ABSAUGWERK

INDUSTRIAL HALL EXTRACTION

The WERK

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 customised extraction systems designed to protect employees, machines and workpieces.

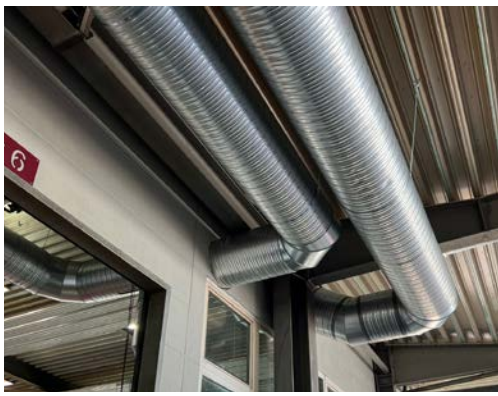
From industrial dedusters and oil mist separators to complete hall extraction systems, we offer a comprehensive portfolio of solutions. We combine capture elements, extraction units and pipe systems into an integrated overall system that sets new standards in terms of energy efficiency and performance. In the field of explosion and fire protection, we are one of the few providers that fully meet all legal requirements and are able to ensure safe operation. With our many years of expertise, we develop special solutions for companies of all sizes and across all industries.

The production of our high-end systems takes place at our own WERK. Here, quality and precision are our top priorities. We support our customers throughout the entire service chain – from initial consultation through to installation and beyond. This ensures that their systems always operate at optimum performance.

Our network is particularly close to our hearts. Built on honesty and trust, we create long-term partnerships that lead to shared success.

»People, as customers, partners or employees, are always at the heart of our company.«

Michael Werz, Managing Director



Clean air is not a luxury.

PROBLEM

In industrial production halls, the air is often more contaminated than it appears at first glance. Almost all industrial processes generate fumes, dust and aerosols that spread throughout the entire hall. Visible layers of dust on machines and surfaces are only the tip of the iceberg; the truly hazardous fine dust particles are invisible.

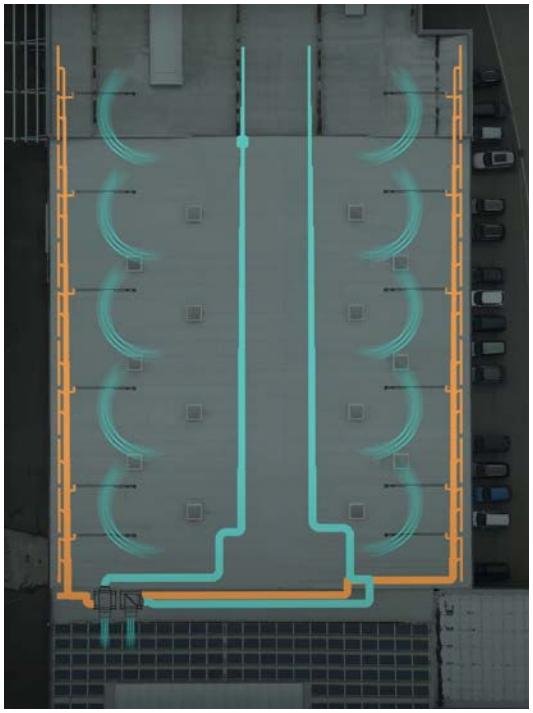
In the long term, this can have serious health consequences*: respiratory diseases, allergic reactions, chronic bronchitis or even lung cancer. Ultrafine particles, such as those generated during welding or the processing of stainless steel, are considered carcinogenic and can become permanently deposited in the lungs.

Air quality affects not only the health of employees, but also the efficiency, service life and safety of the entire machinery fleet. Nevertheless, it is still underestimated in many companies. Deposits in systems or ventilation systems increase fire risks, maintenance costs and costly downtime. A comprehensive hall extraction system is therefore a worthwhile investment in safety, sustainability and long-term productivity.

** According to the German Federal Institute for Occupational Safety and Health (BAuA), around 6,000 respiratory diseases per year are attributable to dust and fume exposure in the workplace.*

Source: German Federal Institute for Occupational Safety and Health (BAuA), BIBB/BAuA Employment Survey 2020.

