klimagiel.it

KLIMAGIEL®
l'aria che ti rispetta

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EN

KLIMAGIEL

GENERAL CATALOGUE

MADE IN ITALY

KLIMAGIEL®
l'aria che ti rispetta

ESTD • • 1989

KLIMAGIEL is a European leader in the production and marketing of metal and fabric air diffusers with more than 35 years of experience.

KLIMAGIEL's network of distributors, agents and agencies spans 40 countries worldwide.

With more than 40 agencies and 145 sales agents in Italy, KLIMAGIEL interacts efficiently and effectively with the entire air market.

MISSION

Creating a healthy and comfortable environment using the best cutting-edge technologies while respecting the planet's resources.

VISION

To offer the best customised solutions for comfortable space in civil and industrial environments.

FOCUS

To offer customised solutions by designing air diffusion perforation for each individual Customer. Strong technical and commercial support throughout project implementation.

WITH STIFFENING RINGS

- Technical and commercial assistance throughout the project.
- All products and semi-finished products Made in Italy.
- Each project is tailor-made according to Customer request.

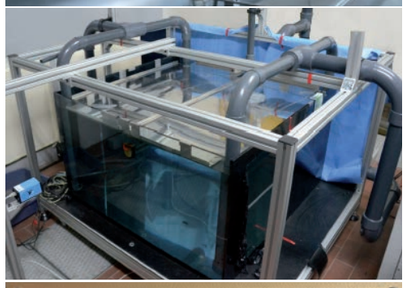
Research and Development

A CONSTANT ENGAGEMENT TO IMPROVE PERFORMANCE

In cooperation with the Polytechnic University of Milan and the use of two separate experimental apparatuses have developed a process of analysis and verification of technical and production data that was able to profitably characterise KLIMAGIEL products.

With the BIG TUBE, it was possible to study the air processing inside the ducts in detail, with a procedure that made it possible to refine the size and specific holes of each duct and its main operating characteristics, such as pressure drops, outflow coefficients and conducted and diffused flow rates.

With the AQUARIUM, a kinematically similar water circuit equipped with PIV - particle image velocimetry - visualisation techniques, the movement of water was characterised and velocity data collected at all points of a section illuminated by the laser blade.
It was thus possible to study in detail the behaviour of the air released into the environment.



Services and Surplus value

Design consulting

Inspections

Qualified staff

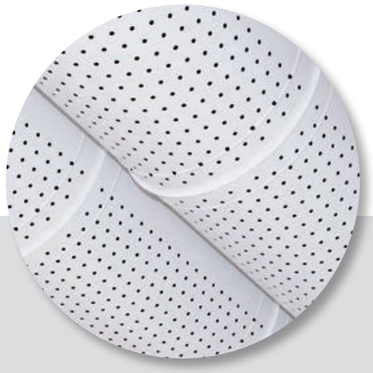
Integrated consulting is the professional service that KLIMAGIEL's well-established know-how in ducted air distribution offers its customers, assisting and guiding them in finding and using the best solution for their specific objective.
The evaluation of performance in terms of time, adherence to budget, agreed quality and return on investment, sharing responsibility for results are therefore indispensable.
A further, no less important service is inspection of the site where the work is going to be carried out and the surveys where the system is to be installed.
KLIMAGIEL also provides a comprehensive organisation capable of responding to all assistance requests.
Professionalism, competence and closeness to the customer have always been distinctive elements guaranteeing a quality service that is renewed year after year.

KLIMAGIEL IN THE WORLD

INNOVATION AND COMFORT IN AIR DIFFUSION

KLIMAGIEL is a benchmark company in the air diffusion sector, using advanced software that optimises the size and positioning of perforations to ensure superior environmental comfort.
Every space - shops, warehouses, swimming pools, offices, supermarkets, trade fairs, greenhouses, restaurants - has specific requirements in order to provide maximum well-being for people and products. Our diffusers ensure an environment free of condensation, air stratification, noise or disturbing currents. With KLIMAGIEL, comfort is guaranteed in every season, with even air distribution and a maximum air velocity of 0.2 m/sec, in accordance with European standards.

KLIMAGIEL MICROPERFORATION: NOT JUST HOLES BUT ACCURATE TECHNOLOGY!



PRINCIPLE OF OPERATION

The **high induction diffusion** system exploits the possibility generated by the airflow coming out of the perforation holes to mix optimally with the ambient air flow, resulting in a **high level of environmental comfort**.
In particular, the KLIMAGIEL **JET-IN** system guarantees a very high exchange and mixing surface with the ambient air, which is moved by friction and the vacuums and vortices created by the movement of the air itself.
This phenomenon is due to the principle of conservation of momentum

$$Q_{IN} \times \rho \times V_{IN} = COST = K$$

Q_{IN} = volumetric flow [m^3/sec]; ρ = fluid density [kg/m^3]; V_{IN} = fluid velocity in motion [m/s]

This **inductive effect** makes it possible to move a much larger volume of air than the volume fed into the room, thanks to a certain initial impulse. Depending on the hole diameter, hole geometry and static pressure, it can reach values up to 50 times higher than the primary air flow rate.
The ratio between the volume of air moved and the volume of air supplied is called the **INDUCTION RATIO**.

Thanks to the choice of an inductive JET-IN system, the typical phenomena associated with traditional air distribution systems are avoided, which, being characterised by localised input points, do not allow for homogeneity of the thermo-fluid-dynamic characteristics of the air in the room.

Thanks to our software, it is also possible to assess the phenomenon of thermal pressure drop of the air flowing inside the duct. It in fact exchanges heat with the environment and, therefore, particularly in the case of long pipelines, a temperature variation is created within the diffuser.

It may therefore be appropriate in some cases to balance this thermal difference by increasing the specific flow rate into the room (flow rate per linear metre). This ensures an optimal distribution of the energy fed from the first to the last section of the diffuser.

THE PRINCIPLE OF INDUCTION

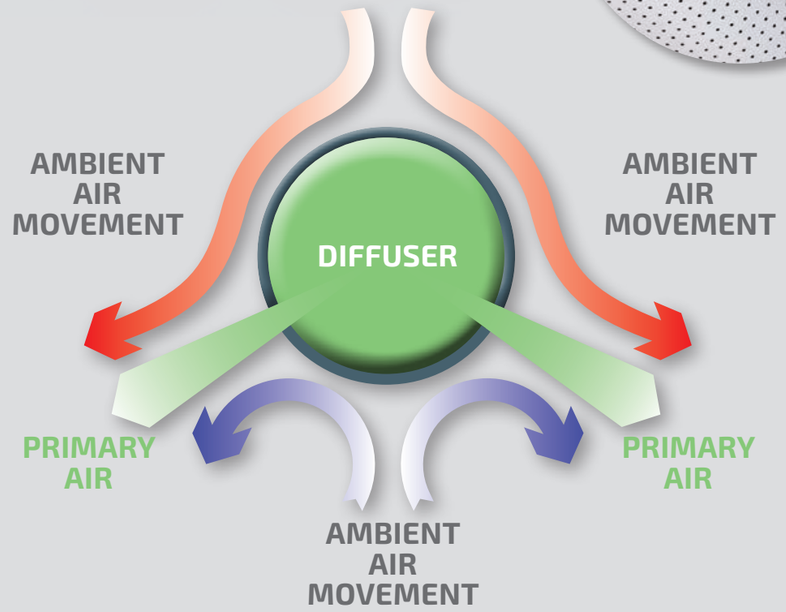


Fig. 1

AIR VELOCITY RATE IN THE SUMMER SEASON

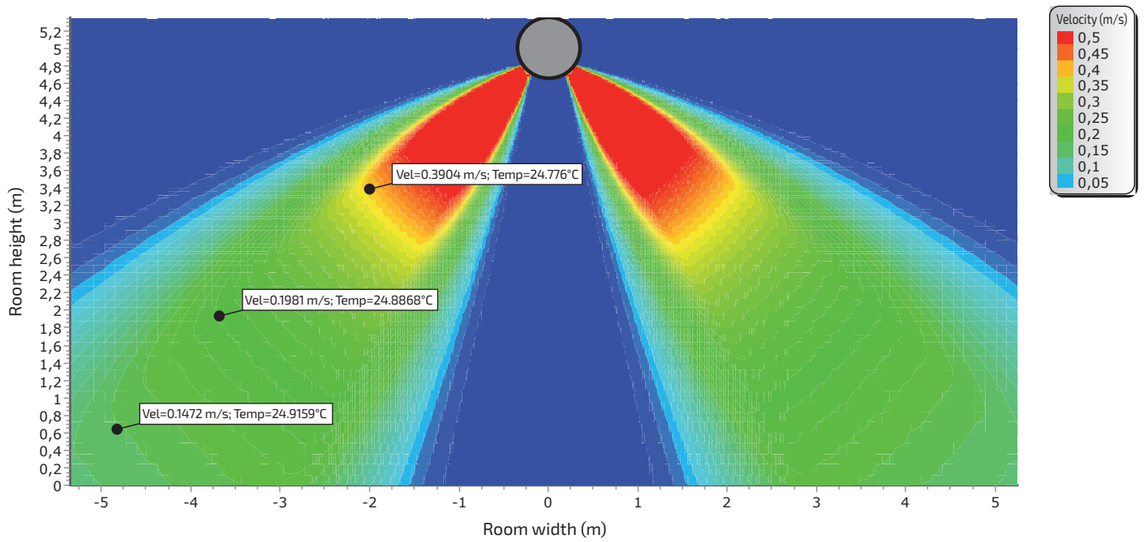


Fig. 2

AIR VELOCITY RATE IN THE WINTER SEASON

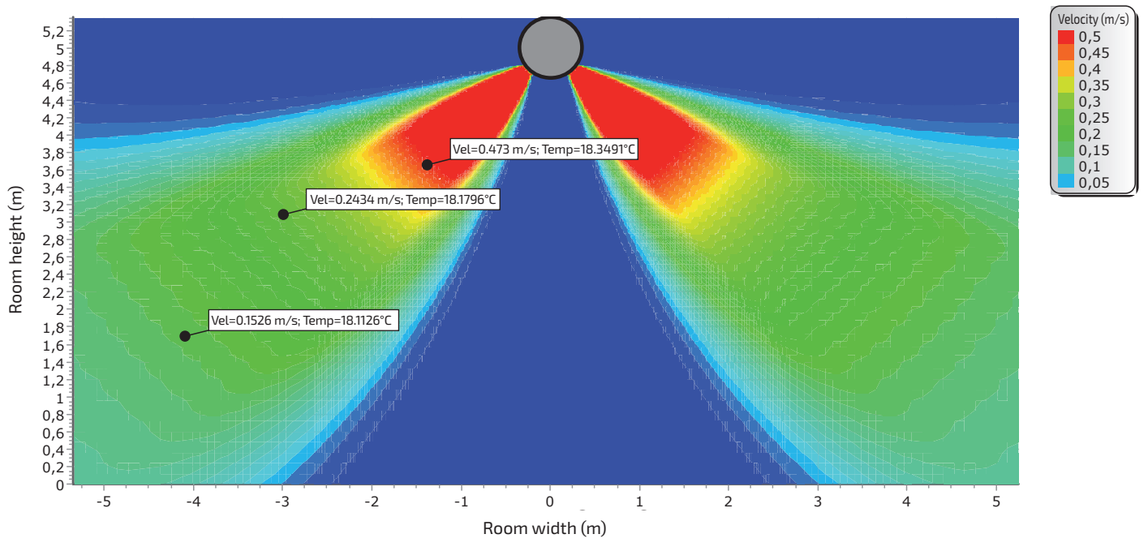


Fig. 3

The high degree of mixing guaranteed by KLIMAGIEL diffusers eliminates air stratification phenomena in the winter season, treating the entire air volume, **improving comfort and reducing consumption.** At the same time, during the summer season, air velocities in accordance with UNI 10339 and EN 13182 are ensured so as not to cause discomfort and to maintain a high level of comfort at all times.

