



## **INSTALLATION, OPERATION AND MAINTENANCE MANUAL**



***Air curtains Windbox (S,M,G), Kool (KS,KM,KG),  
Deco (DS, DM, DG), Dam (S,M,G) Compact and Wec.***

***Please, read these instructions carefully before attempting installation***

**SECURITY ADVISE SYMBOLS**



***Attention, Danger, Safety advice!***



***Danger from electric current or high voltage!***



***Injuries risk!***



***Danger! Do not step under hanging load.***



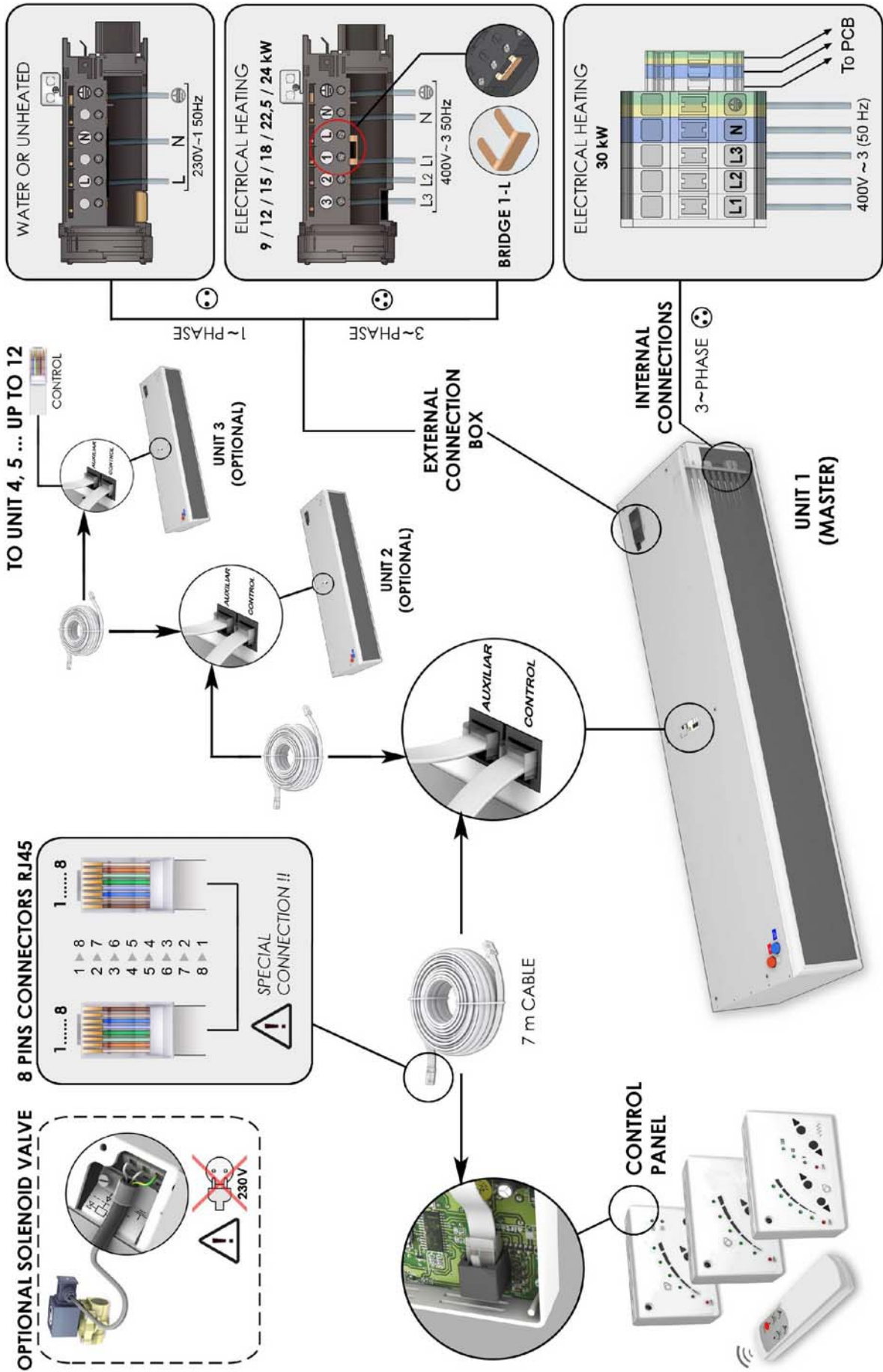
***Important information***

# Index

## WINDBOX SMG

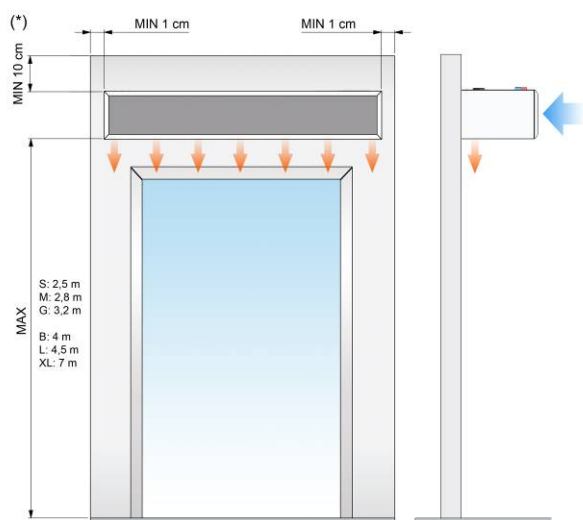
Connection diagram	3
Installation	4
Storage and transport	6
Working instructions	6
Datasheet	10
Wiring diagrams	15
Maintenance instructions	24
Repairs and replacements	25
Failures and solutions	31
Accessories	32
Declaration of conformity	33
Guarantee	34

# CONNECTIONS DIAGRAM

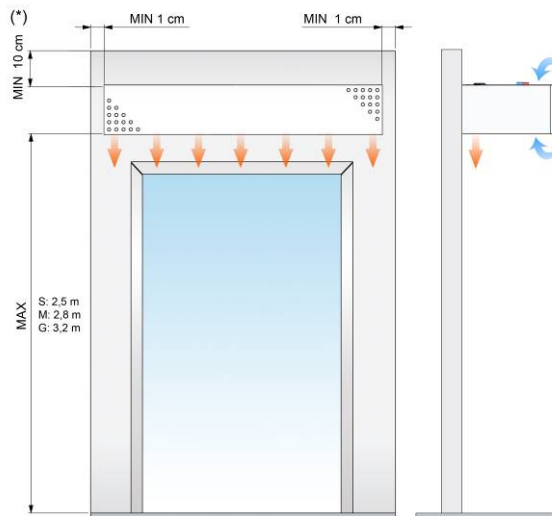


# INSTALLATION

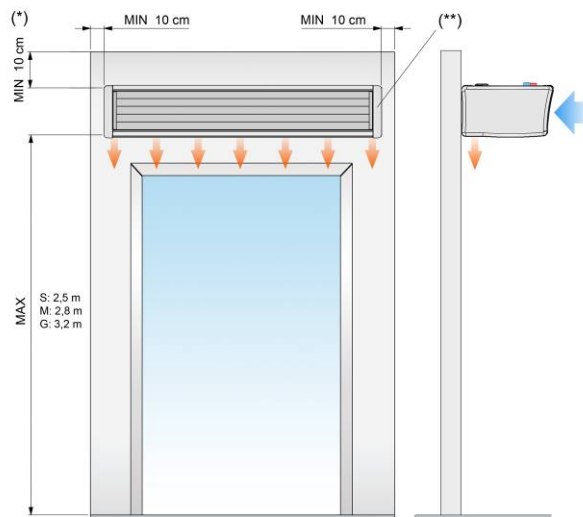
Valid for models: **Windbox, Compact, Kool, WEC**



**Dam**



**Deco**



(\*) Standard units. Under request this distance can be reduced to 1cm when connections are placed inside and water pipes lateral

(\*\*) Deco: Removable covers

Minimum recommended distance between the inlet grille and any obstacle is of 200 mm

	<p><b>Installation work, connection, disconnection, electrical wiring, mechanical maintenance and service must be done by qualified persons observing these instructions and in accordance with all applicable norms and standards. If the unit is operated with additional controller, please consider its specific instructions.</b></p>
	<p><b>There is no need to open the service door to connect the air curtain. All connections (power supply, control, water pipes when existing) and fixations are external. They are placed on top or lateral of the units. See how to open service door at repairs section.</b></p>
	<p><b>For safety, the air curtains never have to be stopped by disconnecting from the main supply, always through the controller and wait for 10 minutes at least to disconnect the main supply. In case we do not follow these instructions, the internal parts of the air curtain can be damaged.</b></p>

## **Power Supply**

To connect the power supply there is a black connection box outside the air curtain (on top or lateral). There is no need to open the unit to connect it.

For an ambient air or water heated air curtain, just connect the single phase 230Vx1.

In case of an air curtain with electrical heating we will also connect the three phase 400Vx3 of the electrical element. Optionally under request the current of the electric battery can be three phase 230Vx3 or single phase 230Vx1 depending on model (special wiring diagram will be enclosed).

## **PCBoard and control**

To connect the controller there is a PCBoard (printed circuit) located outside the air curtain (on top or lateral). There is no need to open the unit to connect it.

Use the telephone cable of 7 meters (RJ45 connectors) supplied with the equipment. The communication between the connector plate and the controller is digital through low-voltage.

Water heated air curtains also have an output of 230Vx1 to connect optionally an electro-valve (open or closes the entrance of water to the equipment) or any other device.

Optionally, there are available different accessories and controllers, to meet every customer's needs (week timer, thermostats, door contacts, anti-freezing sensor, supports, valves, etc....).

## **Fixing**

Units are provided with several external suspension points, depending on the weight and length (see exact situation of the points at the air curtains characteristics page).

Generally air curtains work horizontally but can be also installed vertically using feet (accessories section). Deco has adjustable fixing points through guide rails.

The anchor should be managed according to the weights of each unit shown on the technical data page. The installation can be made through threaded rods, tensors or other supports. See available supports in the accessories section.

## **Water coils**

Water heated air curtains have a PCBoard with an output of 230Vx1 to install an electro valve (open/close water entrance) or any other device.

It is recommended:

- Close the warm water circulation (by closing the electro valve) to avoid motor overheating while the unit is OFF. The electro valve is optional.
- Install 2 shut-off water valves (supply and return) in order to dismantle the equipment easily.
- Install a bleeding point at the highest part of the heating water circuit.

The ambient temperature should be always over +4°C, otherwise it will be necessary to provide an anti-frost protection device.

Water coils have a draining point placed at the end part of the intake manifold.

Some special units with condensation tray prepared to work with cold water can't work at high ventilation speed (depending on model and length). Suction air with higher speed of 3m/s should be avoided because water drops can appear on the outlet.

## **Electrical elements**

The electrical element has 9 resistances in bar form that combined among them, give us 3 heating stages. The control is made by 2 contactors of 3 and 6 bars respectively.

All electrical elements are protected electrically and electronically against overheating (see "operating instructions" section).

The electric controllers have the option to install an external thermostat that turns on/off the heating in order to control the temperature.

During the first uses scent can be emitted but it disappears in a few days.

## STORAGE AND TRANSPORT



**¡Attention! Heavy load.**

**Do not step under hanging load during the transport or assembly.**

Store in dry place and weather protected in its original packing. In case the packing is open, cover the air curtain to protect it from dust. Do not step or put heavy loads over the package to avoid damages to the material. Store temperatures are between -20°C and +40°C.

When carrying material, make sure it is not damaged by the forklift (fork penetration in the packaging). Please see the packaging instructions.

## WORKING INSTRUCTIONS



**For safety, the air curtains never have to be stopped by disconnecting from the main supply, always through the controller and wait for 10 minutes at least to disconnect the main supply. In case we do not follow these instructions, the internal parts of the air curtain can be damaged.**

### Control PCBoard characteristics

It adjusts the fan speed through the input voltage variation of the set of fans. The transformer has 5 output voltages: 120, 140, 170, 200 and 230 Volts.

### Controller's common characteristics

- **Controllers:** There are several models depending on the customer's needs (timers, anti-freezing detectors, thermostats, etc...).
- **5 ventilation speeds**
- **Memory:** It guarantees that in the event of a power shortage, the selected speed will be maintained when the service is re-established. This function can be connected-disconnected through the switch ON/OFF placed inside the controller.
- **Telephone cable and digital communication:** "Plug and Play" easy and fast connection through telephone cable and digital communication between the controller and the air curtain. This kind of communication is more reliable even at long distances.
- **External ON/OFF:** Inside the controller we can connect a normally open contact (1, 2) that controls the ON/OFF of the equipment through any external device. The contact is potential-free. When the contact is Open, the air curtain is ON. When closed contact, air curtain is OFF( Before stopping it has a 30 seconds delay, only when turning off not when turning on). It can be used with programmable timer, temperature sensors, fire alarms, PLC, etc...
- **Remote control:** All the standard controllers have a IR receiver that works by infrared.

### Common characteristics to all controllers for water heated air curtains

**Safety thermostat** thanks to this safety device, the air curtain can auto-regulate its own speed in case of too low air suction due to a wrong function. For example, an obstruction of the inlet grille, a stationary fan or a too high ambient temperature in an installation without ambient thermostat would make the air curtain react increasing the fan speed automatically.

The air curtain returns automatically to the programmed speed when the internal temperature decreases of 45°C, so in the most part of cases on which this safety is exceptionally activated, the air curtain will come back to its own habitual function as soon as the problem is solved.



Warm water air curtain controller



Air only air curtain controller

Water heated air curtain auxiliary function:

- **Electro-valve:** With the “summer-winter” switch it is possible to activate/deactivate the current of 230Vx1 to the electrovalve to open/close the water entrance to the coil. This 230Vx1 output connector is placed on top of the equipment, besides the telephone cable connection of the controller.

