AIR CURTAINS FOR COLD STORES

Catalogue

rosenberg

airtècnics

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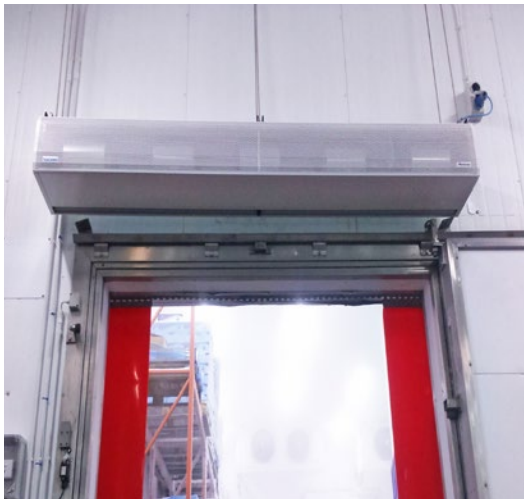
INTRODUCTION

AIR CURTAINS FOR COLD STORES

MODELS

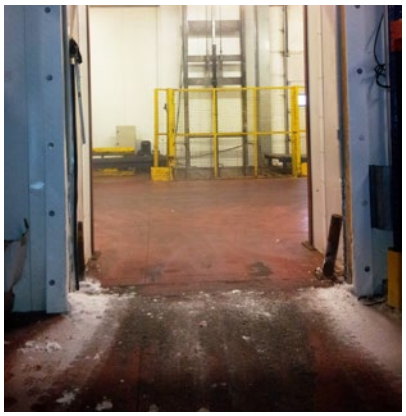


REFERENCES AND DISTRIBUTORS

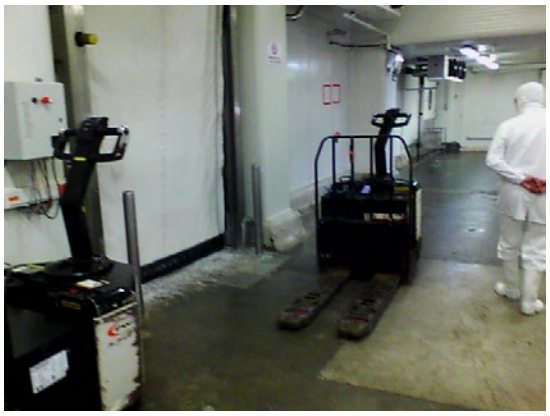
INTRODUCTION

Difficulties in cold stores

In buildings where there are cold rooms or freezers, most of the time there is a previous space at a higher temperature, the pre-chamber, and in very extreme conditions the difference between both spaces can be up to 50ºC.
When the door of the chamber is opened, the thermal shock between the two environments generates an increase in the relative humidity which implies condensation of water, formation of fog and loss of cold in the chamber.
These environmental effects cause detrimental conditions for the business and the workers: there is energy loss, consequent economic loss and possible loss of goods; for the workers, potentially dangerous situations are created due to slippery floors or limited vision.



In these cases, the most common solutions are plastic slat curtains and roller doors, but they are not the most effective because they are not a permanent barrier. They present an obstacle for logistics personnel and the thermal contrast continues occurring every time the barrier is opened, so the effects related to this contrast are still present. The installation of an air curtains is a more efficient solution and provides better results.




Thermal losses

Economic losses

Poor preservation of goods

Risk of accidents

Ice formation

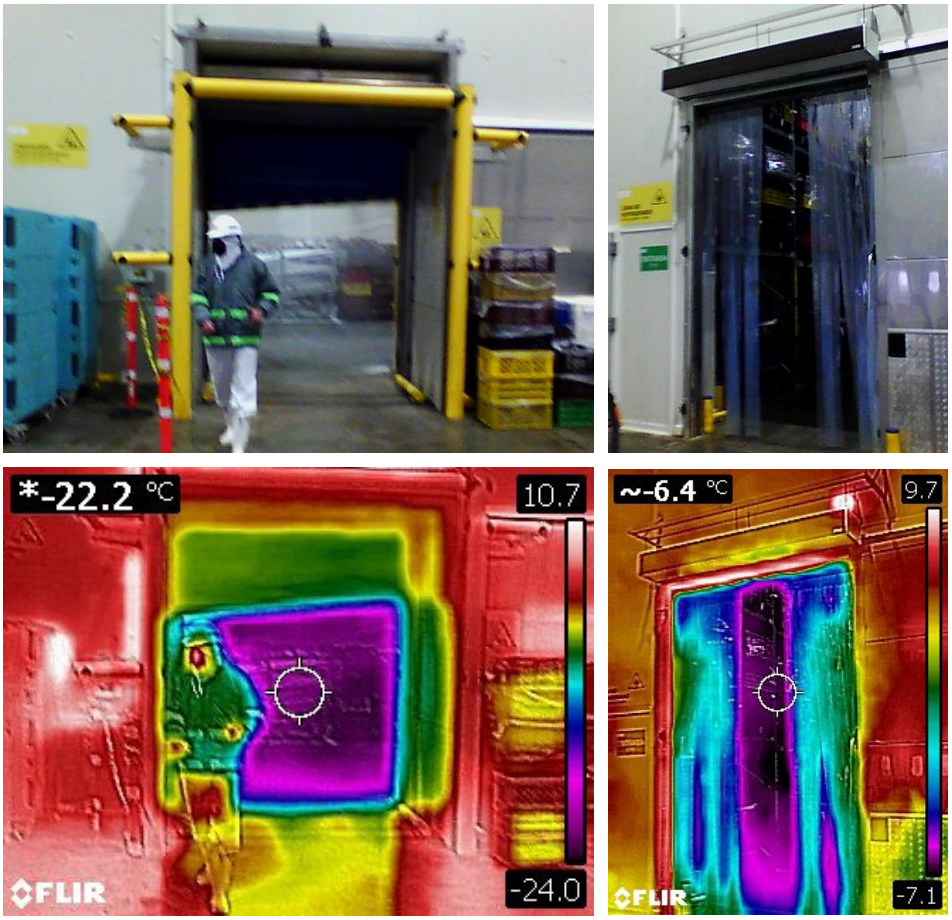
Low visibility

Over the years, Airtècnics has developed different models of cold room air curtains to adapt to any installation, even in the most extreme conditions, managing to solve the specific problems that occur due to the nature of the activity and managing to optimise the energy consumption.

INTRODUCTION

Benefits of installing an air curtain

Air curtains in cold stores and industrial freezers are the most effective solution to prevent cold loss, ice formation and condensation in the accesses when the door is opened.
They are the ideal complement to high-speed rolling doors to facilitate access, avoid unnecessary risks and achieve the most effective system to save energy.



Thermographic photographs showing the efficiency of an installed air curtain

Advantages:

Savings

- Energy savings of up to 80% due to the reduction of cold losses and hot air infiltrations.
- Reduces defrosting cycles and prolongs the service life of refrigeration equipment and its maintenance because it reduces ice formation.
- High-speed rolling door maintenance due to ice damage.

Security and Accessibility

- Reduction of accidents caused by ice on the floor between the pre-chamber and the cold room.
- Reduced collisions due to improved visibility by eliminating fog around the door.
- Improves accessibility.

Preservation

- Correct conservation of frozen products thanks to the stabilization of temperatures in the cold room, avoiding sudden changes in temperature.

AIR CURTAINS FOR COLD STORES

Considerations before installing an air curtain

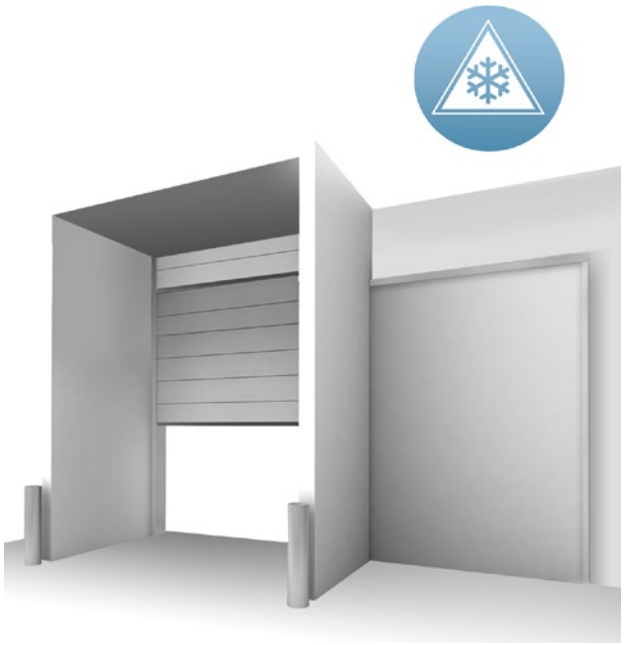
The main advantages that we can achieve with air curtains specially designed for industrial cold rooms and freezers are:

- Climatic separation.
- Reduction or elimination of ice on the door and entrance floor.
- Removal of ice, snow and fog in the chamber.
- Reduction of chamber humidity.

To select the appropriate air curtain model for our installation and according to the functions to be covered, the following characteristics must be considered:

1. Temperature of the chamber:

- Cold chamber (X > 0ºC).
- Freezing chamber (0ºC > X > -25ºC).
- Low temperature freezing chamber (-25ºC > X > -40ºC).



2. Door dimensions and surroundings:

- Dimensions of the door
- Dimensions of the chamber:
  - Small: <100m^2
  - Medum: 100m^2 < X < 250m^2
  - Large: >250m^2
- Available space:
  - Horizontal or vertical.
  - With or without insulating corridor.

3. Protection from the outside:

- With pre-chamber:
  There is a climate-controlled space (temperature and relative humidity) between the chamber and outdoors.
- Without pre-chamber:
  The chamber doors communicate directly with the outside of the building/vehicle.

4. Environmental conditions of the pre-chamber:

- With control:
  Neither temperature nor humidity are controlled and vary depending on the season of the year.
- Without control:
  The air conditioning system maintains a constant temperature and/or humidity range in the pre-chamber.

For example, for optimal operation of the Triojet System, the environmental conditions of the pre-chamber must be:

Prechamber temperature	Ideal relative humidity	Maximum relative humidity
5 ºC	< 50 %	70 %
10 ºC	< 40 %	50 %

5. Door opening times:

- Short: <15 seconds
- Medium: between 15 seconds and 1 minute
- Length: >1 minute.

AIR CURTAINS FOR COLD STORES

Airtècnics air curtains

KOOL / KOOL BB

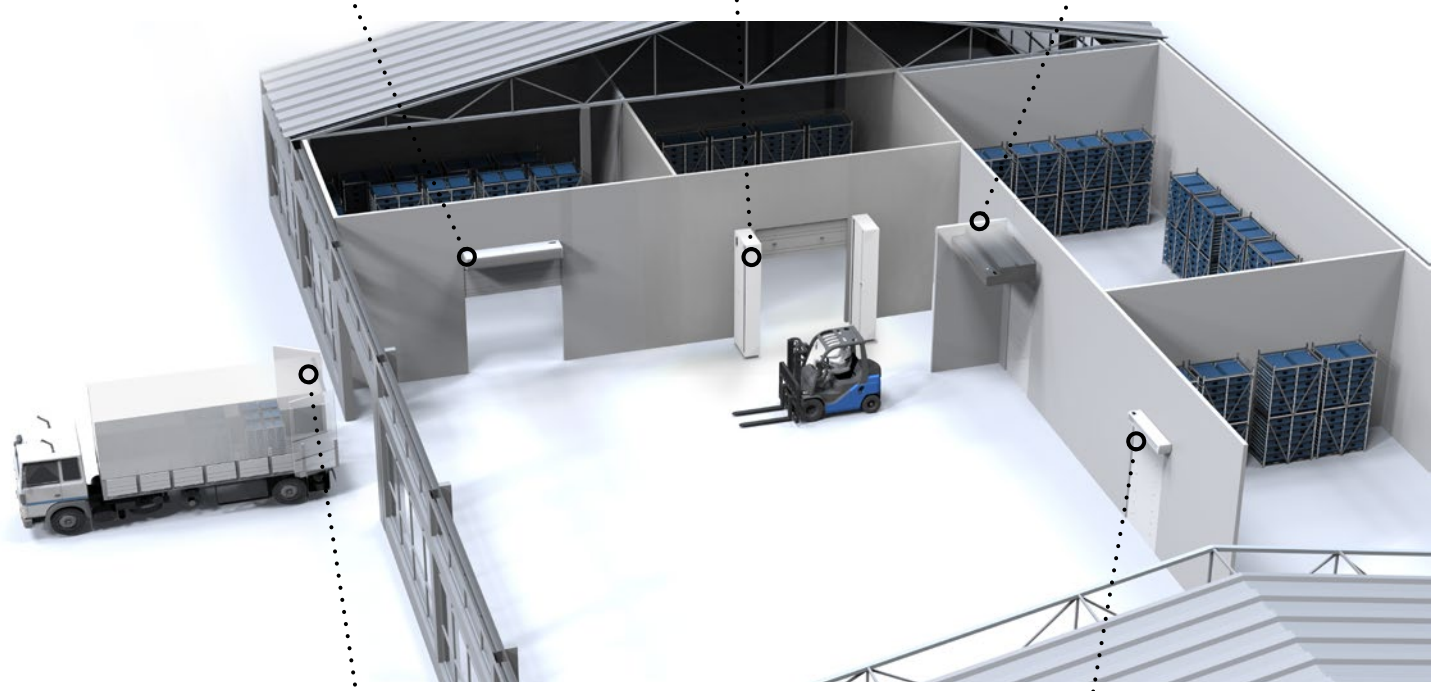
Air curtain with high-speed air jet specially designed for climate separation in medium cold store doors.

