

Air Eco₂nomy[®]



GEA air extraction and filter systems for mechanical processing

Fresh air for your
production processes

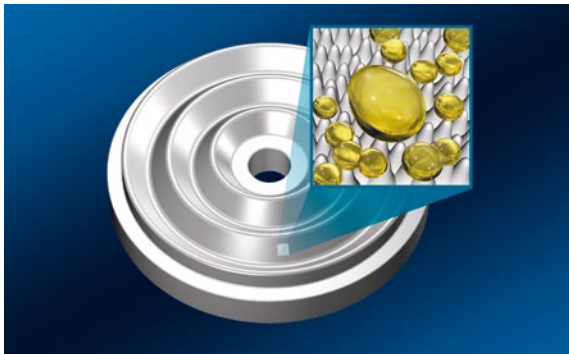
Competence in air treatment and environmental protection

Air extraction and filter systems

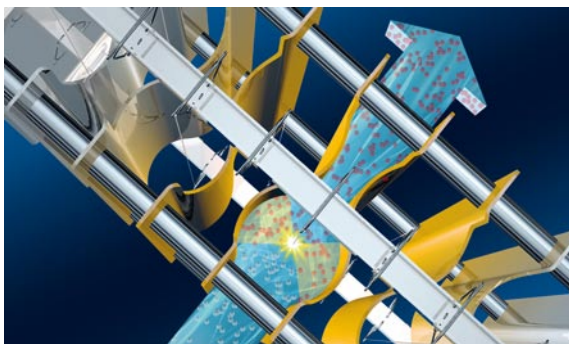
GEA Delbag Lufttechnik sets standards

Beginning as early as 1909, our engineers began to develop advanced filter technologies for air-supply and extraction systems. This dynamic innovation power has continued without slacking until today.

Year after year, we at GEA Delbag Lufttechnik invest considerably in developments that not only keep pace with growing requirements – but also set standards in quality and functionality. We assure this progress by research and development in our own laboratories and by intensive collaboration in the scientific working groups of our professional societies and in the German Employers' Liability Insurance Association (*Berufsgenossenschaften*). Nothing highlights the extent of our expertise better than fact that standardization bodies and specialist congresses on worker protection regularly ask for support from the professional know-how of our experts. Convince yourself on our latest innovations, including the following:



A Lotus insulator



A wave-shaped ionizer



The MultiTronic 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.

■ Wave-shaped ionizers – for greater aerosol removal

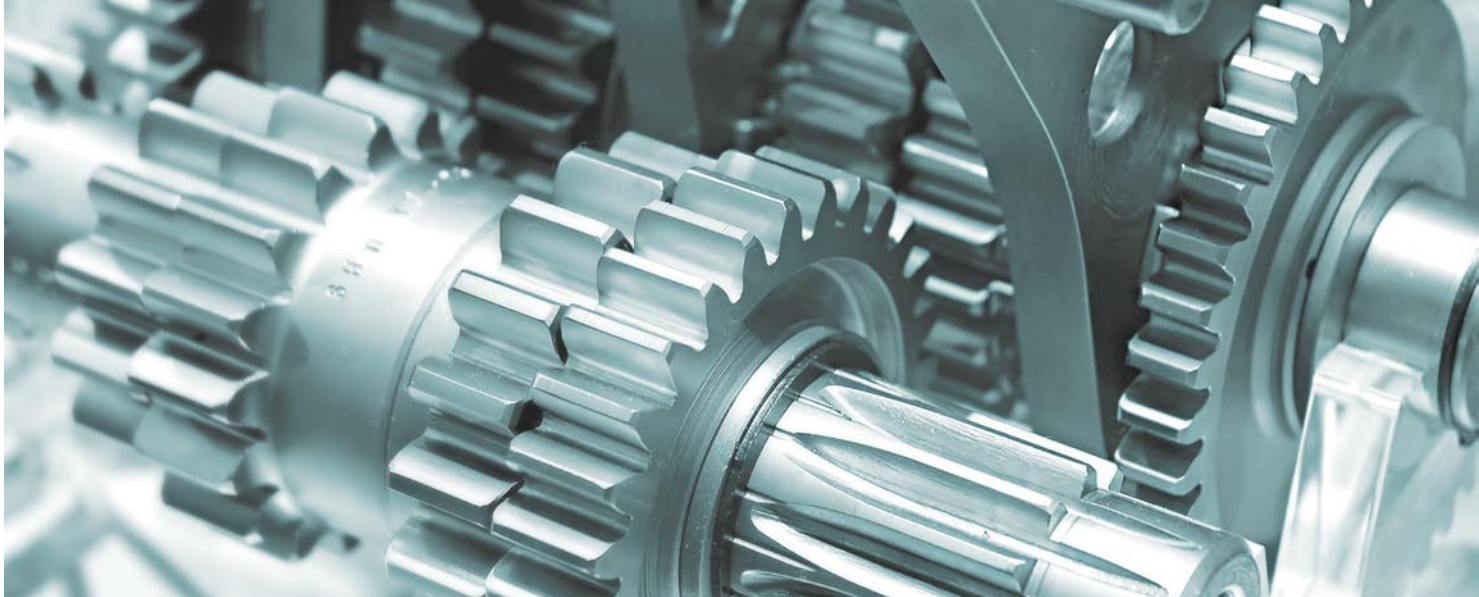
Electrostatic precipitators from GEA Delbag Lufttechnik, with patented wave-shaped ionizers, remove significantly more particles than do conventional technologies.

