ABSAUGWERK

OIL MIST SEPARATOR

O SERIES | E SERIES

The Factory

As a manufacturer of industrial extraction technology, we strive for a clean and healthy working environment. Our strength lies in the in-house development and production of customized extraction systems to protect employees, machines and workpieces.

From industrial deduster and oil mist separators to complete hall extraction systems, we offer you a comprehensive portfolio of solutions. We combine capture, extraction and pipe systems into a complete solution that sets new standards in terms of energy efficiency and performance. When it comes to explosion and fire protection, we are one of the few suppliers that fully complies with legal requirements and can guarantee safe operation. With our many years of expertise, we implement special solutions for companies of all sizes and in all industries.

The high-end systems are manufactured in our own WERK. Quality and precision have top priority here. We support our customers throughout the entire service chain, from the initial consultation to installation and beyond. In this way, we ensure that their systems always function optimally.

The maintenance of our network is particularly important to us. Honesty, trust and personal contact form the basis for a long-term and successful partnership.

»People, be it as customer, partner or employee, are always at the center of our attention.«

Michael Werz, Managing Director

How dangerous is oil mist?

PROBLEM

Cooling lubricants, especially in the form of oil mist, pose a potential danger to your employees. The fine oil mist droplets can penetrate deep into the lungs and cause long-term respiratory problems. The skin also suffers from contact with oil mist, often in the form of unpleasant oil acne and dermatitis.

Safety in the workplace is also at stake, as a very high concentration of aerosols in the air and in machinery can cause serious fires and explosions. Added to this are slippery surfaces and floors, which significantly increase the *risk of accidents at work**.

But it is not only health and safety at work that are at risk. Modern machinery, which is at the heart of many production facilities, is affected by constant contact with oil mist. Costly contamination and defects are the result, which in turn affect productivity.

Clean air is not only crucial for your business but also for the environment. The filtering of emissions protects both employees and nature in equal measure and must comply with certain limit values to ensure a healthy living environment.

** Slipping accidents in the workplace are among the most frequent causes of accidents in many industries worldwide.*

OIL MIST SEPARATOR
O Series | E Series

SOLUTION

Oil mist separators from ABSAUGWERK are the solution for effectively filtering oils *(O Series)* and emulsions *(E Series)* as well as other harmful by-products directly on the machine tools. With a three-stage filtration process and a separation efficiency of up to 99.995 %, they offer outstanding protection. Thanks to their high efficiency, the units are extremely low-maintenance and are characterized by an exceptionally long filter service life. Odors are also neutralized, making the working environment more pleasant and protecting employees and machines.

The cleaned air can be fed back into the production hall to save heating costs. Thanks to the automatic power adjustment, our extraction systems only use the energy that is actually needed and are therefore extremely energy-efficient.

Performance:
2,400 – 17,900 m^3/h*
0.5 – 15 kW

** Systems connected in series have the potential to generate infinite power.*

Your benefits

- **Clean air & healthy workplaces**
- **Consistently high air quality**
- **BG-compliant operation**
- **Compliance with safety standards**
- **Reduced oil & lubricant consumption**
- **Protection of machinery & tools**
- **Low cleaning effort**
- **Fresh air supply & temperature reduction**
- **Quick, tool-free filter change**
- **Attractive cost-benefit ratio**

Application

During machining, forming or casting, the use of metalworking fluids produces fine oil and emulsion mists, aerosols and vapors that float in the hall air. The liquid particles settle on machines, floors or walls and endanger employees, contaminate production and increase the risk of fire and accidents.

INDUSTRY SECTORS

Metalworking, plastics industry, extrusion, cable production and much more.

PROCESSES

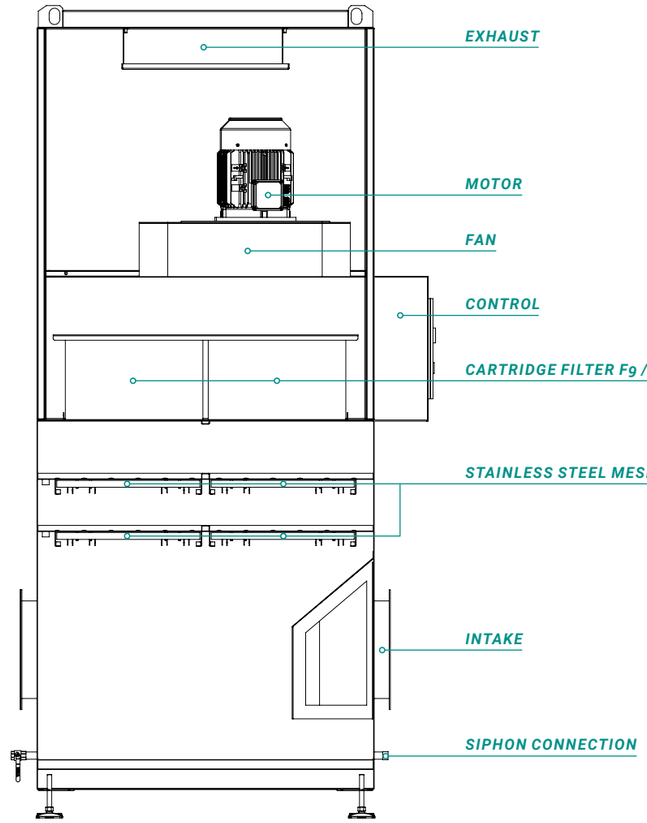
- Turning
- Drilling
- Milling
- Grinding
- Sawing
- Cleaning
- Spraying
- Pouring etc.

MEDIA

- Aerosols
- Emulsion mist
- Spraix mist
- Oil mist
- Oil vapor
- Oil fumes

Components

The oil mist separators are individually tailored to our customers' processes and contain several filter stages, including specially developed stainless steel mesh filters as well as optional HEPA H14 secondary filters for carcinogenic particles and activated carbon filters against unpleasant gases and odors.



With an integrated fresh air box, additional fresh air is fed into the hall from outside. This lowers the temperature and ensures a constant supply of oxygen.