**Common characteristics to all controllers for electrical heated air curtains**

Equipments of five ventilation speeds and three different heating powers (C1, C2, C3= [C1 + C2]).



- **Heating:** For safety reasons, the heat power capacity is limited depending on the fan speed selected, as shown:

Selected speed	Max.heating capacity
V1	Stage 1
V2	Stage 2
V3	Stage 2
V4	Stage 3 (stage 1 + stage 2).
V5	Stage 3 (stage 1 + stage 2).

- **Thermostat of delay:** When we stop the equipment and before it has been operating with heating, there is an increasing of the internal temperature due to a thermal inertia (by thermal inertia the heater is still heating for several minutes and it could make some damages). In order to avoid it, when we stop de air curtain the temperature increases over 50°C., the air curtain turns on to the maximum speed. It won't stop till the temperature decreases below the set temperature.
- **Safety thermostat:** When the air curtain operates with heating and the internal temperature increases over 60°C, a safety function activates: the air curtain increases one speed every two minutes till it reaches the maximum speed. After, it will start decreasing 1 heating stage till it stops. In case after 2 minutes the situation persists, the heating will block. To unblock it, we must manually reset by disconnecting from the main supply. If in any moment the temperature decreases (below the set temperature) this process is interrupted and everything goes back to the normal situation.

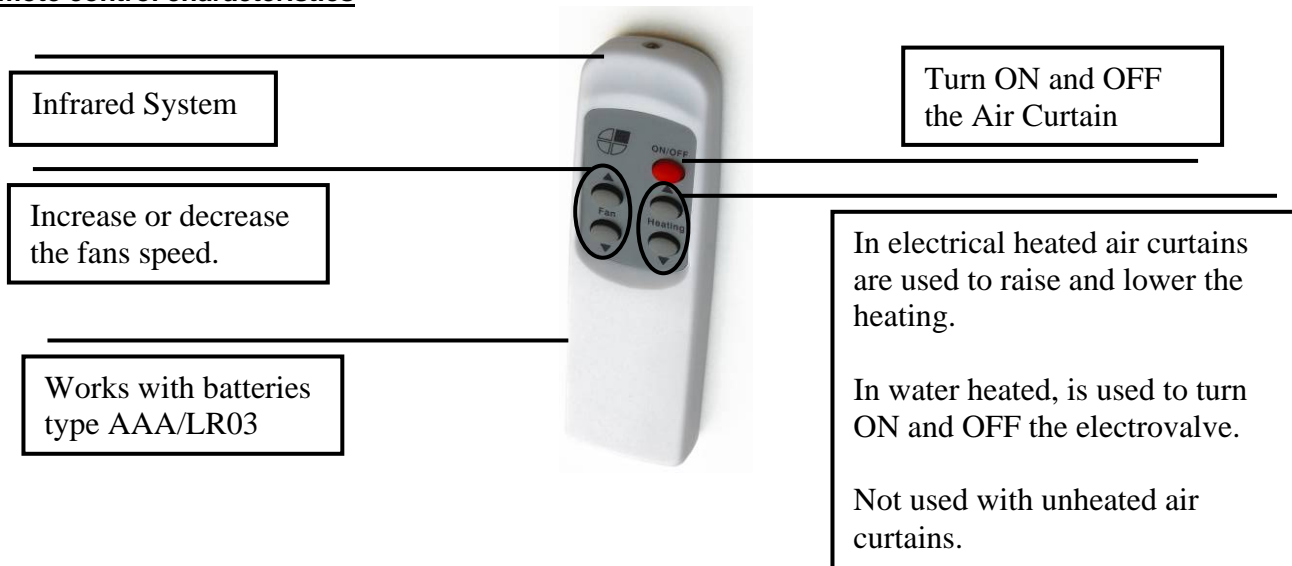
A delay in the cleansing of the inlet grille or a high ambient temperature could temporally activate this function.

The air speed and the heating stage are indicated by a continuous lighted led, while the safety function is indicated by a flashing led. The blockage of the heating is indicated with the led Off of the heating flashing at a higher speed.

Controllers auxiliary function:

- **Room Thermostat:** The curtain is equipped with contacts to install, if desired, a room thermostat that stops the heating temporarily when reaching the programmed temperature. Its installation is specially recommended for equipments installed in closed or small dimensions premises. In case of installing a room thermostat remove the bridge between terminal 4 and 5, on the controller.

### Remote control characteristics



### Controller CH manual /automatic for warm water heated air curtains (Hand Auto)

It permits the **manual or automatic control** of the air curtain. Moreover, together with the standard warm water heated controllers functions, it includes the functions of door contact, anti-freeze sensor and room thermostat.

Type of operating:

- **Manual:** Manual selection of the fans speed (indicated with a green led).  
In case of installing an anti-freeze thermostat, if the temperature decreases below the one selected, the ventilation will stop and will feed 230Vx1 the electro valve to allow the entrance of warm water.
- **Automatic:** It works automatically depending on:
  - **Door contact:** It allows programming the fan speed for open door. We can program the desired speed through the buttons (indicated by orange led). When the programmed speed is the same than the working one, the led will change into green. Through the internal switches we can modify the time of delay (time since the door is closed till it goes back to the normal operating).
  - **Room thermostat (optional):** It controls the air curtain operating depending on the selected temperature and the Switch n° 1 (switch placed inside the controller).
    - Switch n° 1 – Control of the air curtain depending on the thermostat:
      - **ON:** The power increases or decreases depending on the thermostat. While the selected temperature is not reached, it will increase 1 ventilation speed every minute, till it reaches the maximum speed. When this happens or when the temperature is over the selected one, it will decrease one ventilation speed every minute till the ventilation stops and the electro valve closes.
      - **OFF:** It connects or disconnects the minimum fan speed depending on the thermostat. The air curtain works at speed 1 while the selected temperature is not reached. When this reached or exceeded, the ventilation stops and the electro valve closes. If the thermostat is not installed, switches 1 and 3 should be placed in OFF position (default position).



If in any moment the door contact closes, the air curtain goes to the selected speed. If the door contact opens, it will come back to the automatic operating after a delay time. The delay time is selectable through switches 5 and 6.



CH functions (Hand-Auto):

- **Anti-frost thermostat:** When the temperature decreases below the selected in the anti-freezing sensor, the fans stop and the electro valve opens (the frost alarm is indicated by a lighted red led and the electro valve by a green led). This is to protect the water coil against freezing and it works even with the air curtain stopped.  
In case of no installation of the anti-frost thermostat, place Switch 4 in ON position.
- **Door contact:** Only in automatic functioning. When the door opens, the air curtain changes automatically the fan speed to the programmed one (indicated by a lighted orange led). Other type of detectors can be used (movement sensors, infrared, etc...).
- **Room thermostat:** Modifies the ventilation speed (and at the same time the heating power) depending on the programmed speed and the switch n° 1. For detailed explanation see the section of automatic operating.

### Programmable switches (controller CH):

A block of seven micro switches placed inside the controller, allows the customer to programme the functions of the air curtain as follows:

- **Switch 1:** Air curtain control depending on the room thermostat. Detailed explanation in the automatic operating section.
- **Switch 2:** Door contact inverter. Position OFF-NO (normally open), position ON-NC (normally closed).
- **Switch 3:** Room thermostat inverter. Position OFF-NO, position ON-NC.
- **Switch 4:** Anti-frost thermostat inverter. Position OFF-NC, position ON-NO.
- **Switches 5 and 6:** The combination of these two switches allows the customer to set the delay time to go back to the normal function after the door is closed.

Switch 5	Switch 6	
Off	Off	10 Sec.
On	Off	40 Sec.
Off	On	80 Sec.
On	On	120 Sec.

- **Switch 7:** It permits to choose between memory ON/OFF.





Characteristics



- Self-supporting casing construction made of galvanised plated steel, finished in structural epoxy-polyester RAL 9016 as standard. Other colours or stainless steel construction are available on request.
- Double-inlet centrifugal fans driven by an external rotor motor with built-in thermal protection contact. Provided with 5-speed selection. Very low noise level.
- Micro-perforated inlet grille with filter functions and easy service. It does not need prefilter.
- “P” type includes water heated coil. “E” type includes electrical shielded element, 3 power stages with power switches included. “A” type is without heating, air only.
- Anodised aluminium outlet vanes, airfoil shaped, adjustable from 0 to 15° each side.
- Control panel and infrared remote control IR included. 7m of telephone cable with fast connectors type RJ45 (Plug & Play). Optional: Interface to connect to BMS.

Specifications

Model	Airflow m3/h	Heating capacity 80/60°C		Water Drop Pressure 80/60°C		Heating Capacity 60/40°C		Water Drop Pressure 60/40°C		Heating Capacity 50/40°C		Electrical Heating Capacity 400Vx3-50Hz kW	Power Fans 230V-50Hz kW	Current Fans 230V-50Hz A	Noise Level (5 m) dB(A)	Weight kg
		kW	Pa	kW	Pa	kW	Pa	kW	Pa							
S 1000 P	1250	8,53	560	6,85	2780	6,66	770	-	0,372	1,68	53	39				
S 1000 E	1300	-	-	-	-	-	-	3/6/9	0,372	1,68	53	41				
S 1000 A	1300	-	-	-	-	-	-	-	0,372	1,68	53	34				
S 1500 P	1875	12,92	500	10,80	4250	11,01	2970	-	0,558	2,52	54	58				
S 1500 E	1950	-	-	-	-	-	-	4/8/12	0,558	2,52	54	62				
S 1500 A	1950	-	-	-	-	-	-	-	0,558	2,52	54	50				
S 2000 P	2500	18,11	1270	14,46	3110	14,42	1350	-	0,744	3,36	55	73				
S 2000 E	2600	-	-	-	-	-	-	6/12/18	0,744	3,36	55	80				
S 2000 A	2600	-	-	-	-	-	-	-	0,744	3,36	55	62				
S 2500 P	3125	23,13	2530	18,10	2600	18,67	2690	-	0,930	4,20	56	79				
S 2500 E	3250	-	-	-	-	-	-	6/12/18	0,930	4,20	56	86				
S 2500 A	3250	-	-	-	-	-	-	-	0,930	4,20	56	66				
S 3000 P	3750	28,39	4440	21,47	3910	22,79	3830	-	1,116	5,04	57	91				
S 3000 E	3900	-	-	-	-	-	-	8/16/24	1,116	5,04	57	99				
S 3000 A	3900	-	-	-	-	-	-	-	1,116	5,04	57	76				
M 1000 P	1800	10,27	850	8,72	4250	8,63	1260	-	0,510	2,22	54	39				
M 1000 E	1850	-	-	-	-	-	-	3/6/9	0,510	2,22	54	41				
M 1000 A	1850	-	-	-	-	-	-	-	0,510	2,22	54	34				
M 1500 P	2700	16,98	750	13,86	6690	14,29	4740	-	0,765	3,33	55	58				
M 1500 E	2775	-	-	-	-	-	-	4/8/12	0,765	3,33	55	62				
M 1500 A	2775	-	-	-	-	-	-	-	0,765	3,33	55	50				
M 2000 P	3600	23,60	1950	18,58	4870	18,77	2160	-	1,020	4,44	56	73				
M 2000 E	3700	-	-	-	-	-	-	6/12/18	1,020	4,44	56	80				
M 2000 A	3700	-	-	-	-	-	-	-	1,020	4,44	56	62				
M 2500 P	4500	29,16	3860	23,18	4030	24,30	4320	-	1,275	5,55	57	79				
M 2500 E	4625	-	-	-	-	-	-	6/12/18	1,275	5,55	57	86				
M 2500 A	4625	-	-	-	-	-	-	-	1,275	5,55	57	66				
M 3000 P	5400	35,78	6790	28,65	7150	29,68	6180	-	1,530	6,66	58	91				
M 3000 E	5550	-	-	-	-	-	-	8/16/24	1,530	6,66	58	99				
M 3000 A	5550	-	-	-	-	-	-	-	1,530	6,66	58	76				
G 1000 P	2700	13,10	1300	11,31	6830	11,29	2020	-	0,765	3,33	55	44				
G 1000 E	2775	-	-	-	-	-	-	5/10/15	0,765	3,33	55	46				
G 1000 A	2775	-	-	-	-	-	-	-	0,765	3,33	55	38				
G 1500 P	3600	20,30	1050	16,72	9410	17,39	6770	-	1,020	4,44	56	64				
G 1500 E	3700	-	-	-	-	-	-	7,5/15/22,5	1,020	4,44	56	68				
G 1500 A	3700	-	-	-	-	-	-	-	1,020	4,44	56	55				

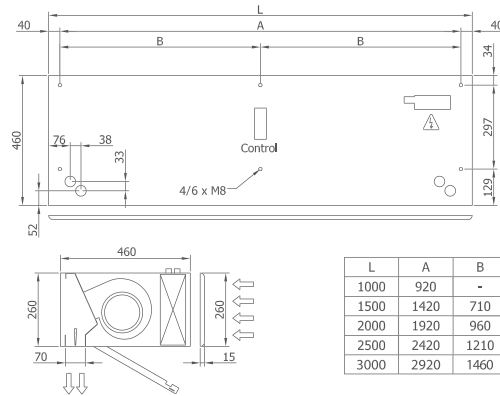
Water heated pipes connections P86 and P64 are 2x3/4", water coil P54 2x1"



