



CLEAN AIR. SAVE ENERGY.

Experts in energy-efficient exhaust air filtration.
50 years of environmental technology experience.



ULTRAVENT® III

The benchmark for exhaust air filters

Powerful. Efficient. Reliable.



CLEAN AIR. SAVE ENERGY.



Dear customers and KMA partners,

Good air quality for employees and the environment is gaining increasing importance for companies.

At the same time, modern solutions for capturing emissions and recovering process heat offer enormous potential for optimising energy consumption. In this way, costs can be sustainably reduced and the carbon footprint demonstrably lowered. For manufacturing companies it is crucial that the environmental technology used is reliable, low-maintenance and economical.

At KMA Umwelttechnik, we made these requirements our mission 50 years ago: to clean exhaust air effectively and save energy through user-friendly and economical technology.

The evolved filter technology of the ULTRAVENT® III with integrated cleaning system and extended series equipment sets a new standard for efficiency, innovation and reliability in modern environmental technology.

We are proud that many leading companies in various industries worldwide already rely on our products.

We look forward to supporting you with our experienced team and innovative solutions.

Your managing directors of KMA Umwelttechnik GmbH

Christian Kurtsiefer, Stefan Kurtsiefer and Dr. Holger Wagner

The original made in Germany

ULTRAVENT® III - the benchmark for exhaust air filters



⚡ Powerful exhaust air filtration with a wide range of applications

Improve the air quality in your production with the modern exhaust air filter system KMA ULTRAVENT® III.

ULTRAVENT® electrostatic precipitator cells allow high-grade separation of smoke, dust or sticky emissions as well as finest oil and grease mists. Depending on the industrial application and the relevant clean gas requirements the **ULTRAVENT® offers different filter solutions**. In relation to the desired configuration, the filter system is equipped with a single stage electrostatic precipitator up to a double electrostatic precipitator with optional increased filtration efficiency. More than 3,000 KMA filter systems installed worldwide are proof of the ULTRAVENT®'s performance as **a benchmark for efficiency and reliability** in modern environmental technology.

€ Energy-efficient environmental technology for lower operating costs

Reduce your operating costs with the help of our efficiency benchmark ULTRAVENT® III. Compared to mechanical filtration processes, **the ULTRAVENT® III offers energy savings over 80%**. The exceptional economical operation of the electrostatic particle filter contributes to ULTRAVENT® III's low energy consumption of approximately 1.1 kW to 4.2 kW, depending on the desired exhaust air filter capacity. What's more, the electrostatic precipitator cells, unlike other filter media, do not have to be renewed and discarded at additional costs. The ULTRAVENT® III filter enables the implementation of particularly energy-saving solutions in air management and thus a **significant reduction of CO₂ emissions**. In this way, KMA environmental technology combines tangible cost advantages with a proven reduced ecological footprint.

🌱 Unique cleaning system with minimal maintenance requirements

Thanks to the integrated automatic KMA cleaning system (Cleaning in Place "CIP"), **ULTRAVENT® III is powerful, reliable and low-maintenance**. The various programming options of the cleaning system, such as the preheating of the wash water, the automatic dosing of the cleaning agent and automatic water change increase the **service comfort** for the operator of the filter system. Our proven cleaning system has convinced customers worldwide and **minimises undesired downtimes of the production plant**.

🏠 Strong standard equipment for intelligent control and interfaces

Trust in **high-quality branded components in the ULTRAVENT® III**. Our high standard of our serial equipment offers many advantages. These range from a modern SIEMENS S7 control system to an easily operated 7" touch panel. In addition, it offers numerous interfaces for the integration into your production and maintenance systems, as well as important safety features. The seamless integration of our environmental technology into your system offers a **wide range of control options and additional functions** such as optional remote maintenance.