Filter:

- Stainless steel mesh filter
- Cartridge filter

Discharge:

- Siphon connection
- Individual discharge

Capturing:

- Extraction arm
- Extraction table
- Extraction hood
- Pipe system
- Machine connection
- Room capturing
- Individual capturing system

Features:

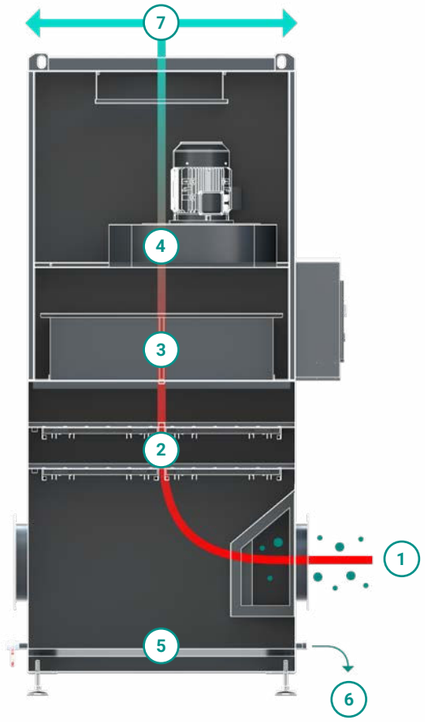
- 8 power levels
- Integrated pre-separator
- 3 filter stages
- Washable filters
- IE-3 to IE-5 motors

Options:

- HEPA H14 filters for carcinogenic substances in recirculation mode
- Carbon filter for gases and odors
- ATEX-/fire protection execution
- V2A stainless steel execution
- Effective noise protection
- Filter monitoring
- Pre-separator
- Fresh air box
- Versatile smart controls
- Individual unit color and branding

ATEX

V2A



Functionality

The air is cleaned using a three-stage mechanical filtration process. The air flow rate automatically adapts to the respective process and ensures minimal energy consumption and costs. The stainless steel mesh filters from ABSAUGWERK can be washed out with a conventional high-pressure cleaner and are reusable.

1. INTAKE
The filter medium is drawn in via a direct machine connection or another capture.

2. FILTER LEVELS 1+2
The air then passes through two filter levels made of a special stainless steel mesh.

3. FILTER LEVEL 3
For fine dusts, viruses or carcinogenic stainless steel dusts, a HEPA H14 filter is also used.

4. EC FAN
The fan with IE5 technology is highly efficient, extremely quiet and powerful at the same time.

5. DRIP TRAY
Cooling lubricants roll off the stainless steel mesh filters and are collected in a container.

6. DRAIN TAP
The filtered emulsion can be automatically fed back into the machine or drained.

7. EXHAUST
The cleaned air is led outside or back into the room in recirculation mode, which reduces heating and energy costs.

Filter level 1 and 2 already remove up to 95 % of emulsions.

Technical knowledge

MECHANICAL VS. ELECTROSTATIC
There are two common types of oil filtration: mechanical extraction systems use physical barriers such as filter fibers, while electrostats bind oil particles using electrical charges. If the electrostat is clogged, no further particles can be absorbed. With mechanical separators, the particles act as an additional filter barrier and even increase their performance until the filter is changed. Filter cleaning and maintenance also involve less effort and costs with mechanical separators.

MECHANICAL	ELEKTROSTATIC
Optimum, even flow through the horizontal filters	Uneven flow through the vertical filters
Separation efficiency* up to 99.995 %	Separation efficiency* up to 97.1 %
Particles > 0.001 µm	Particles > 0.3 µm
Easy filter cleaning *(high-pressure cleaner)*	Complex filter cleaning *(ultrasonic bath)*
Cleaning time 5 min.	Cleaning time 20–60 min.
No gases	Formation of harmful ozone
Recirculation and exhaust air	Exhaust air

** Air volume 4,000 m³/h*

The ABSAUGWERK Principle

A powerful and energy-efficient extraction system consists of several components that must work in perfect harmony. If elements such as the capture or pipe system reduce the performance, this can not only impair the function, but also lead to deposits and dangerous fires. As every application is unique, we develop and manufacture customized extraction systems, individually tailored to our customers. For an optimum extraction solution, we also take care of planning the pipe system, installation and offer optional maintenance and after-sales service.

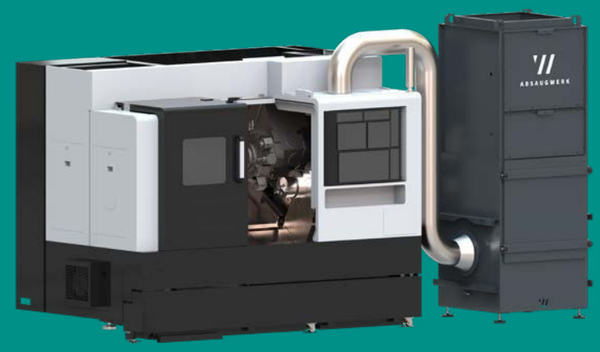
All from a single source and directly from our WERK.

Capturing + **Pipe system** + **Extraction system** + **Discharge**

Explosion protection (ATEX) + Fire protection + Sound insulation
Special safety devices prevent fires and explosions. In addition, sound insulation measures minimize noise pollution in the work areas and create a pleasant working environment.

Where the standard ends, we begin!

The result is an integrated extraction solution from start to finish. This increases performance and minimizes long-term operating costs in terms of maintenance, energy and productivity. This makes it a sustainable and economical investment.



Equipment

We have a comprehensive range of equipment to configure the perfect extraction system for every application. This includes capture elements for precise extraction of industrial emissions, various discharge variants for safe disposal of the separated material, pipe systems for optimum air routing, precoating systems for filter protection, pre-separators and a filter cleaning station to maintain their service life and performance.

This variety of options offers maximum flexibility and adaptability to meet specific requirements and ensure efficient air purification.

Captures, precoat unit, pre-separators, discharges, pipe systems, cleanbox and much more.

Available in numerous sizes & variants!

Extraction arms

Extraction arms are used for point extraction and capture emissions directly at the source. The low resistance and flow-optimized design reduce deposits and ensure maximum efficiency without loss of performance. The ergonomic design with sturdy handle and flexible joints ensure comfortable handling and a large range of movement.

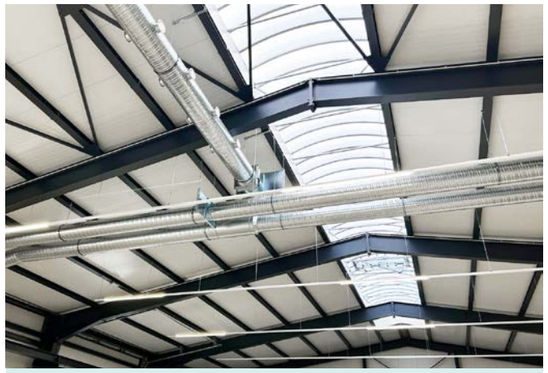
Extraction hoods

Upper hoods are used for ascending media with small particle sizes. They are available in different sizes with various mounting systems and equipment such as lamellas or spark separators.

Side hoods are available as rectangular hoods as standard. They can be used open or fitted with protective or baffle plates.

