**Effective Control of Air Curtains: A Guide to Choices and Key Features**

Air curtains are essential for creating comfortable and energy-efficient environments in both commercial and industrial buildings. To achieve optimal results, effective control is needed to adapt the air curtain's function to specific conditions. In this article, we address three key questions regarding the control of air curtains and highlight Masterveil's advanced solutions.

**What should you consider when choosing control systems?**

When selecting control for an air curtain, it is important to analyse the specific needs and conditions where the air curtain will be installed. Some factors to consider include:

- **Door location and usage:** is it an entrance to an outdoor environment or a passage between two indoor zones?
- **Temperature variations:** does the environment involve significant temperature changes that require customized airflow regulation?
- **Energy efficiency:** an advanced control system can minimize energy losses by automatically adjusting the airflow speed.
- **Integration with existing systems:** a control system that supports protocols like ModBus can simplify integration into the building's overall management system.

**What features are particularly important?**

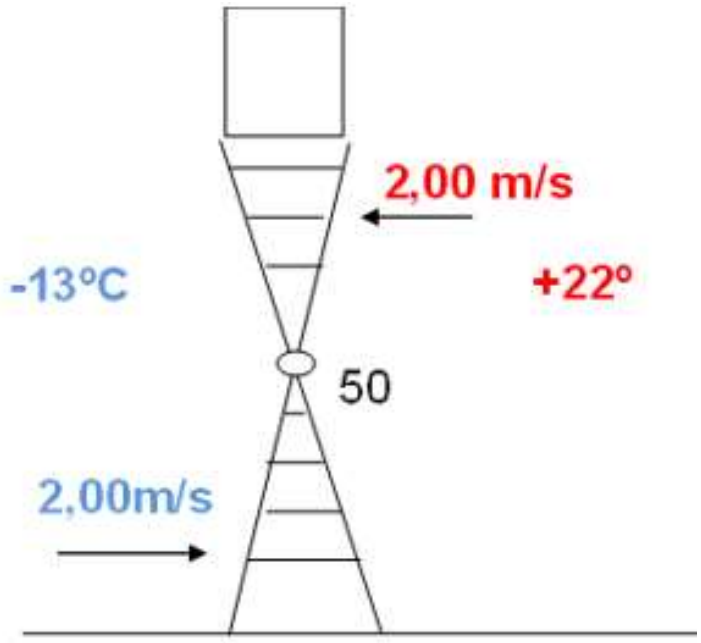
Masterveil's control systems, such as PEC-KE and ERX, offer a range of features crucial for optimal performance:

- **Speed adjustment:** PEC-KE and ERX allow seamless adjustment of fan speed, making it easy to adapt airflow as needed.
- **Automatic activation:** PEC-KE and ERX activate the air curtain when the door opens.
- **Temperature control:** with sensors for both indoor and outdoor temperatures, the ERX system can create a balanced indoor environment.
- **Filter monitoring:** ERX provides alerts when filters need cleaning or replacement, preventing downtime and ensuring high air quality.
- **Adaptation to temperature difference:** airspeed is automatically adjusted depending on the temperature difference (Δt) between indoors and outdoors.

The table below shows the airspeed through the opening at different temperature differences:

| Δt (°C) | Speed (m/s) |
|---|---|
| 10°C | 0.75 m/s |
| 15°C | 1.00 m/s |
| 20°C | 1.25 m/s |
| 25°C | 1.50 m/s |
| 30°C | 1.75 m/s |
| 35°C | 2.00 m/s |
| 40°C | 2.25 m/s |

The illustration (*see figure below*) shows how air moves through an opening at a temperature difference (Δt) of 35°C. At this temperature difference, the airspeed reaches 2.00 m/s. This principle can be used to understand how air movement varies with temperature differences, which is important for dimensioning and regulating the air curtain.



**Are there different control requirements for air curtains above openings to outdoor areas compared to openings between two indoor zones?**

The answer is YES! The requirements vary depending on location and usage:

1. **Openings to outdoor areas:**
    - control is needed to adjust airspeed according to outdoor temperature. The larger the temperature difference, the greater the need for air pressure to counteract cold drafts.
    - temperature sensors, such as in the ERX system, can adjust airspeed based on outdoor conditions.
2. **Openings between indoor zones:**
    - a constant temperature difference with no need for speed adjustment.
    - systems like PEC-KE can provide precise control without requiring extensive installations.

**Masterveil's Solutions: PEC-KE and ERX**

- **PEC-KE:** a compact and flexible unit offering simple speed control, suitable for simpler installations and air curtains without heating.
- **ERX:** an advanced control system capable of handling air curtains with electric heating, water heating, or without heating. The system offers features such as seamless adjustment, temperature control, and filter monitoring. Additionally, ERX can control up to six air curtains from a single unit, making it ideal for larger installations.

With Masterveil's control systems, you can ensure that your air curtain delivers optimal performance and comfort, regardless of where it is installed. Contact us for more information and customized solutions for your needs.

| AIR CURTAIN SYSTEM | STEERING PANELS | | |
|---|---|---|---|
| | ERX | PEC-KE | PEC-KEG |
| ASK | • | • | |
| ASE-K | • | * | |
| AC1000 | | • | • |
| COMPACT 330 | • | | |
| COMPACT 400 | • | | |
| ELLIPS 380 | • | | |
| MTC | • | | |
| MVP-S 999 | - | - | |
| NIGHT CURTAIN | | | • |
| PORTAL 300 | • | | |
| POWERSTREAM DSB | • | | |
| POWERSTREAM DSB AIRLOCK | • | | |
| POWERSTREAM DSB COMFORT | • | | |
| ROUNDEL | • | | |
| TERMINAL | • ** | | |

* = eventually possible

** = with pressure control