



**Heat Pump Air Curtains**

 **airtècnics**

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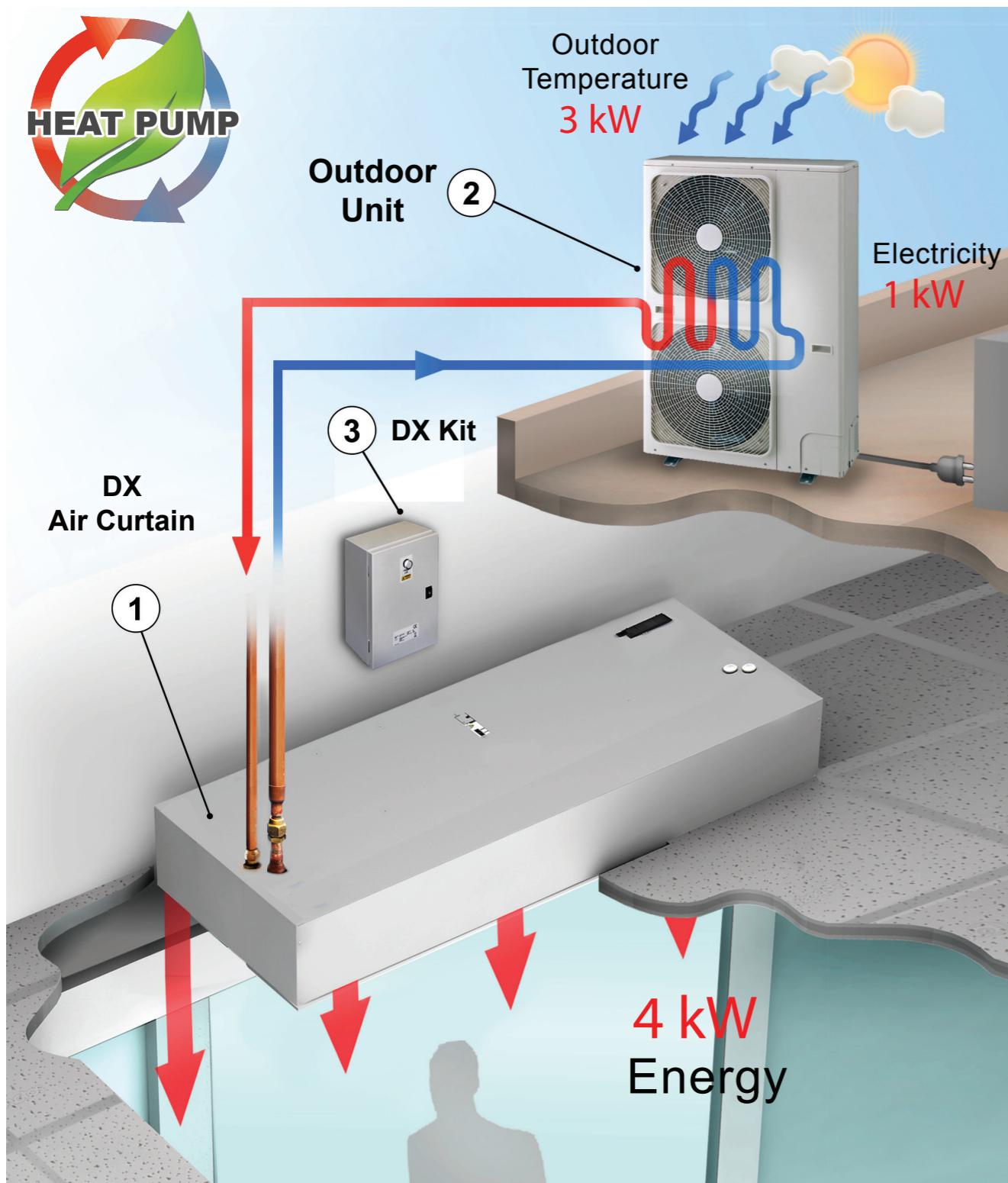
# The Heat Pump Technology

Heat pump is a device that uses a small amount of energy to move heat from one location to another. This system is extremely efficient because it simply transfers heat, rather than burn fuel to create it.