Extraction cabins

Extraction in a cabin can be much more efficient and energy-saving than point extraction, as less air needs to be circulated and filtered. In addition, cross-flows through windows, doors and traffic are reduced. Another advantage is that it is easier and cheaper to comply with *statutory workplace limits**. In addition, high temperatures and noise levels, which occur in some processes, can be constantly reduced and kept stable.



Hall extraction

Extraction systems for hall ventilation in large production halls with a pipe system enable the simultaneous extraction of several workstations and continuous filtering of the entire hall air. Central air purification allows larger quantities of oil mist and fume to be filtered, reducing the need for many small extraction systems. When it comes to operating costs, energy consumption or filter changes, they are often superior to spot captures.

We try to cover every need and offer not only standard designs but also economical special solutions.

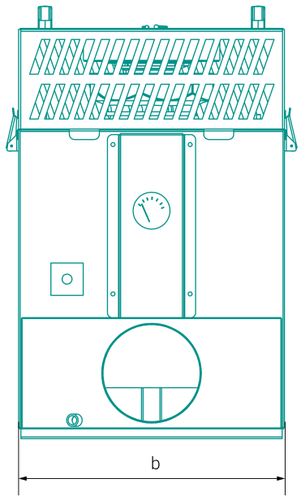
** Companies are responsible for ensuring that the statutory occupational exposure limits in accordance with TRGS 611, TRGS 900, TRGS 910 etc. are adhered to in order to minimize the risk to employees.*

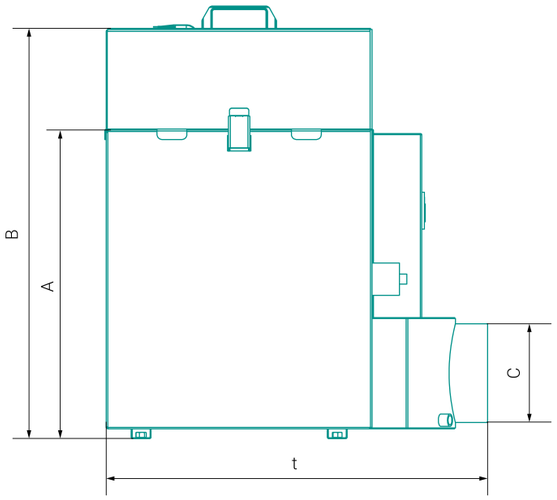
Lack of space?

Our compact oil mist separator with 0.5 kW is a space-saving alternative. It can be installed directly on the machining center to save valuable production space. Like the larger models the system offers 3 filter levels and an optional H14 filter. Machine lubricants are automatically recirculated and the stainless steel mesh filters are easy to wash out. We also offer a individual color to perfectly match your machine tool.

OIL MIST SEPARATOR		COMPACT
Motorleistung	kW	0.5
Fan power max.	m³/h	2,100
Width (b)	mm	535
Depth (t)	mm	770
Height A	mm	625
Height B	mm	825
Height C (Intake)	mm	198

Status 03.06.24 | Subject to change





real. sustainable.

SUSTAINABLE EXTRACTION SOLUTIONS

Thanks to their high separation efficiency, our oil mist separators are ideal for *recirculating air operation**. A frequency converter automatically adjusts the extraction power to the production requirements and saves valuable resources in the process. When developing our extraction systems, we focus on minimal resistance and optimum air flow, resulting in high-performance systems with low energy consumption compared to standard systems. In addition, our oil mist separators are extremely low-maintenance and easy to clean. This further increases their cost-effectiveness and has a positive effect on our customers' energy balance.

RESPONSIBILITY WITHIN THE COMPANY

Our corporate activities are all based on ecological, social and economic responsibility. Clean air in production halls promotes the health of employees, prevents illness and makes workplaces safer. At the same time, machinery, tools and workpieces are protected, which leads to a significant extension of their service life.

** The air that is released is so clean that it can be fed directly back into the working environment. Our recirculation system also enables the efficient return of cooling lubricants to the machine tool.*

Your benefits

- **Recirculation of cooling lubricants**
- **Washable stainless steel mesh filters**
- **Long filter service life**
- **Flow-optimized design**
- **Energy-saving & low-maintenance**
- **Recirculation mode with fresh air box**
- **Automatic power control**
- **Highly efficient IE5 fans**
- **Heat exchanger saves heating costs**
- **Minimized pollutant load**

Fire protection

In metalworking companies today, large quantities of non-water-miscible cooling lubricants are used for machining workpieces. The increasing use of low-viscosity, flammable cooling lubricants in particular increases the risk of fire, as reactive oil-air mixtures can occur during machining.

Depending on the type of cooling lubricant used, additional safety measures must be taken. An emulsion with less than 15% oil content does not pose an immediate danger, but requires regular coolant changes to prevent the oil content from increasing. If pure oil is used for lubrication instead of an emulsion, milling, turning and grinding machines must be specially designed to prevent fires.

Legal requirements

OPERATOR & MANUFACTURER OBLIGATIONS
Both the manufacturer and the operator of machine tools are subject to the following fire and explosion protection obligations in order to ensure safe operation:

The operator undertakes as part of a risk assessment *(suitability of the machines for the intended cooling lubricant)*, to check whether this could result in a risk of fire or explosion.

The manufacturer takes this information into account when determining a suitable protection concept for the machine tool and adapts its operating and maintenance instructions accordingly.

There are various measures to minimize the existing risk of fire and explosion during operation, including the extraction of oil mist in the work area. Oil mist separators are used to capture, extract and separate the combustible cooling lubricant emissions in order to reduce their accumulation and thus minimize the risk of fire.

Our systems themselves are equipped with special **fire protection components** that monitor and eliminate potential sources of fire, including:

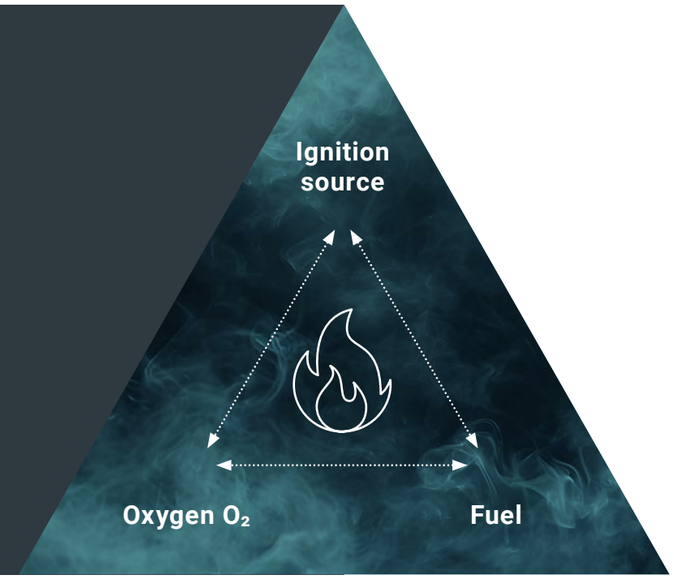
- Spark detection
- Automatic extinguishing agent device: water, powder,CO_2
- Smoke detector *(optical/thermal)*
- Shut-off valve
- Extinguishing flap *(man. extinguishing)*
- Automatic shutdown of the system
- Design ignition source-free and conductive
- Fan according to ATEX zone 2