Thanks to our Klimagiel calculation program, it is possible, for each project, to define the optimal hole size and layout (number size and arrangement of the holes on the diffuser) to guarantee the high efficiency of the system. At the same time, this ensures compliance with air velocities in accordance with UNI 10339 and EN 13182.

It is possible through the use of software to determine air throws, graphically displaying their trend, for both summer and winter air conditioning. With this program, it is also possible to assess the thermal pressure drop suffered by the air flowing through the duct. This in fact exchanges heat with the external environment and, in the case of particularly long diffusers and/or with considerable temperature deltas between the ambient air and the air in the diffuser, can lead to considerable variations in the temperature inside the diffuser.

DIAGRAM OF A DUCT DESIGNED WITH CONSTANT ENERGY DISTRIBUTION

Exemplification of the pressure drop trend, energy distribution in a pipeline with a flow rate of 10,000 m³/h, a circular diameter of 600 mm with an inlet temperature of 30°C and a length of 50 m divided into 5 sections of 10 m/each.

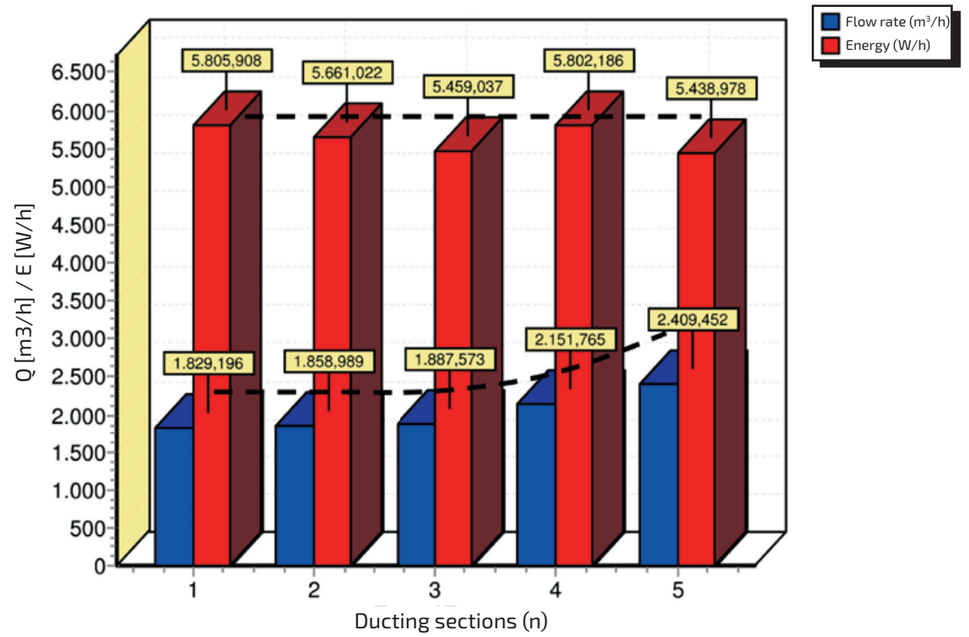


Fig. 4

Another peculiarity of our diffusion system JET-IN, which is particularly useful in the case of JET-IN METAL metal diffusers, consists in the possibility of exploiting the inductive phenomena that are created around the diffuser, in order to **prevent** the **phenomenon of condensation** that would be created on the external surface of the diffuser in the case of summer air conditioning, when the temperature of the air inside the ducting is below the dew point.

GRAPH OF RELATION BETWEEN INSTALLATION HEIGHT AND SUITABLE PRESSURE

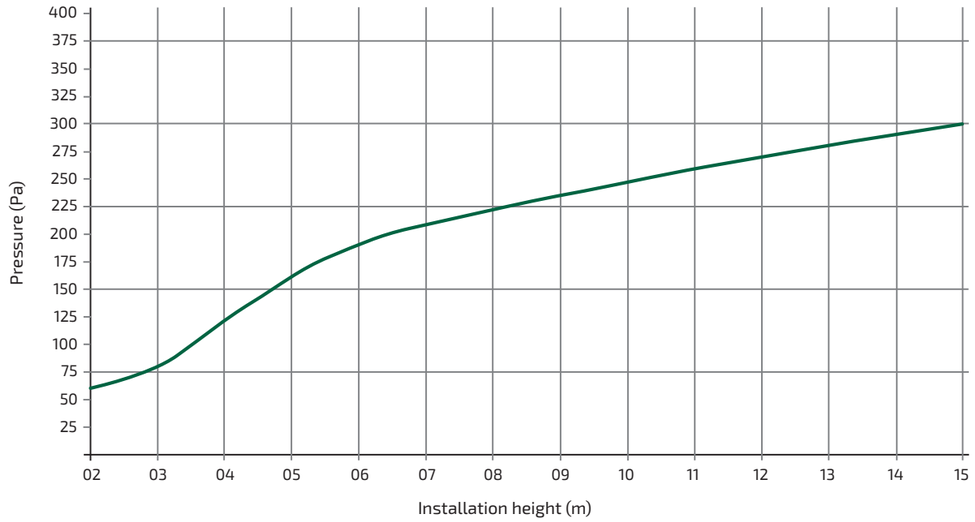
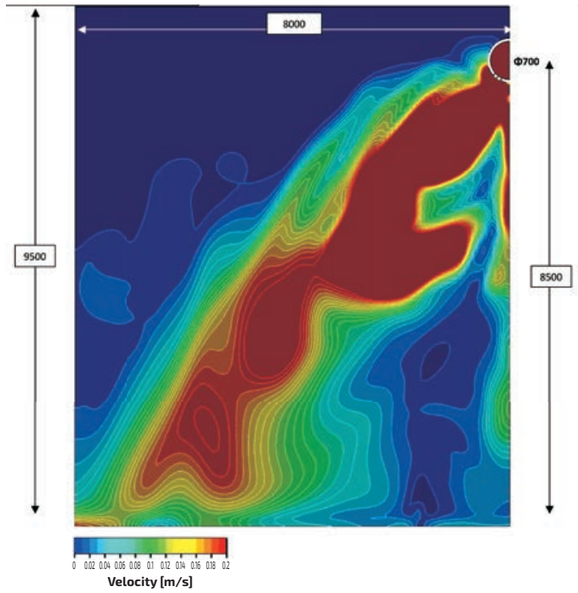


Fig. 9

Recently, KLIMAGIEL has developed a new CFD (Computational Fluid Dynamics) calculation program (fig. 10) that allows us to simulate the flow of air in a realistic environment by considering its interaction with walls, intakes, endogenous heat sources (lights, machinery, etc.) with possible punctual or extensive obstacles (barriers/scaffolding), etc., thus being able to obtain a very realistic simulation, which allows us to assess the **temperatures** and air **velocities** at every point in the space. For a profitable use of this software, it is necessary to know precisely the thermodynamic and geometric parameters of both the room and the air conditioning system for the summer and winter seasons, data which must be provided by the Customer.

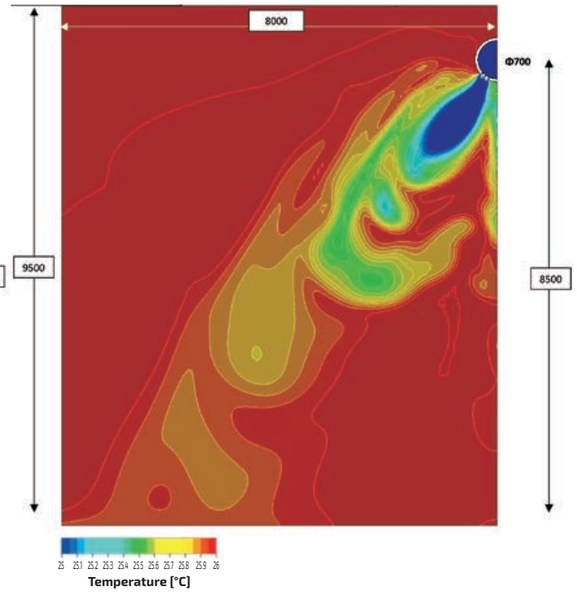
EXAMPLE OF SIMULATION AT VELOCITY CFD



TECHNICAL INFORMATION:
Ptot = 150 [Pa]; L = 45.5 [m]; Q = 10000 [m³/h]
Tduct = 18 [°C]; Tambient = 26 [°C]

Fig. 10

EXAMPLE OF APPLICATION OF CFD TEMPERATURE SIMULATION



TECHNICAL INFORMATION:
Ptot = 150 [Pa]; L = 45.5 [m]; Q = 10000 [m³/h]
Tduct = 18 [°C]; Tambient = 26 [°C]

Fig. 11

An example of a CFD (computational fluid dynamics simulation software) simulation is shown above, which allows the airflow in the room to be simulated by checking both velocities (fig. 10) and temperatures (fig. 11). In this case, the diffuser is installed at an elevated height (8.5 m) and the aim of the simulation is to verify that the injected air can reach the floor while ensuring that the velocity of 0.2 m/s at head height is met.

As far as velocity is concerned, fig. 10, the different isokinetic zones are represented with a colour scale ranging from red (velocities greater than 0.2 m/s) to blue (zero velocity).
As far as temperature is concerned, fig. 11, the different isothermal zones are represented with a colour scale ranging from red (temperature above 26°C) to blue (temperature below 26°C).

COMPUTATIONAL FLUID-DYNAMICS (CFD)

CFD is fluid-dynamic simulation software used to analyse complex thermal and fluid-dynamic phenomena using dedicated software. CFD is a fluid dynamic simulation tool used to analyse complex thermal and fluid dynamic phenomena using dedicated software.

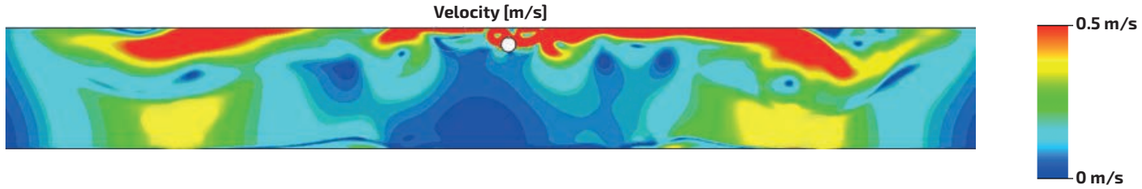


Fig. 12

SUMMARY OF STRENGTHS COMPARED TO TRADITIONAL SYSTEMS

- High comfort and homogeneity of the thermodynamic characteristics of the air in the room.
- Maximum energy efficiency.
- Elimination of the phenomenon of stratification of warm air in winter.
- Exploiting the inductive phenomenon to eliminate the formation of condensation.
- Quick assembly and easy maintenance.
- Aesthetically pleasing and adaptable to the context.

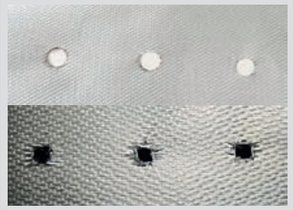
TEXTILE DIFFUSERS

Induction **TEX jet**

OEKO TEX® STANDARD 100 SEWO 048442 TESTEX
SUPPORTING DOCUMENTS
✓ Test report: SE050 222564.1
✓ Declaration of conformity in accordance with EN ISO 17050-1 as required by OEKO-TEX®
✓ OEKO-TEX® Terms of Use (ToU)

THE CHARACTERISTICS

The polyester fabrics used by KLIMAGIEL are certified according to the **STANDARD 100 OEKO-TEX®**, one of the most renowned brands worldwide for fabric certification. This certification attests that the fabrics used do not contain harmful substances to health and that the dyes used for dyeing are non-toxic.
The certification also includes laboratory tests to assess the suitability of polyester fabrics for use in the food industry, ensuring safety and compliance. For this reason, KLIMAGIEL offers fabrics with **antibacterial coating** for use in cleanrooms or the food industry. Additionally, an **antistatic fabric** is available to reduce static charge buildup, ideal for sensitive applications.
Designed with **inorganic fibre** fabrics, KLIMAGIEL products offer maximum hygiene and lightness, minimizing the impact on building structures compared to other distribution systems.