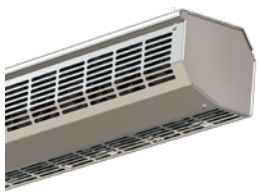
TWIN K / TWIN KPL

Double jet solution that generates a separation zone at the door. Ideal for freezers where there is no space for the TRIOJET SYSTEM.

TRIOJET SYSTEM

High efficiency air curtains system with triple jet specially designed to be installed on large industrial freezers.





AIRTRACK

Air curtains for refrigerated vehicles doors.

OPTIMA K

Small compact model with high efficiency homogeneous jet, recommended for small cold store doors.

AIR CURTAINS FOR COLD STORES

Selection criteria

AIR CURTAIN					COLD STORE						
					TEMPERATURE			AIR CURTAIN FUNCTIONS			
					Refrigeration	Freezing					
Model	Configuration [1]			Air jet range	> 0 ºC	0 ºC - 25 ºC	-25ºC -40ºC	Climatic separation	Reduction ice at door and entrance floor	Ice and fog removal and humidity reduction	CONSIDERATIONS
	F	H	I								
AIRTRACK	-	A	HO	2,7 m	✔	✔	-	✔	-	-	- For refrigerated vehicles. - Basic protection (1 air jet).
OPTIMA K	-	A	HO	3 m	✔	✔ [2]	-	✔	✔ [2]	-	- Basic protection (1 air jet). - At >0ºC for any chamber size and door opening time. - [2] At <0ºC only in certain conditions, for small and medium-sized chambers and short or medium door opening time. - Pre-chamber without control (Temperature and HR).
KOOL	**M**	A	HO	3,5 m							
	ECM			3,8 m							
	G			4,5 m							
	ECG			5 m							
KOOL IP55	**M**	A	HO	3,5 m							
	G			4,5 m							
KOOL BB	-	A	HO	7 m							
TWIN K **TWIN KPL**	**G**	A	VE	4,5 m	✔	✔	-	✔	✔	-	- Double protection (2 air jets). - For any chamber size. - Pre-chamber without control (Temperature and HR). - Short or medium door opening time.
	ECG			5 m							
TRIOJET SYSTEM	-	E	HO	5 m	-	✔	-	✔	✔	✔ [3]	- Triple protection (3 air jets). - For any chamber size. - [3] Only with pre-chamber with control (Temperature and HR). - For any door opening time.
TRIOJET SYSTEM DOUBLE HEATING	-	E	HO	5 m	-	-	✔	✔	✔	✔ [3]	

[1] (F): Fans | (H): Heating: (A) Without heating, (E) Electrical heating.
(I): Installation by default: (HO) horizontal, (VE) vertical. Kool, Kool IP55, Kool BB and Triojet System models can be installed vertically.

Installation recommendations

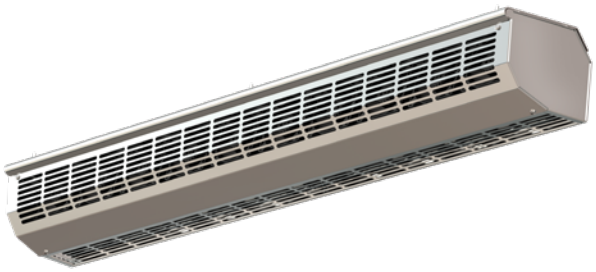
- Whenever the air jet is separated from the door, it is recommended to adapt a corridor to isolate the sides and upper area of the air curtain, and thus prevent air infiltration from outside (mandatory in the TRIOJET SYSTEM model).

- It is recommended to regulate the air curtain jet to adjust the air speed between 1-2m/s at 0.5m from the ground. A lower speed will cause cold air loss and hot air infiltration. A higher speed will cause turbulence upon impact with the ground, and will reduce the energy efficiency of the system.

- The angle of inclination of the outlet vanes should be pointing slightly towards the outside of the cold room (5-10º).

- The finish of the air curtain can be made of stainless steel and can incorporate IP55 protection designed for applications with extreme environments of cold, humidity and corrosion (optionally for KOOL MG/BB and TWIN K/KPL models, and as standard in the TRIOJET model SYSTEM).

Technical features



Aluminum

Range
To 2,7 m

Airflow / Length
830 m³/h x 1m

Fans
Low voltage 24V DC (-25°C to 50°C)

Chamber temperature
From >0°C to -25°C

Protection grade
IP20

Control
Directly connected to the vehicle power supply

Casing
Aluminum

Grille type
Slotted perforated

Outlet vanes
Slotted perforated

Compact air curtain specially designed for transport that needs to preserve the air conditioning in the cargo compartment.

The energy loss caused by loading and unloading in refrigerated trucks has very high costs for carriers. Therefore, the Airtrack air curtain has been specially designed to avoid these losses, achieving fuel savings of up to 30%. Customized length from 850 mm to 2430 mm to adapt to any type of transport vehicle: vans, trucks, trailers, vehicles with roll-up doors, etc.

Compact low voltage 24V DC fans designed to operate between -25 ºC and 50 ºC. Perforated inlet grille to avoid intensive maintenance service. Includes support with quick fixing system for ceiling installation.

UNHEATED

Model	Airflow	Power Fans 24V DC	Ventilation current 24V DC	Noise Level (5 m)	Weight
	m³/h	W	A	dB(A)	kg
Per linear metre	830	72	3	55	5,8
AIRTRACK 2430	2000	190	7,0	60	14

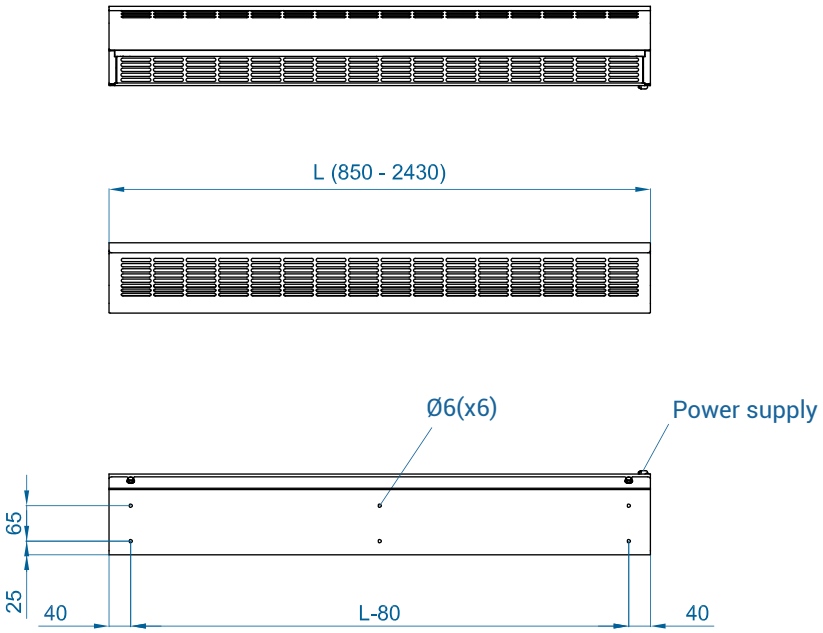
A refrigerator truck is a vehicle designed to carry perishable freight at low temperatures.
Most long-distance refrigerated transport by truck is done in articulated trucks pulling refrigerated semi-trailers.

In addition to the energy savings by reducing refrigeration loss, having air curtains in refrigerated transport helps to keep the cargo free of odours, gases or insects, among others that cause damage to the goods.

Thanks to air curtains, working is safer and more efficient, since there are no physical barriers that can interrupt the loading and unloading of vehicles.

Dimensions

Airtrack air curtain has a compact design, with lengths ranging from 850 mm to 2430 mm, ideal for modular integration.



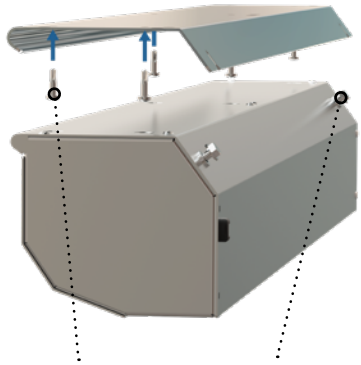
CAD drawings, installation manuals and other documentation

CAD

Installation

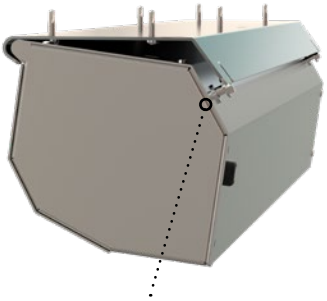
It has a fastening system that facilitates installation in three simple steps:

1. Fixing the bracket to the roof of the vehicle
2. Fitting the air curtain to the bracket
3. Fastening with the rear screws

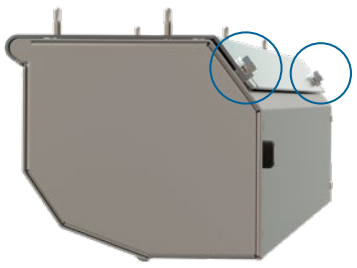


Screws not included

Rear screws with threaded washer



Screws with not fully tightened threaded washer



Finish tightening the screws

Optional accessories

Mechanical door contact
MEC-DC

Technical features

RAL 9016 standard

Other colors on request

Aqua Aero coating on request

Range
Up to 3 m

Airflow / Length
1650 - 3190 m³/h
1 m to 2 m

Fans
Tangential proportional

Chamber temperature
>0ºC [*]

Protection grade
IP20

Control
Stepless regulator

Casing
Galvanised steel

Grille type
Hexagonal perforated

Outlet vanes
Aluminium, airfoil type

[*] From 0ºC to -25ºC only in certain conditions.

OPTIMA K air curtain is specially designed for cold rooms with temperatures above 0ºC.

Small and compact friendly design with rounded shape and edges. It incorporates a large faceted inlet grille avoiding intensive maintenance. Equipped with low noise twisted cross-flow fans, driven with external rotor motors, which provides a homogeneous airflow.

