

## Comfortable curtains, series C, D Industrial curtains, series P



# Air curtains

## Here's how the air curtains work

Air curtain is a special air handling device, which using optically undisturbing air flow separates inside and outside environment and when using type with heating it also partially reduces heat loss - heats the air that gets through. Air curtains provide air stability in closed rooms which require open doorways for reasons of increased motion of persons or handling equipment. Throughout the whole year when the doors stay open the air curtain helps to keep the warm and stable environment inside the building. In winter it stops the cold air from getting in, and in summer the cold (air conditioned) air from getting out. Therefore it brings significant energy savings.

Air curtains also serve as a shield against insects, fumes, dust and other contaminants. The air curtain is most efficient when used in rooms without drafts. Rooms with significant stack effect, openings in transit hallways against each other etc. lowers efficiency of air curtains but even though use of a curtain still means reduction of negative effects. In such applications is use of heating in air curtain required. But in other cases we recommend use of heating as well.

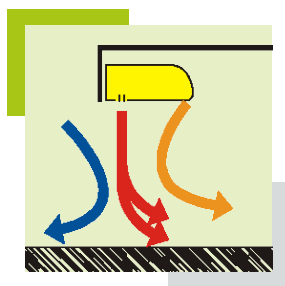
It is necessary to emphasize that the „barrier“ created by air curtain can not entirely separate rooms while maintaining energy efficiency and decent size. When applying an air curtain it is necessary to respect purpose of room utilization because effective air curtain does not work without certain sound level caused by air flow, or by fan.

## Fast investment return

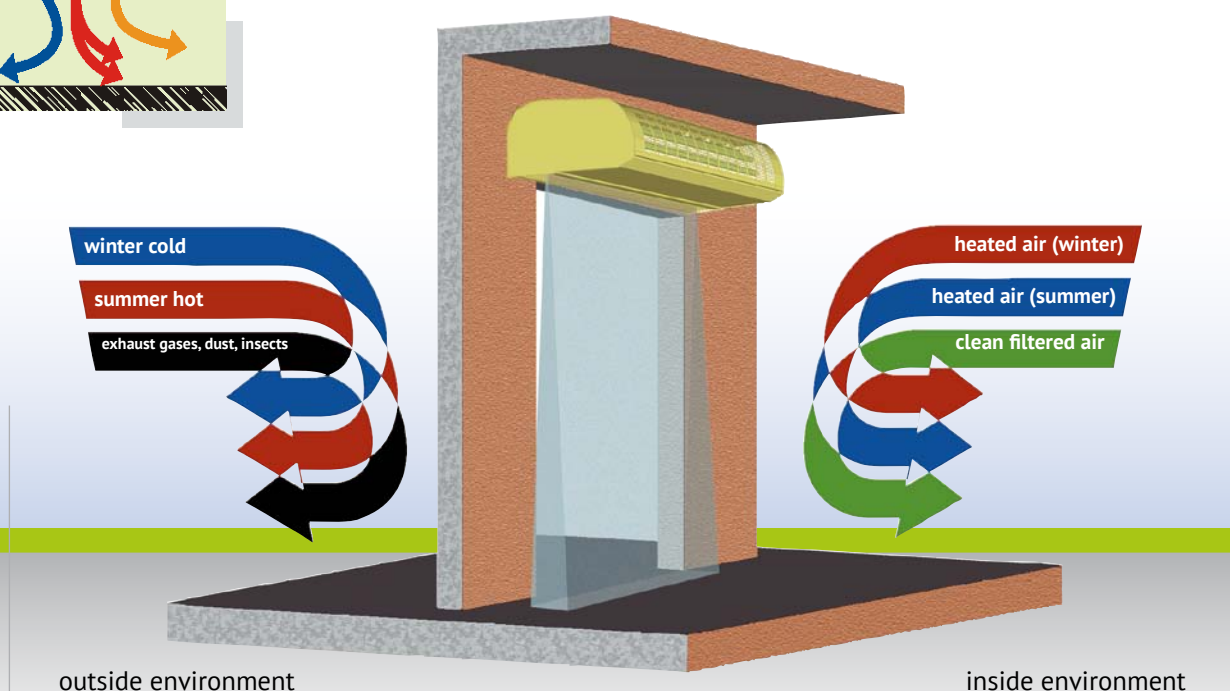
Energy loss through open door without air curtain reach high values. For example through door of a shopping center of dimension 3x2,5 m, average time of opening is about 6 hours and assuming that average winter lasts from November to May (average outside air temperature 2°C, inside temperature 20°C), up to 180 GJ (c. 50 MWh) of heat energy is lost.