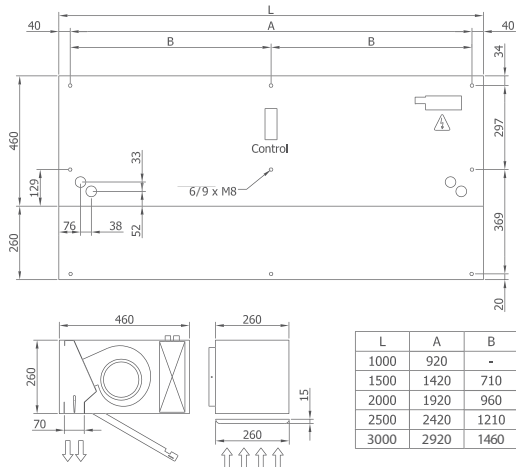
Model	Airflow m <sup>3</sup> /h	Heating capacity 80/60°C kW	Water Drop Pressure 80/60°C Pa	Heating Capacity 60/40°C kW	Water Drop Pressure 60/40°C Pa	Heating Capacity 50/40°C kW	Water Drop Pressure 50/40°C Pa	Electrical Heating Capacity 400Vx3-50Hz kW	Power Fans 230V-50Hz kW	Current Fans 230V-50Hz A	Noise Level (5 m) dB(A)	Weight kg
G 2000 P	5400	30,40	3320	24,18	7860	24,71	3540	-	1,530	6,66	57	83
G 2000 E	5550	-	-	-	-	-	-	10/20/30	1,530	6,66	57	90
G 2000 A	5550	-	-	-	-	-	-	-	1,530	6,66	57	72
G 2500 P	6300	36,00	5680	28,90	6000	30,58	6520	-	1,785	7,77	58	87
G 2500 E	6475	-	-	-	-	-	-	10/20/30	1,785	7,77	58	96
G 2500 A	6475	-	-	-	-	-	-	-	1,785	7,77	58	76
G 3000 P	7200	42,91	9530	34,62	10070	36,20	8850	-	2,040	8,88	59	99
G 3000 E	7400	-	-	-	-	-	-	10/20/30	2,040	8,88	59	109
G 3000 A	7400	-	-	-	-	-	-	-	2,040	8,88	59	86

Water heated pipes connections P86 and P64 are 2x3/4", water coil P54 2x1"

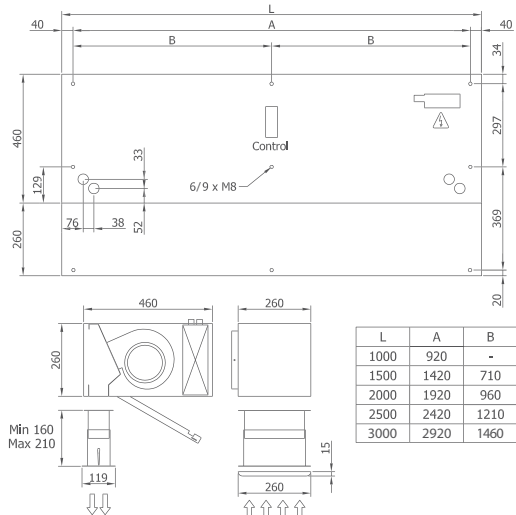
## Layouts and dimensions



Free hanging mounting



Inside ceiling surface mounting


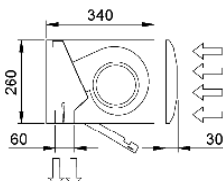
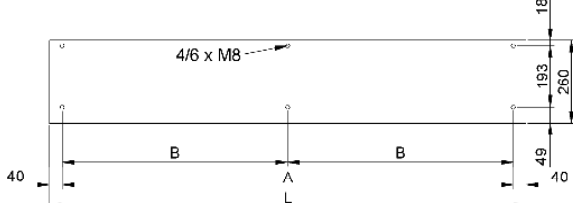


False ceiling invisible mounting

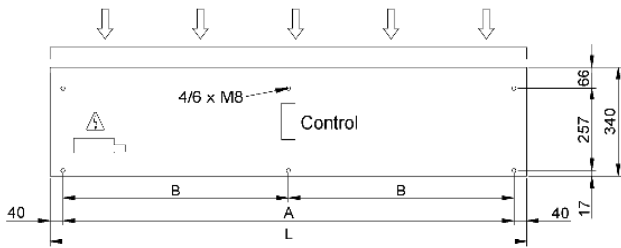
The technical characteristics are the same than Windbox models with the exception of the measures and weight:

- Kool KS 1000 A model is equivalent to 1000 A model
- Deco DS 1000 P86 model is equivalent to S 1000 P86 model
- Dam S 1000 P86 model is equivalent to S 1000 P86 model


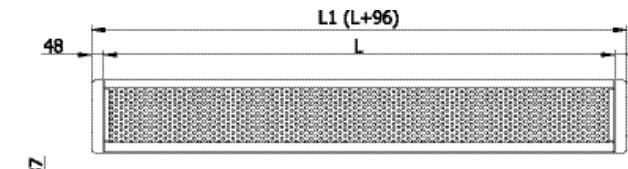
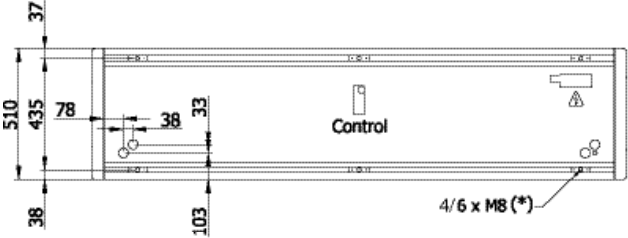
## KOOL | High Velocity Air Curtains For Co's Stores And Freezers

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


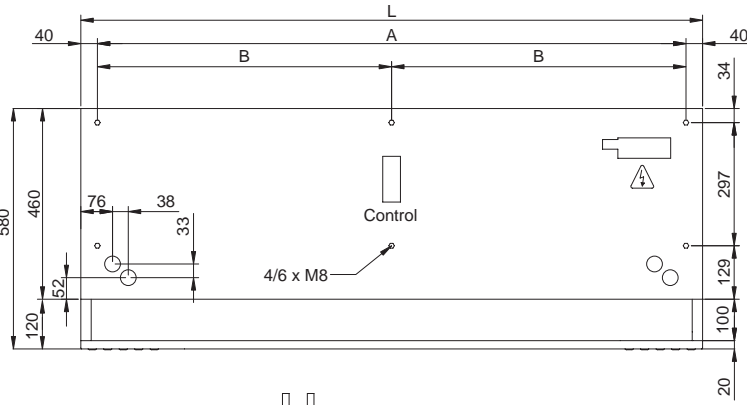
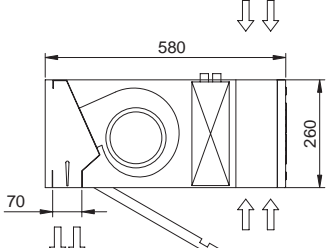


## DECO | Decorative Air Curtains For Commercial Doors

	L	L1
Deco 1000	1000	1096
Deco 1500	1500	1596
Deco 2000	2000	2096
Deco 2500	2500	2596

## DAM | High Pressure Air Curtains For Commercial And Industrial Doors

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



Characteristics

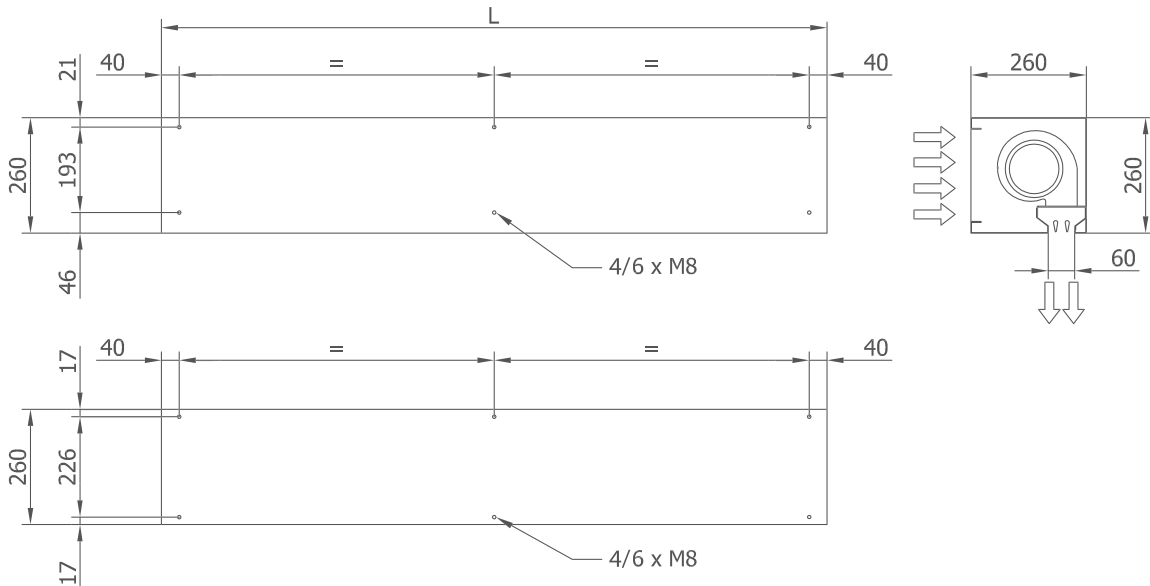


- High pressure and small dimensions air curtains.
- Self-supporting casing construction made of galvanised plated steel, finished in structural epoxy-polyester RAL 9016 as standard. Other colours or stainless steel construction are available on request.
- Double-inlet centrifugal fans driven by an external rotor motor with built-in thermal protection contact. Provided with 5-speed selection. Very low noise level.
- Perforated inlet grille of big surface to reduce the energy loss at minimum. It does not need maintenance.
- All models are without heating, air only.
- Anodised aluminium outlet vanes, airfoil shaped, adjustable from 0 to 15° each side.
- Control panel and infrared remote control IR included. 7m of telephone cable with fast connectors type RJ45 (Plug & Play), included. Optional: Interface to connect to BMS.

Specifications

Model	Airflow m3/h	Without heating Air only	Fans power 230V-50Hz kW	Fans current 230V-50Hz A	Noise level (5 m) dB(A)	Weight kg
COM 1000	1860	-	0,62	3,30	52	21
COM 1500	2480	-	0,83	4,40	53	32
COM 2000	3720	-	1,24	6,60	54	43
COM 2500	4340	-	1,45	7,70	55	55

Dimensions



	L
COM 1000	1000
COM 1500	1500
COM 2000	2000
COM 2500	2500



## Characteristics



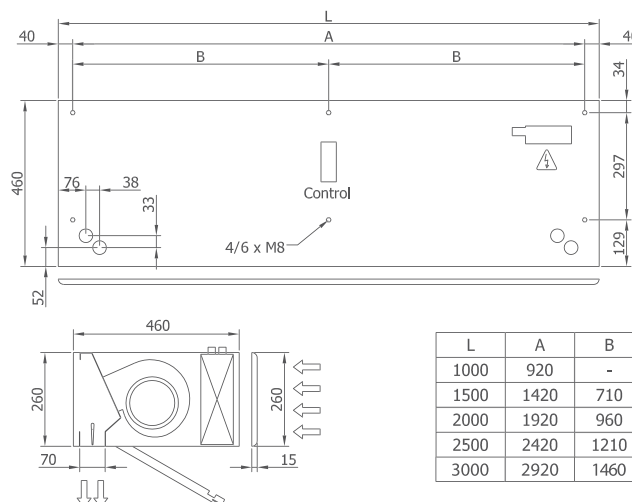
- Assembled with low consumption EC fans that save up to 67% of the energy without decreasing the airflow.
- Self-supporting casing construction made of galvanised plated steel, finished in structural epoxy-polyester RAL 9016 as standard. Other colours or stainless steel construction are available on request.
- Double-inlet centrifugal fans driven by an external rotor EC motor with built-in thermal protection contact. Provided with 5-speed selection. Very low noise level.
- Micro-perforated inlet grille with filter functions and easy service. It does not need prefilter.
- "P" type includes water heated coil. "E" type includes electrical shielded element, 3 power stages with power switches included. "A" type is without heating, air only.
- Anodised aluminium outlet vanes, airfoil shaped, adjustable from 0 to 15° each side.
- Control panel and infrared remote control IR included. 7m of telephone cable with fast connectors type RJ45 (Plug & Play). Optional: Interface to connect to BMS.

