following versions:

CVP-E	without infra-red remote control and without valve;
CVP-E-2V	without infra-red remote control with fitted 2 way valve;
CVP-E-3V	without infra-red remote control with fitted 3 way valve.
CVP-T-E	with infra-red remote control and without valve;
CVP-T-E-2V	with infra-red remote control with fitted 2 way valve;
CVP-T-E-3V	with infra-red remote control with fitted 3 way valve.
CVP-MB-E	with MB electronic board and without valve;
CVP-MB-E-2V	with MB electronic board with fitted 2 way valve;
CVP-MB-E-3V	with MB electronic board with fitted 3 way valve.

According to the control provided, the electrical heater can be used as an alternative or as a supplement to the hot water.

The heater is hermetically sealed and supplied inside the battery pipes and therefore can be only factory mounted.
The electric heaters of the **Fly** units are single phase 230V supply.

Wall electronic controls

CVP version	
WM-3V	3 speed control
WM-T	3 speed control with electronic thermostat and manual summer/winter switch
WM-TQR	3 speed control with electronic thermostat and centralized/manual summer/winter switch
T2T	Electromechanical thermostat with summer/winter switch (only for 2 pipe units)

Electronic controls for MB boards

CVP-MB version	
T-MB	Wall control (to be used with MB board only)
RM-RT03-F	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RS-F	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

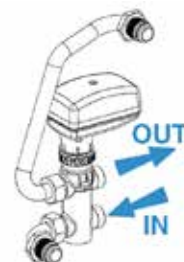
Sabianet management system for a network of fan coils	
Sabianet	Hardware/software supervisory system (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

3 way valve

Control valve kit:
3 way valve, 230V ON-OFF,
with electric motor and mounting kit
with micrometric lockshield valve.



2 way valve

Control valve kit:
2 way valve, ON-OFF,
with electric motor and mounting kit.



Condensate drain pump



Wall or concealed installation kit



Carisma Fly-ECM

High Wall Fan Coil Unit with EC Brushless Electronic Motor and Inverter Board



Carisma Fly is the high wall fan coil unit **designed and manufactured in Italy** by Sabiana, in 4 sizes and many different models.

Fly is easy to install like a standard fan coil: without decreasing the emission and without any extra frame, 2 way or 3 way valves and condensate pump can be mounted into the casing.

The **modern and appealing** design of the unit in RAL 9003 colour allows the use of Fly in any environment.

Fly is **available with low energy EC motors** and in the following versions:

with infra-red remote control, MB electronic board for Modbus management and electric heating coil.

The units are for 2 pipe installations only.

All the Fly models perform very low electric consumption and extremely quite sound levels according to the request of today's new projects.



Versions: all versions are available without valves, with 2 way valve or with 3 way valve fitted in the unit.

There are four sizes available in the following versions:

CVP-ECM	without infra-red remote control and without valve;
CVP-ECM-2V	without infra-red remote control with fitted 2 way valve;
CVP-ECM-3V	without infra-red remote control with fitted 3 way valve.
CVP-ECM-T	with infra-red remote control and without valve;
CVP-ECM-T-2V	with MB board with fitted 2 way valve;
CVP-ECM-T-3V	with infra-red remote control with fitted 3 way valve.
CVP-ECM-MB	with MB board and without valve;
CVP-ECM-MB-2V	with MB board with fitted 2 way valve;
CVP-ECM-MB-3V	with MB board with fitted 3 way valve.

Casing: made of auto-extinguishing ABS UL94 HB plastic RAL 9003 with high specifications and great resistance to aging. The diffusion flap is adjusted manually in CVP-ECM model, with remote control in CVP-ECM-T model and with T-MB control in CVP-ECM-MB model.

Filter: washable-regenerable synthetic filter, readily accessible.

Fan assembly: made of plastic tangential fan.

Electronic motor: three phase permanent magnet brushless electronic motor that is controlled with current reconstructed according to a **BLAC** sinusoidal wave.

The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply.

The electric power supply required for the machine is therefore single-phase with voltage of **230 - 240 V** and frequency of **50 - 60 Hz**.

Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process.

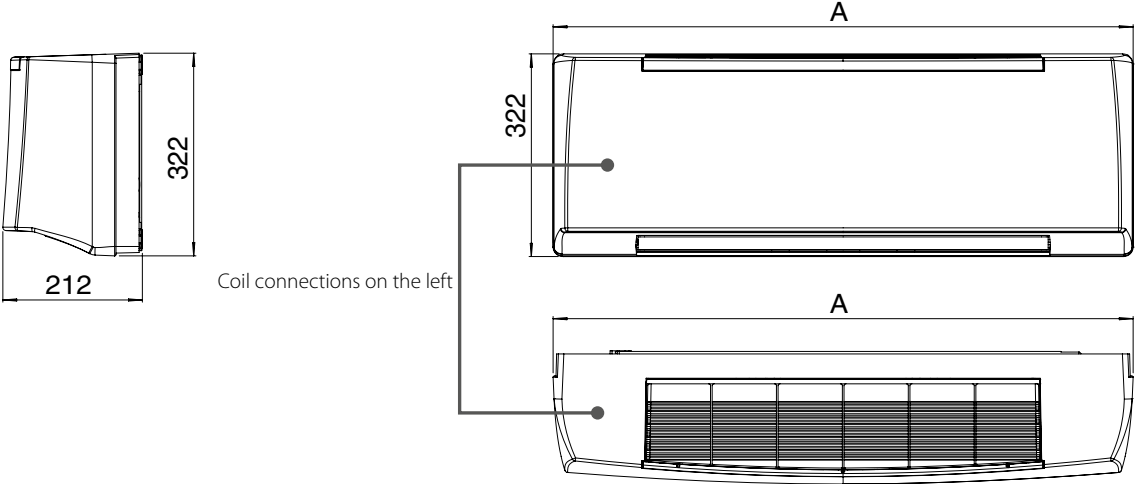
The coil has two 1/2 inch BSP internal connections and 1/8 inch BSP air vent and drain.

The heat exchanger is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

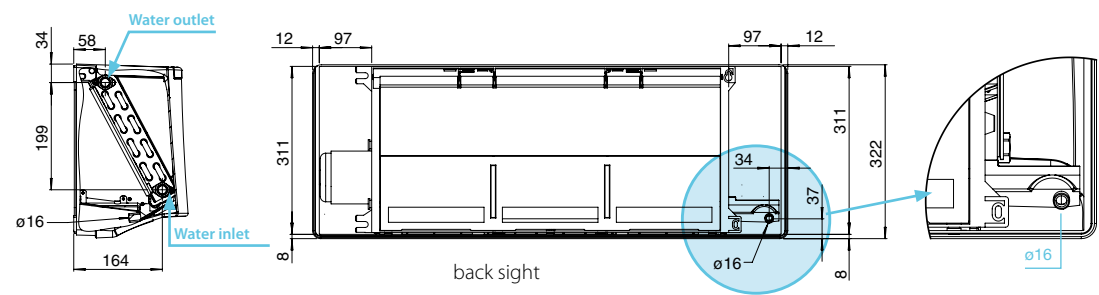
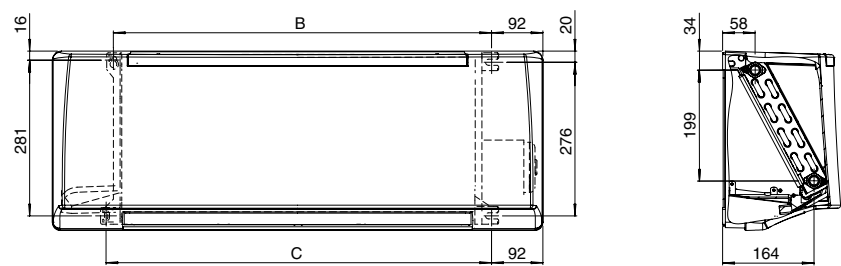
The connections are on the left side facing the unit only.

Condensate collection tray: made from polypropylene; the outside diameter of the condensate discharge pipe is 16 mm.

Installation template: a cardboard installation template is supplied with every unit to help the mounting on the wall.



Mounting dimensions



Model	Weight without valves Kg	Weight with valves Kg	Contenuto acqua Litres	A mm	B mm	C mm
1	10	11	0,85	880	678	691
2	10	11	0,85	880	678	691
3	13	14	1,28	1185	983	996
4	13	14	1,28	1185	983	996

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)

Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model	1					2				
Inverter Power (V)	1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)
Speed	MIN		MED		MAX	MIN		MED		MAX
Air flow m ³ /h	190	240	290	355	415	260	315	375	440	510
Cooling total emission (E) kW	1,16	1,38	1,57	1,80	1,98	1,46	1,66	1,86	2,05	2,24
Cooling sensible emission (E) kW	0,85	1,03	1,19	1,39	1,56	1,09	1,27	1,45	1,63	1,81
Heating (E) kW	1,26	1,53	1,78	2,09	2,35	1,63	1,90	2,18	2,46	2,74
Dp Cooling (E) kPa	5,0	5,9	7,7	9,4	11,2	6,9	8,2	10,1	12,0	14,1
Dp Heating (E) kPa	4,0	5,7	7,5	10,0	12,4	6,4	8,4	10,8	13,4	16,3
Fan (E) W	6	7	9	11	15	7	9	12	16	21
Sound power Lw (E) dB(A)	35	39	46	48	52	40	44	47	51	55
Sound pressure Lp (*) dB(A)	26	30	37	39	43	31	35	38	42	46

Model	3					4				
Inverter Power (V)	1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)
Speed	MIN		MED		MAX	MIN		MED		MAX
Air flow m ³ /h	270	345	420	520	620	375	465	550	665	770
Cooling total emission (E) kW	1,82	2,19	2,52	2,92	3,27	2,33	2,71	3,03	3,41	3,72
Cooling sensible emission (E) kW	1,30	1,59	1,85	2,17	2,48	1,69	2,00	2,27	2,61	2,89
Heating (E) kW	1,83	2,24	2,63	3,11	3,57	2,40	2,85	3,26	3,76	4,20
Dp Cooling (E) kPa	10,7	14,8	19,0	24,8	30,4	16,5	21,6	26,6	32,9	38,7
Dp Heating (E) kPa	8,7	12,5	16,6	22,5	28,8	14,1	19,3	24,4	31,7	38,6
Fan (E) W	6	8	11	15	20	9	12	16	22	30
Sound power Lw (E) dB(A)	37	42	45	49	53	43	46	49	53	57
Sound pressure Lp (*) dB(A)	28	33	36	40	44	34	37	40	44	48

(E) = EUROVENT certified performance.

MIN-MED-MAX = Standard connected speeds.

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Versioni Fly-ECM con resistenza elettrica

all versions are available without valves, with 2 way valve or with 3 way valve fitted in the unit.
There are four sizes available in the following versions:

CVP-ECM-E	without infra-red remote control and without valve;
CVP-ECM-E-2V	without infra-red remote control with fitted 2 way valve;
CVP-ECM-E-3V	without infra-red remote control with fitted 3 way valve.
CVP-ECM-T-E	with infra-red remote control and without valve;
CVP-ECM-T-E-2V	with infra-red remote control with fitted 2 way valve;
CVP-ECM-T-E-3V	with infra-red remote control with fitted 3 way valve.
CVP-ECM-MB-E	with MB electronic board and without valve;
CVP-ECM-MB-E-2V	with MB electronic board with fitted 2 way valve;
CVP-ECM-MB-E-3V	with MB electronic board with fitted 3 way valve.

The heater is hermetically sealed and supplied inside the battery pipes and therefore can be only factory mounted.
The electric heaters of the **Fly-ECM** units are single phase 230V supply.

Electronic controls for MB boards

CVP-ECM-MB version	
T-MB	Wall control (to be used with MB board only)
RS-RT03-F	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RS-F	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Wall control	
WM-S-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and liquid crystal display

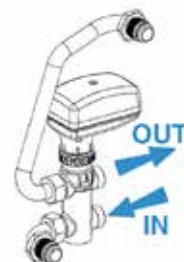
Sabianet management system for a network of fan coils	
Sabianet	Hardware/software supervisory system (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

3 way valve

Control valve kit:
3 way valve, 230V ON-OFF,
with electric motor and mounting kit
with micrometric lockshield valve.



2 way valve

Control valve kit:
2 way valve, ON-OFF,
with electric motor and mounting kit.



Condensate drain pump



Wall or concealed installation kit



Built-in electronic controls

for Fan Coils with Asynchronous Motor

for Carisma CRC - CRT - CRR versions with casing



CB



CB-T



CB-C



CB-AUT



CB-IAQ



CB-R-IAQ



CB-AUT-IAQ

Functions	Identification						
	CB	CB-T	CB-C	CB-AUT	CB-IAQ	CB-R-IAQ	CB-AUT-IAQ
ON-OFF switch	✓	✓	✓	✓	✓	✓	✓
ON-OFF switch for Crystall electrostatic filter or electric heater					✓	✓	✓
Manual 3 speed switch	✓	✓	✓	✓	✓	✓	✓
Manual/Automatic 3 speed selection				✓			✓
Summer/Winter switch		✓		✓		✓	✓
Remote centralized Summer/Winter switch or by an automatic change-over fitted on the water pipe			✓	✓		✓	✓
Automatic Summer/Winter switch with neutral zone for 4 pipe installation with 2 valves				✓			✓
Room thermostat for fan control (ON-OFF)		✓	✓	✓		✓	✓
Room thermostat for 1 valve control (2 pipe installation)		✓	✓	✓		✓	✓
Room thermostat for 2 valve control (4 pipe installation)		✓	✓	✓		✓	✓
Simultaneous thermostatic control of the valves and fan				✓			✓
Room thermostat for chilled water valve (SUMMER) and electric heater (WINTER) control (in winter only the electric heater is working)		✓	✓	✓		✓	✓
Room thermostat for fan and electric heater control (not for Crystall)				✓		✓	✓
Installation of electronic low temperature cut-out thermostat (TME)			✓			✓	
Installation of bimetallic low temperature cut-out thermostat (TMM)		✓					
Installation of electronic low temperature cut-out thermostat (NTC)				✓			✓

Wall electronic controls

for Fan Coils with Asynchronous Motor

for all Carisma - SkyStar - Maestro Range



WM-AU



WM-T



WM-TQR



T-MB



WM-503



T2T



WM-3V

Functions	Identification						
	WM-3V	WM-T	WM-TQR	WM-AU	WM-503	T-MB	T2T
ON-OFF switch	✓	✓	✓	✓	✓	✓	✓
ON-OFF switch for Crystall electrostatic filter or electric heater			✓	✓		✓	
Manual 3 speed switch	✓	✓	✓	✓	✓	✓	✓
Manual/Automatic 3 speed selection				✓	✓	✓	
Summer/Winter switch		✓	✓	✓	✓	✓	✓
Remote centralized Summer/Winter switch or by an automatic change-over fitted on the water pipe			✓	✓		✓	
Automatic Summer/Winter switch with neutral zone for 4 pipe installation with 2 valves				✓	✓	✓	
Room thermostat for fan control (ON-OFF)		✓	✓	✓	✓	✓	✓
Room thermostat for 1 valve control (2 pipe installation)		✓	✓	✓	✓	✓	✓
Room thermostat for 2 valve control (4 pipe installation)		✓	✓	✓	✓	✓	
Simultaneous thermostatic control of the valves and fan		✓	✓	✓	✓	✓	✓
Room thermostat for chilled water valve (SUMMER) and electric heater (WINTER) control (in winter only the electric heater is working)		✓	✓	✓	✓	✓	
Room thermostat for fan and electric heater control (not for Crystall)			✓	✓		✓	
Installation of bimetallic low temperature cut-out thermostat (TMM)		✓					
Installation of electronic low temperature cut-out thermostat (NTC)			✓	✓	✓	✓	

NOTA: WM-AU and T-MB controls can be used with UP-AU power unit only, whereas the WM-503 control can be used with the UP-503 power unit only.

Another option available for the serial communication between the units is the possibility to connect up to 60 Carisma and SkyStar units in series (the maximum length of the connection cable must not exceed 800 m) and manage them with just one **wall mounted intelligent PSM-DI controller**.

The wall mounted controller can be used to set the operating mode for each individual unit connected, display the operating conditions of each individual unit, and set the ON/OFF time sets for each day of the week.

If **more than 60 units need to be connected, two or more** wall mounted intelligent controllers must be used. Each unit must have a **MB board**.

PSM-DI panel

Multifunction control panel with Asynchronous Motor and with EC Brushless Electronic Motor and Inverter Board



Sabianet

management system for a network of fan coils
for all the Carisma and SkyStar Range

Sabianet is a centralised control system for networks of MB fan coils, based on software that runs **on Linux operating system** (the program is provided pre-installed on a PC).

The Sabianet software **offers a practical and economical solution** for managing the fan coils, with the simple click of the mouse.

The main characteristics include simplicity of use, an extremely complete and functional weekly program, and the possibility to access the historical operating data for each individual unit connected.



pc



Sabianet screenshot

MB board for all the Carisma and SkyStar Range

The MB boards, besides being used with **T-MB** controls, with infra-red remote control units, with **PSM-DI** and with the units managed with **Sabianet** software, can also be interfaced with BSM supervisory systems that use **Modbus** communication protocol.



KNX bus system

The KNX bus system is a building automation standard for controlling, managing and monitoring a wide range of products for:

- heating, cooling, ventilation
- lighting
- alarm systems
- audio and video systems
- electricity and gas



Since 2016, Sabiana is a certified member of the KNX association and the certified products can be added to this system in compliance with the tests carried out at KNX laboratories.

KNX devices

The Sabiana WM-KNX room thermostat controls and adjusts the temperature of a room or area in a building. In combination with one or several UP-KNX power units, the thermostat is able to control the operation of terminal units such as fan coils. The appliance consists of an LCD display with adjustable backlight and a sensor for measuring the room temperature.

WM-KNX is suitable for installation in a recessed wall box.

Recessed thermostat

WM-KNX
Code 9066679



with rectangular plate



With square plate



Power unit

UP-KNX
Code 9066680



Electronic controls

for Fan Coil Units with EC Brushless Electronic Motor
and Inverter Board



CB-T-ECM

for CRC-ECM and CRT-ECM versions



CB-T-ECM-IAQ

for CRC-ECM version



WM-AU

for CRC-ECM, CRT-ECM, CRS-ECM,
CCN-ECM and SK-ECM versions



T-MB

for CRC-ECM, CRT-ECM, CRS-ECM,
CCN-ECM and SK-ECM versions



WM-S-ECM

for CRC-ECM, CRT-ECM, CRS-ECM,
CCN-ECM and SK-ECM versions

for all the Carisma ECM and SkyStar ECM Range

RT03 infra-red remote control

T-MB wall mounted control

PSM-DI multifunction control

Sabianet management system for a network of fan coils

Controls for KNX systems

for the characteristics, see previous pages

Functions	Identification				
	built-in		wall		
	CB-T-ECM	CB-T-ECM-IAQ	WM-AU	T-MB	WM-S-ECM
ON-OFF switch	✓	✓	✓	✓	✓
Room thermostat for chilled water valve (SUMMER) and electric heater (WINTER) control (in winter only the electric heater is working)		✓	✓	✓	
Manual 3 speed switch or automatic continuous speed control	✓	✓	✓	✓	✓
Summer/Winter switch	✓	✓	✓	✓	✓
Continuous speed control based on the difference between ambient temperature and Set temperature (speed switch in Auto position)	✓	✓	✓	✓	✓
Remote centralized Summer/Winter switch or by an automatic change-over fitted on the water pipe			✓	✓	
Room thermostat for fan control (ON-OFF)	✓	✓	✓	✓	✓
Room thermostat for 1 valve control (2 pipe installation)	✓	✓	✓	✓	✓
Room thermostat for 2 valve control (4 pipe installation)	✓	✓	✓	✓	✓
Simultaneous thermostatic control of the valves and fan	✓	✓	✓	✓	✓
Room thermostat for fan and electric heater control (not for Crystall)		✓	✓	✓	
Installation of electronic low temperature cut-out thermostat (NTC)	✓	✓	✓	✓	✓

Accessories

for Carisma range

CRC/CRC-ECM - CRT-ECM - CRR-ECM - CRSL/CRSL-ECM - CCN/CCN-ECM

All Sabiana Carisma fan coils, whether with **Asynchronous Motor** or with **Electronic Motor and Inverter**, can be equipped with a **very large series of Accessories**, such as, to name only the most common, numerous types of regulating valves, sturdy support feet, rear cover panel for installing against glass, additional electrical resistances, auxiliary condensation drain pump, outdoor air intake louvre, inlet and outlet ducts and grills for ducted installations.

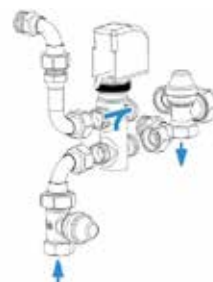


Accessories		Identification				
		CRC CRC-ECM	CRT-ECM	CRR-ECM	CRSL CRSL-ECM	CCN CCN-ECM
Main coil 3 way valve	VBP	✓	✓	✓	✓	✓
Additional coil 3 way valve	VBA	✓	✓		✓	✓
Simplified kit for 3 way valve for main and additional coil (concealed model only)	VS	✓	✓		✓	✓
3 way double valve kit for 4 tube installation and single coil	V3M4X2 V3S4X2	✓	✓		✓	✓
2 way valve for main and additional coil	V2	✓	✓	✓	✓	✓
Balancing valves independent from the system pressure for main and additional coil	V20 VBP V20 VBA	✓	✓		✓	✓
Electric heater (not available with Crystall filter)	BEL	✓	✓		✓	✓
Extension condensate collection tray to cover valve assembly (for vertical units)	BSV	(MV-MVB-IV)	(MV-MVB-IV)	✓	✓	
Extension condensate collection tray to cover valve assembly (for MO horizontal units)	BSO	(MO)	(MO)			✓
Extension condensate collection tray to cover valve assembly (for IO horizontal units)	BSI-C	(IO)	(IO)		✓	
Condensate pump (for vertical units)	DRPV-C	(MV-MVB-IV)	(MV-MVB-IV)		✓	
Condensate pump (for horizontal units)	DRPO-C	(MO)	(MO)			
Condensate pump (for horizontal units)	DRPI-C	(IO)	(IO)		✓	
Plastic condensate drain pipe with fast connection	SCR	✓	✓		✓	✓
Feet	PAP	✓	✓	✓		
Aluminium low intake grid	GAP	✓	✓			
Frontal intake kit	KAF	(IV-IO)	(IV-IO)		✓	
Rear closing panel (for vertical units)	PCV	(MV-MVB)	(MV-MVB)			
Bottom closing panel (for horizontal units)	PCO	(MO)	(MO)			
Fresh air mixing damper (mounted on the unit)	SAEM	(MV)	(MV)			
Fresh air mixing damper (not mounted)	SAE	(IV-IO)	(IV-IO)			
Belimo motor (not available with ECM range)	BESAE	(MV-IV-IO)				
Straight inlet flange	FRD	✓	✓		✓	
90° inlet flange	FR 90	✓			✓	
Air inlet grid (to be used with FR 90 90° inlet flange)	GRAP	✓			✓	
Air inlet grid (to be used with FRD straight inlet flange)	GRAG	✓	✓		✓	
Straight outlet flange	FMD	✓	✓		✓	
90° outlet flange	FM 90	✓			✓	
Air outlet grid	BMA	✓	✓		✓	
Air inlet spigot plenum	PRC	✓			✓	
Spigot diffuser	PMC	✓			✓	
Air inlet grid with filter (to be fitted to the FR 90 90° inlet flange)	GRAFP	✓				
Air inlet grid with filter (to be fitted to the FRD straight inlet flange)	GRAFG	✓				
Condensate drain pump	PCC					✓
Fresh air connection	FRC	✓				✓
Hotel fan kit (frontal return and supply)	CHK	(IO)				
Silencer plenum	BXS	IV-IO			✓	

VBP

Main coil 3 way valve

Control valve kit:
3 way valve, ON-OFF,
with electric motor and mounting kit
with micrometric lockshield valve.



VBA

Additional coil 3 way valve

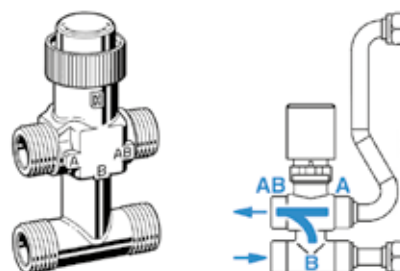
Control valve kit:
3 way valve, ON-OFF,
with electric motor and mounting kit
with micrometric lockshield valve



VS

Simplified kit for 3 way valve for main and additional coil (concealed model only)

3 way valve, (ON-OFF)
with electric motor and mounting kit.
Valve with flat connection without micrometric
lockshield valve..



V3M4X2 (mounted)

3 way double valve kit for 4 tube installation and single coil

The kit consists of:

V3S4X2 (not mounted)

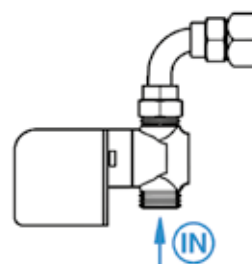
- 2 special 3 way valves
- 2 230 Volt ON-OFF actuators with internal safety micro switch
- insulated pipe kit
- external valve insulation sleeve.



V2

2 way valve for main and additional coil

Control valve kit:
2 way valve, ON-OFF,
with electric motor and mounting kit



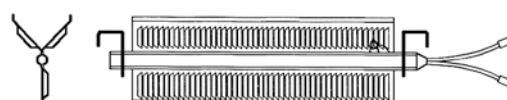
V20VBP **Balancing valves independent from the system pressure for main coil**

V20VBA **Balancing valves independent from the system pressure for additional coil**

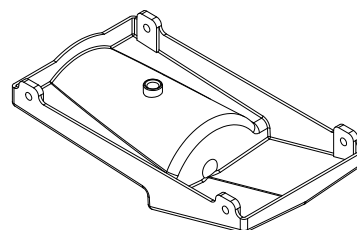


BEL **Electric heater**
(not available with Crystall filter)

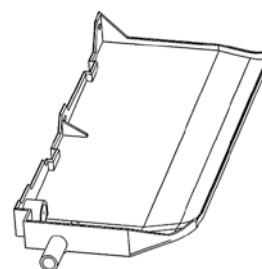
1 PHASE 230V
Electric heater with integral: safety thermostat and relay control..



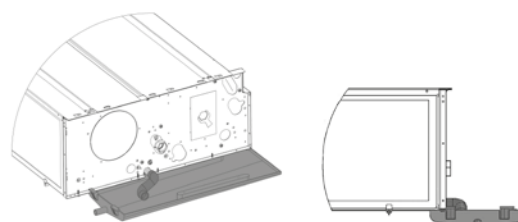
BSV **Extension condensate collection tray to cover valve assembly**
(for vertical units)



BSO **Extension condensate collection tray to cover valve assembly**
(for MO horizontal units)



BSI-C **Extension condensate collection tray to cover valve assembly**
(for IO horizontal units)



DRPV-C **Condensate pump**
(for vertical units)



DRPO-C **Condensate pump**
DRPI-C (for horizontal units)

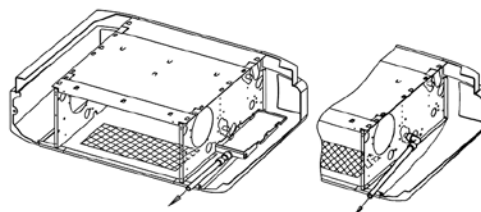


DRPO-C

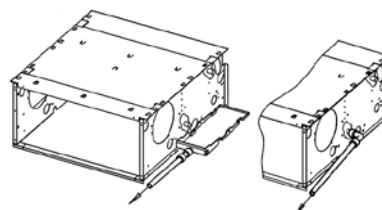


DRPI-C

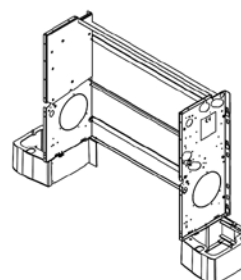
SCR **Plastic**
condensate drain pipe with fast
connection
Allows correct condensate drain.



SCR **Plastic**
condensate drain pipe with fast
connection
Allows correct condensate drain.

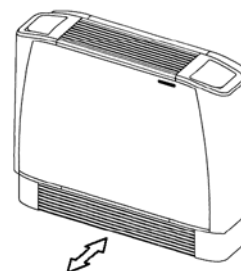


PAP **Feet**



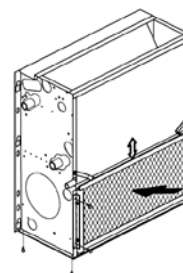
GAP Aluminium low intake grid

To be installed with PAP feet.

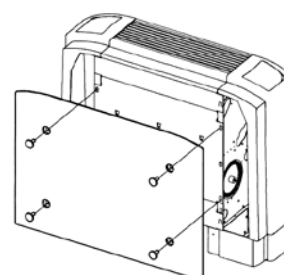


KAF Frontal intake kit

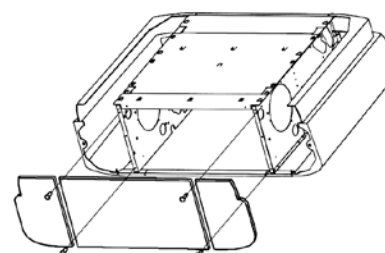
Bottom closing panel and filter sliding guide.



PCV Rear closing panel
(for vertical units)

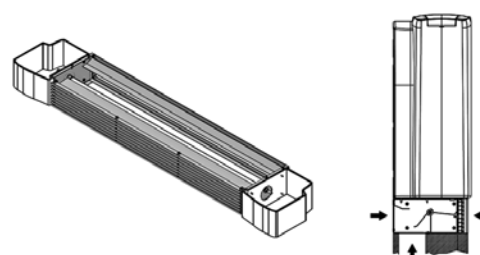


PCO Bottom closing panel
(for horizontal units)



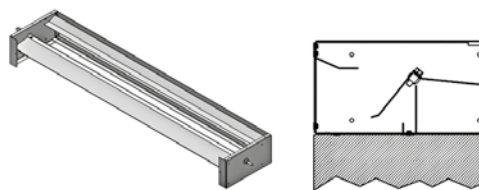
SAEM Fresh air mixing damper

Mounted on the unit with feet and intake grid included.
Can be motorized on request.



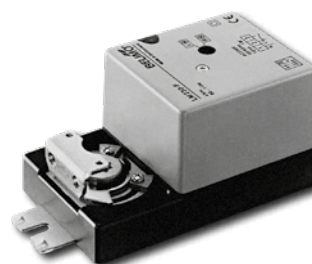
SAE Fresh air mixing damper

Not mounted.
Can be motorized on request.



BESAE Belimo motor (not available with ECM range)

Fitted on the unit for motorized working of the damper.
(available with "IAQ" control only)



FRD Straight inlet flange

Can be used together with GRAG air inlet grid.
Made of galvanized steel.



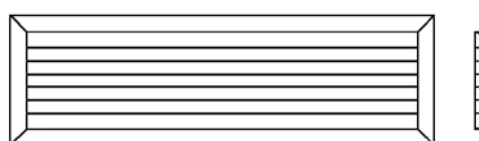
FR 90 90° inlet flange

Can be used together with GRAP air inlet grid.
Made of galvanized steel.



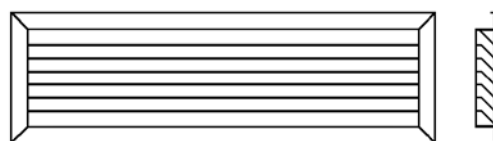
GRAP Air inlet grid

To be used with FR 90 90° inlet flange.
Made of anodized aluminium.



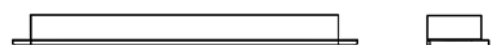
GRAG Air inlet grid

To be used with FRD straight inlet flange.
Made of anodized aluminium..

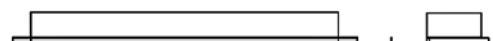
**FMD Straight outlet flange**

Made of galvanized steel.

CRC 1÷9 / CRT 1÷7 / CRS 1÷3

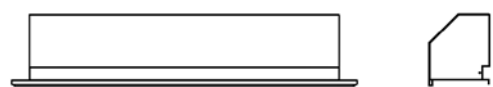


only CRS 4

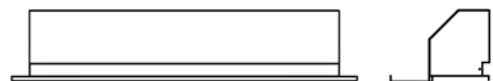
**FM 90 90° outlet flange**

Made of galvanized steel insulated with polyethylene lining..

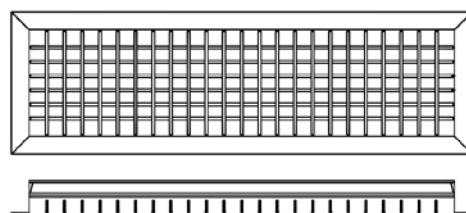
CRC 1÷9 / CRS 1÷3



only CRS 4

**BMA Air outlet grid**

Double louvre grid to be fitted to the duct, to the FMD straight outlet flange or to the FM 90 90° outlet flange.
Made of anodized aluminium.

**PRC Air inlet spigot plenum**

Made of galvanized steel insulated with polyethylene lining.



All the plenums are supplied with spigots for the connection of flexible ducts..

PMC

Spigot diffuser

Made of galvanized steel insulated with polyethylene lining.

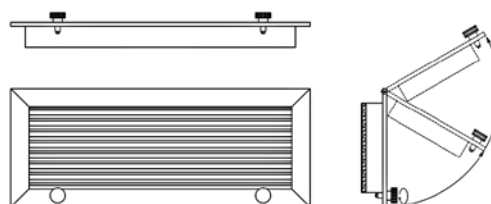


All the plenums are supplied with spigots for the connection of flexible ducts.

GRAFP

Air inlet grid with filter

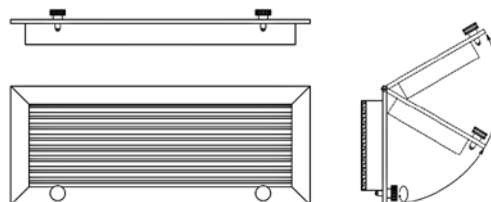
To be fitted to the FR 90 90° inlet flange. Made of anodized aluminium.



GRAFG

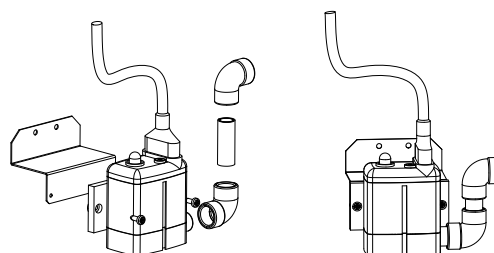
Air inlet grid with filter

To be fitted to the FRD straight inlet flange. Made of anodized aluminium.



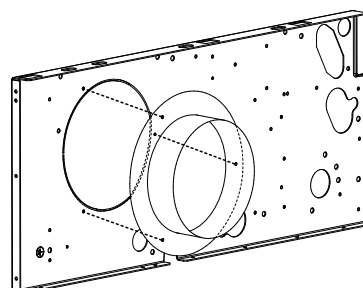
PCC

Condensate drain pump



FRC

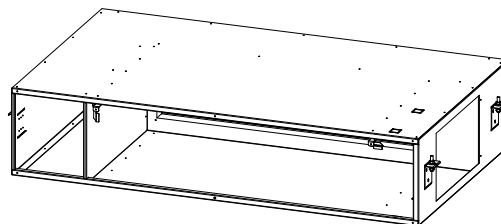
Fresh air connection



CHK

**Hotel fan kit
(frontal return and supply)**

For concealed installation.

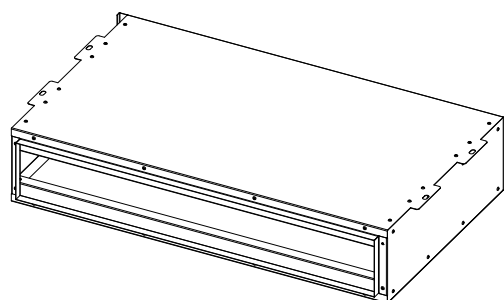


BXS

Silencer plenum

(for Carisma CRSL / CRSL-ECM and
CRC / CRC-ECM, IV-IO models only)

Made of galvanised steel metal sheet, lined
internally with a reinforced glass wool mat on
both sides with a black glass coating.





Recovery units





The desire for a comfortable and healthy living environment is an inalienable right: our very lives depend on the quality of air. Buildings may be visually pleasing and welcome us with their heat, but they are increasingly 'sealed' and, thus, unable to naturally guarantee the necessary air for healthy and comfortable premises to their occupants and to the environment itself.

Sabiana offers high-efficiency mechanical ventilation units with recovery:

- **Energy Plus** for non-residential applications
- **Energy Smart** for residential applications.

The Energy units replace exhaust air from indoors with filtered air from outside, thanks to a special **high-efficiency filter**, recovering the extraction heat and conveying it towards the incoming fresh air provided indoors.

Mechanical ventilation solutions that guarantee real energy savings, capable of **recovering the highest amount of energy** contained in the exhaust air for the lowest possible energy consumption. Also, given the high variability of external climatic factors and occupational profiles, the units can **adapt to different needs**, while maintaining high indoor comfort standards and air quality.

Energy Plus

Recovery Unit



The **Energy Plus** ducted units have been designed to allow energy savings in the ventilation systems of public and private environments, such as bars, restaurants, offices, shops, etc., **by recovering the heat** from the air discharged and transferring it to the fresh air introduced into the environment.

