



The system solution for aerosol mist and smoke

Compact Electrostatic Precipitator
MultiTron Premium

purifying our planet

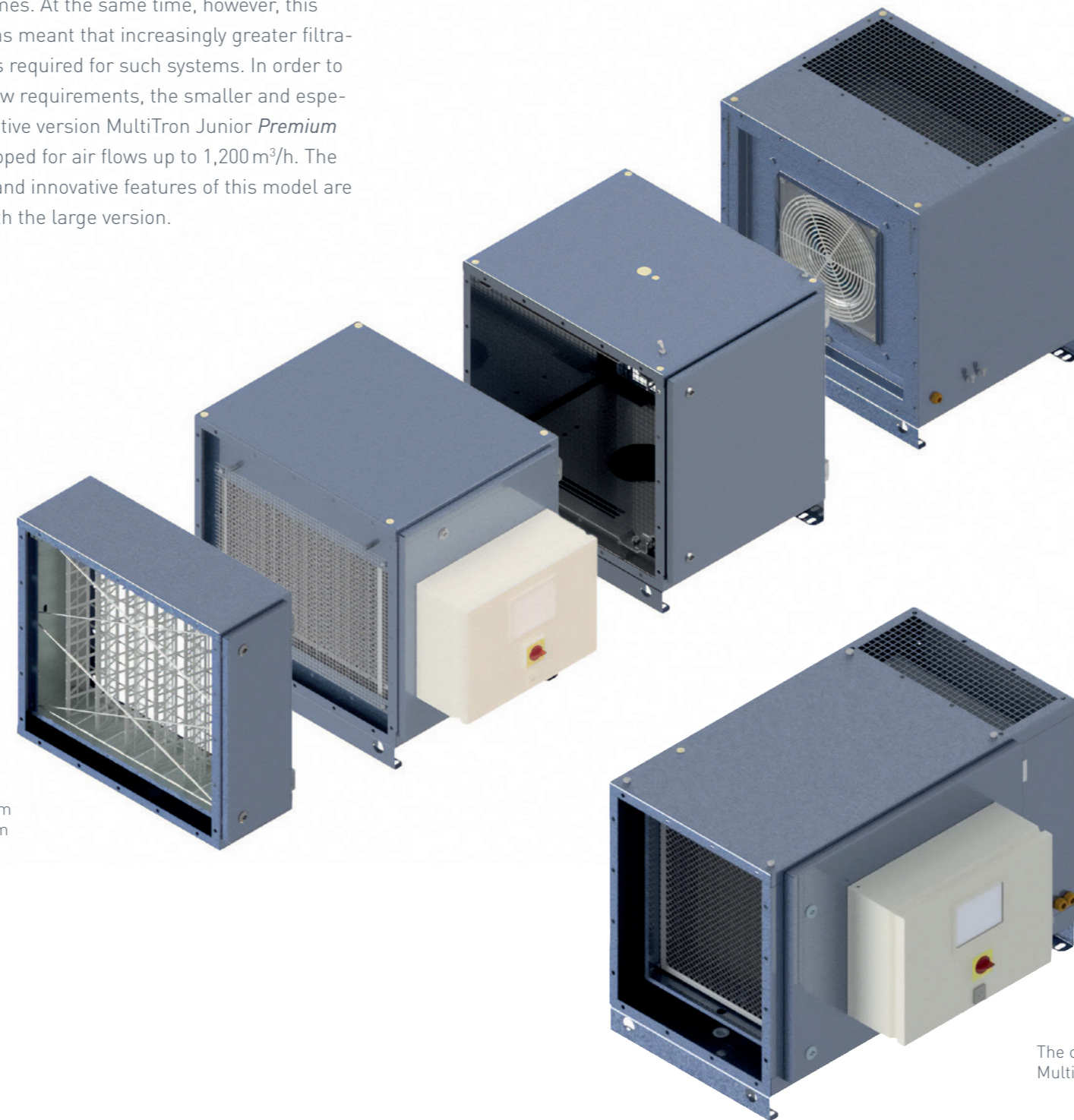
Equally cost effective and environmentally friendly

Where exhaust-air problems arise as a result of aerosol mist and smoke, Hengst Filtration has the perfect solution: the MultiTron Premium, together with Air Eco2nomy, assures clean air at the workplace.