ULTRAVENT® III product design

Minimum energy consumption with maximum particle separation

Clean air

3

5

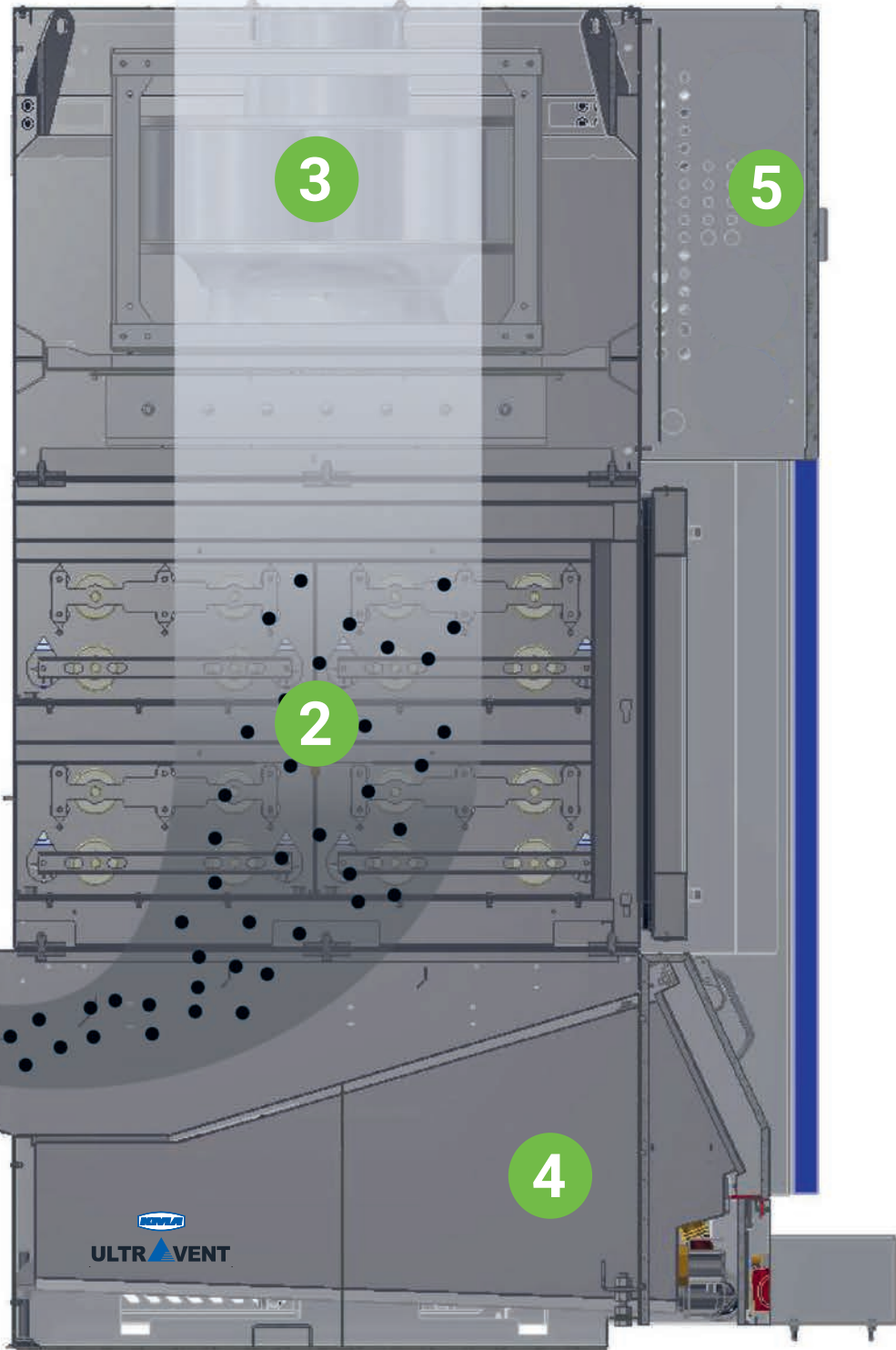
Exhaust air

1

2

4

- 1 Filter entrance
- 2 Electrostatic particle separator
- 3 Energy-efficient fan with speed control
- 4 Integrated automatic cleaning system
- 5 Electrical control cabinet



