

How to choose the right air curtain

Using Thermozone technology we design units that are optimized in airflow geometry, performance and sound. This gives you the best possible prerequisites, but that is not enough. To maximise the energy efficiency of the air curtain, careful planning is needed in the design and installation stages. Below is detailed information that you may want to return to later. On the following pages you will find a quick guide to help you choose the right air curtain for your opening.

Important notes:

- The whole width (height) of the opening should be covered
- The airflow must be sufficient for the height of the opening. The load in the door in terms of wind and pressure difference also needs to be considered (read more in the Technical handbook), as well as the frequency of the traffic through the door.
- Balanced ventilation is essential, read more in the Technical handbook
- Air curtains cannot prevent excessive draughts or wind speeds

Building structure

Before installation, it is important to study the structure and ventilation of the building, taking into consideration draughts, likely wind loads and artificial pressure. Balanced ventilation is essential.

If you have a draught problem, the general rule is to choose an air curtain with heat. Ambient air curtains without heat are recommended for use in cold storage openings and air conditioned premises in warm climates. For cold climates, the air curtain with heat may be used with only the fan function during the summer to keep the air conditioned air inside.

Installation

The air curtain should be directed so that a small part of the air stream goes out while the main part comes back into the room. Then the cold outdoor air follows the air curtain out again and the warm indoor air is retained in the building.

When installing recessed units it is important to allow sufficient supply airflow and an unobstructed outlet. Maintenance access should also be carefully considered.

Control the air curtain

Once the correct air curtain has been selected and installed, the final factor to consider is the simplicity and ease of controlling the desired temperatures, speeds and airflow direction. Air curtains are controlled in various ways depending on environmental and financial factors. We recommend regulation options on different levels for each product, from manual regulation with control box and thermostat to automatic regulation based on indoor and outdoor temperature and whether the door is open or closed. The simple solution may be chosen for financial reasons and for small openings that are frequently opened. The advanced solution is intended for premises where the demands are higher such as large entrances, shopping malls, frequently opened industrial doors etc.

Door heaters and air curtains

There are important differences between door heaters, suitable for small doorways, serving hatches, kiosks, etc. and full performance air curtains, primarily designed to provide an air barrier from the top to the bottom of the door.

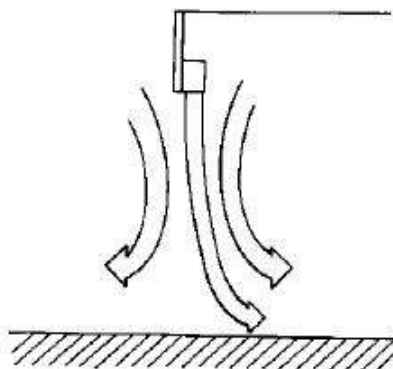
Door heaters heat incoming air and produce a low air flow with high output. The heater may be less expensive than an air curtain and provide a similar heat output figure, but will only cover part of the opening, allowing cool air to enter and warm air to escape. In contrast, air curtains minimise leakage of heated or conditioned internal air by means of high airflow at high speeds, creating an "invisible door". With high output and complete cover of the opening, the true air curtain is more effective, therefore more energy efficient.

Depending on the application, door heaters may be a sufficient source of heat and comfort, but air curtains are a preferred option for energy efficiency and full height doors.

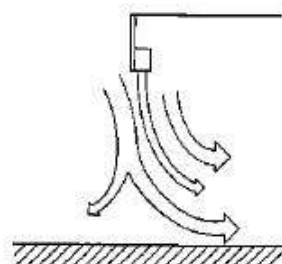
Support

You are very welcome to contact us or our distributors for advice in choosing the right air curtain for your premises. Below is a check list. The more information you can provide us with, the more accurately we can advise you.

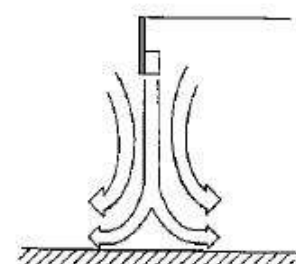
- Type and size of premises
- The width and height of the opening
- Frequency of traffic through the opening
- With electrical heat, water heat (which water temperature) or without heat
- Indoor and outdoor temperature
- Exposure to wind



Correct air curtain



Weak air curtain which cannot cover the door height



Excessively strong air curtain gives energy loss