INDUSTRIAL HALL EXTRACTION



Orange = The contaminated exhaust air is extracted and filtered.
Green = The clean and fresh airenriched supply air is returned to the hall.

SOLUTION

In production halls with high levels of air contamination, a hall extraction system ensures clean, uniformly filtered air. It supplements or replaces local extraction systems when fumes, dust or aerosols are generated over large areas and quickly spread throughout the room. Through intelligent airflow management, pollutants are continuously captured, filtered and the cleaned air is recirculated.

ABSAUGWERK develops comprehensive hall extraction concepts that are perfectly tailored to the process, room size and material. Our systems combine maximum occupational safety with efficiency and sustainability: Uniform air circulation balances temperature layers, saves heating energy and reduces energy consumption. With state-of-the-art control technology, system performance can be regulated according to demand – for maximum energy efficiency, minimal operating costs and an all-round clean and safe working environment.

Your benefits

- **Fully automatic operation**
- **Extraction efficiency up to 99.995%**
- **Energy & heating cost savings**
- **Draft-free & quiet**
- **Flexibly expandable**
- **Compliance with workplace regulations**
- **Individual configuration & special solutions**
- **Recirculation mode for carcinogens**
- **Lower cleaning costs**
- **Less machine wear**
- **Reduced downtime**
- **Higher employee satisfaction**
- **Remote maintenance & remote access**
- **Exclusive design**

Application

Where larger quantities of fumes, dust, and aerosols are generated during welding, grinding, cutting, etc., source capture quickly reaches its limits. Hall extraction ensures consistently clean air by capturing pollutants over a large area, filtering them, and returning the cleaned air in recirculation mode. This creates healthy working conditions and reliable protection for people and machines.

INDUSTRIES

Automotive, welding specialist companies, food industry, pharmaceutical industry, chemical industry, plastics industry, etc.

PROCESSES

- Welding
- Grinding
- Polishing
- Deburring
- Milling
- Sawing
- Oxy-fuel cutting
- Tacking, etc.

MEDIA

- Dust & fine dust
- Fumes & welding fumes
- Oil mist & emulsions
- Paint mist
- Vapors
- Aerosols
- Chips
- Odors

COMBINED HALL EXTRACTION

Hall extraction ensures uniform cleaning of the entire room air in production halls. It forms the basis for consistently high air quality regardless of the number or position of workstations.

- Capture and cleaning of large air volumes
- Optimized airflow within the room
- Reduction of residual substances in the hall air
- Fully automatic operation
- Ideal for large production areas
- Can be combined with source extraction
- Flexibly expandable
- Central basic system for air purification
- Ideal for changing processes
- Easy to retrofit

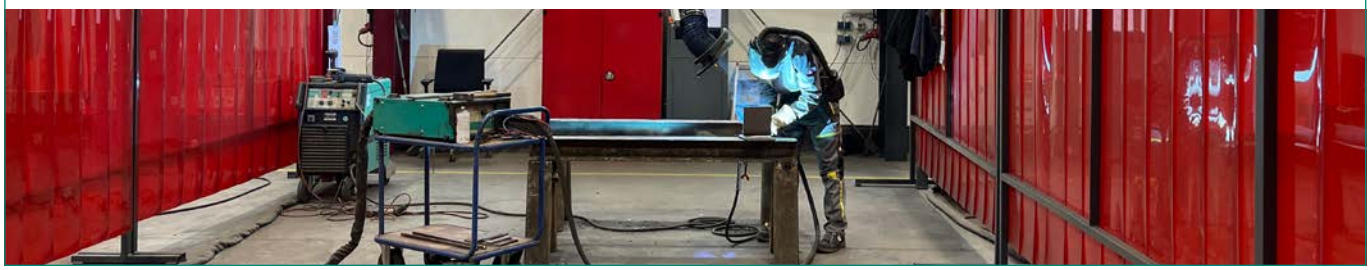
Hall Extraction

Source Extraction

TARGETED CAPTURE AT THE SOURCE

Source extraction complements hall extraction wherever emissions are generated directly. It prevents the spread of pollutants and increases the overall efficiency of the system.