■ MultiTronic – worldwide unique filter control system

GEA Delbag Lufttechnik is the only supplier of this patented innovation. The processor-controlled MultiTronic system automatically controls the high voltage. In case of malfunctions, the MultiTronic temporarily reduces the voltage and later increases the voltage in stages to the optimal level. The filtration efficiency remains constantly at the maximum possible level. Conventional electrostatic filters do not offer these functions. In addition, the system permanently monitors the central values of the system. This documentation function is likewise unique and allows determination of the optimal point in time for maintenance work.

GEA Delbag Lufttechnik is a genuine value-added partner for industry, and is an active member in the German Engineering Federation (VDMA). GEA Delbag Lufttechnik is certified according to DIN EN ISO 9001:2008 and of course is subjected to periodic inspections by German Technical Inspection Agencies (TÜV). All GEA Delbag Lufttechnik products carry the CE mark.





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.

Air Eco₂nomy

The economically and ecologically convincing solution

GEA Delbag Lufttechnik offers an extensive portfolio of air extraction and filter systems that are effectively and individually matched to the circumstances of your operations.

- Modular systems for complete production floors or for individual machines
- Effective application for tool machines that use oil or emulsions as cooling lubricant
- In cases of insufficient amounts of lubrication, continuation of production as dry processing or with minimum-quantity lubrication
- Filtration of aerosol mist and solid particles

Air purity has top priority in the metalworking industry. Even though pollution has been extensively reduced over the past years by encapsulation of machine tools throughout industry, oil mists, aerosols, and dust encountered in metalworking still pose a serious danger for humans and environment. The solution: Air Eco₂nomy by GEA.

Despite all progress made in this area, the German Employers' Liability Insurance Association (*Berufsgenossenschaften*) regularly measure excessive concentrations of hazardous substances in the air extracted from industrial processing machines. Such conditions endanger staff and frequently lead to unwished down time and to expensive production shortfall – to say nothing of the legal consequences. In Air Eco₂nomy, GEA Delbag Lufttechnik offers you a comprehensive problem solution: one that is not only ecologically but also economically truly convincing.

Air Eco₂nomy combines the entire competence and experience of around 100 years of market leadership in air-filter technology. Its air extraction and filter systems set standards for sustainability and flawless system integration. We comply with all legal regulations and other obligations. People and the environment are reliably protected. Production proceeds without malfunctions and on a profitable basis.

From dust to aerosols

Optimal filtration technology matched to every form of air pollution

There is an enormous number and variety of pollution possible in rooms and working-air environments in processing industries. Particles from cooling lubricant mix with residues of removed material and produce air pollution with a great range of compositions. But, whatever pollution is produced: Air Eco₂nomy from GEA Delbag Lufttechnik enables finding the optimal filter system for each individual requirement.