CHECKLIST

- ◯ **Selection of a cooling lubricant with low hazard potential**
- ◯ **Extraction of the oil mist in the work area**
- ◯ **Avoidance of oil pool formation**
- ◯ **Avoidance of ignition sources: Cooling of the cutting area through sufficient lubricoolant flooding, process monitoring**
- ◯ **Installation of an automatic fire extinguishing system**
- ◯ **Sufficient pressure resistance of the enclosure**
- ◯ **Flameproof door labyrinths**
- ◯ **Pressure relief flap, if the pressure resistance of the enclosure is not sufficient**

Knowledge

REQUIREMENTS FOR A FIRE
Glowing chips, sparks or hot surfaces can act as an ignition source and ignite a reactive mixture of cooling lubricant and air. In particular, technical advances in feed rates and cutting speeds as well as the trend towards low-viscosity cooling lubricants with high pressure increase the risk of fire. A fire can spread quickly inside the machine tool. When assessing the risk, it is important to consider whether a machine fire can also spread to other areas.



Technical data

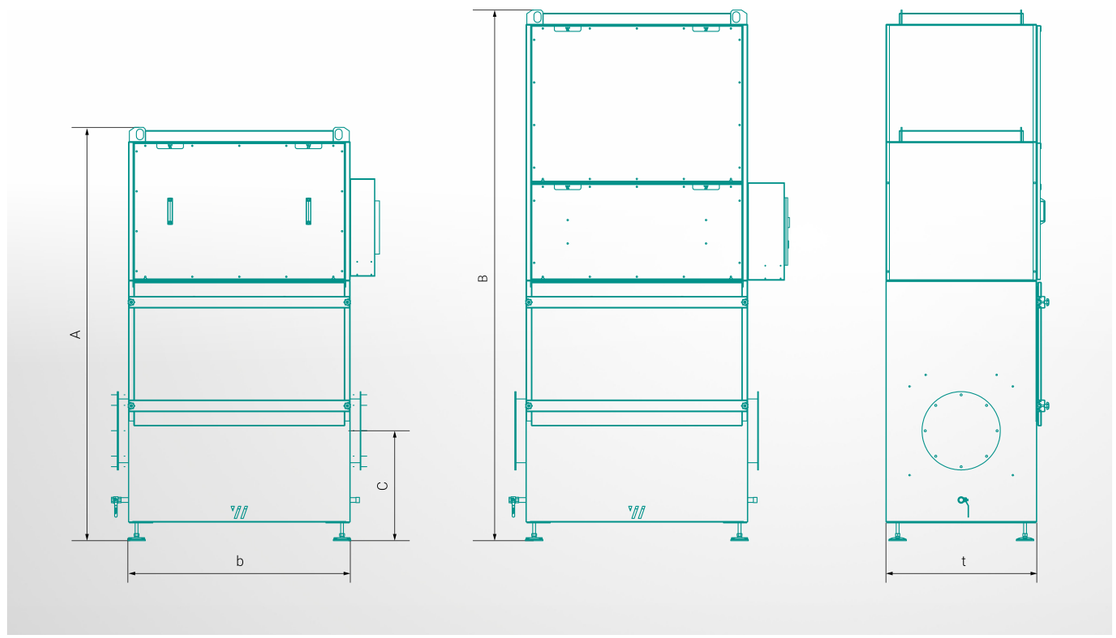
5 different sizes
8 power levels

E Series 1000–5000

OIL MIST SEPARATOR SERIES		E 1000	E 2000	E 2000	E 3000	E 3000	E 4000	E 4000	E 5000
Engine power	kW	1.1	2.2	3	4	5.5	7.5	11	15
Fan power max.	m³/h	2,400	3,500	4,500	6,000	7,000	8,500	14,000	17,900
Width (b)	mm	550	850	850	1,250	1,250	1,250	1,250	1,850
Depth (t)	mm	650	850	850	850	850	1,350	1,350	1,350
Height A (Stainless steel mesh)	mm	1,750	1,940	2,000	2,220	2,340	2,340	2,480	2,480
Height B (H14 Filter)	mm	2,025	2,215	2,275	2,770	2,890	2,890	3,030	3,030
Height C (Intake)	mm	450	550	550	650	650	650	650	650
Height Activated carbon filter	mm	(+550)	(+550)	(+550)	(+550)	(+550)	(+550)	(+550)	(+550)

Status 03.06.24 | Subject to change

E *E Series oil mist separators are more powerful and can move larger volumes of air through the system.*



O Series 1000–5000

OIL MIST SEPARATOR SERIES		O 1000	O 2000	O 2000	O 3000	O 4000	O 5000
Engine power	kW	1.1	2.2	3	4	5.5	7.5
Fan power max,	m³/h	2,400	3,500	4,500	6,000	7,000	8,500
Width (b)	mm	550	850	850	850	1,250	1,250
Depth (t)	mm	650	850	850	850	850	1,350
Height A (Stainless steel mesh)	mm	1,750	1,940	2,000	2,220	2,340	2,340
Height B (H14 Filter)	mm	2,025	2,215	2,275	2,770	2,890	2,890
Height C (Intake)	mm	450	550	550	550	650	650
Height Activated carbon filter	mm	(+550)	(+550)	(+550)	(+550)	(+550)	(+550)

Status 03.06.24 | Subject to change

O *O Series oil mist separators are designed for oils and emulsions with fine particles. The air flows through more slowly in order to achieve maximum separation.*