Hengst Filtration stands for competence and experience from more than 100 years of market leadership in air-filter technology. Under the motto Air Eco2nomy, we offer you comprehensively oriented solutions that set economic and ecological standards. Our MultiTron Premium compact electrostatic precipitator is one of the best examples here.

The newly developed system has a modular structure where individual modules can be easily customized to particular requirements. In addition to separation of toxic emissions from metalworking processes, together with cooling lubricants, especially oil, also emissions like texturing mists, ultra-fine dust, smoke, and oxides will reliably eliminate. The polluted air is so thoroughly cleaned with a minimum of energy consumption that the filter system can operate in recirculating air mode. Owing to its very small dimensions, this compact electrostatic precipitator system requires only small space and can be easily installed.

Continuously improved encapsulation means that advanced CNC machine tools often have reduced air extraction volumes. At the same time, however, this development has meant that increasingly greater filtration efficiency is required for such systems. In order to satisfy these new requirements, the smaller and especially cost-effective version MultiTron Junior Premium has been developed for air flows up to 1,200 m³/h. The functionalities and innovative features of this model are the same as with the large version.



The variable system
MultiTron Premium

The compact system
MultiTron Junior Premium

Sustainability for your processes

Air Eco2nomy is more than just engineering. It is an attitude that creates values with a future: quality of life for people. Protection of the climate and environment. Security for companies and investors.

- A high-efficiency filter system for separation of aerosols and smoke
- Effective recirculated-air filtration mode with reliable compliance with specified MAK and TRK limit values
- Modular technology for horizontal installation onto industrial processing machines
- Powerful fans (230 and 400V, 50 and 60Hz)
- Minimal energy costs made possible by the lowest-possible pressure drop
- Long intervals between maintenance and cleaning, as a result of self-cleaning effects
- No costs or disposal problems with replacement media, as a result of electrostatic filter cells that are subject to practically no wear

99.9% pollutant separation – fully automatically controlled

When oil is used as cooling lubricant, submicron aerosols are produced in high concentrations. An efficient filtration system must be capable of reliably capturing these aerosols and of removing the separated oil from the flow of extracted air, before the oil can evaporate and re-enter the extracted air in a gaseous phase. Electrostatic precipitators from Hengst Filtration offer the ideal solution here. Pre-filters capture coarse particles, and the ionizer electrostatically loads the tiny aerosol particles.

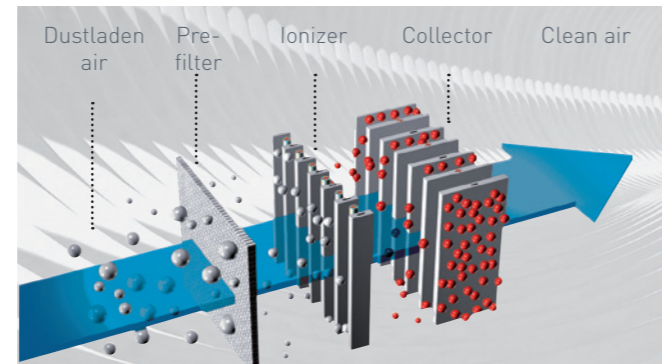
These particles are then safely and reliably separated by a collector, in which they quickly and smoothly flow away.

Thanks to its compact structural design, the MultiTron Premium has a very small footprint. It puts its powerful features into play, though, when it comes to efficiency, cost effectiveness, safety, reliability, and handling. The latest in patented technologies makes the development to a new standard for electrostatic precipitators. An additional plus is its modular configuration. The system modules can be exactly tailored to their operational situations. Depending on the individual design, pre-filters, electrostatic filter, afterfilters and fan assembly are arranged as required.