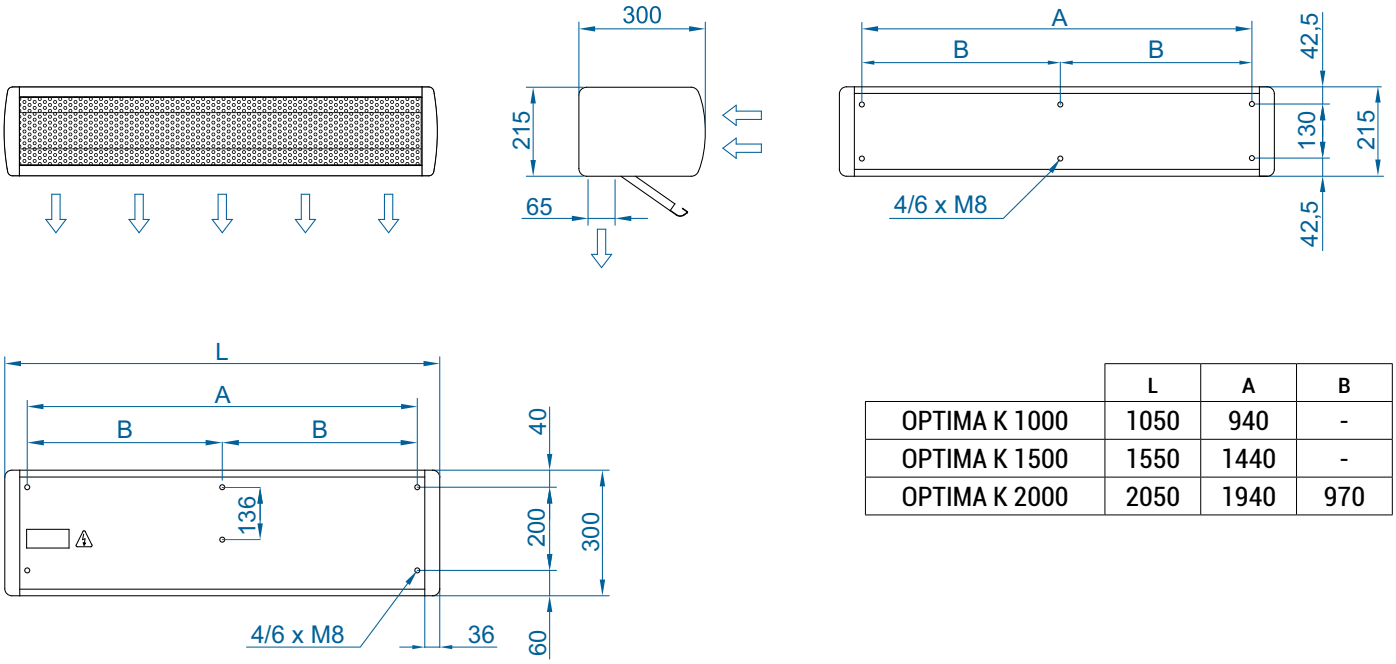
Includes a stepless control, which allows the regulation of the curtain not to be carried out in stages, but to calibrate the air speed continuously, adapting it to each installation. It also includes kick-start function.

UNHEATED

Model	Airflow 230V		Ventilation power 230V		Ventilation current 230V		Noise Level (5 m)	Weight
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
	m³/h	m³/h	kW	kW	A	A	dB(A)	kg
OPT K 1000 A	1650	1800	0,080	0,109	0,41	0,56	35/50	18
OPT K 1500 A	2365	2515	0,117	0,145	0,53	0,74	36/51	26
OPT K 2000 A	3190	3390	0,160	0,218	0,82	1,12	38/53	34

Selection program

Dimensions



	L	A	B
OPTIMA K 1000	1050	940	-
OPTIMA K 1500	1550	1440	-
OPTIMA K 2000	2050	1940	970

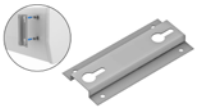
Optional accessories

Supports and installation

Wall rail support
SPWR

Silentblock supports
SPANG-SIL / SLB

Suspension cables
SPCT



Omega wall support
SPT2

Control

Stepless regulator
✔ Included

Sensors

Mechanical door contact
MEC-DC

CAD drawings, BIM files, installation manuals and other documentation

CAD BIM

Technical features

RAL 9016 standard

Stainless steel

Aqua Aero coating on request

Other colors on request

Range
Up to 5 m

Airflow / Length
1800 - 7200 m³/h
1 m to 3 m

Fans
Centrifugal
5-speed

Chamber temperature
>0ºC [*]

Protection grade
Air curtain IP20
Fans IP44

Control
Plug&Play manual regulator + IR remote control (Optional Clever Control)

Casing
Galvanised steel / Stainless Steel

Grille type
Circular perforated

Outlet vanes
Aluminium, airfoil type
Adjustable 0-15º each side

[*] From 0ºC to -25ºC only in certain conditions.

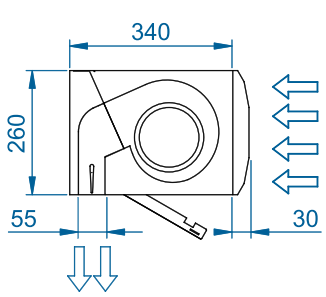
KOOL air curtain is specially designed for being mounted on cold store doors. With a compact timeless design, ensures a low turbulence and high velocity air jet, thus efficiently separating spaces with high temperature differences. Provided with a large faceted inlet grille avoiding intensive maintenance. It works with double-inlet centrifugal fans driven by an external rotor motor and low noise level. EC models assembled with very low consumption efficiency fans.
Includes Plug&Play control with 7m RJ45 cable and infrared remote control. Optionally can be regulated with Advanced Clever Control (programmable, automatic, intelligent, compatible with Modbus RTU for BMS).

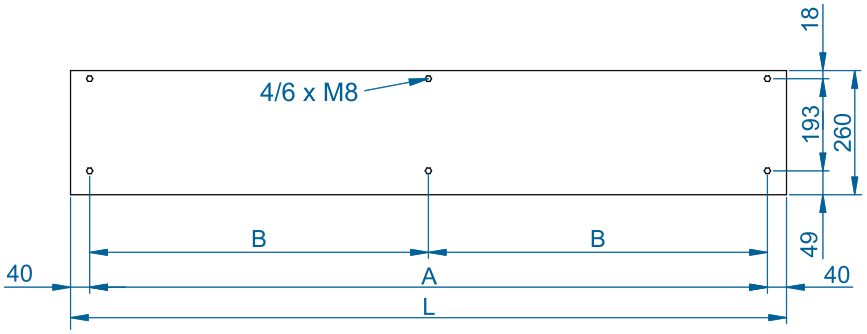
UNHEATED

Model	Airflow 230V		Ventilation power 230V		Ventilation current 230V		Noise Level (5 m)	Weight
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
	m³/h	m³/h	kW	kW	A	A	dB(A)	kg
KM 1000 A	1800	1940	0,212	0,248	0,94	1,10	55	29
KM 1500 A	2700	2900	0,318	0,372	1,41	1,65	56	44
KM 2000 A	3600	3840	0,424	0,496	1,88	2,20	57	53
KM 2500 A	4500	4850	0,530	0,620	2,35	2,75	58	58
KM 3000 A	5400	5820	0,636	0,774	2,82	3,30	59	76
KECM 1000 A	1840	1840	0,142	0,142	1,24	1,24	56	33
KECM 1500 A	2760	2760	0,213	0,213	1,86	1,86	57	50
KECM 2000 A	3680	3680	0,284	0,284	2,48	2,48	58	61
KECM 2500 A	4600	4600	0,355	0,355	3,10	3,10	59	68
KECM 3000 A	5520	5520	0,426	0,426	3,72	3,72	60	76
KG 1000 A	2400	2400	0,642	0,372	2,85	1,65	57	37
KG 1500 A	3200	3200	0,856	0,496	3,80	2,20	58	55
KG 2000 A	4800	4800	1,284	0,744	5,70	3,30	59	71
KG 2500 A	5600	5600	1,498	0,868	6,65	3,85	60	78
KG 3000 A	6400	6400	1,712	0,992	7,60	4,40	61	86
KECG 1000 A	2700	2700	0,213	0,213	1,86	1,86	61	37
KECG 1500 A	3600	3600	0,284	0,284	2,48	2,48	62	56
KECG 2000 A	5400	5400	0,426	0,426	3,72	3,72	63	71
KECG 2500 A	6300	6300	0,497	0,497	4,34	4,34	64	78
KECG 3000 A	7200	7200	0,568	0,568	5,96	5,96	65	86

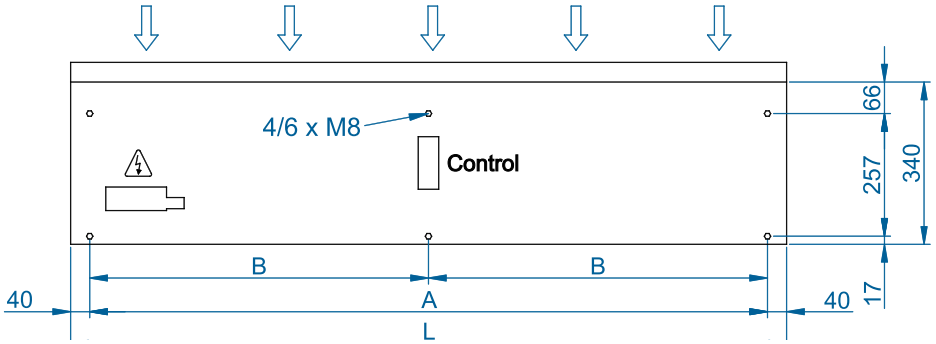
Selection program

Dimensions





L	A	B
1000	920	-
1500	1420	710
2000	1920	960
2500	2420	1210
3000	2920	1460



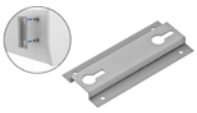
Optional accessories

Supports and installation

Wall rail support
SPWR

Silentblock supports
SPANG-SIL / SLB

Suspension cables
SPCT



Omega wall support
SPT3

Foot support
SPF-KOOL
(Galv. / SS)

Joining kit
SPJ-KOOL
(Galv. / SS)

Control

IR Control
✔ Included

Basic Control CA-5AW-IR
✔ Included

Hand-Auto
CH-5AW-NE

Clever Control Kit

Interface kit
IN-NE-II

RJ45 Cable
✔ Included

Sensors

Mechanical door contact
MEC-DC

External Temperature
Sensor (Clever Control)

CAD drawings, BIM files, installation manuals and other documentation

CAD BIM

Technical features

RAL 9016 standard

Stainless steel

Aqua Aero coating on request

Other colors on request

Range
Up to 4,5m

Airflow / Length
1700 - 6400 m³/h
1 m to 3 m

Fans
Centrifugal
5-speed

Chamber temperature
>0ºC [*]

Protection grade
IP55

Control
Plug&Play manual regulator + IR remote control (Optional Clever Control)

Casing
Galvanised steel / Stainless Steel

Grille type
Circular perforated

Outlet vanes
Aluminium, airfoil type
Adjustable 0-15º each side

[*] From 0ºC to -25ºC only in certain conditions.

KOOL IP55 is specially recommended in applications with extrem cold and/or humidity and/or corrosion conditions.
With a compact timeless design, ensures a low turbulence and high velocity air jet, thus efficiently separating spaces with high temperature differences.
Provided with a large faceted inlet grille avoiding intensive maintenance.

It works with double-inlet centrifugal fans driven by an external rotor motor and low noise level with special IP55 protection made by: sealed bearings, encapsulated stator and wire sealed with silicone.

Includes IP55 waterproof box for electronic components and transformer and all wire connections, including IP68 press releases.
IMPORTANT: The electronic and transformer waterproof case cannot be assembled inside the air curtain. The customer should look for a place outside the air curtain. The dimensions of this case are 300x200x120mm.

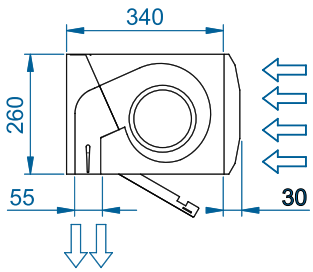
Includes Plug&Play control with 7m RJ45 cable and infrared remote control. Optionally can be regulated with Advanced Clever Control (programmable, automatic, intelligent, compatible with Modbus RTU for BMS).