## Specifications

Model	Airflow m <sup>3</sup> /h	Heating Capacity 80/60°C kW	Water Drop Pressure 80/60°C Pa	Heating Capacity 60/40°C kW	Water Drop Pressure 60/40°C Pa	Heating Capacity 50/40°C kW	Water Drop Pressure 50/40°C Pa	Electrical Heating Capacity 400Vx3-50Hz kW	Fans Power 230V-50Hz kW	Fans Current 230V-50Hz A	Noise Level (5 m) dB(A)	Weight kg
WEC 1000 A	2700	-	-	-	-	-	-	-	0,252	1,71	55	38
WEC 1000 P	2610	12,85	1260	11,05	6530	11,13	2020	-	0,252	1,71	55	44
WEC 1000 E	2700	-	-	-	-	-	-	3/6/9	0,252	1,71	55	46
WEC 1500 A	3600	-	-	-	-	-	-	-	0,336	2,28	56	55
WEC 1500 P	3480	18,71	1010	16,35	9010	17,07	6690	-	0,336	2,28	56	64
WEC 1500 E	3600	-	-	-	-	-	-	4/8/12	0,336	2,28	56	68
WEC 2000 A	5400	-	-	-	-	-	-	-	0,504	3,42	57	72
WEC 2000 P	5220	28,52	2950	23,64	7520	24,18	3400	-	0,504	3,42	57	83
WEC 2000 E	5400	-	-	-	-	-	-	6/12/18	0,504	3,42	57	90
WEC 2500 A	6300	-	-	-	-	-	-	-	0,588	3,99	58	76
WEC 2500 P	6090	35,32	5500	28,35	5810	29,92	6300	-	0,588	3,99	58	87
WEC 2500 E	6300	-	-	-	-	-	-	6/12/18	0,588	3,99	58	96
WEC 3000 A	7200	-	-	-	-	-	-	-	0,672	4,56	59	86
WEC 3000 P	6960	42,06	9170	33,95	9740	35,45	8620	-	0,672	4,56	59	97
WEC 3000 E	7200	-	-	-	-	-	-	8/16/24	0,672	4,56	59	106

Water heated pipes connections P86 and P64 are 2x3/4", water coil P54 2x1"

## Dimensions



### Wiring diagrams

Following connection diagrams are enclosed:

For the following models: Windbox (S,M,G), Kool (KS,KM,KG), Deco (DS, DM, DG), Dam (S,M,G) and Compact

- Warm water heated or only air with standard controller. Diagram: AIRDOM09053
- Warm water heated with HC controller (Hand Auto, D805). Diagram: AIRDOM09253
- Electrical air curtain 30 kW with standard controller. Diagram: AIRDOM09103
- Electrical air curtain <27 kW Prbeo with standard controller. Diagram: AIRDOM09111

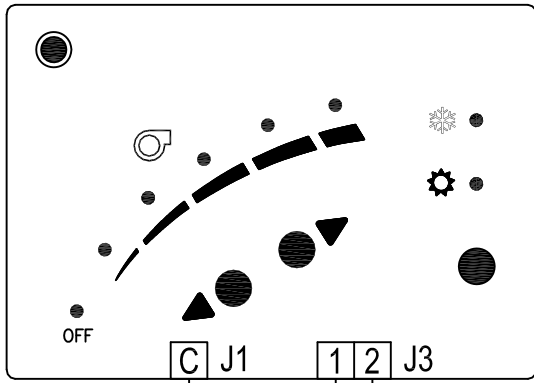
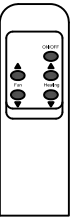
For the models Wec:

- Warm water heated or only with standard controller of 5 velocities. Diagram: AIRDOE09122
- Warm water heated with HC controller (Hand Auto, D805). Diagram: AIRDOE09142
- Electrical air curtain 30 kW with standard controller. Diagram: AIRDOE09132
- Electrical air curtain <27 kW Prbeo with standard controller. Diagram: AIRDOM09111

In case you need to connect the equipment to a PLC, the corresponding connections diagrams will be supplied.

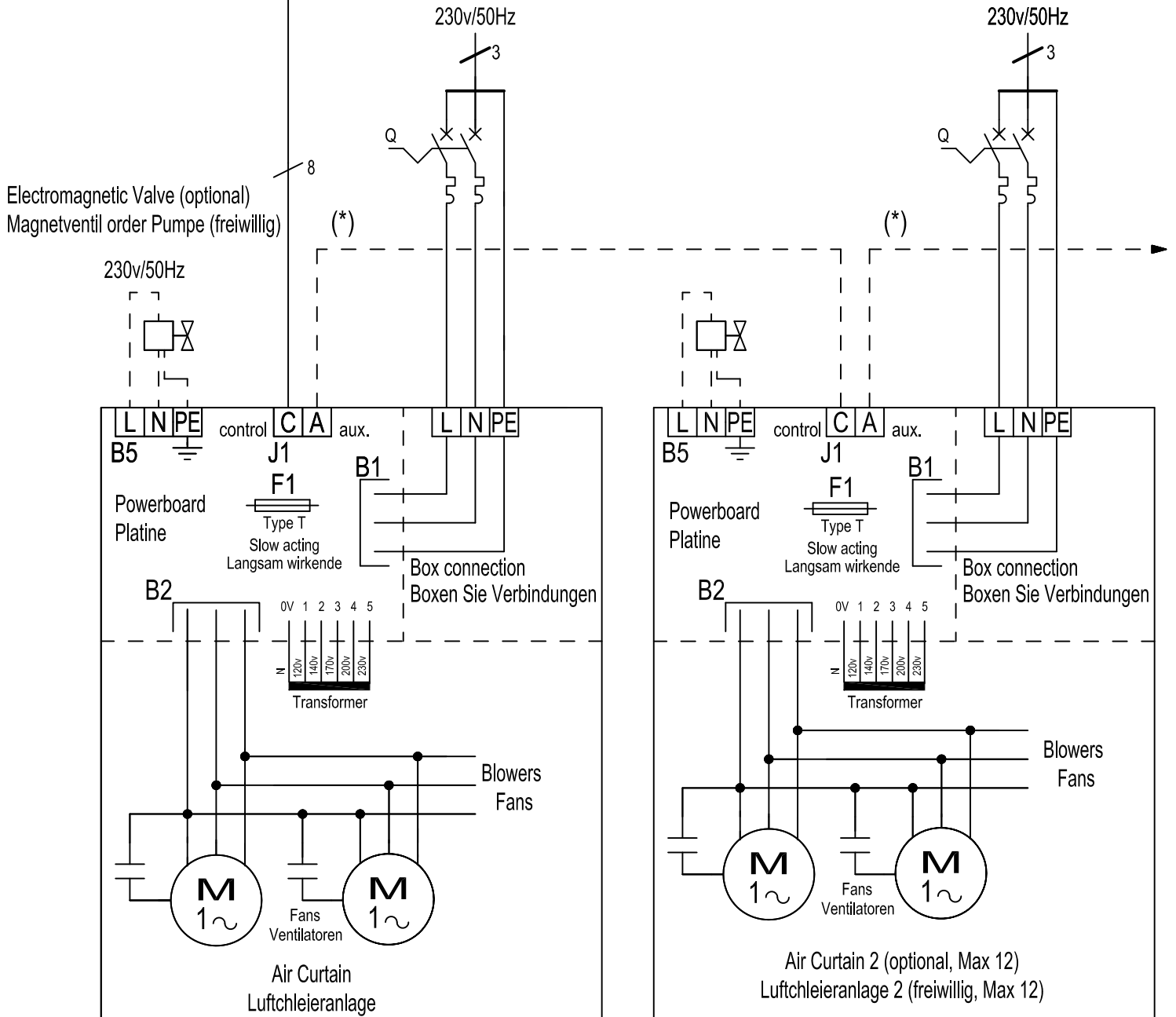
5 Speeds remote Control  
5 Stufig standardregler

Remote control  
Fernsteuerung



ON/OFF Extern (optional) 30 Seconds Delay  
Extern Ein-Aus (freiwillig) 30 Sekunden Verzögerung

Q = Circuit breaker  
Q = Stromschutzschalter



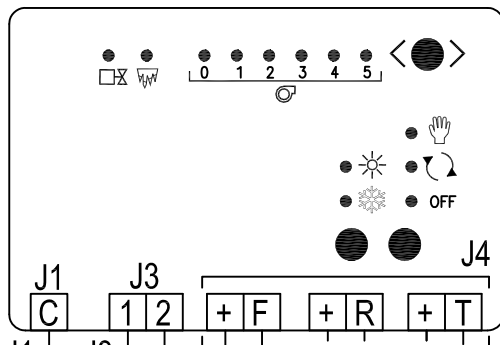
(\*) Air Curtain 2 (optional, Max 12)  
Luftchleieranlage 2 (freiwillig, Max 12)

Control 5v Aigua SMG, BL 1500 / XL 1000 - Ang/Ale

WIRING DIAGRAMS OF AIR CURTAIN  
Schaltpläne Der Luftschleieranlagen  
WATER AND ONLY AIR, CONTROLLER 5 SPEEDS  
Wasser Und Umluft, 5 Stufig

Page/Seite 1 of/von 1  
Doc. AIRDOE09053  
R10 - 16/01/15

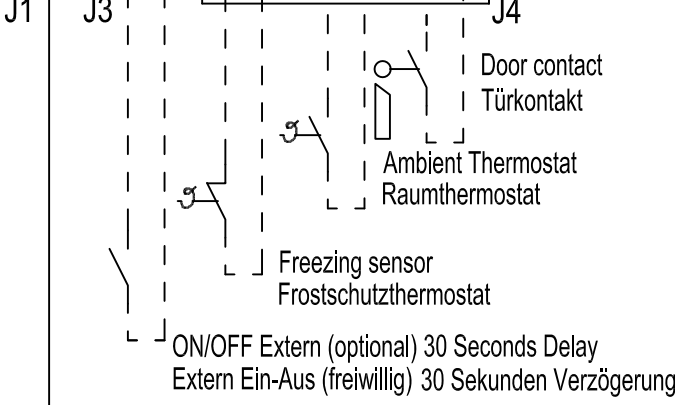




Remote control  
Fernsteuerung

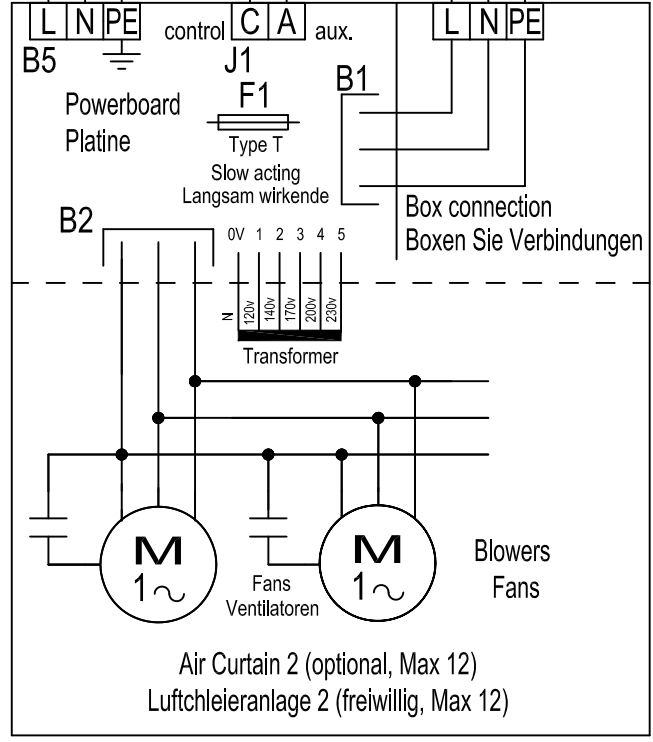
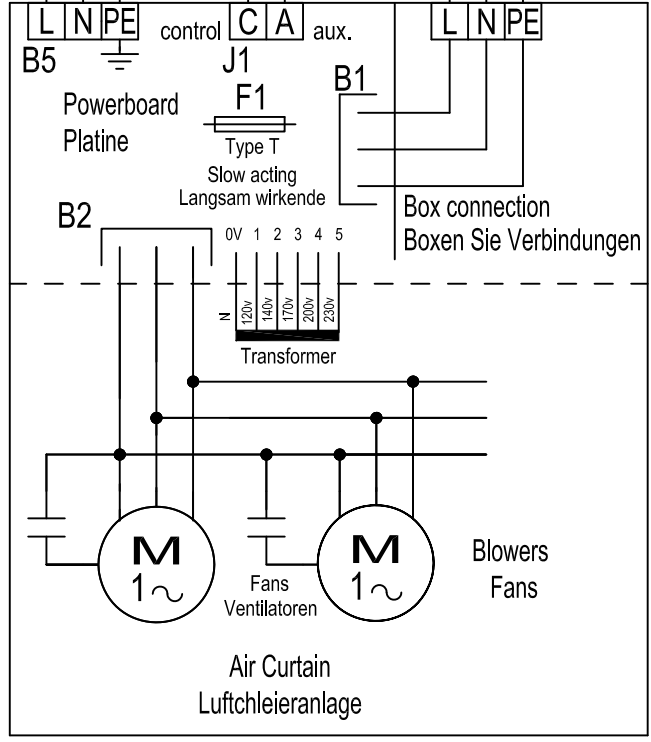
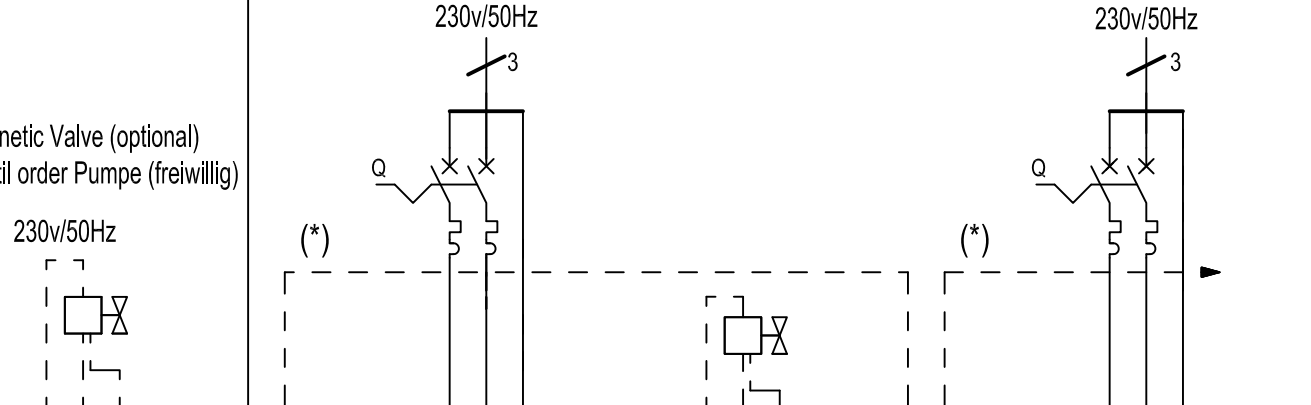


Hand-Auto  
5 Speeds remote Control  
5 Stufig standardregler



Q = Circuit breaker  
Q = Stromschuttschalter

Electromagnetic Valve (optional)  
Magnetventil oder Pumpe (freiwillig)



(\*) Air Curtain 2 (optional, Max 12)  
Luftchleieranlage 2 (freiwillig, Max 12)