FABRIC HOLE SIZE AND LAYOUT WITH KLIMAGIEL VS LASER MECHANICAL DIES

◀ KLIMAGIEL LASER PERFORATION

◀ MECHANICAL PERFORATION

KLIMAGIEL is committed to environmental sustainability, offering air distribution ducts made from 100% **recycled fabric**. This fabric, derived from recycled polyester, ensures high-quality air distribution, ideal for increasingly sustainability-oriented environments.
KLIMAGIEL's **laser technology** allows for optimal definition of the hole size and layout for each solution. This cutting method seals the hole, prolonging the duct's lifespan and reducing fibre dispersion into the conditioned environment.
Continuous research and development on fabrics and their technical characteristics have made micro-perforated textile diffusers an ideal solution in many applications. The fixing systems have been carefully designed, offering ease of installation, reliability, and flexibility. Leveraging the principle of high induction, the precise design allows for the mixing of primary air with ambient air, ensuring a high level of comfort.

MATERIALS

TYPE	MATERIAL	COATING	SPECIFIC WEIGHT	REACTION TO FIRE
FEATHER	100% polyester	Acrylic P.U.	70 g/m² ± 5%	Euroclass B s1, d0
PREMIUM	100% polyester	Acrylic P.U.	110 g/m² ± 5%	Euroclass B s1, d0
FIBRE	100% glass fibre	Fire-retardant P.U.	450 g/m² ± 5%	Euroclass A
RECYCLED	100% recycled polyester	N/A	250 g/m² ± 5%	N/A
ANTISTATIC	100% polyester	Acrylic P.U. fire retardant, antistatic	160 g/m² ± 5%	Euroclass B s1, d0
ANTIBACTERIAL	100% polyester	Acrylic P.U. fire retardant, antibacterial	160 g/m² ± 5%	Euroclass B s1, d0

COLOURS

Depending on the type required, a choice of colours from the RAL classic scale is available (RAL for information only):

FEATHER
WHITE **RAL 9010** · GREY **RAL 7040** · BLACK **RAL 9005** · BLUE **RAL 5010**

PREMIUM
WHITE **RAL 9010** · GREY **RAL 7040** · GREEN **RAL 6005** · BLUE **RAL 5010** · YELLOW **RAL 1018** · BLACK **RAL 9005**

PREMIUM UPON REQUEST
ORANGE **RAL 2012** · RED **RAL 3000**

FIBRE
WHITE **RAL 9010** · GREY **RAL 9006** · GREEN **RAL 6032** · BLUE **RAL 5022** · YELLOW **RAL 1012** · RED **RAL 3017** · BLACK **RAL 9005**

RECYCLED
WHITE **RAL 9010**

ANTISTATIC
WHITE **RAL 9010**

ANTIBACTERIAL
WHITE **RAL 9010** · YELLOW **RAL 1018**

THE ADVANTAGES OF FABRIC DIFFUSERS AT A GLANCE

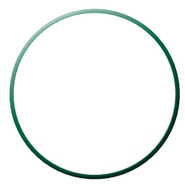
Extremely lightweight solution that does not burden the load-bearing structures of buildings.

Quick installation and easy maintenance.

The most economical solution for homogeneous climate control of rooms.

AVAILABLE GAUGES

Strongly focused on customer satisfaction, KLIMAGIEL researches and offers its partners the best possible solution, carefully evaluating every technical, functional, economic and architectural aspect.
Fabric diffusers are available in circular, semicircular, 1/4 circle or even lenticular gauges.
On request, we also design and supply customised solutions with special gauges.



CIRCULAR

SEMICIRCULAR

QUARTER CIRCLE

LENTICULAR

TEXTILE DIFFUSERS

Screen-printed **TEX jet**

To respond to aesthetic market trends, KLIMAGIEL offers the service of **fully customised fabric ducts**.
On request, KLIMAGIEL produces TEX jet designs with the company logo, colour of choice, images, graphic patterns or lettering (screen printing is only performed on Premium fabric).

A graphic file
with the duct layout in high-resolution pdf format is required for implementation.

TEXTILE DIFFUSERS

Light **TEX jet**

KLIMAGIEL offers an elegant solution for projects where it is necessary to integrate an aesthetic solution with a functional one: Light TEX jet.
We make fabric ducts with the possibility of inserting an LED strip/bar inside to provide diffuse ambient light.
The installation of lighting inside the duct requires the intervention of a qualified electrician or specialized professional.

Duct stiffening rings **TEX jet**

AESTHETIC SOLUTION FOR STIFFENING FABRIC DUCTS

KLIMAGIEL stiffening rings serve to keep the circular fabric duct in shape when not in use. During the fabrication phase, special pockets are sewn inside the duct that will accommodate the stiffening rods made of **fibreglass-reinforced plastic**. The profile, therefore, is made of a light and particularly strong material, making a high quality final product. Since the machining is done on the inside of the duct, it will have a completely smooth aesthetic appearance once it is straightened. The final product is a lightweight, safe and ready-to-install Klimagiel air duct that will keep its round shape even when air conditioning machinery is switched off.

OUTSIDE
OF THE DUCT
WITH STIFFENING
RINGS

INSIDE
OF THE DUCT
WITH STIFFENING
RINGS

DUCT WITH AHU OFF

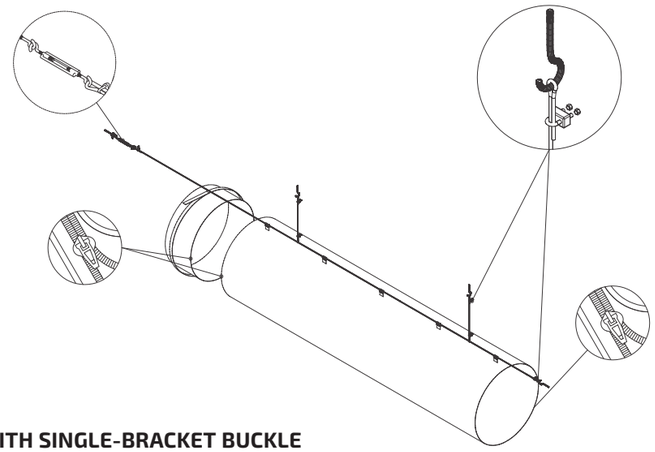
DUCT WITH AHU ON

WITH STIFFENING RINGS

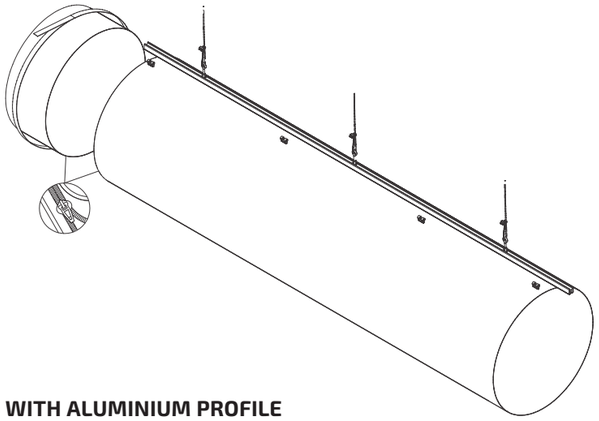
- Maintains the shape of the fabric duct even when not in use.
- Lighter structure than traditional skeletons.
- Thanks to the integrated system, installation is faster than traditional skeletons.
- Faster and cheaper logistics of the final product.
- The final product is safer than traditional skeletons in case of accidental falls.
- Easily washable.

TEXTILE DIFFUSER FIXING SYSTEMS

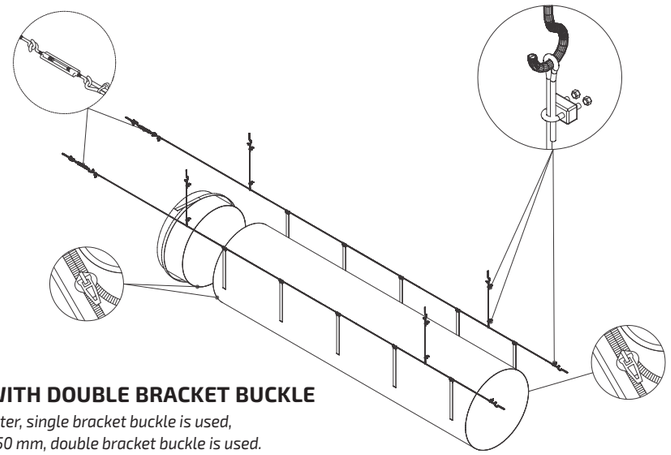
All textile diffusers are supplied complete with installation accessories. The fixing system can include cables or aluminium profiles, depending on the type of cross-section or the customer's choice. Strips with clips, tie-rods and cable glands are calculated for each individual job and made available for quick and easy installation. Fabric diffusers can be supplied with single or double suspension cable (depending on diameter or design requirements).
The semi-circular duct, which is ideally suited for rooms with flat ceilings and low heights, is supplied as standard with aluminium profiles for ceiling installation (see all KLIMAGIEL accessories on page 33).



CIRCULAR DIFFUSER WITH SINGLE-BRACKET BUCKLE

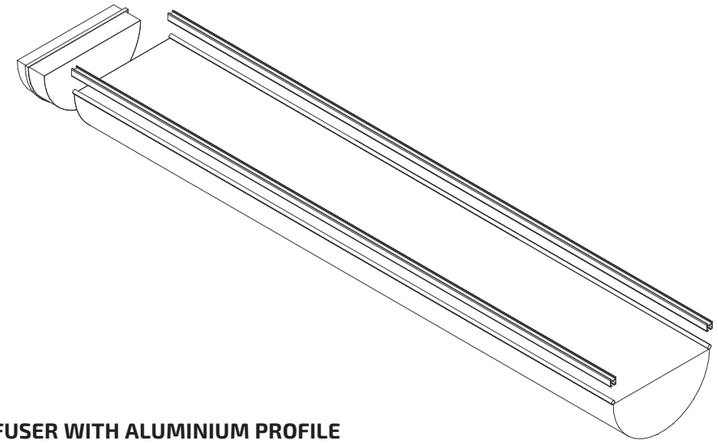


SEMI-CIRCULAR DIFFUSER WITH ALUMINIUM PROFILE



CIRCULAR DIFFUSER WITH DOUBLE BRACKET BUCKLE

For ducts up to 500 mm in diameter, single bracket buckle is used,
for ducts with a diameter over 550 mm, double bracket buckle is used.



SEMICIRCULAR DIFFUSER WITH ALUMINIUM PROFILE

MAINTENANCE INSTRUCTIONS

The following PPE **MUST** be used when servicing the machine:

Maintenance includes general cleaning of the duct, to be carried out **as required**.

FABRIC DUCT CLEANING EUROCLASS B, S1-D0

The following requirements **MUST** be observed when cleaning the duct:

To clean the duct, perform the following steps in this order:
1. disassemble the duct
2. carry out a washing cycle, either by hand or by machine, in accordance with the following requirements:
   • use of neutral detergent
   • temperature of 40°C
   • maximum duration of 15 min
3. if necessary, rinse the duct
4. if necessary, run a new wash cycle
5. allow the duct to dry at room temperature
6. reassemble the duct.

If you wish to request a washing service, please contact our sales department.