It consists on a closed circuit through which a special fluid (refrigerant) flows. This fluid turns into a liquid or gaseous state according to temperature and pressure conditions.

The circuit is composed by: compressor, condenser, expansion valve and evaporator.

## Operating diagram of Heat Pump DX Air Curtains:



# Advantages and benefits

The new Airtechnics Heat Pump Air curtains are absolutely efficient reducing the heating cost and CO<sub>2</sub> emissions up to 70%.

- Very high energy efficiency ratings to save big amounts of money on your energy bill
- Short Payback Period thanks to very high level of energy saving
- Heating and cooling included in the same system (reverse cycle)
- Environmentally Friendly as uses such low amounts of energy

## Heat Pump vs Electrical Air Curtain

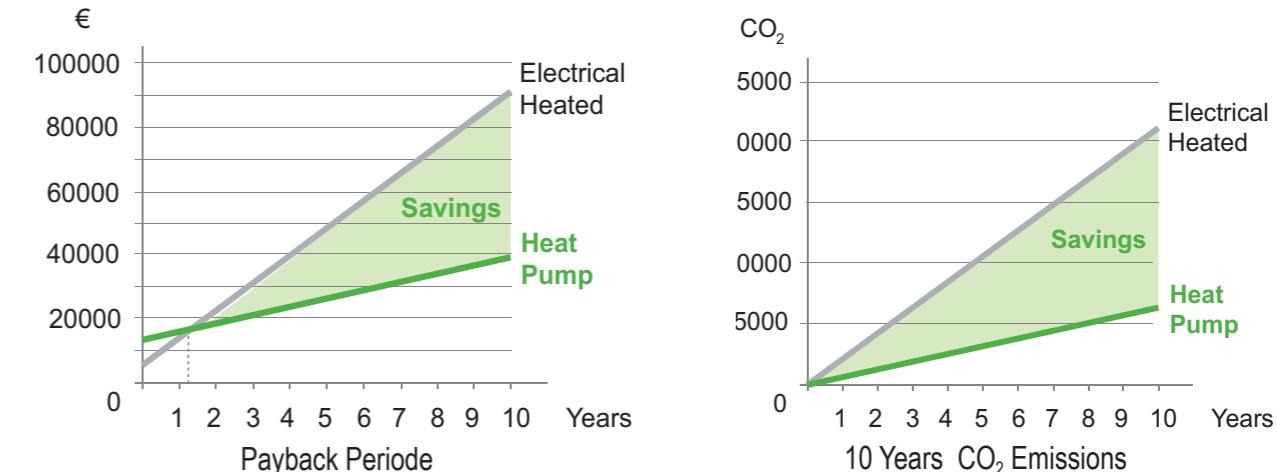
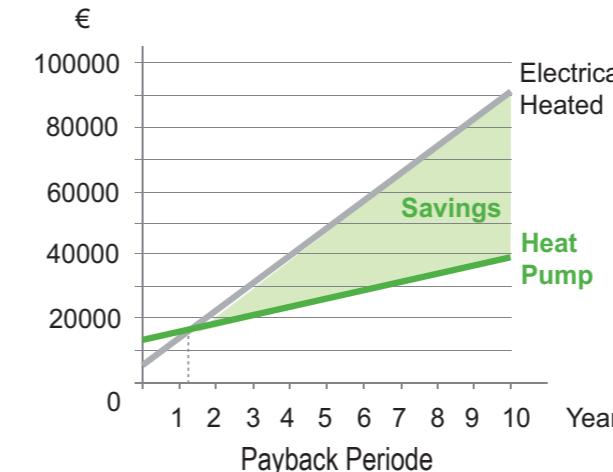
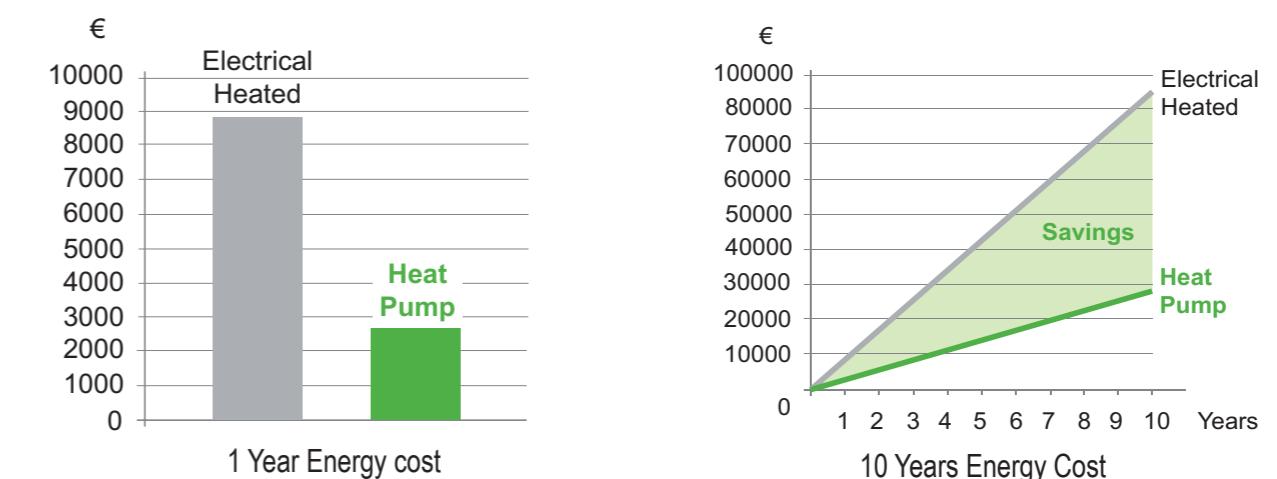
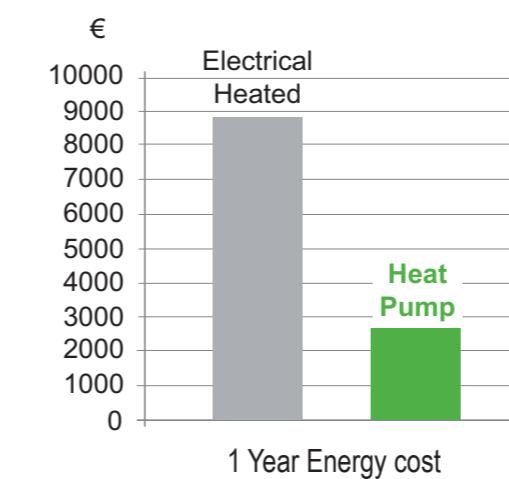
### Energy Saving Example:

- **Door dimensions:**  
2 m width by 3 m height
- **Running time:**  
12 hours/day, 6 days/week, 1/2 year
- **Energy cost:**  
0,17 € / kW / h (UE-27 coste medio)
- **Selected unit:**  
G 2000, 28kW
- **COP:** 3,31 (Coefficient of Performance)

	Electrical air curtain	Heat pump air curtain	Difference
Total heating power	28 kW	28 kW	0 kW
Air curtain price	3.800 €/ud	11.400 €/ud	+ 7.600 €
Energy consumption	52.416 kW/h	15.836 kW/h	- 36.580 kW/h
Energy cost	8.911 €	2.692 €	- 6.219 €
CO <sub>2</sub> Emissions	20.966 kg	6.334 kg	- 14.632 kg

### Result:

The payback period is 1,22 years. We recover the price increase of Heat Pump air curtain in nearly 1 year and then we start saving money. From the beginning we save energy and reduce CO<sub>2</sub> emissions to the environment.



# DX Air Curtains: Available models



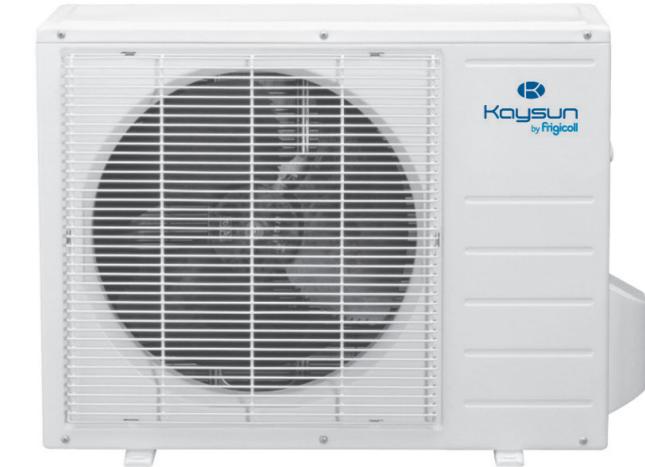
Our DX air curtains incorporate a direct expansion coil that, connected to a heat pump, offer the low consumption alternative to the classical electrical heating or water heated coils