The heat exchange between the extract air and the fresh air occurs via a static counter-flow exchanger, designed to recover **up to 94%** of the heat.

The **Energy Plus** units are equipped with centrifugal fans with backward blades and **electronic motor with continuous speed** control which allows the control at a variable flow rate, in order to reduce the electric waste to the minimum need.

The **Energy Plus** range features **4 sizes** suitable for horizontal installation and covers a range of air flows **from 300 to 2,600 m³/h**.

The Energy Plus units are **in compliance** with the mandatory standard according to the European Ecodesign Directive (**UE 1253/14 Regulation and Erp 2018**).

The tests regard the thermal efficiency in terms of heat recovery and the **SFPint** internal specific fan power of ventilation components under nominal conditions.

External Panels: external galvanised plate sandwich panels, 24 mm thick, filled with 45 kg/m³ of polyurethane foam.

Heat Recovery Coil: the Heat Recovery Coil are static counter flow aluminium plates heat-exchangers of high efficiency. The top of the performances over 90% efficiency can be obtained thanks to the heat transfer between two air flows due to the temperature difference. Being static, there are no moving parts. This is a guarantee of very high reliability and operating safety. In order to increase the heat-exchanger efficiency, the plates surfaces are fitted with special swirlers.

The centrifugal discharge and intake air plug fans are with synchronous motor with permanent magnets and electronic control (EC), 230V power supply. The rotors are designed in order to guarantee an optimal air flow rate and the lowest noise level.



Air Filters. Pleated cell filters, 98 mm thick, efficiency F7 for the intake air process and M6 for the discharge air, sized to minimize pressure loss. Filters can be removed from dedicated openings provided in the casing.

Differential Pressure Switches for filter cleaning and warning in case of run out filters.

Electric Control Panel installed on the side of the unit.

The electric control panel is isolated from the air flow within a suitable box.

The electric control panel includes main fuses and the electronic power board for the manual or automatic control of the fan operation and of the air handling accessories.

The wall control set is programmable with display and touch keypad.

Optional variable air flow operation depending on air quality (CO₂ and Relative Humidity).

Inspection openings for maintenance, cleaning and filter change. Quick panels removal to access ventilation and recovery unit sections.

BY-Pass Damper with servocontrol. All the units are equipped with an automatic by-pass system that allows the by-pass of the recovery coil in order to let the free-cooling (or the free-heating).

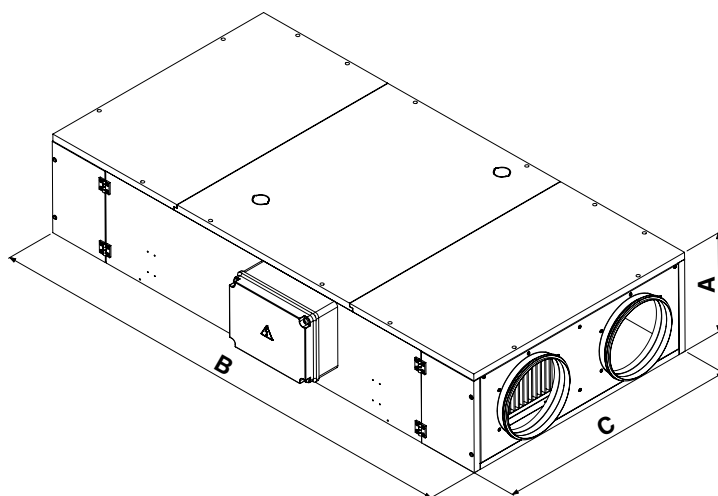
The system is controlled with the logic based on the integrated temperature sensors.

Floor/ceiling installation. Optional adjustable hanging systems according to the weight of the units.

Optional extra:

- Post heating/cooling water coil.
- Plenum connectors for the Sabiana OCEAN sections.
- Rainproof shelter for external installations.

Dimensions and weight



Model		ENY-P1	ENY-P2	ENY-P3	ENY-P4
Lenght (B)	mm	1700	1750	2100	2355
Width (C)	mm	850	1150	1250	1700
Height (A)	mm	344	385	470	610
Weight	kg	98	140	170	325

Nominal technical data

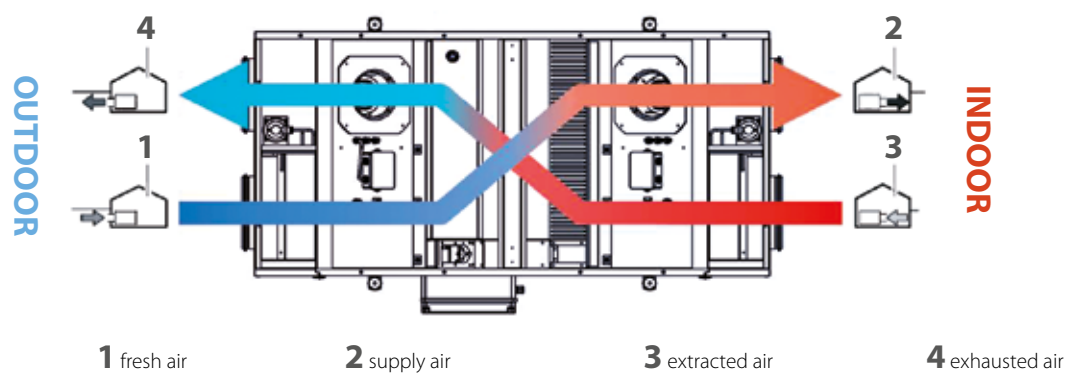
Model		ENY-P1	ENY-P2	ENY-P3	ENY-P4
Nominal and maximum return/supply air flow	m ³ /h	720	1150	1700	2600
	m ³ /s	0,2	0,32	0,47	0,72
Available pressure	Pa	170	220	250	250
Minimum air flow	m ³ /h	270	300	600	690
Thermal efficiency UE 1253/14 (1) Regulation ⁽¹⁾	%	80	80	80	85
Recovered Heat Power ⁽¹⁾	kW	3,9	6,2	9,1	14,8
Recovery efficiency ⁽²⁾	%	90	90	90	94
Max Recovery efficiency ⁽²⁾	kW	6,5	10,5	15,4	24,5
Fan number		2	2	2	2
Nominal power absorption ⁽³⁾	W	332	646	974	1454
Max current input ⁽³⁾	A	2,76	5,16	4,26	6,42
Power voltage/frequency ⁽³⁾	V-Ph	230-1+N 50Hz	230-1+N 50Hz	230-1+N 50Hz	230-1+N 50Hz

(1) = Dry Conditions: TAE = 5 °C and E.A.T. = 25 °C.

(2) = Air Conditions: TAE =10 °C and E.A.T. = 20 °C, URi 50% UR.

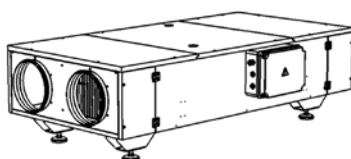
(3) = Basic version.

Typical air flow rates configuration

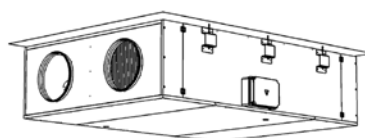


Installation

Floor installation

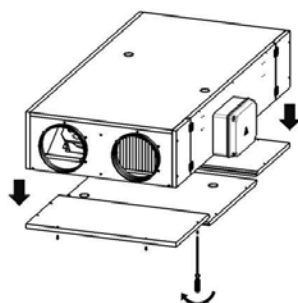


Ceiling installation

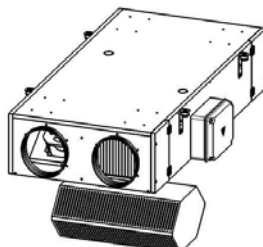


Inspection openings

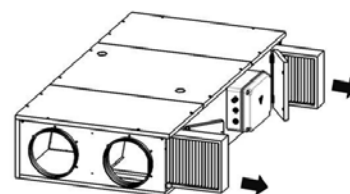
Maintenance access



Heat-exchanger access

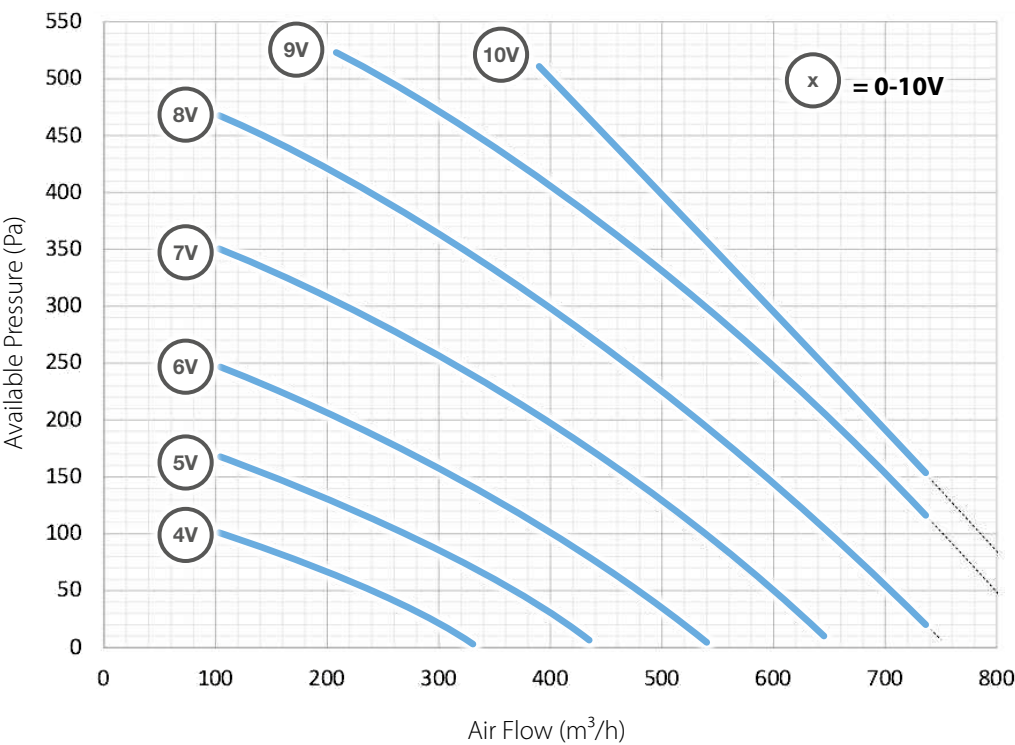


Filter



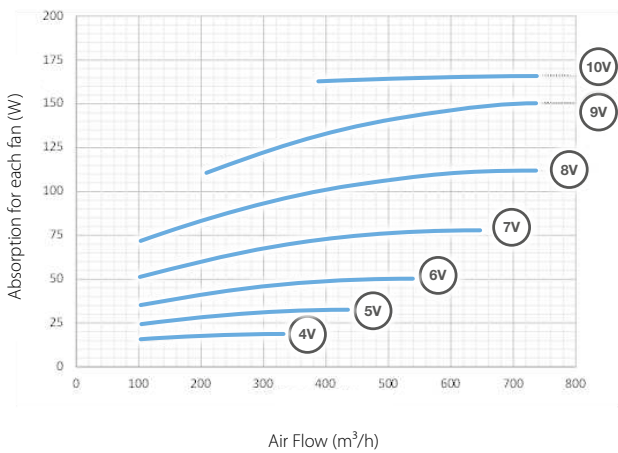
Return/Supply fans

Air flow/Available pressure



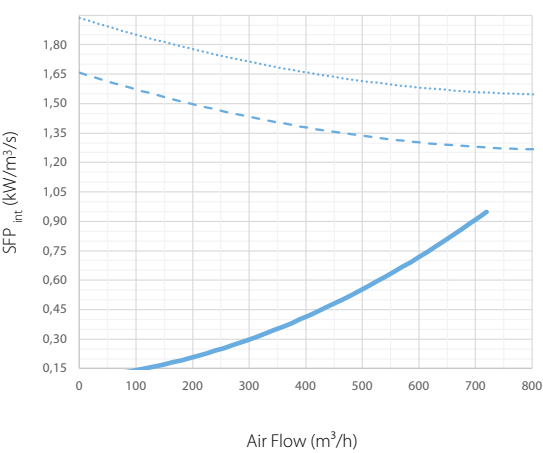
Power absorption

for each fan (1)



SFP int

UE 1253/14



SFP_{int} (kW/m³/s)

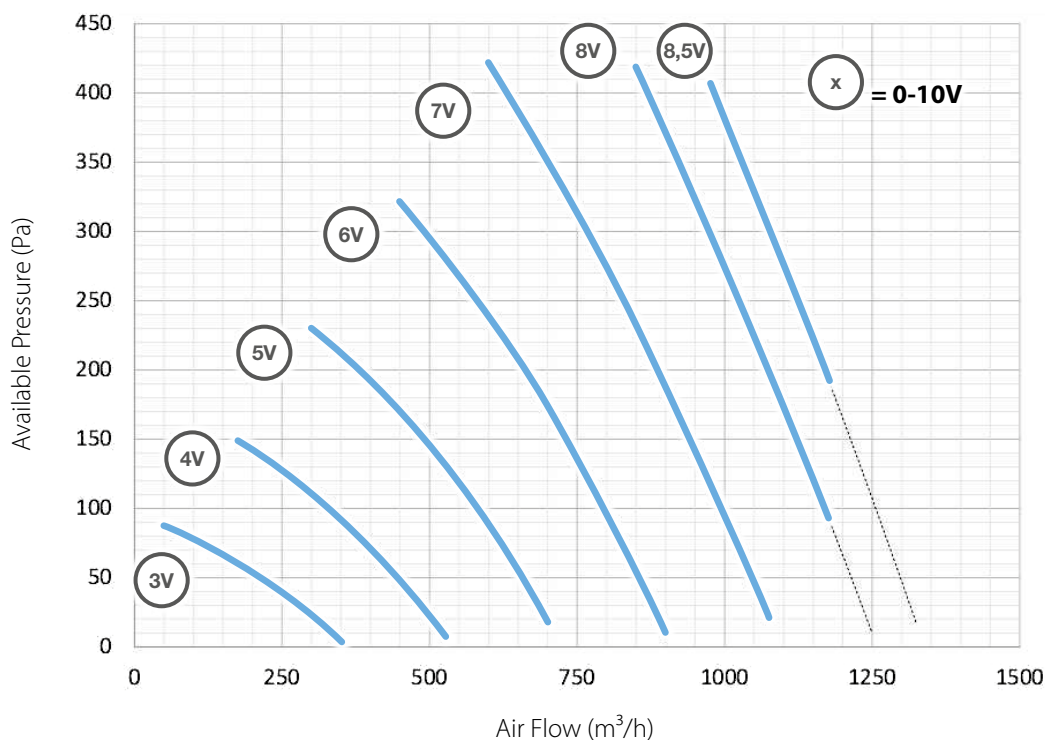
SFP_{int_lim} 2018 (kW/m³/s)

SFP_{int_lim} 2016 (kW/m³/s)

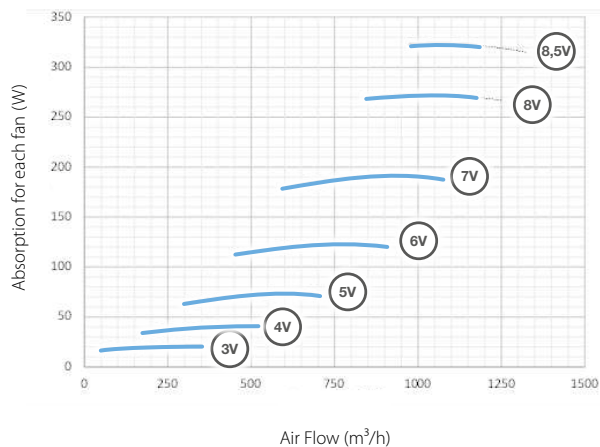
(1) = The power absorption for each fan is useful when fans are working in different conditions.

Return/Supply fans

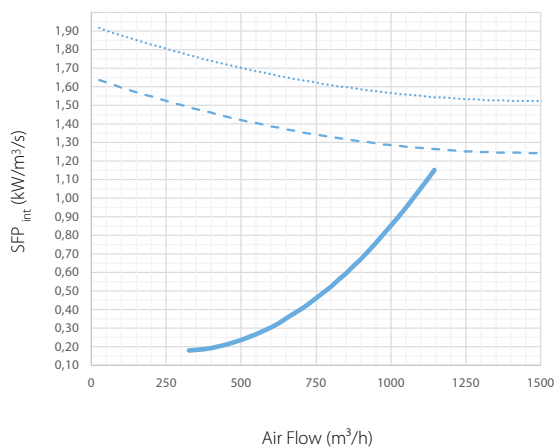
Air flow/Available pressure



Power absorption for each fan ⁽¹⁾



SFP int UE 1253/14



SFP_{int} (kW/m³/s) —————

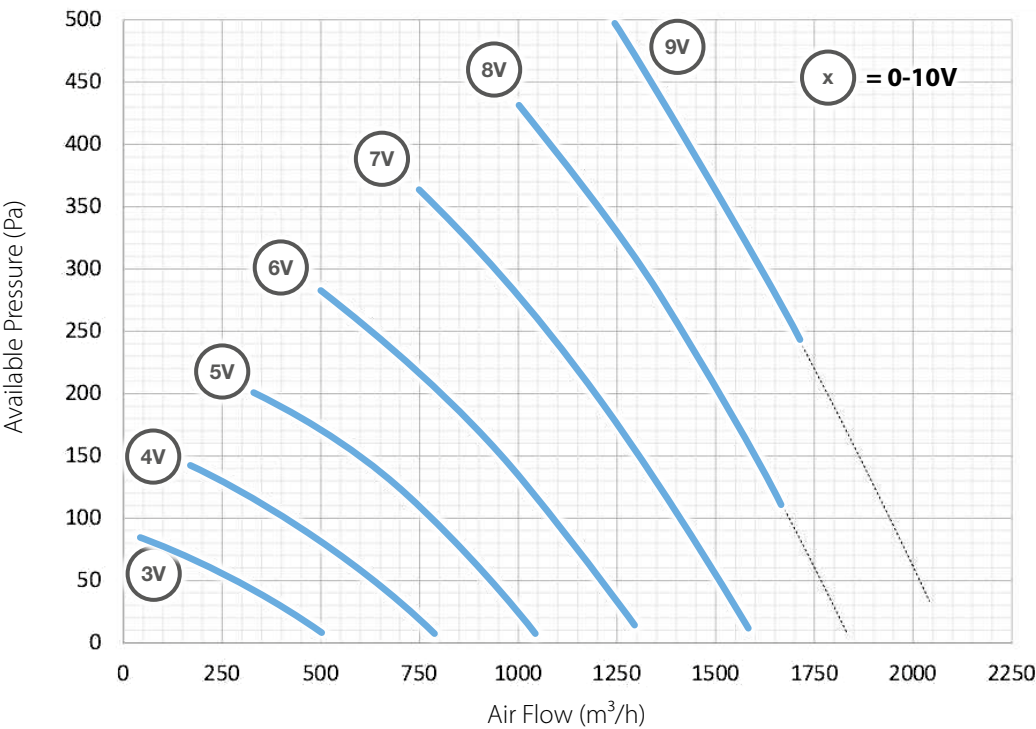
SFP_{int_lim} 2018 (kW/m³/s) - - - - -

SFP_{int_lim} 2016 (kW/m³/s)

⁽¹⁾ = The power absorption for each fan is useful when fans are working in different conditions.

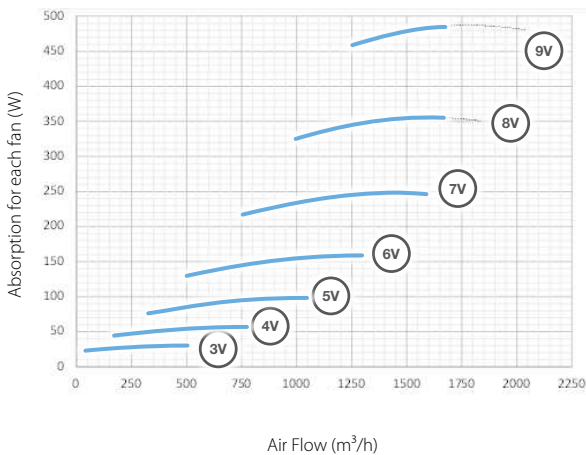
Return/Supply fans

Air flow/Available pressure



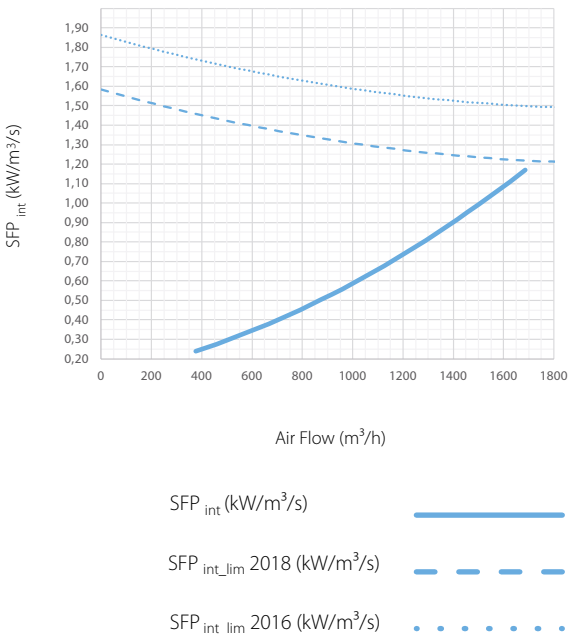
Power absorption

for each fan (1)



SFP int

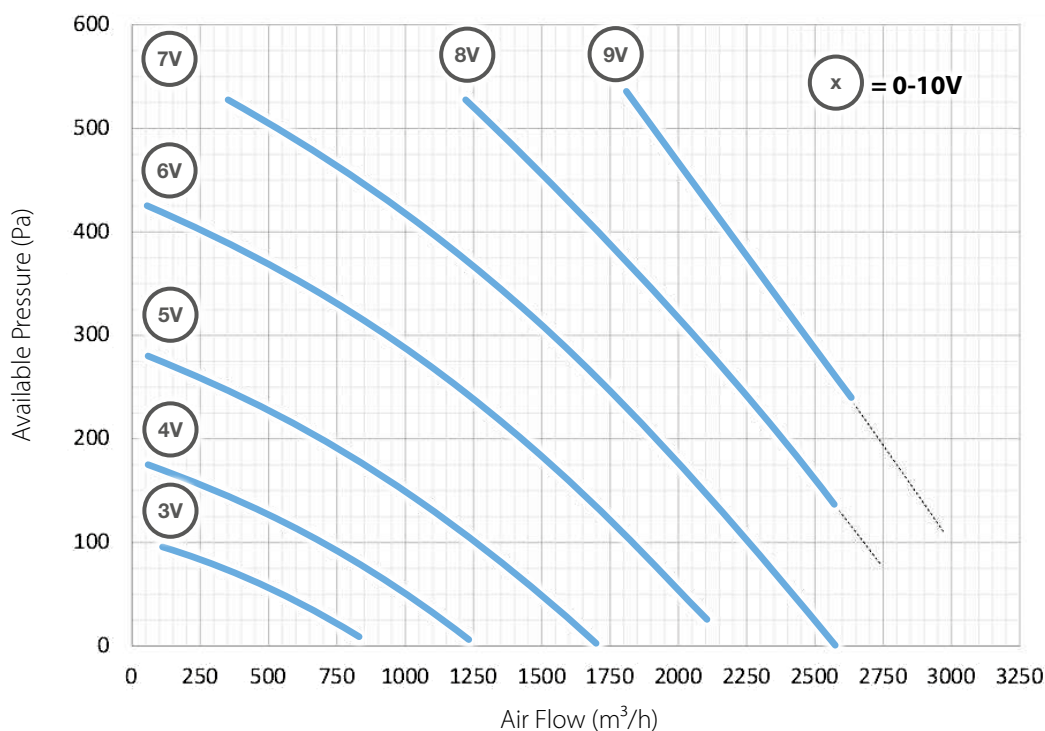
UE 1253/14



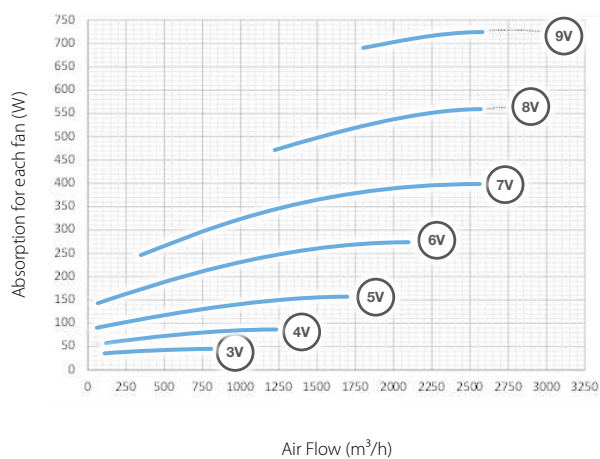
(1) = The power absorption for each fan is useful when fans are working in different conditions.

Return/Supply fans

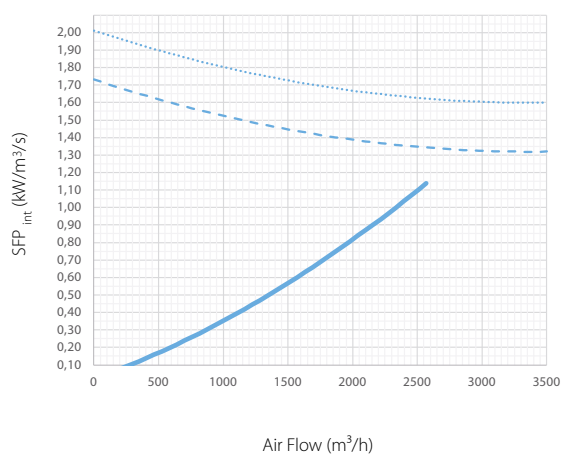
Air flow/Available pressure



Power absorption for each fan ⁽¹⁾



SFP int UE 1253/14



SFP_{int} (kW/m³/s) —————

SFP_{int_lim} 2018 (kW/m³/s) - - - - -

SFP_{int_lim} 2016 (kW/m³/s)

⁽¹⁾ = The power absorption for each fan is useful when fans are working in different conditions.

Supply air conditions: E.A.T. = 20 °C – R.H. = 50%

Model	Q _v	TAE: +10 °C				TAE: +5 °C			TAE: 0 °C			TAE: -5 °C			TAE: -10 °C		
		P _h	ε _t	m _w	P _h	ε _t	m _w	P _h	ε _t	m _w	P _h	ε _t	m _w	P _h	ε _t	m _w	
	m³/h	kW	%	kg/h	kW	%	kg/h	kW	%	kg/h	kW	%	kg/h	kW	%	kg/h	
ENY-P1	100	0,30	90,4	0,00	0,46	90,5	0,15	0,62	91,7	0,26	0,79	94,3	0,36	0,97	96,5	0,44	
	150	0,44	88,2	0,00	0,67	88,3	0,21	0,90	89,8	0,38	1,17	92,7	0,53	1,44	95,4	0,65	
	300	0,85	84,6	0,00	1,28	84,7	0,42	1,74	86,4	0,72	2,26	90,0	1,03	2,81	93,2	1,25	
	450	1,25	82,6	0,00	1,87	82,7	0,62	2,55	84,5	1,09	3,34	88,4	1,52	4,16	91,9	1,85	
	600	1,63	81,2	0,00	2,45	81,3	0,81	3,35	83,2	1,43	4,39	87,3	2,01	5,49	90,9	2,47	
	750	2,01	80,1	0,00	3,03	80,2	0,96	4,13	82,2	1,71	5,43	86,4	2,43	6,80	90,1	3,01	
ENY-P2	200	0,60	89,4	0,00	0,90	89,5	0,29	1,22	90,8	0,51	1,57	93,5	0,70	1,93	96,0	0,86	
	250	0,74	88,2	0,00	1,11	88,3	0,36	1,50	89,7	0,63	1,94	92,7	0,88	2,40	95,3	1,08	
	500	1,42	84,6	0,00	2,13	84,7	0,69	2,90	86,4	1,20	3,77	90,0	1,72	4,69	93,2	2,08	
	750	2,08	82,5	0,00	3,12	82,6	1,04	4,25	84,5	1,81	5,56	88,4	2,52	6,93	91,8	3,09	
	1000	2,72	81,1	0,00	4,08	81,2	1,35	5,57	83,1	2,38	7,31	87,2	3,35	9,14	90,8	4,12	
	1250	3,35	80,0	0,00	5,04	80,1	1,68	6,88	82,1	2,85	9,04	86,3	4,05	11,32	90,0	5,00	
ENY-P3	300	0,89	88,4	0,00	1,34	88,5	0,43	1,81	89,9	0,76	2,34	92,9	1,06	2,88	95,5	1,31	
	400	1,17	86,9	0,00	1,75	87,0	0,56	2,38	88,5	1,00	3,08	91,8	1,37	3,81	94,6	1,69	
	800	2,24	83,4	0,00	3,36	83,5	1,10	4,57	85,2	1,91	5,97	89,0	2,66	7,44	92,4	3,36	
	1200	3,27	81,4	0,00	4,92	81,5	1,64	6,71	83,4	2,88	8,79	87,4	3,90	10,99	91,0	4,97	
	1650	4,42	79,8	0,00	6,63	79,9	2,20	9,06	81,9	3,88	11,91	86,1	5,31	14,92	89,9	6,57	
	2000	5,29	78,9	0,00	7,95	79,0	2,53	10,87	81,0	4,54	14,31	85,4	6,49	17,95	89,2	8,05	
ENY-P4	400	1,28	95,3	0,00	1,92	95,4	0,63	2,58	96,1	1,10	3,27	97,5	1,50	3,97	98,7	1,75	
	550	1,72	93,5	0,00	2,59	93,6	0,84	3,49	94,5	1,49	4,44	96,4	1,98	5,42	98,0	2,43	
	1100	3,31	89,7	0,00	4,97	89,8	1,61	6,72	91,1	2,82	8,65	93,8	3,89	10,64	96,1	4,74	
	1700	4,98	87,4	0,00	7,48	87,5	2,45	10,14	89,0	4,34	13,13	92,1	5,87	16,23	94,9	7,25	
	2300	6,62	85,8	0,00	9,94	85,9	3,22	13,50	87,5	5,77	17,53	90,9	7,90	21,74	93,9	9,83	
	2900	8,23	84,6	0,00	12,36	87,4	4,02	16,81	86,4	6,97	21,88	90,0	9,99	27,19	93,2	12,09	

LEGEND:

TAE = Outside air temperature.

Q_v = Supply air flow rate.

P_h = Heat power recovered by supply air.

ε_t = Heat recovery efficiency with balanced air flow rates.

m_w = Condensate generation.

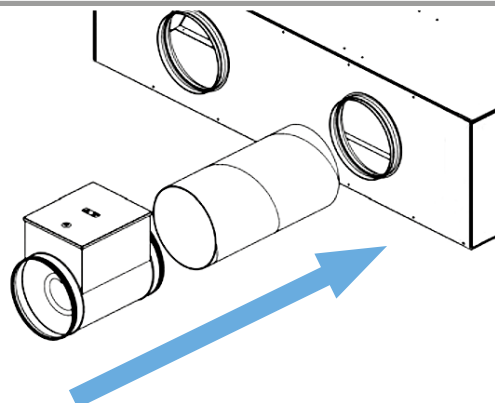
FORMULAS:

$$\epsilon_t = \frac{2980 P_h}{Q_v (t_i - TAE)}$$

BEP

Antifreeze electric heater

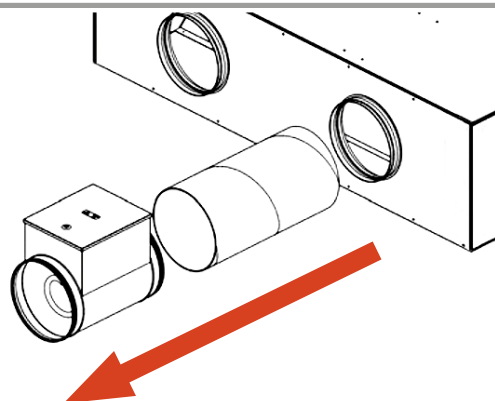
- Ducted electric heater
- IP 43
- Doubled anti-condensate protection
- PWM control



BER

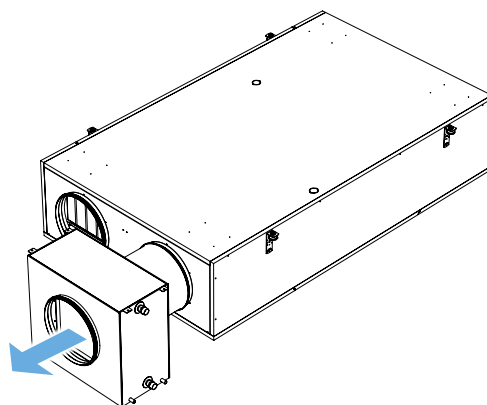
Post-heating electric heater

- Ducted electric heater
- IP 43
- PWM control



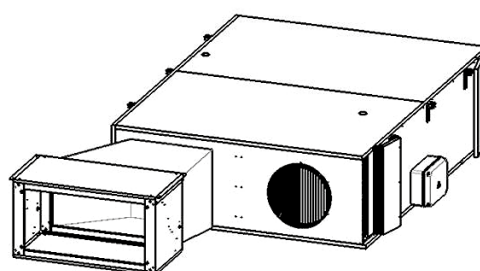
BAE

Water coil



SFE

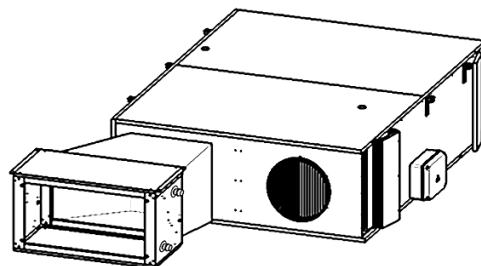
Auxiliary section with pre-filter and electrostatic filter



SB4

**Auxiliary cooling section
with 4 row-coil**

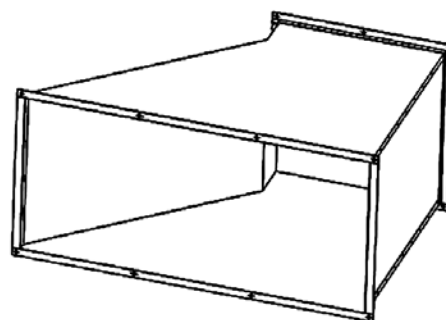
(for horizontal installations only)



ENP

Connecting duct section

made from galvanised plate, insulated inside
with closed cell polyethylene foam.



T-EP**Display**

- Nominal speed setting fan supply
- Nominal speed setting fan discharge
- Time setting
- Parameters of operation
- Control fan speed mode
- Manual setting
- Weekly program
- Automatic setting (in case of connection with a CO₂-RH external sensor)
- Post heating/cooling setting mode
- Visualization of the operative parameters.



Energy Smart

Recovery Unit



The Sabiana **Energy Smart** units are high efficiency ventilation units with heat recovery and are designed for residential ambiances.

The units replace the exhaust air of indoor environments with filtered air coming from the outside thanks to a special high efficiency F7 class filter.

The hexagonal counterflow recovery unit prevents any winter heat drops due to the introduction of fresh air, thereby recovering up to 92.5% of the extracted heat and conveying it to the clean air introduced in the occupied environment. Each unit is also equipped with an average efficiency filter (M5) installed on the inlet of the extraction section to prevent any dust from getting into the equipment.

All Energy Smart units comply with the 2018 efficiency limits imposed by Regulation 1253/14.

As well as the type of installation, the range can also be classified according to the type of control:

- **Pro unit** with automatic centralised control via humidity probe:
 - ENY-SP (vertical)
 - ENY-SHP (horizontal)
- **Standard unit** with time programming control:
 - ENY-S (vertical)

ENY-SP and **ENY-S** units are designed for vertical wall installation or, with the addition of feet, floor installation. Instead, **ENY-SHP** units are ideal for both horizontal ceiling installation and vertical wall installation.

The width of the ENY-SHP and ENY-S units is such as to ensure easy insertion into modular kitchen components, since the width is less than 600 mm.

The Pro Versions are available in Class A + while the Standard versions are in Class A.

Both are equipped with high efficiency backward-curved blades and EC motors, driven by the integrated inverter control board for variable speed control.

All units have a remote control user interface (T-EP control), which can be wall-mounted for ENY-SHP units, integrated in the inspection cover of ENY-SP and ENY-S units; for the latter, it is also possible to disconnect the interface from the inspection cover and place it on the wall using a special cable.

The Pro versions are all Passivhaus certified and are equipped with an automatic centralised air flow control system operated by an integrated humidity sensor located in the extracted air duct. If the humidity of the indoor environment exceeds the reference parameters, to prevent the proliferation of mould and pathogenic bacteria, the fresh air flow is increased with the aim of restoring a healthy humidity level. The control also prevents from dropping below excessively low humidity levels, thus preventing excessively dry conditions inside the environments and, as a result, any health hazards.



The units are NOT able, by themselves, to lower the level of internal humidity to a value below that of the outdoor humidity.

The centralised automatic control can also work in response to CO₂ measurements; in this case, it is recommended to connect a 0-10V CO₂ sensor to the main control board, available on the market.

The units with automatic control via humidity or CO₂ sensor can **enable the "AUTO" mode**. In this mode, the fan speed is controlled by an automatic control cycle relating to internal instantaneous humidity and CO₂ variations. In variable-flow automatic control mode, the user can still intervene at any time by changing the fan speed manually as required.