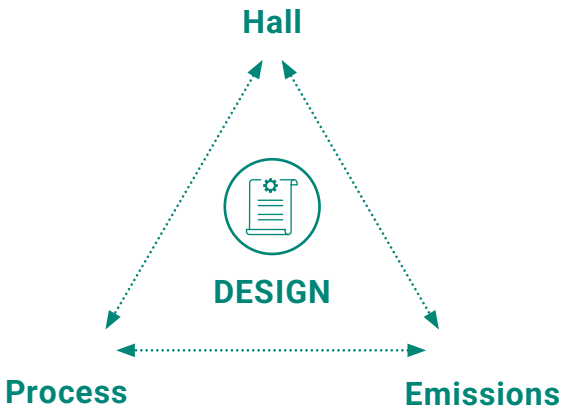
- Extraction directly at the point of origin
- Prevention of the spread of emissions
- High capture efficiency for localized processes
- Flexible use at each workstation
- Ideal for changing activities
- Optimal complement to hall extraction
- Improved working conditions for employees
- Individually controllable for each application
- Adaptable to different processes
- Efficient combination of both systems



Technical design

The requirements for hall extraction vary depending on the building, process, and type of emissions. The quantity and type of emissions generated depend directly on the number of workplaces, the process duration, and the material. Each production hall therefore requires an individually planned ventilation and extraction system.

Especially in the case of respirable, carcinogenic, or explosive substances, the correct selection and sizing of the system is crucial. As a professional manufacturer, we take all relevant technical parameters into account in order to develop an efficient and safe overall concept.



RELEVANT PLANNING PARAMETERS:

Hall structure

- Area, room volume, ceiling height
- Type of hall construction
- Installation location & space requirement
- New build or refurbishment

Process & emissions

- Processes: welding, grinding, sawing, etc.
- Material type & quantity *(carcinogenic / explosive / respirable)*
- Emission intensity: high / medium / low
- Source capture available?
- Simultaneity of workplaces

Extraction technology & airflow

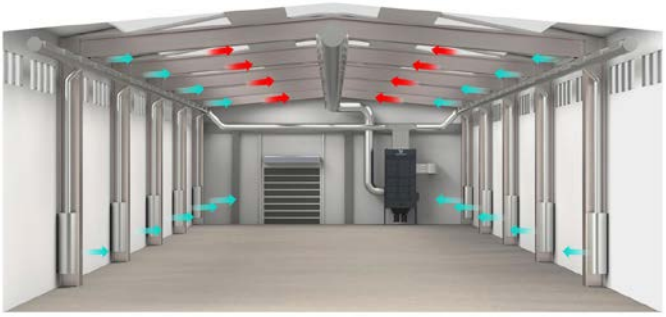
- Recirculation or exhaust air mode
- Course of the pipe system
- Airflow pattern *(hall airflow)*
- Cleaning intervals & times
- Capture elements
- Discharge solutions

4 Hall extraction techniques

ABSAUGWERK develops individual solutions for every hall situation: from source capture to large-area hall extraction. Each system is precisely tailored to the process, room size, and air volume requirements and can be combined as needed with energy-efficient heat recovery or fresh air supply. Depending on the application, different hall extraction techniques are used or combined.

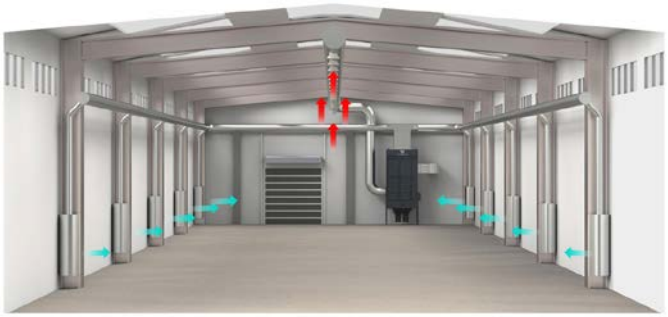
Push-Pull:

In push-pull mixed ventilation, the cleaned air is introduced via long-throw nozzles at the hall ceiling and extracted again on the opposite side. This creates uniform mixing of the warm, contaminated air in the upper third of the hall



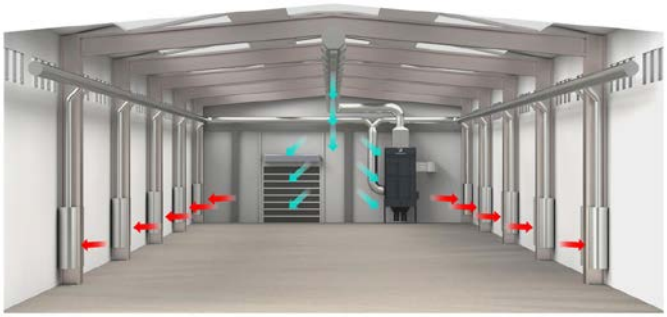
Push-Pull Plus:

In push-pull plus systems, additional floor-mounted air throwers support the natural thermal lift of the fumes. The contaminated air rises in a controlled manner and is efficiently captured and filtered at the ceiling.



Layered ventilation:

During layered ventilation, the fresh, filtered air enters through source outlets near the floor, rises upward together with the pollutants after being heated, and is extracted there. This method is recommended by the IFA*.



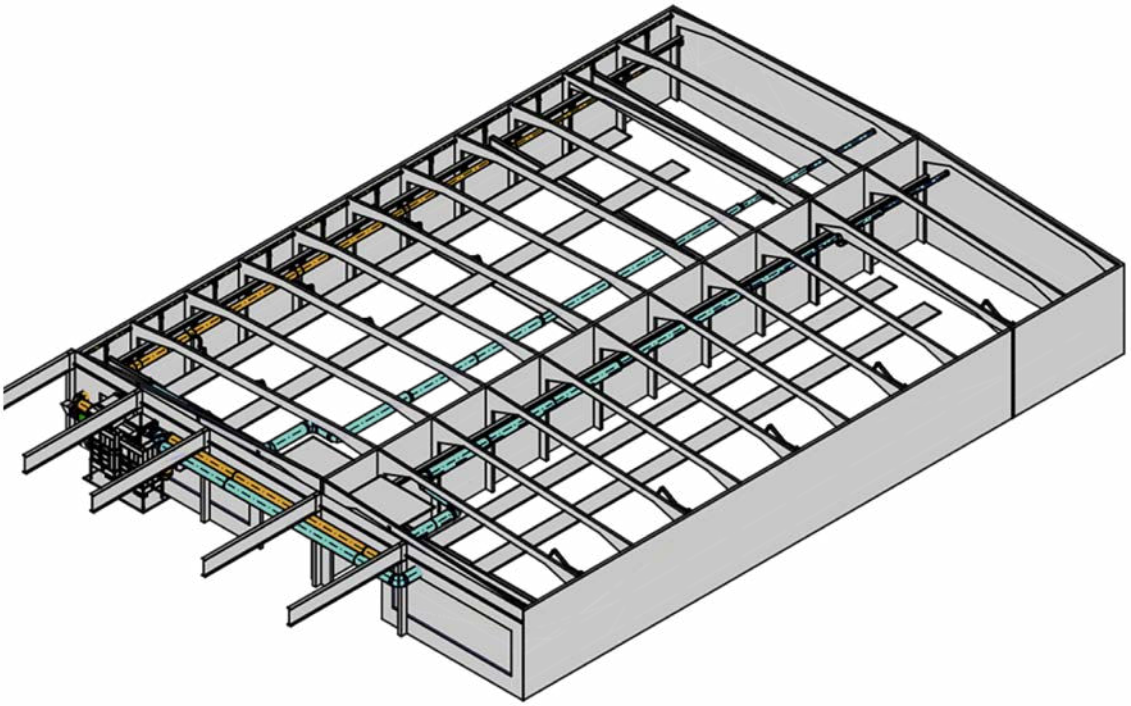
Inverse layered ventilation:

In inverse layered ventilation, the clean air is blown in from above and the contaminated air is extracted near the floor. This method is particularly suitable for processes with strongly rising heat or fume generation.

