



We Fight Unhealthy Air!

Product brochure



BMair

Every machine operator deserves clean air



BMair is dedicated to protecting what matters most: your employees. While the dangers of large, contaminated project sites are often recognized, significant health risks also exist inside the cabin, where operators may be unknowingly exposed to (micro) dust, gases and vapors on a daily basis.

As the global market leader in protective ventilation systems, BMair provides high-quality, tailored solutions to address these hidden hazards across a wide range of industries, for machines operating in heavy, polluted environments. For more than 25 years, we have ensured that machine operators can work safely and in good health.

Our protective ventilation systems filter harmful substances from the air and create a safe working environment inside the cabin. This ensures that operators are protected against dust, fumes, gases, and vapors. We combine proven filter technology with intelligent monitoring, giving you continuous insight into air quality and system performance.

How our systems work

BMair protective ventilation systems are mounted on the cabin or machine and operate as follows:

- 1 Air intake:** Outside air is drawn in.
- 2 Filtration:** Coarse dust is removed first, followed by fine dust through HEPA technology, and gases/vapors via activated carbon filters.
- 3 Protection:** Clean air is blown into the cabin with overpressure, preventing contaminated air from entering through cracks and holes.
- 4 Monitoring:** The system continuously checks filter status, overpressure, and air quality, and logs all this info.



The benefits for your organization

Healthy and productive employees

Operators who are not exposed to harmful substances every day experience fewer sick days, more energy, and greater motivation. Health is the foundation for higher productivity and job satisfaction. The chances of your employees developing a serious illness declines.

Always compliant

Our systems help you comply with regulations such as ISO 23875 and occupational safety guidelines. This way, you avoid fines, legal risks, financial and reputational damage.

More uptime, lower costs

Protective ventilation systems prevent air conditioners from clogging with dust too quickly, avoiding expensive repairs and downtime. Use of our systems achieve on average 10% more uptime per machine, around 5 extra working days per year. This results in savings of approximately €10.000 in per machine per year.

Being safe and healthy is our standard

We genuinely care about protecting the people who work in tough and hazardous environments. Eliminating health risks for the health of your employees is our biggest priority.

Too often we hear stories of former operators with serious health risks, sometimes even leading to premature death. On the other hand, we also see employees standing up for their health more often, for example by starting law-suits against their former employer. This makes the need for protection of your employees during their work even greater.

In this brochure we will show you what hidden dangers lie in your sector, and more importantly, how our systems help you protect your operators from those dangers by creating a safe work environment inside the cabin.



Danger in the work environment

Waste & Recycling



Mining



Storage & Transport



Waste & Recycling > Biological agents, asbestos and hazardous substances form a risk for operators during e.g. collection, transportation and re-handling of the waste materials. Contact with these substances can lead to skin infections and eczema, burns, fainting, lung cancer and mesothelioma.

Mining > Silica, DME and low oxygen levels form a risk for operators at mines. Contact with these substances can lead to dizziness, unconsciousness, brown lung disease and lung cancer.

Storage & Transport > Silica, biological agents and soot/PAHs form a risk for drivers transporting harmful substances from sectors like composting, remediation, recycling, demolition and mining. Contact with these substances can lead to skin infections and eczema, brown lung disease (pulmonary fibrosis), lung cancer, respiratory problems and cardiovascular disorders.

Demolition



Remediation



Composting



Demolition > Silica, asbestos and soot/PAHs form a risk for operators during demolition work. Contact with these substances can lead to headaches, nausea, irritation of eyes and throat, fatigue, respiratory problems, cardiovascular disorders, brown lung disease, lung cancer and mesothelioma.

Remediation > Benzene, vinyl chloride and cyanide form a risk for operators dismantling e.g. derelict factories, tar pits and waste sites. Contact with these substances can lead to headaches, dizziness, nausea, eye irritation, acute myeloid leukaemia and even death.

Composting > Ammonia, hydrogen sulphide and biological agents form a risk for operators at e.g. composting plants and biomass processors. Contact with these substances can lead to health risks like fatigue, sleepiness, irritable eyes, inflammation and irritation of the respiratory organs, pulmonary embolism, skin infections and eczema.



BMair Connect Portal

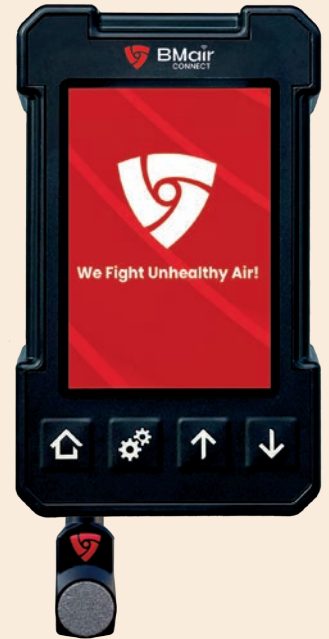
The real-time monitoring system that brings machine cabins online

The BMair Connect Portal brings cabin safety fully online. The BMair Connect control unit is installed inside the cabin, where it monitors air quality, pressure and filter performance.