The automatic mode will be restored at the next significant variation of ambient humidity or concentration of CO₂.

In the event that the user does not require automatic control but just simply time programming or even manual control, standard units are ideal.

There is a choice of 8 weekly programs for these units: 4 preset programs and 4 free programs that can be modified as required.

Nominal flow rate or minimum flow rate (Holiday) operation can be selected in various intervals of the day. At any time, the user may force the programming manually, which will resume at the beginning of the next time interval.

In manual mode, in addition to the nominal speed, **there are 3 default speeds equal to 70%, 45%, and 25% of the project flow rate**. The timed intensive ventilation modes can be activated via the user interface ("Party" mode) or via a remote switch located in a particular room ("Booster" mode).



The **T-EP** control also has many advanced features, which are accessible from specific technical menus.

It is also possible to connect the main board to certain external switches with the following characteristics:

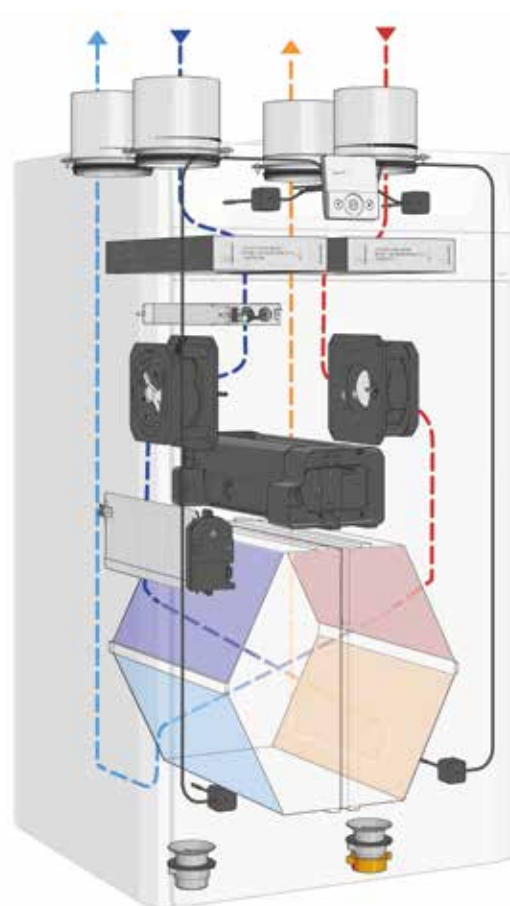
- remote ON/OFF function;
- “Booster” mode remote activation;
- connection to a differential negative pressure switch in the event of simultaneous operation between the ventilation unit and an atmospheric fireplace or a manual timer switch in the event that the unit must support the start-up of an atmospheric boiler.

All the units are equipped with an automatic bypass system that totally disables use of the recovery unit to permit 100% **free-cooling** (or **free-heating**).

The system is controlled by logic subject to the feedback of the embedded temperature sensors.

Also, the units have the following integrated control logic:

- The mass supply flow defined by the user is kept constant in all outdoor climatic conditions.
- The extraction flow is kept at a constant balancing percentage compared to the air supply flow, in order to preserve the desired overpressure or negative pressure for all operating conditions.



When installing the units in homes located in regions with particularly harsh climatic conditions, we recommend installing the units with integrated filament electric resistances (E versions), where the thermal power is continuously modulated to maintain exhaust air at the desired temperature, preventing freezing.

For all models, it is possible to use an external antifreeze coil, with continuous modulation or ON/OFF, as an accessory.

To prevent excessive efficiency drops due to filter clogging, it is recommended to replace the filters at the end of the recommended period (usually every 6 months). The increase in filter dirt in fact leads to increased fan rotation resistance, causing a significant drop in flow rates. With regard to ENY-S units, the automatic constant flow control system, which prevents any drops in flow rates due to filter clogging, is available as an accessory. In this case, filter clogging may result in a significant increase in power consumption of the fans.

If the flows need to be inverted, all units are reversible during installation.

For each model, a complete set of accessories is also available to meet any installation need.



Vertical version with integrated/wall mounted T-EP control

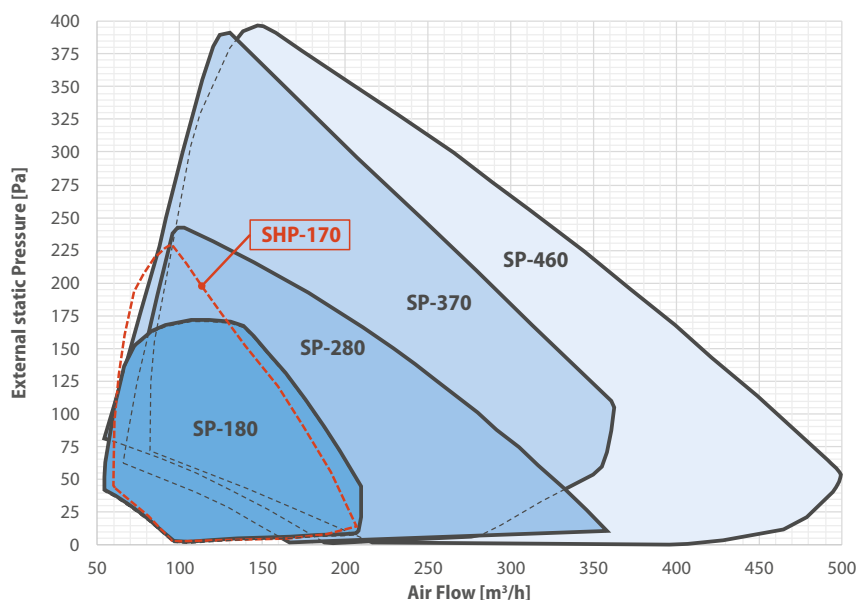
Version	Model	Max flow at 100 Pa m ³ /h	Energy class	Width mm
Pro	ENY-SP-180	180	A+	600
	ENY-SP-280	280	A+	600
	ENY-SP-370	370	A+	660
	ENY-SP-460	460	A	660
Pro with LH electric heater	ENY-SPEL-180	180	A+	600
	ENY-SPEL-280	280	A+	600
	ENY-SPEL-370	370	A+	660
	ENY-SPEL-460	460	A	660
Pro with RH electric heater	ENY-SPER-180	180	A+	600
	ENY-SPER-280	280	A+	600
	ENY-SPER-370	370	A+	660
	ENY-SPER-460	460	A	660
Standard	ENY-S-170	170	A	550
	ENY-S-270	270	A	550
	ENY-S-360	360	A	550
	ENY-S-460	460	A	660
Standard with LH electric heater	ENY-SEL-170	170	A	550
	ENY-SEL-270	270	A	550
	ENY-SEL-360	360	A	550
	ENY-SEL-460	460	A	660
Standard with RH electric heater	ENY-SER-170	170	A	550
	ENY-SER-270	270	A	550
	ENY-SER-360	360	A	550
	ENY-SER-460	460	A	660

Horizontal and vertical version with wall-mounted T-EP control

Version	Model	Max flow at 100 Pa m ³ /h	Energy class	Height mm
Pro	ENY-SHP-170	170	A+	330
Pro with LH electric heater	ENY-SHPEL-170	170	A+	330
Pro with RH electric heater	ENY-SHPER-170	170	A+	330

Energy Smart units are suitable for operation in balanced or slightly unbalanced flow and return conditions. They ensure residential air exchange, recovering the heat from the extracted air and conveying it to the clean air. The chart below shows the recommended operating ranges in terms of volumetric supply air flow rate at standard conditions and available external static pressure.

Pro ENY-SP and ENY-SHP version



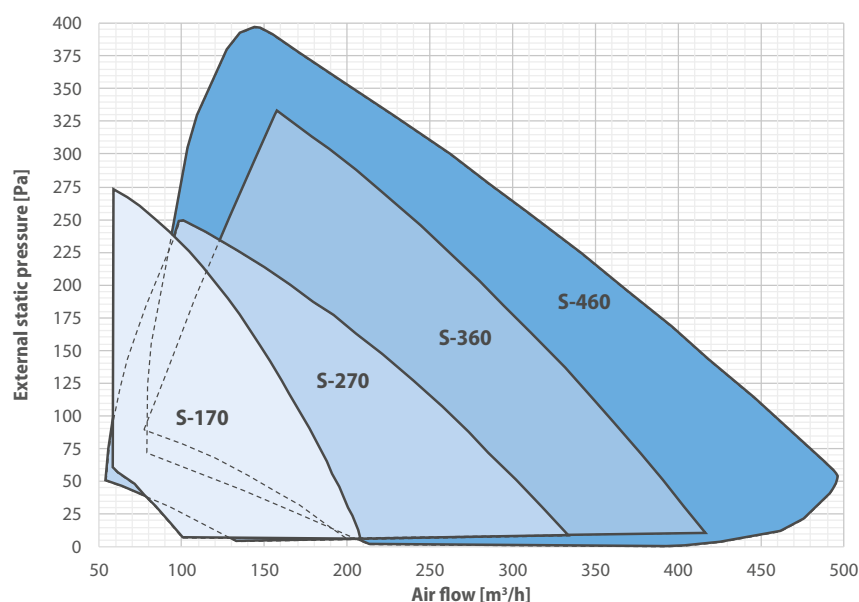
Model		ENY-SP-180	ENY-SP-280	ENY-SP-370	ENY-SP-460	ENY-SHP-170
Q_{max}	m³/h	180	280	370	460	170
Q_{rif}	m³/h	130	200	260	320	120
P_{el}	W	23	35	47	76	23
η_{rvu}^t	%	91,5%	91,4%	92,5%	88,6%	92,1%
SPI	W/m³/h	0,174	0,174	0,179	0,237	0,193
CTRL	-	0,85	0,85	0,85	0,85	0,85
SEC	kWh/m²a	-42,32	-42,29	-42,47	-40,10	-42,05
Energy class	-	A+	A+	A+	A	A+
Filter efficiency	-	F7 / M5	F7 / M5	F7 / M5	F7 / M5	F7 / M5
L_{WA}	dB(a)	38,9	43,1	46,3	47,9	44,9
LK_i	%	1,2%	0,7%	0,5%	0,3%	0,5%
LK_E	%	1,7%	1,0%	0,8%	0,7%	2,3%
HEP	W	500	900	1250	1600	600

LEGEND (all terms must be considered in compliance with Standard EU 1253/2014)

Q_{max} = Maximum flow rate, at max motor speed and external static pressure of 100 Pa
 Q_{rif} = Reference flow rate - 70% di Q_{max}
 P_{el} = Power supply at Q_{rif} and external static pressure of 50 Pa
 η_{rvu}^t = Thermal efficiency at Q_{rif}
SPI = Specific power input
CTRL = Control factor - Centralised automatic control

SEC = Specific energy consumption
 L_{WA} = Sound power level emitted by structure
 LK_i = Internal leakage at 100 Pa compared to Q_{rif}
 LK_E = External leakage at 250 Pa compared to Q_{rif}
HEP = Pre-heater power (only mod. SPEL, SPER, SHPEL and SHPER)

Standard ENY-S version



Model		ENY-S-170	ENY-S-270	ENY-S-360	ENY-S-460
Q_{max}	m³/h	170	270	360	460
Q_{rif}	m³/h	120	190	250	320
P_{el}	W	22	35	53	76
η^t_{rvu}	%	87,0%	86,5%	90,1%	88,6%
SPI	W/m³/h	0,183	0,184	0,209	0,237
CTRL	-	0,95	0,95	0,95	0,95
SEC	kWh/m²a	-39,4	-39,3	-39,6	-38,4
Energy class	-	A	A	A	A
Filter efficiency	-	F7 / M5	F7 / M5	F7 / M5	F7 / M5
L_{WA}	dB(a)	40,6	46,6	49,0	47,9
LK_i	%	0,4%	0,4%	0,7%	0,3%
LK_E	%	1,8%	1,4%	2,7%	0,7%
HEP	W	500	900	1250	1600

LEGENDA (all terms must be considered in compliance with Standard EU 1253/2014)

Q_{max} = Maximum flow rate, at max motor speed and external static pressure of 100 Pa

Q_{rif} = Reference flow rate - 70% di Q_{max}

P_{el} = Power supply at Q_{rif} and external static pressure of 50 Pa

η^t_{rvu} = Thermal efficiency at Q_{rif}

SPI = Specific power input

CTRL = Control factor - Centralised automatic control

SEC = Specific energy consumption

L_{WA} = Sound power level emitted by structure

LK_i = Internal leakage at 100 Pa compared to Q_{rif}

LK_E = External leakage at 250 Pa compared to Q_{rif}

HEP = Pre-heater power (only mod. SEL and SER)

1 ENY-SP version external structure

made of hot-dip galvanised steel sheet panels painted in RAL 9003 and satin finish obtained with epoxy paint dried in oven at 180°C; the side panels are insulated with a 25 mm thick padding, while the inspection cover is completely removable and is insulated with a 30 mm thick padding.

ENY-S version external structure

made of hot-dip galvanised steel sheet panels painted in RAL 9003 and satin finish obtained with epoxy paint dried in oven at 180°C; the inspection cover is completely removable and is insulated with a 30 mm thick padding.

ENY-SHP version external structure

made of hot-dip galvanised steel sheet panels painted in RAL 9003 and satin finish obtained with epoxy paint dried in oven at 180 °C.

2 EPDM fan / heat recovery access closure

3 EPDM filter access closure

4 Electric defrosting pre-heater

Hot filament resistance with reinforced metal lining, controlled by PWM signal (only versions with integrated resistance).

5 High efficiency filters compliant with Standard EN779:2012

The filters have the following features:

- class F7 for the supply air
- class M5 for the extracted air.

6 ABS shanks for inlet/outlet flow connection

7/11 Extract air (7) and air supply (11) electric fan

consisting of:

- Permanent single-phase synchronous EC motor with protection against overtemperature of the motor and electronic components
- High efficiency ABS fans with backward-curved blades
- ABS Motor/fan housing.

8 High efficiency static recovery unit

with PET counterflow exchange plates.

The reachable efficiency obtainable may be higher than 90% because they ensure counterflow heat transfer between two air flows at different inlet temperatures.

The static recovery units do not feature moving parts and guarantee high reliability and safe operation.

In order to increase the efficiency of the heat exchanger, the plate surfaces feature special swirlers.

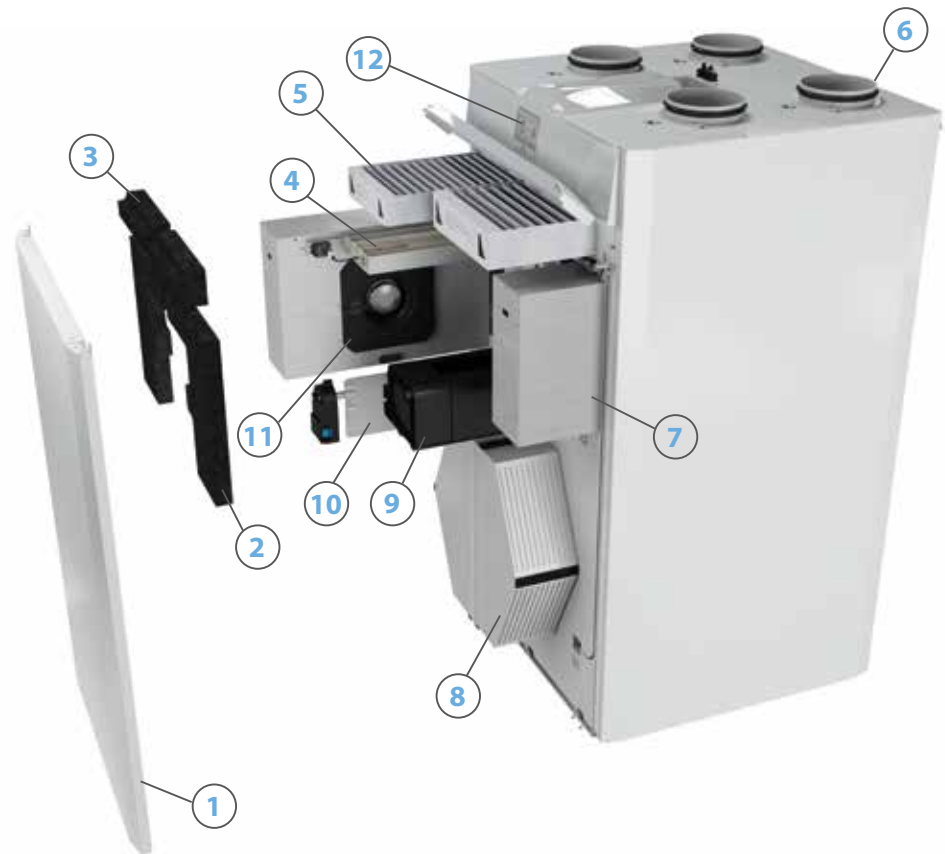
9 By-pass damper

10 Secondary by-pass damper

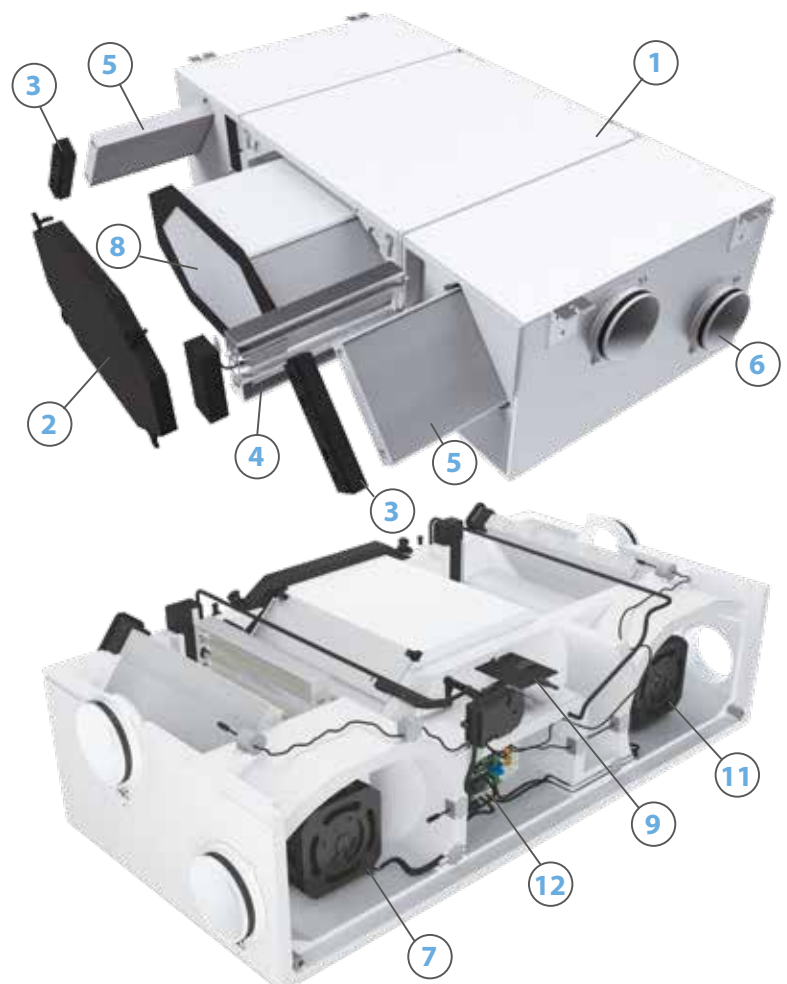
consisting of a steel blade and motorised with a Valemo actuator (Vertical version only).

12 T-EP control (vertical version) or main control board (horizontal version).

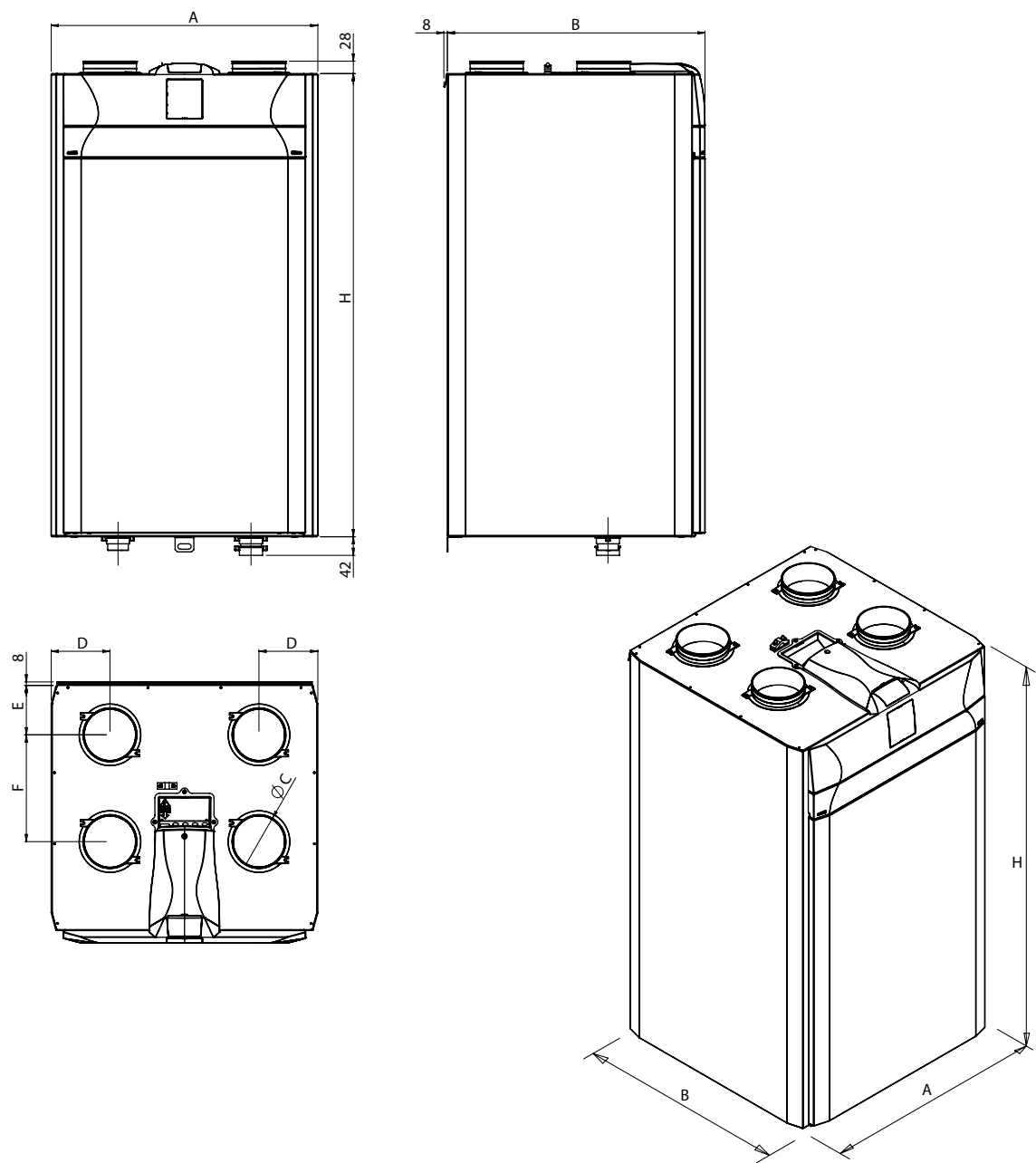
Vertical version



Horizontal and vertical version

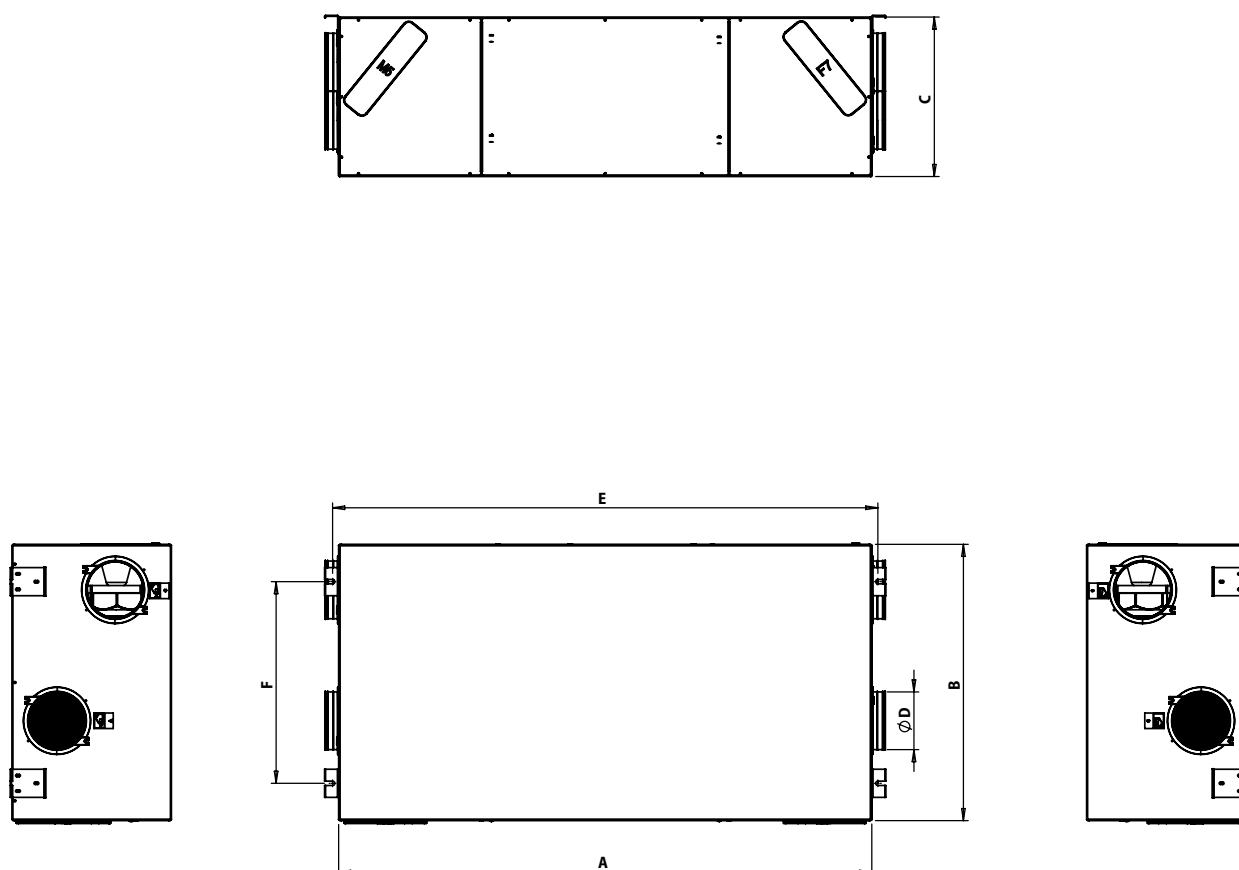


Pro ENY-SP version and Standard ENY-S version



Model	Dimensions (mm)							Weight (kg)	
	A	B	ØC	H	D	E	F	With packaging	Without packaging
ENY-SP-180	600	580	125	1041	132	111	240	63	47
ENY-SP-280	600	630	160	1041	132	111	290	67	51
ENY-SP-370	660	680	160	980	147	126	305	75	56
ENY-SP-460	660	680	180	980	147	126	305	75	59
ENY-S-170	547	505	125	1041	106	93,5	212,5	56	40
ENY-S-270	547	580	160	1041	106	111	240	64	48
ENY-S-360	547	630	160	1041	106	111	290	66	50
ENY-S-460	660	680	180	980	147	126	305	75	59

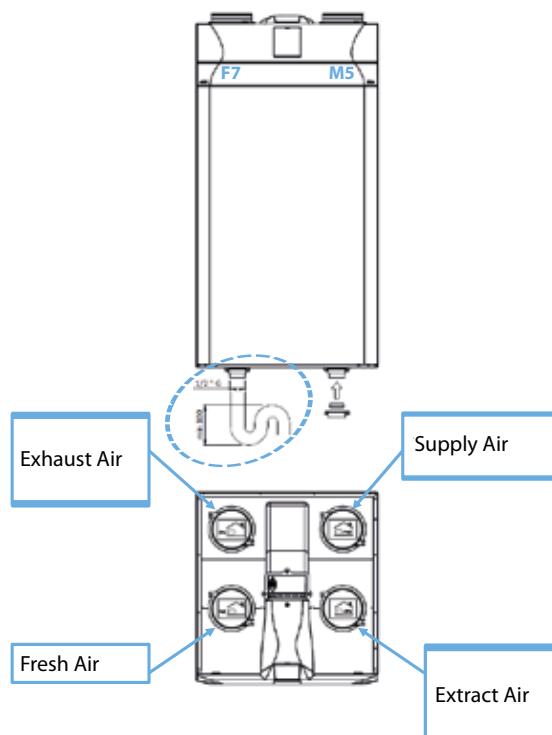
Pro ENY-SHP version



Model	Dimensions (mm)						Weight (kg)	
	A	B	C	ØD	E	F	With packaging	Without packaging
ENY-SHP-170	1100	570	329	125	1125	416	35	31

Pro ENY-SP version and Standard ENY-S version

Operation configuration



Left side configuration DEFAULT

Installation



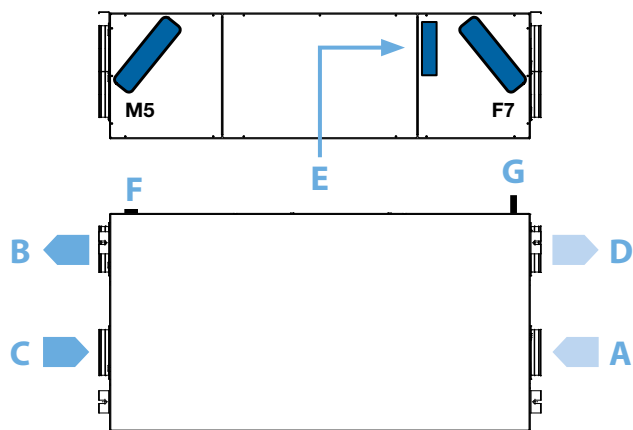
Wall installation



Floor installation

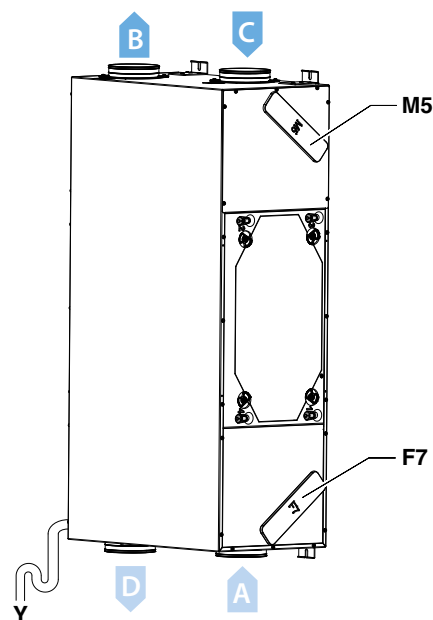
Pro ENY-SHP version

Operation configuration



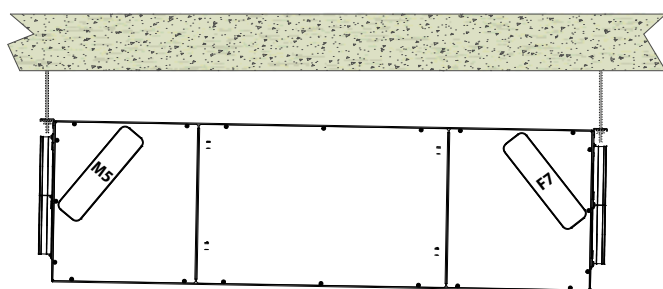
Ceiling version Right side configuration DEFAULT

- A = Fresh air
- B = Supply air
- C = Extract air
- D = Exhaust air
- E = Electric Pre-heater
- F = Cap
- G = Consate drainage

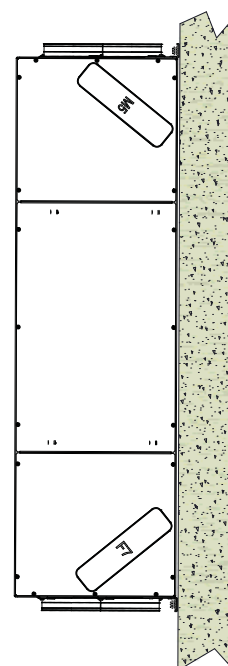


Wall version DEFAULT configuration

Installation



Horizontal installation



Vertical installation



T-EP control panel

Energy Smart units are equipped as standard with a T-EP control panel.

The use of the interface is very intuitive and thanks to the icons on the screen, the two keys and the touchpad, it is possible to display and change the operating status of the unit, display the values read by the temperature sensors and humidity sensor (if any), and display any alarm.

The use of the interface is simplified by the presence of two sub-menus:

- **User Settings Menu** where the user can select the operating mode and set the clock.
- **Technical Settings Menu** where the installer can calibrate the flow rates, change the unit operating parameters and monitor the operating status.

The **user settings menu** is used to select the following unit operating modes:

- **Manual Mode**

Customised selection of desired air flow rate in manual mode:

- 100% - Nominal ventilation (standard)
- 70% - Reduced ventilation (night-time)
- 45% - humidity control for high humidity rate environments
- 25% - humidity control for low humidity rate environments.

- **Party Mode**

Timed function, active for 3 hours after activation, in which the nominal speed is increased by 30%.

- **Holiday Mode**

Anti-mould function with the fans at minimum speed.

- **Automatic Mode**

Speed controlled by means of an automatic control cycle relating to ambient instantaneous humidity and CO₂ variations. This mode is only available for the Pro version or for units equipped with an air quality sensor (humidity or CO₂).

The user menu is also used to set the clock and perform weekly programming.

For the **Technical Settings Menu**, see the "Energy Smart" technical guide.

When installing in regions with particularly harsh climatic conditions, the units must be equipped with an electric resistance (E versions).

The latter is installed on the fresh air intake section so as to prevent freezing phenomena on the discharge air outlet side. If the fresh air temperature drops below the default limit, resulting in the risk of the counterflow heat exchanger freezing, the electric resistance is switched on and the thermal power is adjusted continuously in order to maintain the discharge air temperature within the desired range.

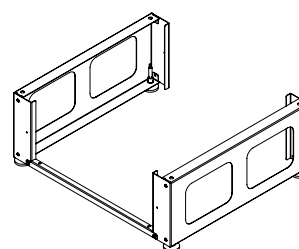


Accessories

ES-E External circular electric heater



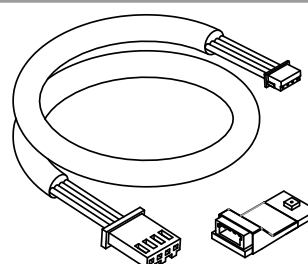
ES-P Feet



ES-DP Pressure sensor



ES-SU Capacity humidity sensor



Sabiana S.p.A. offers a wide range of accessories **designed for air distribution** in controlled mechanical heat recovery ventilation systems, used to ventilate small residential and commercial buildings, to install an air distribution network in the various environments and meet any need.

The system consists of several components:

- **Double wall**, circular and semicircular **flexible duct** made of high density polyethylene (PE), smooth on the inside, suitable for false ceiling, wall and underfloor installation. On the internal surface, the ducts have an antibacterial and antistatic layer to ensure constant air cleaning. The flexible ducts are also available without the antibacterial and antistatic layer.
- Moulded **PE accessories**, including 90° horizontal and vertical bends, connectors, bracket elements, grid adapters and inlet and outlet valves complete the range of products.

The **Sabiana Energy Smart** unit is connected to the universal distribution boxes through insulated ducts and silencers, while the flexible duct is used to supply fresh air in the premises and to extract the stale and damp air from bathrooms and kitchens. To complete the system, there is a range of accessories, connectors, fasteners, and bends, which ensure sealed connections without using adhesive tape or glue, to fasten the flexible duct to the floor or ceiling, to make 90° horizontal or vertical bends with radius of curvature below that of the duct.

The volume of air going through each duct is determined by the flow rate regulators installed on the outlets of the universal distribution boxes.

On request, Sabiana provides a free configurator for defining the number of rings to be removed from the flow rate regulators.

The Sabiana configurator requires the following information:

- 1 Air flow rate of each circuit;
- 2 Type of flexible duct;
- 3 Length of duct paths;
- 4 Number and type of bends (horizontal or vertical).

For all the conducts, diffusers and related accessories see the “Energy Smart” technical guide.





Air handling units



Since 1990, Sabiana has been manufacturing air handling units with airflow rates ranging from 1,000 to 80,000 m³/h.

The **Ocean** and **Zeus** unit range are built with configurable modules in several versions, which use standard components in stock with very short delivery times.

The **Titan** units, are partly made to measure, manufactured in accordance with the customer's specifications, by using an efficient configuration and selection software. They are manufactured with double, high-thickness panels (50 mm) and use a specific aluminium profile that allows for the creation of perfectly smooth inside walls, without gaps or protrusions, so as to simplify cleaning and the extraction of components from the sides.

Along with the typical solutions allowing for higher energy savings, such as static and rotary recovery units and inverters on motors, Sabiana proposes the adoption of **electronic filters** as an alternative to traditional mechanical pocket filters, with considerably lower pressure drops and consumption, and without any need for replacement (routine cleaning makes them as good as new).