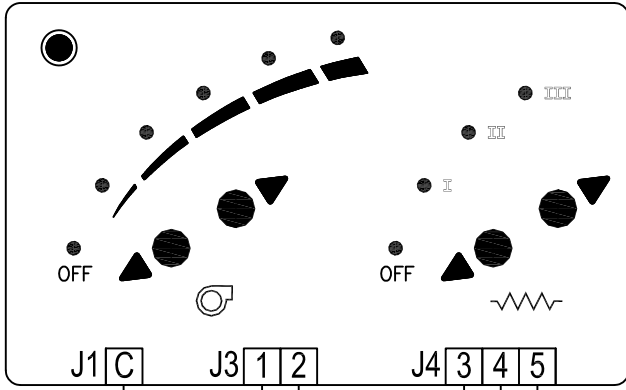
Control 5v Hand Auto (D805) Aigua - Ang/Ale

WIRING DIAGRAMS OF AIR CURTAIN  
Schaltpläne Der Luftschleieranlagen

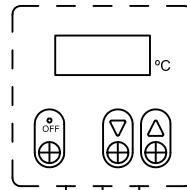
CONTROLLER HAND AUTO (D805) 5 SPEEDS, WATER  
standardregler Hand Auto (D805) 5 Stufig, Wasser

Page/Seite 1 of/von 1  
Doc. AIRDOE09253  
R10 - 16/01/15

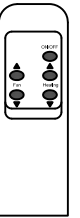
5 Speeds remote Control  
5 Stufig standardregler



Digital Thermostat (optional)  
Digitaler Thermostat (freiwillige)



Remote control  
Fernsteuerung

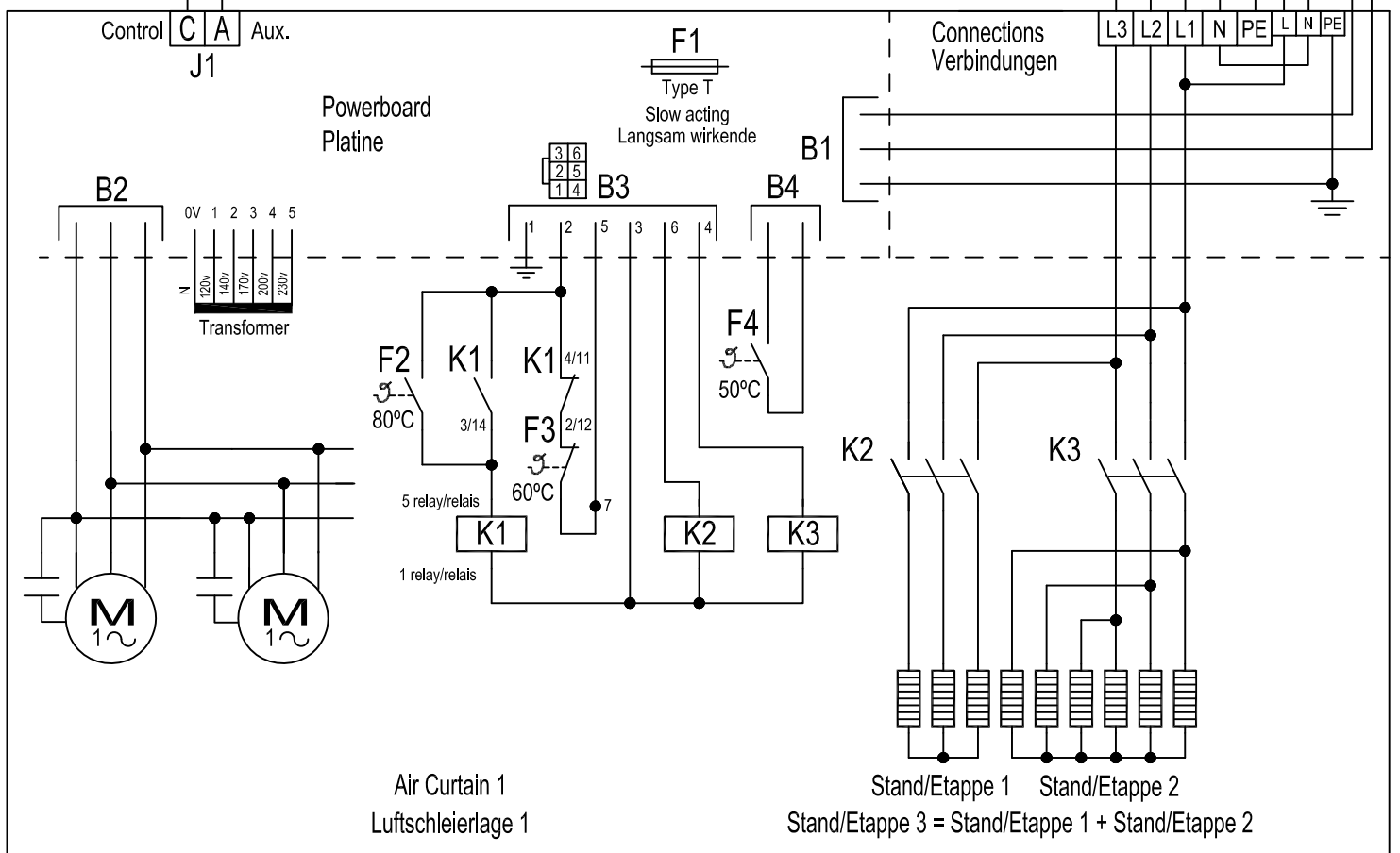
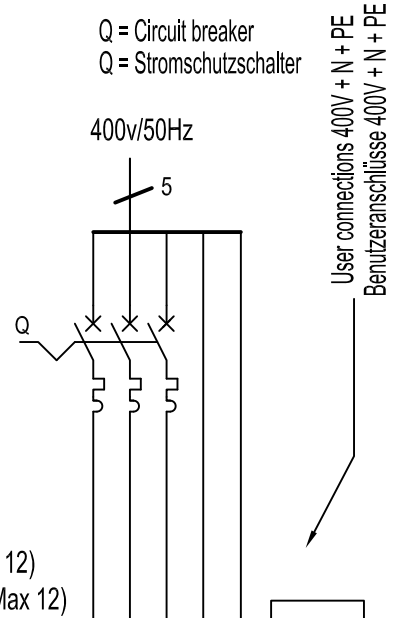


Room Thermostat (optional)  
("Free" contact) (if used, take out the jumper 4-5)  
Raumthermostat Brücke (freiwillig)  
("Frei" Kontakt) (falls verwendet, nehmen Sie die Verbindung 4-5)

External ON/OFF (optional) 30 Seconds Delay  
Extern Ein-Aus (freiwillig) 30 Sekunden Verzögerung

Air Curtain 2 (optional, Max 12)  
Luftschleieranlage 2 (freiwillig, Max 12)

400v/50Hz



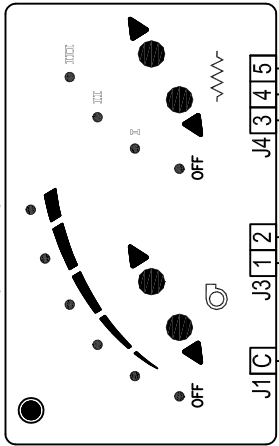
Control 5v - Windbox G Eléctrica 2000-2500-3000- 30 kW - Ang/Ale

WIRING DIAGRAMS OF AIR CURTAIN  
Schaltpläne Der Luftschleieranlagen

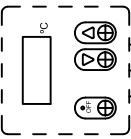
ELECTRICAL, CONTROLLER 5 SPEEDS 30 kW internal connections  
Elektrisch 5 Stufig 30 kW interne Verbindungen 30 kW interne verbindungen

Page/Seite 1 of/von 1  
Doc. AIRDOE09103  
R11 - 09/02/15

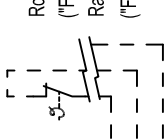
5 Speeds remote Control  
5 Stufig standardregler



Digital Thermostat (optional)  
Digitaler Thermostat (freiwillige)



Room Thermostat (optional)  
("Free" contact) (if used, take out the jumper 4-5)  
Raumthermostat Brücke (freiwillig)



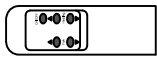
("Free" Kontakt) (falls verwendet, nehmen Sie die Verbindung 4-5)

ON/OFF Extern (optional) 30 Seconds Delay  
Extern Ein-Aus (freiwillig) 30 Sekunden Verzögerung

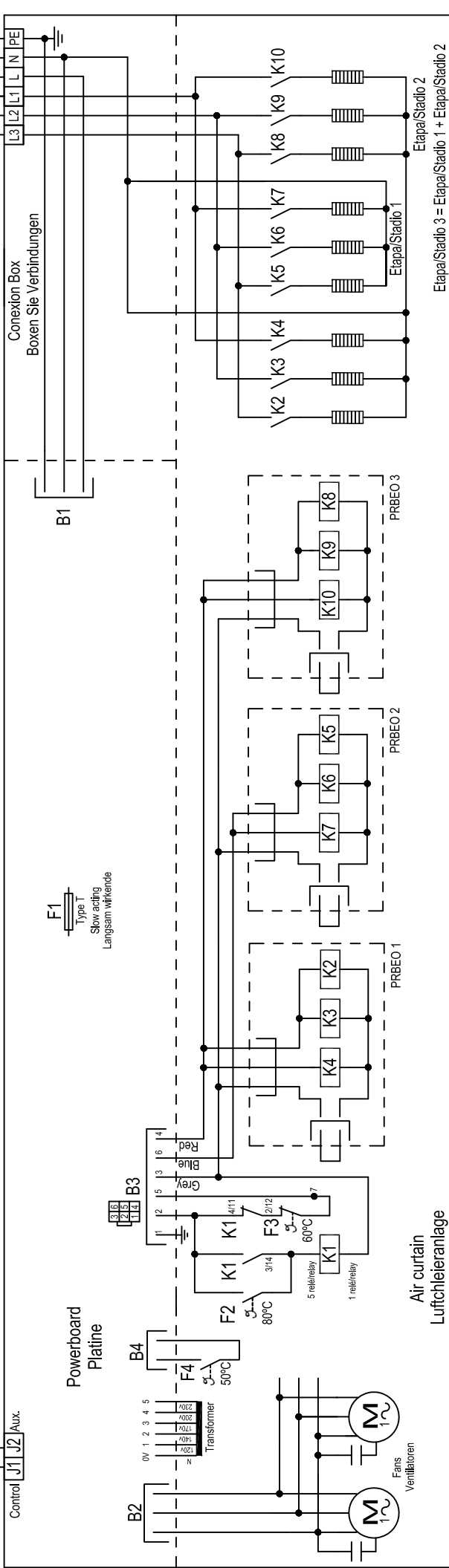
Q = Circuit breaker  
Q = Stromschutzeschalter

400V/50Hz  
User connections 400V + N + PE  
Benutzerschlüsse 400V + N + PE

Remote control  
Fernbedienung



Air curtain 2 (optional, Max 12)  
Luftchleieranlage 2 (freiwillig, Max 12)



Air curtain  
Luftchleieranlage

Etapas/Stadio 3 = Etapa/Stadio 1 + Etapa/Stadio 2

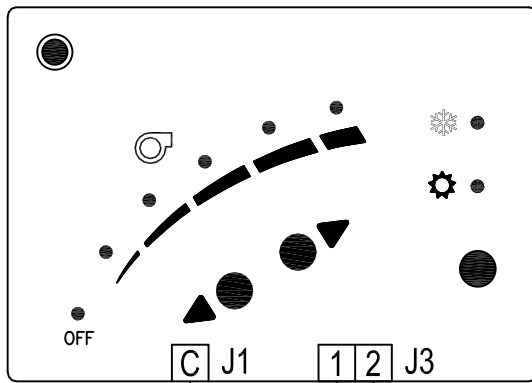
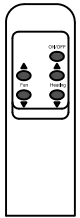
WIRING DIAGRAM OF AIR CURTAIN  
Schaltpläne Der Luftschleieranlagen  
WINDBOX SMG PRBEO <27 KW  
ELECTRICAL 400V-3, 5 SPEEDS

Reg. 5V Windbox electrica PRBEO 400Vx3 <27kW - Ang/Ale

Page./Seite 1 de/di 1  
Doc. AIRDOE09111  
R1 - 19/01/15

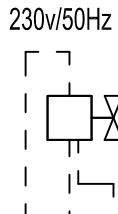
5 Speeds remote Control  
5 Stufig standardregler

Remote control  
Fernsteuerung



ON/OFF Extern (optional) 30 Seconds Delay  
Extern Ein-Aus (freiwillig) 30 Sekunden Verzögerung

Electromagnetic Valve (optional)  
Magnetventil order Pumpe (freiwillig)