EUROCLASS A GLASS FIBRE DUCT CLEANING

The following requirements **MUST** be observed when cleaning the duct:

To clean the duct, perform the following steps in this order:
1. disassemble the duct
2. carry out a hand-wash cycle at a maximum temperature of 40°C
3. if necessary, rinse the duct
4. if necessary, run a new wash cycle
5. allow the duct to dry at room temperature
6. reassemble the duct.

Induction **METAL jet**

THE CHARACTERISTICS

Induction METAL jet diffusers offer a wide range of solutions.
They can be produced from different materials, depending on application and environmental characteristics, guaranteeing long life and reliability.
By exploiting the high induction principle, they generate optimal distribution and diffusion of the treated air.
The flow generated by the air coming out of the calibrated holes, the distribution of which over the duct is carefully studied, generates an optimal mixing of the primary and ambient air, achieving maximum room comfort.

The perfect calibration and distribution of the holes, together with the correct sizing for internal speed control, will allow for a **quiet** environment suitable for all applications.

The wide range of available fittings allows the design of routes that can be adapted to any environment.
The diffusers are designed for quick and safe assembly using only a few tools.

KLIMAGIEL can offer its microperforated metal diffusers in the following materials:

MATERIAL	REGULATION	STRUCTURE	SURFACE APPEARANCE
GALVANISED STEEL	EN 10346	Carbon steel + galvanising 200 g/m²	MICROPERFORATED
PRE-PAINTED STEEL	EN 10346	Carbon steel + galvanising 200 g/m²	Anticorrosive PRIMER basecoat + polyester paint
PAINTED STEEL	EN 10346	Carbon steel + galvanising 200 g/m²	Powder-coated
AISI 304 STAINLESS STEEL	EN 10088 - ALLOY 1.4301	Austenitic	2B, 2D, BA, satin or scotch brite
AISI 316 L STAINLESS STEEL	EN 10088 - ALLOY 1.4404	Austenitic	2B, 2D, BA, satin or scotch brite
AISI 430 STAINLESS STEEL	EN 10088 - ALLOY 1.4016	Ferritic	2B, 2D, BA, satin or scotch brite
ALUMINIUM	EN 485-2 - ALLOY 5005	Aluminium 100 g/m²	MATT
ROLLED STEEL	EN 1036 - EN 13523	Carbon steel + galvanising 200 g/m² + PET film	Hot-rolled with PET

COLOURS

PREPAINTED STEEL:

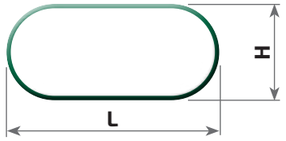
WHITE **RAL 9010**
ALUMINIUM GREY **RAL 9006**
ANTHRACITE GREY **RAL 7016**
BLACK **RAL 9005**
BLUE **RAL 5010**

PAINTED STEEL:
By choosing powder-coated steel, design and architectural firms will have all the colours of the RAL CLASSIC scale available. A special COPPER EFFECT coating is also available containing a percentage of copper powder, with great cost advantage and preservation over time compared to solutions in this material. The wide range of available fittings allows the design of routes that can be adapted to any environment.
The diffusers are designed for quick and safe assembly using only a few tools
(see all KLIMAGIEL accessories on page 33).

Induction **OVAL jet**

An elegant solution for metal applications where a lower height profile is required compared to traditional circular ducts is the **OVAL jet** metal duct.

AVAILABLE SIZES



H	200	250	300	350	400	450	500
L	400	500	600	700	800	900	1000

AVAILABLE GAUGES

METAL jet metal diffusers are available in circular cross-section with diameters from 200 to 1700 mm, semicircular with diameters from 200 to 1000 mm and oval with height from 400 to 1000 mm.
Each size and shape is available in all material and colour variants provided.
KLIMAGIEL researches and offers its partners the best possible solution by carefully evaluating every technical, functional, economic and architectural aspect.

The fixing systems are based on criteria of absolute reliability and speedy assembly.

CIRCULAR
SEMICIRCULAR
QUARTER CIRCLE
OVAL

THE ADVANTAGES OF METAL DIFFUSERS AT A GLANCE

- High ambient comfort thanks to homogeneous air treatment in the room.
- Easy installation thanks to plug-in bayonet and connecting clamps.
- Anti-condensation effect on duct surfaces.
- Quiet environment suitable for all applications due to the calibration and distribution of holes and strict speed control.

Klimagiel extract ducts:
Functional and aesthetic efficiency in air distribution systems

In the panorama of air treatment solutions, **extract ducts** are a strategic element in ensuring system balance and room comfort. KLIMAGIEL offers **metal** extract ducts, ideal for meeting the demands of strength, durability, easy maintenance and design precision.

These ducts are integrated into ventilation systems to collect the air in the room and redirect it to treatment units (AHUs, Rooftop or ducted systems), ensuring effective recirculation and constant control of thermo-hygrometric conditions.

The extract duct can also be microperforated.
When the design requires that intake be evenly distributed in the room - or for aesthetic requirements - KLIMAGIEL also offers the option of **micro-perforated extract ducts.**

These are designed with a **dedicated hole size and layout**, specifically designed to ensure adequate and continuous airflow without turbulence or disturbance.

IN BRIEF
Whether systems with traditional or micro-perforated ducts, the correct design of the extract ducts is a key step for:

- ensure **uniform room comfort**
- reduce **operational and installation costs**
- simplify plant engineering infrastructure
- achieve **high performance** in every season and in every type of building

Klimagiel Rolled Metal ducts:
Synergy of Aesthetics and Advanced Technology

We proudly present our premium range of Klimagiel custom metal ducts, designed to combine refined aesthetics and superior performance.

These solutions have been carefully developed to embellish every space-from BEAUTY SALONS to functional spaces in AIRPORTS, from cozy RESTAURANTS and BARS to elegant HALLS in HOTELS, as well as facilities such as POOLS, SUPERMARKETS, OFFICES, BOUTIQUES and FOOD INDUSTRIES.

Furthermore, our ducts are designed to operate uncompromisingly over a wide temperature range, demonstrating stability and integrity from -35 to +85 degrees Celsius.

Such exceptional thermal resistance makes them ideal for applications in demanding environments, while maintaining unaltered aesthetic and structural properties.

CUSTOMISED DESIGN AND ADVANCED FUNCTIONALITY

With a palette of customizable finishes-both transparent and opaque, plain or artistically decorated, and the option of highly polished surfaces-our collection offers high cleanability and outstanding resistance to solvents, scratches and chemicals.

Compatible with food contact, KLIMAGIEL ducts fulfil all safety criteria for use in food environments.

CERTIFIED PERFORMANCE IN ALL CONDITIONS

The resilience of our metal ducts is validated by stringent tests and rigorous standards:
- **EN 13523-26: 1000 hours** of wet room resistance.
- **ASTM B 117-2007 at: 1500 hours** of resistance in mist salt, under thermal conditions of 35°C ±1.1/-1.7.
- **EN 13523-10: 3000 hours** of resistance to QUV-A.
- **UNI EN ISO 4892-2:2013: 4000 hours** of Xenon test resistance.

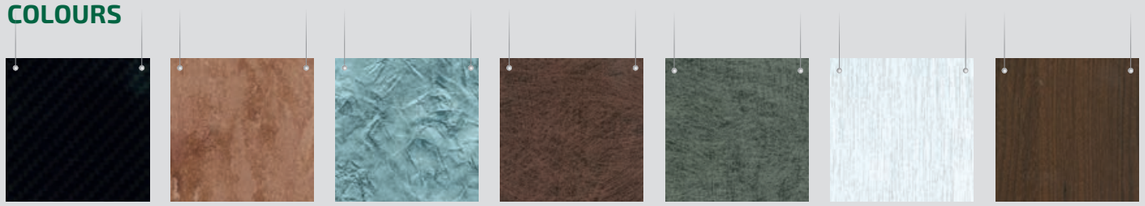
COMMITMENT TO THE ENVIRONMENT

In addition to exhibiting superior quality, our ducts are fully recyclable and produced without the use of PVC or solvents, reflecting our commitment to supporting a greener, more sustainable future.

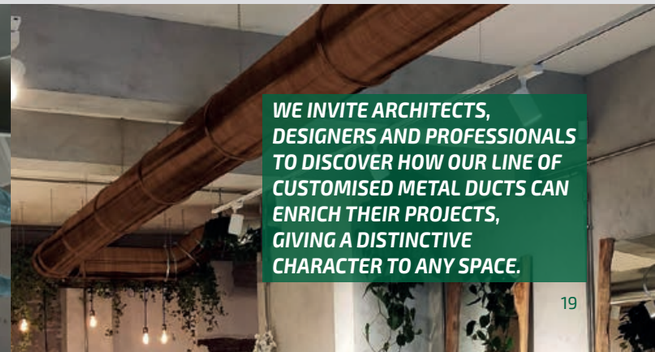
WITH STIFFENING RINGS

- Color consistency
- Color customization
- Decoration customization
- Can be glossy 105/110 gloss or matte 30/40 gloss
- High cleanability because it is resistant to solvents
- Resistance to corrosion and moisture
- Recyclable (contains no PVC)
- Suitable for food contact
- “H” scratch resistance

COLOURS



** Availability of colours and production timing to be checked when requesting an offer.*



WE INVITE ARCHITECTS, DESIGNERS AND PROFESSIONALS TO DISCOVER HOW OUR LINE OF CUSTOMISED METAL DUCTS CAN ENRICH THEIR PROJECTS, GIVING A DISTINCTIVE CHARACTER TO ANY SPACE.

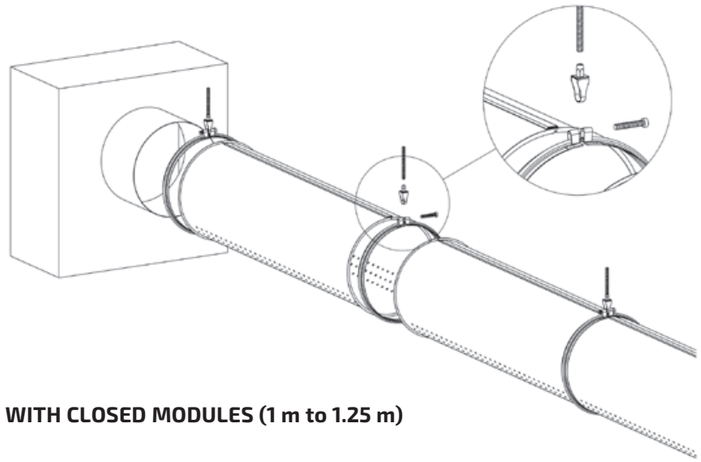
ASSEMBLY SOLUTIONS

With a focus on ease of installation and quality of the end result, KLIMAGIEL's experience has led to the design and implementation of unique solutions for the benefit of its partners.
FAST-FIX circular ducts, with a length of 1250 mm, are normally supplied with a longitudinal bayonet joint for on-site fixing (thus reducing transport costs), without the need for riveting.

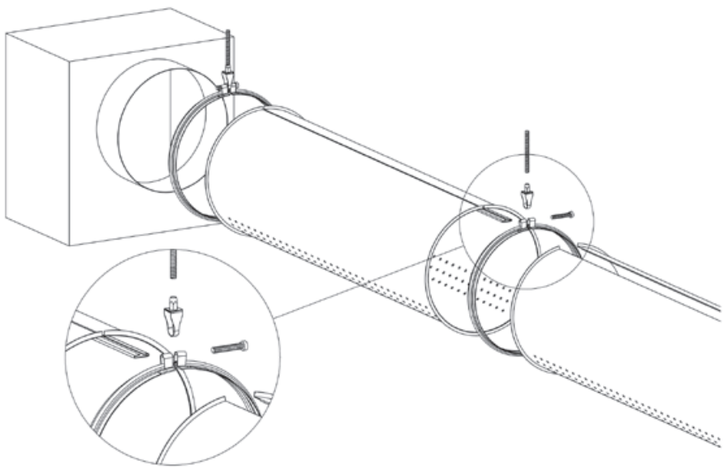
The flaps are suitably shaped with a **patented folding system** to relieve material tension. For diffusers with a diameter of 1,050 mm or more, the **internal stabilising frame** (patent application filed, see "ACCESSORIES" section) is supplied, which facilitates assembly and maintenance of the circular shape.