Ocean

Modular Ducted Unit



The **Ocean** modular ducted units are suitable for heating and cooling small and medium-sized environments. The compact dimensions of the unit and the modularity of the basic components simplify installation in small spaces. **Four basic models and 15 versions** are available, both horizontal and vertical, with air flow-rates ranging from 600 to 5.300 m³/h, heat outputs **from 6 to 68 kW**, cooling capacities **from 3 to 30 kW**.

As well as the traditional accessories, each unit can be supplied with **the innovative Crystall electronic filter** that significantly improves indoor air quality.

Casing: consists of self-supporting panels in hot dip galvanized, prepainted steel, which are completely insulated with a 20 mm thick, thermoacoustic, flame retardant lining.

Fan section with Asynchronous Electric Motor (Ocean range): for the models 1, 2 and 3, it consists of centrifugal fans in galvanized steel with two impellers, and one directly coupled three speed motor. Model 4 consists of two motors with rotating stators directly coupled to the impeller.

The power supply is permanent split capacitor **single phase 230V - 50Hz**, insulation class F.

Fan Section with EC Motor and Inverter (Ocean-ECM range): it consists of centrifugal fan with two impellers, made of galvanized steel and **one single EC motor directly coupled** to the power supply single phase 230V - 50Hz, **control input 0-10V**.

Coil: is mounted in a galvanized steel carrying frame and constructed in 3/8" dia expanded copper tubes with aluminium fins with a pitch of 2,1 mm. The steel headers have tapping for air vent and male connections.

The coils **are tested** under a pressure **of 30 bars**.

In normal operation the water temperature should not exceed 95°C and the maximum working pressure 10 bars.

Where a cooling coil is fitted, the coil should always be fitted in a vertical position.

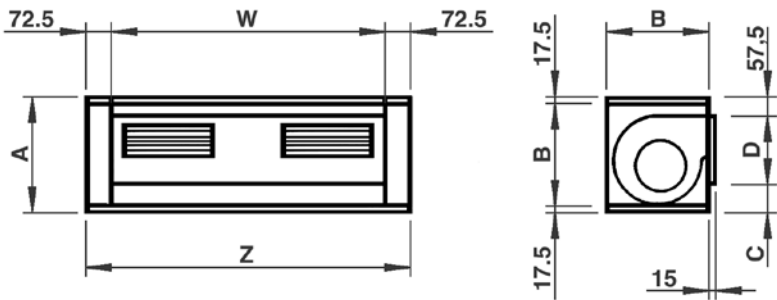
The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

Filter: available in the following versions:

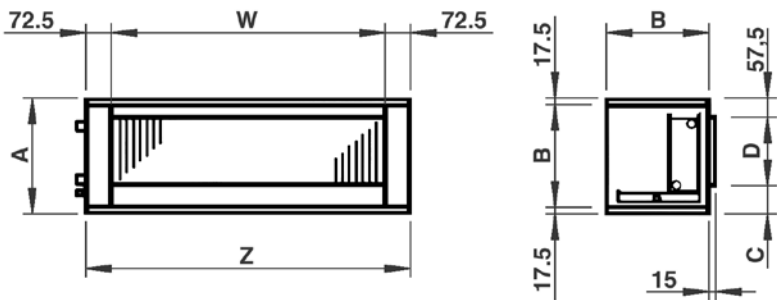
- regenerable synthetic filter, 50 mm thick, **G3** efficiency class.
- synthetic micro-pleated cell filter, 98 mm, **F7** efficiency class.



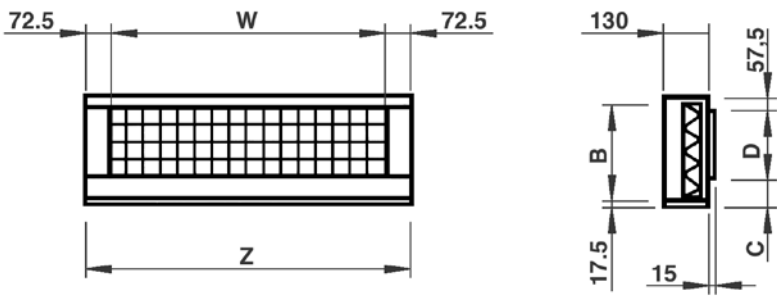
Fan section **SVE**



Coil section **SBO**



Filter section **SFS**

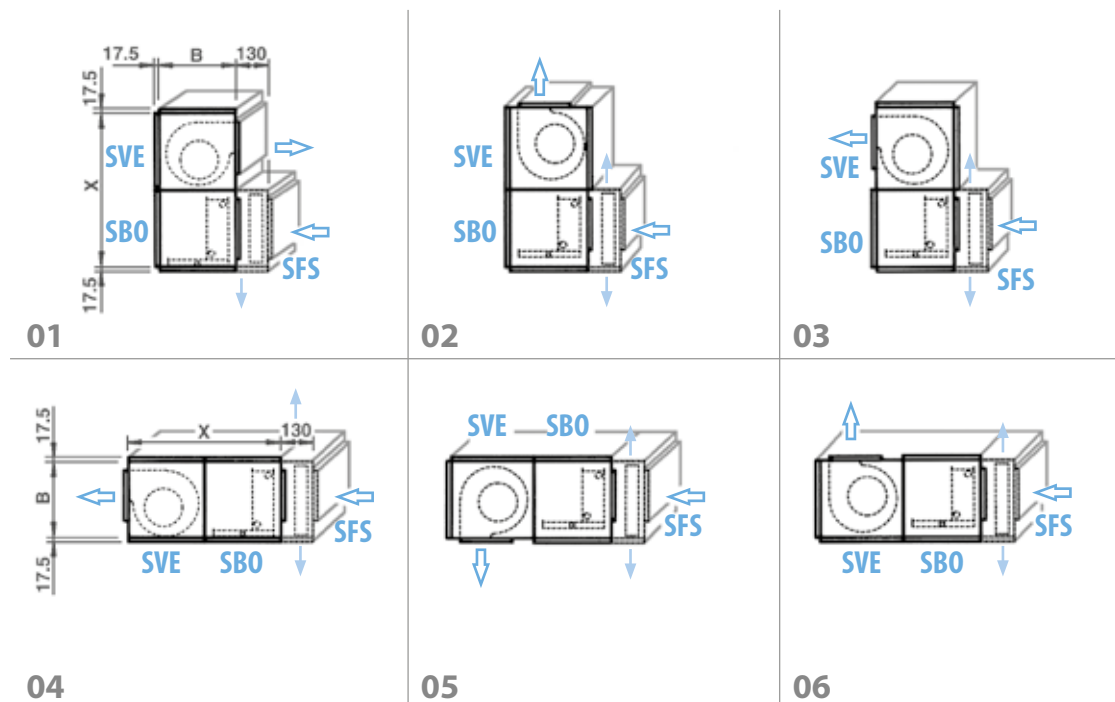


Model	Dimensions (mm)						
	A	B	C	D	X	Z	W
1	335	300	82,5	195	600	950	805
2	415	380	57,5	300	760	950	805
3	515	480	57,5	400	960	950	805
4	515	480	57,5	400	960	1500	1355

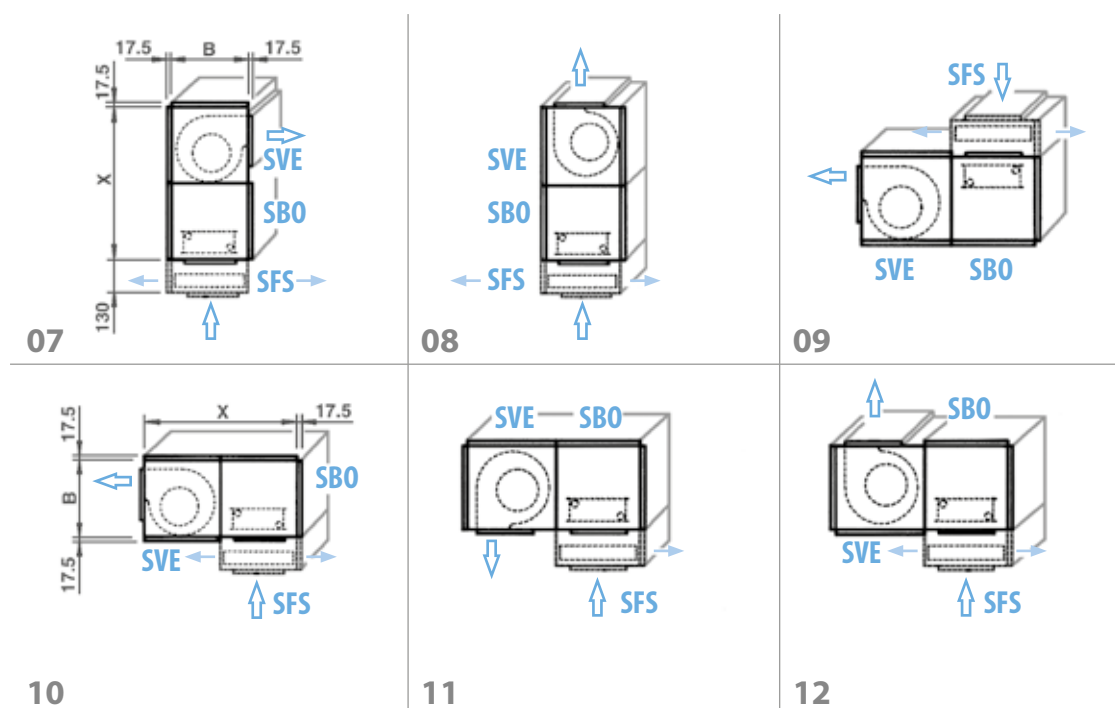
		Section weights (kg)			
Model		1	2	3	4
Fan section		23	28	32	52
Coil section	2 ROWS	14	18	22	38
	3 ROWS	16	20	24	42
	4 ROWS	18	22	26	45
	6 ROWS	22	28	34	55
	4 + 2 ROWS	–	26	30	52
	6 + 2 ROWS	–	32	38	62

In addition to the 12 versions available using standard components, a wide range of **further combinations can be achieved** and for each of them you can choose between the four different types of coil.

Heating and cooling



Heating only



Selection Diagrams of SVE Fan Section with Asynchronous Motor.

The Fan Section is assembled with filtering and air handling sections. The typical curves for unit selection are provided below. Performance curves show fan section typical field of operation, in terms of air flow at specific external static pressures and motor speed.

Absorbed electrical power curves are also provided to the operating air flow and motor speed. Maximum operating current and detailed information about sound power are also reported below for each model.

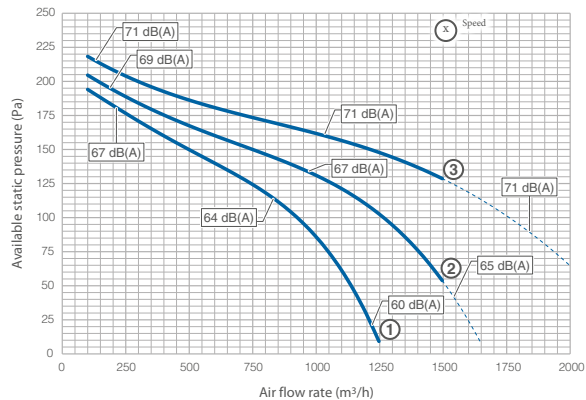
Quick Selection Item

Model	Air flow	Available pressure	Power absorption
1	600 – 1400 m ³ /h	85 – 150 Pa	75 – 240 W
2	1000 – 2100 m ³ /h	65 – 170 Pa	135 – 375 W
3	1500 – 3000 m ³ /h	100 – 160 Pa	250 – 520 W
4	2400 – 4500 m ³ /h	100 – 350 Pa	600 – 1100 W

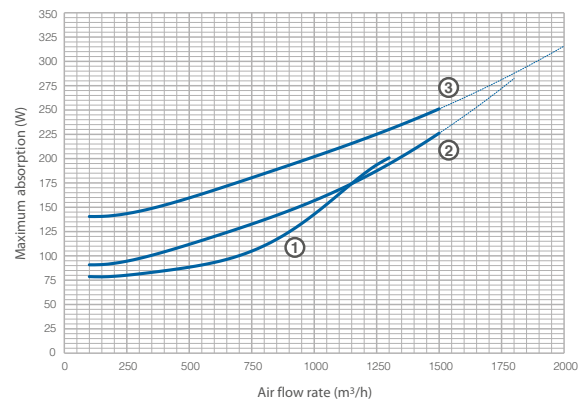
Model	Recovery efficiency	Maximum absorption AMP	Sound power
1	27%	2,2 A	60 – 70 dB(A)
2	30%	2,4 A	58 – 70 dB(A)
3	30%	2,7 A	60 – 80 dB(A)
4	35%	4,8 A	63 – 81 dB(A)

Model 1

Air flow rate/available static pressure



Maximum absorption



Typical Operative Sector

Air flow rate: 600 – 1400 m³/h

Available static pressure: 85 – 150 Pa

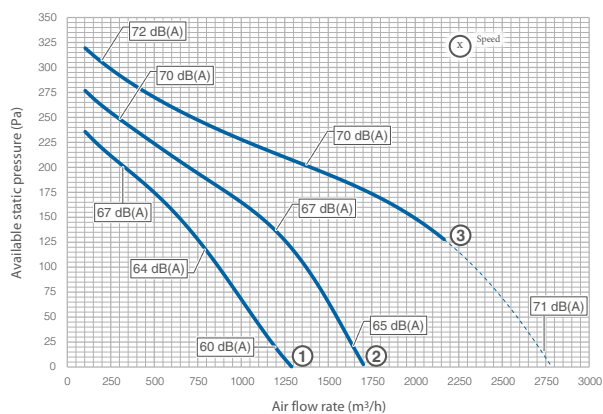
Sound power: 60 – 70 dB(A)

Power supply: 75 – 240 W

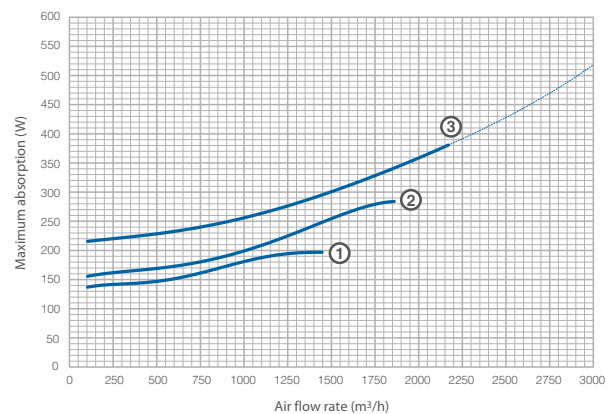
Maximum current input: 2,2 A

Model 2

Air flow rate/available static pressure



Maximum absorption



Typical Operative Sector

Air flow rate: 1000 – 2100 m³/h

Available static pressure: 65 – 170 Pa

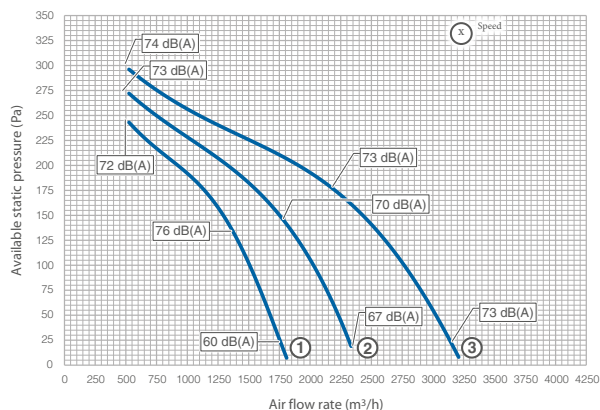
Sound power: 58 – 70 dB(A)

Power supply: 135 – 375 W

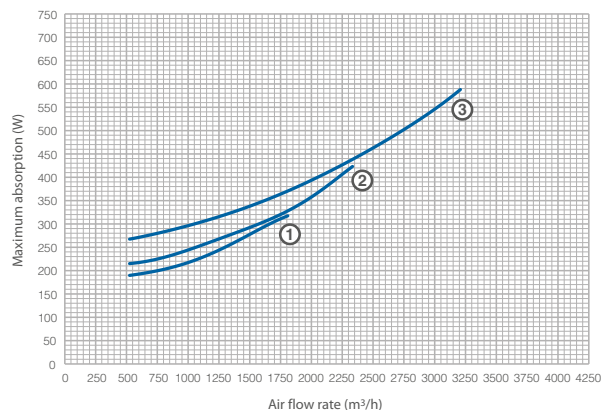
Maximum current input: 2,4 A

Model 3

Air flow rate/available static pressure



Maximum absorption



Typical Operative Sector

Air flow rate: 1500 – 3000 m³/h

Available static pressure: 100 – 160 Pa

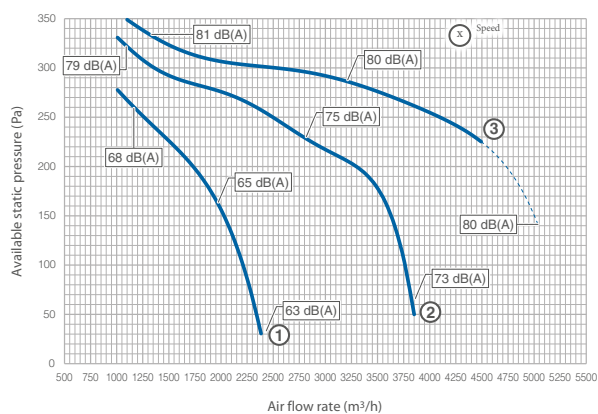
Sound power: 60 – 80 dB(A)

Power supply: 250 – 520 W

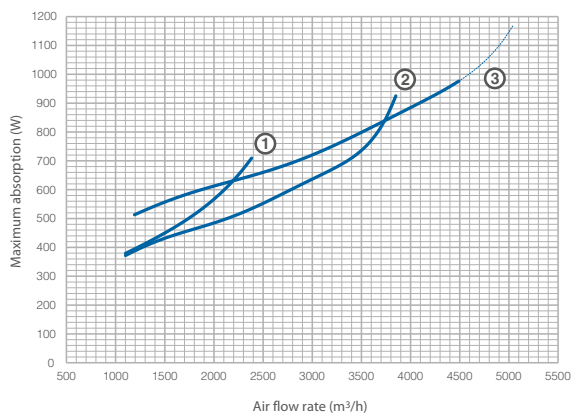
Maximum current input: 2,7 A

Model 4

Air flow rate/available static pressure



Maximum absorption



Typical Operative Sector

Air flow rate: 2400 – 4500 m³/h

Available static pressure: 100 – 350 Pa

Sound power: 63 – 81 dB(A)

Power supply: 600 – 1100 W

Maximum current input: 4,8 A

Selection Diagrams of SVE-ECM Fan Section with EC Motor and Inverter

The Fan Section is assembled with filtering and air handling sections.

The typical curves for unit selection are provided below. Performance curves show fan section typical field of operation, in terms of air flow at specific external static pressures and motor speed.

Absorbed electrical power curves are also provided to the operating air flow and motor speed. Maximum operating current and detailed information about sound power are also reported below for each model.

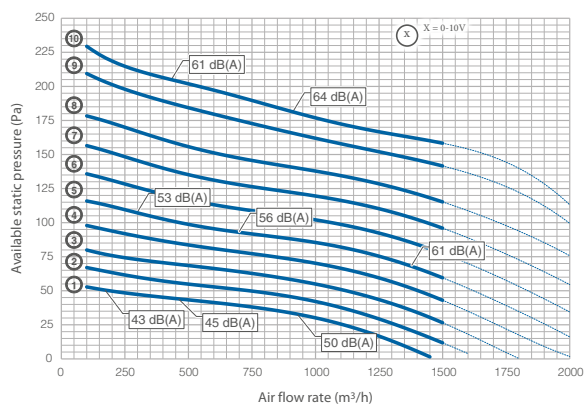
Quick Selection Item

Model	Air flow rate	Available static pressure rate	Power absorption rate
1	600 – 1400 m ³ /h	40 – 160 Pa	15 – 200 W
2	1000 – 2100 m ³ /h	40 – 200 Pa	25 – 370 W
3	1500 – 3000 m ³ /h	40 – 250 Pa	30 – 600 W
4	2400 – 4500 m ³ /h	30 – 270 Pa	30 – 950 W

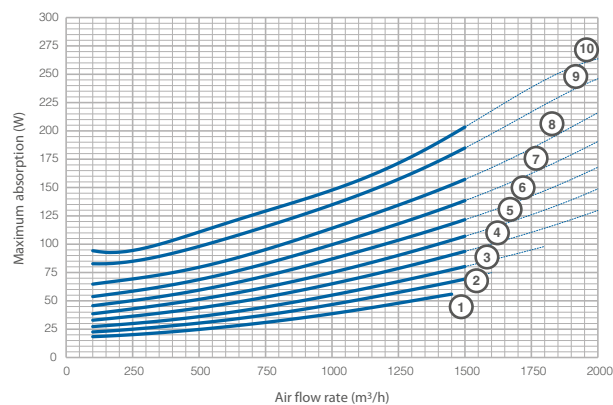
Model	Recovery efficiency	Maximum absorption AMP	Sound power rate
1	42%	1,9 A	45 – 70 dB(A)
2	36%	3,0 A	50 – 72 dB(A)
3	40%	4,4 A	50 – 82 dB(A)
4	44%	5,0 A	60 – 82 dB(A)

Model 1

Air flow rate/available static pressure



Maximum absorption



Typical Operative Sector

Air flow rate: 600 – 1400 m³/h

Available static pressure: 40 – 160 Pa

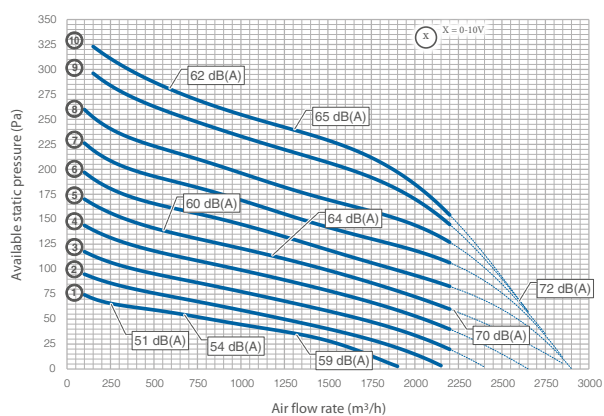
Sound power: 45 – 70 dB(A)

Power supply: 15 – 200 W

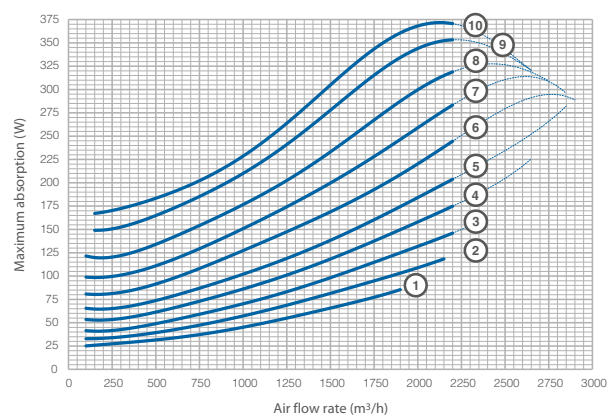
Maximum current input: 1,9 A

Model 2

Air flow rate/available static pressure



Maximum absorption



Typical Operative Sector

Air flow rate: 1000 – 2100 m³/h

Available static pressure: 40 – 200 Pa

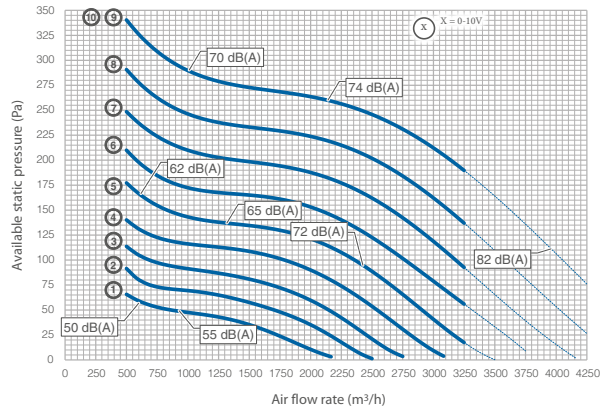
Sound power: 50 – 72 dB(A)

Power supply: 25 – 370 W

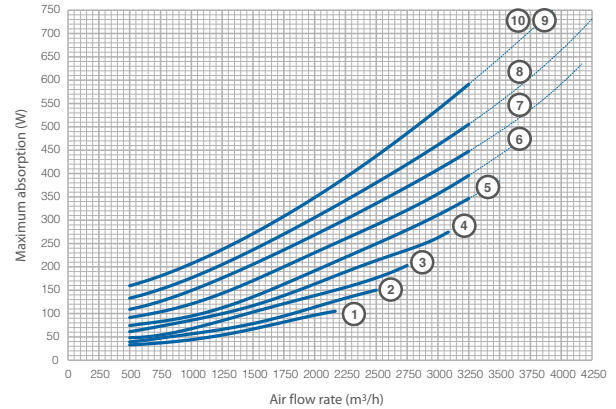
Maximum current input: 3,0 A

Model 3

Air flow rate/available static pressure



Maximum absorption

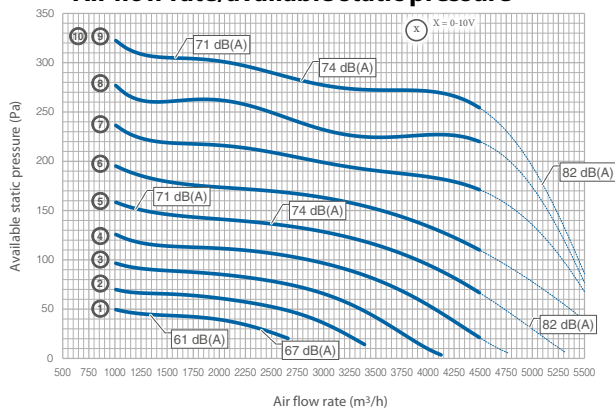


Typical Operative Sector

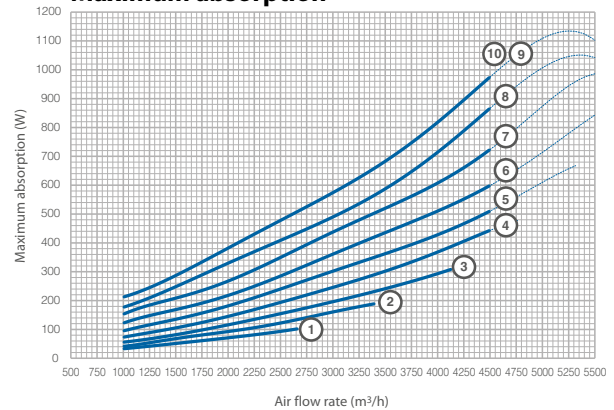
Air flow rate: 1500 – 3000 m³/h
Available static pressure: 40 – 250 Pa
Sound power: 50 – 82 dB(A)
Power supply: 30 – 600 W
Maximum current input: 4,4 A

Model 4

Air flow rate/available static pressure



Maximum absorption

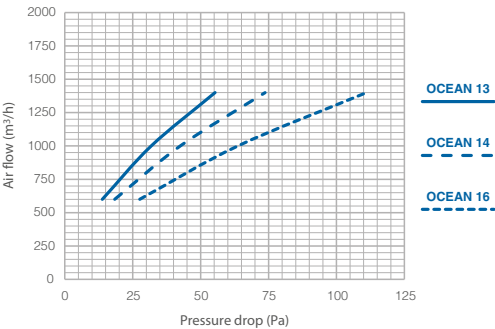


Typical Operative Sector

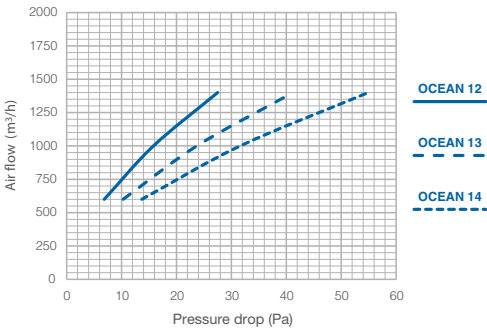
Air flow rate: 2400 – 4500 m³/h
Available static pressure: 30 – 270 Pa
Sound power: 60 – 82 dB(A)
Power supply: 30 – 950 W
Maximum current input: 5,0 A

Model 1

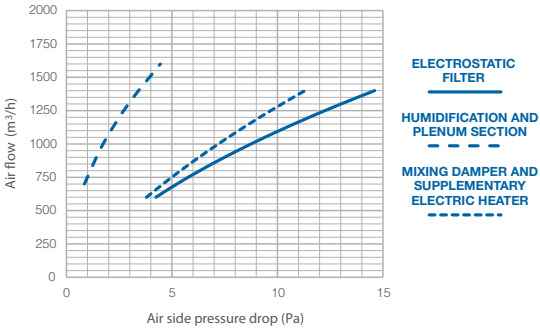
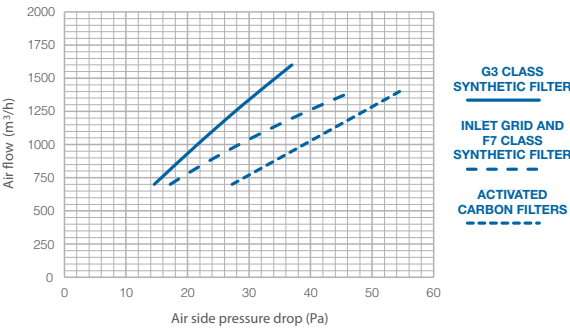
Cooling coil



Heating coil

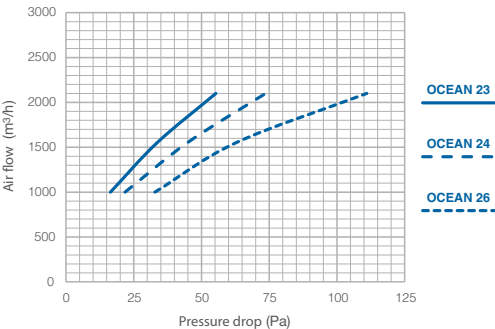


Optional sections

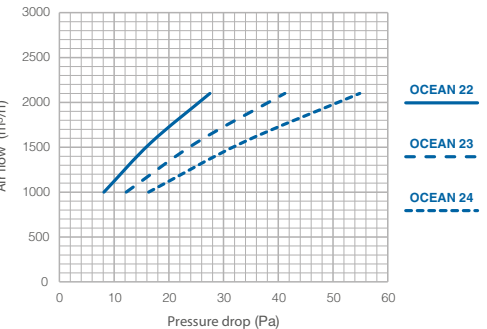


Model 2

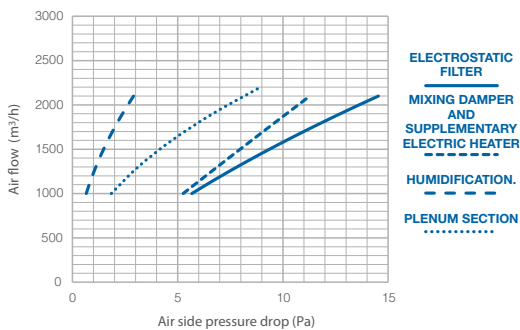
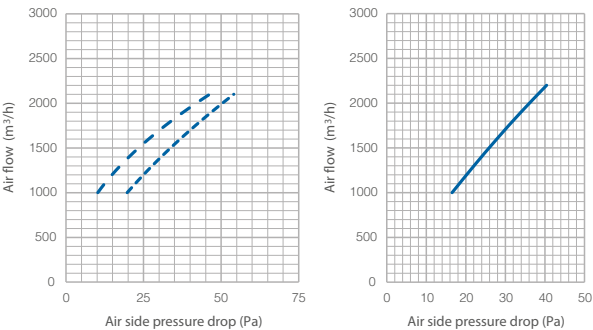
Cooling coil



Heating coil

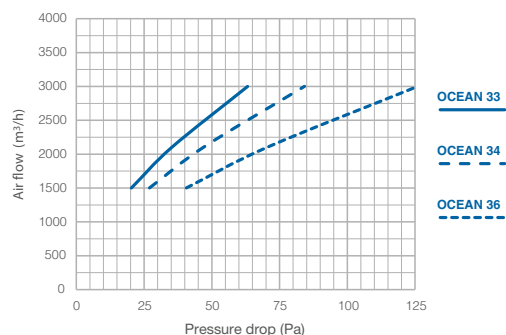


Optional sections

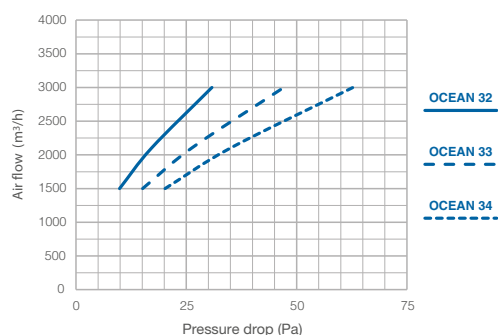


Model 3

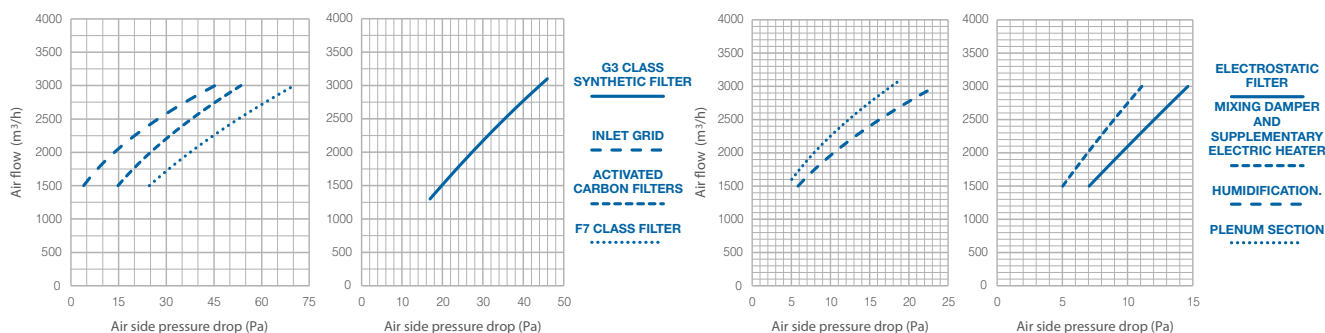
Cooling coil



Heating coil

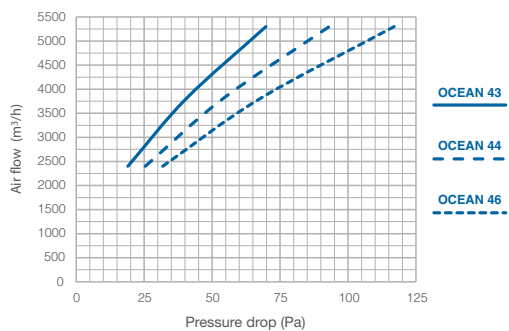


Optional sections

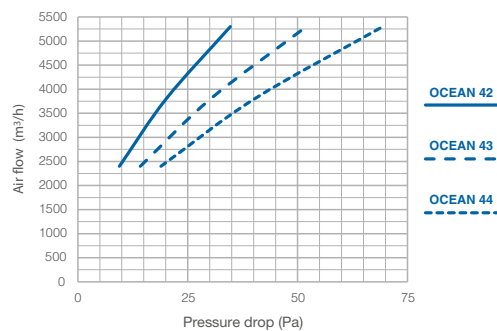


Model 4

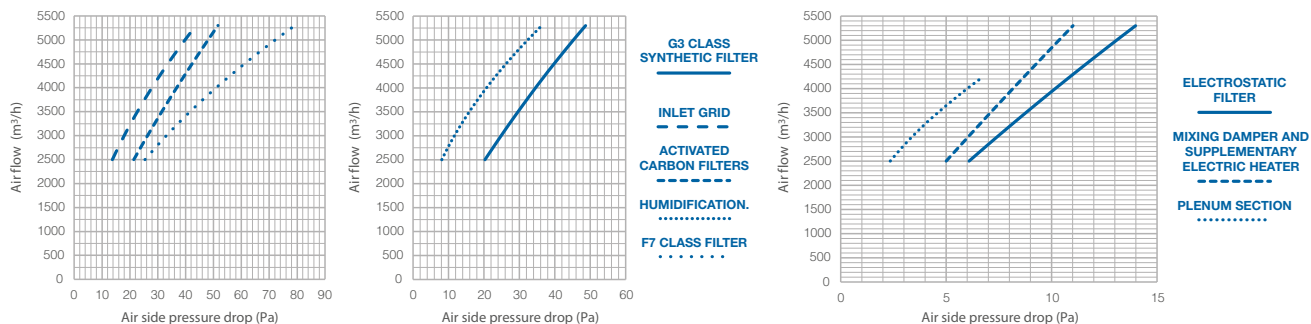
Cooling coil



Heating coil



Optional sections



Heating Emission (kW)