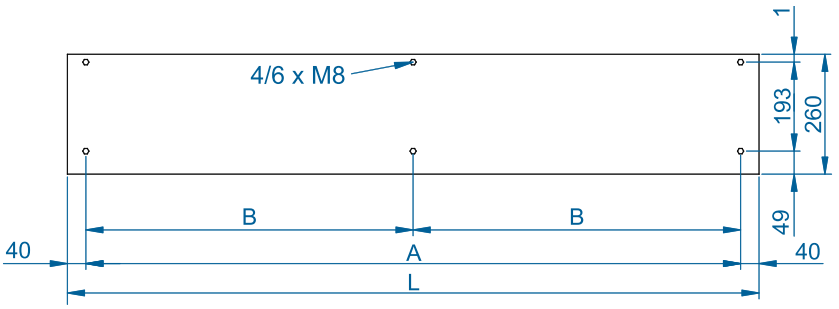
UNHEATED

Model	Airflow 230V		Ventilation power 230V		Ventilation current 230V		Noise Level (5 m)	Weight
	50Hz m³/h	60Hz m³/h	50Hz kW	60Hz kW	50Hz A	60Hz A	dB(A)	kg
KM 1000 A IP55	1700	1470	0,428	0,662	1,90	2,50	55	29
KM 1500 A IP55	2550	2205	0,642	0,993	2,85	3,75	56	44
KM 2000 A IP55	3400	2940	0,856	1,324	3,80	5,00	57	53
KM 2500 A IP55	4250	3675	1,070	1,655	4,75	6,25	58	58
KM 3000 A IP55	5100	4410	1,284	1,986	5,70	7,50	59	76
KG 1000 A IP55	2400	2205	0,642	0,993	2,85	3,75	57	37
KG 1500 A IP55	3200	2940	0,856	1,324	3,80	5,00	58	55
KG 2000 A IP55	4800	4410	1,284	1,986	5,70	7,50	59	71
KG 2500 A IP55	5600	5145	1,498	2,317	6,65	8,75	60	78
KG 3000 A IP55	6400	5880	1,712	2,648	7,60	10,00	61	86

Selection program

Dimensions





L	A	B
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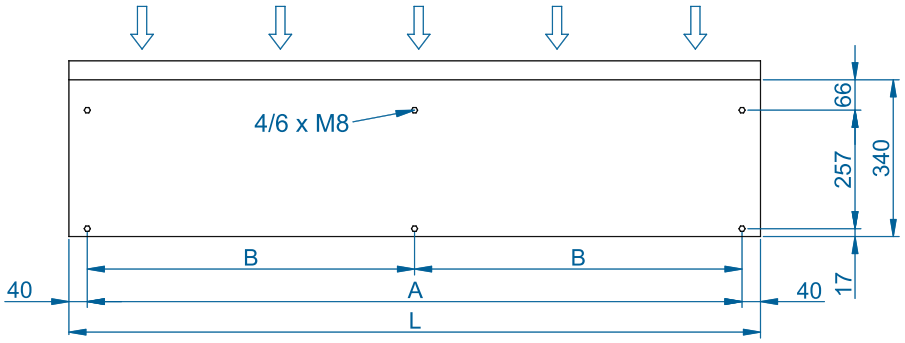
1500	1420	710
2000	1920	960
2500	2420	1210
3000	2920	1460



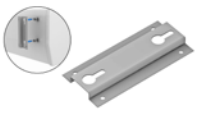
Optional accessories

Supports and installation

Wall rail support
SPWR

Silentblock support
SLB

Suspension cables
SPCT



Omega wall support
SPT3

Foot support
SPF-KOOL
(Galv. / SS)

Joining kit
SPJ-KOOL
(Galv. / SS)

Control

External IP55 Box
✔ Included

IR Control
✔ Included

Basic Control CA-5AW-IR
✔ Included

Hand-Auto
CH-5AW-NE

Clever Control Kit

IP55 Box
Clever control

Interface kit
IN-NE-II

RJ45 Cable
✔ Included

Sensors

Mechanical door contact
MEC-DC

External Temperature
Sensor (Clever Control)

CAD drawings, BIM files, installation manuals and other documentation

CAD BIM

Technical features

RAL 9016 standard

Stainless steel

Aqua Aero coating on request

Other colors on request

Range
Up to 7 m

Airflow / Length
3900 -10400 m³/h
1 m to 3 m

Fans
Centrifugal
5-speed

Chamber temperature
>0ºC [*]

Protection grade
Air curtain IP20
Fans IP54

Control
Plug&Play manual regulator + IR remote control (Optional Clever Control)

Casing
Galvanised steel / Stainless Steel

Grille type
Circular perforated

Outlet vanes
Aluminium, airfoil type
Adjustable 0-15º each side

[*] From 0ºC to -25ºC only in certain conditions.

KOOL BB air curtain is specially designed for being mounted on large cold store doors. With a compact timeless design, ensures a low turbulence and high velocity air jet, thus efficiently separating spaces with high temperature differences. Large faceted inlet grille avoiding intensive maintenance.

This air curtain model works with latest generation double-inlet centrifugal EC fans driven by an external rotor motor and low noise level, with very low consumption efficiency fans.

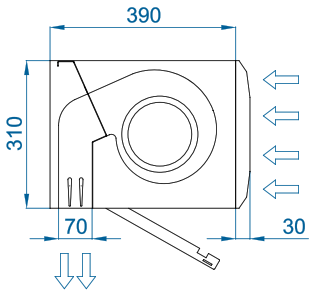
Includes Plug&Play control with 7m RJ45 cable and infrared remote control. Optionally can be regulated with Advanced Clever Control (programmable, automatic, intelligent, compatible with Modbus RTU for BMS).

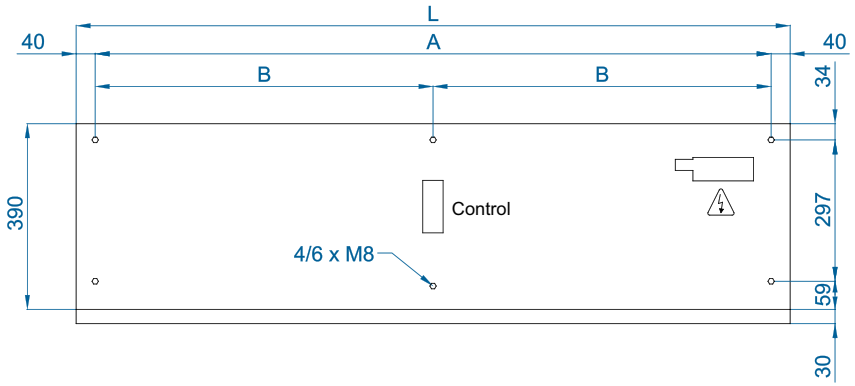
UNHEATED

Model	Airflow 230V 50/60Hz m³/h	Ventilation power 230V 50/60Hz kW	Ventilation current 230V 50/60Hz A	Noise Level (5m) dB(A)	Weight kg
KBB 1000 A	3900	0,213	4,08	67	38
KBB 1500 A	5200	0,284	5,44	67,5	62
KBB 2000 A	7800	0,426	8,16	68	77
KBB 2500 A	9100	0,497	9,52	68,5	93
KBB 3000 A	10400	0,568	10,88	69	106

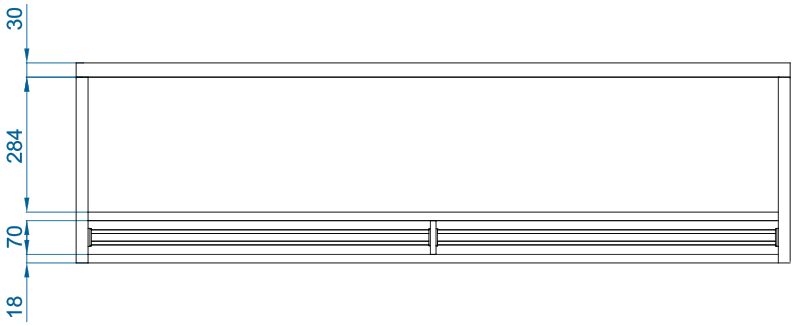
Selection program

Dimensions





L	A	B
1000	920	-
1500	1420	710
2000	1920	960
2500	2420	1210
3000	2920	1460



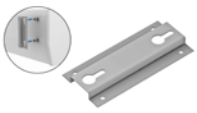
Optional accessories

Supports and installation

Wall rail support
SPWR

Silentblock support
SLB

Suspension cables
SPCT



Omega wall support

Foot support
SPF-KOOL BB
(Galv. / SS)

Joining kit
SPJ-KOOL BB
(Galv. / SS)

Control

IR Control
✔ Included

Basic Control CA-5AW-IR
✔ Included

Hand-Auto
CH-5AW-NE

Clever Control Kit

Interface kit
IN-NE-II

RJ45 Cable
✔ Included

Sensors

Mechanical door contact
MEC-DC

External Temperature
Sensor (Clever Control)

CAD drawings, BIM files, installation manuals and other documentation

CAD BIM

Technical features

Range (door width)
Up to 5 m

Airflow / Length
5400 - 14400 m³/h
1,5 m to 3 m

Fans
Centrifugal
5-speed

Chamber temperature
>0ºC to -25ºC

Protection grade
Air curtain IP20 [*]
Fans IP44 [**]

Control
Plug&Play manual regulator + IR remote control
(Optional Clever Control)

Casing
Galvanised steel / Stainless Steel (optional)

Grille type
Circular perforated

Outlet vanes
Aluminium, airfoil type
Adjustable 0-15º each side

RAL 9016 standard

Stainless steel

Aqua Aero coating on request

Other colors on request

[*] Optional M or G IP55 air curtain.

[**] Optional IP55 fans.

TWIN K air curtain system has been designed to offer a versatile solution to any type of cold room.

Highly efficient climatic separation against thermal losses caused by the large temperature difference with 2 jets and recirculation technology.

Recommended for chambers over 0ºC where low humidity is not required like vegetables storage or chambers below 0ºC with pre-chambers with controlled conditions of humidity and temperature.

The system consists of two air curtains facing each other vertically with the jets reversed and extra intakes from pre-chamber. This double jet works as a closed circuit creating a separation zone at the door entrance. Thanks to this double air barrier, this is a cheaper alternative to the TRIOJET SYSTEM when space is limited. It requires a ceiling to cover 100% of the opening with the 2 jets (not included, must be provided by others)

We recommend Aqua Aero coating (15.000 hours salt spray test) or stainless steel to improve the protection against corrosion.

With double-inlet centrifugal low noise fans driven by an external rotor motor.

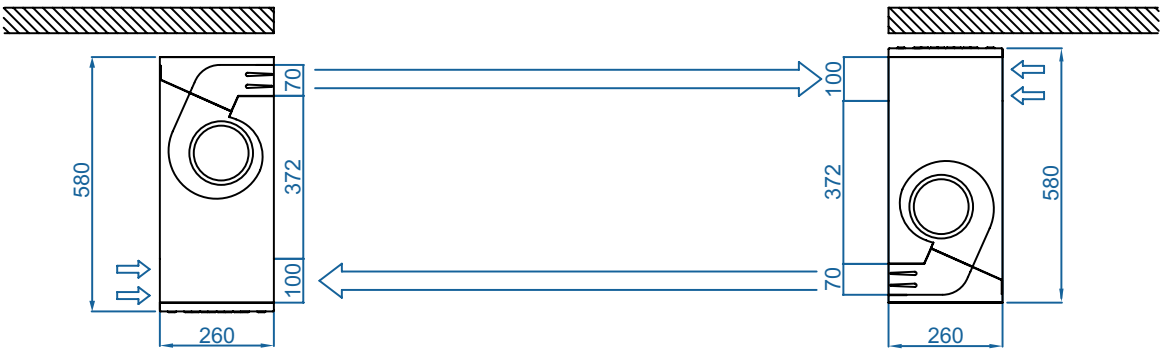
Includes Plug&Play control with 7m RJ45 cable and infrared remote control. Optionally can be regulated with Advanced Clever Control (programmable, automatic, intelligent, compatible with Modbus RTU for BMS).