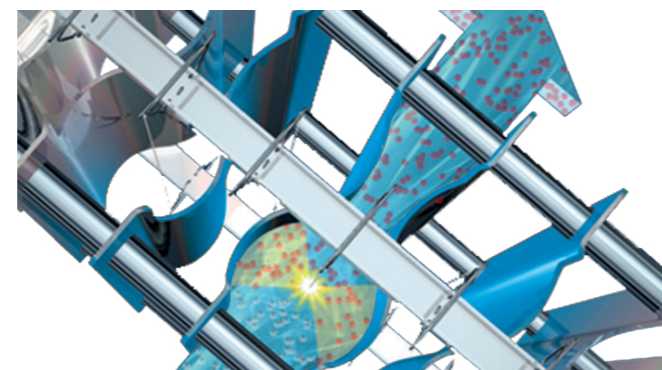
The system separates solid and liquid particles with diameter sizes of $\geq 0.01 \mu\text{m}$. In case of extreme pollutant concentrations, two electrostatic precipitators can be configured in series. Efficiencies of $> 99.9\%$ are possible especially in combination with pre-filter and universal-filter units.

The patented wave-shaped ionizer with its optimized ionization appreciably enhances the filtration efficiency. As alternative, operations are possible with greater air flow, with the same incoming cross-section.

The systems are delivered in pre-assembled mode, which significantly shortens the final assembly time on site. Module units and electronic controls are installed ready for operation, and are tested to ensure flawless function.



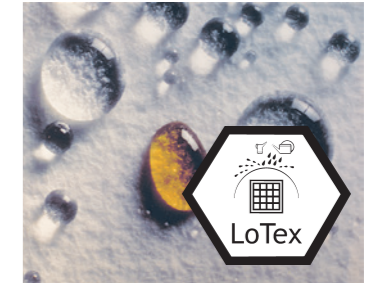
Electrostatic precipitator schematic diagram



A wave-shaped ionizer

LoTex® Filter pads – Technology for low energy consumption

Hengst Filtration has developed LoTex as a brand new filter media based on lotus effect. It is used primarily for separating of liquid droplets from the air stream, as the unique media treatment allows for a significantly reduced wettability. Water, oils, and emulsions easily pearl off, instead of evaporating in the filter and resinifying there. These characteristics mean that relatively large amounts of liquids can be separated and – if desired – can be effectively reused. A further benefit: since the pressure drops with Hengst Filtration LoTex filters are appreciably less than those experienced in conventional demisters (droplet separators), power consumption for air filtration is cut in half. The advantages are double: cost reduction and protection of the environment

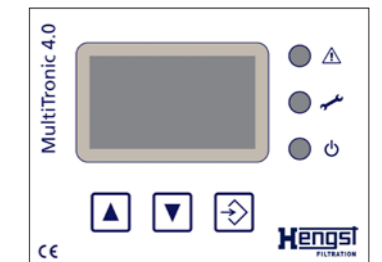


LoTex Filter pads

The MultiTronic comfort control

The patented MultiTronic control system continuously matches the high voltage to fluctuating operating conditions, and keeps the voltage at the optimum level without interruption. The air flow can be controlled on a continuously adjustable basis, and can be monitored and maintained at a constant level. The high voltages for the ioniser and the collector can optionally be controlled separately.

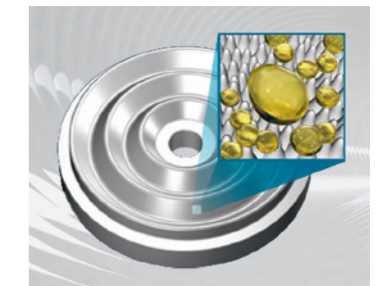
The high-voltage modules are monitored, pressure drops are digitally displayed, and service requirements are signaled. Several floating outputs are provided for remote display of the operating states. As an option, a remote control can be connected.