Airtècnics DX air curtains available:

- Windbox S,M,G,L,XL
- Recessed Windbox S,M,G
- Dam
- Zen
- Smart
- Deco
- Duojet
- Rotowind
- Rund
- Variwind



# Heat Pump: Available manufacturers



# DX Air Curtains with Heat Pump

## Installation Examples

Both in winter and summer air curtains avoid that much of the energy used to heat the premises escapes through the door. This can be up to 30/40% or even more, depending on the characteristics of the building and the weather situation in the area.

Airtècnics has developed a new range of DX air curtains in collaboration with several heat pump manufacturers, thus achieving efficiencies (COP) close to 4, that is to say that for each kW that is used in the network, we produce 4kW of heating.

The general interest in reducing energy costs and increase commitment to sustainability, together with the progressive increase in energy costs, make the DX air curtains a product increasingly attractive to commercial and industrial buildings.





#### Airtècnics Air curtains for MANGO shops

MANGO , the multinational company dedicated to the design, manufacture and marketing of clothing and accessories for women and men, designs its stores with attention to details.

It is known from several studies that having open doors at a store increases the influx of people and consequently increase sales significantly. The entrance door work as a showcase and allows people to see inside the store.

MANGO has chosen the best solution for these openings, using DX air curtains (direct expansion battery to work with heat pump) . This type of air curtain has an efficiency of nearly 1-4 due to the high COP of the heat pump and consequently energy saving is achieved up to 70 % in both consumption and CO<sub>2</sub> emissions.



Outdoor Unit Toshiba Inverter  
Mango La Maquinista shop, Barcelona (Spain)



Recessed WINDBOX SMG DX Toshiba  
Mango Passeig de Gràcia Shop, Barcelona (Spain)



Outdoor Unit Toshiba Carrier  
Kiosk Shop, Amsterdam (Holland)



**WINDBOX SMG DX** Toshiba, recessed installation  
Mango Portal de l'Àngel Shop, Barcelona (Spain)



**Outdoor Unit Toshiba Inverter**  
Mango Shop in Instambul, (Turkey)



WINDBOX SMG DX Toshiba, recessed installation  
Mango Vialand shop, Istanbul (Turkey)

# Our air curtains range

The new and attractive Airtècnics air curtains are the ideal solution to control the indoor climate in commercial or industrial premises that need to keep their doors open.

Air curtains create an invisible barrier that efficiently divides the internal atmosphere from the external one. They substantially reduce energy losses through the door, up to 80%, while increasing employees and clients comfort.

For commercial premises, Airtècnics air curtains allow a clear view of the inside, welcoming the client to come in freely. The result is more customers and increase in sales. Moreover, they contribute to create a comfortable atmosphere at the entrances and indoor area, protect from cold and heat, repel insects and avoid dust, fumes and pollution entering the building.

The selection of the appropriate device is very important to obtain these advantages. Factors such as interior drops, strong winds, the door's location, several communicated floors and/or opposite doors and the height of the installation, among others, have to be taken into consideration at the time of choice.



Since year 1993, Airtècnics is fully integrated in the Rosenberg group, an organization specialised in the design, manufacture and distribution of ventilation equipments, air-conditioning and its components, with production plants, subsidiary companies and partners in more than 50 countries.



# Control & regulation

The control over air curtains is essential to avoid spending more energy than necessary. Our latest generation controller CLEVER, allows the automatic control of the air curtains performance in each situation, maintaining the comfort with the maximum energy saving.