* *Recommendation according to the Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA): layered ventilation as an effective ventilation concept for industrial halls.*

Components

A hall extraction system consists of several technical components that work together to ensure efficient air cleaning. These include capture of emissions, a suitable pipe system, the extraction system with integrated control, as well as appropriate discharge solutions and air return solutions. Only when these components are properly coordinated does a functioning overall system result.



1 CAPTURE & AIR INTAKE
- Ceiling and wall extraction
- Ambient air and recirculation air intake
- Flow-optimized intake elements

2 AIRFLOW & PIPING
- Pipe and duct systems
- Flow-optimized fittings
- Volume flow controllers
- Shut-off and control dampers

3 EXTRACTION TECHNOLOGY
- Pre-filters *(e.g. coarse/fine filters)*
- Main filters *(e.g. cartridge/hose filters)*
- High-performance or HEPA H14 filters
- Pre-separator for sparks or coarse dust

4 FANS & DRIVE
- Radial or high-performance fans
- Frequency-controlled drives
- Sound-insulated versions

5 AIR DISTRIBUTION & RETURN
- Air exhausts and distribution systems
- Displacement or mixed air concepts
- Temperature and airflow control

6 HEAT RECOVERY
- Heat recovery using highly efficient heat exchangers
- Automatic summer/winter switching
- Recirculation mode with filtered recirculated air

7 CONTROL TECHNOLOGY
- Central control unit *(Siemens LOGO! 8 / Siemens SIMATIC S7)*
- Monitoring sensors for air quality and system status
- Volume flow and pressure control
- Frequency converter

8 SAFETY & PROTECTION
- Fire & explosion protection components
- Non-return dampers
- Spark detection & extinguishing systems
- Silencers

9 MAINTENANCE & SERVICE
- Filter differential pressure monitoring
- Easily accessible maintenance openings
- Filter change and cleaning systems

The ABSAUGWERK Principle

A high-performance and energy-efficient extraction system consists of several components that must work in perfect harmony. If elements such as capture systems or the pipe system reduce performance, this can not only impair functionality but also lead to deposits and dangerous fires. As every application is unique, we develop and manufacture customised extraction systems tailored precisely to our customers' requirements. For an optimal extraction solution, we also take care of pipe system design, installation and, optionally, maintenance and after-sales service.

Everything from a single source directly from our WERK.

Capture + **Pipe system** + **Extraction system** + **Custom solution**




Explosion (ATEX) + fire protection + noise protection
Special safety devices prevent fires and explosions proactively. In addition, noise protection measures minimise noise levels in working areas and create a pleasant working environment.

Where standard ends, we begin!

The result is a holistic extraction solution from start to finish. This allows us to increase performance and minimize operating costs in the long term with regard to maintenance and energy, while maintaining consistently high productivity. This makes it a sustainable and economical investment.

Our Extraction Systems

Clean booth air requires the right extraction technology. ABSAUGWERK supplies high-performance systems that are precisely matched to the booth airflow and reliably capture and filter emissions. Seamlessly integrable. Efficient. Made in Neu-Ulm.

Wet Separator

For flying sparks, combustible and explosive dusts (ATEX).

Fume Filter

For welding fumes and metallic vapours.

Deduster

For dry dusts and abrasive particles.

Oil mist separator

For emulsions, aerosols and metalworking fluids.

Filter Units

Modular filter units with separate fan – individually or combined.

Filter Tower FlowX

Flexible hall extraction for welding fumes without permanently installed ductwork.

Filters:

- Cartridge filter
- Hose filter
- Stainless steel mesh filter
- Cassette filter

Discharge:

- Drawer
- Container
- Bucket
- Ball valve
- Automatic discharge
- Custom discharge
  and much more.