This is particularly useful during assembly, in order to avoid ovalisation and difficulties in coupling between duct sections, in often already complex working conditions.

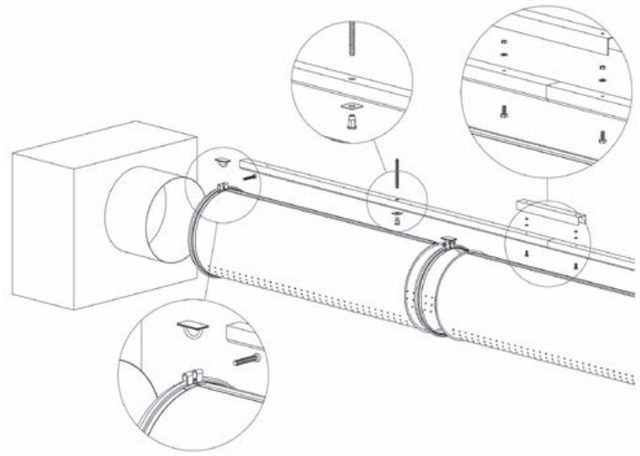
Assembly video



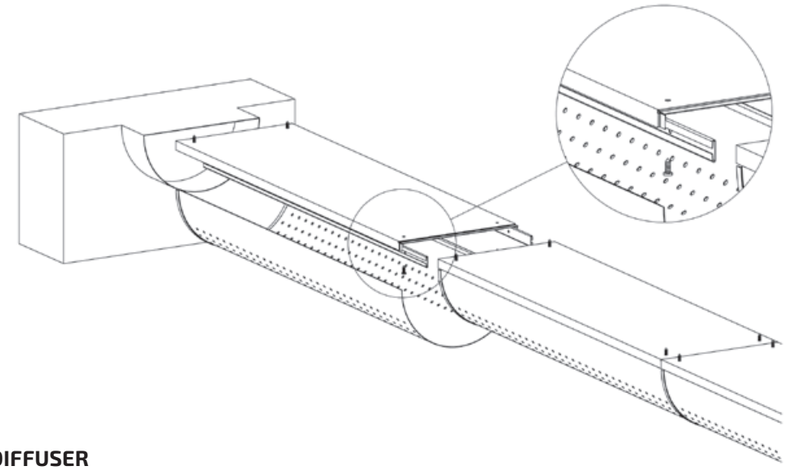
CIRCULAR DIFFUSER WITH CLOSED MODULES (1 m to 1.25 m)



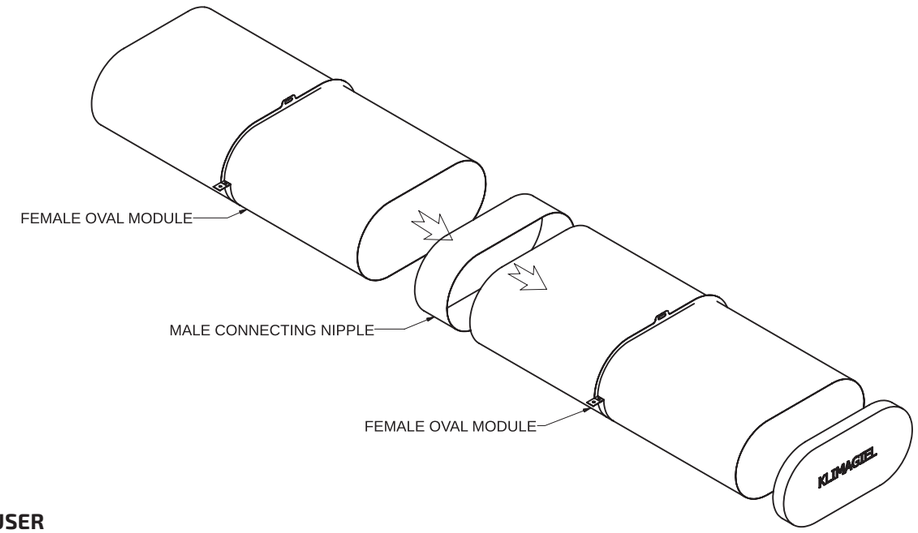
CIRCULAR DIFFUSER WITH OPEN MODULES (FAST-FIX 1.25 m)



CIRCULAR DIFFUSER WITH GALVANISED STEEL PROFILE



SEMICIRCULAR DIFFUSER



OVAL DIFFUSER

INDUCTIVE SUPPORT POST-HANDLING UNIT

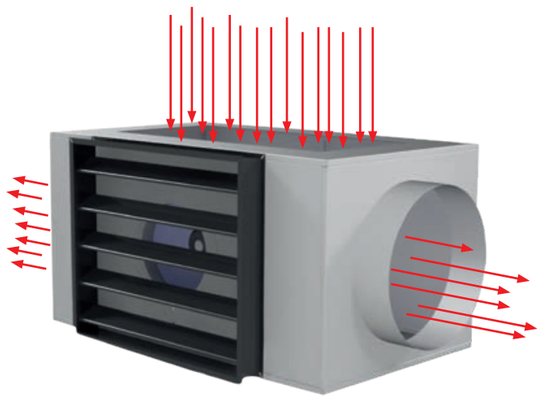
ESA Energy Saving Airflow

Klimagiel's **ESA** (Energy Saving Airflow) system is designed to maintain the best conditions on the air distribution line. The ESA sensor manages the pressure/flow rate required for optimal air distribution through KLIMAGIEL micro-perforated ducts, even with partial operation of the AHU. This saves energy, ensuring excellent results and air quality in the room.

ESA is presented in 3 models:
• Large - 560/L (double fan)
•- Medium - 630/M
•- Small - 310/S

For the ESA frame, acoustically and thermally insulated 15/10 aluminium is used.

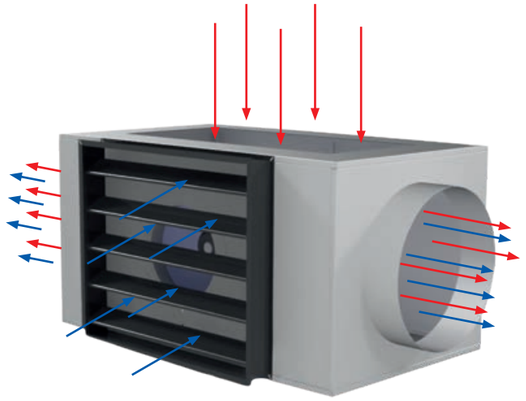
OPERATION AT FULL CAPACITY (HIGH VELOCITY)



1. Primary air from the Air Handling Unit (AHU or CTA) enters the ESA plenum. The recirculation damper is closed, all primary air exits only from the Klimagiel air distribution duct.

2. Primary air is distributed uniformly in the room through Klimagiel ducts.

PARTIAL OPERATION (LOW VELOCITY)



1. The duct pressure sensor detects a pressure lowering.

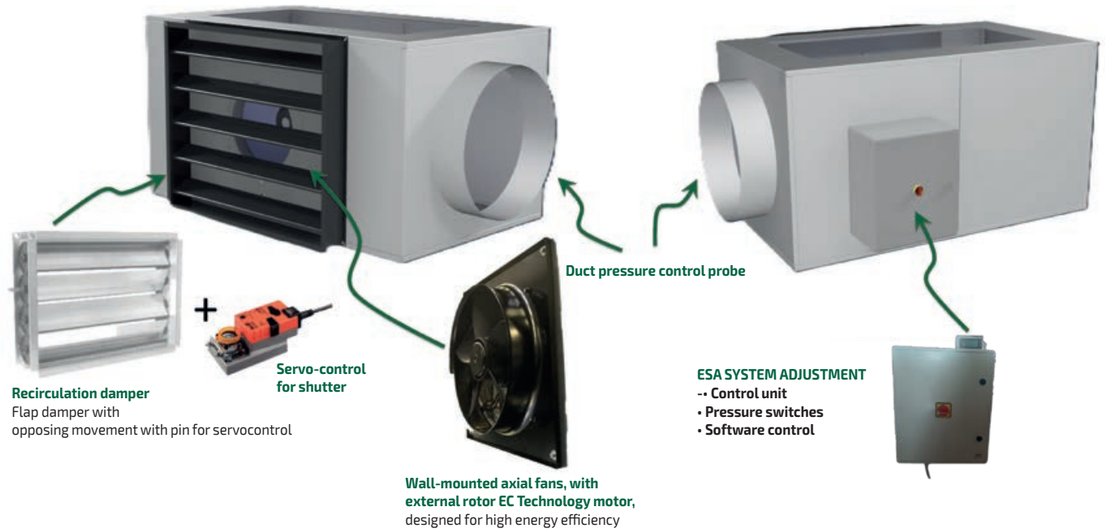
2. The recirculation damper opens and the EC (electronic control) fan starts up to maintain the necessary pressure and flow rate for the diffusion system, recirculating the air already in the room.

3. Air is distributed uniformly in the room through the Klimagiel ducts.

TECHNICAL FEATURES

MODEL	L (mm)	D (mm)	H (mm)	DN duct (mm)	Flow rate (m^3/h)	Weight (kg)
LARGE	2800	1700	1500	1200	8000-12000	200
MEDIUM	2200	1200	900	800	4000-8000	120
SMALL	1200	800	800	600	1000-3000	100

The KLIN-AIR ionic sanitisation system can be added to the ESA Base model.



Klimagiel takes care of the study, design and execution of the system management software . All rights reserved.

FAQ

- *Can the ESA be customised to the needs of a specific project?*
  Yes, each project is designed according to its own specifications.
- *Is it possible to integrate specific colours or finishes for aesthetic requirements?*
  Depending on the size of the project, Klimagiel can consider offering ESA in pre-painted colours.
- *Are versions with different specifications (e.g. higher air flow rates) available?*
  Yes, Klimagiel can evaluate the increase in flow rate according to the project.

CUTTING MAINTENANCE

Energy savings up to 60%.

Ionised and sanitised ambient air.

Uniform and comfortable diffusion in the room.

Custom Made.

MEMBRANE DIFFUSERS

Induction **DOUBLE jet**

SEASONAL OPTIMISATION WITH SWITCHING KIT

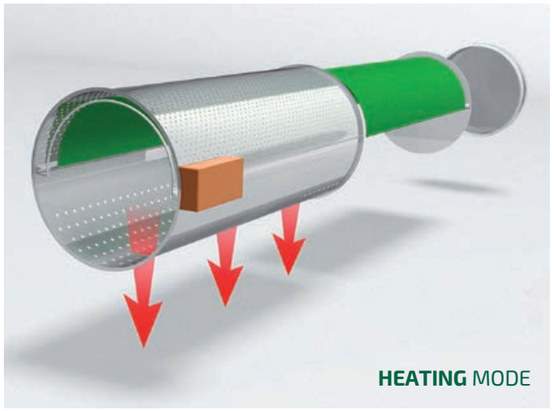
KLIMAGIEL high induction diffusers are available with a membrane system for optimal summer/winter season management.
This system is strongly recommended in all applications where sufficient static pressure is not available at the duct inlet, also with reference to the installation height.

This is an **internal polyester membrane** which is placed longitudinally along the entire length of the diffuser.
The movement is controlled by a servomotor and allows the selection of the lower or upper hole opening of the diffuser.