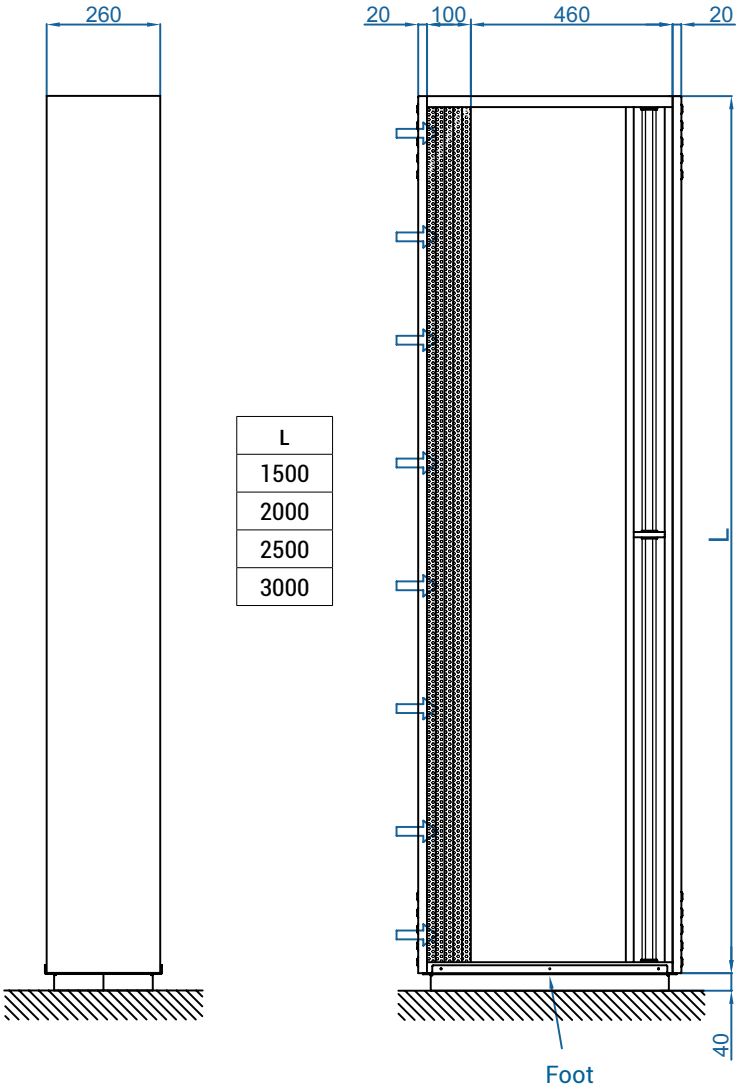
UNHEATED

Model	Airflow 230V		Ventilation power 230V		Ventilation current 230V		Noise Level (5 m)	Weight
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
	m^3/h	m^3/h	kW	kW	A	A	dBA	kg
TWIN KM 1500 A	5400	5800	0,636	0,744	2,82	3,30	59	56
TWIN KM 2000 A	7200	7680	0,848	0,992	3,76	4,40	60	70
TWIN KM 2500 A	9000	9700	1,060	1,240	4,70	5,50	61	76
TWIN KM 3000 A	10800	11640	1,272	1,488	5,64	6,60	62	88
TWIN KECM 1500 A	5520	5520	0,426	0,426	3,72	3,72	60	56
TWIN KECM 2000 A	7360	7360	0,568	0,568	4,96	4,96	61	70
TWIN KECM 2500 A	9200	9200	0,710	0,710	6,20	6,20	62	76
TWIN KECM 3000 A	11040	11040	0,852	0,852	7,44	7,44	63	88
TWIN KG 1500 A	6400	6400	1,712	0,992	7,60	4,40	61	61
TWIN KG 2000 A	9600	9600	2,568	1,488	11,40	6,60	62	80
TWIN KG 2500 A	11200	11200	2,996	1,736	13,30	7,70	63	86
TWIN KG 3000 A	12800	12800	3,424	1,984	15,20	8,80	64	98
TWIN KECG 1500 A	7200	7200	0,568	0,568	4,96	4,96	65	61
TWIN KECG 2000 A	10800	10800	0,852	0,852	7,44	7,44	66	80
TWIN KECG 2500 A	12600	12600	0,994	0,994	8,68	8,68	67	86
TWIN KECG 3000 A	14400	14400	1,136	1,136	11,92	11,92	68	98

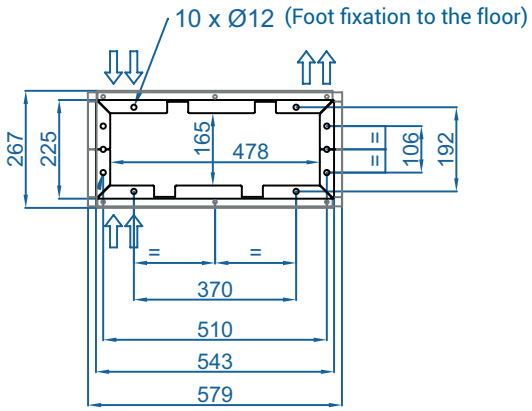
Selection program

Dimensions





L
1500
2000
2500
3000

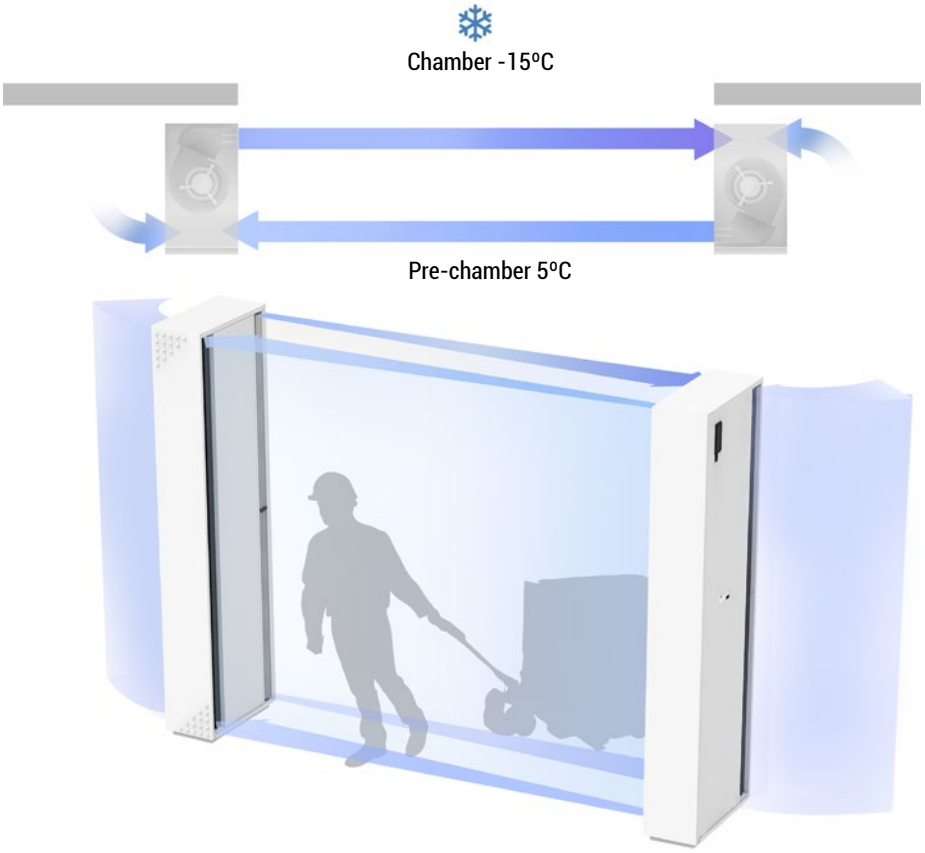


(Foot fixation to the casing)

CAD drawings, BIM files, installation manuals and other documentation

CAD BIM

Functioning



We consider a chamber at -15ºC and a pre-chamber at 5ºC (thermal leap 20ºC).

The TWIN K SYSTEM with two air curtains facing each other, creates a separation zone in the door that acts as a very efficient barrier against adverse situations.

This separation zone is created by self-recirculation in such a way that both air curtains suck the jet from the other curtain, along with air from the pre-chamber itself.
This separation area is maintained between the temperature of the chamber and the pre-chamber thus reducing the temperature exchange between both sides.

Optionally, depending on the installation, electrical heating can be used to help remove ice from the ground and reduce humidity.

Optional accessories

Supports and installation

Foot support
SPF-DAM
(Galv. / SS)

Joining kit
SPJ-MG
(Galv. / SS)

Control

IR Control
✔ Included

Basic Control CA-5AW-IR
✔ Included

Hand-Auto
CH-5AW-NE

Clever Control Kit

Interface kit
IN-NE-II

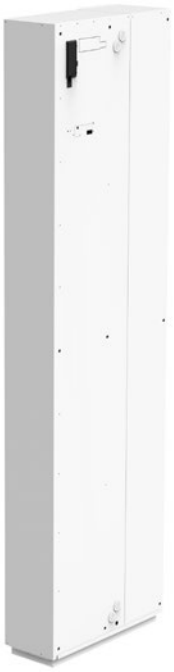
RJ45 Cable
✔ Included

Sensors

Mechanical door contact
MEC-DC

External Temperature
Sensor (Clever Control)

Technical features



Range (door width)
Up to 5 m

Airflow / Length
5400 - 14400 m³/h
1,5 m to 3 m

Fans
Centrifugal
5-speed

Chamber temperature
>0ºC to -25ºC

Protection grade
Air curtain IP20 [*]
Fans IP44 [**]

Control
Plug&Play manual regulator
+ IR remote control
(Optional Clever Control)

Casing
Galvanised steel /
Stainless Steel (optional)

Grille type
Circular perforated

Outlet vanes
Aluminium, airfoil type
Adjustable 0-15º each side

RAL 9016 standard

Stainless steel

Aqua Aero coating on request

Other colors on request

[*] Optional M or G IP55 air curtain.
[**] Optional IP55 fans.

TWIN KPL air curtain system has been designed to offer a versatile solution to any type of cold room: refrigerators (over 0ºC) and freezers (0ºC up to -25ºC).

Highly efficient climatic separation against thermal losses caused by the large temperature difference with 2 jets and recirculation technology.

The system consists of two air curtains facing each other vertically with the jets reversed. This double jet works as a closed circuit creating a separation zone at the door entrance. Thanks to this double air barrier, is the best alternative to the TRIOJET SYSTEM when space is limited.
It requires a ceiling to cover 100% of the opening with the 2 jets (not included, must be provided by others).

On option heating could be implemented to improve ice reduction on the floor and humidity control.

We recommend Aqua Aero coating (15.000 hours salt spray test) or stainless steel to improve the protection against corrosion.

With double-inlet centrifugal low noise fans driven by an external rotor motor.

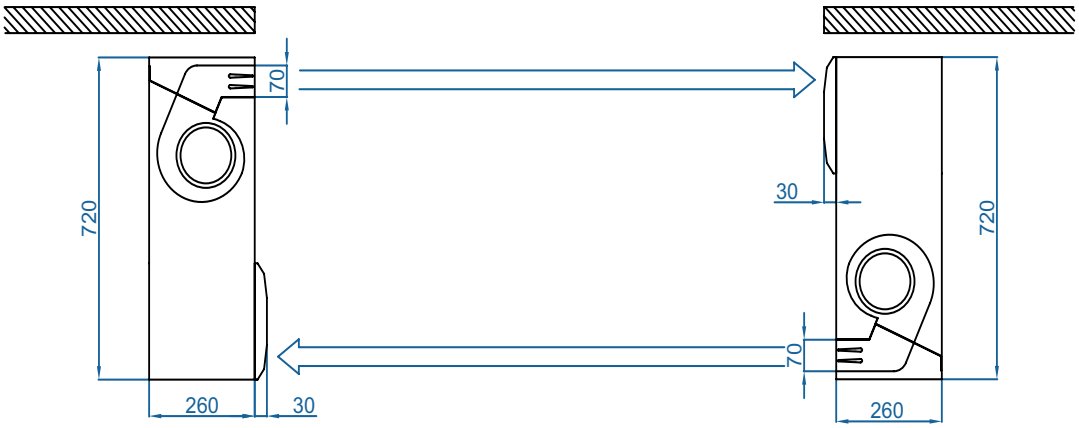
Includes Plug&Play control with 7m RJ45 cable and infrared remote control. Optionally can be regulated with Advanced Clever Control (programmable, automatic, intelligent, compatible with Modbus RTU for BMS).