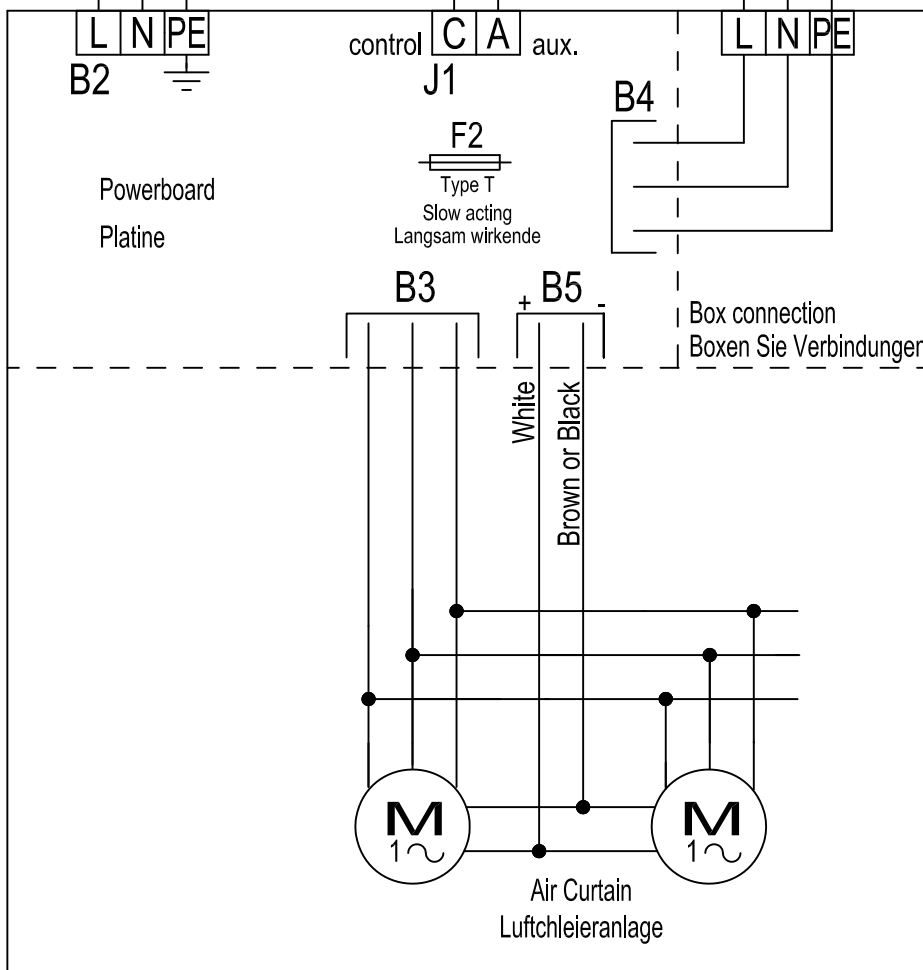
230v/50Hz

User connections 230V + N + PE  
Benutzeranschlüsse 230V + N + PE

Q = SWITCH

8

(\*)

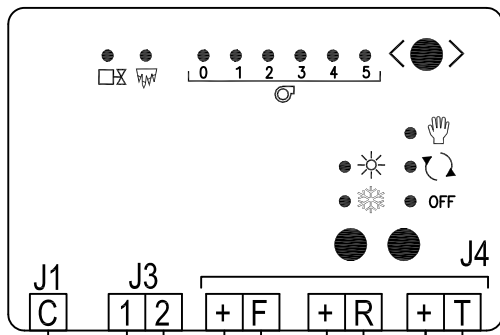


(\*) Air Curtain 2 (optional, Max 12)  
Luftchleieranlage 2 (freiwillig, Max 12)

WIRING DIAGRAMS OF AIR CURTAIN  
Schaltpläne Der Luftschleieranlagen

EC + WATER AND ONLY STANDARD AIR CONTROLLER 5 SPEEDS  
EC + Wasser Und Umluft 5 Stufig

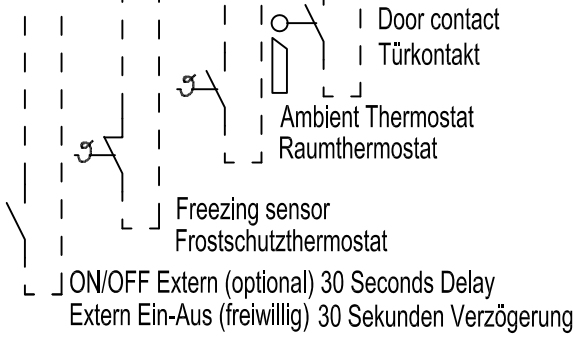
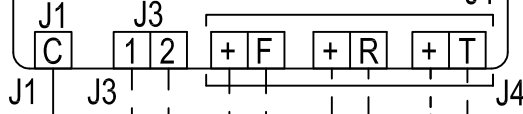
Page/Seite 1 of/von 1  
Doc. AIRDOE09122  
R10 - 20/01/15



Remote control  
Fernsteuerung



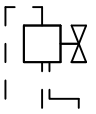
Hand-Auto  
5 Speeds remote Control  
5 Stufig standardregler



Q = Circuit breaker  
Q = Stromschuttschalter

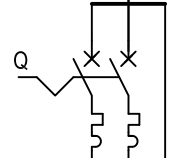
Electromagnetic Valve (optional)  
Magnetventil order Pumpe (freiwillig)

230v/50Hz



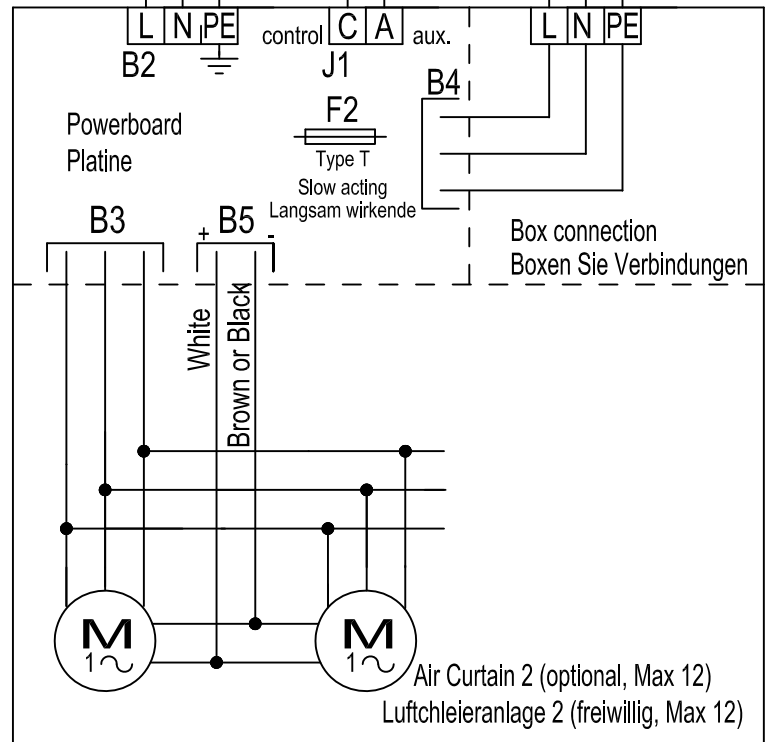
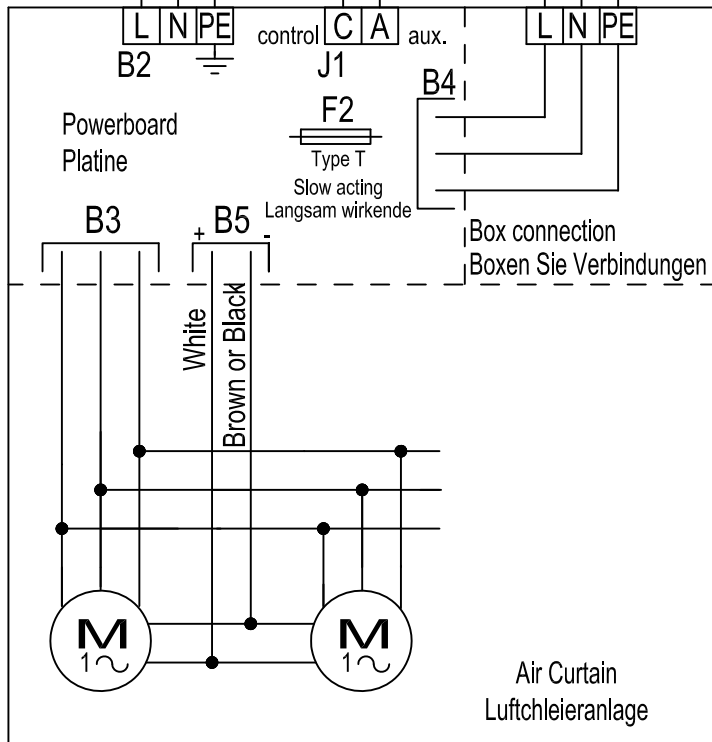
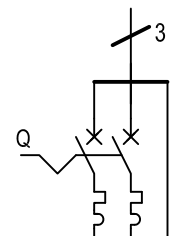
230v/50Hz

User connections 230V + N + PE  
Benutzeranschlüsse 230V + N + PE



230v/50Hz

User connections 230V + N + PE  
Benutzeranschlüsse 230V + N + PE

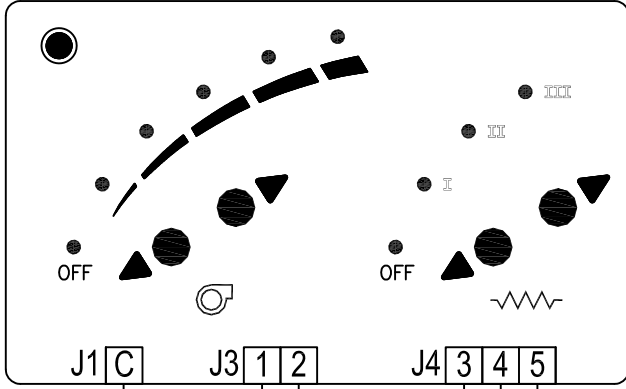


(\*) Air Curtain 2 (optional, Max 12)  
Luftschleieranlage 2 (freiwillig, Max 12)

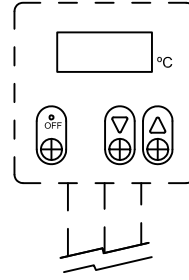
WIRING DIAGRAMS OF AIR CURTAIN  
Schaltpläne Der Luftschleieranlagen

EC + CONTROLLER HAND AUTO (D805) 5 SPEEDS, WATER  
EC + standardregler Hand Auto (D805) 5 Stufig, Wasser

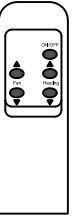
Reguladores de 5 velocidades  
Regolatore a 5 velocita



Termostato digital (opcional)  
Termostato ambiente digitale (opzionale)



Control remoto  
Telecomando



Q = Interruptor magnetotérmico  
Q = Interruttore principale da installare da parte di terzi

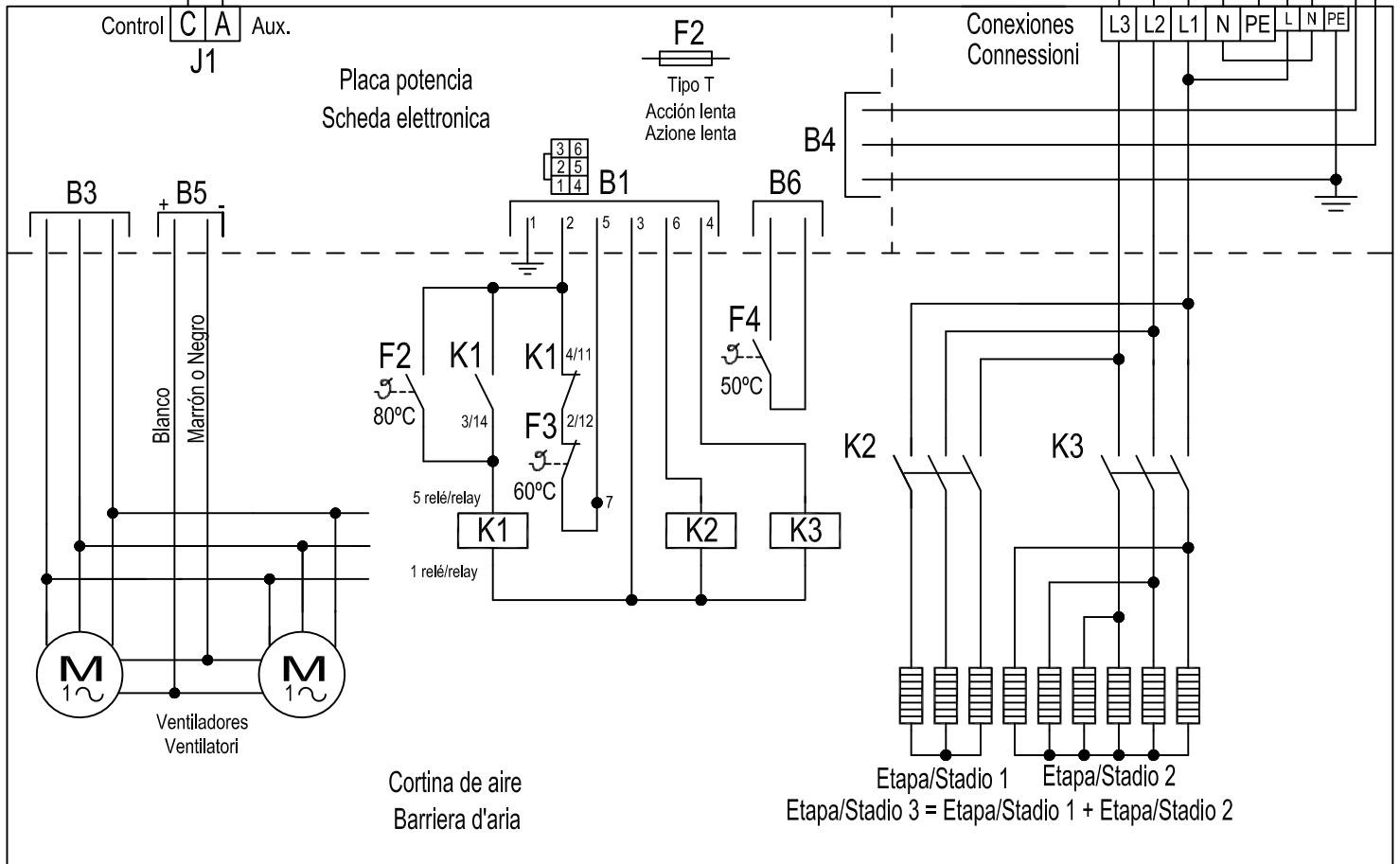
400/50/50Hz

Conexiones usuario 400V + N + PE

Termostato (opcional) (contacto "libre") (si se utiliza, quitar el puente 4-5)  
Termostato ambiente (opzionale) (contacto "pulito") (se impiegato, rimuovere il ponte 4-5)

Marcha/Paro externo (opcional) 30 segundos de retardo  
Contatto esterno ON/OFF (opzionale) 30 secondi di ritardo

Cortina 2 (opcional, máximo 12)  
Barriera d'aria 2 e successive (max. 12)