Using the example ULTRAVENT® III 10000

Options and filter types

Compact in any size

The ULTRAVENT® III is available in different sizes



ULTRAVENT® III 2000



ULTRAVENT® III 5000



ULTRAVENT® III 8000



ULTRAVENT® III 10000

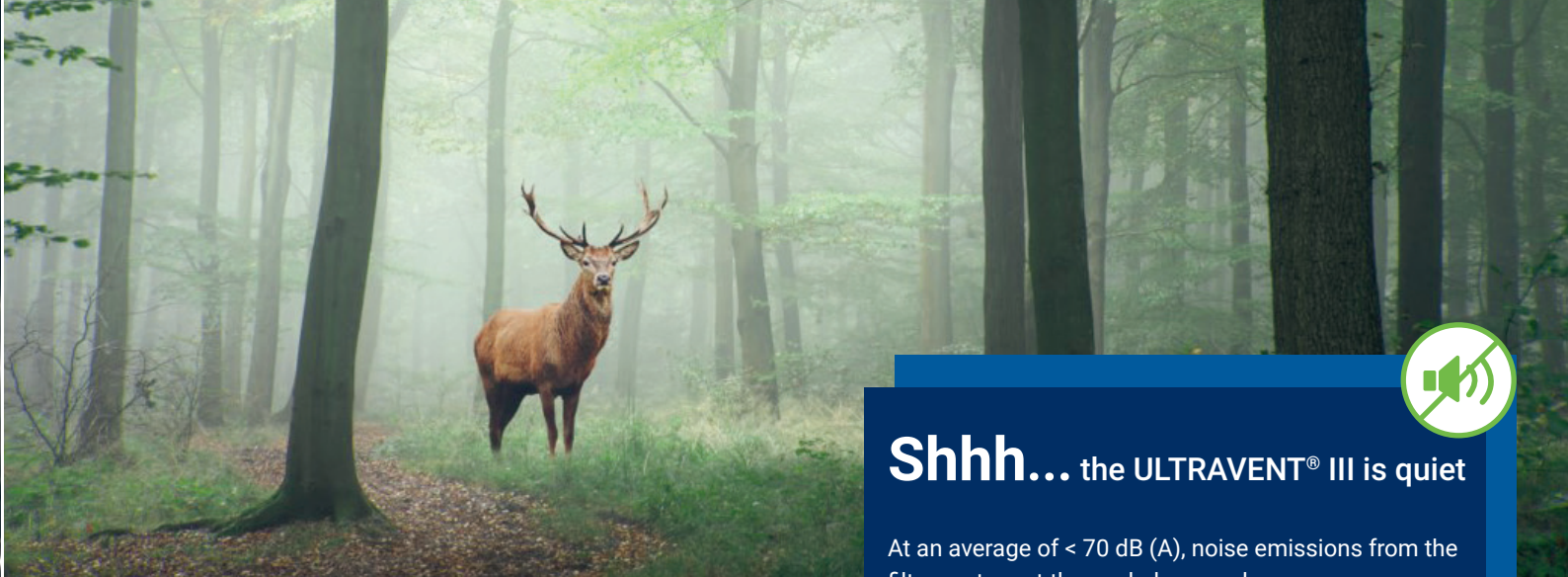
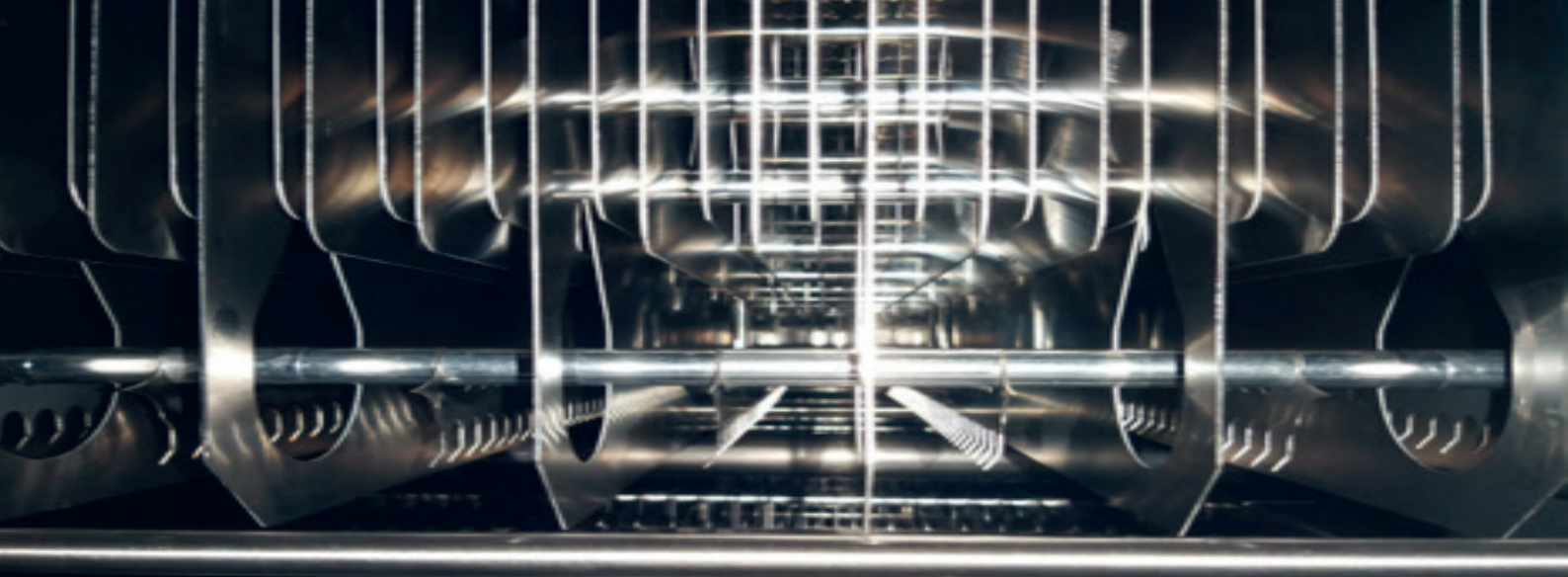