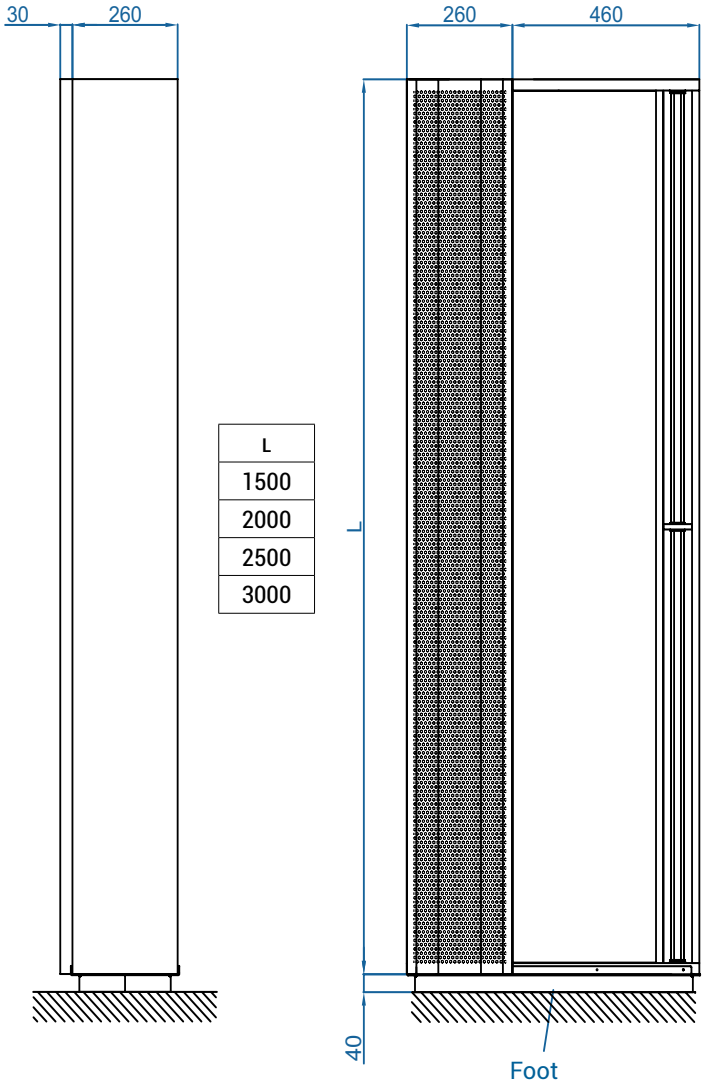
UNHEATED

Model	Airflow 230V		Ventilation power 230V		Ventilation current 230V		Noise Level (5 m)	Weight
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz		
	m^3/h	m^3/h	kW	kW	A	A	dBA	kg
TWIN KPL M 1500 A	5400	5800	0,636	0,744	2,82	3,30	59	64
TWIN KPL M 2000 A	7200	7680	0,848	0,992	3,76	4,40	60	80
TWIN KPL M 2500 A	9000	9700	1,060	1,240	4,70	5,50	61	88
TWIN KPL M 3000 A	10800	11640	1,272	1,488	5,64	6,60	62	102
TWIN KPL ECM 1500 A	5520	5520	0,426	0,426	3,72	3,72	60	64
TWIN KPL ECM 2000 A	7360	7360	0,568	0,568	4,96	4,96	61	80
TWIN KPL ECM 2500 A	9200	9200	0,710	0,710	6,20	6,20	62	88
TWIN KPL ECM 3000 A	11040	11040	0,852	0,852	7,44	7,44	63	102
TWIN KPL G 1500 A	6400	6400	1,712	0,992	7,60	4,40	61	69
TWIN KPL G 2000 A	9600	9600	2,568	1,488	11,40	6,60	62	90
TWIN KPL G 2500 A	11200	11200	2,996	1,736	13,30	7,70	63	98
TWIN KPL G 3000 A	12800	12800	3,424	1,984	15,20	8,80	64	112
TWIN KPL ECG 1500 A	7200	7200	0,568	0,568	4,96	4,96	65	69
TWIN KPL ECG 2000 A	10800	10800	0,852	0,852	7,44	7,44	66	90
TWIN KPL ECG 2500 A	12600	12600	0,994	0,994	8,68	8,68	67	98
TWIN KPL ECG 3000 A	14400	14400	1,136	1,136	11,92	11,92	68	112

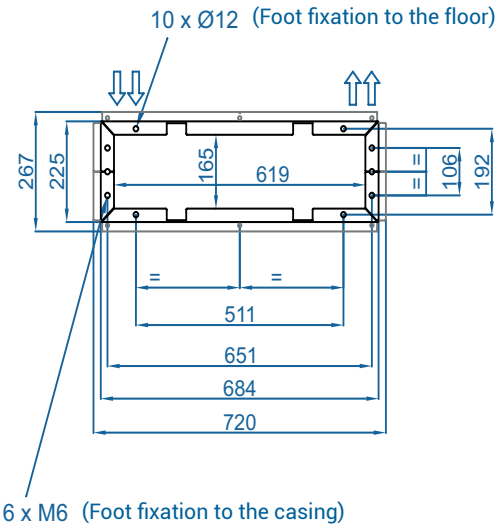
Selection program

Dimensions





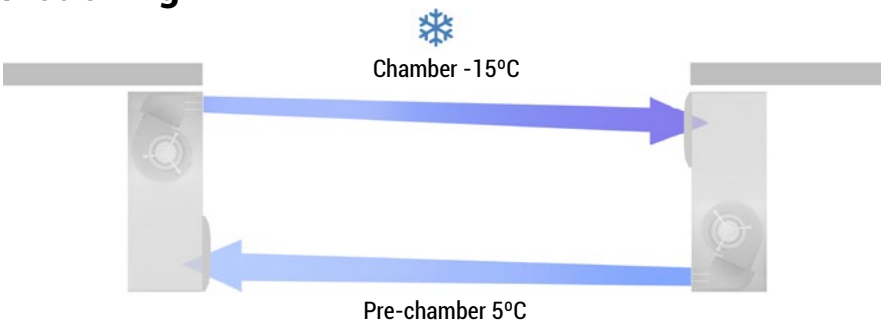
L
1500
2000
2500
3000



CAD drawings, BIM files, installation manuals and other documentation

CAD BIM

Functioning



We consider a chamber at -15ºC and a pre-chamber at 5ºC (thermal leap 20ºC).

The TWIN KPL SYSTEM with two air curtains facing each other, creates a separation zone in the door that acts as a very efficient barrier against adverse situations.

This separation zone is created by self-recirculation in such a way that both air curtains suck the jet from the other curtain. This separation area is maintained between the temperature of the chamber and the pre-chamber thus reducing the temperature exchange between both sides.

Optionally, depending on the installation, electrical heating can be used to help removing ice from the ground and reduce humidity.

Optional accessories

Supports and installation

Foot support
SPF-MG
(Galv. / SS)

Joining kit
SPJ-MG
(Galv. / SS)

Control

IR Control
✔ Included

Basic Control CA-5AW-IR
✔ Included

Hand-Auto
CH-5AW-NE

Clever Control Kit

Interface kit
IN-NE-II

RJ45 Cable
✔ Included

Sensors

Mechanical door contact
MEC-DC

External Temperature
Sensor (Clever Control)

Technical features

Stainless steel (standard)

RAL 9016

Aqua Aero coating on request

Other colors on request

Range
Up to 5 m

Airflow / Length
5900 - 16800 m³/h
1 m to 3 m

Fans
Centrifugal
5-speed

Chamber temperature
>0ºC to -40ºC

Protection grade
Duojet IP55
Kool IP20
Electronics IP65 box

Control
Clever Control
IP65 box

Casing
Stainless Steel /
Galvanised steel

Grille type
Circular perforated

Outlet vanes
Aluminium, airfoil type
Adjustable 0-15º each side

The TRIOJET SYSTEM is specially designed for doors of cold rooms and industrial freezers with a large thermal leap.
Highly efficient climatic separation against thermal losses caused by the large temperature difference (short payback period) using a barrier with 3 air jets. It reduces the risk of accidents because it eliminates ice from the ground at the entrance and reduces fog.

System composed of two air curtains: special Duojet air curtain with plenum and Kool curtain.
The result is 3 jets together at different temperatures and different speeds that do not mix, achieving efficient separation.
It needs a structure with side walls to cover 100% of the opening with the 3 jets (structure not included, must be provided by others).

Duojet air curtain with AC IP55 centrifugal fans and Kool with EC fans, both double inlet, driven by external rotor motors with low noise level and reduced consumption. Includes electric heater with 3 power stages with integrated regulation.

Triojet is automatically fully controlled by Clever Control. Electronics and control protected inside IP65 boxes. Plug & Play connections.
Ready for BMS connection via Modbus RTU.

ELECTRIC HEATED

Model	Airflow 230V		Ventilation power 230V		Ventilation current 230V		Electrical Heating Capacity (*)	Noise Level (5 m)	Weight
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	400Vx3~50/60Hz		
	m³/h	m³/h	kW	kW	A	A	kW	dBA	kg
TRIOJET SYSTEM 1000	5900	5620	1,08	1,54	5,75	6,87	3/6/9	62	125
TRIOJET SYSTEM 1500	8400	8240	1,58	2,27	8,30	9,98	4/8/12	63	182
TRIOJET SYSTEM 2000	11800	11240	2,16	3,07	11,50	13,74	6/12/18	64	234
TRIOJET SYSTEM 2500	14300	13600	2,66	3,81	14,05	16,85	6/12/18	65	275
TRIOJET SYSTEM 3000	16800	15960	3,17	4,54	16,60	19,96	8/16/24	66	314

(*) For a standard cold chamber and pre-chamber (-20ºC / 5ºC). Special electrical heater adapted for each installation.

Selection program

Infographics

FIXING STRUCTURE
With hanging threaded bars

Duojet Air Curtain

Kool Air Curtain

Duojet inlet plenum right next to cold chamber

TRIOJET can also be installed vertically and stacking multiple units.

FREEZER CHAMBER

Removal of snow and mist inside the chamber.
Door maintenance due to ice damage is reduced.

PRE-CHAMBER

LATERAL ENCLOSURE
Required to cover 100% of the opening.

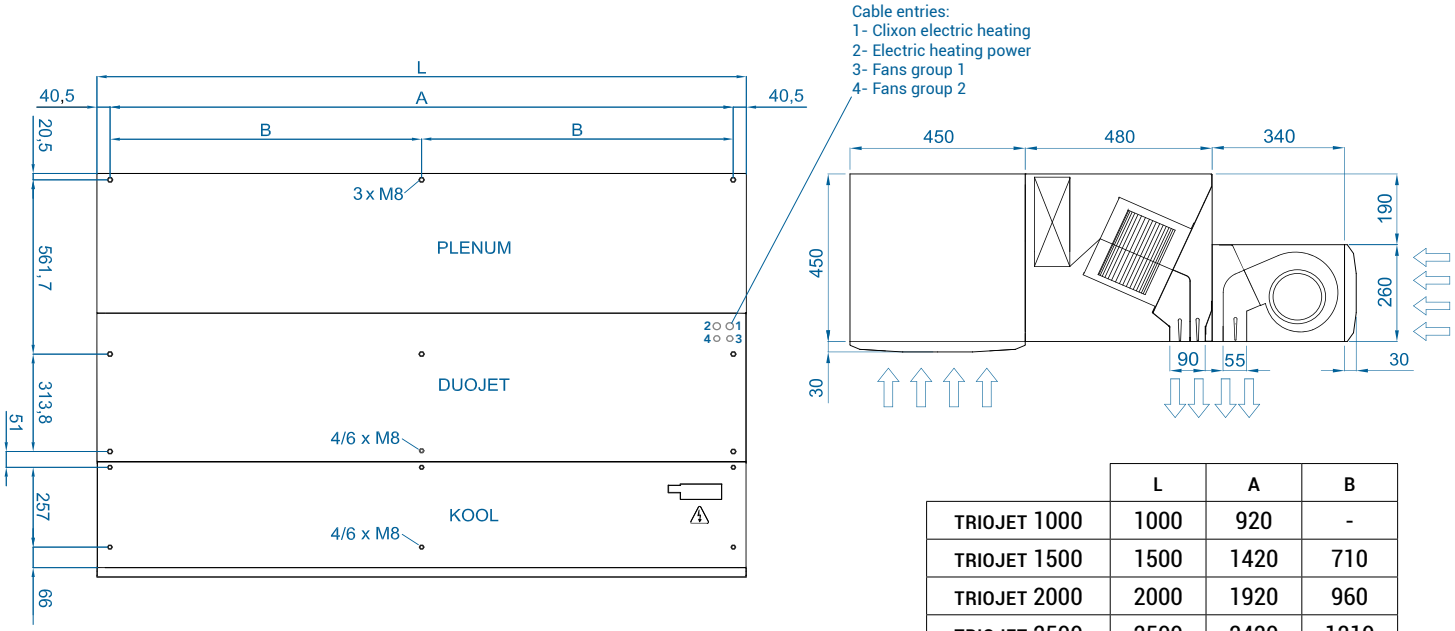
Combination system of 3 jets at different temperatures and different speed.
The temperatures stabilize at the cold chamber and pre-chamber (Energy savings of up to 70%).