Model	Q _v m ³ /h	Entering Air Temperature 20 °C						Entering Air Temperature 5 °C					
		WT: 45/40 °C			WT: 70/60 °C			WT: 45/40 °C			WT: 70/60 °C		
		P _h kW	Q _w l/h	Dp(c) kPa	P _h kW	Q _w l/h	Dp(c) kPa	P _h kW	Q _w l/h	Dp(c) kPa	P _h kW	Q _w l/h	Dp(c) kPa
12	600	2,75	472,3	6,5	5,59	480,8	6,2	4,86	836,5	18,2	7,81	671,5	11,3
	1000	3,86	664,5	12,0	7,87	676,5	11,4	6,86	1180,0	33,7	11,02	947,1	21,0
	1400	4,77	819,6	17,5	9,72	835,4	16,7	8,47	1457,1	49,3	13,60	1169,0	30,6
13	600	3,45	592,5	4,7	7,00	601,8	4,5	6,07	1043,4	13,0	9,77	839,7	8,1
	1000	5,00	859,1	9,2	10,17	874,7	8,8	8,84	1520,2	25,6	14,23	1223,5	16,0
	1400	6,29	1082,3	13,9	12,82	1102,1	13,3	11,16	1918,4	39,0	17,92	1541,1	24,3
14	600	3,91	672,1	3,5	-	-	-	6,85	1177,6	9,7	-	-	-
	1000	5,82	1000,2	7,2	-	-	-	10,25	1762,8	20,0	16,51	1419,7	12,5
	1400	7,44	1279,8	11,2	15,14	1301,5	10,7	13,15	2261,5	31,2	21,15	1818,5	19,5
22	1000	4,43	761,8	7,4	9,02	775,2	7,0	7,84	1348,9	20,7	12,61	1084,4	12,9
	1550	5,91	1016,8	12,4	12,05	1036,5	11,9	10,51	1806,8	35,0	16,87	1450,1	21,8
	2100	7,15	1229,4	17,5	14,57	1253,1	16,7	12,71	2185,7	49,3	20,39	1753,5	30,6
23	1000	5,60	962,1	5,4	11,36	976,9	5,2	9,86	1696,2	15,1	15,87	1364,6	9,4
	1550	7,67	1318,6	9,6	15,62	1342,6	9,1	13,57	2334,1	26,8	21,83	1877,0	16,7
	2100	9,44	1623,5	13,9	19,23	1653,1	13,3	16,73	2877,6	39,0	26,89	2311,6	24,3
24	1000	6,38	1096,9	4,1	-	-	-	11,19	1924,6	11,3	-	-	-
	1550	8,94	1537,2	7,5	18,18	1563,5	7,2	15,76	2710,3	20,9	25,39	2182,6	13,0
	2100	11,16	1919,7	11,2	22,71	1952,3	10,7	19,73	3392,1	31,2	31,72	2727,7	19,5
32	1500	6,53	1123,7	16,7	13,25	1139,5	15,8	11,50	1976,9	46,1	18,48	1588,9	28,7
	2100	8,15	1401,3	24,8	16,54	1422,0	23,5	14,37	2470,4	68,9	23,06	1982,9	42,8
	3000	10,18	1750,0	37,0	20,67	1777,5	35,2	17,95	3086,7	102,8	28,80	2476,0	63,9
33	1500	8,26	1421,0	12,2	16,74	1439,0	11,5	14,48	2490,8	33,6	23,30	2003,5	21,0
	2100	10,52	1808,6	18,9	21,33	1833,8	17,9	18,48	3177,3	52,0	29,72	2555,2	32,5
	3000	13,39	2302,3	29,1	27,17	2336,2	27,6	23,57	4053,7	80,6	37,90	3258,9	50,3
34	1500	9,47	1628,4	9,3	-	-	-	16,53	2842,3	25,4	-	-	-
	2100	12,26	2107,8	14,8	-	-	-	21,47	3691,9	40,6	34,56	2971,2	25,4
	3000	15,89	2731,9	23,6	32,22	2770,0	22,4	27,89	4796,0	65,0	44,85	3856,1	40,6
42	2400	10,13	1742,0	5,1	20,67	1777,5	4,8	18,06	3106,0	14,3	29,03	2495,8	8,9
	3400	12,71	2184,8	7,6	26,00	2235,2	7,3	22,72	3906,7	21,7	36,50	3138,1	13,5
	4500	15,14	2602,8	10,4	30,97	2663,1	10,0	27,08	4656,8	29,7	43,50	3740,2	18,5
43	2400	13,29	2285,4	9,5	26,93	2315,9	8,9	23,34	4013,8	26,1	37,55	3228,7	16,3
	3400	17,07	2935,4	14,8	34,64	2978,6	14,1	30,06	5168,5	41,1	48,31	4153,4	25,6
	4500	20,71	3561,4	21,0	42,05	3615,4	19,9	36,48	6273,3	58,2	58,62	5040,5	36,3
44	2400	15,26	2624,0	8,3	-	-	-	26,65	4581,9	22,7	-	-	-
	3400	19,97	3434,3	13,5	-	-	-	34,97	6013,8	37,0	56,33	4843,5	23,2
	4500	24,55	4221,6	19,6	49,76	4278,8	18,5	43,08	7408,1	53,9	69,30	5958,2	33,6

LEGEND:

- WT** = Water temperature
- Q_v** = Air flow
- P_h** = Heating emission
- P_c** = Cooling total emission
- P_s** = Cooling sensible emission
- Q_w** = Water flow
- Dp(c)** = Water side pressure drop

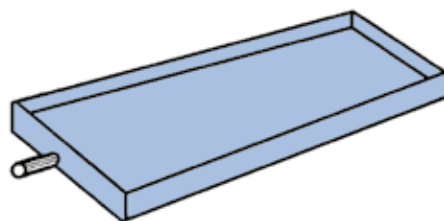
Cooling Emission (kW) - Relative Humidity 50%

Model	Qv	Entering Air Temperature 27 °C						Entering Air Temperature 26 °C						Entering Air Temperature 25 °C					
		WT: 7/12°C			WT: 12/17°C			WT: 7/12°C			WT: 12/17°C			WT: 7/12°C			WT: 12/17°C		
		P _c	Q _w	Dp(c)	P _c	Q _w	Dp(c)	P _c	Q _w	Dp(c)	P _c	Q _w	Dp(c)	P _c	Q _w	Dp(c)	P _c	Q _w	Dp(c)
		P _s			P _s			P _s			P _s			P _s			P _s		
	m ₃ /h	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa
13	600	3,07 2,21	527,5	4,7	1,60 1,53	275,3	1,4	2,71 2,12	466,8	3,8	1,41 1,34	243,2	1,1	2,39 2,04	410,8	3,0	1,40 1,32	241,5	1,1
	1000	4,12 3,21	708,5	8,0	2,24 2,13	385,9	2,6	3,64 3,09	626,7	6,4	2,21 2,07	380,3	2,5	3,27 3,00	561,5	5,2	1,98 1,86	341,1	2,1
	1400	4,93 3,99	848,2	11,0	2,77 2,62	476,0	3,8	4,41 3,90	758,2	9,0	2,74 2,56	471,2	3,7	3,93 3,71	676,6	7,3	2,46 2,29	422,5	3,1
14	600	3,63 2,56	624,9	3,8	1,85 1,78	317,4	1,1	3,21 2,42	551,3	3,0	1,59 1,54	273,6	0,8	2,81 2,30	484,1	2,4	1,63 1,55	280,6	0,9
	1000	5,02 3,74	863,8	6,8	2,64 2,53	453,5	2,1	4,45 3,58	765,4	5,4	2,48 2,37	427,3	1,9	3,93 3,44	675,0	4,3	2,36 2,23	405,4	1,7
	1400	6,05 4,75	1040,7	9,5	3,28 3,14	564,7	3,1	5,42 4,60	931,3	7,8	3,30 3,10	566,9	3,1	4,80 4,44	825,1	6,2	2,96 2,78	509,0	2,6
16	600	4,72 3,09	811,0	7,1	2,40 2,25	411,9	2,1	4,19 2,91	720,9	5,8	2,04 1,98	350,9	1,5	3,70 2,73	635,5	4,6	1,74 1,69	298,7	1,2
	1000	6,84 4,64	1176,9	14,0	3,51 3,39	603,2	4,1	6,07 4,39	1043,8	11,2	3,01 2,92	518,1	3,1	5,35 4,15	919,4	8,9	2,81 2,72	483,4	2,7
	1400	8,53 5,98	1466,3	20,7	4,44 4,27	763,9	6,3	7,57 5,69	1302,2	16,7	3,84 3,70	660,3	4,8	6,68 5,41	1148,6	13,4	3,87 3,73	664,8	4,9
23	1000	4,94 3,57	848,8	5,3	2,60 2,46	446,4	1,6	4,38 3,45	752,7	4,3	2,36 2,21	405,2	1,4	3,86 3,32	664,0	3,4	2,29 2,13	393,4	1,3
	1550	6,35 4,85	1091,4	8,3	3,46 3,27	595,5	2,7	5,65 4,74	972,2	6,8	3,42 3,17	588,3	2,7	5,04 4,60	866,4	5,5	3,07 2,84	527,5	2,2
	2100	7,55 5,98	1297,8	11,4	4,19 3,93	720,1	3,9	6,87 5,85	1180,7	9,6	4,15 3,84	714,2	3,8	5,96 5,56	1025,5	7,5	3,72 3,44	639,9	3,1
24	1000	5,88 4,15	1011,2	4,3	3,00 2,88	516,4	1,3	5,20 3,95	894,3	3,5	2,59 2,49	445,9	1,0	4,57 3,75	785,3	2,7	2,67 2,51	458,9	1,0
	1550	7,75 5,74	1331,9	7,1	4,07 3,87	699,6	2,2	6,85 5,50	1178,2	5,7	3,87 3,66	665,1	2,0	6,04 5,29	1039,3	4,6	3,65 3,42	627,8	1,8
	2100	9,25 7,13	1591,0	9,8	4,96 4,71	853,2	3,1	8,18 6,90	1406,3	7,8	4,99 4,65	857,7	3,1	7,25 6,66	1247,3	6,3	4,48 4,17	769,7	2,6
26	1000	7,70 5,06	1323,9	8,3	3,91 3,71	673,2	2,4	6,84 4,76	1177,0	6,7	3,34 3,23	574,0	1,8	6,02 4,47	1036,1	5,3	2,88 2,78	495,4	1,4
	1550	10,54 7,14	1813,0	14,6	5,41 5,20	931,1	4,3	9,35 6,76	1608,4	11,8	4,65 4,48	800,1	3,3	8,24 6,39	1417,3	9,4	4,37 4,20	751,7	2,9
	2100	12,87 8,97	2213,2	21,0	6,70 6,41	1152,9	6,3	11,43 8,53	1965,5	16,9	5,79 5,55	996,2	4,9	10,09 8,11	1734,8	13,5	5,83 5,59	1002,5	4,9
33	1500	7,61 5,27	1307,9	12,9	4,04 3,79	694,6	4,0	6,75 5,10	1160,8	10,4	3,52 3,31	605,6	3,2	5,97 4,92	1026,0	8,3	3,51 3,24	603,8	3,1
	2100	9,20 6,62	1582,5	18,2	5,02 4,69	863,8	6,0	8,20 6,46	1409,5	14,8	4,43 4,13	761,1	4,8	7,29 6,28	1253,9	12,0	4,40 4,04	757,4	4,7
	3000	11,11 8,40	1910,2	25,5	6,27 5,82	1077,5	8,9	9,94 8,28	1708,7	20,9	6,14 5,60	1056,6	8,6	8,87 8,12	1525,8	17,0	5,53 5,06	951,2	7,1
34	1500	9,11 6,21	1566,1	10,6	4,70 4,46	808,5	3,2	8,06 5,91	1385,9	8,5	4,06 3,86	698,7	2,4	7,11 5,63	1222,3	6,8	4,10 3,82	704,7	2,5
	2100	11,22 7,90	1929,2	15,5	5,92 5,58	1017,9	4,8	9,96 7,59	1713,1	12,5	5,15 4,87	885,5	3,7	8,79 7,28	1511,7	10,0	5,22 4,84	897,9	3,8
	3000	13,73 10,12	2361,1	22,3	7,46 7,00	1282,8	7,3	12,25 9,82	2106,7	18,1	6,81 6,29	1171,5	6,2	10,86 9,50	1867,8	14,6	6,66 6,15	1145,3	5,9
36	1500	11,75 7,59	2020,9	20,4	6,04 5,59	1039,1	6,0	10,46 7,15	1798,8	16,6	5,16 4,95	887,9	4,5	9,24 6,73	1589,5	13,3	4,40 4,24	757,0	3,4
	2100	14,96 9,85	2572,2	31,5	7,74 7,38	1331,1	9,4	13,30 9,32	2286,4	25,5	6,65 6,35	1143,0	7,2	11,74 8,81	2019,1	20,4	5,71 5,46	981,2	5,4
	3000	18,89 12,82	3248,2	48,0	9,94 9,42	1709,5	14,8	16,82 12,22	2892,3	38,9	8,60 8,17	1478,2	11,4	14,88 11,63	2559,0	31,2	7,94 7,51	1365,7	9,9
43	2400	12,24 8,49	2105,5	10,0	6,49 6,05	1115,3	3,1	10,87 8,20	1868,8	8,1	5,65 5,29	970,8	2,4	9,61 7,90	1653,1	6,5	5,66 5,18	973,9	2,4
	3400	14,96 10,77	2572,1	14,3	8,14 7,56	1399,9	4,7	13,30 10,50	2287,4	11,6	7,40 6,73	1272,0	3,9	11,82 10,21	2033,0	9,4	7,17 6,51	1233,7	3,7
	4500	17,37 13,04	2987,0	18,8	9,69 8,96	1667,0	6,4	15,54 12,78	2672,9	15,4	9,54 8,65	1641,1	6,2	13,88 12,54	2386,2	12,5	8,58 7,78	1475,8	5,2
44	2400	14,83 10,02	2549,5	9,7	7,65 7,21	1315,6	2,9	13,14 9,55	2259,8	7,8	6,59 6,25	1133,9	2,2	11,58 9,08	1991,2	6,2	6,63 6,18	1140,6	2,2
	3400	18,48 12,88	3177,5	14,4	9,72 9,12	1670,8	4,4	16,38 12,38	2816,2	11,6	8,45 7,95	1452,3	3,4	14,47 11,86	2487,6	9,3	8,58 7,89	1476,0	3,5
	4500	21,71 15,68	3732,7	19,2	11,68 10,92	2008,6	6,2	19,34 15,15	3325,0	15,6	10,39 9,56	1786,1	5,0	17,12 14,62	2944,2	12,6	10,41 9,54	1790,0	5,0
46	2400	17,73 11,55	3048,7	10,6	9,09 8,64	1563,2	3,1	15,76 10,90	2709,3	8,5	7,77 7,41	1336,3	2,3	13,90 10,28	2390,1	6,8	6,66 6,35	1146,1	1,8
	3400	22,58 15,04	3882,2	16,3	11,70 11,05	2011,2	4,9	20,05 14,28	3447,5	13,2	10,07 9,54	1731,1	3,7	17,68 13,55	3041,0	10,5	9,27 8,76	1594,7	3,2
	4500	27,03 18,45	4648,6	22,6	14,19 13,36	2440,4	6,9	24,01 17,62	4129,2	18,2	12,28 11,60	2111,9	5,3	21,21 16,82	3648,1	14,6	12,10 11,40	2080,0	5,2

BRC

Condensate collection tray

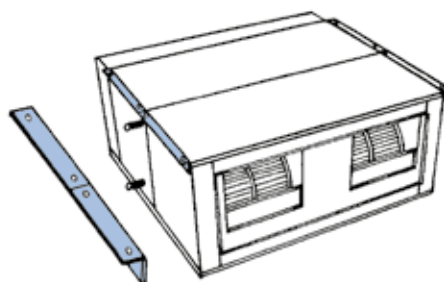
Always provided for 01 to 06 versions and in combination with "SUD" humidifying unit and with chilled water coils.



SQS

Suspension brackets

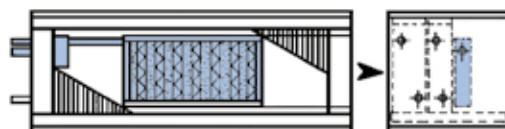
Galvanized steel angle brackets for ceiling mounting or wall mounting.



SUD

Humidification section

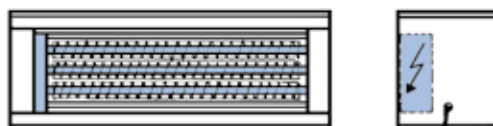
Deck fill humidification with 2 way valve, 230 V 50 Hz supply, with manual regulation of the water flow rate. The "BRC" drip tray must always be used.



BEL

Electric heater incorporating a safety thermostat

The electrical heaters must be installed downstream of the fan section.



V2300PA

230V ON-OFF VALVE KIT for main and auxiliary coil

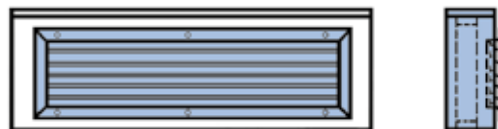


V24MP

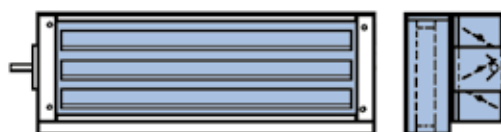
24V VALVE KIT for main and auxiliary coil



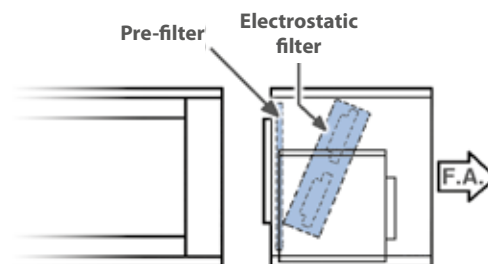
FGR **Filter section with inlet grid**



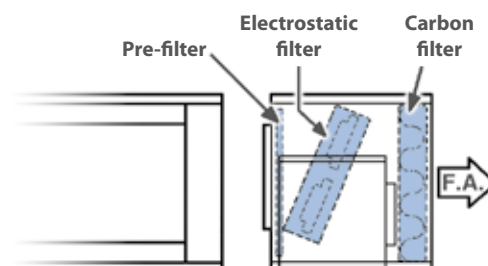
FSR **Filter section with damper**



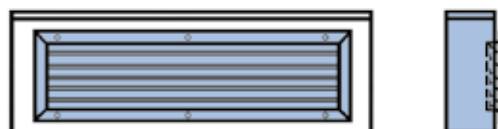
SFE **Section with pre-filter and electrostatic filter**



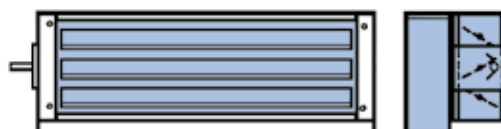
FCA **Section with:
pre-filter, electrostatic filter and active
carbon filter**



PAG **Inlet box with grid**



PAS **Inlet box with damper**



PMS

Inlet/outlet box
with top or bottom damper



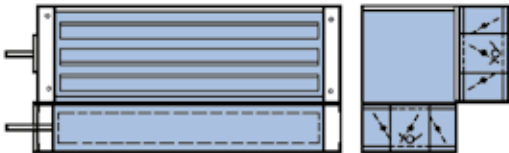
PSI

Top/bottom panel



PDS

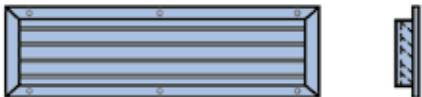
Mixing box with two dampers



GAS

Inlet grid

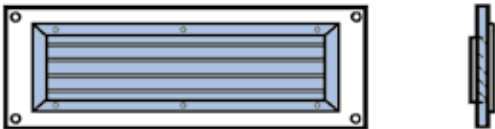
To be installed on the duct.



PGA

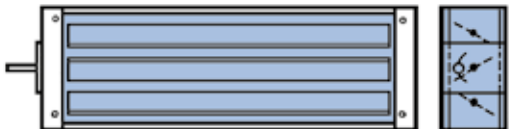
Panel with inlet grid

To be installed on the fan section or on the plenum.



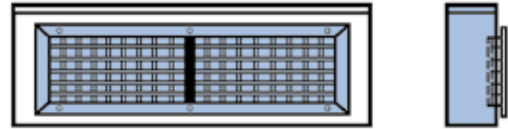
SRA

Inlet damper



PMB

**Supply plenum
with double louvres**



PMC

Supply plenum with spigots
with 3 diffusers (sizes 1-2-3)
with 4 diffusers (size 4)



BMA

**Supply grid
with double louvres**

To be installed on the duct.



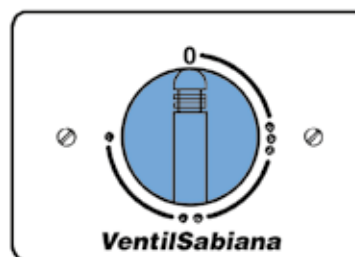
COM

Speed switch

Remote manual speed control.

Switch with 4 positions:

- OFF
- low speed
- medium speed
- high speed



WM-3V

Manual 3 speed switch

without thermostatic control.



WM-T

Manual 3 speed switch

Manual Summer/Winter switch.

Electronic room thermostat for fan and valve control (ON-OFF).



WM-TQR

Manual 3 speed switch

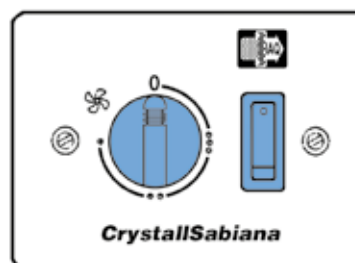
Manual, automatic or centralized Summer/Winter switch.

Electronic room thermostat for fan and valve control (ON-OFF). Switch for the electrostatic filter.



CIF

Speed switch and switch for the electrostatic filter



VAR

Electronic variable speed drive with ON-OFF switch



For each unit must be provided an ADC converter or UP-AU power-unit for Wall Controls

WM-3V	3 speed switch control (to use with ADC-S only)
WM-T	3 speed switch control with electronic thermostat and manual summer/winter switch (to use with ADC-S only)
WM-TQR	3 speed control with electronic thermostat and centralized/manual summer/winter switch (to use with ADC-S only)
WM-AU	Automatic speed switch with electronic thermostat and summer/winter switch (to use with UP-AU power unit only)
T-MB	Wall Control (to use with UP-AU power unit only)
ADC-S	ADC converter for wall controls separately delivered, for WM-3V and WM-T remote control
UP-AU	UP-AU power unit separately delivered, for WM-AU and T-MB remote control

T-MB



WM-TQR



Electronic Controls for MB Board

QCV-MB	MB control panel version (T-MB wall control included)
PSM-DI	Up to 60 multifunction units (to use with QCV-MB control panel only)

Software/Hardware Control of several Ocean / Ocean-ECM Air Handling Units

Sabianet	Sabianet (to use with QCV-MB control panel only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	8 relay output electronic MB Board for Sabianet



Zeus

Air Handling Unit



The **Zeus** air handling units are suitable for cooling and heating commercial and industrial environments. They are available in **6 horizontal models** and **6 vertical models**, with air flow from 5.000 to 25.000 m³/h. Heating capacity **from 32 to 260 kW**, cooling capacity **from 17 to 160 kW**.

The units are made up of an extruded aluminium section bar frame, and **double panelling** filled with a 25 mm thick layer of high-density (90 kg/m³) rock wool insulation that guarantees, as well as high safety standards in the event of fires (**no toxic fumes are released**), excellent noise absorption and a very high degree of thermal insulation, minimising dispersions to the outside.

The metal plate used to make the panels is galvanised and pre-painted blue on the outside of the panel.

Each unit can be **easily dismantled and reassembled on site**, changing the direction of air flow according to specific needs. The special construction allows the coil and the fan assembly to be easily inspected and removed.



Casing

Made of an extruded aluminium frame with black fibreglass-reinforced nylon corner joints, and 25mm thick **sandwich panels**. The panels are made by joining two sheets: galvanised plate for the inner panel and galvanised plate painted blue (**RAL 5012**) for the outer panel.

The sandwich panel is filled with a layer of high-density (90 kg/m³) rock wool, fire resistant class A1 according to DIN 4102 standards.

Fan assembly: is made up of fan, motor and transmission, fitted on a special mount suspended on rubber anti-vibrating elements, and with anti-vibrating joints at the fan outlet.

The elements making up the assembly have **the following characteristics:**

Fans: dual intake centrifugal fans with forward blades, single outlet for sizes 50-80-110, and double outlets for sizes 140-200-250. The fan shroud and impeller are made from galvanized steel.

Electric motors: are suitable for a three-phase 50Hz power supply, voltage 400V; constructional characteristics standardised according to UNEL-MEC form B3. Index of protection IP 55, insulation class F.

Transmission: is made up of a variable-pitch drive pulley, a fixed-pitch fan pulley and drive belt. The motor is fitted to a special slide system used to adjust the tension of the belt.

Coil and filter section: is ready to house the coil and filter.

The coil is supported by a frame and is easily removable and reversible, in terms of the side of the connections, even on site. The coils are with copper pipes and aluminium fins, and are made using 10mm diameter pipes with 25x22 pitch on sizes 50 - 80 - 110, and 16mm diameter pipes with 60mm pitch for sizes 140 - 200 - 250.

The water connections are made from steel, with male gas threads.

There are coils with **2-3-4 rows** for heating only operation, and coils with **3-4-6 rows** for cooling operation.

The dimensions of the coil section depend on the type of operation. Configuration with horizontal coil for sections for heating only, and configuration with inclined coil and condensate collection tray for sections for cooling.

The coil is not suitable for use in corrosive atmospheres or in environments where aluminium may be subject to corrosion.

Air filters

The units are fitted with **synthetic filters**, class G3 according to EN 779 standard, and class F1 as regards to resistance to fire, according to DIN 53438 standard.

The filtering layer is designed with special pleating, 48 mm thick, which reduces the overall dimensions of the filter for the same filtering surface.

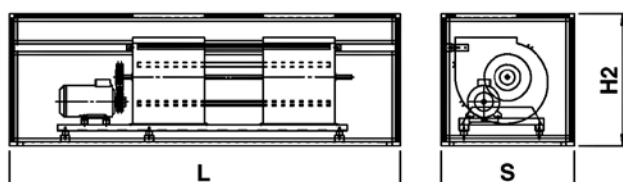
The filters are made from individual cells with a metal frame and galvanized protective mesh.

The filters are removed from the same side of water connections, so it will be necessary to keep **at least 600 mm** free on this side, in order to allow cleaning and replacement of the filters.

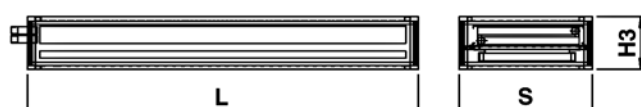




Outlet plenum section

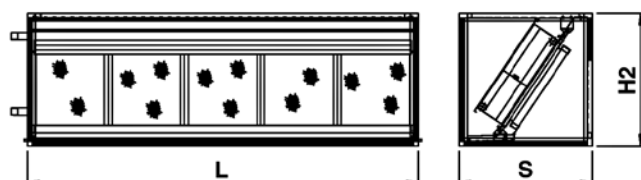


SVEZ Fan section



SBC 2-3-4 Heating coil section
with 2, 3, 4 rows

SBCF 2-3-4 Heating coil section with 2, 3, 4 rows
+ filter (for horizontal configuration only)



SBF 2 SX-DX Cooling coil section with 2, 3, 4, 6 rows
SBF 3 SX-DX + filter + condensate tray
SBF 4 SX-DX (DX = right connections)
SBF 6 SX-DX (SX = left connections)



Mixing plenum section

Model			TZ 50	TZ 80	TZ 110	TZ 140	TZ 200	TZ 250
Width	L	mm	1250	1900	1900	2560	2580	2780
Depth	S	mm	740	740	870	870	1150	1270
Fan section height	H2	mm	740	740	870	870	1150	1270
Cooling coil section height	H2	mm	740	740	870	870	1150	1270
Heating coil section height	H3	mm	350	350	350	350	400	450
Intake plenum section height	H1	mm	490	490	590	590	810	810
Outlet plenum section height	H1	mm	490	490	590	590	810	810
Coil header diameter	2R	Ø	1"	1"	1" 1/4	1" 1/2	1" 1/2	2"
Coil header diameter	3R	Ø	1"	1" 1/4	1" 1/2	1" 1/2	2"	2"
Coil header diameter	4R	Ø	1"	1" 1/4	1" 1/2	1" 1/2	2"	2" 1/2
Coil header diameter	6R	Ø	1" 1/4	1" 1/2	1" 1/2	1" 1/2	2"	2" 1/2

Model	Rows	Water content	Cooling coil section	Heating coil section	Fan section	Plenum section
		litri	SBF kg	SBC kg		
TZ 50	2	3,2	102	66	112	53
	3	4,6	105	69		
	4	6,2	109	72		
	6	8,2	117	–		
TZ 80	2	5,3	139	91	155	75
	3	7,7	143	93		
	4	10,2	149	99		
	6	14,8	161	–		
TZ 110	2	7,2	174	107	187	92
	3	10,7	177	110		
	4	14,3	185	118		
	6	20,9	201	–		
TZ 140	2	10,2	236	152	248	118
	3	15,3	241	157		
	4	20,4	256	172		
	6	30,4	286	–		
TZ 200	2	15,3	324	193	379	169
	3	22,5	329	198		
	4	29,4	351	220		
	6	44,5	388	–		
TZ 250	2	18,4	376	225	522	190
	3	27,5	382	231		
	4	37,5	408	257		
	6	55,6	459	–		

Fan section

Model	TZ 50	TZ 80	TZ 110	TZ 140	TZ 200	TZ 250
Type of fan	AT 12/12	AT 15/15	AT 18/18	AT 15/15	AT 18/18	AT 18/18G2C
Single / Double outlet	S	S	S	D	D	D
Power consumption kW	1,1	2,2	3,0	4,0	5,5	7,5
Poles	4	4	4	4	4	4
Tension 3~50Hz	400 V					400 V 690 V
Nominal current A	2,6	4,8	6,6	8,3	11,0	14,6 9
Available static pressure Low / High Model (1) Pa	0 ÷ 191	0 ÷ 256	0 ÷ 298	0 ÷ 202	0 ÷ 164	0 ÷ 166
Available static pressure Low / High Model (2) Pa	108 ÷ 238	64 ÷ 303	87 ÷ 345	35 ÷ 257	32 ÷ 220	0 ÷ 221

Type (1) = The values refer to a configuration with intake grill, filter, 6-row cooling coil, 2-row heating coil, fan section.

Type (2) = The values refer to a configuration with filter, 4-row cooling coil, fan section.

Heating emission: Water temperature 70/60 °C – Entering air temperature +20 °C

Model	Air flow m ³ /h	Rows	Thermal power kW	Leaving air temperature °C	Water flow l/h
TZ 50	4400	2	32,35	41,9	2828
		3	42,37	48,6	3704
		4	49,77	53,6	4350
TZ 80	7400	2	54,38	41,9	4753
		3	71,22	48,6	6226
		4	83,66	53,6	7312
TZ 110	10400	2	76,13	41,9	6655
		3	99,70	48,6	8716
		4	117,12	53,6	10236
TZ 140	14000	2	98,93	41,2	8688
		3	129,05	47,5	11317
		4	151,28	52,7	13266
TZ 200	20200	2	142,40	41,1	12506
		3	186,88	47,5	16389
		4	219,08	52,7	19211
TZ 250	24500	2	171,61	41,3	15071
		3	226,34	47,7	19849
		4	263,21	52,8	23082

Cooling emission: Water temperature 7/12 °C – Entering air temp. +27 °C – Relative Humidity 50%

Model	Air flow m ³ /h	Rows	Total thermal power kW	Sensible thermal power kW	Water flow l/h
TZ 50	4400	3	17,04	14,00	2931
		4	20,82	16,40	3581
		6	26,68	19,36	2656
TZ 80	7400	3	28,93	23,77	4976
		4	35,52	27,98	6109
		6	45,47	33,00	7821
TZ 110	10400	3	39,98	32,85	6876
		4	50,46	39,36	8680
		6	63,85	46,01	10982
TZ 140	14000	3	54,40	41,60	9333
		4	72,10	51,10	12364
		6	92,50	62,70	15830
TZ 200	20200	3	78,78	60,24	13516
		4	104,41	74,00	17913
		6	133,95	90,80	22982
TZ 250	24500	3	101,58	75,50	17428
		4	126,45	89,62	21695
		6	160,94	109,09	27612

Titan

Air Handling Unit



The **Titan** air handling units are built in compliance with the European standards and directives, are certified by EU-ROVENT and are in compliance with the mandatory standard according to the European Ecodesign Directive (UE 1253/2014 Regulation).

They are designed to satisfy all design requirements for air conditioning systems in which the reduction of noise levels, high air quality and minimum energy consumption are fundamental aspects in assessing the quality of the installation.

The main defining feature of this new series concerns the **special design** of the aluminium frame that make up the structure, aimed at creating perfectly smooth inside walls, **without gaps or protrusions**, so as to simplify cleaning and allow access to the components from the side.

External plate sandwich panels, 50 mm thick, with the inside and outside surface made of different materials: galvanised steel, pre-painted galvanised steel, Peraluman or stainless steel with high density polyurethane foam thermal insulation or made of mineral wool, so as to guarantee maximum safety in the event of fires (no toxic gases are released), with effective sound absorption.



The casing

The casing of the Titan units is made up as follows:

Supporting frame made from extruded aluminium alloy section bars, natural colour.

Joints made of diecast - aluminium alloy.

Sandwich panels, 50 mm thick, made from the following materials:

- **Standard**

outer: pre-painted galvanised steel, light grey colour, C21.

inner: galvanised steel.

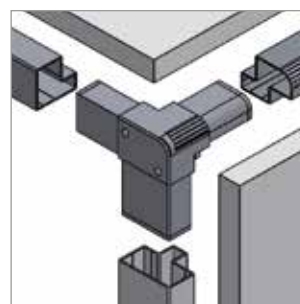
insulation: injected polyurethane, density 45 Kg/m³.

- **Upon request**

outer and inner: galvanised steel, pre-painted galvanised steel, AISI 304 stainless steel, peralluman.

insulation: mineral wool, density 90 Kg/m³.

- **Assembly** using galvanised steel self-threading screws, with Neoprene self-adhesive gaskets inserted between the sections and the panels. All the screws are in bushes.



Access doors same construction as the panels, fitted with reinforced hinges and locking device, complete with sealing gasket, safety switch for fan sections and, upon request, fitted with inspection window.

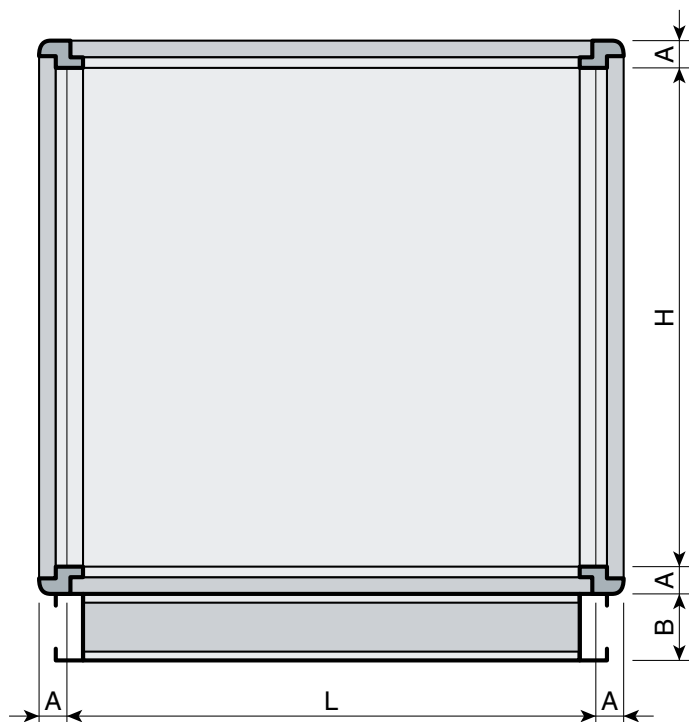
Base frame made of a "C-shaped" galvanized steel sheet or of aluminium extruded profiles, fitted with eyebolts for handling, arranged around the perimeter of each section.