All data is then transmitted directly to the BMair Portal, giving you one clear dashboard for automatic logging and compliance of every cabin across your fleet on your laptop or phone.

BMair Connect can be optionally expanded with a plug-and-play gas sensor.

In environments where carbon filters are installed, it is recommended, and often required, to place a sensor. Various types of sensors are available, including VOC, NH₃, and CO₂.



Control over cabin safety and compliance

Real-time insight, anytime

- Monitor cabin overpressure, air quality, and machine location 24/7
- Instant overview of your entire fleet
- All data automatically transferred via integrated 4G module

Smart automatic functions

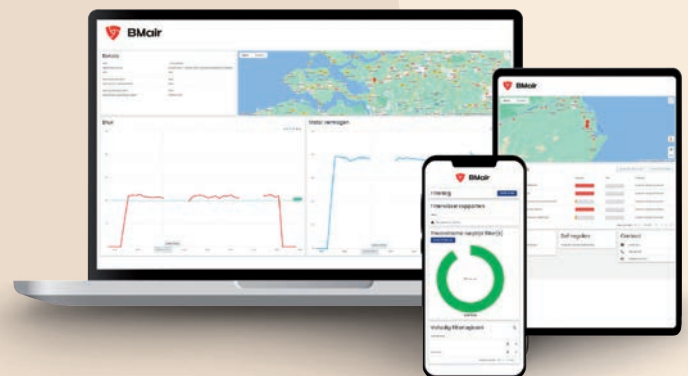
- Automated filter registration and logging via patented RFID technology
- Receive automatic alerts for pressure drops, filter saturation, or inspections

Effortless compliance

- Complete event logging: see exactly who did what, and when
- Audit-ready reports instantly available and downloadable as PDF
- Fully prepared for increasingly strict safety standards (including ISO 23875)

Full transparency & reduced costs

- Get alerts about filter replacement in advance: no surprise downtime
- No more manual reporting or incomplete logbooks
- Online maintenance reports available for fleet managers and compliance officers
- Free access to the portal included, without hidden fees or licenses



The BMair Connect Portal gives you complete control over safety, uptime, and compliance. Wherever your machines operate, you stay in control, real-time, online, and worldwide.

Protective ventilation systems

BMair has a dedicated range of protective ventilation systems. Each BMair system can be equipped with a filter package tailored to your specific working environment. In combination with our control systems, there is a solution for every workplace. Our experts have extensive knowledge of which system best suits your work environment and can advise you in combining the system with the appropriate control system and filter package.

BMair Protector

The BMair Protector is the base module of our new modular concept, which can be used stand-alone for ultimate dust filtration on any machine.



- Weight: 9 kg incl. filters
- Dimensions: 596 x 280 x 247 mm (L x W x H)
- Material: Stainless steel / Polypropylene
- Type filtration: Dust
- Mounting: Everywhere on machine, both horizontally and vertically

BMair Protector Plus X

The Protector Plus X combines two modular elements into a single protective ventilation system with maximum efficiency in both dust and gas filtration. Protector + gas filtration = Protector Plus X.



- Weight: 35 kg incl. filters
- Dimensions: 589 x 635 x 254 mm (L x W x H)
- Material: Stainless steel / Polypropylene
- Type filtration: Dust + gas
- Mounting: Roof

BMair MAO-3C Cab Guard

Specially designed for the increasing demand for compact and smart systems. Under the modern, robust, plastic housing is a uniquely shaped self-cleaning HEPA filter with incomparable capacity.



- Weight: 24 kg without filters
- Dimensions: 496 x 379 x 529 mm (L x W x H)
- Material: Stainless steel / Polypropylene
- Type filtration: Dust + gas
- Mounting: Deck and fender

Combifilters

BMair Combifilters offer protection against:

- **Benzene - A:** Solvents and hydrocarbons (e.g. diesel)
- **Asbestos:** Asbestos, silica dust and all other micro(dust) like metal dust, wood dust etc.
- **Dredger - AB:** Dredging spoil such as bacteria, toxic particulate matter, heavy metals & H₂S
- **ABEK:** Cocktail of toxic substances. In accordance with EN14387
- **Ammonia/Biodegradable waste - AK:** Waste & composting (spores, bacteria, viruses, organic and ammonia)



BMair Protector

Specifically designed for dusty environments



Key features:

- Weighs only 9 kg, including bracket and filters
- Can be mounted both horizontally and vertically

The BMair Protector is as compact as possible, without compromising functionality. The pressure filtration system, made of polypropylene, fiberglass, and stainless steel, contains unique components specifically designed to create overpressure. A crucial element, the fan, has been carefully calculated, tested, and developed in-house to achieve the optimal balance between flow, pressure, and motor power. The result: improved stability of pressure and flow compared to existing systems.