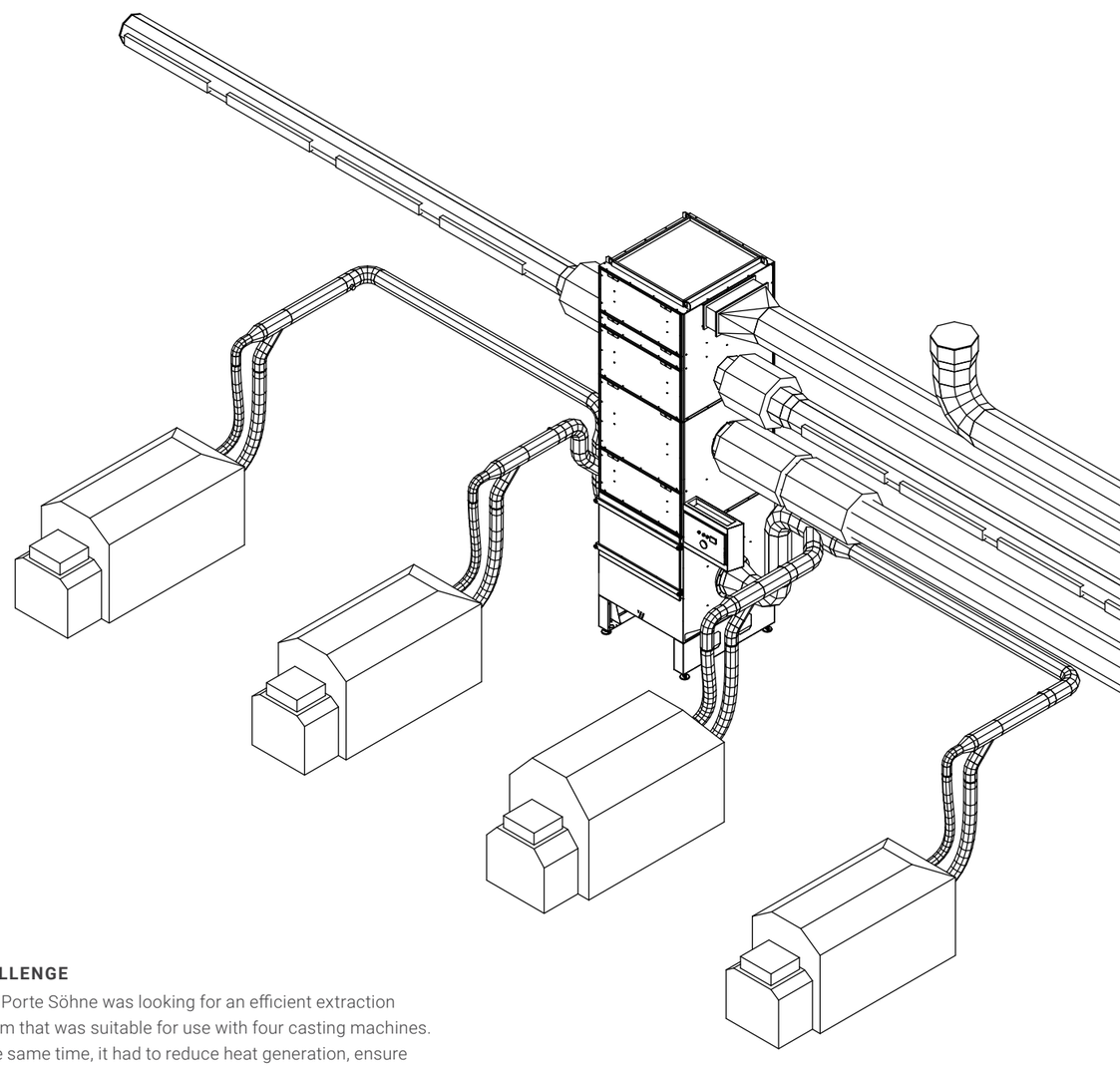
Reference

Clean air & cool breeze at D. La Porte Söhne in Wuppertal

D. La Porte Söhne GmbH produces high-precision locks and fittings for the commercial vehicle and automotive industry. In its die-casting foundry, 7 casting machines work simultaneously in 2-shift operation. To prevent the parts from sticking, cooling lubricants or release oil are used as a spray mist. The fine aerosols and oil mist in the hall air were a health hazard for the employees and were deposited on surfaces and floors.

»In between are worlds apart! The air quality and temperature in the hall have improved enormously.«

Joachim Pirdzuns,
Operations Manager D. La Porte Söhne GmbH



CHALLENGE

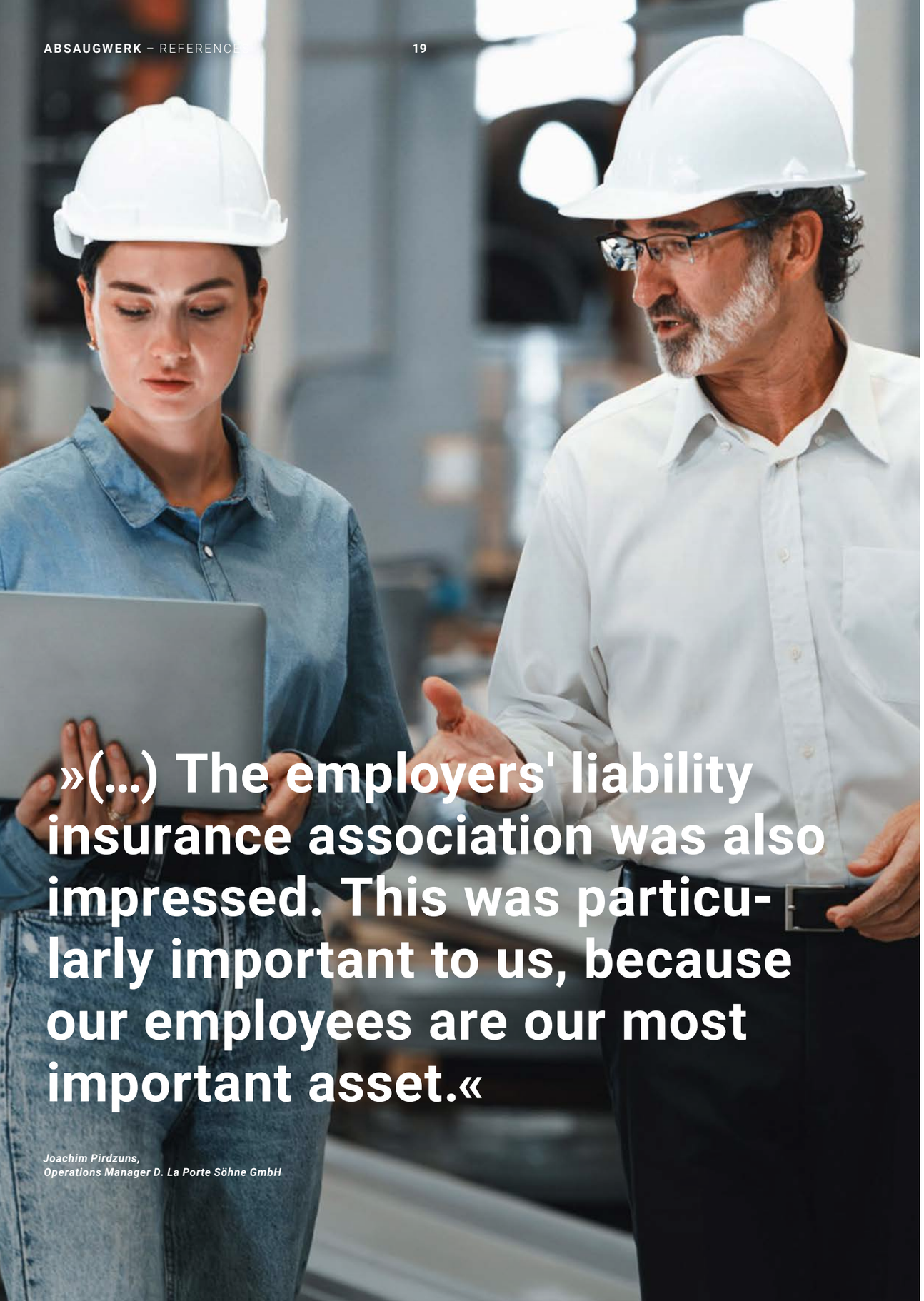
D. La Porte Söhne was looking for an efficient extraction system that was suitable for use with four casting machines. At the same time, it had to reduce heat generation, ensure a continuous supply of fresh air, comply with all applicable workplace regulations and offer a long filter service life and minimal cleaning effort.