Therefore air curtain is certainly investment with short period of return.

## Advantages which brings an air curtain



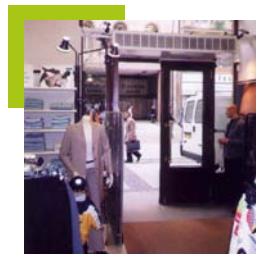
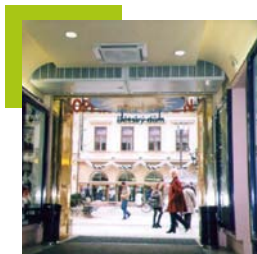
- More comfort in room
- Non-barrier access and cost savings in handling and logistics
- Decrease of employees sickness absence
- Open doors attract more customers to shops



## References

Quality of our comfortable curtains is proved by significant european investors:

- Tesco
- Metro
- Ikea
- Hypernova
- Giga sport
- Eurotel
- Shops and shopping centers
- Banks and commercial buildings
- Restaurants and hotels
- Sports and culture facilities
- Industrial and storage building
- Garages and depots
- Health and educational facilities



## Selection of comfortable curtain

Distance between curtain - floor	Type	Heating	Door width	Air output control
300 cm 	D2	N + + <sub>1</sub> + <sub>2</sub>		3 stages
250 cm 	C1	N + + <sub>1</sub> + <sub>2</sub>		1 stage 3 stages (TR)

Naming: **C1 - W - 100** / **TR**

C1-W-100-TR: Curtain for door height of 250 cm, water heating, door width up to 100 cm, 3 stages of control

low-temperature water heating el. heating (decreased) el. heating (increased)

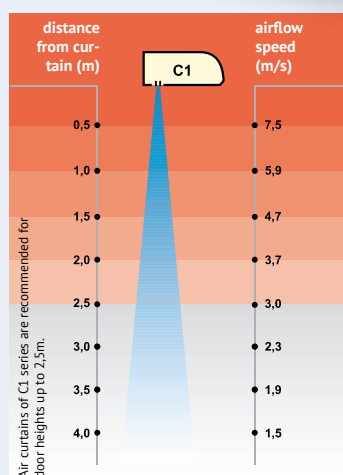
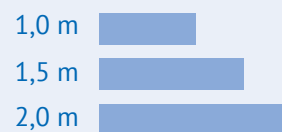


# Air curtains

series C, up to 2,5 m of door height

**DoorMaster**

## Air curtain length



- N** Unheated low temperature (N)
- +** Water heating (W)
- +**<sub>1</sub> Electric heating (E1)
- +**<sub>2</sub> Electric heating (E2)

## Ideal for:

commercial and public facilities

- quiet operation
- low weight, small dimensions

## Design

- smooth design of outside surfaces
- low curtain depth – only 37 cm
- standard type made of sheets with varnished coating (shade RAL 9002)

## Construction

- modern cross-flow fans
- compact cantilever frameless casing with plastic sidewalls
- water heating is provided by double-row water heaters with single connection for all types of curtains C1

## Parameters

- output power of water heating: 8,3–17,5 kW
- output power of electric heating: 4,5–18 kW
- motor input of a 1m long curtain is only 130 W
- quiet operation, excellent sound parameters (55 dB v 5 m)

## Control

- electric heaters with increased heating output enabling heating control in two stages
- at request we can install three-step air flow control
- air curtains can be equipped with thermovalve to provide constant outlet temperature

## Operating

- air curtain is operated with remote (cable) controller
- switching of the heating related to the room temperature
- selection from more types of operating comfort

## Mounting

- practical consoles enabling alternative installation methods (optional accessories)
- low weight enables installation without handling equipment

# Air curtains

series D, up to 3 m of door height

**DoorMaster**





## Air curtain length

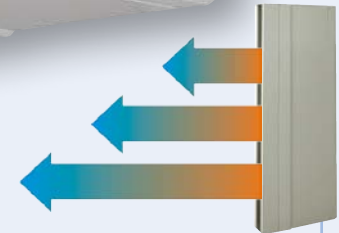
1,0 m	
1,5 m	
2,0 m	
2,5 m	



distance from curtain (m)	airflow speed (m/s)	D2	D3
0,5	8,6	10,1	
1,0	7,4	8,8	
1,5	6,4	7,7	
2,0	5,5	6,7	
2,5	4,8	5,8	
3,0	4,1	5,0	
3,5	3,6	4,4	
4,0	3,1	3,8	
4,5	2,7	3,3	
5,0	2,3	2,9	