The BMair Protector stands out for its effectiveness and efficiency, thanks in part to the HEPA-13 filter class. The filters are housed in a robust polypropylene casing, minimizing direct contact with contaminated materials. The BMair Protector is the core system of a modular setup. As a foundation, the Protector is ideally suited for dust filtration.



Suitable for following machines:



Application of the BMair Protector	Installation location	Filter type	Color code
Dust- no harmful gases and/or vapors	Universal	HEPA	○
Construction material recycling (silica dust, asbestos, concrete)	Universal	HEPA	○
Mineral wool recycling (rock wool, glass wool)	Universal	HEPA	○
Paper recycling (old paper)	Universal	HEPA	○
Plastic recycling	Universal	HEPA	○
Wood waste processing (no hardwood!)	Universal	HEPA	○
Recycling and transshipment of scrap metal	Universal	HEPA	○
Asphalt mixture processing	Universal	HEPA	○
All other (industrial) processes that generate (micro) dust	Universal	HEPA	○

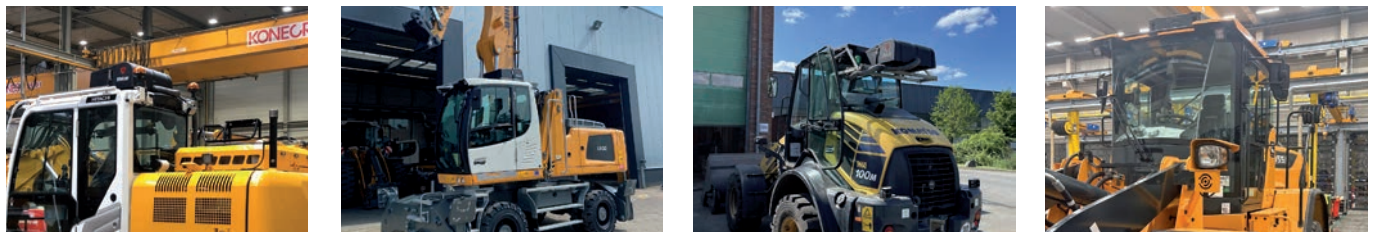
BMair Protector Plus X

Modular horizontal expansion, suitable for installations such as roof-mounted assemblies



The Protector Plus X is BMair's first modular system, with the BMair Protector serving as the foundation for dust filtration. After high-efficiency dust filtration, the air enters the Plus X, where it is purified of gases and vapors by an 11-kg activated carbon filter. The Plus X is available as an expansion kit or as part of a complete Protector Plus X package. Because of the flat, horizontal design it is suitable for roof mounting.

Suitable for following machines:



Application of the BMair Protector Plus X	Installation location	Filter type	Color code
Dust & Gases and/or Vapors Household waste transshipment Recycling of light packaging Bitumen and asphalt recycling Contaminated wood (hardwood, railway ties, tar-treated hunting enclosures)	Roof	HEPA + Activated carbon Type A	○ ●
Dust & Gases and/or Vapors Composting facility	Roof	HEPA + Activated carbon AK	○ ● ●
Dust & Gases and/or Vapors Landfills Ammunition clearance Remediation of contaminated sites Fire damage remediation	Roof	HEPA + Activated carbon ABEK Conform EN14387	○ ● ● ● ●

BMair MAO-3C

The all-round system for every type of contamination, suitable for deck & fender-mounted assemblies



Housed in a robust stainless steel casing with a modern plastic cover, the MAO-3C features a uniquely shaped, self-cleaning HEPA filter. Additionally, this innovative design allows for a filter combination with a compact 10-kg activated carbon filter. The MAO-3C is controlled by BMair Connect and, like the Protector (Plus X), can be monitored online. Because of the higher and narrower design it is suited for deck and fender mounting.