■ Submicron oil mist

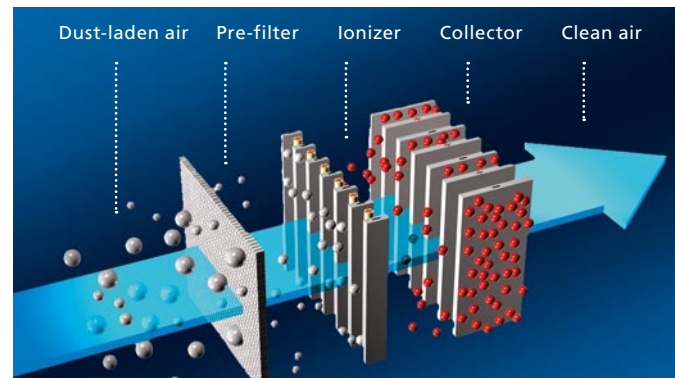
When oil is used as cooling lubricant, submicron aerosols are produced in high concentrations. An efficient filtration system must be capable of reliably capturing these aerosols and of removing the separated oil from the flow of extracted air, before the oil can evaporate and re-enter the extracted air in a gaseous phase. Electrostatic precipitators from GEA Delbag Lufttechnik 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.

■ Dry processing or minimum-quantity lubrication

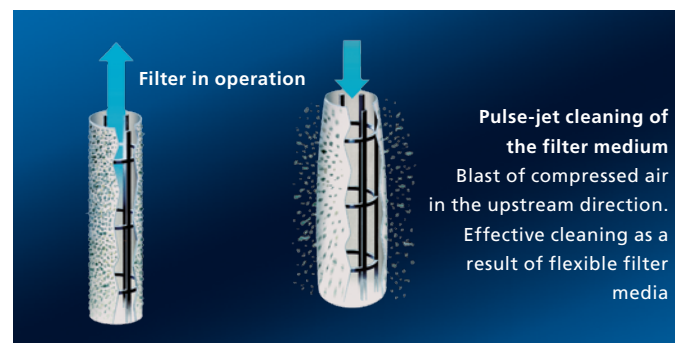
Extremely small dust is produced during dry processing and in machining with minimum-quantity lubrication. Two filter systems can be used as solution here: surface filters for high dust concentrations, or depth-loading filters for lower concentrations. Thanks to their flexible filter materials, surface filters allow effective cleaning of the filter media, which means that their service lives are comparatively long. Depth-loading filters, on the other hand, can be used at higher specific air-flow rates. They also require less room.

■ Emulsion-mist precipitation

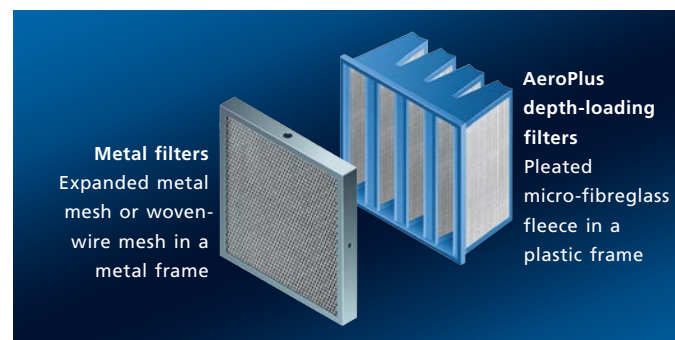
Mists resulting from water-mixed cooling lubricants or emulsions also carry fine aerosols. These mists, however, have properties that are different from oil and dry dust. Our filter combinations assure high degrees of droplet separation and very fast collection of the separated droplets. By using different types of pre- and fine filters, the filtration process can be optimally adapted to each individual application.



Electrostatic precipitator schematic diagram



Surface filtration schematic diagram



Metal filters and AeroPlus depth-loading filters

Solutions for all production conditions

Precisely what you need – central or decentral extraction

Our systems offer a customised solution for each location and for all production conditions. If a company's machinery pool remains constant over relatively long periods of time, we recommend either central or group air-extraction units. If, however, greater flexibility is desired and if the machinery pool changes more frequently, we recommend decentral extraction with our compact filter units installed directly at the machines. Both variations reliably ensure clean air.