The MultiTronic 4.0 filter control system

Lotus insulators – nanotechnology for clean surfaces

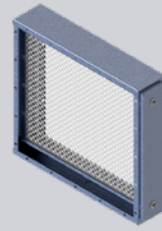
Once insulators in filter systems become dirty, the voltage – and, in turn, the filtration efficiency of electrostatic precipitators – must be reduced to ensure uninterrupted production operations. Our Lotus insulator solves this problem, by a technology copied from nature: the lotus effect of the new surface structures ensures that dirt merely forms beads and rolls off.



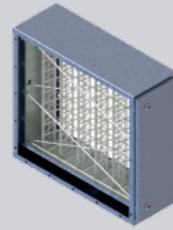
A Lotus insulator

- Patented electrostatic filter cells with optimal air-flow profile
- Separated ionization and collector section for enhanced handling
- High-voltage insulators made of high-quality KER 221 ceramic, with the self-cleaning lotus effect
- Process-controlled high-voltage unit with high-frequency technology
- Patented MultiTronic filter control system
- Disposal fittings provided as standard for each filter stage
- Fast replacement of plug-in seals made of nitrile butadiene rubber (NBR) with stainless-steel cores

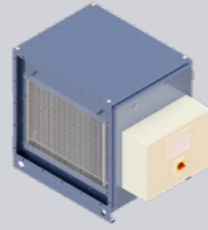
Technical Data



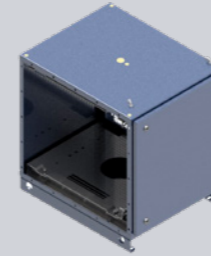
Pre-filter unit V



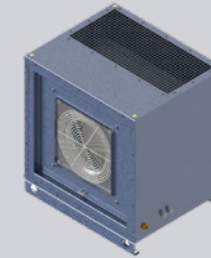
Pre-filter unit V_w



Electrostatic filter unit E



Afterfilter unit N



Fan unit F_{ec}

Size		KEF 1/1	KEF 2/1	KEF 2/2	KEF 2/3
Max. air flow	m ³ /h	2.500	3.200	6.400	9.600
Width	mm	618	618	1.200	1.803
Height (+ 60 mm for base)	mm	578	740	740	740
Max. operating temperature	°C	40	40	40	40
Relative humidity	%	20–90	20–90	20–90	20–90

Filter modules		KEF 1/1	KEF 2/1	KEF 2/2	KEF 2/3
Pre-filter unit V					
Length	mm	136	136	136	136
Weight (without filter insert)	kg	14	17	30	45
Number of filter stages		2	2	2	2

Pre-filter unit V_w					
Length	mm	223	223	223	223
Weight (without filter insert)	kg	16	19	34	60
Number of filter stages		2	2	2	2

Electrostatic filter unit E					
Length	mm	500	500	500	500
Weight (without filter insert)	kg	64	73	110	150
Number of filter stages		1	1	1	1
Rated voltage	VAC 50 Hz ¹	400	400	400	400
Power consumption	VA	60/120	60/120	120	180
Amperage I _N	mA	5/10	5/10	10	15