SOLUTION

We developed an extraction solution consisting of a E Series 4000 oil mist separator with a maximum air volume of 15,000 m³/h, a pipe system and a fresh air box. Fine oil particles are extracted directly at the machines, filtered in the system and fed back into the hall enriched with fresh air. The lubricants used are automatically returned to the machines.

After one year of use, the filters are hardly worn and *the extraction power has only dropped by 2 %.* An alarm is issued if a filter becomes blocked, but maintenance and costs for replacement filters are low and are usually only incurred after several years.

MEDIA	• Oil vapor, aerosols
PROCESSES	• Spraying of cooling lubricants and release oil, die casting
PERFORMANCE	• 11 kW • Max. air volume: 15,000 m³/h • Operating point: 5,800 – 7,200 m³/h
SERVICES	Personal advice, technical design, planning of the pipe system, production, assembly, piping, commissioning, maintenance and after-sales



»(…) The employers' liability insurance association was also impressed. This was particularly important to us, because our employees are our most important asset.«

Joachim Pirdzuns,
Operations Manager D. La Porte Söhne GmbH

FIG. 1

FIG. 2

FIG. 3

FIG. 4

FIG. 1
O Series 3000, 3 kW

Process: Milling with minimum quantity lubrication
Material: Aluminum
Medium: Emulsion mist
Capture: Direct connection

FIG. 2
Compact, 0.5 kW

Process: Milling with emulsion
Material: Aluminum, copper, steel
Medium: Emulsion mist
Capture: Direct connection

FIG. 3
E Series 2000, 3 kW

Process: Turning with emulsion
Material: Steel
Medium: Emulsion mist
Capture: Extraction arm, direct connection, room capture

FIG. 4 (right)
E Series 3000, 7.5 kW

Process: Spraying with weld bead release agent
Material: Steel
Medium: Vapor
Capture: Direct connection

360° All-round Service

Consulting

Free needs analysis and individual offer from our sales team.

Marketing

Marketing support through videos as well as individual design and branding.

Project planning

Personal support with an on-site inspection and interpretation of technical parameters.

Training

Introduction to the system components, carrying out minor service and maintenance work.

Assembly

Delivery and installation of the extraction system including installation of the pipe system.

After-Sales

The whole range: spare/wear parts, cleaning, training, repairs and retrofitting.

Commissioning

Mechanical and electrical system instruction in function, safety and control.

Maintenance

Comprehensive service for third-party and in-house systems and smooth operation.

Your benefits

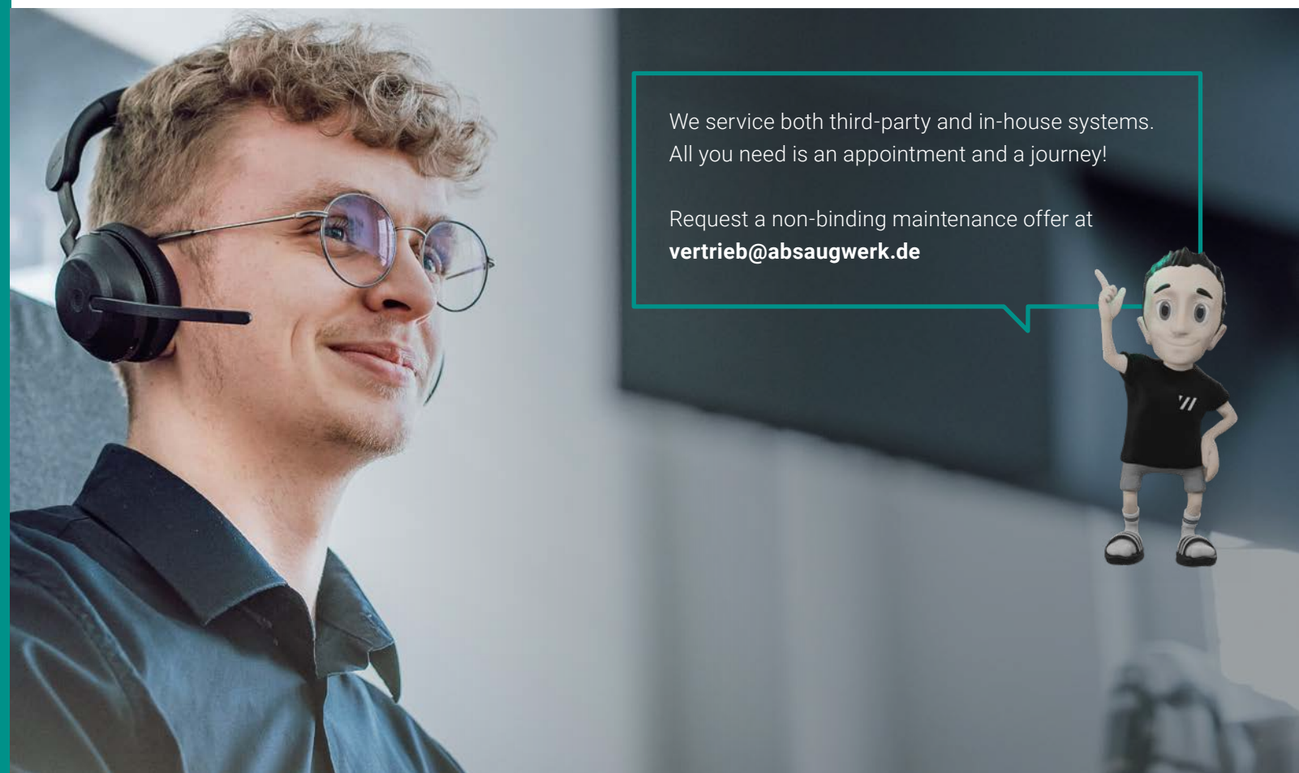
- **Everything from a single source**
- **Maintenance of own & third-party systems**
- **Free process analysis**
- **Personal on-site appointment**
- **Smooth & safe working**
- **Avoidance of downtime & follow-up costs**
- **Worldwide support**
- **Remote diagnostics, access & maintenance**

Maintenance

System failures cannot be planned and can cause high downtime costs and endanger the safety of employees. To maintain the efficiency of your extraction systems, we offer you a comprehensive maintenance service. This enables any defects to be detected in good time and consequential costs to be avoided. Our many years of expertise and a structured service organization guarantee a short response time and fast troubleshooting.