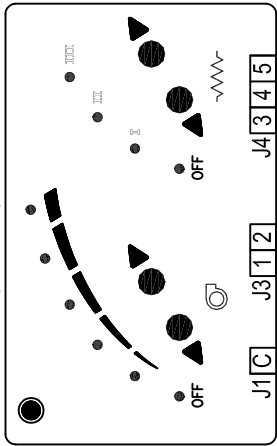
EC + Control 5v - Windbox G Eléctrica 2000-2500-3000- 30 kW - Cas/Ita

ESQUEMAS ELÉCTRICOS CORTINA DE AIRE  
SCHEMA ELETTRICO BARRIERA D'ARIA

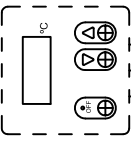
EC + CONTROLADOR 5 VELOCIDADES ELÉCTRICO 30 kW conexionado interno  
EC + Regolatore 5 velocita barriere con riscaldamento elettrico 30 kW connessioni interno

Pág./Pagina 1 de/di 1  
Doc. AIRDOE09132  
R11 - 09/02/15

5 Speeds remote Control  
5 Stufig standardregler



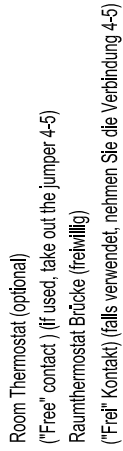
Digital Thermostat (optional)  
Digitaler Thermostat (freiwillige)



Room Thermostat (optional)  
("Free" contact) (if used, take out the jumper 4-5)  
Raumthermostat Brücke (freiwillig)  
("Frei" Kontakt) (falls verwendet, nehmen Sie die Verbindung 4-5)



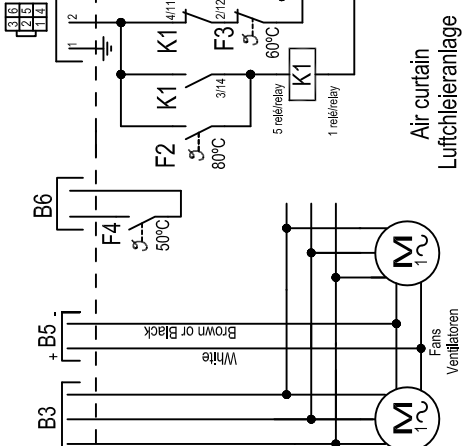
ION/OFF Extern (optional) 30 Seconds Delay  
Extern Ein-Aus (freiwillig) 30 Sekunden Verzögerung



Air curtain 2 (optional, Max 12)  
Luftchleieranlage 2 (freiwillig, Max 12)

Control J1 J2 Aux

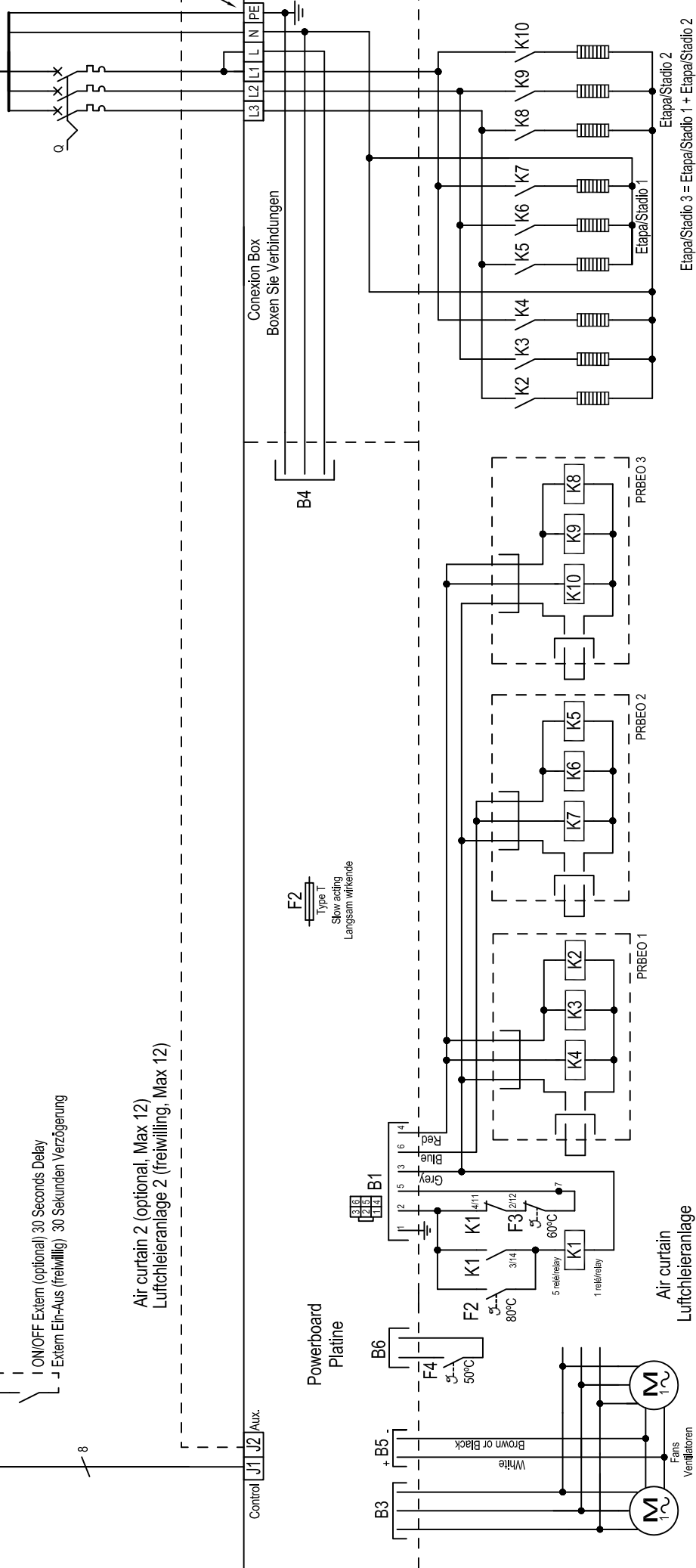
Powerboard  
Platine



Air curtain  
Luftchleieranlage

Q = Circuit breaker  
Q = Stromschutzeschalter

400V/50Hz  
User connections 400V + N + PE  
Benutzerschlüsse 400V + N + PE

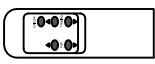


Conexion Box  
Boxen Sie Verbindungen



F2  
Type T  
Slow acting  
Langsam wirkende

Etapla/Stadio 2  
Etapla/Stadio 1 + Etapla/Stadio 2  
Etapla/Stadio 3 = Etapla/Stadio 1 + Etapla/Stadio 2

Remote control  
Fernbedienung



## MAINTENANCE INSTRUCTIONS

	<p><i>For safety, before any cleaning, disconnect power supply using the controller.</i> <i>It is forbidden to open the service door (risk of electrical discharge and being trapped in fans).</i> <i>Service and maintenance should be done only by introduced and qualified workers.</i></p>
	<p><i>Do not use water or steam for cleaning the internal parts and components of the air curtain.</i></p>

Air curtains don't need any kind of maintenance except the cleaning of the casing (inside and outside) and the inlet grille.

The casing of the air curtain should be cleaned with a wet cloth and non aggressive detergent. Do not use caustic soap or acids.

The inlet grille prevents the settling of dust and strange objects in the internal elements. It is recommended to check periodically that the inlet grille is free of any object that could interfere the air entrance (plastic bags, papers, etc...)

**In case of a microdrilled inlet grille** (It has filter functions to prevent the entrance of dust to the internal elements) use a vacuum cleaner with a soft brush in order to avoid any damages in the microdrilled grille. We recommend to clean the grille every two weeks (depending on the amount of the incoming air dust).





## REPAIRS AND REPLACEMENTS



*Installation and electrical connections must be done by qualified workers and following these instructions.*



*Before any repairs are undertaken, please :*

- *Inform people that there is work in progress.*
- *Disconnect the power supply and protect the thermal magnet (so nobody can restart it accidentally).*
- *Make sure there is no tension in the air curtain.*
- *Make sure the fans are stationary.*
- *Use only original spare parts.*



**Windbox / Kool:** To open the service door follow these steps:



1.- Insert a flat screwdriver between the casing and the grille and push the grille out. The grille is closed by pressure through pivots. It has a safety cable to avoid accidental falls.



- 2.- **OPCIONAL:** Remove the security screw of the service door.
- 3.- Insert a screwdriver and press down next to the pivots to open de service door.

In case of an air curtain with **plenum or inlet/outlet kits** the lever we must do it from the side of the door where there is a coliso, to make it easier the entrance of a flat screwdriver.

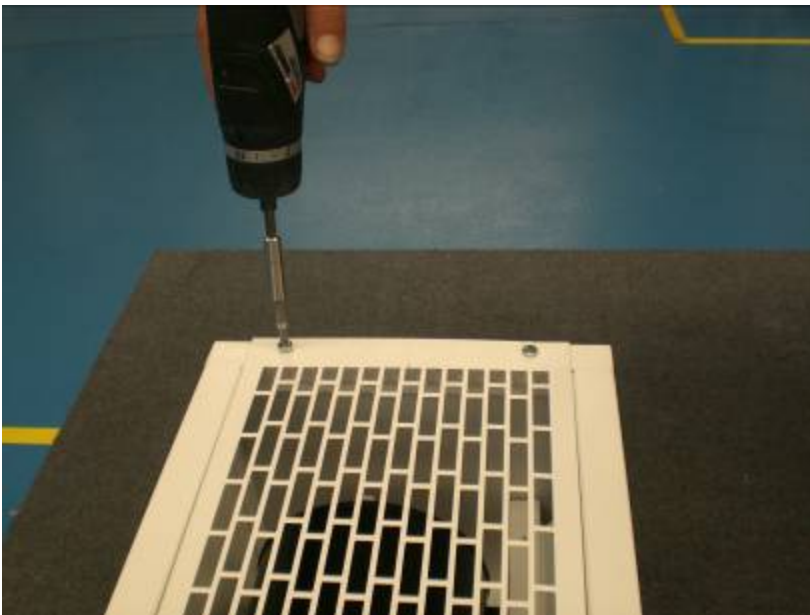
**Dam:** Follow the same instructions than Windbox with **plenum or inlet/outlet Kit**.



**Deco:** to open the **service door** use a screwdriver and lever through the coliso placed on one lateral of the door.



**Compact:** To access the inside of the air curtain remove the screws that fix the grille and remove the grille softly.



Now you have access to dismantle the fans with a star screwdriver.

### **Fan replacement:**

Before replacing the fan, inform people that there is work in progress, stop the air curtain through the controller and disconnect main supply. Make sure that the unit is without tension and the fans are stationary.

Unplug the fan from the cable tree. Remove the fan by loosening the fixing screws and assemble the new fan following the process in reverse order.

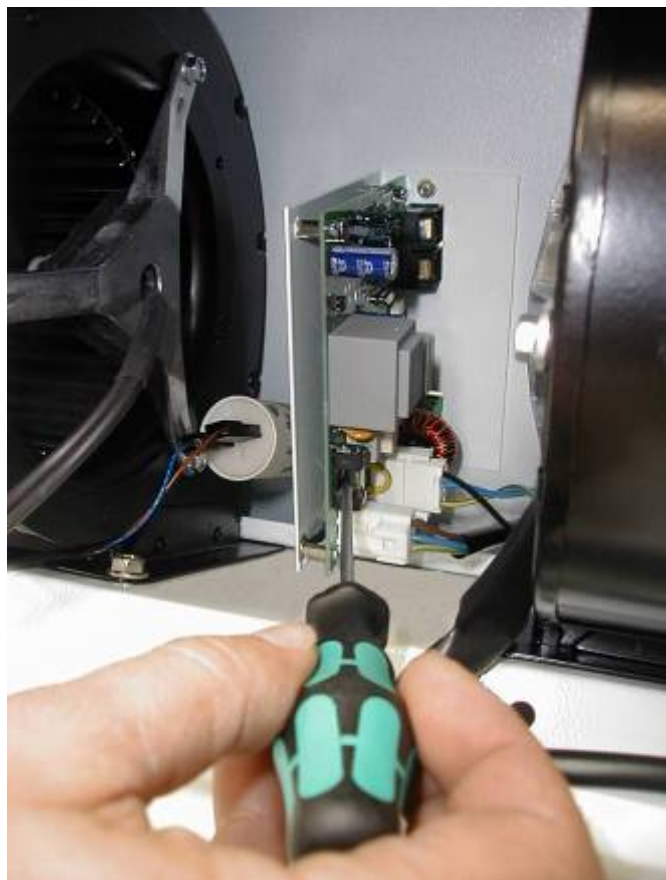


### **Fuse and PCB replacement:**

Before the replacement, inform people that there is work in progress, Disconnect main supply, make sure that the unit is without tension and that the fans are stationary.

**Fuse replacement:** open the service door and remove the fuse of the fuse holder by hand or pulling with the help of a screwdriver and replace.

**PCB replacement:** Open the service door and simply unscrew the power plate by the upper external part of the air curtain to remove it and make the necessary repairs.



**Heat exchanger or coil replacement: (Windbox/ Deco):**

Before change of coil or heater, inform people that there is work in progress, stop the air curtain through the controller and disconnect main supply. Make sure that the unit is without tension and the fans are stationary. Before remove the screws that fix the coil or heater, we have to:

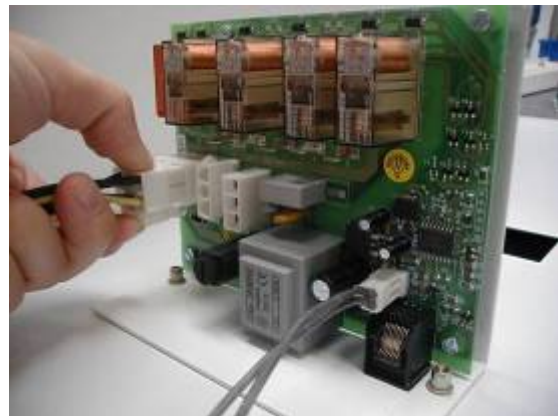


**Water element:** Close the shut-off water valves of the building water circuit to the air curtain. (supply and return). Open the service door and empty the water from the coil simply by removing the draining screw placed at the bottom of the entrance manifold as shown in the photograph.

