

Breathe

Kappa A.I.R.™

Exhaust air technology. Ventilation technology. One system.

THE
FUTURE
HAS ZERO
EMISSIONS

 kappa

Industrial production releases emissions and waste heat.

- halls become polluted, overheated
- employees are affected - often unnoticed
- machinery and equipment get charged
- production quality drops

This we cannot change,
but only reduce.

**TO THE LIMITS
OF WHAT IS POSSIBLE.**

 kappa



**We have been providing
clean air in production halls
for over two decades.
Today, nobody is more
experienced than us.**

Exhaust air technology.
Ventilation technology. One system.

This is

Kappa **A.I.R.**TM

- › for clean air in the hall
- › for productive employees
- › for optimal production quality
- › for greater energy efficiency
- › for lower overall costs



 kappa

A.I.R.™

**Zero emissions
at the workplace
and throughout
the entire hall.
This is the claim of
Kappa A.I.R.™**

 **kap**



A hand is shown holding a glowing yellow object, possibly a piece of machinery or a component, against a dark background. The hand is positioned on the right side of the frame. In the upper left corner, the letters 'pa' are visible in a light, sans-serif font. The overall scene is dimly lit, with the primary light source being the glowing object held by the hand.

Kappa A.I.R.™ combines exhausted air technology and ventilation technology in one system. This is unique. Kappa A.I.R.™ actively reduces the amount of emissions and heat in the workplace and ensures clean air throughout the entire hall.

Air quality and function:

Kappa A.I.R.™ provides ventilation, extracts and eliminates emissions, cleans the hall air and recovers energy from waste heat. If necessary, Kappa A.I.R.™ heats, cools or humidifies the hall.

When planning, we take into account where work is performed, where emissions are generated and where warmth and heat appears. This determines the dimensions of the system and the functions that it is required to provide. The Kappa A.I.R.™ ensures maximum power and energy efficiency.

Cost-effectiveness:

Air treatment systems generally have an effective lifespan of more than 15 years. Thereby the investment costs represent only 25 percent of the total costs, while the rest is attributable to ongoing operating costs. Kappa A.I.R.™ combines the functions of exhaust air technology and ventilation technology in a single system. Synergies are exploited and mutually negative influences of individual components is prevented. Kappa A.I.R.™ reduces investment costs by up to 30 percent and operating costs by up to 50 percent.

Heating, cooling and heat recovery:

Kappa A.I.R.™ offers the option of additionally heating or cooling the hall. Generally, no additional structural measures are required. Waste heat from the production supplies energy for economically sensible temperature control of the hall. Similar to convective underfloor heating, Kappa A.I.R.™ ensures uniform and comfortable heating or cooling of the hall.



Kappa A.I.R.™ is ACTIVE on 5 levels - for optimum air quality and cost-effectiveness

1. ACTIVE - Reduction of airborne emissions at the workplace

Careful planning is a prerequisite for the entire hall to be supplied with clean air. Kappa Diffusors™ distribute air homogeneously. They are placed on the floor across the entire hall and allow the air to flow in a draught-free manner and in all directions. The clean air diffuses - utilising the „Coanda effect“ - across the hall floor. The air flows around all obstacles and penetrates into all areas of the hall.

The fresh air does not mix with the polluted indoor air. This reduces the required air volume and all employees are permanently supplied with clean air. Emissions and waste heat are thus actively displaced from the work area. This reduces airborne emissions at the workplace.



2. ACTIVE - Improved hall air quality

The fresh air pushes itself like a wedge under the emissions and waste heat. As a result, the emission-loaded hall air is displaced from the workstations and recreation areas to the hall ceilings. The thermal convection from the production

supports this. A stable pool of fresh air forms around the workplaces. It ensures separation of the fresh air from the polluted hall air. A backflow of contaminated air into the working area and its flow into other hall areas is prevented.

3. ACTIVE - Removal of emissions and waste heat

The pollutant-laden or heat-laden exhaust air is detected under the hall ceiling by the Kappa COC™ inflow elements - over the entire area and regardless of the source of the emissions. Work and production processes are not hindered in any way. The Kappa COC™ inflow elements generate negative pressure in the area below the hall ceiling. This ensures the capture of all emissions in the hall air.

The performance of the Kappa COC™ elements can be precisely adjusted. The emissions and waste heat captured in this way are fed to the cleaning unit via channels. The inflow elements and channels are flow-optimised. This reduces deposits and lowers energy requirements.



4. ACTIVE - air filtration and heat recovery

In the Kappa exhaust air cleaning station, the polluted air is cleaned, the emissions are separated. The filter systems are state-of-the-art; they are exactly matched to the specific emissions. The separation efficiency of the filter systems is so high that in many cases the exhaust air can be recycled back into

the hall, in whole or in part. The highly efficient filtration of emissions makes it possible to recover the waste heat with a high degree of efficiency, and to use it for energy-efficient heating of the fresh air.



5. ACTIVE - Energy efficiency, heating and cooling

The precisely coordinated system and high-quality components developed by Kappa reduce the amount of air required for optimal air quality. Kappa A.I.R.™ has been developed for load-dependent operation, which also reduces energy consumption. When using the heat recovery function, the fresh air in the Kappa air conditioning is heated to the desired temperature with waste heat.

If required, the fresh air can additionally be heated, cooled or humidified. The fresh air diffusion works independently of the temperature level. Similar to convective underfloor heating, Kappa A.I.R.™ ensures uniform and comfortable heating or cooling of the hall.



Kappa A.I.R.™



Kappa A.I.R.™ actively displaces emissions from the work area.

**Consistently
Upwards
Leaving more air to breathe**

BONUS:

- › **Experience:** Kappa has been installing in-hall air cleaning plants for more than two decades
- › **Accuracy:** Kappa calculation tools allow accurate and energy-efficient planning and design
- › **Quality:** Kappa uses high-quality, self-developed components

RESULTS:

- › 95% less emissions at the workplace¹
- › clean halls
- › lower overall costs

¹Data from a comparison of emissions level present at the workplace with active and inactive Kappa A.I.R.™ systems under identical conditions, corresponding to actual results from real plants. The actual values are plant-specific.

BREATHE!

 **kappa A.I.R.™**

- › modern, future-proof and attractive workplaces
- › competitive advantage through efficiency in production
- › an investment that retains its value





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