REMOTE MAINTENANCE – WORLD WIDE WERK

Reliable extraction systems are crucial for automated production processes. Remote maintenance systems monitor parameters in real time and trigger automatic alarms to rectify faults at an early stage and minimize downtime. Monitoring and alarm functions keep our service technicians connected worldwide and enable rapid support. Secure VPN encryption and mobile access options ensure data security and flexibility.



»Even after several years of use, we haven’t had to replace a filter yet.«

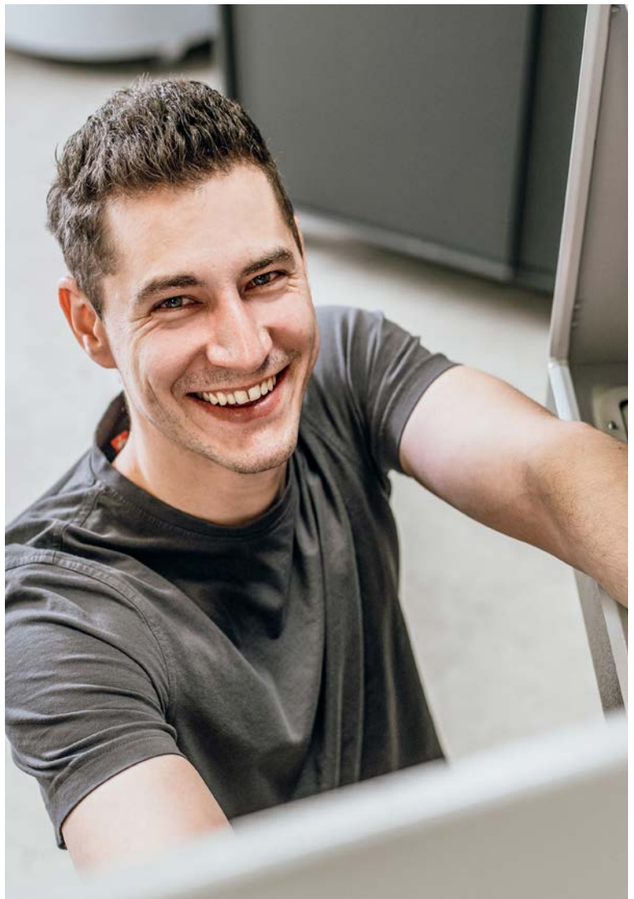
Mohammad Moghimian, Managing Director AWZ KG

Quality from Neu-Ulm!

Our WERKER are professionals in their field and see themselves as part of the overall WERK. With over 200 years of combined experience in extraction technology, we create durable and robust extraction systems, handmade and »MADE IN NEU-ULM«! Every product undergoes rigorous testing to ensure the highest quality and safety.

We continuously invest in further training and technology optimization in order to make further progress in the market. Through our own research and development, we have been awarded the BSFZ seal, which stands for innovation and state funding. Our aim is to improve working conditions, protect the environment and support your success with perfect workpieces.

We configure extraction systems for every application and offer premium service straight from the factory. This makes our solutions **real. better.**



Every WERKER sees itself as part of a society based on solidarity and a healthy environment.

MADE IN GERMANY

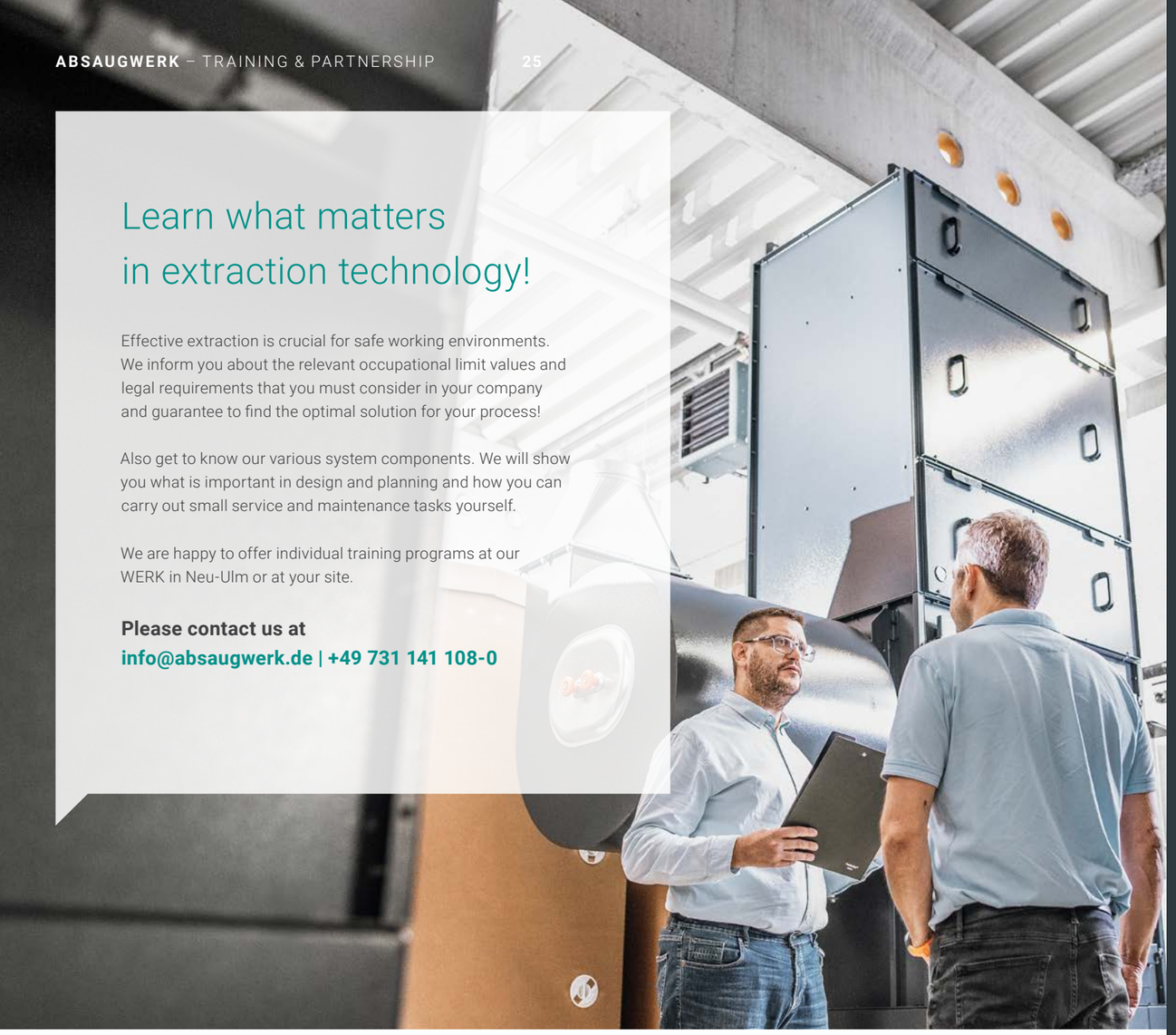
Learn what matters in extraction technology!