Air curtains of D2 series are recommended for door heights up to 3 m

-  Unheated low temperature (N)
-  Water heating (W)
-  Electric heating (E1)
-  Electric heating (E2)



3 levels of fans output powers  
for standard types

## Ideal for:

big shopping, administration, sport centers

- neat design
- high output power

## Design

- standard type made of sheets with varnished coating (shade RAL 9002)
- modern, elegant and decent design
- curtains can be designed for installation into false ceiling

## Construction

- compact cantilever frameless casing
- used powerful and quiet radial fans with direct drive
- water heating is provided by double-row water heaters with single connection for lengths up to 2m

## Parameters

- output power of water heating: 18-62 kW
- output power of electric heating: 9-45 kW
- nominal air flow up to 2.300 m<sup>3</sup>/h for 1m of length

## Control

- standard type of air curtain is equipped with 3-step air flow control
- electric heaters have built-in 2-3 stage regulation depending on the selected heating output
- at request, air curtain can be equipped with thermostatic (or with thermoelectric) valve to provide constant temperature

## Operating

- air curtain is operated with remote (cable) controller
- switching of the heating related to the room temperature
- selection from more types of operating comfort

## Mounting

- the air curtains can be easily connected – without visible connecting areas
- supporting rails designed for the rod suspension



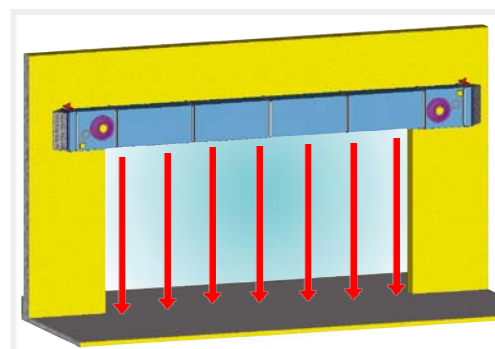
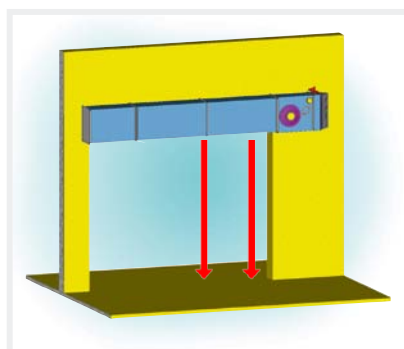
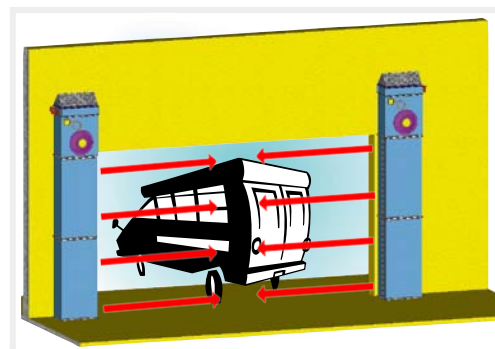
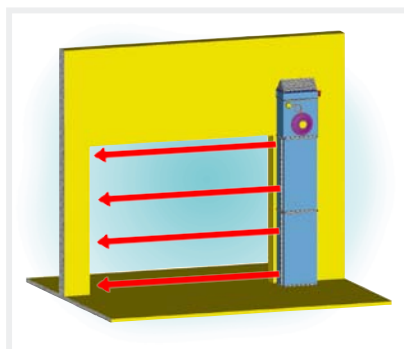
# Air curtains

*series P, for industrial use*

**DoorMaster**



## *Placing options*



## *Energy savings*

High-pressure air curtains DoorMaster P series developed by REMAK company are cheaper and have more economic and efficient operation compared to competitive low-pressure air curtains. Operation costs which are mostly created by air heating are compared to other so called „economic“ air curtains almost half. The key to their economical operation is their original, high-pressure conception. These air curtains are characterized by narrow exhaust gap which has, at outlet air flow speed of 10 to 16 m/s, high pressure loss in hundreds Pa. That requires relatively high pressures of radial fans but it allows to minimize its air flow rate while preserving long reach of stream.