ULTRAVENT® III 15000



ULTRAVENT® III 20000

Filter type	Recommended operating volume	Average energy consumption (filter operation)	Number of filter cells (for air circulation)	Measurements (H x W x D) in mm
ULTRAVENT® III 2000	2.000 m³/h	1,1 kW		1670 x 1030 x 1090 mm
ULTRAVENT® III 5000	5.000 m³/h	1,4 kW		2255 x 1960 x 1370 mm
ULTRAVENT® III 8000	6.500 m³/h	1,5 kW		2255 x 1505 x 1700 mm
ULTRAVENT® III 10000	10.000 m³/h	2,4 kW		2255 x 2050 x 1795 mm
ULTRAVENT® III 15000	15.000 m³/h	3,4 kW		2380 x 2050 x 2465 mm
ULTRAVENT® III 20000	20.000 m³/h	4,2 kW		2380 x 2050 x 2970 mm



Shhh... the ULTRAVENT® III is quiet

At an average of < 70 dB (A), noise emissions from the filter system at the workplace are low.

⚡ Powerful exhaust air filtration for a wide range of applications

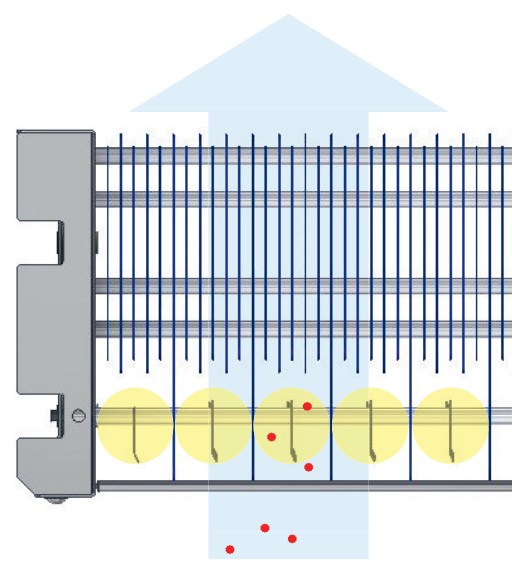
Industrial manufacturing processes generate dust, smoke, sticky and greasy emissions as well as very fine oil mists. Many emissions are harmful to the environment and health.