Effective extraction is crucial for safe working environments. We inform you about the relevant occupational limit values and legal requirements that you must consider in your company and guarantee to find the optimal solution for your process!

Also get to know our various system components. We will show you what is important in design and planning and how you can carry out small service and maintenance tasks yourself.

We are happy to offer individual training programs at our WERK in Neu-Ulm or at your site.

Please contact us at
info@absaugwerk.de | +49 731 141 108-0



real. personal.

ABSAUGWERK reflects the personal values of its employees and combines these with shared ideas of teamwork, company management and goals. Our culture forms the basis of our success and our »feel-good philosophy«.

These values also permeate our NetzWERK. We have no fear of commitment and cultivate our partnerships continuously and on a human level. Mutual respect and reliability are essential.

ABSAUGWERK GmbH
Messerschmittstr. 22
D-89231 Neu-Ulm

+49 731 141 108-0
info@absaugwerk.de
www.absaugwerk.de

Follow us on social media:

@ABSAUGWERK GmbH

Project process

5 steps to your perfect extraction solution!

01

Process analysis

The first step is to examine your work processes, sources of pollutants are analyzed and existing extraction systems are checked in order to assess the extraction requirements.

02

Personal on-site appointment

Our experts take measurements on site to determine the individual requirements and local conditions in more detail and create an optimum concept for you.

03

Individual offer

Based on the analysis and technical drawings you will receive a customized offer in a short time, that offers the most economical solution for you.

04

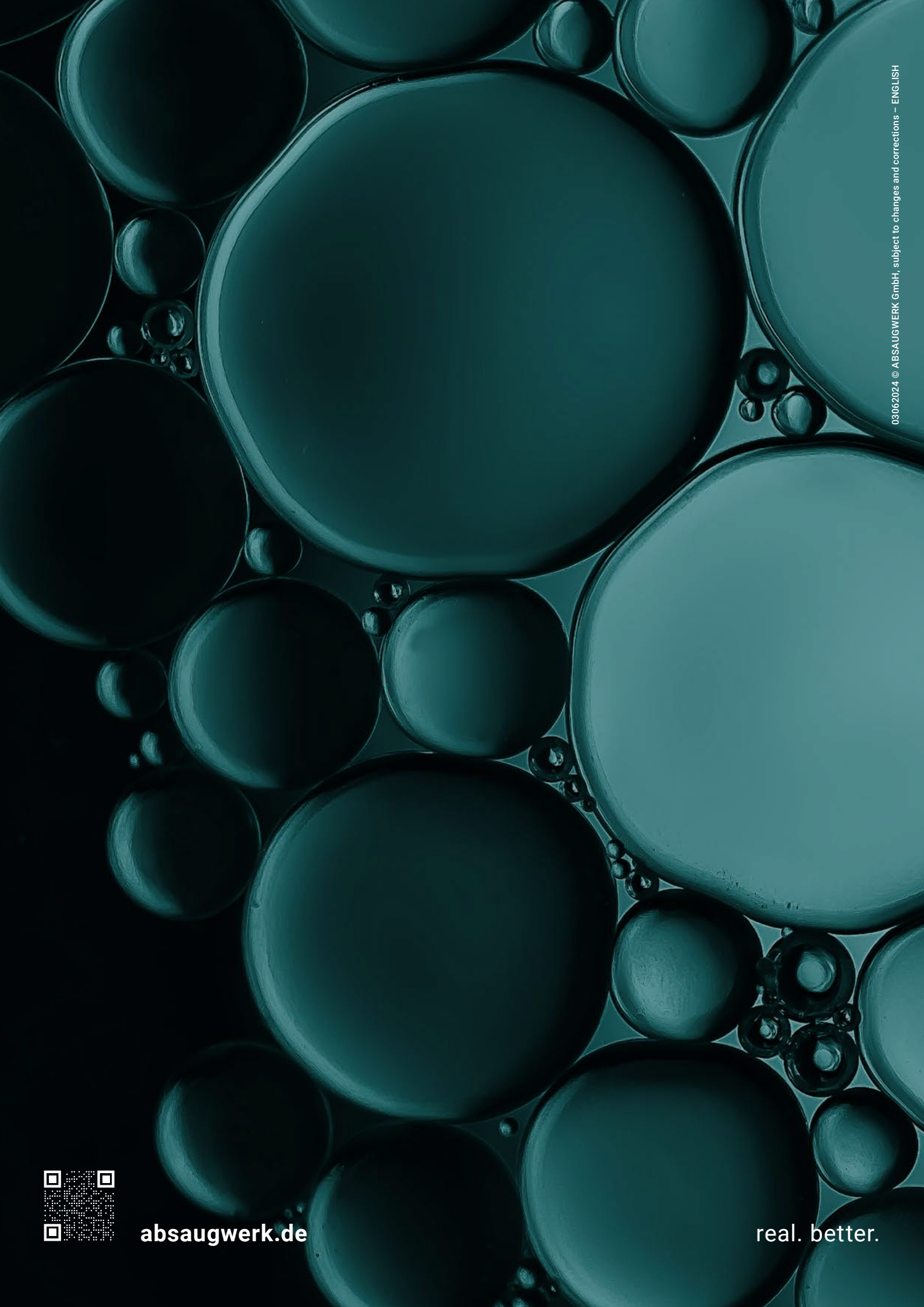
Production

Once the technical drawings have been approved and the order placed, we start immediately with the order, production and arranging an installation date.

05

Assembly

Our fitters install your extraction system, including the pipework, and support you during commissioning. Performance and function are checked again in detail and recorded before the system is put into operation.



absaugwerk.de

real. better.