Characteristics with polyurethane insulation

TÜV SÜD Report test number MB747

Specifications of the casing according to UNI-EN 1886 Standard	
Casing strength	D1
Casing air leakage at -400 Pa	L3
Casing air leakage at +400 Pa	L3
Filter bypass leakage (at + and -400 Pa)	G1 - F9
Thermal transmittance	T2
Thermal bridging factor	TB3

Sound attenuation	
Frequency (Hz)	50 mm thick panels with polyurethane
125	dB 7,0
250	dB 8,0
500	dB 12,0
1K	dB 13,0
2K	dB 14,0
4K	dB 26,0
8K	dB 32,0



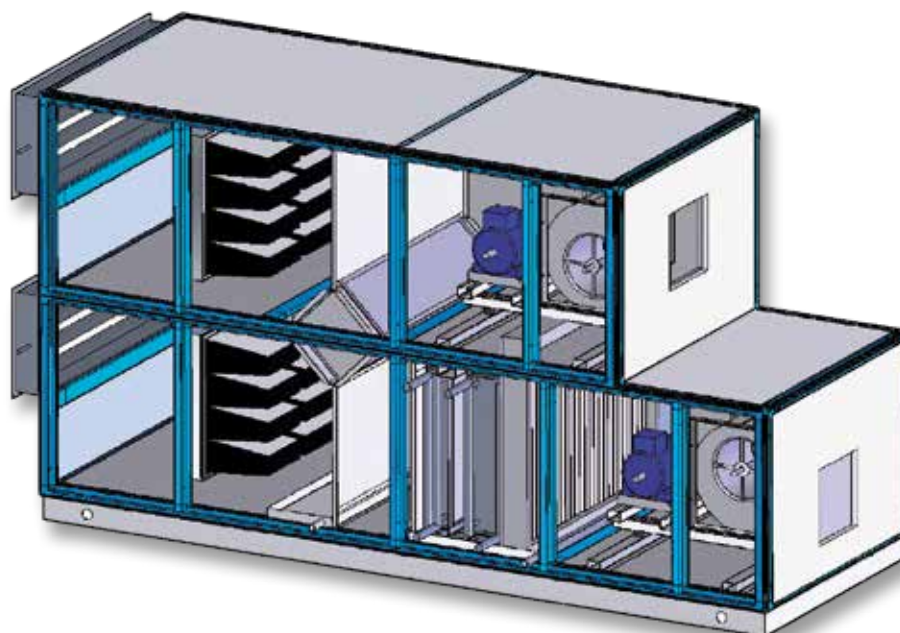
A = 50 mm
(corresponds to the thickness of the panels)

Base: **B = 80/100*/120 mm**

* = extruded aluminium

Size	Measurement (mm)	
	L	H
100 - 75	650,0	457,5
125 - 75	802,5	457,5
100 - 100	650,0	610,0
125 - 100	802,5	610,0
150 - 100	955,0	610,0
175 - 100	1107,5	610,0
175 - 125	1107,5	762,5
200 - 125	1260,0	762,5
175 - 150	1107,5	915,0
200 - 150	1260,0	915,0
250 - 150	1565,0	915,0
250 - 175	1565,0	1067,5
250 - 200	1565,0	1220,0
300 - 200	1870,0	1220,0
300 - 250	1870,0	1525,0
350 - 250	2175,0	1525,0
400 - 250	2480,0	1525,0
400 - 300	2480,0	1830,0
450 - 300	2785,0	1830,0
500 - 300	3090,0	1830,0
550 - 350	3395,0	2135,0
650 - 350	4005,0	2135,0
650 - 400	4005,0	2440,0

The lengths of the sections and the corresponding weights must be obtained from the selection software.

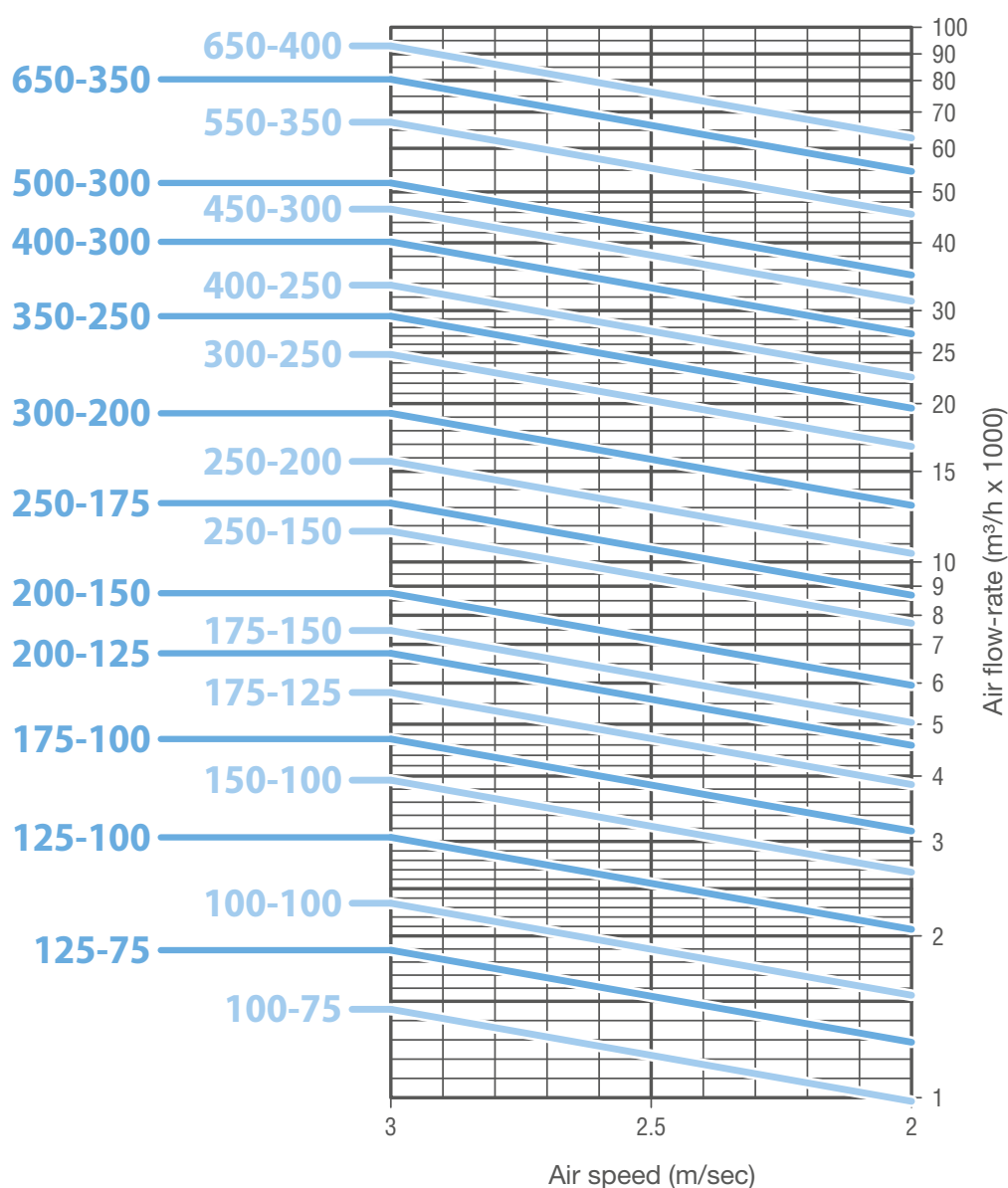


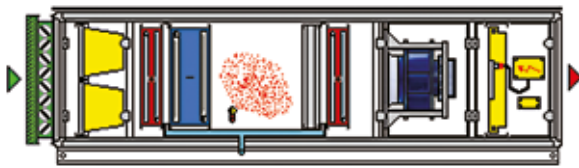
The **Titan** air handling units are available in **23 sizes** that can be easily selected using the diagram shown below, based on the air speed through the coil.

To simplify selection, it must be stressed that in both cooling/dehumidification and heating/humidification, the correct air speed is essential **to avoid entraining drops**.

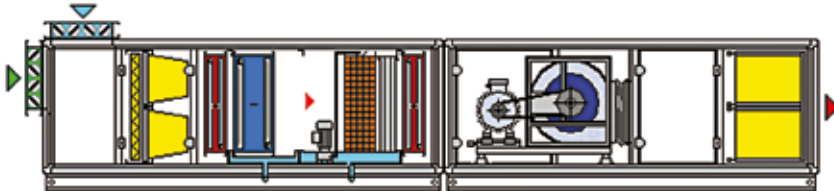
It is therefore recommended to use a **droplet separator** for humidification and dehumidification when the air speed exceeds 2.5 m/sec.

In humidification and cooling/dehumidification, the maximum speed of 2.8 m/sec should **not be exceeded**.

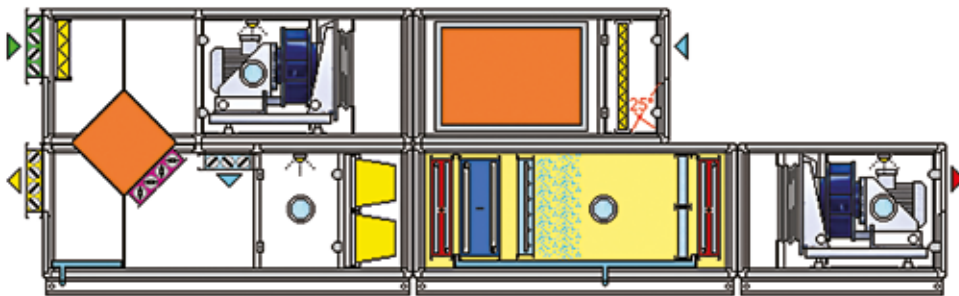




Outdoor monoblock unit with protective cover, rain protection grill with bird guards, on-off damper, F6 pre-filters, treatment section with pre-heating, cooling and dehumidification coil, steam and post-heating coil. Motor fan section with plug-fan unit equipped with electronic brushless motor with controller and **filtration with SABIANA Crystall electrostatic filters.**



Double deck unit with mixing chamber, G4+F9 pre-filters, treatment section with pre-heating, cooling and dehumidification coil, honeycomb pack humidifiers with recirculation and post-heating coil. Motor-fan section with centrifugal transmission ventilator designed to be controlled by inverter board (according to the European Ecodesign Directive) and H13 absolute filtration.



Double deck unit with heat recovery of not less than 67% efficiency and equipped with by-pass damper for free-cooling (according to the European Ecodesign Directive) and with recirculation louver, M6 filters at the fresh air inlet and recirculation, F9 filters, air handling section with stainless steel panels inside, treatment section with pre-heating, cooling and dehumidification coil, spray nozzle humidifier with droplet separator and post-heating coil. Fan sections with plug-fan assembly supplied controlled by Inverter board (according to the European Ecodesign Directive) the inlet silencer, lights and openings

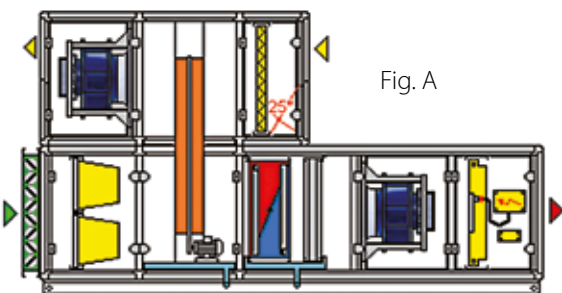


Fig. A

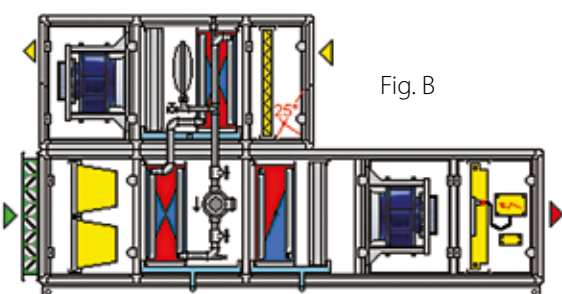
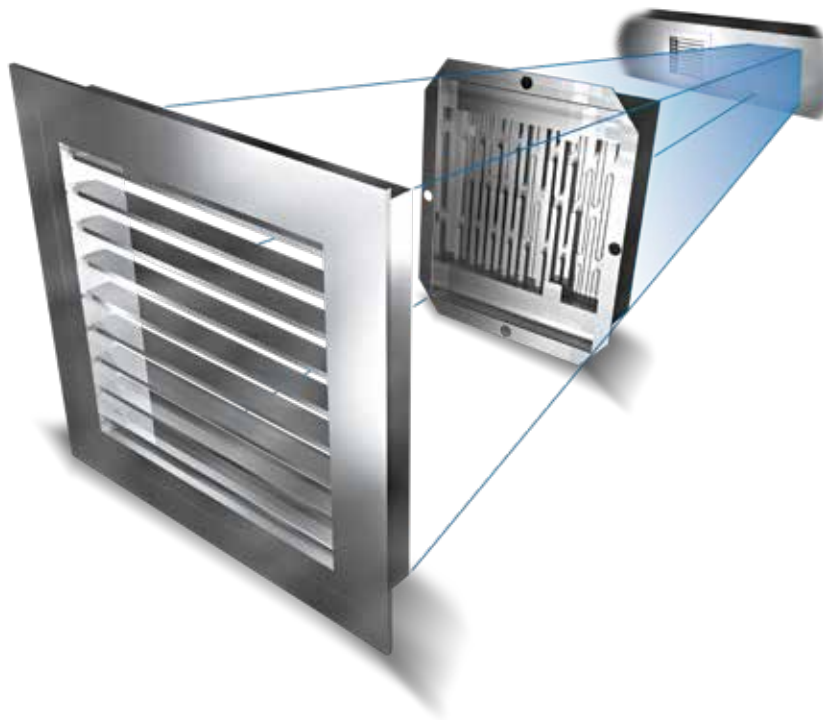


Fig. B

Double deck unit with G4 filter for the exhaust air and M6 pre-filter for the fresh air. Wheel recovery unit (fig.A) and recovery coils (fig.B). Air handling with a single heat/cool coil with droplet separator. Fan section with plug-fan assembly with brushless electronic motor with controller and final **filtration with SABIANA Crystall electrostatic filters.**

Crystall Duct System

Electronic Filter

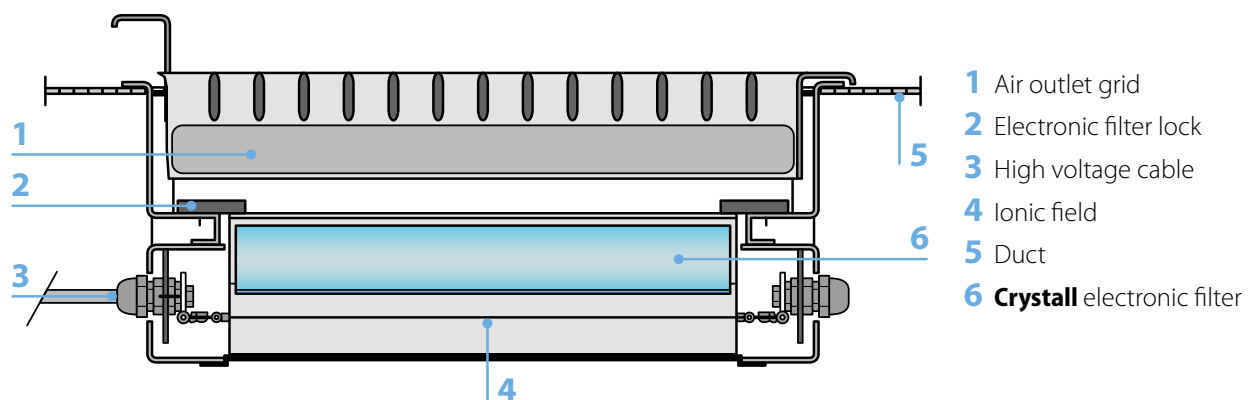


The **Crystall Duct System** is an innovative filtering system to be mounted on air outlets or inside ducting.

It is made up of **3 elements**:

- a) patented electronic plate filter ("Femec" type)
- b) electronic control and power board
- c) high voltage flexible connection cable.

The system has been designed to reduce the indoors diffusion of various types of pollutants found in the ducting of air conditioning systems. As a result, it is ideal for various types of environments, such as schools, hospitals and rest homes (corridors, waiting rooms, wards), doctors' surgeries, hotels and anywhere indoor air quality needs to be improved.



Advantages of the Crystall Duct System:

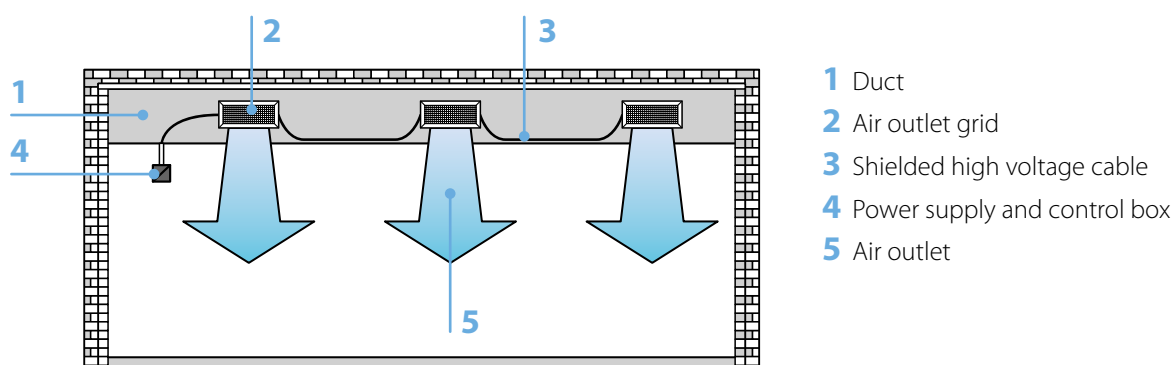
- Installation possible on existing systems
- Low impact on the thermal and aeraulic equilibrium of the installation
- Reduced pressure drop even when the filter is dirty
- Significant bactericide action on biological pollutants
- No cost for replacing the filters (the filters are totally regenerable by simply washing them)
- Very low additional energy costs
- Simple and fast maintenance
- No system downtime for the maintenance of the filter
- Remote power supply that can supply multiple filtering units at the same time

Tests and Certification

The Crystall Duct System has been the subject of numerous efficiency and effectiveness tests to assess the functions and performance of the systems in real conditions. At the Turin Polytechnic Department of Energy, efficiency and pressure drop tests were performed using the EN 779 international filter classification standards, where applicable. The University of Ancona carried out over 180 laboratory tests on microbiological substances (total airborne microbiological load), including bacteria, mould, fungi, etc., which confirmed, through the statistical analysis of the data taken from the Fischer test, the effectiveness of the Crystall electronic filter in reducing the bacterial load.

Other tests have been carried out **in the Sabiana laboratories** on the flow-rate, pressure drop, electrical safety and instrumental efficiency of the filtration process on microparticles by numerically counting the most common particle size categories in various rooms.

The particles monitored had the diameters specified by the WHO (World Health Organization) and the EPA (Environmental Protection Agency) as being the most harmful to our health (<2.5 micron PM 2.5), with volumetric counts (number/m³) being performed in a common living environment, using a laser particle counter (LPC).



The Crystall electronic filter is made up of two main elements.

The first is comprised of an electronic plate filter and is inside a special bearing structure that is designed and shaped based on the type of intended application.

The structural element, therefore defines the type of application, allowing its installation downstream of horizontal flushmounted fan coils (PM-CRY).

The second element is the supply and control equipment that contains the circuit board and connection terminals.



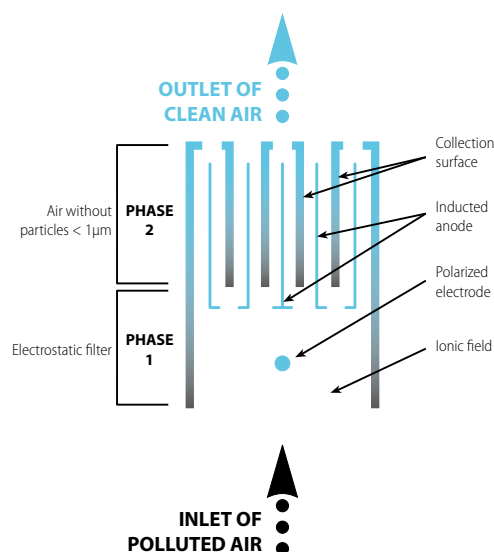
Active plate electronic filter Femec type

The filter element is made up of two sections:

the first is comprised of tungsten electrodes and insulating elements; the second section, meant for capturing polluting particles, is made of paired and suitably shaped special aluminium sheets, making up the collection manifold.

This section can be easily removed for effortless maintenance. The filter's operating principle is extremely simple. Pollutants cross the first section made up of electrodes and electronically charged by the electrical field produced (ionization). The particles are then collected on the filter plates that are in opposite polarity.

Due to the high voltage inside the filter an intense and disparate electrical field is generated with an avalanche effect called a "corona discharge".



Electronics board

This mainly contains the filter circuit board.

The equipment is supplied with 230V and is capable of generating a high voltage but low intensity current (max 3 mA) needed to produce the ionizing field. A single unit can supply several terminals based on the total filter surface used. The equipment is supplied with a remotable alarm status contact and, locally, with a failure indicator light.

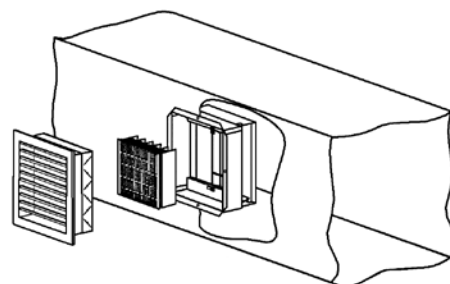
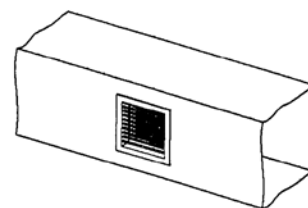


Connection cable

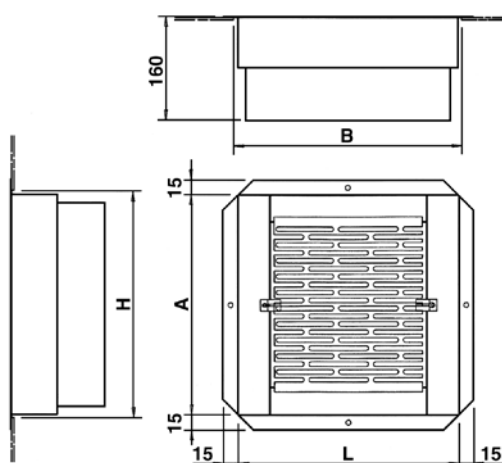
It is made up of a special AWG-22 wire with external insulation suitable for high voltage use.

The **CDS-E external duct filter** is equipped with a perimeter flange that allows to be mounted on standard openings currently on the market. Mounting is done using the same flange that can be screwed or riveted to the outer wall of the duct.

The design of the structure takes into account the fact that the air distribution terminals may or may not be equipped with a damper. The filter collar, in fact, is of the telescopic type and therefore the depth can be varied during installation.



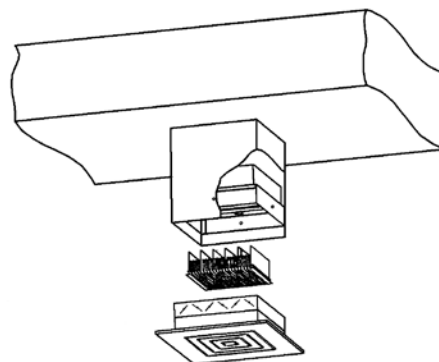
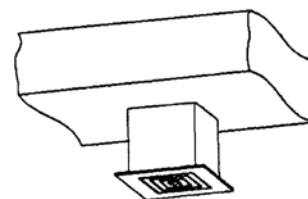
Dimensions



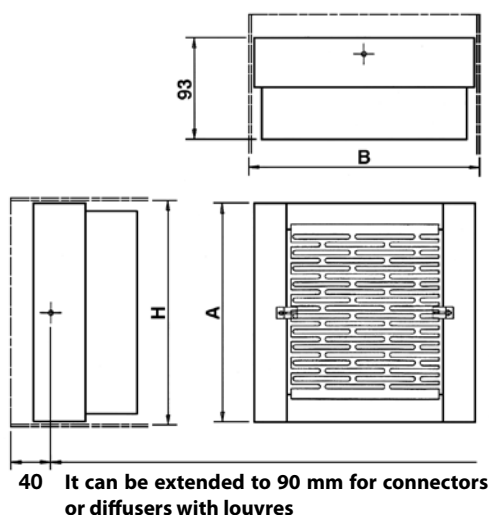
Model	Nominal dimensions H x B mm	L mm	A mm	Nominal section Sn mq	Filter surface Sf mq
CDS.E	150 x 300	298,5	148,5	0,045	0,023
CDS.E	150 x 400	398,5	148,5	0,060	0,033
CDS.E	150 x 500	498,5	148,5	0,075	0,043
CDS.E	150 x 600	598,5	148,5	0,090	0,053
CDS.E	200 x 400	398,5	198,5	0,080	0,043
CDS.E	200 x 500	498,5	198,5	0,100	0,057
CDS.E	200 x 600	598,5	198,5	0,120	0,070
CDS.E	200 x 800	798,5	198,5	0,160	0,096
CDS.E	300 x 500	498,5	298,5	0,150	0,085
CDS.E	300 x 600	598,5	298,5	0,180	0,105
CDS.E	300 x 800	798,5	298,5	0,240	0,145
CDS.E	400 x 600	598,5	398,5	0,240	0,168
CDS.E	400 x 800	798,5	398,5	0,320	0,232
CDS.E	400 x 1000	998,5	398,5	0,400	0,296

Crystall Duct System | CDS-I FILTER

The **CDS-I internal duct filter** is equipped with a smooth containment frame to allow insertion in the terminal duct. It can be mounted using screws or rivets which must be inserted from inside

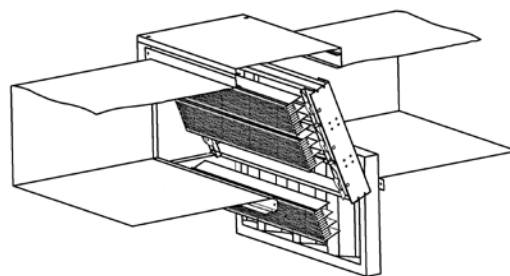
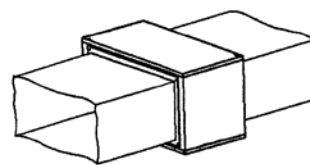


Dimensions

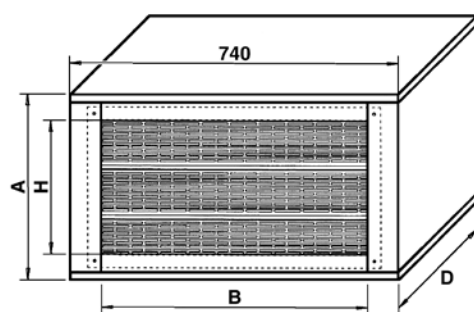


Model	Nominal dimensions H x B mm	A mm	D mm	Nominal section Sn mq	Filter surface Sf mq
CDS.I	150 x 225	223	148	0,033	0,015
CDS.I	150 x 300	298	148	0,045	0,023
CDS.I	150 x 375	373	148	0,056	0,030
CDS.I	225 x 225	223	223	0,050	0,025
CDS.I	225 x 375	373	223	0,084	0,050
CDS.I	225 x 450	448	223	0,101	0,062
CDS.I	225 x 525	523	223	0,118	0,075
CDS.I	300 x 300	298	298	0,090	0,045
CDS.I	300 x 375	373	298	0,112	0,060
CDS.I	300 x 450	448	298	0,135	0,075
CDS.I	300 x 525	523	298	0,158	0,090
CDS.I	300 x 600	598	298	0,180	0,105
CDS.I	375 x 375	373	373	0,141	0,080
CDS.I	375 x 450	448	373	0,169	0,100
CDS.I	375 x 600	598	373	0,225	0,140

This type of equipment was specifically created to be able to be inserted **on the duct** upstream from the air handling units. The structure is in galvanised, prepainted plate and is ready for coupling to flanged ducts. Inside there is a mechanical filter section with a depth of 48mm and an electronic filter section. The unit has a closing panel that allows easy access for mounting and maintenance operations.



Dimensions



Model	Nominal dimensions	A	D	Nominal section	Filter surface
	H x B mm			Sn mq	Sf mq
CDS.C	600 x 300	415	380	0,18	0,207
CDS.C	600 x 600	715	680	0,36	0,414

Air Handling Units

with Crystall Electrostatic Filters
for Air Quality and Energy Savings



Electrostatic filtration is currently considered one of the most advanced systems for capturing particles in an air stream, capable of ensuring high and lasting efficiency and with major benefits in terms of quality-price ratio, considering their longer life compared to any other type of filter.

Cost analysis should also take into consideration the very low pressure drop rate and reduced running costs, **thanks to the simple washing** of the filters with water and detergent.

Their high filtration efficiency combines with considerable bacterial disinfection and viral inactivation, bringing the treated air to the highest quality levels defined by the relevant standards.

The operating principle of these filters is based on applying a high potential difference between discharge and collecting electrodes, so as to create a strong electric field that reaches maximum intensity near the discharge electrodes.

The air around the surface of the discharge electrodes, which contains particle pollution, is thus ionised. The resulting effect is called a **corona discharge**, as the ions tend to move from the corona or ring around the discharge electrodes towards the collecting electrodes.

During such movement, the ions generated collide with the particles of pollution suspended in the air, which become positively charged (each particle can be charged by many differentiations, reaching very high electric charges). The positively charged particles (+) are then drawn towards the collecting electrodes (-), where they are captured.

SABIANA Crystall electrostatic filter FEMEC (patented)

In designing and developing the **SABIANA Crystall modular electrostatic filter ("FEMEC")**, all the positive features of classic plate electrostatic precipitators have been retained. This new solution features two separate and distinct sections, each with different construction technology and with its own specific purpose.

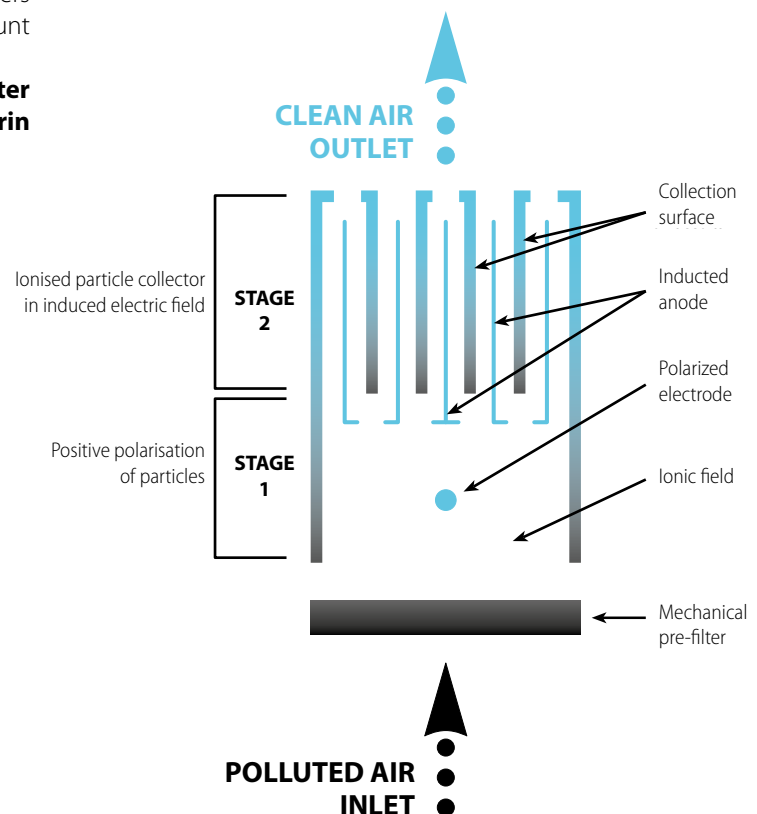
The first section consists of electrodes and insulating parts, called the **"active element section"**, while the second, subject to "loading" and consequently frequent handling for cleaning, is called the **"passive element section"**. The active components in the first section are secured to the holding structure, containing the actual filter that, not requiring regular maintenance and therefore handling, can be built to guarantee reliability and safety at low cost, as it does not contain special, delicate and expensive materials (insulators etc.).

The second section with passive elements (collector) is made from aluminium plates and is designed to be built in various different sizes, so as to satisfy a wide variety of needs in terms of construction and overall dimensions. This second section is in turn divided into two parts, a grounded passive part designed to capture the dirt, and another active part, being subjected to the voltage induced by the polarising electrode.

This (patented) system allows electric fields to be created on the opposing surfaces without requiring additional power supplies, and also makes each part of the collector independent from the others, meaning short accidental circuits in one section do not affect operation of the filter as a whole.

All electrostatic filters/active electronic plate filters have the advantage of producing a limited amount of ozone.

The SABIANA Crystall electrostatic filter is rated as class D-PE, certified by Turin Polytechnic Energy Department.



Air Handling Units with Crystall | GERMICIDAL EFFECT

Electrostatic filters have considerable germicidal potential due to their ionising action and the consequent production of small amounts of ozone that, combined with UV radiation, stop the proliferation of biological substances and contaminants on the surfaces of the passing dust, oxidising and inactivating them.

It worth stressing the **inactivation** of these trapped pollutants by the system, as the same cannot be guaranteed by normal mechanical filtering, even high efficiency filters, meaning these latter systems accumulate live contaminants that form colonies and require the personnel performing maintenance and replacing the filters to adopt special precautions for their own protection and to protect the surrounding environment.

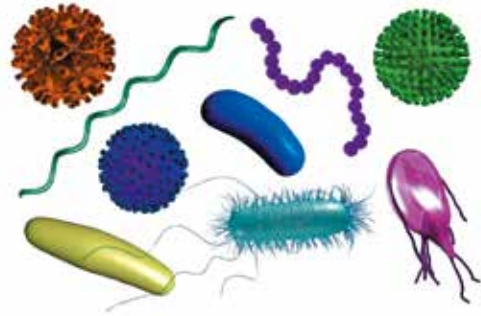
The following tables list the main pathogens, such as: viruses, pollen, mites and fungi, indicating the diseases and harm these can cause to the organism, their origin, shape and average diameter in microns.

Based on their dimensions, in fact, it can be easily seen that **all pollen, mites and fungi listed in the tables can be captured, inactivated and trapped by electrostatic filters**, in relation to their efficiency.

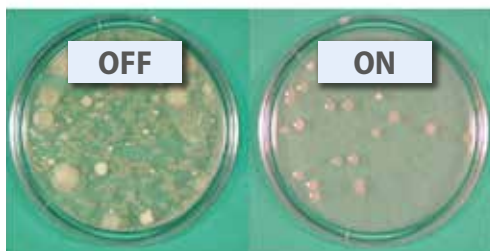
Cocerning **viruses** even though these are very small in size, they can still be intercepted, trapped and **rendered inactive**, as they are always connected to and carried by larger particles.

One important experiment, until now the only one of its type conducted, was commissioned by Sabiana and carried out by the University of Ancona, Department of Physics and Materials Engineering and Territory, for the purpose of evaluating the bactericidal action of our **electrostatic filter** on biological pollutants.

A detailed description of the experiment and related certification are available upon request, however the results can be summarised as follows:

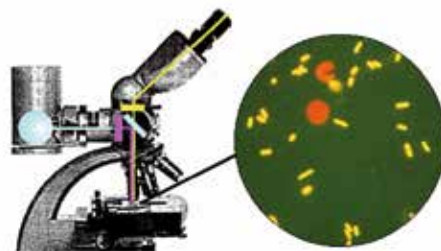


1) Electrostatic filter efficiency in removing bacteria



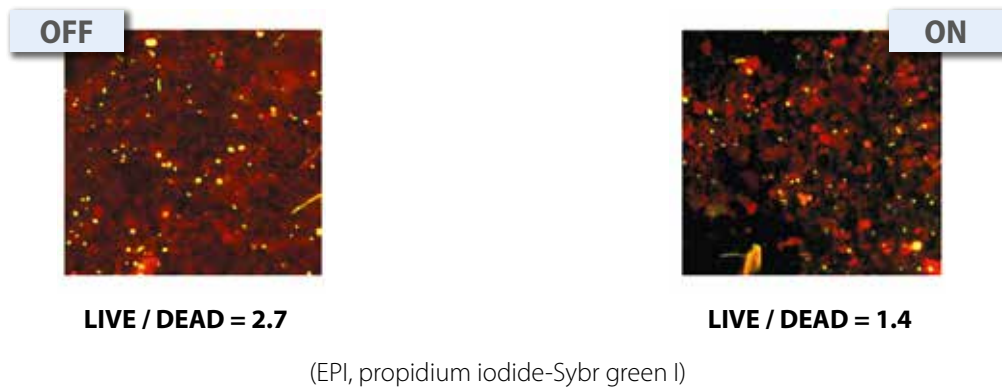
The figure shows **Rodac** plates with specific culture media following exposure to the air delivered into the environment by the ventilation system being tested.

On the right is the culture plate with the **electrostatic filter** operating, on the left the plate when the system is off.

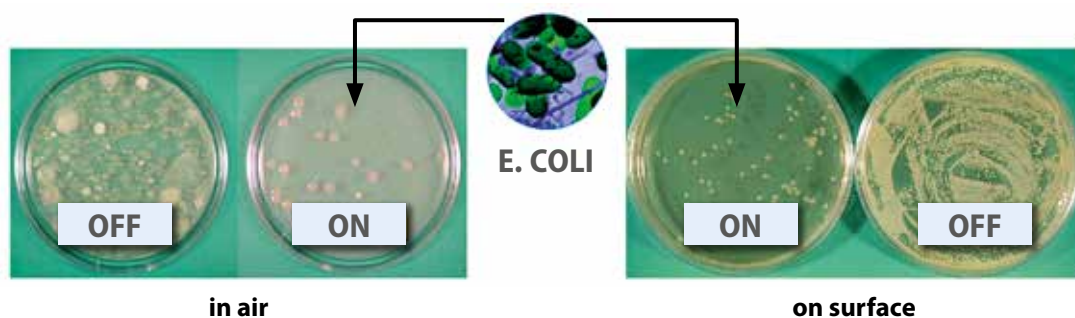


Microscope measurement showed **85% efficiency in bacteria removal** (EPI, Acridine Orange).

2) Electrostatic filter effect on bacterial vitality



3) Electrostatic filter effect on bacterial growth



Confirming the importance of this topic, we can quote for example the **“Lombardy Region Local Hygiene Regulations”**, published in the official Regional Bulletin on 25/10/89 (also taken on by other Regions and Municipalities), specifically paragraph **3.4.47 = Air-conditioning: system features** where, in point **c)**, the text reads:

Air purity must be guaranteed by applying suitable measures (filtration and disinfection where necessary) aimed at ensuring that the air inside the environment does not contain particles exceeding 50 microns in size and there is no possibility of infectious diseases being transmitted via the air-conditioning system.