¹ Also available with 60 Hz

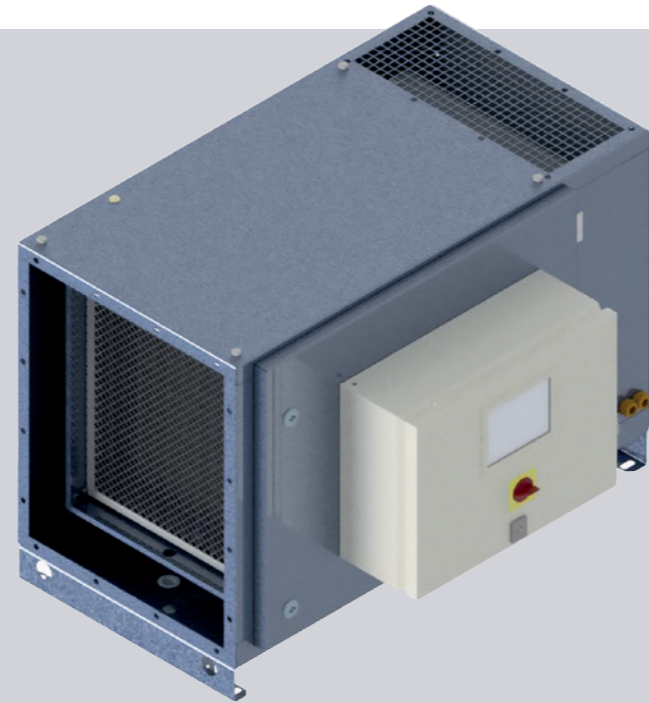
Fan modules		KEF 1/1	KEF 2/1	KEF 2/2	KEF 2/3
Afterfilter unit N					
Length	mm	500	500	500	500
Weight (without filter insert)	kg	33	38	69	85
Number of filter stages		2	2	2	2

Fan modules		KEF 1/1	KEF 2/1	KEF 2/2	KEF 2/3
Fan unit F_{ec} (continuously controllable)					
Length	mm	500	500	500	800
Weight (without filter insert)	kg	41	44	77	175
Rated voltage	VAC 50/60 Hz	3–380–480	3–380–480	3–380–480	3–380–480
Power consumption	kW	0.94	1.66	3.0	6.0
Sound pressure level ¹	approx. dB (A)	≤ 70	≤ 70	≤ 73	≤ 75

¹ at a distance of 1 m

Equally cost effective and environmentally friendly


- Single-part steel enclosure with oil-tight welding and with 3 chambers that are sealed off with respect to each other (i. e., no by-passes)
- Available as option: integrated pre-filter chamber and 2 slide-in units for the filter media
- Fan with great degree of efficiency and with minimal energy costs
- Effective recirculated-air filtration mode with reliable compliance with specified MAK and TRK limit values
- Patented MultiTronic filter control system, and self-cleaning insulators (see MultiTron Premium)



MultiTron Junior Premium with two electrostatic precipitator stages

Size	   	KEF 025/1
Max. air flow	m ³ /h	1,200
Width	mm	580
Height	mm	583
Length	mm	1285
Weight	kg	95
Max. operating temperature	°C	40
Relative humidity	%	20–90
Rated voltage	VAC 50/60 Hz	400
Power consumption high-voltage module	VA	60
Amperage I _N high-voltage module	mA	5
Fan power consumption	kW	1.18
Sound pressure level ¹	db (A)	< 65

¹ at a distance of 1 m

Size	  	KEF 025/1
Max. air flow	m ³ /h	1,200
Width	mm	464
Height	mm	583
Length	mm	825
Weight	kg	75
Max. operating temperature	°C	40
Relative humidity	%	20–90
Rated voltage	VAC 50/60 Hz	400
Power consumption high-voltage module	VA	60
Amperage I _N high-voltage module	mA	5
Fan power consumption	kW	1.18
Sound pressure level ¹	db (A)	< 65

¹ at a distance of 1 m

MultiTron Junior Premium with afterfilter (H13)

Size	   	KEF 025/1
Max. air flow	m ³ /h	1,200
Width	mm	580
Height	mm	583
Length	mm	1125
Weight	kg	90
Max. operating temperature	°C	40
Relative humidity	%	20–90
Rated voltage	VAC 50/60 Hz	400
Power consumption high-voltage module	VA	60
Amperage I _N high-voltage module	mA	5
Fan power consumption	kW	1.18
Sound pressure level ¹	db (A)	< 65