The ULTRAVENT® III ensures best air quality with the help of electrostatic high voltage: The ionisation electrode generates a strong electric field with a very low energy input. This generates the ionisation for the particles that need to be separated. Due to the electrostatic forces, the charged particles are directed to the collector plates.

Liquid components drip off from there and collect in a water tank at the bottom, while sticky and viscous substances remain on the plates and are effectively removed by the integrated automatic cleaning system. For long-lasting operation, all parts of the ULTRAVENT® III are made of robust stainless steel and aluminium. The ionisation profiles of the filter cells are also made of durable stainless steel. The insulators are made of durable ceramic instead of frequently used plastic.

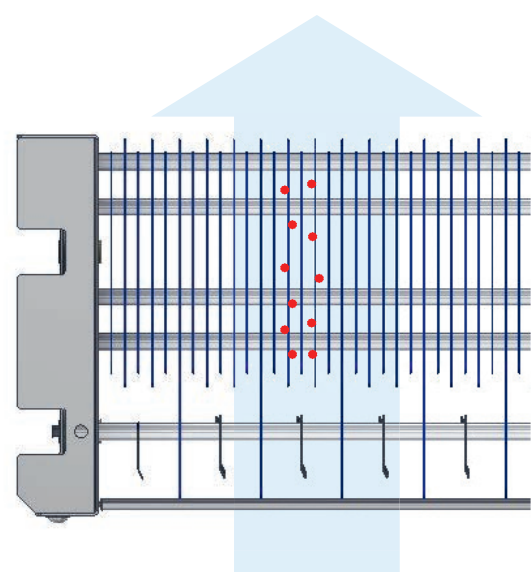
1. Ionisation

High voltage at ionisation electrode generates an electric field in which passing particles are charged.



2. Separation

Grounded collector plates attract passing particles and retain them with minimal air resistance.



KMA ULTRAVENT® offers various configuration options

ULTRAVENT® filter systems are characterised by high energy efficiency in both circulating and exhaust air mode. Depending on the application and the required degree of air purity, ULTRAVENT® offers various filter solutions. KMA's consultants will be pleased to assist you in selecting the right solution and configuration for your filter system.

Single electrostatic precipitator (Type DE):

Double demister, single stage electrostatic precipitator

- Recommended for exhaust air operation or at low raw gas concentration also for recirculation operation

Double electrostatic precipitator (Type EE):

Double demister, double electrostatic precipitator

- Suitable for circulating air mode according to VDI guideline 2262/3
- Optional: Increased filtration efficiency for additional particle and aerosol separation



Recirculation air mode:

- The purified air remains in the hall

In recirculation mode, the filtered exhaust air returns to the workspace, largely avoiding long pipelines, energy-intensive exhaust fans and high heat losses in the winter months.

Exhaust air mode:

- The purified air is led to the outside using a piping system

In exhaust air mode, the filtered exhaust air is transported to the outside and is replaced by fresh air.

Recirculation/exhaust air switchover:

- Alternating operation possible

The ULTRAVENT® III can optionally be equipped with dampers to operate it alternately in recirculation or exhaust air mode.

€ Energy-efficient environmental technology for lower operating costs

The ULTRAVENT® III combines innovation and efficiency. Not only does it help improve air quality, it also **minimises emissions** and **lowers operating costs**, contributing to a sustainable and economical operation. Benefit from state-of-the-art environmental technology that convinces.



The automatic cleaning process provides complete cleaning of all filter cells.