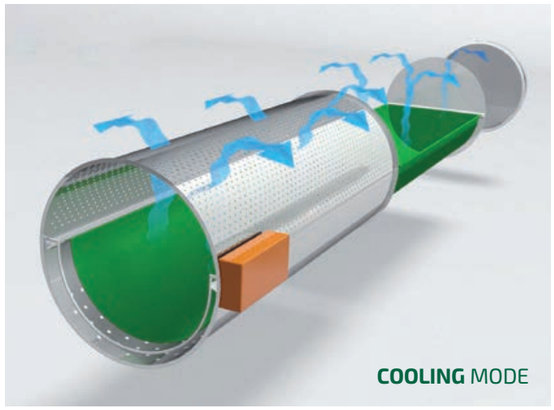
When cooling has been requested, the membrane adheres to the lower part of the duct, allowing air to flow over the upper part.

Conversely, when the system is set in heating mode, the system closes the upper holes and the flow is ducted directly downwards.
This optimises operation of the system, ensuring better temperature homogeneity and comfort in the room.

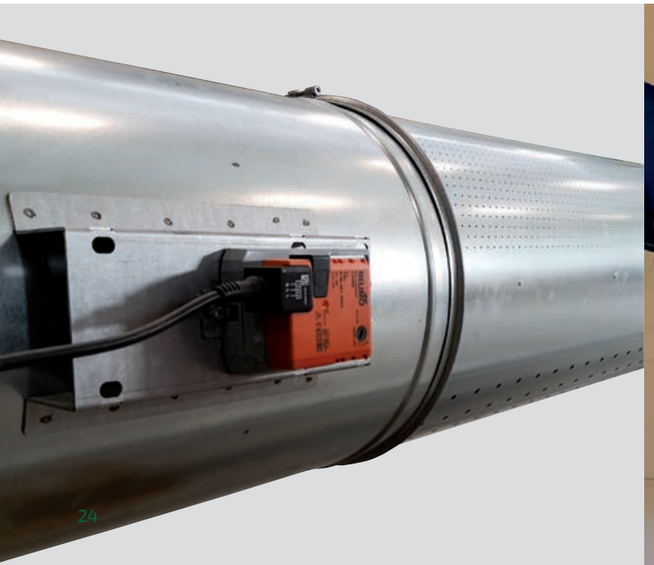
The membrane solution is available for both fabric and **metal** ducting (Patent Pending). Inspection METAL jet.



HEATING MODE



COOLING MODE



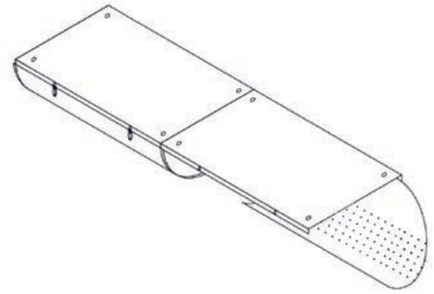
STAINLESS STEEL DIFFUSERS

Inspection **METAL jet**

Inspection METAL jet diffusers were created in response to the specific maintenance and maximum hygiene requirements of large food production chains.
KLIMAGIEL has responded to the need to reduce maintenance, cleaning and sanitising time for air conditioning systems in high productivity industrial environments with a specific, innovative project.
The internal cleaning of air ducts is normally carried out by specialised companies that can only reach and properly clean the internal surfaces of the ducts using specific equipment and particular methodologies.

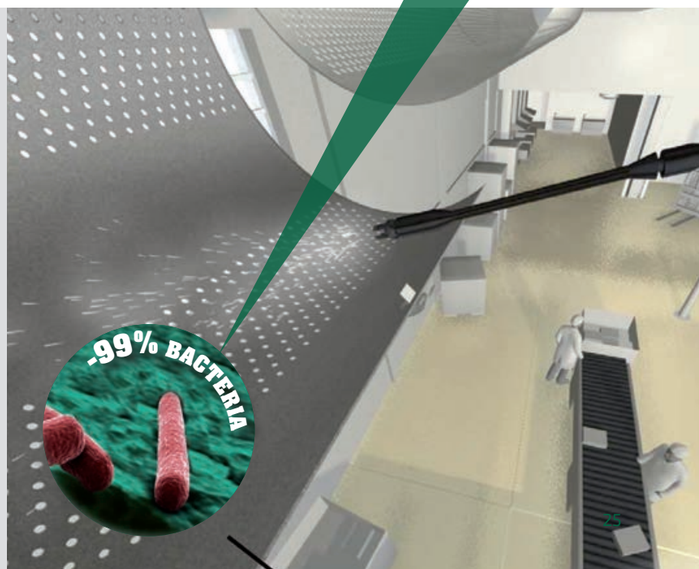
The metal diffusers with SEMICIRCULAR SECTION CAN BE INSPECTED at every metre and allow quick, effective intervention at every point of the system, greatly facilitating any checks.
The semicircular frame made entirely of STAINLESS STEEL can be opened on one side by means of a quick-re- lease locking system.

The reduction of bacterial load on surfaces is up to 99%.
THE ADVANTAGES AT A GLANCE



BENEFITS AT A GLANCE

- Cut maintenance and cleaning costs and reduce production downtime.
- Easy monitoring of technical and hygienic conditions of the air system.
- Virtually total elimination of the presence of bacteria.



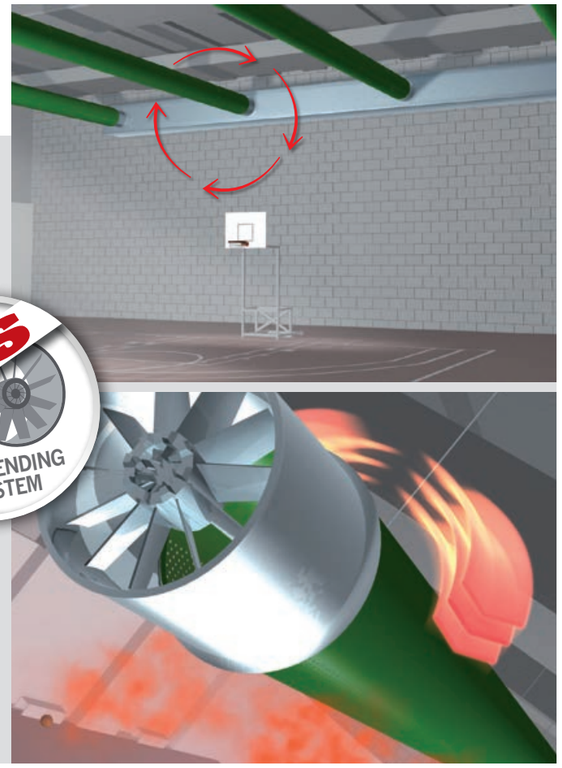
High induction destratifiers **ABS**

THE PHENOMENON

Air **heating** systems for **large volumes and heights** present the need to break down the thermal gradient between the occupied zone and the highest zone, close to the ceiling.
In cases where the system is designed for both winter and summer, the design air flow rate allows the gradient between supply and room temperature to be sufficiently reduced.
On the other hand, when the system is designed for heating with direct exchange hot air generators or unit heaters, the design ΔT triggers the stratification phenomenon. Typically involved are industrial halls, trade fair exhibitions, sports centres, and all cases where air heating is still considered the most effective.

THE SOLUTION

The ideal solution is to install one or more systems consisting of an axial fan that feeds air into a micro-perforated duct, which will have the task of managing its velocity and orientation so as to achieve a high induction of air into the room and allow for homogeneous temperatures.
Depending on the characteristics of the environment and the intended use, the installation can be completed with a staged velocity regulator or inverter and appropriately sized silencers.



BENEFITS AT A GLANCE

- Increased comfort thanks to temperature homogeneity anywhere in the environment.
- Energy saving, thanks to the elimination of stratification.
- Quick and inexpensive solution, without modification of existing installations.
- Perfect aesthetic integration.

DIRECTIONS FOR OPERATION

Depending on the room volume involved, and remaining in the field of installations with average heights (approx. 5 to 10 metres) an initial assessment can be made by dividing the air flow rate (roughly set at 2 changes/hour) using the table showing the air flow rate for each system for the various diameters.

A wide range of diameters from 300 to 900 mm and air flow rates from 1,850 to 16,000 m³/h are available.

Fan diameter		300	350	400	450	500	550	630	710	800	900
Polarity	Poles	2	2	2	2	2	4	4	4	4	4
Absorption	kW	0.35	0.35	0.55	0.75	1.1	1.1	1.5	2.2	3	4
m³/h with 250 Pa	m³/h	1850	2490	3250	3950	5070	6030	7230	9620	12800	16200

I-STOP to reduce defrosting times

THE PHENOMENON

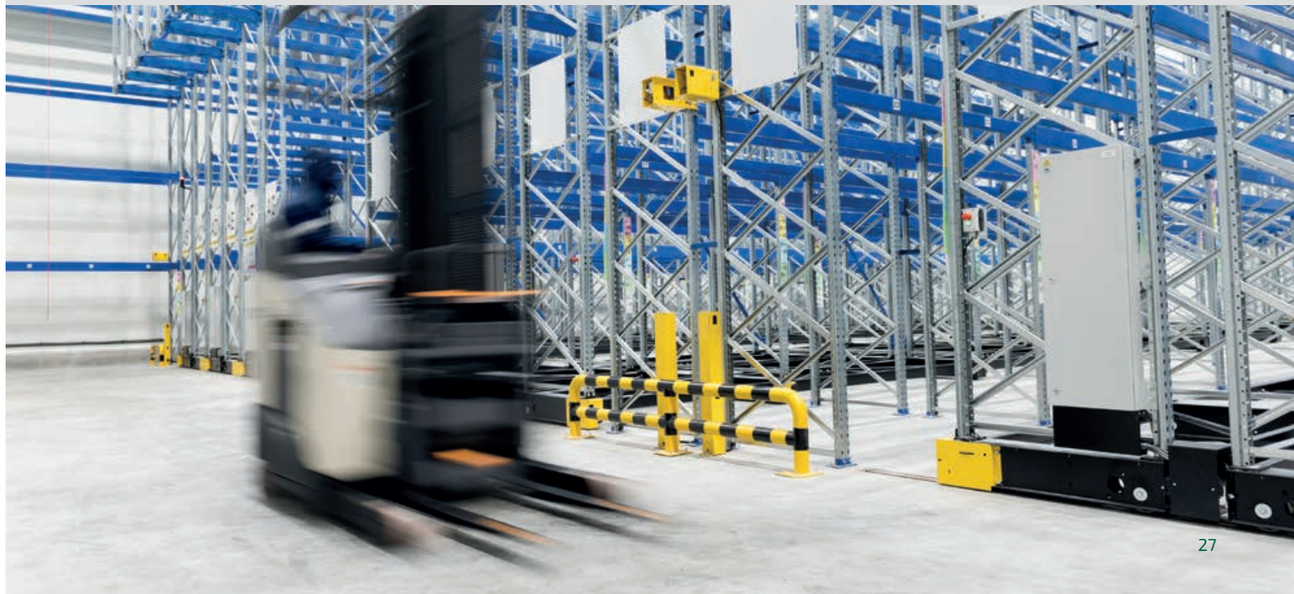
In food cold rooms, the **defrosting time** is a key element affecting the temperature rise in the stand-by phase and thus **energy consumption**.
Inefficient defrosting can also cause water vapour to be emitted into the cold room, resulting in ice formation on the room surfaces.

THE SOLUTION

The KLIMAGIEL **I-STOP** system consists of a **waterproof** fabric nozzle, specifically designed to be installed on the mouth of evaporators and thus accelerate the defrosting process.
The fabric part of **I-STOP** is made of 100% high tenacity polyester with a special **hygroscopic treatment**. Available in blue and white, easily **washed and sanitised**, it is the ideal and **economical** solution.