Air Handling Units with Crystall | MODULAR SIZING

The **SABIANA Crystall electrostatic filter** features the same modularity in terms of sizing as mechanical filters, and consequently the latter can be used both as pre-filters (G1-4) and as post-filters (absolute H10-14).

On the first 14 sizes of the air handling units, the electrostatic filters can be **removed from the side** on slides, with maximum side dimensions of 600 mm, while on the next 9 sizes they can be **removed from the front**, on the air supply side.

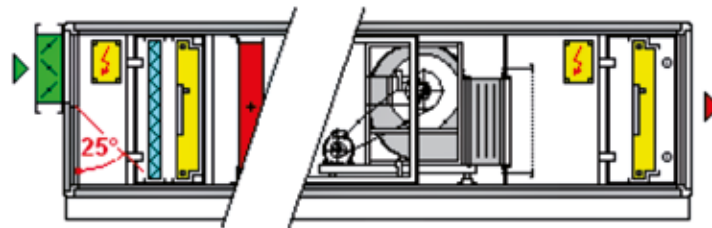


Diagram of the electrostatic filter with removal from the side, placed upstream and downstream of the fan.

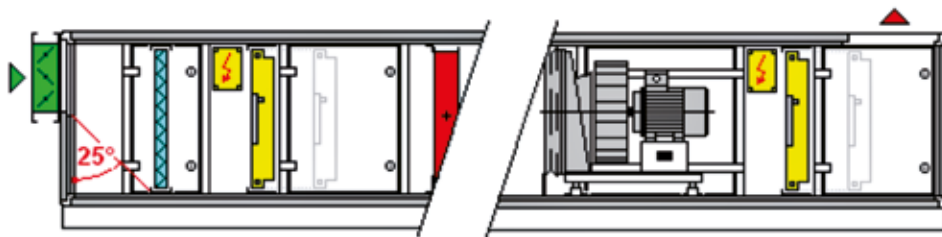
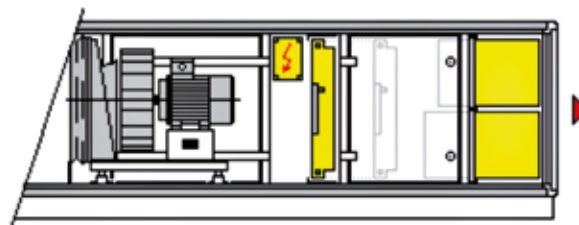
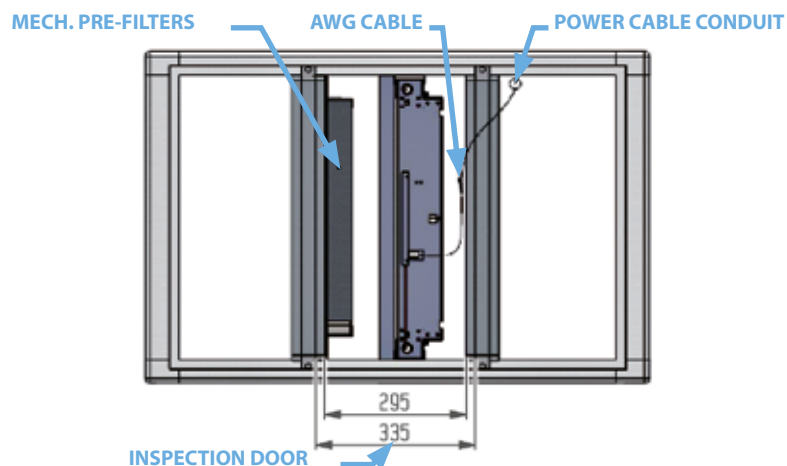


Diagram of the electrostatic filter with removal from the front, placed upstream and downstream of the fan.



Electrostatic filter and absolute post-filter removable from the front, through the inspection door.



Space occupied by the electrostatic filter with mechanical pre-filter and removal from the side.

Air handling always requires high amounts of energy, mainly due to the pressure drop of the distribution ducts and the filters. While for the ducting it is hard to imagine where considerable improvements can be made in the short term, as regards filters, on the other hand, energy consumption can be reduced quite significantly.

Staying within the scope of this report, which only concerns filtration, it can be seen how pressure drop is directly proportional to the efficiency of the filters installed, efficiency that depends on desired indoor air quality required and the quality of the incoming outside air, as well as naturally on how loaded the filters are.

It should be remembered that indoor air quality standards are becoming stricter all the time, while outside air quality is at alarming levels in terms of dust and harmful gas concentrations, especially in highly urbanised and industrial areas.

Consequently, there are two seemingly irreconcilable needs: the demand for better filtration combined with the need to minimise system energy consumption.

As we have seen previously, electrostatic filters represent a very good first response to reconciling these two needs, as they feature high efficiency and very low pressure drop, the latter remaining stable over filter operating life.

During operation the increased pressure drop of mechanical filters causes an increase in power consumption by fan motors, needed to ensure design air flow, or alternatively a progressive reduction in air flow when the system does not feature any form of automatic compensation.

In electrostatic filters, the particulate in suspension is carried by the air stream until binding to the collector plates set out in the same direction as air flow; in this way, by ensuring suitable spacing between plates, even large particle deposits provide little resistance to the air stream, meaning very low pressure drop.

Thanks to this property, electrostatic filters feature a virtually constant pressure drop throughout their normal operating life, which ends when the thickness of the deposits begins to affect the electric field, rather than prevent the flow of air as occurs in mechanical filters.

Energy consumption can be calculated using the following expression:
$$E = \frac{Q \times P}{1000}$$

Where:

E = energy consumption in kW per hour

Q = air flow in m³/s

P = average pressure drop in Pa

To determine the difference in energy consumption in percentage terms between mechanical filters and electrostatic filters, a module made up of two standard rigid bag filters can be used as a reference, with design dimensions of **600 x 1200 x 300 mm**, compared against an electrostatic filter cell measuring **600 x 1200 x 100 mm**, with air flow at three reference frontal velocities, **2, 2.5 and 3 m/s**, pressure drop values based on the difference between initial, at the various air flows, and final pressure of 300 Pa defined by legislation

For each different efficiency, energy consumption will be as follows:

Mechanical filters

Frontal velocity m/s	Air flow m ³ /s	Energy consumption in Watt/h for filter class		
		F7	F8	F9
3	2,16	432	448	464
2,5	1,80	338	350	364
2	1,44	258	266	274

Sabiana "Crystall" electrostatic filters

Frontal velocity m/s	Air flow m ³ /s	Energy consumption in Watt/h
3	2,16	90,8 + 36 (*) = 126,8
2,5	1,80	54,0 + 36 (*) = 90,0
2	1,44	28,8 + 36 (*) = 64,8

(*) = Filter electronic control device power consumption = 0.5 watt x dm² of frontal surface

Comparing the above results, it can be concluded that "electrostatic filters" **consume much less power** than mechanical filters, as shown below in percentage terms:

Frontal velocity m/s	Compared to filter class		
	F7	F8	F9
3	-70,6%	-71,7%	-72,7%
2,5	-73,4%	-74,3%	-75,3%
2	-74,9%	-75,6%	-76,3%

Conclusions

Electrostatic filters certainly ensure high **real system efficiency** with considerable energy savings; in addition, as the difference in pressure drop between clean filter and loaded filter is virtually negligible, no special devices are required to compensate for pressure drop so as to maintain variation in air flow within the allowed limits, thus simplifying both system installation and management.

The economic comparison must also consider this feature and there will always be lower fan power consumption compared to mechanical filters as these have to be rated at the maximum pressure drop allowed, which is simulated, when the filters are clean, by the automatic compensation control.

The following table summarised the concepts described above, comparing each aspect for different filtration systems, and specifically highlighting the difference in initial efficiency for clean filters:

Type	Filter with mechanical media			Electrostatic filter	Clean outside air
Standard	UNI EN 779			UNI 11254	UNI EN 13779
Class	F7	F8	F9	Classe D / B	ODA1
Average efficiency (%)	80/90	90/95	>95	87/97,6	–
Initial efficiency (%)	>35	>55	>70	>80/>95	–
Final pressure drop	450 Pa			4/17 Pa	–
Pressure drop for replacement	300 Pa			Not significant	–
Regenerable	Not possible			Fully	–
Disposal	Special waste			No disposal	–
Maintenance costs	Replacement and disposal			Washing	Adequate filtration
Total bacterial charge risk	High			Very limited (Biocidal action)	According to quality

The above table highlights the advantages, from a maintenance point of view, of using “**Crystall electrostatic filters**” compared to normal mechanical filters, which can be summarised as follows:

- **Electrostatic filters**, being made from aluminium plates, do not require replacement, rather they can simply be washed and repositioned in the special compartment, an operation that can even be carried out by non-specialist personnel.
- This is a significant advantage, as mechanical filters, being classified as special waste, require costly disposal procedures that must be carried out by specialist personnel, using special protection equipment to protect both themselves personally and the surrounding environment. With **electrostatic filters**, maintenance is safe as the bacterial charge on the filter is inactivated by the electrostatic field generated.
- Even G2 metallic pre-filters, rated to trap coarse dust, can be regenerated by simple washing.

As an example, a table is shown below comparing annual power consumption between different types of filters, based on two hypothetical extremes of operating time:

- 12 hours/day for 210 days/year (e.g. offices)
- 24 hours/day for 365 days/year (e.g. hospitals)

Energy consumption

Ref.: rigid bag filter module 600 x 1200 x 300 mm
electrostatic filter module, nom. dim. 600 x 1200 x 100 mm

Frontal velocity m/s	Air flow m³/s	Filter type and classification	Operation 12 hours a day 210 days/year kW/h	Operation 24 hours a day 365 days/year kW/h
3	2,16	F7 mechanical filter	1088,64	3784,32
		F8 mechanical filter	1128,96	3924,48
		F9 mechanical filter	1169,28	4064,64
		B.PE electrostatic filter	319,54	1110,77
2,5	1,80	F7 mechanical filter	851,76	2960,88
		F8 mechanical filter	882,00	3066,00
		F9 mechanical filter	917,28	3188,64
		B.PE electrostatic filter	226,80	788,40
2	1,44	F7 mechanical filter	650,16	2260,08
		F8 mechanical filter	370,32	2330,16
		F9 mechanical filter	690,48	2400,24
		B.PE electrostatic filter	163,29	567,65



Flues





Since 1985 Sabiana has been selling - and since 1997 manufacturing - stainless steel flues, single or double wall versions, for discharging flue gas from boilers.

Considering the intended use of these flues, the relevant European directive on Construction Products requires **product certification** by a notified body, with annual audits of the design, engineering, manufacturing and storage processes.

Sabiana uses the services of the prestigious and demanding **IMQ Italian Organisation**, which has been checking and testing product quality since the Directive came into force.

Sabiana uses modern electronic instruments to verify the chemical composition of all materials received, thus **totally guaranteeing** that the stainless steel used and declared complies with the required technical specifications.

The production processes are completely automated and allow the use of some of the thickest materials available on the market, **significantly extending product life and resistance to corrosion** by acid flue gas.

A highly advanced selection software can be used to check suitability of the chosen diameter for the type of installation.

Eight product lines, including three in plastic, allow the best choice to be made based on the type of boiler and the flue installation site.



The prestigious Italian Institute IMQ controls and checks the quality of the stainless steel flues made by Sabiana.

InoxSabiana 25

Stainless Steel Double Wall Flues



The **InoxSabiana 25** series is the result of an innovative constructional design aimed at achieving a high quality product, versatility and ease of assembly.

The choice of the materials, the use of the latest construction techniques, the care paid to every accessory, the conformity with the European EN 1856-1:2009 standard, the continuous checks on the products and the production process, and the quality mark issued by the prestigious **Italian Institute IMQ**, guarantee the absolute reliability of the Sabiana flues.

The inner wall is made from **AISI 316L** stainless steel, 0.5 mm thick, while the outer wall is made from **AISI 304** stainless steel, 0.5 mm thick, or alternatively **copper**, 0.6 mm thick.

The insulation is rock wool, with a minimum density of 90 kg/m³, 25 mm thick.

Longitudinal **microplasma** welding is used on both the inner and outer wall on each element, while the 90° T sections, flue gas monitoring and inspection module are made using the deep drawing process, thus avoiding welding.

All the non-insulated elements are made from AISI 304 stainless steel (aluminium adjustable flashing and storm collar). In addition, the use of an innovative fastening system means that the thermal bridge between the inner and outer wall is reduced to the minimum.

The InoxSabiana 25 series includes **8 different** inside **diameters (from 100 to 350 mm)** and a complete series of accessories for solving all problems relating to the discharge of the flue gas from heat generators.

- **AISI 316 L stainless steel inner wall**

(austenitic stainless steel 18/10 with low carbon content, grade UNI X 2, CrNiMo 1712).

Thickness: 0,5 mm.

Properties: high resistance to intergranular corrosion and particularly aggressive products.

- **AISI 304 stainless steel outer wall**

(austenitic stainless steel 18/10, grade UNI X 5, CrNi 1810).

Thickness: 0,5 mm.

Properties: good resistance to corrosion in air and water.

Upon request, copper outer wall is available.

- **Rock wool insulation**

with basaltic composition, minimum density 90 kg/m³, thickness 25 mm.

Properties: the rock wool used is chemically neutral, is not hydrophilic nor hygroscopic, nor has a capillary action.

It is free of asbestos and crystalline silica, has low conductivity values.

The rock fibres making up the insulation can withstand temperatures exceeding 1000 °C.

The insulation is classified as incombustible by the French standard MO-CSTB n°92.34624-3.

- **Longitudinal microplasma welding** on both the inner and outer wall, in each element.

- All the non-insulated elements are made from AISI 304 stainless steel (storm collar and adjustable flashing are made in aluminium). The screws supplied are in stainless steel.

- **Minimum thermal bridge** between the inner and outer pipe, due to the adoption of an innovative fastening system.

- Special design of the inner wall so as to allow free expansion according to the flue gas temperature.

- Insulated individual cardboard packaging for each element.

- Wall brackets and supports with adjustable lengths.



Designation of the product according to EN 1856-1:2009 standard

InoxSabiana 25/25R System Chimney with gasket	EN 1856-1:2009 T200 - P1 - W - V2 - L50050 - O *
InoxSabiana 25/25R System Chimney without gasket	EN 1856-1:2009 T450 - N1 - D - V2 - L50050 - O **
InoxSabiana 25/25R System Chimney without gasket	EN 1856-1:2009 T450 - N1 - D - V2 - L50050 - G **

↑	Description of the product:
↑	Standard number:
↑	Maximum operating temperature:
↑	Pressure resistance class (P1 positive press. - N1 negative press.):
↑	Operating conditions (wet flue gas W - dry flue gas D):
↑	Corrosion resistance:
↑	Specification and thickness of the inner wall:
↑	Soot fire resistance class (G : yes - O : no) and distance in mm from combustible materials:

(*) øi 100÷300 mm: **O50** – øi 350 mm: **O75**
(**) øi 100÷300 mm: **O50 / G75** – øi 350 mm: **O75 / G115**

• General characteristics

- Element locking bands.
- Resistance to condensate, even under pressure (provided by certified silicone gasket).
- Possibility to turn each element 360° while maintaining the tightness characteristics unaltered.

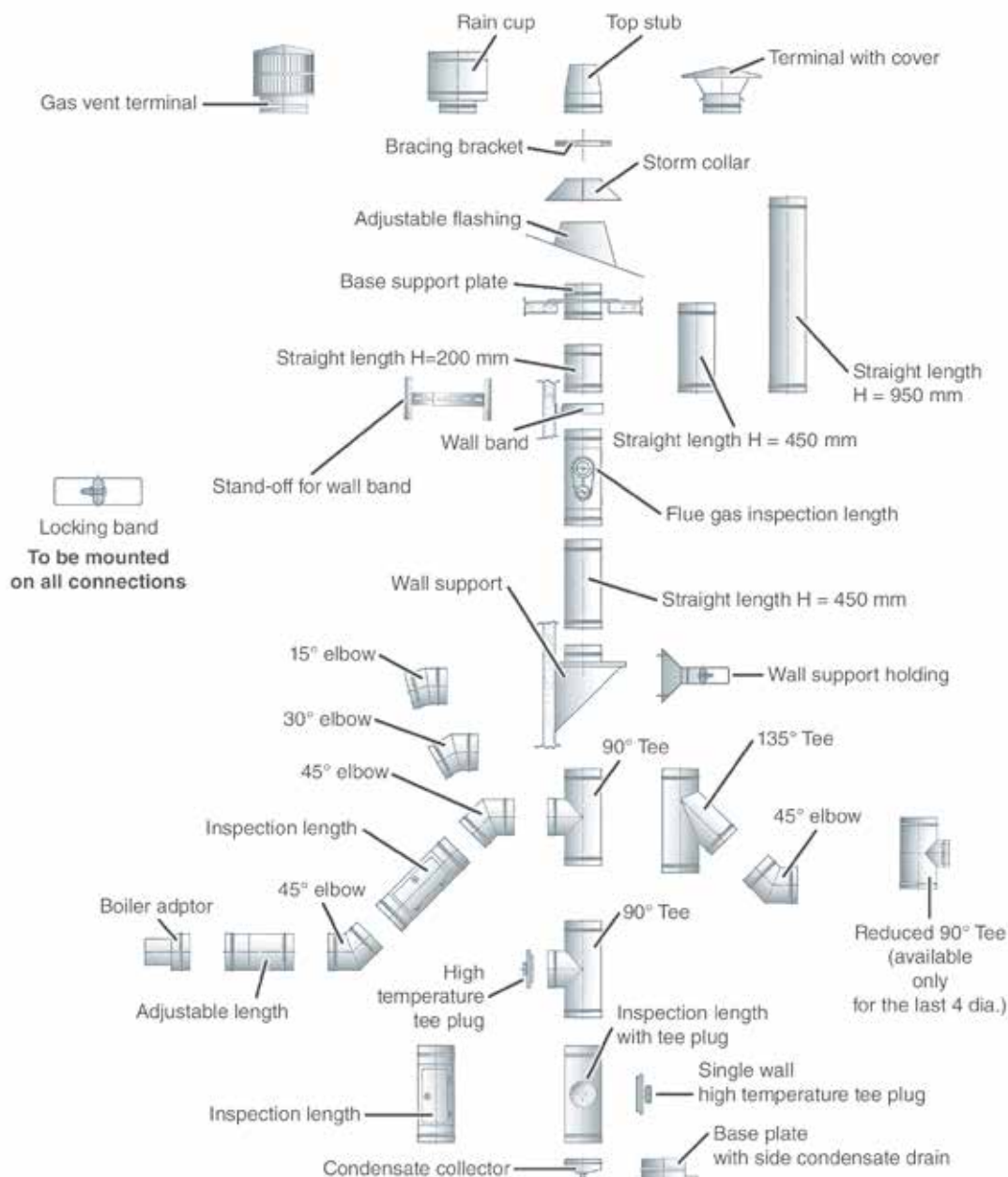
Universal double wall product for the construction of chimneys and flues

Its specifications are:

- Rapid installation.
- No thermal bridge between the inner wall and outer wall.
- Compact overall dimensions.
- Perfect mechanical resistance, guaranteed by the locking band.

Summary table

Inside diameters	mm	100	130	150	180	200	250	300	350
Outside diameters	mm	150	180	200	230	250	300	350	400
Weight per linear metre, InoxSabiana 25	kg/m	4,4	5,5	6,1	7,3	7,9	9,7	11,4	13,2
Weight per linear metre, InoxSabiana 25R	kg/m	5,1	6,2	7,0	8,3	9,0	11,0	12,9	14,9
Inner wall		AISI 316L steel, 2B finish, nominal thickness 0.5 mm							
Rock wool insulation		25 mm thick - Min. density 90 kg/m³ - Tol. 0+30%							
InoxSabiana 25 outer wall		AISI 304 steel, BA finish, nominal thickness 0.5 mm							
InoxSabiana 25R outer wall		Annealed DHP copper 99.9, nominal thickness 0.6 mm							
Pressure class with gasket		P1 (200 Pa)							
Pressure class without gasket		N1 (40 Pa) negative pressure operation							
Max temperature of the flue gas with gasket	°C	200							
Max temperature of the flue gas without gasket	°C	450							
Gasket		Black coloured silicone rubber							
Thermal resistance of the wall R at 200 °C	m²K/W	0.34	0.36	0.36	0.37	0.37	0.38	0.39	0.39
Minimum distance to combustible materials class O (flue serving a boiler on liquid or gas fuel)	mm	50							75
Minimum distance to combustible materials class G (flue serving a boiler on solid fuel)	mm	75							115
Average roughness value for the straight length		According to EN 13384-1 : 2002							
Flow resistance coefficient of the insulated components		According to EN 13384-1 : 2002							
Metric screws and bolts		Stainless steel							



Certification

The InoxSabiana 25/25R range is **CE** marked according to European Standard EN 1856-1:2009 with the following designations:



InoxSabiana 25/25R with gasket

T200 - P1 - W - V2 - L50050 - O *

InoxSabiana 25/25R without gasket

T450 - N1 - D - V2 - L50050 - O **

InoxSabiana 25/25R without gasket

T450 - N1 - D - V2 - L50050 - G **

(*) $\varnothing$ 100÷300 mm: **O50** – $\varnothing$ 350 mm: **O75**

(**) $\varnothing$ 100÷300 mm: **O50 / G75** – $\varnothing$ 350 mm: **O75 / G115**

In addition, the range has been subjected to further tests and has obtained the IMQ Quality voluntary mark



InoxSabiana 50

Stainless Steel Double Wall Flues



The **InoxSabiana 50** series is the result of an innovative constructional design aimed at achieving a high quality product, versatility and ease of assembly.

The choice of the materials, the use of the latest construction techniques, the care paid to every accessory, the conformity with the European **EN 1856-1:2009** standard, the continuous checks on the products and the production process guarantee the absolute reliability of the Sabiana flues.

The inner wall is made from **AISI 316L** stainless steel, 0.5 mm thick, while the outer wall is made from **AISI 304** stainless steel, 0.5 mm thick, or alternatively **copper**, 0.6 mm thick.

The insulation is rock wool, with a minimum density of 90 kg/m³, 50 mm thick.

Longitudinal **microplasma** welding is used on both the inner and outer wall on each element.

All the non-insulated elements are made from AISI 304 stainless steel (aluminium adjustable flashing and storm collar). In addition, the use of an innovative fastening system means that the thermal bridge between the inner and outer wall is reduced to the minimum.

The InoxSabiana 50 series includes **6 different** inside **diameters (from 350 to 600 mm)** and a complete series of accessories for solving all problems relating to the discharge of the flue gas from heat generators.

- **AISI 316 L stainless steel inner wall**

(austenitic stainless steel 18/10 with low carbon content, grade UNI X 2, CrNiMo 1712).

Thickness: 0,5 mm.

Properties: high resistance to intergranular corrosion and particularly aggressive products.

- **AISI 304 stainless steel outer wall**

(austenitic stainless steel 18/10, grade UNI X 5, CrNi 1810).

Thickness: 0,5 mm.

Properties: good resistance to corrosion in air and water.

Upon request, copper outer wall is available.

- **Rock wool insulation**

with basaltic composition, minimum density 90 kg/m³, thickness 50 mm.

Properties: the rock wool used is chemically neutral, is not hydrophilic nor hygroscopic, nor has a capillary action.

It is free of asbestos and crystalline silica, has low conductivity values.

The rock fibres making up the insulation can withstand temperatures exceeding 1000 °C.

The insulation is classified as incombustible by the French standard MO-CSTB n° 92.34624-3.

- **Longitudinal microplasma welding** on both the inner and outer wall, in each element.

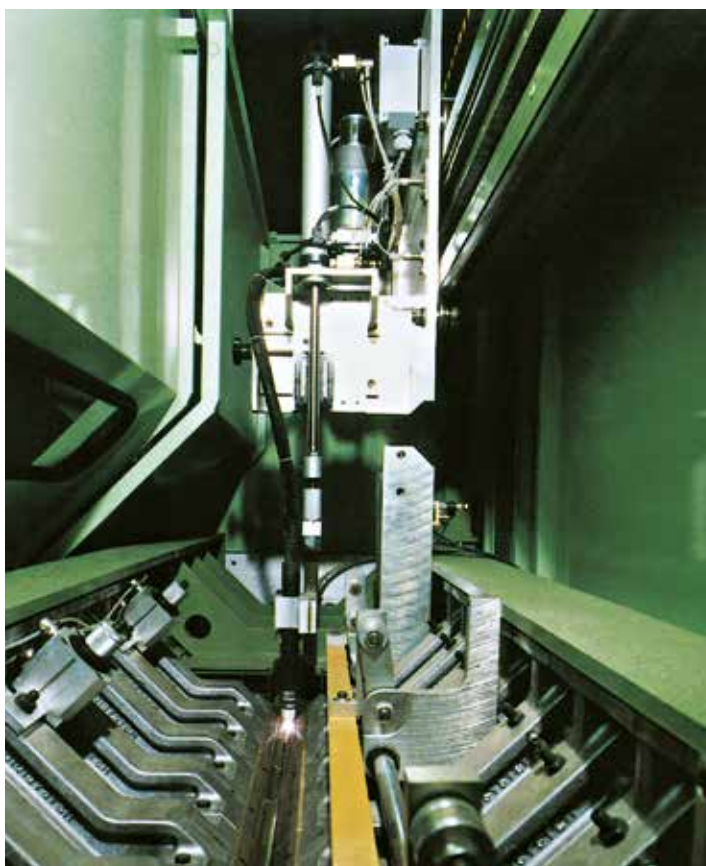
- All the non-insulated elements are made from AISI 304 stainless steel (storm collar and adjustable flashing are made in aluminium). The screws supplied are in stainless steel.

- **Minimum thermal bridge** between the inner and outer pipe, due to the adoption of an innovative fastening system.

- Special design of the inner wall so as to allow free expansion according to the flue gas temperature.

- Insulated individual cardboard packaging for each element.

- Wall brackets and supports with adjustable lengths.



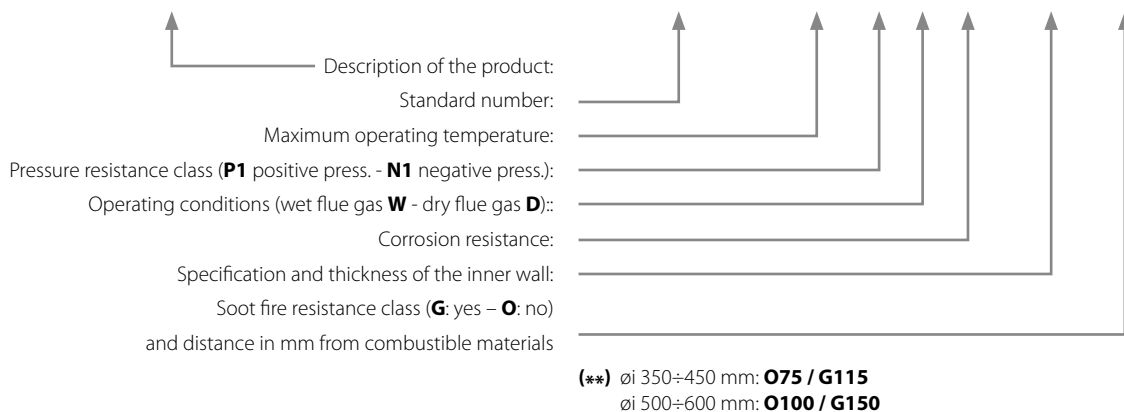
Designation of the product according to EN 1856-1:2009 standard

InoxSabiana 50/50R System Chimney

EN 1856-1:2009 T450 - N1 - D - V2 - L50050 - O **

InoxSabiana 50/50R System Chimney

EN 1856-1:2009 T450 - N1 - D - V2 - L50050 - G **



General characteristics

- Element locking bands.
- Possibility to turn each element 360° while maintaining the tightness characteristics unaltered.

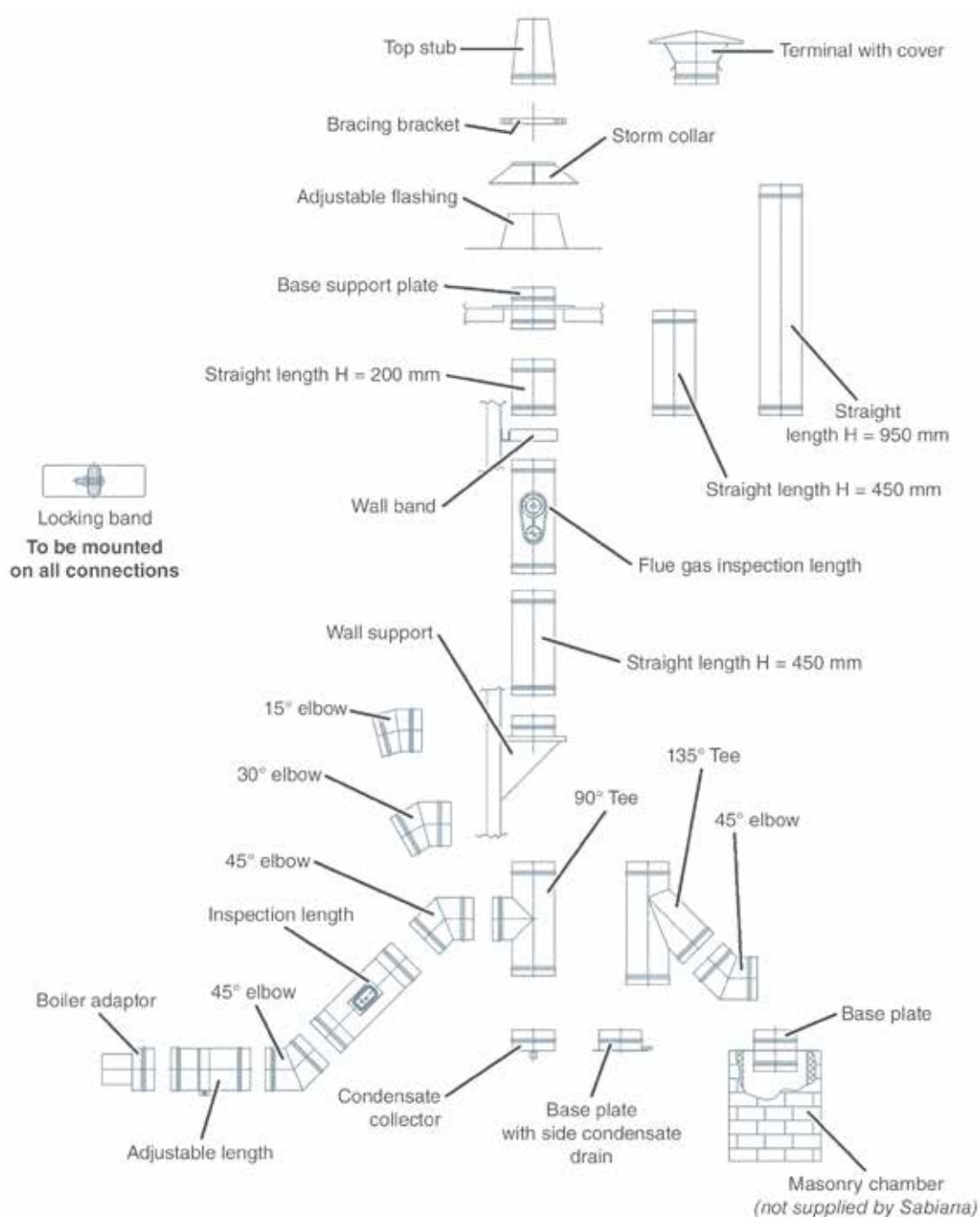
Universal double wall product for the construction of chimneys and flues

Its specifications are:

- Rapid installation.
- No thermal bridge between the inner wall and outer wall.
- Compact overall dimensions.
- Perfect mechanical resistance, guaranteed by the locking band.

Summary table

Inside diameters	mm	350	400	450	500	550	600
Outside diameters	mm	450	500	550	600	650	700
Weight per linear metre, InoxSabiana 50	kg/m	17,5	19,5	22,0	24,0	26,0	28,0
Weight per linear metre, InoxSabiana 50R	kg/m	19,5	22,0	24,5	26,5	29,0	31,5
Inner wall		AISI 316L steel, 2B finish, nominal thickness 0.5 mm					
Rock wool insulation		50 mm thick - Min. density 90 kg/m³ - Tol. 0+30%					
InoxSabiana 50 outer wall		AISI 304 steel, BA finish, nominal thickness 0.5 mm					
InoxSabiana 50R outer wall		Annealed DHP copper 99.9, nominal thickness 0.6 mm					
Pressure class		N1 (40 Pa) negative pressure operation					
Max temperature of the flue gas	°C	450					
Thermal resistance of the wall R at 200 °C	m²K/W	0,74	0,75	0,76	0,77	0,77	0,78
Minimum distance to combustible materials class O (flue serving a boiler on liquid or gas fuel)	mm	75			100		
Minimum distance to combustible materials class G (flue serving a boiler on solid fuel)	mm	115			150		
Average roughness value for the straight length		According to EN 13384-1 : 2002					
Flow resistance coefficient of the insulated components		According to EN 13384-1 : 2002					
Metric screws and bolts		Stainless steel					



Certification

The InoxSabiana 50/50R range is **CE** marked according to European Standard EN 1856-1:2009 with the following designations:



InoxSabiana 50/50R

T450 - N1 - D - V2 - L50050 - O **

InoxSabiana 50/50R

T450 - N1 - D - V2 - L50050 - G **

()** ø 350÷450 mm: **O75 / G115**

ø 500÷600 mm: **O100 / G150**

InoxMono Sabiana

Stainless Steel Single Wall Flues



The **InoxMono Sabiana** series has been designed to offer the maximum guarantee of safety and long life in the discharge of flue gas from heat generators.

The choice of the materials, the use of the latest construction techniques, the care paid to every accessory, the continuous checks on the products and the production process, and the quality mark issued by the prestigious **Italian Institute IMQ**, guarantee the absolute reliability of the Sabiana flues.

Each element in contact with the flue gas is made from **AISI 316L** stainless steel, 0.5 mm thick, with longitudinal **microplasma** welding.

The 90° T sections, flue gas monitoring and inspection module are made using the **deep drawing process, thus avoiding welding**.

All the support and fastening elements are made from AISI 304 stainless steel (aluminium adjustable flashing and storm collar).

The male and female of each individual element are **simultaneously** created by the same belling machine, in order to obtain a perfect coupling calibration with maximum tolerance equal to ± 0.15 mm.

The InoxMono series includes **11 different** inside diameters (**from 80 to 300 mm**) and a complete series of accessories for satisfying all installation requirements.

- **AISI 316 L Stainless steel wall**
(austenitic stainless steel 18/10Mo with low carbon content UNI X 2 CrNiMo 1712).
Thickness: 0,5 mm.
Properties: high resistance to intergranular corrosion and particularly aggressive products.
- **Silicone rubber sealing gasket** resistant up to 200 °C temperature.
- **Longitudinal microplasma welding** of each element.
- **90° tee** made using the deep drawing process.
- **All clamping elements** in stainless steel AISI 304
(flashing and storm collar in aluminium).
The screws supplied are in stainless steel.



Designation of the product according to EN 1856-2:2009 standard

InoxMono Duct with gasket	EN 1856-2:2009 T200 - P1 - W- V2 - L50050 - O
InoxMono Duct without gasket	EN 1856-2:2009 T600 - N1 - D - V2 - L50050 - G
InoxMono Smoke Duct with gasket	EN 1856-2:2009 T200 - P1 - W- V2 - L50050 - O50
InoxMono Smoke Duct without gasket	EN 1856-2:2009 T600 - N1 - D - V2 - L50050 - G600M

Description of the product:	↑
Standard number:	↑
Maximum operating temperature:	↑
Pressure resistance class (P1 positive press. - N1 negative press.):	↑
Operating conditions (wet flue gas W - dry flue gas D):	↑
Corrosion resistance:	↑
Specification and thickness of the inner wall:	↑
Soot fire resistance class (G : yes - O : no):	↑
Distance in mm from combustible materials:	↑

General characteristics

- Element locking bands.
- Resistance to condensate even under pressure (provided by certified silicone gasket).
- Possibility to turn each element 360° while maintaining the tightness characteristics unaltered.