Central air extraction

■ The MultiMaster Vario – for almost any air-duct size

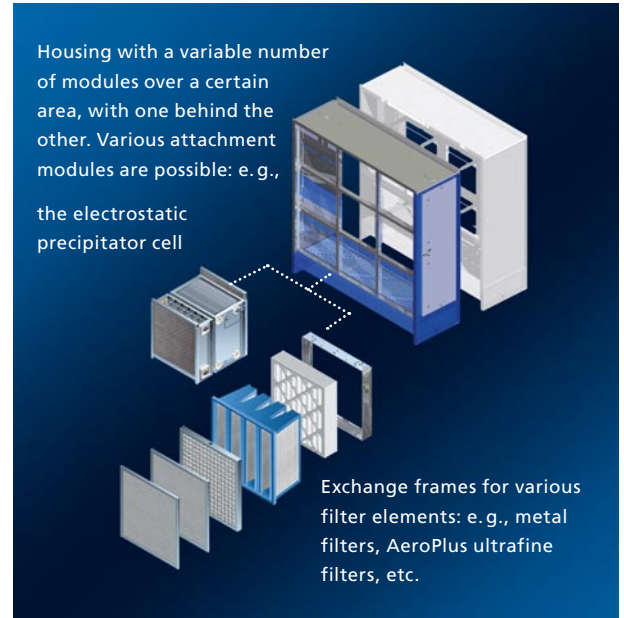
This modular system leaves no wish unfulfilled. A basic enclosure accommodates the filter units of your choice. Cross-sections are available in 610-mm Euro grid sizes. As a result, there are hardly any limits for the air volumes to be filtered. Since the enclosures are also variable in depth, several filter stages can be implemented, one after the other. The MultiMaster Vario system is also complemented by additional filter systems:

- The **KNA** three-stage duct mist precipitator (for oil-mist and emulsion-mist separation)
- The **KNA/R** variation with regenerable filter media
- The **MultiClean** duct air filter (for dust and oil-mist and emulsion-mist separation)
- The **MultiJet** dust collector with automatic filter-cleaning system (for continuation of production as dry processing or with minimum-quantity lubrication)

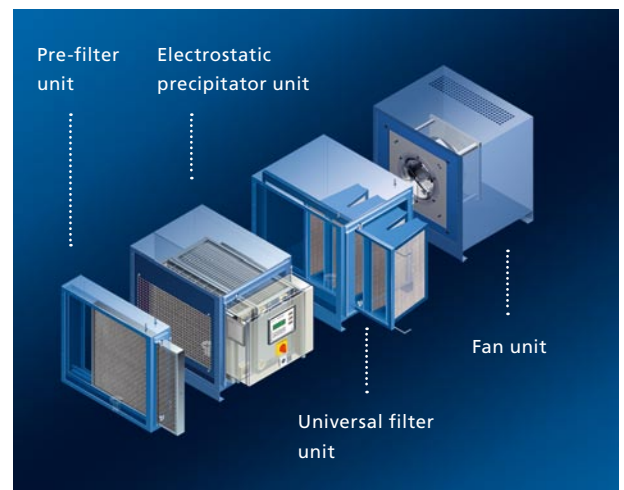
Decentral air extraction

■ The MultiAir Premium and the MultiTron Premium – compact and highly versatile

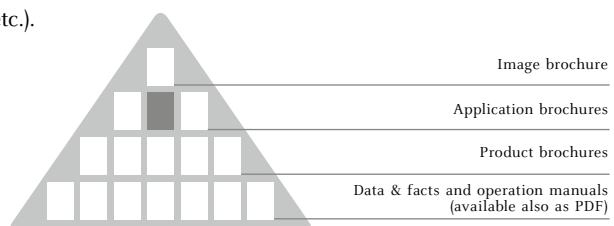
These compact units are matched to any machine and are available for small air volumes, as well in a Junior version. These systems can be fitted with the complete range of accessories. The modular design is a benefit here as well: there is a flexible selection of fans (with various capacities; AC or 3-phase, 50/60 Hz, UL/CSA certification, etc.).



The MultiMaster Vario schematic diagram



The MultiTron electrostatic precipitator compact unit example of one configuration



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