- ✓ **Minimal energy consumption**

Compared to a mechanical filtration process, the energy saving from using the efficient ULTRAVENT® III is over 80%.
- ✓ **Economical operation of electrostatic precipitator**

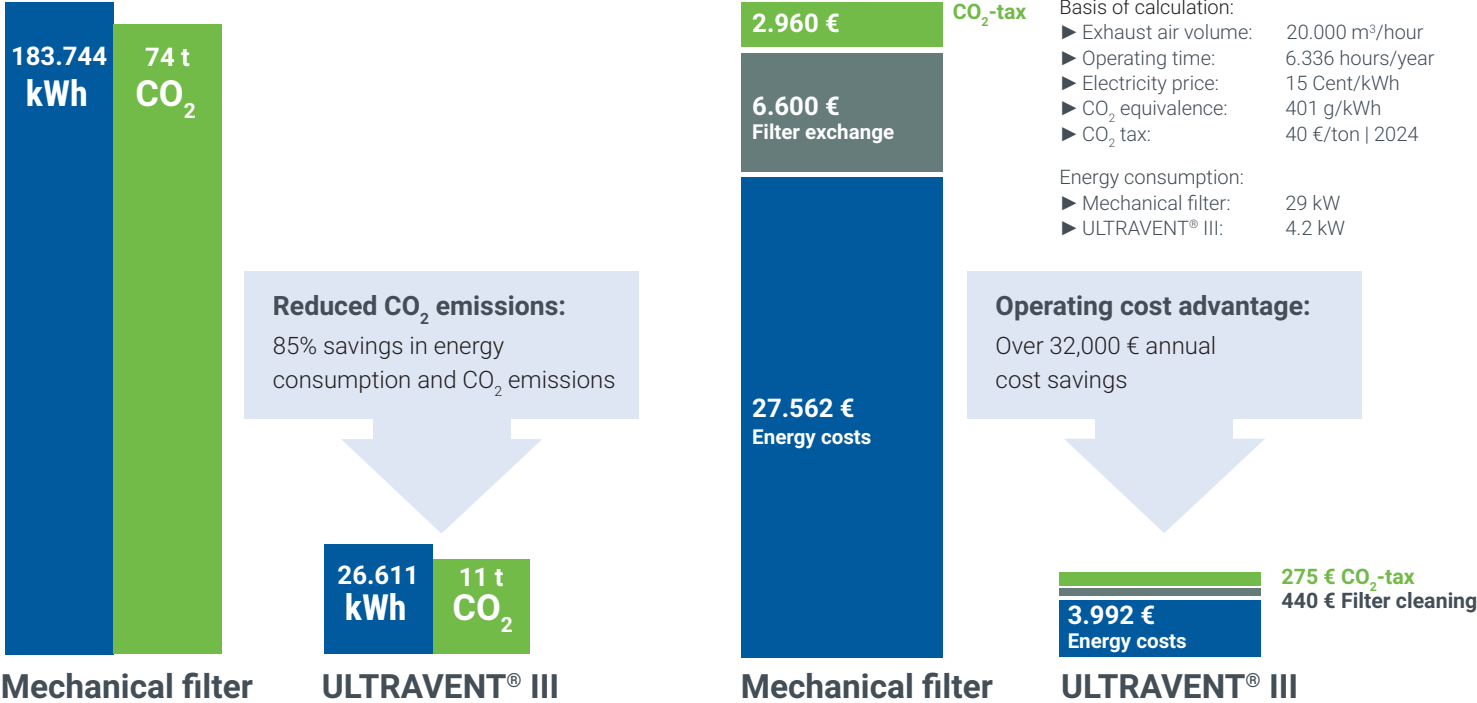
The extremely economical operation of the electrostatic particle filter contributes to the ULTRAVENT® III's efficient energy consumption of approximately 1.1 kW to 4.2 kW, depending on the desired exhaust filter capacity.
- ✓ **Flexible speed control**

ULTRAVENT® III units are equipped with ECO+ technology as standard to flexibly adapt the fan performance to the needs in real time. Due to the dynamic speed control, additional significant savings of up to 40% can be achieved.
- ✓ **Low air resistance**

Due to its unique design the electrostatic filter is optimised for low air resistance and minimal pressure loss.
- ✓ **Automated cleaning system instead of filter replacement**

While mechanical filters have to be changed regularly, our electrostatic precipitators are sustainable and long-lasting thanks to the automated cleaning. This reduces operating costs and the carbon footprint through less waste.
- ✓ **Thin demisters**

Our stainless steel precipitators are as thin as possible and support the electrostatic filter only.