Suitable for following machines:

Application of the BMair MAO-3C	Installation location	Filter type	Color code
Dust & Gases and/or Vapors Household waste transshipment Recycling of light packaging Bitumen and asphalt recycling Contaminated wood (hardwood, railway ties, tar-treated hunting enclosures)	Deck / Fender	HEPA + Activated carbon Type A	○ ●
Dust & Gases and/or Vapors Composting facility	Deck / Fender	HEPA + Activated carbon AK	○ ● ●
Dust & Gases and/or Vapors Landfills Ammunition clearance Remediation of contaminated sites Fire damage remediation	Deck / Fender	HEPA + Activated carbon ABEK Conform EN14387	○ ● ● ● ●

Breathe the difference

How Protective Ventilation Cut Dust Exposure to Near-Zero

CASE STUDY

This case study demonstrates how airborne dust and hazardous particles can be reduced to near-zero levels inside the operator cabin by using a cabin Protective Ventilation System.

The operator performed routine tasks for a period of 15 minutes with and without a BMair Protective Ventilation System.



Dust concentration went from 168 µg/m³ with just OEM filters to 0 µg/m³ with the BMair Protector. The biggest peak of dust concentration without BMair System happened while entering the storage hall near the recycling machine.

These concentrations are well above the WHO's 24-hour average limit of 45 µg/m³ for PM10 (WHO European Centre for Environment and Health, 2021).

Full results can be found in the graphic below.

Site Manager

- "Very efficient, hassle-free, and reassuring, especially in such a dusty environment."
- They also noted a potential reduction in air-conditioning maintenance costs.

Machine Operator

- "The cab is now completely dust-free, with no residue on interior surfaces and no dust entering via the air conditioning upon start-up."
- "The sensation of tasting wood dust is gone."

€10K SAVINGS
€10.000 can be saved per machine every year by preventing 5 days of downtime.



Cost Savings

More uptime and less maintenance of airco and HVAC.



Compliant

Meet national and international regulations.



Higher Performance

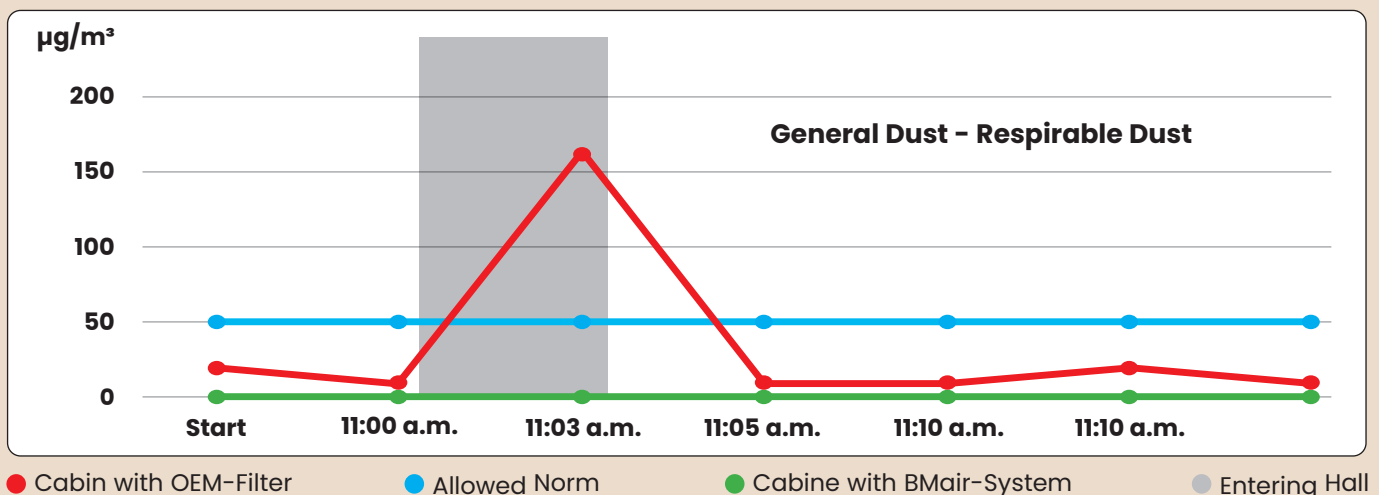
Breathing no toxic dust means reduced sick days and higher productivity.



Health & Safety

The chances of your employees developing a serious illness declines.

15 Minute Routine Task Measurement



We fight unhealthy air

For over 25 years, our goal has been to provide them with the cleanest air possible at all times, every minute and every second of their workday. We never compromise when it comes to breathing air; after all, it is our human right.

The integrity of us as an organisation depends on the quality of our products. Therefore, it is of the utmost importance that our protective ventilation systems are of the highest standard. Only then can we achieve our goals: "the cleanest air possible for every machine operator who works in a polluted (mobile) work environment".

As the market leader in the protective ventilation systems market, we are getting closer to our objective every day. Many operators are already working with our protective ventilation systems.

Yet, there is still a long way to go. Too many employers, commissioning parties and machine operators can be light-hearted about the long term health risks. A good protection should be common practice.

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