**Electrical element:** Disconnect the power supply from the electrical element:



Unplug cables 1,2,3 of the junction box



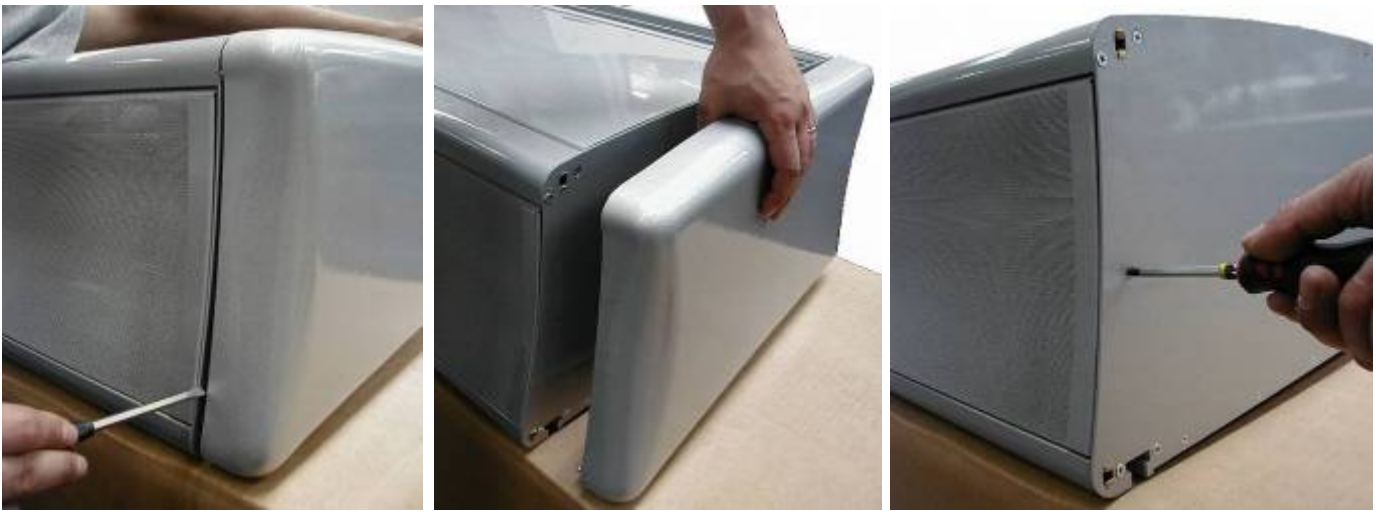
Unplug the two connectors of the PCB by pressing the fluke

When we have the coil or heater ready, we proceed to remove the fixation screws to disassemble the coil or heater and assemble the new heater following the same process in reverse order.

**Windbox: fixation points of the electrical element:** angle closes door and interior angles.



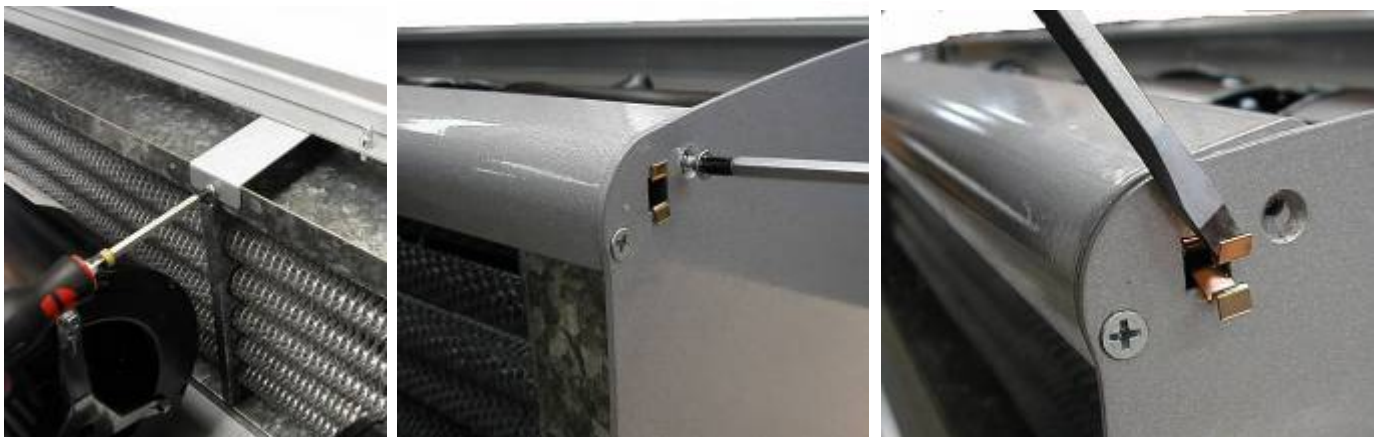
**Deco Fixation points of coils and heaters:**



We remove the lateral covers (fixed by pressure), helping us to make lever with a screwdriver. Unscrew the grille on both sides.



*Loosen and rotate all the flukes that hold the coil or heater.*



Through the inside of the air curtain, remove the screw that fix the interior support to the coil or heater. Then we remove the lateral screw and spring as shown in the pictures, in order to rotate the aluminium profile. Never unscrew the two screws of one side because we will open the structure of air curtain.

Once we have the profile with one fixing point in each side, then we will proceed to rotate the profile so we can remove the electrical element.



Finally, with your hands protected, remove the electrical element carefully in the direction showed in the photo.



## FAILURES AND SOLUTIONS

**More than 95%** of the complaints are submitted during the start of operation of the equipment and are due to installations errors.

More than 90% of the failures are solved only by **checking the connections**. Following the three following points, we can make sure that the installation is correct:

**A) Telephone cable manipulated:** The cable that connects the controller to the air curtains is an 8 lines crossed telephone cable. **If manipulated (cut or removed the connector) and incorrectly joined (reverse way) the air curtain will not work well.** Moreover it can damage the electronics. To solve the problem just turn the connector of the cable (see connection diagram in the first page).

**B) Wrong connection of the telephone cable.** Verify whether the connector position is the correct, between the “control” and “auxiliary”, according to the installation diagram (specially if there are several air curtains with a single controller).

**C) Wrong current supply/input.** The air curtain input depends on the type of current available and also on the heating type of the unit. Connect the unit according to the connection diagrams of the first page.

More common failures and solutions		
Effect	Problems	Solutions
All lights of the controller are OFF	¿Is the telephone cable the original (not manipulated), with no enlargements either shortenings?	Change the cable or connect it again correctly.
	¿Does the current reaches the connection box?	Connect correctly the terminals of the junction box: Between L and N there must be 230V and if the air curtain goes with three-phase electrical battery, there must be 400V among terminals L1,L2 y L3.
	¿Is the controller connected to the air curtain, to the connector “Control” of the PCBoard?	Connect the cable from the controller to the “Control”, never to the “Aux”.
	¿Is the fuse of the PCBoard in good conditions?	Check the fuse and replace it in case it is necessary (type T, slow action).
Some lights of the controller are Flashing.	The green LED of the maximum speed flashes when we stop the air curtain after having been operating with heating	It is not a failure, but a safety mechanism. The air curtain turns on by itself to the maximum speed to get cold and protect its components. When it decreases from the safety temperature, it will stop.
	Some speed or heating lights are flashing when the air curtain is working.	It is a protection mechanism of the air curtain so that the internal parts of the air curtain do not suffer damages. Situations on which the problem continuously recurs and the way to solve it: 1. Inlet grille blocked (objects, dirtiness...) the ambient temperature inside the equipment can increase a lot if the air can not circulate. Clean the grille. 2. Small room: we recommend installing a thermostat to control the heating power so the protection device do not activates. 3. In case that the ambient temperature is already high, we recommend to lower the power heating or install a thermostat. 4. Inlet air already warm, that comes from another heating equipment beyond the air curtain. Move the air curtain away, place a thermostat in the inlet part of the curtain or lower the heating power. 5. Any motor does not work: call the technical service.
The heating does not work	¿Does the three-phase current reach the connections box?	Check installation
The speed and/or the heat changes continuously with no apparent reason but the lights of the controller are not flashing.	Probably the telephone cable is near interference sources, transmitters, cable plates, specially those that supply current to Motors, etc..	Pass the cable the furthest possible away from interference sources, specially when long distances or use a screened table.

**ACCESSORIES**



**TD Digital thermostat (electrical element)**

It modifies the heating stages and the ventilation speeds depending on the temperature and the selected programme.



**Interface**

Allows the connection to a centralized management system (BMS, PLC, etc...).



**External temperature probe**

It permits to take the temperature from a place different to the control.



**Total Controller**

Time programmer that permits three different ON/OFF for each day of the week and incorporated thermostat.



**Hand Auto (water heated)**

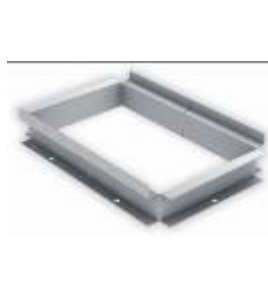
It permits to connect anti-freezing sensors, door contact, ambient thermostat..



**Room Thermostat**

It limits the operating of the heating to the selected one.

Supports, feet, vibration dampers...etc... depending on the model.



Door contact, thermostatic valve, solenoid valve, antifreezing sensor



Telephone Cable 50m, extension adapter ...

Plenum and/or inlet/outlet kit (depending on the model)







**Declaration  $\text{C}\epsilon$  of conformity / Declaración  $\text{C}\epsilon$  de conformidad**

Manufacturer **Motors i Ventiladors S.L. (AIRTÈCNICS)**  
*Fabricante* **Conca de Barberà 6, Pol. Ind. Pla de la Bruguera**  
**08211 Castellar del Vallès (Barcelona) Spain**

We declare, under our sole responsibility, that the product(s)  
*Declaramos, bajo nuestra única responsabilidad, que el/los producto(s)*

**Air Curtains**  
***Cortinas de aire***

with models  
*con los modelos*

**Minibel, Optima, Recessed Optima, Windbox, Recessed Windbox, WEC, REC, Windbox DX, Dam, Deco, Compact, Kool, Variwind, Rotowind, Invisair, Rund, Zen, Duojet, Triojet, Max, Recessed Dam, Recessed Compact, Maxwell**

is/are developed, designed and manufactured in accordance with the following directive(s)  
*ha(n) sido desarrollado(s), diseñado(s) y fabricado(s) de acuerdo con la(s) siguiente(s) directiva(s)*

**Machinery Directive 2006/42/EEC**  
***Directiva De Máquinas 2006/42/CEE***

**Low Voltage Directive 2006/95/EEC**  
***Directiva De Baja Tensión 2006/95/CEE***

**Electromagnetic Compatibility Directive 2004/108/EEC**  
***Directiva De Compatibilidad Electromagnética 2004/108/CEE***

**Ecodesign Energy-related Products Directive 2005/32/EC**  
***Directiva De Diseño Ecológico para Productos con Energía 2005/32/CE***

applying the following harmonized standards in particular  
*aplicando las siguientes normas armonizadas en particular*

**MD: UNE-EN 60204-1:2007**  
**UNE-EN 12100-1:2004**  
**UNE-EN 12100-2:2004**  
**UNE-EN 13857:2008**

**LVD: UNE-EN 60335-1:2012**  
**UNE-EN 60335-2-30:2010**  
**EMC: UNE-EN 61000-6-2:2006**  
**UNE-EN 61000-6-3:2007**

Date / Fecha  
Name / Nombre  
Position / Cargo

**01/07/2014**  
**Jordi Oltra Orta**  
**General Manager / Director General**





Model Modelo	M 1500 E			
Airflow Caudal	2775	m3/h		
Blowers Ventiladores	3,57	A	0,804	kW 230 V/50Hz
Heating capacity				
Calefacción				
	80/60 °C		60/40 °C	
Water Coil Agua		kW		kW
Electric Coil Batería Eléctrica	4/8/12	kW	230	V/50Hz
Serial Number Número de Serie	2504 / 29.852			

**Air curtain identification:**

Each air curtain is identified by a unique serial number printed in a label located inside the door service.

There is also indicated the model and their technical characteristics (flow, fans technical characteristics and power heating)

It is indispensable to have this number to facilitate possible replacements or technical information of the air curtain in question

**WARRANTY**

Your air curtain is guaranteed for a period of one year from the date of purchase. We will adjust, repair or replace at our discretion from our warehouse any defect, system failure or part found to be defective. The assembly cost out of our warehouse is at buyer expense. The products that, in our eyes, have been inadequately used, incorrectly manipulated, improperly installed, connected to different nominal tensions, modified, repaired by non-authorized workers or that have suffered damages during transport are totally excluded from the guarantee.

*To validate the guarantee it should be correctly filled and enclosed with the invoice that vouches for the buying date. If it is manipulated, it will lose all validity.*

*It is the buyer's responsibility to take the necessary safety measures because in case of a failure or mistake in one of our products, no damages to third parties, sets or installations will occur.*



**Guarantee draft**

**Air curtains data:**

Model: ..... Series number.....

Invoice date: ..... Invoice number: .....

**Buyer data:**

Name: .....

Address: .....

Country: ..... Phone: ..... Fax: .....

**Seller data:**

Name: .....

Address: .....

Country: ..... Phone: ..... Fax: .....

**Buyer signature and stamp**

**Seller signature and stamp**