Elimination of snow and ice in the pre-chamber area and around the door.

Higher visibility through the door, improving safety.
Decreasing risk of accidents due to slippery floor.

WATCH VIDEO

Dimensions



	L	A	B
TRIOJET 1000	1000	920	-
TRIOJET 1500	1500	1420	710
TRIOJET 2000	2000	1920	960
TRIOJET 2500	2500	2420	1210
TRIOJET 3000	3000	2920	1460

Optional accessories

Supports and installation

Silentblock supports
SPANG-SIL / SLB

Suspension cables
SPCT

Foot support SPF-TRIO
(Galv. / SS)

Control

Triojet connection box
✔ Included

Clever Control Kit
✔ Included

IP65 Box Clever Control TFT
✔ Included

Sensors

Mechanical door contact
MEC-DC

Sensor de temperatura
externa (Clever Control)

CAD drawings, BIM files, installation manuals and other documentation

CAD BIM

CONTROL AND REGULATION

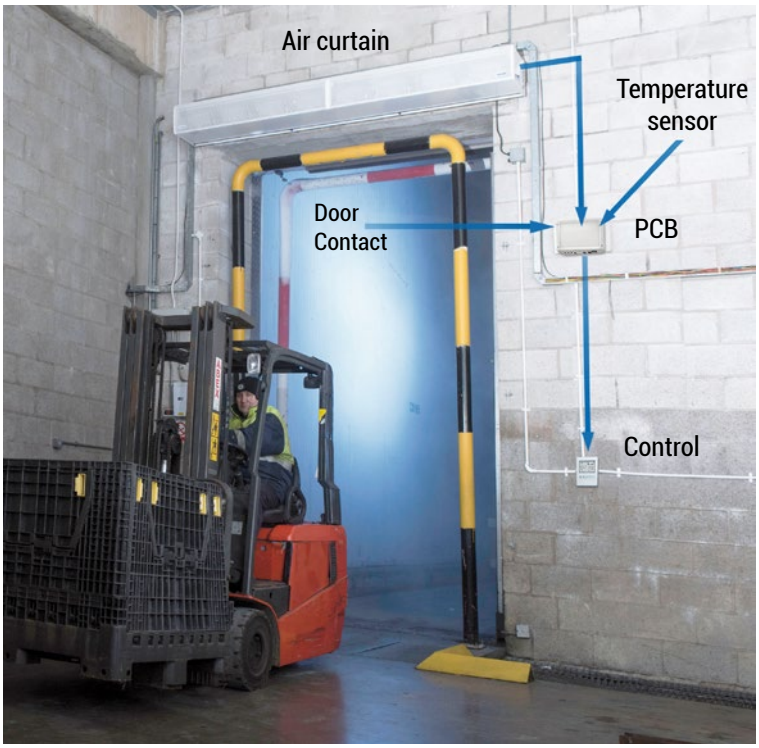
Advanced regulation

INTELLIGENT
PROACTIVE
REGULATION

Air curtains regulation is essential to substantially reduce energy consumption.

Our latest technology control system allows to manage the operation of the air curtains automatically according to each situation, maintaining indoors comfort with maximum energy savings.

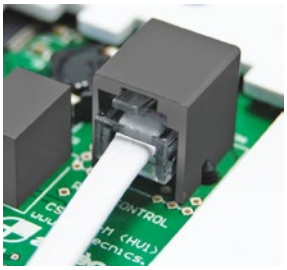
Clever control automatically adapts the functioning of the air curtain to the entrance conditions, mantaining comfort while saving energy. It optimizes the ventilation and heating to make an efficient barrier for an optimal climate separation.



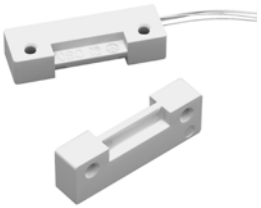
Basic and advanced modes

Conectivity Modbus BMS and control via APP

Easy **Plug & Play** installation



Regulation with **valves:** thermostatic, solenoid, modulating



Ambient thermostat and external temperature **sensors**

Special Requirements

Airtècnics can produce units with special requirements under request.

- External alarm signals: unit working, heating ON, airflow switch, dirty grille, electronic overheating signal, fans overheating thermal contact TK, electrical heating blocked, etc.
- Water or steam coils for higher temperatures or different power than standard.
- Special heating elements at desired power and power supply.
- Dummies (empty air curtains) to combine with working units.
- Industrial air curtains with ATEX fans.

CONTROL AND REGULATION

Clever Control features:

USER FRIENDLY DESIGN

Multilanguage and intuitive icons for easy understanding.
Main state screen: ventilation speed, heating, temperatures, door state, working mode and program, filter state, day/hour, timer, etc. 3 different menu configurations depending on who is managing the equipment.

FILTER ALARM

Indicates when filter needs replacing/cleaning. 2 options: by "Timer"of functioning hours or by "Pressure Sensor" switch.

ADAPTIVE DOOR DELAY

Air curtain delay: when the door closes, the air curtain remains working at door open conditions for certain time to be ready if it opens again.
Door opening delay: the door remains closed until the air curtain achieve the nominal speed.

TIMER

To turn ON or OFF automatically the unit depending on each different day of the week or predefined groups of days. User can select between Day or Night modes with 2 different Set temperatures.

COMPATIBLE

BMS communication with Modbus RTU protocol or using digital and analogical IN/OUT to control or monitor directly the unit.

ENERGY SAVING

3 grades of comfort and energy efficiency.

FULLY PROGRAMMABLE

All parameters can be configured at Basic or Advanced menu.
Lots of extra functions to fulfill all clients applications. Customizable device names for easy identification.

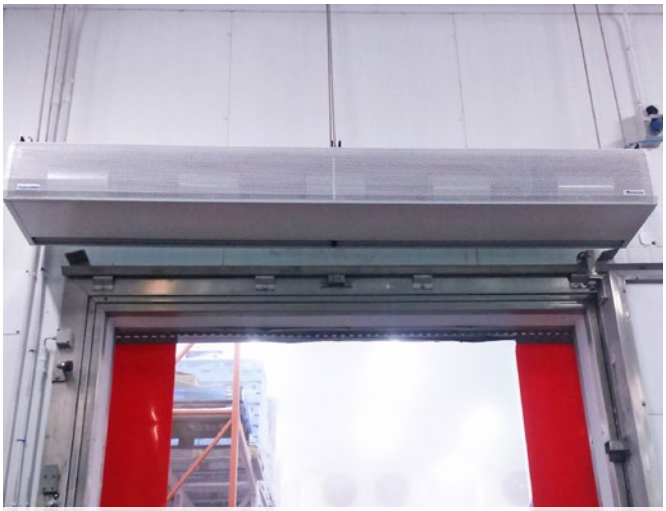
MULTI-EQUIPMENT

Clever works with different types of units: air curtains, fan heater, AHU, etc. Once programmed, PCB can work by itself without any controller.

- Clever Control is factory adjusted according to the device/s and client requirements.
- Once installed, the system checks automatically all connected units and its temperature sensors.
- Different integrated programs and functions for particular applications.
- Multiple programs depending on installed temperature sensors: inside, outside and air jet.
- Able to regulate by itself the ventilation and heating depending on: door state, temperature sensors, selected working mode, grade of energy saving, program and other parameters.
- Alarms: general, filter state, anti-freezing, overheating, fans overheating, airflow, fire, external, heating locked, etc.
- Security control buttons lock option by code.
- Modulating valve for water heated (includes 24VDC power supply).
- Multiple functions: temporized door, excessive temperature of water return, cooling mode and others.

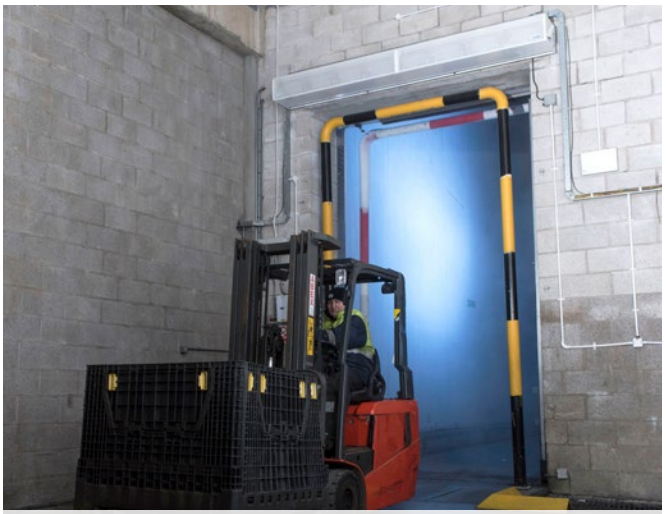
GALLERY

Optima K
Installation in a frozen products factory



Kool
Installation in a food and beverages factory

Kool
Installation in a food products distribution factory



Kool
Installation in a cold storage factory

Kool IP55
Installation in a poultry factory

Twin K
Installation in the factory of a supermarket chain

GALLERY

Triojet System
Installation in a wholesale food supplier factory

Triojet System
Installation in an agricultural and livestock production factory

Triojet System
Installation in a baking factory freezer

Triojet System
Installation in a freezer entrance

Triojet System
Installation in an industrial supply company

Triojet System
Vertical multiple installation in a food company

TOP REFERENCES

Production for world renowned brands

See all references

See all installation photos

TOP REFERENCES

Findus (Pamplona, Spain)
Gillette (Reading, UK)
McDonald's (Jordan, Amman)
Nestlé (La Penilla de Cayón, Spain)
Mercadona (Colmena Alicante, Spain)
Frank Bird Poultry (Penrith, Scotland)
Pierre Fabre Dermo-Cosmétique (Avème, France)
Baxter (Marsa, Malta)
AstraZeneca (Macclesfield, UK)
Uriach (Palau Solità i Plegamans, Spain)
Adelie Foods (London, UK)
Servei Dolç (Barcelona, Spain)
Sonoco (Montanay, France)
Konings Juices & Drinks (Sudbury, UK)

Valero (Sabadell, Spain)
Frigorífics Costa Brava (Girona, Spain)
Mercabarna (Barcelona, Spain)
Cerlesa (León, Spain)
Friselva (Girona, Spain)
Canon Foods (Jandakot, Spain)
Rimi (Riga, Latvia)
Mann Pharma (Germany, Berlin)
Bo de Debò (Sant Vicenç de Castellet, Spain)
Moehs Catalana (Rubi, Spain)
Costco Wholesale (Watford, UK)
Corporació Alimentaria Guissona (Guissona, Spain)
Unique Poultry International (Punjab, Pakistan)
Barfoots Ltd (Bognor Regis, UK)

TOP REFERENCES

Agrozumos (Navarra, Spain)
The Sail Tower (Jeddah, Saudi Arabia)
1COLD (Solihull, UK)
Montana Bakery (Slough, UK)
Centro de Carga Aerea 3 (Madrid, Spain)
Aidl (Fraisses, France)
Havelok (Grimsby, UK)
Capper & Co (Bridgend, UK)
Greencore Food to Go (London, UK)
Pensworth Dairy (Southampton, UK)
Norish (Wrexham, UK)
Tottus (Puente Piedra, Peru)
Grapes Direct (Kent, UK)
Grupo Éxito (Antioquía, Colombia)