¹ at a distance of 1 m

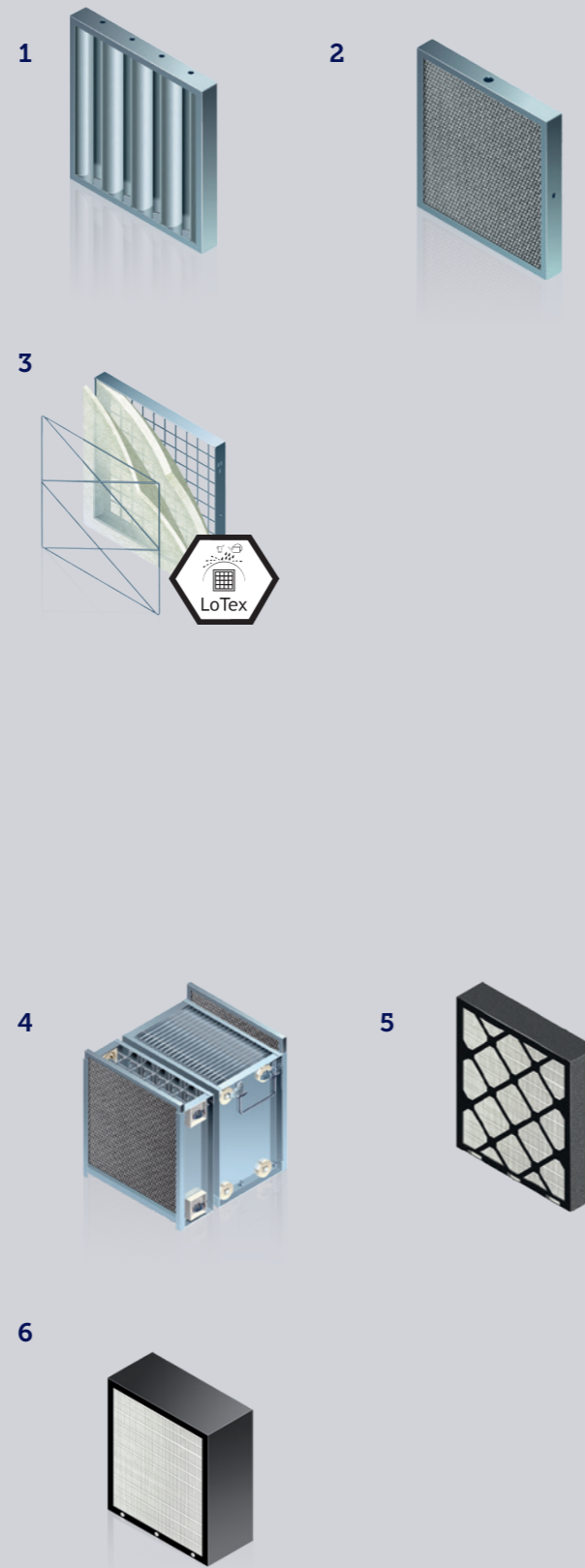
Filter media

Pre-filter

1. **Droplet separator**
Offset arranged stainless steel profiles, regenerable
2. **Metal filters**
Different types of metal filters for a wide range of applications
3. **Filter pads LoTex® M5**
Synthetic-fiber fleece with progressive depth structure; not regenerable