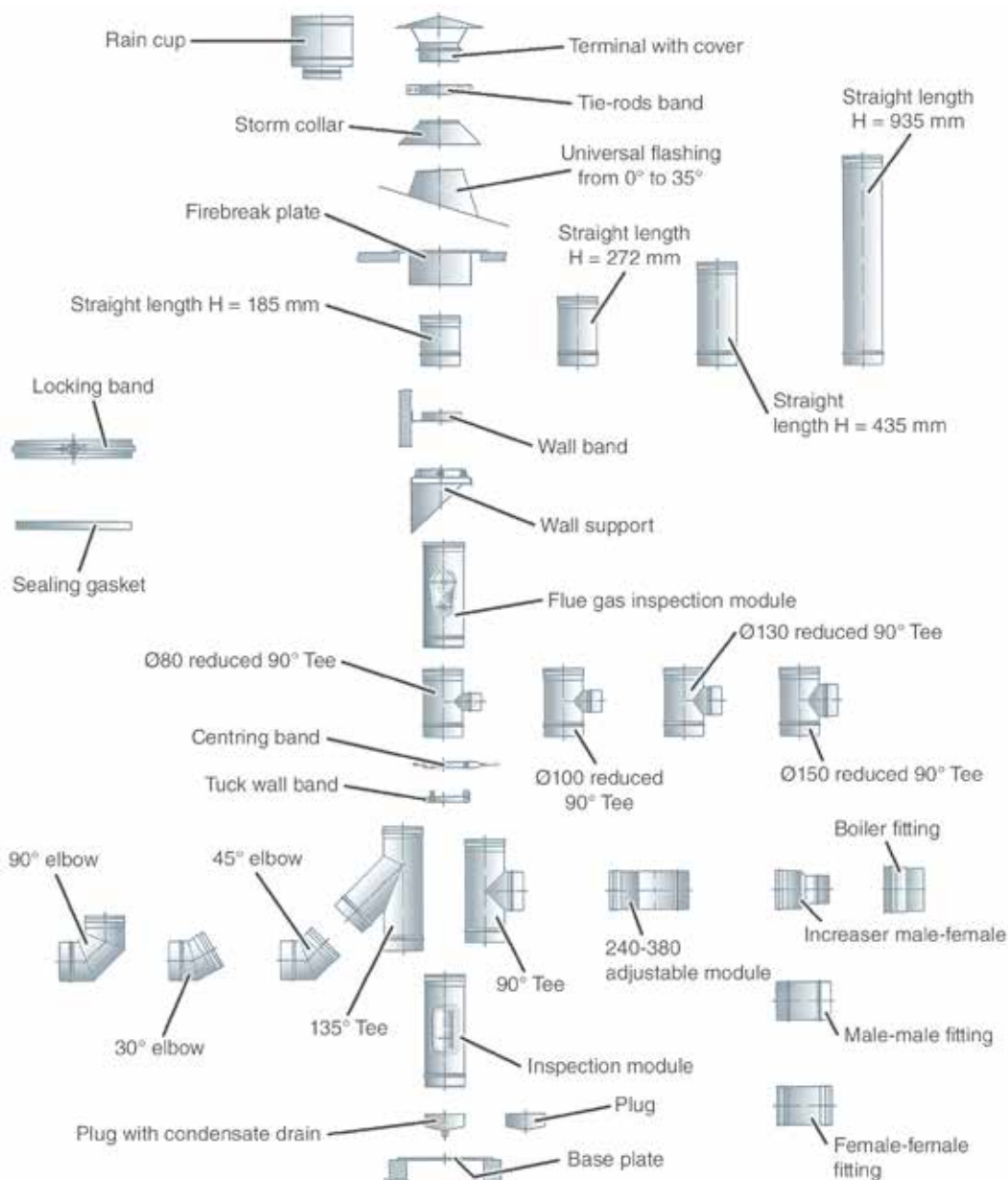
Universal single wall product for the realisation of relining and smoke ducts

Its specifications are:

- Rapid installation.
- Compact overall dimensions.
- Perfect mechanical resistance, guaranteed by the locking band.

Summary table

Nominal diameters	mm	80	100	120	130	140	150	160	180	200	250	300
Weight per linear metre	kg/m	1,1	1,4	1,7	1,8	2,0	2,1	2,3	2,5	2,8	3,5	4,2
Material		Steel AISI 316L 2B - AISI 316L BA nominal thickness 0.5 mm										
Pressure class with gasket		P1 (200 Pa)										
Pressure class without gasket		N1 (40 Pa) operation under pressure										
Max temperature of the flue gas with gasket	°C	200										
Max temperature of the flue gas without gasket	°C	600										
Gasket		Black coloured silicone rubber										
Minimum distance to combustible materials class O (chimney serving a generator with liquid or gas fuel)	mm	Smoke duct: 50										
Minimum distance to combustible materials class G (chimney serving a generator with solid fuel)	mm	Smoke duct: 600 Minimum distance obtained from test										
Average roughness value for the straight modules		According to EN 13384-1 : 2002										
Resistance coefficient to components flow		According to EN 13384-1 : 2002										
Metric screws and bolts		Stainless steel										



Certification

The InoxMono Sabiana range is **CE** marked according to European Standard EN 1856-2:2009 with the following designations:



- InoxMono Duct with gasket
- InoxMono Duct without gasket
- InoxMono Smoke duct with gasket
- InoxMono Smoke duct without gasket

- T200 - P1 - W - V2 - L50050 - O**
- T600 - N1 - D - V2 - L50050 - G**
- T200 - P1 - W - V2 - L50050 - O50**
- T600 - N1 - D - V2 - L50050 - G600M**

In addition, the range has been subjected to further tests and has obtained the IMQ Quality voluntary mark





Heat pumps



Energy Genius heat pumps offer the ideal solution for a wide range of residential and commercial applications, both for **heating** and **cooling**, and for the production of **domestic hot water**.

The Energy Genius line is made up of **monobloc reversible air-to-water heat pumps with high energy efficiency levels** and inverter technology. They can be easily combined with the wide range of Sabiana hydronic terminals.

The units incorporate the most recent technological innovations:

- **twin rotary compressors** DC with direct current hybrid inverter drive and maximum reliability and a very low level of vibration under all operating conditions
- **variable speed fans** with improved section designed to ensure better air distribution on the air heat exchanger and low sound levels
- **smart control** that lets the management of monovalent or bivalent installations
- **user interface with LCD screen**, that shows the operating status and the parameter switching.

All units are equipped with a **built-in hydronic module**, a feature which, along with the **compact size of the units**, reduces space requirements and minimises installation issues.

The ability of the units to be incorporated into existing heat sources and the option of installation in master/slave configuration ensure **high installation flexibility** and make subsequent modifications or the future extension of the system simple.

Energy Genius

Reversible air/water Heat Pump



Reversible air/water heat pump at excellent energy efficiency levels with inverter technology and R410A.

The ENGY product range is **suitable for air conditioning, heating and domestic hot water production** and it is available in a wide range of capacities from 5 to 21 kW divided into 6 sizes.

The Sabiana heat pumps can be used in combination with the wide range of hydronic terminals by Sabiana.

Every unit is supplied with a **very intuitive user interface**, that allows to control the system. The interface can be installed until 50m far from the unit.

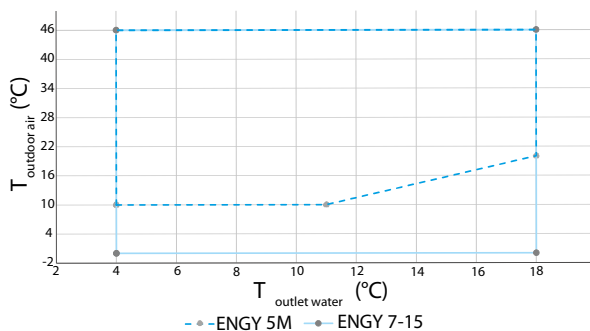


- **Twin rotary compressors** DC with direct current hybrid **inverter** drive and **maximum reliability** and a very low level of vibration under all operating conditions.
- **Variable speed fans** with improved section designed to ensure better air distribution on the air heat exchanger and **low sound levels**.
- **Smart control** that lets the management of monovalent or bivalent installations.
- **User interface** with LCD screen, that shows the operating status and the parameter switching.
- Simplicity of installation and setting thanks to a **built-in hydronic module**.
- Possibility to produce hot water with a temperature up to 60°C (57°C for the 21T size), which means these appliances can be used not only in fan coil systems and underfloor panels, but also for radiator systems and for the production of domestic hot water.
- Wide operating range in both cooling and heating mode, designed to offer the highest performance levels in a wide temperature range.
- Possibility to install the units in a **master/slave** configuration, up to a maximum of 4 units of the same size.
- Built-in **Modbus** interface.

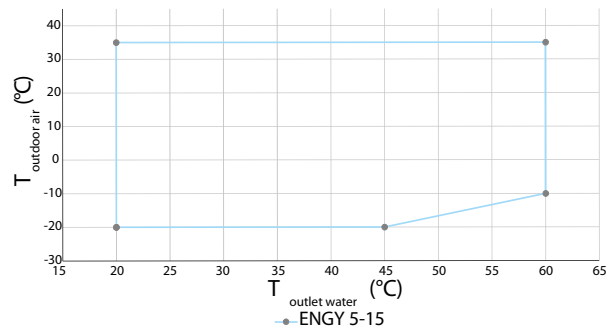
Accessori:

- Outdoor air temperature sensor
- Domestic hot water temperature sensor
- Temperature sensor for Master/Slave installation

Cooling Operating Limits



Heating Operating Limits



ENGY model				5M	7M	11M	15M	11T	15T	17T	21T
Heating											
Full load performance*	air 7°C db (6°C wb) water 30/35°C (**)	Nominal Capacity	kW	5,10	7,15	11,25	15,10	11,20	15,00	17,10	21,10
		COP		4,40	4,10	4,70	4,25	4,60	4,35	4,10	4,10
	air 7°C db (6°C wb) water 40/45°C (**)	Nominal Capacity	kW	4,85	6,80	11,30	13,40	10,40	13,50	16,20	20,00
		COP		3,40	3,20	3,60	3,40	3,60	3,50	3,40	3,30
	air 7°C db (6°C wb) water 47/55°C (**)	Nominal Capacity	kW	4,45	6,75	11,20	11,65	10,25	11,80	15,30	19,10
		COP		2,80	2,70	2,95	2,90	3,00	3,00	2,70	2,70
Seasonal efficiency***	air 7°C db (6°C wb) water 30/35°C (**)	SCOP _{30/35 °C}		4,72	4,68	3,90	4,18	3,96	4,22	3,68	3,56
		ηs heat _{30/35 °C}	%	185	184	153	164	155	166	144	139
		Prated	kW	3,93	5,06	9,34	10,43	9,17	10,05	9,25	16,64
	air 7°C db (6°C wb) water 47/55°C (**)	SCOP _{47/55 °C}		3,30	3,37	3,41	3,38	3,31	3,40	3,03	2,85
		ηs heat _{47/55 °C}	%	130	132	131	132	129	133	118	111
		Prated	kW	3,43	4,24	8,52	10,09	8,61	10,87	9,11	15,07
		Energy class in heating mode		A++	A++	A++	A++	A++	A++	A+	A+
Cooling											
Full load performance*	air 35°C water 12/7°C (**)	Nominal Capacity	kW	4,00	5,55	11,20	12,80	10,65	13,00	14,90	18,60
		EER	kW/kW	3,10	3,10	3,40	3,10	3,40	3,20	3,00	3,10
		Energy class in cooling mode		A	A	A	A	A	A	B	A
	air 35°C water 23/18°C (**)	Nominal Capacity	kW	4,85	8,00	13,70	16,00	13,75	17,00	19,80	25,80
		EER	kW/kW	4,35	4,00	4,60	4,10	4,65	4,15	3,90	3,80
		Energy class in cooling mode		A	A	A	A	A	A	A	A
Seasonal efficiency	SEER12/7 °C		kWh/kWh	4,85	5,75	5,15	5,00	5,40	5,25	4,60	4,51
	ESEER		kWh/kWh	5,30	5,60	5,40	5,15	5,40	5,25	4,01	3,85
Sound level											
Sound power ⁽²⁾			dB(A)	64	65	68	69	69	69	71	74
Sound pressure at 10 m ⁽³⁾			dB(A)	33	34	37	38	38	38	40	43
Power Supply			V-ph-Hz	230-1-50	230-1-50	230-1-50	230-1-50	400-3-50	400-3-50	400-3-50	400-3-50
Operating weight ⁽¹⁾			kg	57	69	107	115	121	121	191	199
Hydronic module				Circulator, drain valve, flow switch, expansion vessel							
Circulator				Centrifugal with variable speed							
Expansion vessel volume			l	2	2	3	3	3	3	8	8
Hydraulic connections											
Inlet diameter (BSP GAS)			inches	1	1	1	1	1	1	1 1/4	1 1/4
Outlet diameter (BSP GAS)			inches	1	1	1	1	1	1	1	1

* In compliance with EN 14511-3:2013

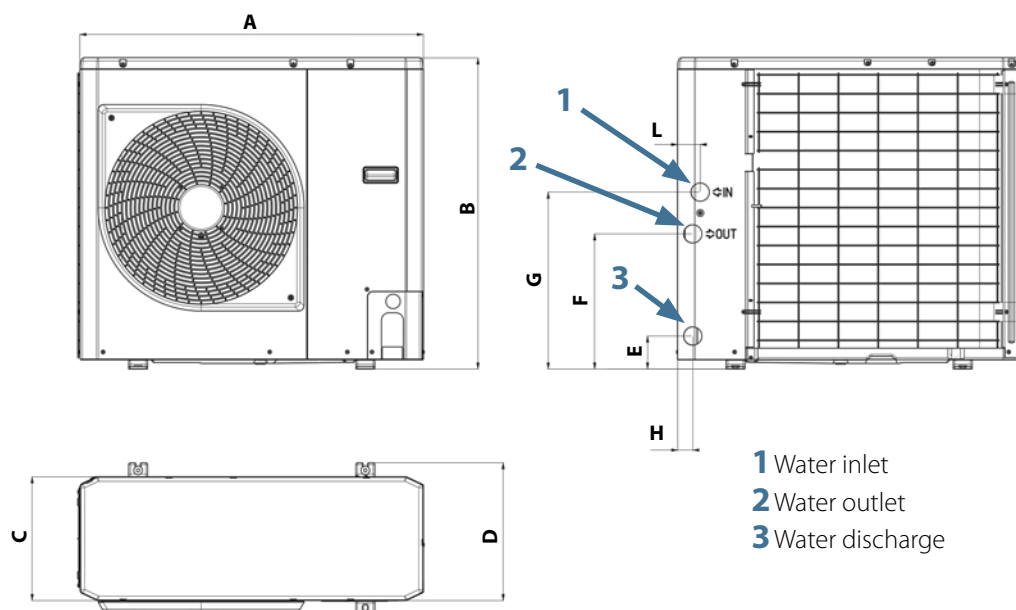
** The fouling factor of the evaporator is 0m² K/W

*** In compliance with EN 14825:2013; mild climate zone

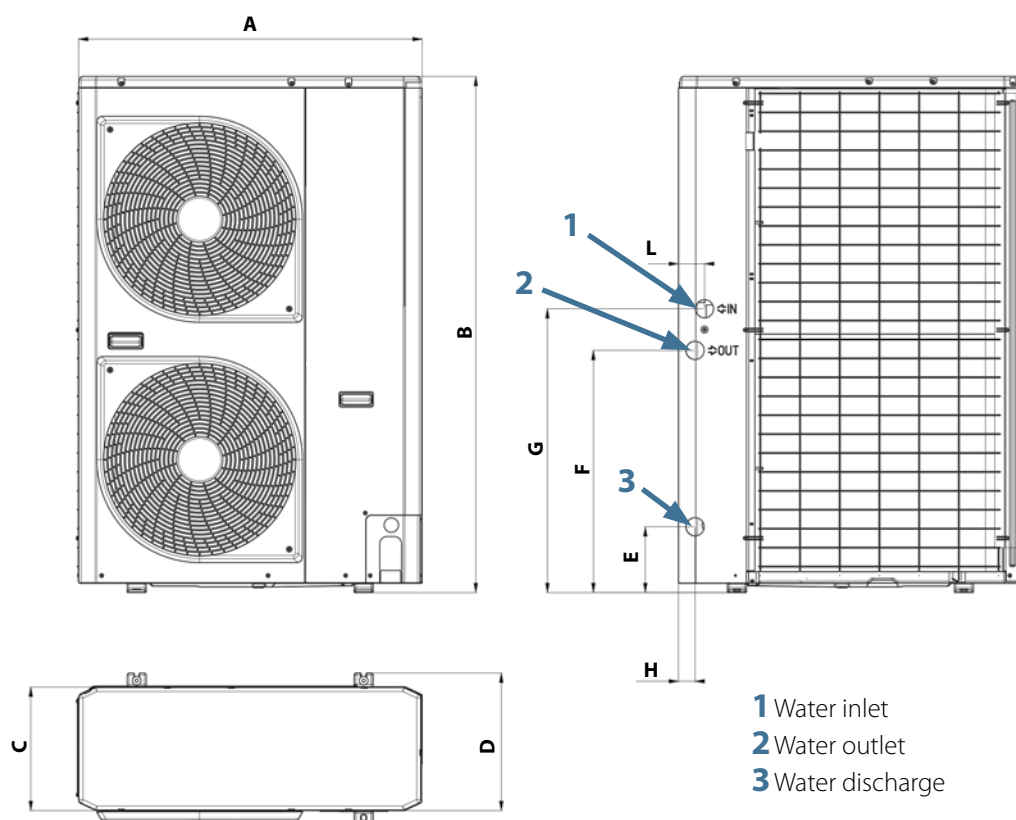
(1) The values are only meant as a guide. Refer to the unit rating plate.

(2) In dB ref.=10-12W, Weighting curve (A). Declared sound emission values expressed in dual numbers, according to ISO 4871 (with a tolerance of +/-3dB(A)). Measured in compliance with standard ISO 9614-1.

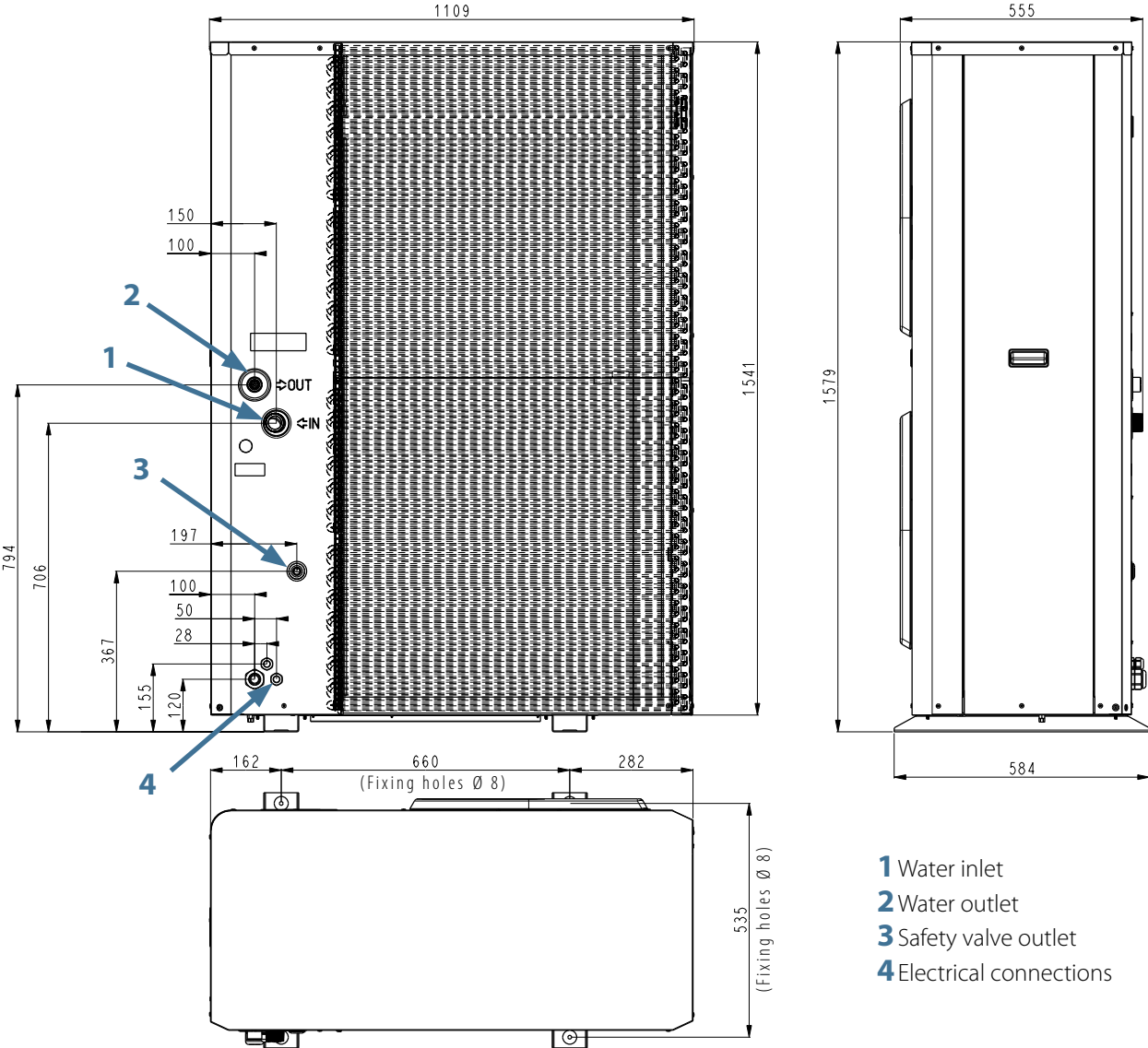
(3) In dB ref. 20 µPa, Weighting curve (A). Declared sound emission values expressed in dual numbers, according to ISO 4871 (with a tolerance of +/-3dB(A)). For information purposes, calculated according to the sound power level L_w (A).



Model	A	B	C	D	E	F	G	H	L	weight (kg)
ENGY 5M	906	821	326	350	87	356	466	40	60	57
ENGY 7M	906	821	326	350	87	356	466	40	60	69



Model	A	B	C	D	E	F	G	H	L	weight (kg)
ENGY 11M	908	1363	326	350	169	645	744	43	73	115
ENGY 15M	908	1363	326	350	169	645	744	43	73	115
ENGY 11T	908	1363	326	350	169	645	744	43	73	121
ENGY 15T	908	1363	326	350	169	645	744	43	73	121

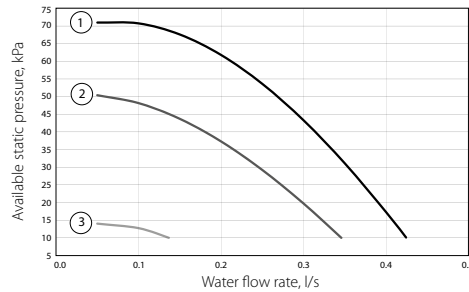


Model	weight (kg)
ENGY 17T	191
ENGY 21T	199

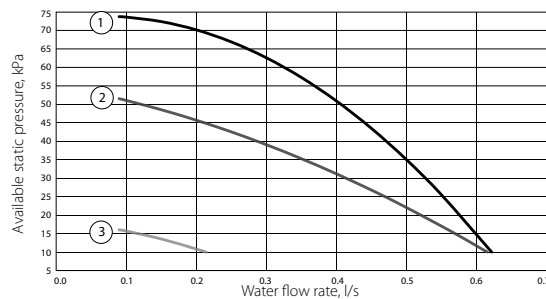
All the energy Genius units are fitted with a built-in hydronic module with variable speed water pump, the expansion vessel, paddle flow switch and safety valve.

Installation available static pressure

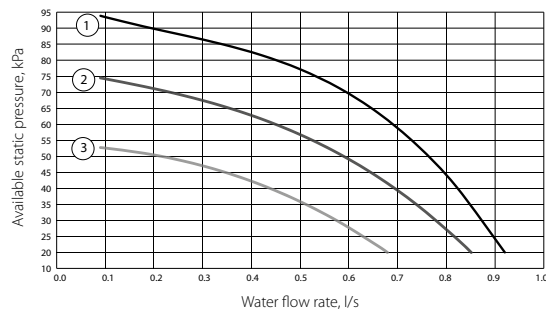
Energy Genius 5M



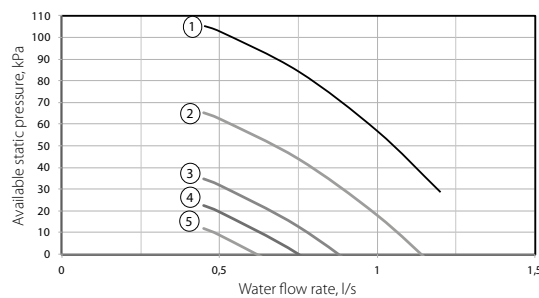
Energy Genius 7M



Energy Genius 11 - 15 (single phase and three phase)



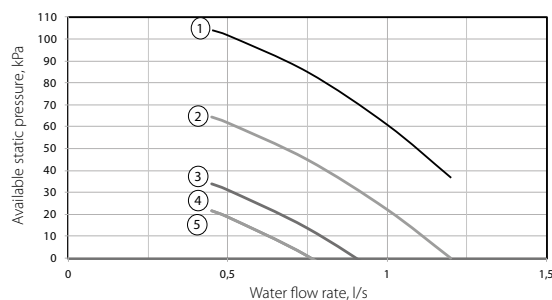
Energy Genius 17T



Legend

1. Pump speed = 100%
2. Pump speed = 75%
3. Pump speed = 50%
4. Pump speed = 38%
5. Pump speed = 25%

Energy Genius 21T



Legend

1. Pump speed = 100%
2. Pump speed = 75%
3. Pump speed = 50%
4. Pump speed = 38%
5. Pump speed = 25%



Electric units



Sabiana has been producing unit heaters and electric fan coil units, suitable for heating industrial and commercial environments.

Such electric units are suitable for satisfying all thermal needs of little used spaces that are not worthy of being equipped with a thermal power station.

All the Sabiana thermal units guarantee easy installation and safety.

The **Electra 90** electric unit heaters for horizontal discharge are made in **7 sizes**, with heat outputs **from 6 to 26 Kw**.

The **Electramatic** units resume the idea of electric heater with all safety and control devices that make the unit be independent. They are equipped with an electric panel fitted on the unit and are completely automated. They only need connections to the power supply, to the control panel for remote control and to the ambient thermostat. Heat outputs **from 6 to 24 Kw**.

The **FSE** Sabiana fan coil units were designed and built to heat electrically residential and working environments, offices and shops, etc. They are three-phase (3Ph+N) or single-phase powered according to the execution reported on the identification label. They are available in **5 sizes** (3000 -8500 W) for wall installation.

Electra 90 / ElectraMatic

Electric Unit Heater



The **Electra 90** electric unit heaters for horizontal discharge are made in **7 sizes**, with heat outputs **from 6 to 36 kW**. The electrical coil has two-stage sealed electrical resistance made of finned steel tubes, to allow two step operation. The power supply is three phase, 400 V - 50 Hz.

The **ElectraMatic** electric unit heaters for horizontal discharge are made in **5 sizes**, with heat outputs **from 6 to 24 kW**.

The electrical coil has two-stage sealed electrical resistance made of finned steel tubes, to allow two step operation.

The power supply is three phase, 400 V - 50 Hz.

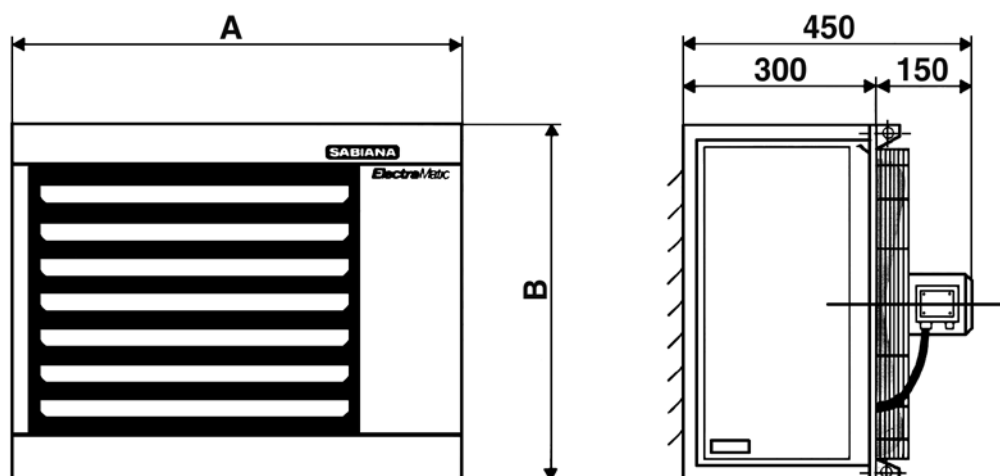
These units **come with** an electrical control panel that includes the auxiliary circuits, operating and safety thermostat, and terminal block ready for connection to the line, to the remote control panel and to the room thermostat.

- Covering unit made out of stove-enamelled phosphated steel plate panels.
- Supporting frame in galvanised steel plate.
- Coil with protected electrical resistances, in finned steel pipe. The power is divided into two stages in order to allow it to operate at partialized load.
- Helicoidal fan with light alloy, anti-spark blades, directly connected to the motor axis.
- Asynchronous **400V - 3f - 50Hz, 6-pole** motor, with closed construction, class B insulation and IP 44 protection.
- Electrical fan support with sturdy metal basket made of four radial arms and safety mesh basket in round steel pipe. The junction between the support and the rear wall of the casing is created by interposing neoprene anti-vibration supports that ensure operation without vibrations and resonance.
- Safety thermostat against overheating.
- Terminal board for electrical connections.

ElectraMatic Model

- Electric motor equipped with thermal protection, incorporated in the wiring, with automatic re-insertion.
- Electrical control panel completely accessible by removing a side panel. **It includes all** control and protection automations, the auxiliary circuits with safety thermostats and the terminal boards ready to be connected to the supply, to the remote control panel, to room thermostat, etc.

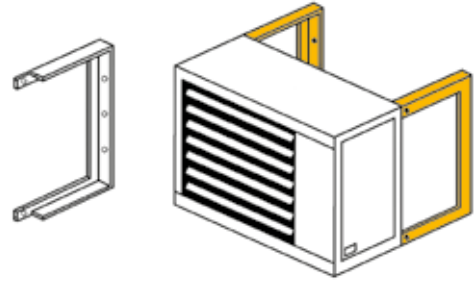
Electra 90 / ElectraMatic | DIMENSIONS, WEIGHT AND TECHNICAL DATA



Model Electra 90			06E	09E	11E	17E	24E	30E	36E
Model ElectraMatic			EM6	EM9	EM11	EM17	EM24	–	–
Output		W	6480	9720	11100	16650	24000	30000	36000
Power steps	1 ^a	W	3240	3240	5550	5550	6000	12000	12000
	2 ^a	W	3240	6480	5550	11100	18000	18000	24000
Air flow		m ³ /h	1000	1000	1800	1800	3600	3500	3400
Leaving air temp. (entering +15°C)		°C	33	44	35	44	36	42	47
Throw		m	6	6	8	8	12	12	12
Mounting height	Min.	m	2,5	2,5	3,0	3,0	3,0	3,0	3,0
	Max.	m	4,0	4,0	4,5	4,5	5,0	5,0	5,0
Helicoidal fan 400 V - 3f - 50 Hz		A	0,22	0,22	0,22	0,22	0,47	0,47	0,47
		g/min	900	900	900	900	900	900	900
		W	110	110	110	110	230	230	230
Noise level at 5 m (*)		dB(A)	43	43	48	48	50	50	50
Dimensions	A	mm	570	570	650	650	730	730	730
	B	mm	470	470	570	570	670	670	670
Air outlet section	L	mm	400	400	480	480	560	560	560
	h	mm	320	320	420	420	520	520	520
Fan		Ø	300	300	400	400	500	500	500
Weight (approx.) ElectraMatic		kg	32	35	43	45	60	–	–
Weight (approx.) Electra 90		kg	30	33	41	43	58	61	64

(*) = The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

Brackets for wall installation



Remote switch (for ElectraMatic only)



FSE

Electric Fan Convector



The **FSE** electric fan convectors are made in 5 sizes, with heat outputs **from 3 to 8,5 kW**.

The electric coil has two-stage sealed electrical resistance made of finned steel tubes to allow two step operation.

The power supply is three phase, 400 V - 50 Hz.

The first two sizes (**up to 4,5 kW**) can also be supplied in the single-phase version.

As standard they are fitted with two speed control, room thermostat and switch for electric heater two step operation.

Version: three-phase 400 V~ (3p + N) or single-phase 230 V~.

Only for vertical installation.

Casing: in hot dip galvanised and pre-painted steel; it is easily removed for complete access to the unit.

The air outlet grill, located on the upper part of the unit, **is reversible**.

Fan assembly: made of ultra-silent double intake **centrifugal fans** with statically and dynamically balanced aluminium impellers keyed directly onto the motor shaft.

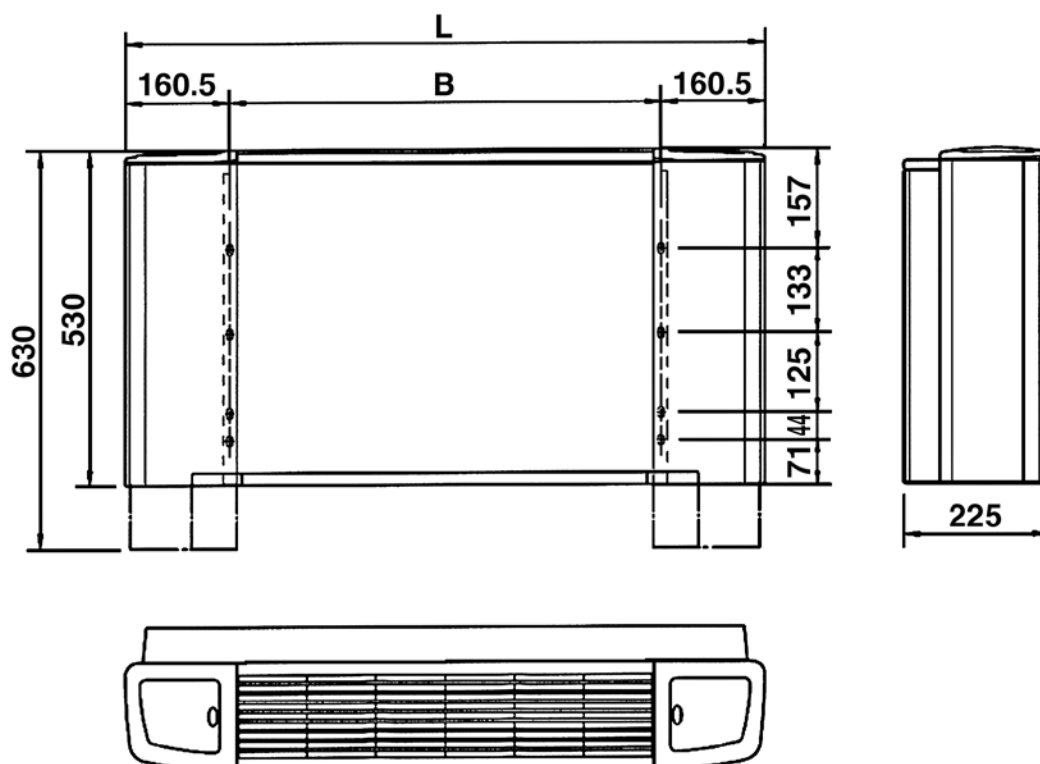
Electric motor: the motor has three speeds with capacitor, and is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings. Protection IP 20, class B.

Coil: protected electrical resistances with firmed steel pipe.

The power is divided into two stages in order to allow it to operate **at partialized load**.

Electrical panel: includes all control and protection automations, auxiliary and safety circuits and the terminal board, ready for connections to the supply line.

Control: built-in control with ON-OFF switch, speed switch and room thermostat.



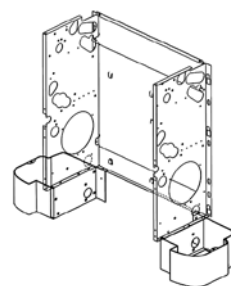
Model	Dimensions (mm)		Weight with packaging kg
	B	L	
FSE 1	454	775	27
FSE 2	669	990	31
FSE 3	884	1205	39
FSE 4	1099	1420	45
FSE 5	1099	1420	45

Model			230 V~						400 V~ (3p+N)														
			FSE 1			FSE 2			FSE 1			FSE 2			FSE 3			FSE 4			FSE 5		
Speed			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Air flow	m³/h		190	240	300	290	360	450	190	240	300	290	360	450	380	480	600	650	800	1000	650	800	1000
Heat output	kW		-	1,90	3,00	-	2,90	4,50	-	1,90	3,00	-	2,90	4,50	-	4,00	6,00	-	5,00	7,50	-	5,60	8,50
Motor output	W		20	30	50	45	50	60	20	30	50	45	50	60	60	80	95	65	85	125	65	85	125
Absorbed power (*)	A		13,5			20,0			5,0			7,0			9,5			10,0			13,0		
Sound power	Lw	dB(A)	40	45	50	42	47	52	40	45	50	42	47	52	35	42	51	48	56	59	48	56	59
Sound pressure (**)	Lp	dB(A)	31	36	41	33	38	43	31	36	41	33	38	43	26	33	42	39	47	50	39	47	50

(*) = Figures at high power and high speed.

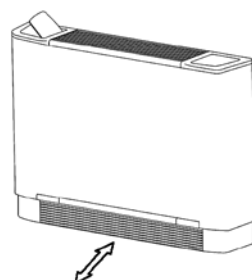
(**) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

PAP Feet



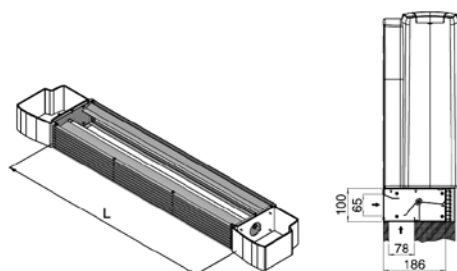
GAP Aluminium intake grid

To be installed with PAP feet.



SAE Damper for fresh air intake

(not motorizable)



Mounted fitted control

- ON-OFF switch.
- Manual 3 speed switch:
 - Fan only at low speed.
 - Low heating power at medium speed.
 - High heating power at high speed.
- Simultaneous thermostatic control of the electric heater and fan.

The unit is equipped with a manually reset safety thermostat that stops power to the electrical coil.





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