- Proactive and intelligent regulation
- Many advanced functions and programmes
- Maximum energy savings
- Friendly interface design
- "Plug & Play" installation
- BMS connection

Management: App PC / ANDROID / iOS:



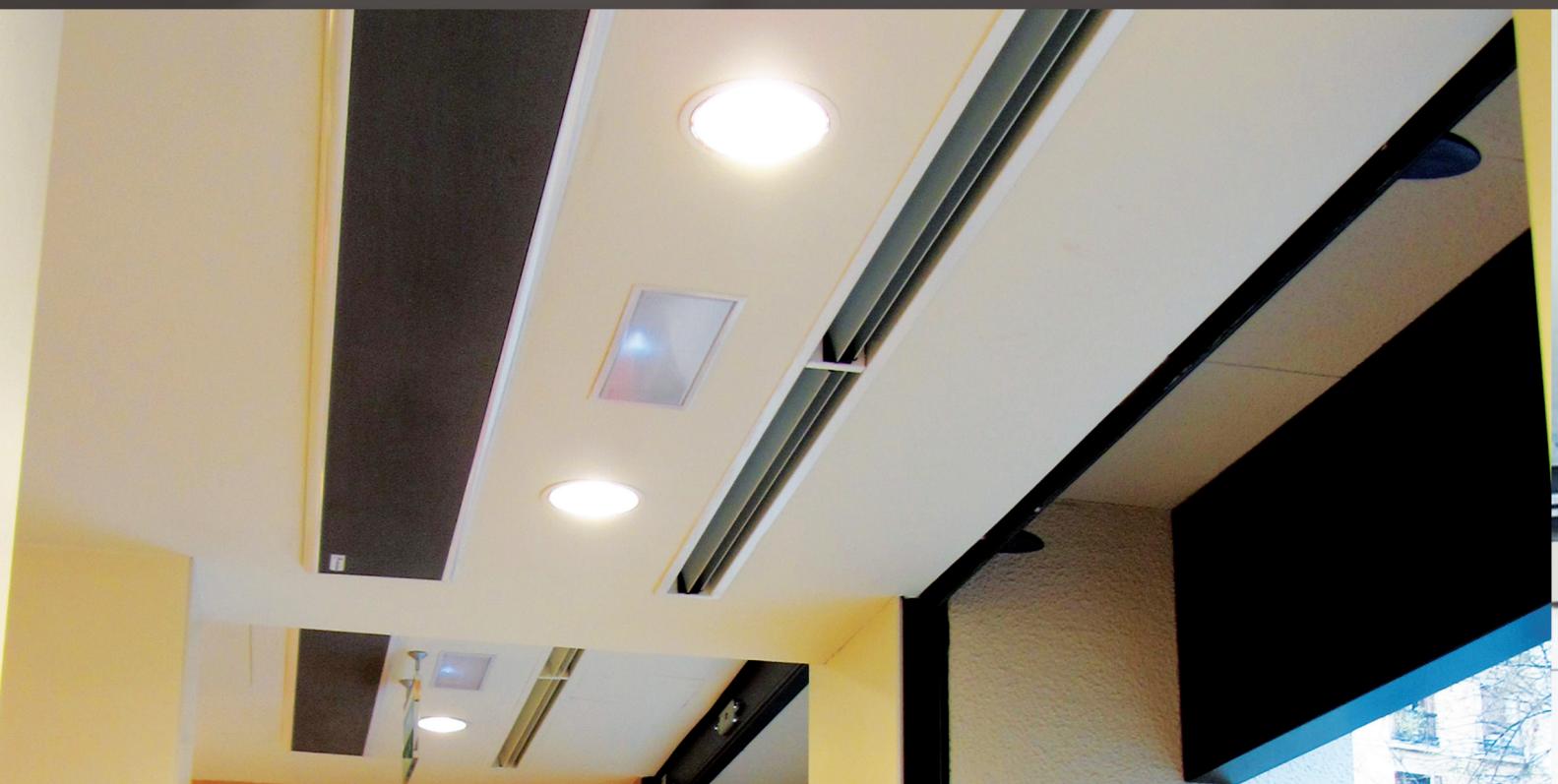
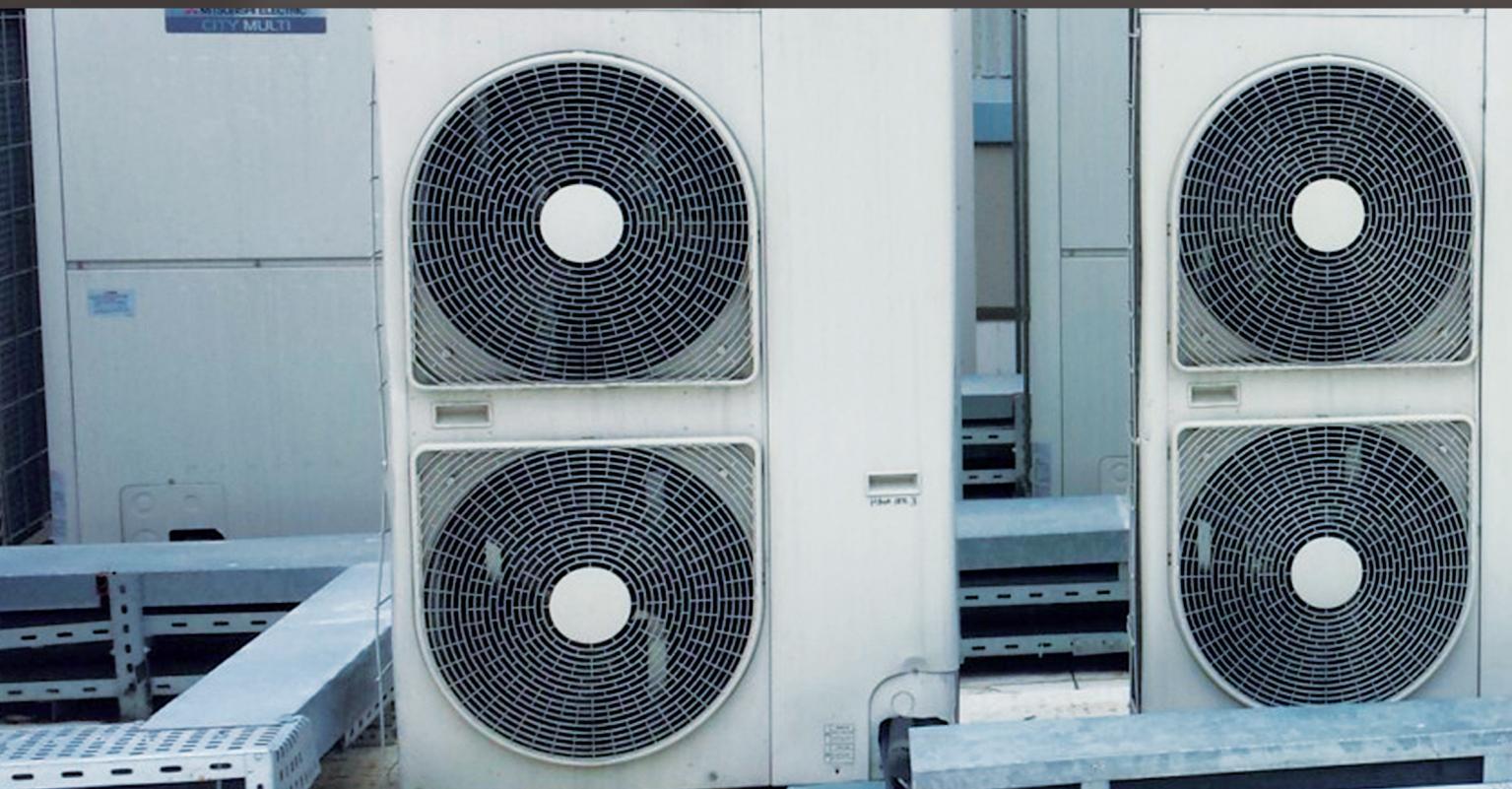
## Accessories

Temperature sensors, door contact, ambient thermostat, anti-freeze sensor, thermostatic valve and Modbus TCP Ethernet.

Airtècnics, as air curtains specialist, can produce units with special requirements under request. We present some of the possibilities:

- External alarm signals: unit working, heating ON, airflow switch, dirty grille, electronic overheating signal, fans overheating thermo 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

Please consult us for further information or other options



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