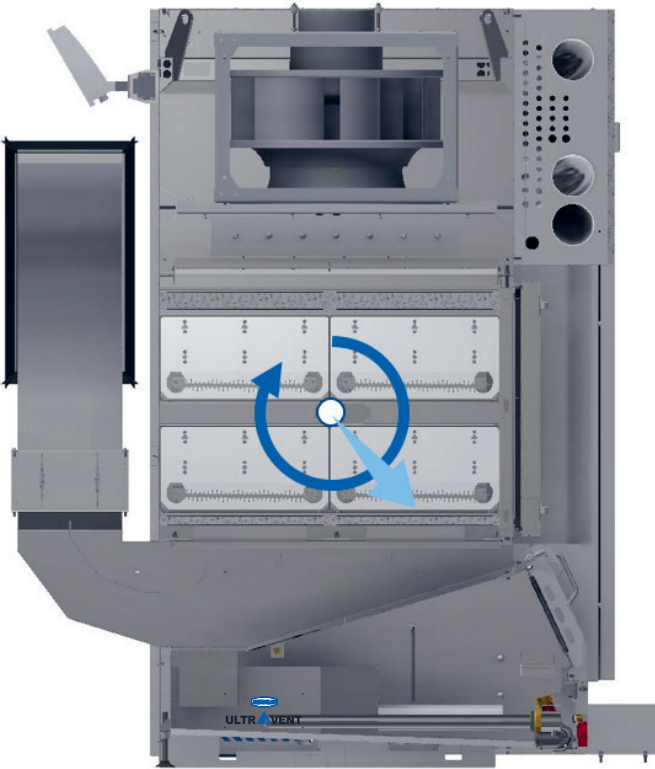
Unique cleaning system with minimal maintenance requirements

Many of our customers already have experience with the cleaning of electrostatic precipitator cells. This work is dirty, tedious and time-consuming. With automatic Cleaning in Place (CIP), the KMA ULTRAVENT® III **relieves the maintenance personnel, reduces the cleaning effort** to a minimum and protects the technology from wear and tear.

Similar to a common household dishwasher, the integrated cleaning system offers a **choice of different programs**.

The filter cells are cleaned automatically within the filter system, thus **minimising undesirable downtimes of the production plant**.

The cleaning system has been evolved over many years and it achieves a unique effectiveness whilst conserving resources.



- ✓ **Strong and proven**

The complete cleaning of the inside of the filter is achieved by spraying the filter cells and insulators with hot water under pressure. Thanks to the **special rotating nozzle system and the powerful water jet**, the KMA CIP system is leading in terms of comfort and result. The wash water can be used several times, depending on the degree of contamination.
- ✓ **Configurable and convenient**

Our continuously improved cleaning system is **fully programmable** and thus adapts seamlessly to your production processes. Standard features include **automatic dosing of the cleaning agent** and an **automatic water change**. Preheating of the wash water during active filter operation can shorten the cleaning time. Thus, the cleaning system is **ready to start immediately with no lead time** on request. Additional functions, such as the automatic water drain valve, minimise the time required by maintenance personnel.



Alternative methods such as mechanical filters typically combine several stages of filter elements with increasing fineness. Thereby a high air resistance leads to high energy consumption of the fan. Due to the lack of cleaning, mechanical filters become quickly clogged by oily and sticky exhaust air. The necessary replacement of the filter elements increases the operating costs.



A strong series standard for intelligent control and interfaces

Rely on the **high-quality components in the ULTRAVENT® III** and the **extensive standard equipment** for control and connectivity of our environmental technology.

A modern control system has a great influence on the user-friendliness, economic efficiency and integration of your plant. KMA also offers complete solutions to operate your plant process-safely and efficiently.

The four success factors for high-performance cleaning systems

The KMA cleaning system offers various programming options depending on the application and can be easily adapted to the situation using the selected configuration options on the filter operating unit. Time, thermal, chemical and mechanical forces interact during cleaning.