Main and afterfilter

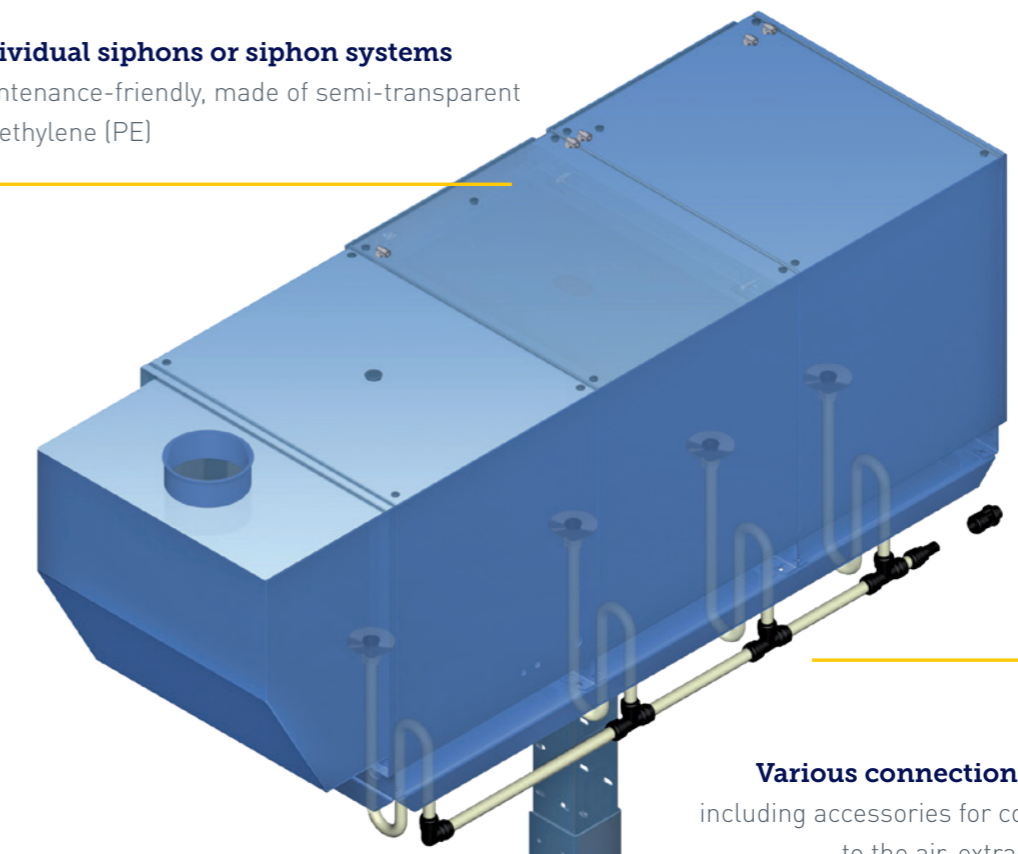
4. **Electrostatic filter cells**
Consist of ionizer and collector, as well as two metal filters
5. **Filter cell ePM1 50 % / ePM1 80 %**
Pleated micro-glass-fiber fleece, oleo- and hydrophobic, in plastic frame; not regenerable, can be used in N unit
6. **E11, H13 HEPA filters**
Pleated micro-glass-fiber fleece, in metal frames; not regenerable, can be used in N unit



Accessory

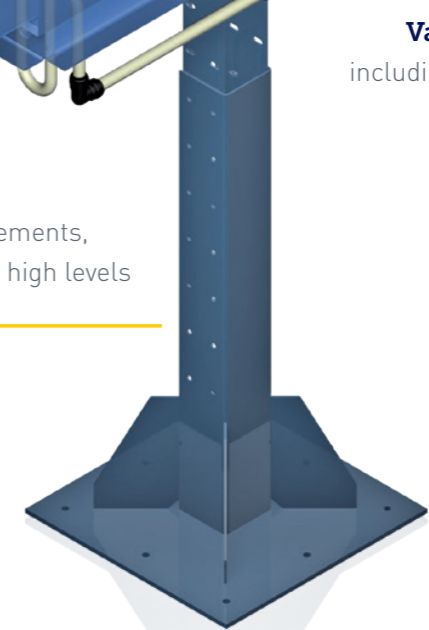
The following accessories are available for MultiTron Premium and MultiTron Junior Premium:

Individual siphons or siphon systems
maintenance-friendly, made of semi-transparent polyethylene (PE)



Various connection adapters
including accessories for connections to the air-extraction point

Installation uprights
adjustable heights in 100-mm-increments, from 1.8 to 2.5 m, for installation at high levels



purifying our planet



Hengst Filtration is a globally operating company with great expertise in air treatment, air conditioning and filtration technology.

Our nearest consulting and service teams will be glad to discuss ideas and develop creative and effective solutions with you.

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Hengst
FILTRATION