Disfribell (Girona, Spain)
Kapp Ehf (Gardabaer, Iceland)
Frigoríficos del Morrazo (Balea, Spain)
Gasporc (Lleida, Spain)
Vili's Bakery (Adelaide, Australia)
Galores Cold (Panamá, Panamá)
Frutas Espax (Soses, Spain)
Accord Healthcare (Newcastle, UK)
Fowler Welch (Spalding, UK)
Gandras Energoefektas (Visaginas, Lithuania)
Lonja Pescados Mercamadrid (Madrid, Spain)
Agrícola La Goya (Parcona, Peru)
Thermo Fisher (Renfrew, UK)
William White Meats (Purfleet, UK)
Pensworth Dairy (Southampton, UK)

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IKEA (Badalona, Spain)
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Telefónica Factory (Madrid, Spain)
Würth factory (Kouvola, Finland)
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BASF factory (Milan, Italy)
American Naval Base (Juffar, Bahrain)
Hilton Hotel (Addis Ababa, Ethiopia)
Disneyland (Paris, France)
Port Aventura (Salou, Spain)
Camp Nou (Barcelona, Spain)
San Siro (Milan, Italy)
Circuit de Catalunya F1 (Montmeló, Spain)

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Station of HIA (Doha, Qatar)
Riffa King Palace (Manama, Bahrain)
Generalitat de Catalunya (Barcelona, Spain)
Central Station (Vienna, Austria)
Victorian Comprehensive (Melbourne, Australia)
Hospital Sant Joan de Déu (Barcelona, Spain)
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Barclays (Leeds, UK)
Pepsi Co. Factory (Funza, Colombia)

BBC TV (Cardiff, Wales)
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Kyochon (New York, United States)
W hotel (Dubai, UAE)
Mercadona (Castellar del Valles, Spain)
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Amazon building (Milan, Italy)
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Water Cube (Beijing, China)
Atomium (Brussels, Belgium)
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McDonald's (Amsterdam, The Netherlands)
Universal Studios (Sentosa, Singapore)

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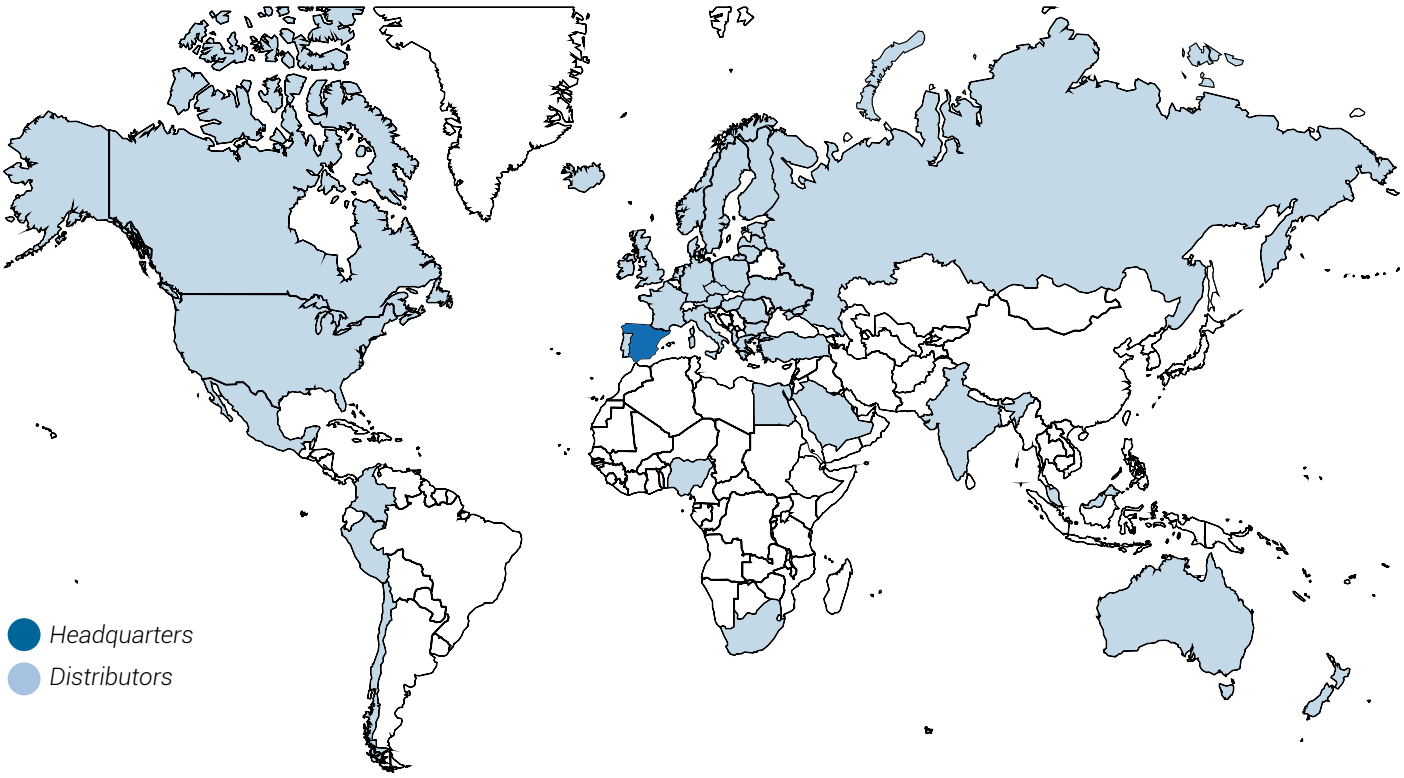

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sales@airtechnic.gr

Australia
ROSENBERG AUSTRALIA
87-89 Woodlandss Drive
3195 - Braeside, Victoria
Phone: +61 39587 8233
www.rosenbergaustralia.com.au
info@rosenbergaustralia.com.au

Austria
ROSENBERG GMBH AUSTRIA
Maisstrasse 15
4600 - Wels
Phone: +43 7242 72181
www.rosenberg.at
info@rosenberg.at

Azerbaijan
CASPIAN SERVICE LLC
Z. Ahmedbekov 14 Baku
Phone: +994 12 598 00 91
www.caspianservice.com
a.gurban@caspianservice.com

Bahrain
EUROTEK INTERNATIONAL TRA-
DING
Office no. 22 || Bldg 312 || Rd 5804 ||
Block 358Zinj - Kingdom of Bahrain
Phone: +973 17 341 349
Mobile: +973 39 477 924
info@eurotektrading.com

Belgium
ROSENBERG BELGIUM NV
Mallaardstraat, 9 9400 - Ninove
Phone: +32 54335835
www.rosenberg.be
info@rosenberg.be

Bosnia and Herzegovina
ROSENBERG KLIMA BH O.D.
Tvornička 3
71000 Sarajevo
Phone: +387 (0) 33 845 000
adis.pajtic@rosenberg-klima.si

Canada
AIRTECNICS NORTH AMERICA
1210 Mid-Way Blvd. Unit 20
Mississauga ON Canada L5T 2B8
Phone: 1- 866 565 1038
https://airtecnicsnorthamerica.com
info@airtecnicsnorthamerica.com

Chile
AIRTECNICS CHILE
Av. Nva. Los Leones, 07 - 4º
Providencia, Santiago de Chile
Phone: +56 2 2321 8000
Mobile: +56 9 9779 8262
chile@airtecnics.cl

Colombia
SOLUMAT SAS
Cra. 42 ##46-253, Itagüi,
Antioquia Medellín
Phone: +57 (4) 4440505
https://www.solumat.com.
cosolumat@solumat.com.co

Croatia
INDUSTRY IMPEX D.O.O.
Vranjicki put 48
21 000 - Split
Phone: +385 21 540 690
Mobile: +385 98 264 448
info@hitachi-klime.hr

Croatia
VENT KONCEPT D.O.O.
Doljani 3
HR-10000 ZAGREB
Phone: +385 1 2338 355
igor@ventkoncept.hr

Czech Republic
ROSENBERG S.R.O
Klencí pod Cerchovem, 101
345 34 - Klenci pod Cerchovem
Phone: 420 379775811
www.rosenberg.cz
info@rosenberg.cz

Denmark
MOVAIR
Gammel Køgegaard 9
4600 - Køge
Phone: 45 53530006
www.movair.dk
movair@movair.dk

Ecuador
ROJAS CEPERO HERMANOS S.A.
AV. Colon E11-36 y de 12 de
Octubre. Quito, Ecuador
Phone: +593 99 094 9377
https://rojasecuador.com
camilaleuro@rojasecuador.com

Egypt
ROSENBERG EGYPT
11 EL Gamaa st.
ET-Giza, Cairo
Phone: 202 4043306
www.rosenbergegypt.com
samir_ayad@mail.com

Estonia
ETS NORD
Peterburi tee 53
11415 Tallinn
Phone: 372 680 7365
pakkumised@etsnord.ee

Finland
ETS NORD
Pakkasraitti 4
04360 Tuusula
Phone: 358 40 184 2842
info@etsnord.fi

France
EXELTEC
7 Rue des Maraîchers
Parc d´Orchat
69120 - Vaulx en Velin
Phone: +04 78 82 01 01
www.exeltec.fr
info@exeltec.fr

Germany
ROSENBERG BREMEN GMBH
Auf den Sandbreiten, 3
28719 - Bremen
Phone: +49 421642031
www.rosenberg-nord.de
contact@rosenberg-nord.de

Germany
ROSENBERG VENTILATOREN
Maybachstrasse,1/9
D-74653 - künzelsau - Gaisbach
Phone: +49 79401420
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info@rosenberg-gmbh.com

Germany
ROSENBERG VENTILATOREN GMBH
Niederlassung Rhein-Ruhr
Am Schomm - 41199 Mön-
chengladbach
Phone: +49 2166/84670-0
www.rosenberg-gmbh.com
info-rhein-ruhr@rosenberg-gmbh.
com

Greece
AIRTECHNIC
Agiou Antoniou 19 & Xirokrinis,
Ano Patisia, 11 142 - Athens
Phone: +30 2117055500
www.airtechnic.gr
sales@airtechnic.gr

Hungary
ROSENBERG HUNGARIA
Joszef A.u.34. (Hauptstr. Nr.10),
Pf.6.
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Phone: +36 33515515
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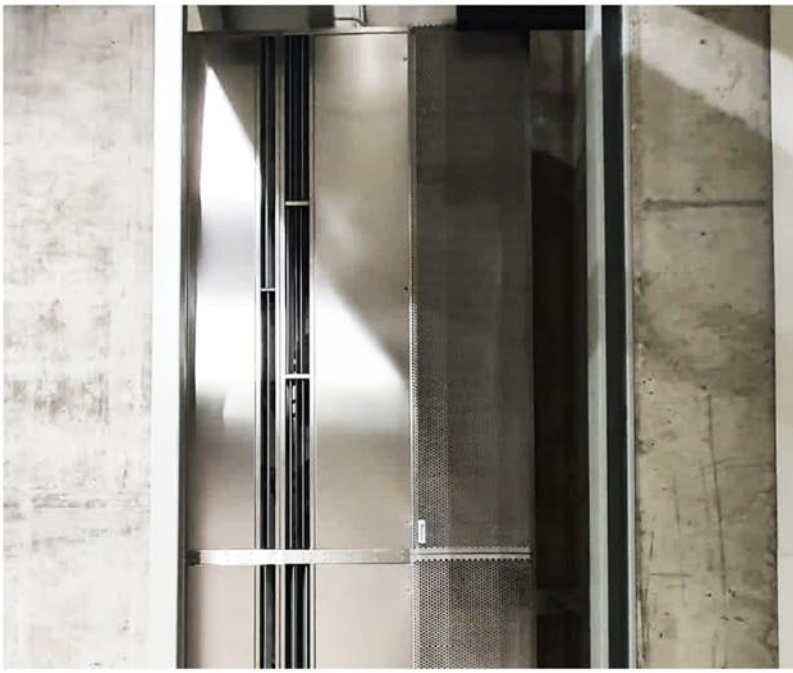
budapest@rosenberg.hu



Conca de Barberà, 6 - Pol. Ind. Pla de la Bruguera
E-08211 Castellar del Vallès (Barcelona) Spain
+ 34 93 715 99 88
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