Main cleaning program:

In the main cleaning program, the filter cells are cleaned thoroughly on site with water (e.g. for one hour). The desired cleaning time of the main cleaning program can be set individually.

Short cleaning program:

Service times at the production plant can be used to clean the filter cells in a shortened intermediate cleaning cycle of 10 minutes. This option bridges or extends the time period until the next main cleaning.



1. Ideal temperature:

The cleaning water is heated by electrical heating to approx. 80 °C. Contaminants are dissolved better in the hot water. Preheating of the wash water during active filter operation is possible.



2. Effective use of chemicals:

A cleaning agent in low concentration is added to the cleaning water. The correct cleaning solution is ensured by an automatic dosing system. The cleaning agent dissolves oily and greasy deposits.



3. Strong mechanical cleaning:

The hot cleaning mixture is injected into the filter cells via rotating spray bars with a hard water jet at a pressure of 2 bar. More than 140 nozzles per spray bar systematically reach every area of the filter cell. After the cleaning process, the floating oil phase is skimmed off and depending on the degree of contamination, the water can be reused for further cleaning.



4. Time well spent:

In less than 30 seconds, 300 litres of wash water are circulated through the filter cells per cycle. The water runs back into the cleaning tank and is continuously circulated through the system by the cleaning pump for a period of approx. 1 hour. In the case of the ULTRAVENT® III 15000 to 20000, for example, around 40,000 litres per hour are flushed through the filter by two nozzle assemblies.

Intelligent standard

The ULTRAVENT® III is equipped with the **modern SIEMENS PLC S7 with comfortable operation via a 7" touch display**.

The Siemens S7 enables the permanent monitoring and protocolling of all filter functions, the control of the automatic integrated cleaning and the synchronisation of the connected filter system with the production plant. Thus, in addition to monitoring the connected media it allows convenient programming of the CIP cleaning times, wash water temperatures and many other parameters.

Utilise your digitalisation potential

The integration of modern environmental technology into the system environment of production plants and relevant IT systems is indispensable nowadays.

Via the PLC control unit, we offer not only simple and secure management for the ULTRAVENT® III, but also additional functions such as **remote diagnostics and remote maintenance**.

Ethernet/Profi net interfaces are available as **a standard feature** in the ULTRAVENT® III. Additional PN/PN couplers for connection to two Profinet networks are optionally available.

Advantages of extensive integration

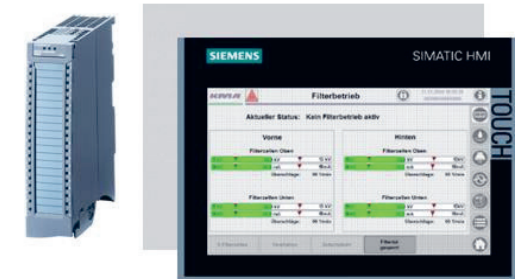
- ▶ Simple programming and parameterisation
- ▶ Interface to other control units
- ▶ Modern ECO+ technology: Synchronisation through flexible fan speed control



Safety First

We attach great importance to safety functions. The standard monitoring system integrated into the PLC constantly monitors the temperature at the system inlet and automatically switches off the filter system in case of excess temperature. At the same time, the flaps close automatically if the air temperatures exceed defined values.

The ULTRAVENT® III has a safety shutdown and mechanical grounding when the filter door is opened. In addition, our proprietary high voltage modules are designed to switch off the high voltage of the filter system extremely quickly. Further safety features are integrated in the high-voltage module as standard. An active fire extinguishing system is optionally available.



System standard:
Siemens SPS S7 and touch panel
incl. Ethernet/Profinet interface



CLEAN AIR. SAVE ENERGY.

Are you interested in the ULTRAVENT® III?
Please feel free to contact us.

KMA Umwelttechnik GmbH
Eduard-Rhein-Straße 2
53639 Königswinter
Germany

www.kma-filter.com

Tel.: +49 2244 9248-0
Fax: +49 2244 9248-30
E-mail: info@kma-filter.de

Technical modifications reserved
Copyright © KMA Umwelttechnik GmbH 2023