BENEFITS AT A GLANCE

- Energy saving by reducing defrosting times.
- Prevents the formation of ice on cell surfaces.
- Easily washable and sanitisable.



Download KLIN-AIR university report

KLIN-AIR air conditioning duct sanitisation system

KLIN-AIR is the only **duct sanitisation** system that reduces the microbial load in the air using the tried and tested Bioxigen® technology.

The Bioxigen® technology used in the Klimagiel **KLIN- AIR** drastically **reduces** the **microbial load** in the air, reduces fine dust and maintains the correct ionic balance thanks to the special **quartz condenser**.

Klimagiel **KLIN-AIR** products are applicable in both **new and existing constructions** and must be sized according to the air flow rate of the ducts and the project purpose.
The **KLIN-AIR** product is available for all flow rate ranges above 200 m³/h for KLIMAGIEL circular ducting.

The Bioxigen® technology used by **KLIN-AIR** consists of a glass cylinder with appropriate metal meshes that are electrically powered.

This allows an alternating electric field to be generated outside the cylinder whose lines of force change in intensity and direction continuously over time, increasing the vibration of the air molecules.

KLIN-AIR TRIS

Purify the air in your home or office with the elegant design of Klimagiel **TRIS**. The ideal solution against asthma, allergies, and to improve breathing.

Recommended for bedrooms as well, **TRIS** utilizes the Bioxigen® system to sanitize air and surfaces without filters or chemical additives.

It neutralizes odours, allergens, bacteria, and mold, providing a healthier environment. Carefully designed, CE marked, and without costly frequent maintenance. Ideal for spaces of 20-40 m³.

CHARACTERISTICS	VALUE
Dimensions (WxDxH)	126x117x202 mm
Weight	0.4 kg
Power supply	230 V / 1 N / 50 Hz
Consumption	3 W
Type	Static
Recommended room volume	20-40 m³

AIR SCENTING SYSTEM FOR K-EMOTION AIR DUCTS

K-EMOTION is a fragrance diffuser with Venturi system designed for perfect diffusion in medium to large rooms.

With its compact, linear shape, it is an excellent room **scenting solution** for KLIMAGIEL air ducts.

TECHNICAL FEATURES

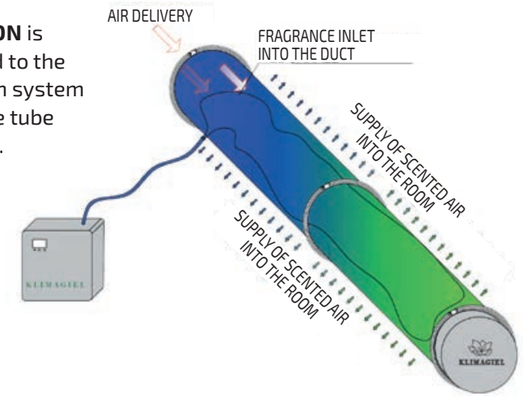
	K-EMOTION STANDARD	K-EMOTION PRO
COVERAGE	2000-3000 m³	3000-4000 m³
VOLTAGE	12 V	12 V
POWER	11 W	15 W
NOISE	<40 dB	<45 dB
WEIGHT	3.5 kg	4 kg
DIMENSIONS (WxDxH)	236x102xH266 mm	288x105xH274 mm
PERFUME CAPACITY	500 ml	1000 ml
COLOUR	WHITE	

TECHNICAL FEATURES

PALERMO Salt Water 22266-11	**NAPLES** Citrus fruits & spices 22266-7	**BOLOGNA** Coffee Cinnamon 22266-6	**PORT** Lavender 22266-9	**LISBON** Woody Spicy 22266-14	**FLORENCE** Magnolia 22266-16
MADRID Apple 22266-18	**MILAN** Aquatic Mint 22266-21	**FORLÌ** Spring 22266-24	**BARI** Vanilla Bread 22266-20	**VERONA** Peach 22266-22	**PERUGIA** Rose and Jasmine 22266-13
ROME Green Tea 22266-10	**BORDEAUX** Red fruits 22266-17	**PARIS** Vetyver and Vanilla 22266-15	**SALERNO** Zagara Neroli 22266-8	**LONDON** Fern 22266-23	**BOLZANO** Swiss stone pine 22266-19

Citrus · Fresh · Spicy/hot · Floral · Fruity · Green/herbs

K-EMOTION is connected to the ventilation system by a single tube kit ø 8mm.



K-EMOTION is programmable directly from the display and can be controlled from the app via Wi-Fi or Bluetooth, to ensure constant and efficient fragrance diffusion even in larger rooms.

NEW K-EMOTION BY KLIMAGIEL

The **K-Emotion** aroma diffusion system comes in two advanced versions: **K-Emotion Standard** and **K-Emotion Pro**, designed to meet different coverage and control requirements.

■ **K-Emotion Standard**
It is designed for rooms of up to **3,000 m³**, with optimised diffusion management thanks to the new **fragrance level adjustment window**, which allows the intensity to be adjusted according to the desired environment and comfort.

■ **K-Emotion Pro**
Designed for larger spaces, **K-Emotion Pro** features an **increased capacity of up to 1,000 ml** and an extended coverage of up to **4,000 m³**, ensuring high performance and constant diffusion even in complex environments.

PEOPLE ARE 100 TIMES MORE LIKELY TO REMEMBER A SMELL IN COMPARISON TO SOMETHING THAT THEY HEAR, SEE OR TOUCH
(university studies carried out by the Ludwig Boltzmann Institute for Functional Topography of the Brain in Vienna).

K-emotion

KLIMAGIEL accessories

KLIMAGIEL offers a rich selection of accessories to help you find the ideal solution to complete every project. All KLIMAGIEL textile and metal diffusers are supplied complete with installation accessories.

FABRIC DUCT ACCESSORIES

METAL ASSEMBLY KIT

KLIMAGIEL bracket buckle system supplied as standard with the ducts.
Formed by a special slot and M8 nut that allows the vertical position of the duct to be adjusted by screwing or unscrewing the nut.

METAL COLLAR - CONNECTING CLAMPS

Supplied with metal ducts as standard.
Needed to connect the metal modules that make up the duct.

INTERNAL STABILISATION JIG (PATENT APPLICATION FILED)

Available for metal ducts from Ø 1050 mm.
It facilitates assembly and increases duct rigidity with large diameters, avoiding ovalisation.

STEEL PROFILE WITH ITS SLIDE

(See installation instructions for duct with its sliding steel profile).

METAL COLLAR FOR OVAL DUCTS

Supplied with oval metal ducts as standard.
Needed to connect the metal modules that make up the oval duct.

METAL INSTALLATION KIT

KLIMAGIEL BRACKET BUCKLE

Available in green, white and black.
Standard KLIMAGIEL solution for fastening to the supplied Ø 3mm cable. Can also be used for installation with H or C profile.

SNAP CLIP

SLIDING Available in white.
Alternative solution for situations where a different diameter cable is required to the one supplied by KLIMAGIEL (up to 10 mm diameter).

SLIDING

Available in green, white and black.
Alternative bracket buckle for clamping with H or C-profile (also not supplied by KLIMAGIEL).

ADJUSTABLE BRACKET BUCKLE

SLIDING Available in white.
For use where variable adjustment of the bracket buckle length is required.

TYPES OF FABRIC DUCT PROFILE

PROFILE SUSPENSION SYSTEM

Made of aluminium.
Solution to be used when there is a need to install the profile (H or C) in suspension and not directly on the ceiling.

H PROFILE

Made of aluminium.

PLASTIC PROFILE WITH THREADED JOINT

Made of durable plastic, this profile is the perfect solution for sectors such as the food industry or in environments requiring regular chemical cleaning.

TYPES OF FABRIC DUCT PROFILE

C-PROFILE

Made of aluminium and AISI 304 stainless steel.

P PROFILE

Made of aluminium.
Can be used both as a clamping system and for fixing the duct/machine connection. Prepared for Ø 6-8 mm rod.

FASTENING SYSTEM FOR FABRIC DUCTS

Made of stainless and galvanised steel.
Consisting of cable, tensioner and cable clamps.

VARIOUS ACCESSORIES

ANTI-SEISMIC KIT

Can be installed on both fabric and metal ducts.
Keeps the duct structure from oscillating in the event of seismic events and consequently reduces the possibility of the duct falling.

KLIMAGIEL provides earthquake-proof system designs on request.

ADJUSTABLE LOCKING SYSTEM

It allows you to adjust and lock fabric and metal ducts to the desired length without tools.

C-PROFILE

TOUCH-UP KIT

Solution for maintaining the aesthetic appearance of painted metal ducts.
The kit consists of:
- container with the required colour powder (RAL CLASSIC scale);
- thinner with a handy brush, to be mixed with the powder to make it applicable.

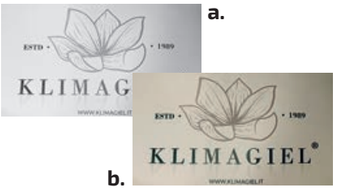
The kit can be requested either when placing the order or at a later stage for already completed orders.

LOGO WITH MICROPERFORATION

Implementation of customised logos on metal caps by microperforation (subject to feasibility assessment). The perforation used for the logo does not affect operation of the duct.

CUSTOMISED LABELS

Production of customised labels for fabric ducts in two versions:
a. black or green with a max. height of 11 cm (construction costs included);
b. colour screen-printed labels with customisable sizes (extra service).



ADJUSTABLE CONE

On request, KLIMAGIEL manufactures the cone with an adjustable closure in order to create pressure drops within the diffusers and to be able to slightly correct the available pressure.

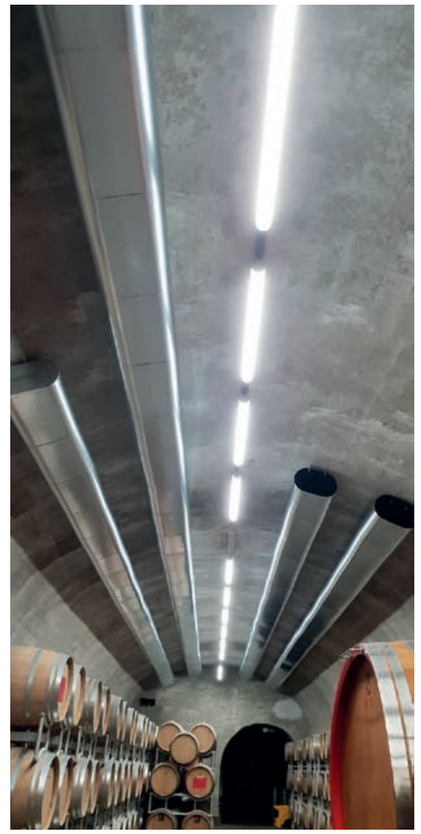
Our projects

KLIMAGIEL has a broad spectrum of experience in a huge variety of applications. The areas suitable for the exploitation of high induction technology are the most varied, both in the civil sector, particularly for commercial and service areas, and in the industrial, production and logistics sectors.