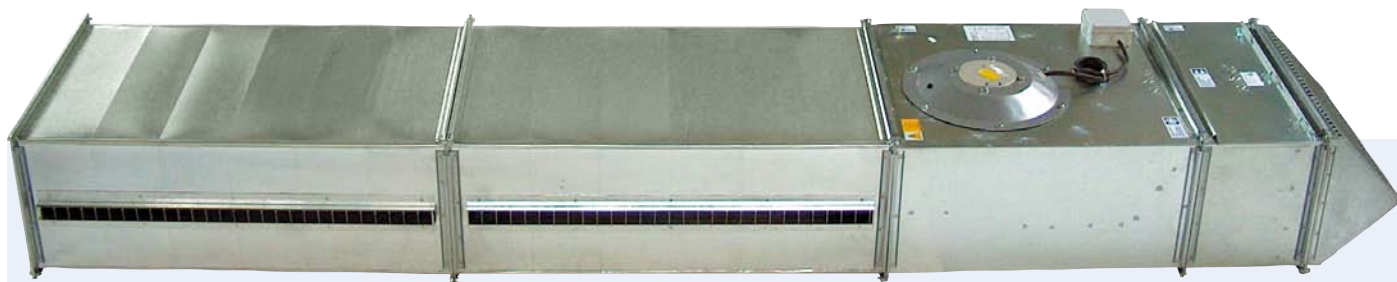
Usual air curtains with axial fans must be provided with (compared to high-pressure conception) 4 to 5 times wider exhaust gap (about 160 mm). At a little lower exhaust speed, they operate with four times higher air flow and they also require four times higher heating input power.



# Air curtains

series P, for industrial use

**DoorMaster**



- N** Unheated low temperature (N)
- +** Water heating (W)
- +** Electric heating (E)

**Ideal for:**

**industrial buildings, depots, garages, storehouses**

## Gap length



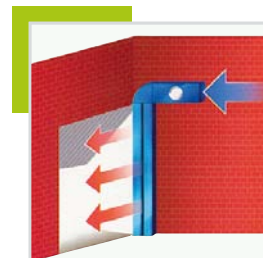
- excellent price
- high efficiency
- low energy needs

## Design

- Standard type is made of zinc-coated sheets
- At request, the air curtains can be provided with varnished surface or stainless

## Construction

- Air curtains can be adjusted to place of installation
- Air curtains are designed as high-pressure with single fan, and in some cases with heater



## Parameters

- Exhaust air flow speed: 10-16 m/s
- Output power of water heating: up to 97 kW
- Output power of electric heating: up to 30 kW

## Control

- Fan protection is provided by relay
- Heating output power can be controlled by control system VCP
- Two protective thermostats are built-in electric heater



## Operating

- Easy operating thanks to door contact

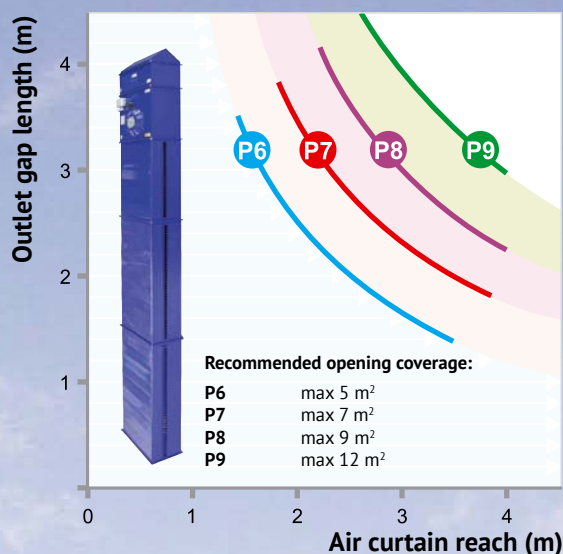
## Mounting

- Easy handling is guaranteed thanks to low weight of separate parts
- Air curtain can be installed in less than hour



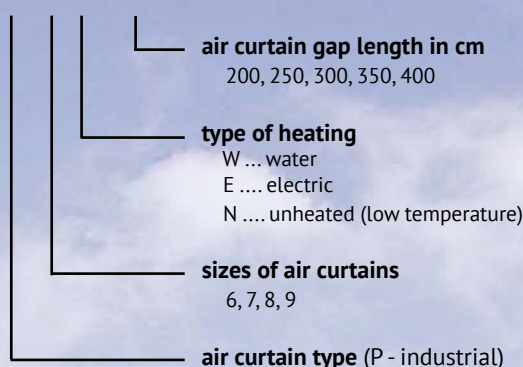
## Industrial air curtains output powers

Basic air curtain selection depends on door height and width and used type of heating. One air curtain should cover door opening of maximal area of 12 m<sup>2</sup>. Air curtains at both sides are installed for larger areas of the opening.



### Type indication

**P - 7 W - 300**



## References

Quality of our industrial curtains is proved by significant investors:

**Black & Decker, T-Mobile, Ikea, Mubea and many more.**