AIRPORTS

Our projects

CELLARS, MATURATION CELLS

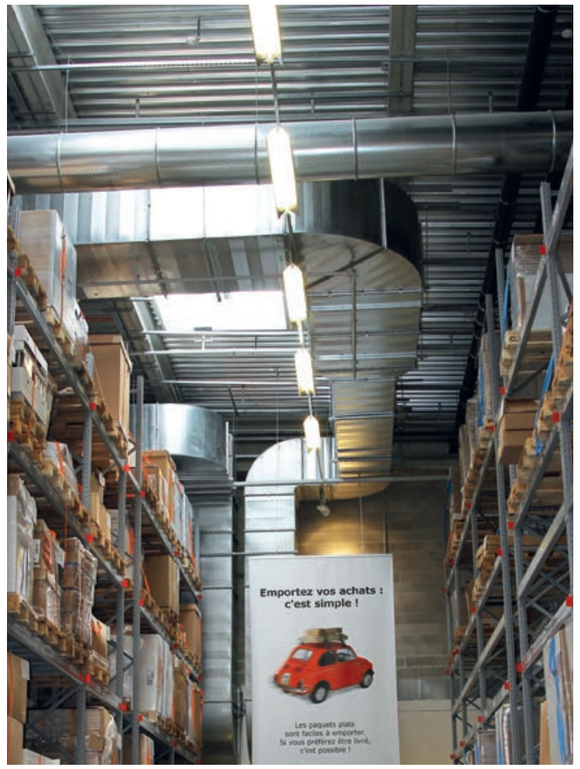


Our projects

FACTORIES

Our projects

WAREHOUSES

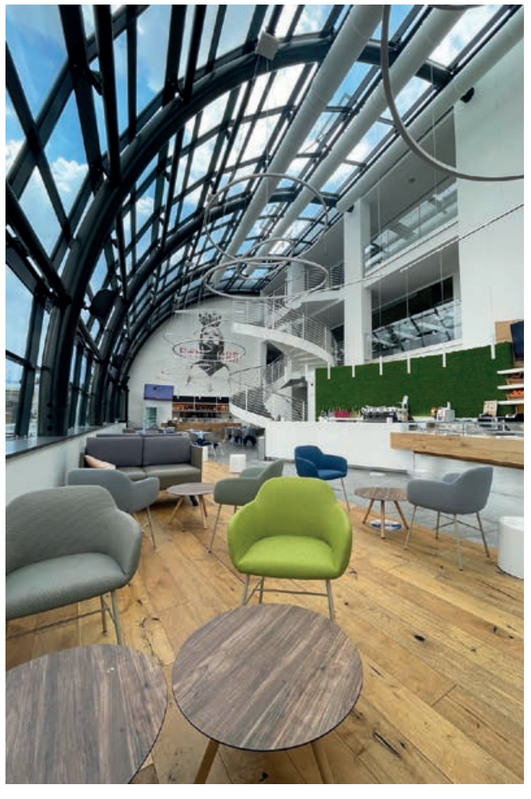


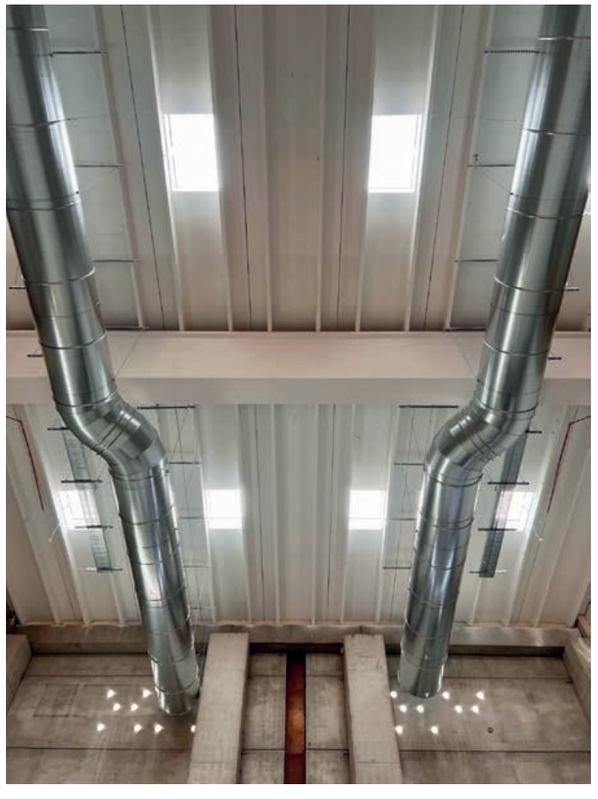
Our projects

MUSEUMS

Our projects

GYMS, SPORTS CENTRES





Our projects

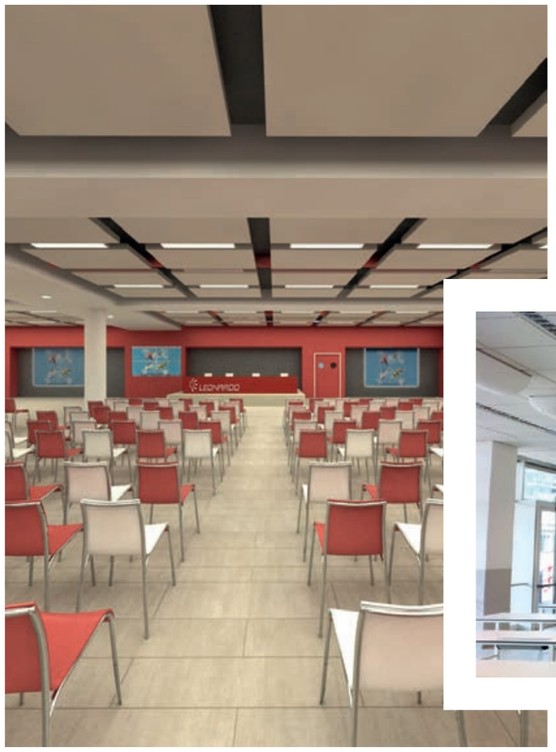
HAIRDRESSERS AND BEAUTY CENTRES

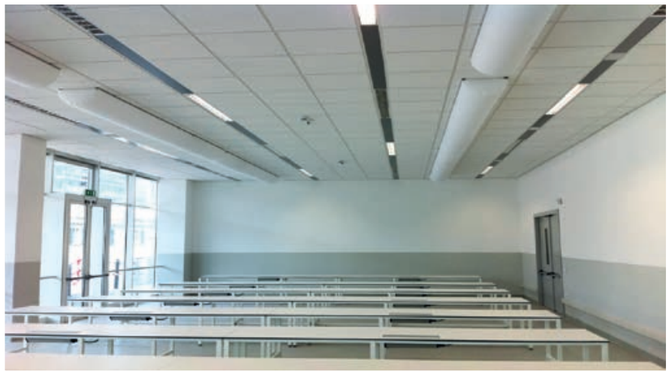
Our projects

RESTAURANTS

Our projects

MEETING ROOMS



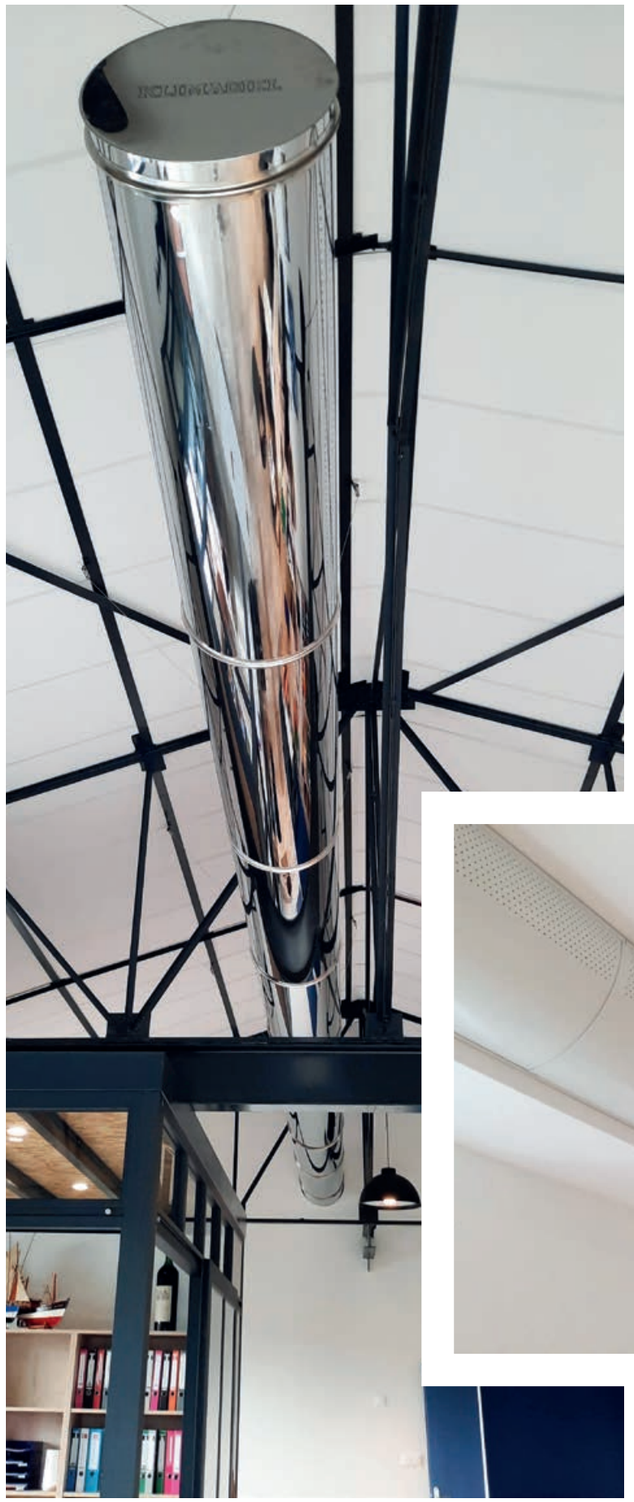


Our projects

BATHS, POOLS

Our projects

OFFICES

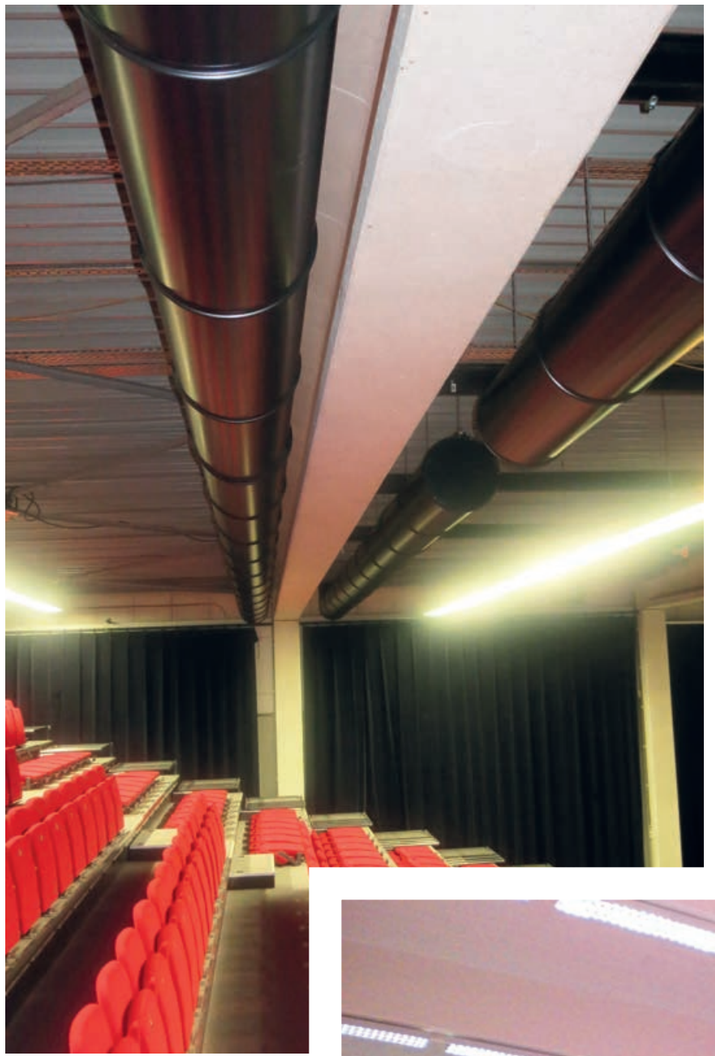


Our projects

UNIVERSITY

Our projects

MOVIE THEATRES



Our projects

PRIVATE HOMES