Capture:

- Extraction arm
- Extraction table
- Extraction hood
- Duct system
- Machine connection
- Ambient air capture
- Custom capture

Equipment:

- Various performance levels
- Multi-stage filtration for
  maximum separation efficiency
- Washable permanent filters
- Jet-pulse filter cleaning
- IE3 to IE5 motors

Options:

- HEPA H14 filter for carcinogenic
  substances in recirculation mode
- Activated carbon filter for gases & odours
- ATEX / fire protection design
- Pre-separator
- Stainless steel design
- Filter monitoring
- Effective noise protection
- Cross-flow heat exchanger
- Precoat unit
- Various fans
  (medium pressure, high pressure)
- Heat recovery
- Pressure & airflow control
- Versatile intelligent control systems
- Custom system colour & branding

ATEX

1.4301
1.4401

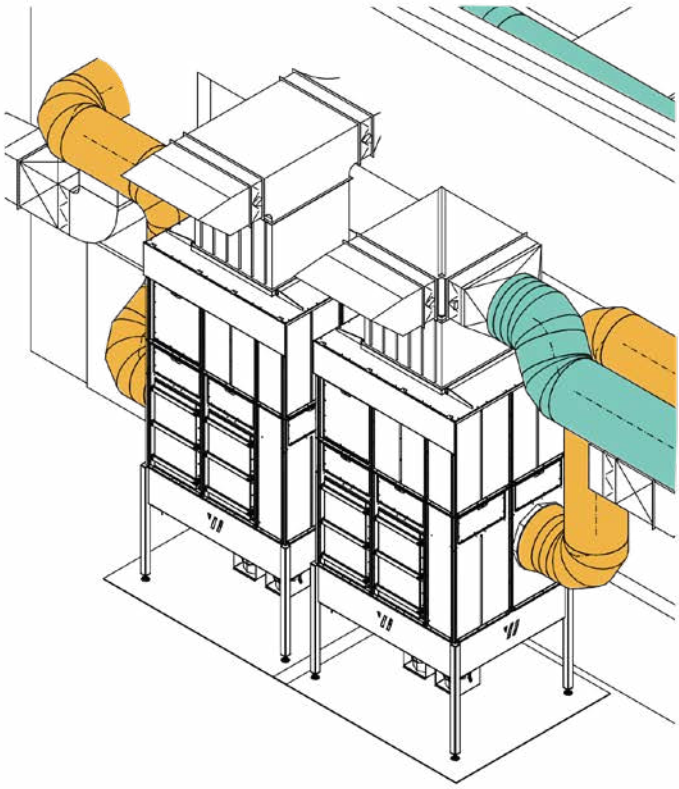
Reference

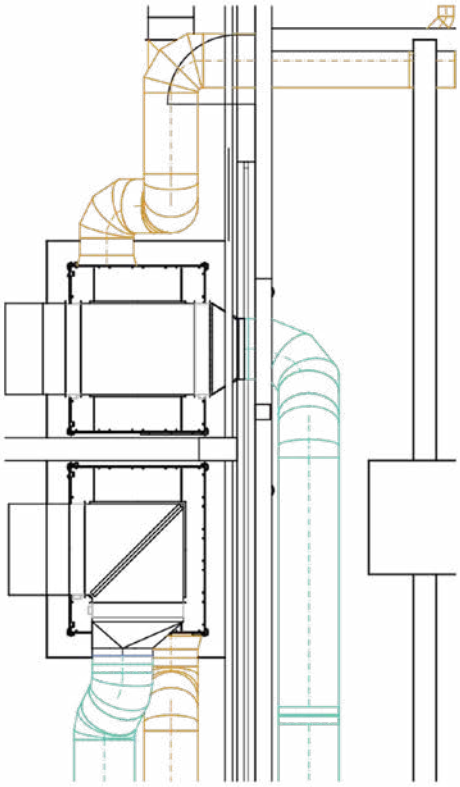
Dual extraction solution for welding fumes at WITRON Stahlfertiger

WITRON Stahlfertiger GmbH & Co. KG processes over 6,000 tonnes of steel annually and manufactures key components for the highly automated logistics systems of the WITRON Group. As part of the production modernization, great importance was placed on clean air and occupational safety. Together with ABSAUGWERK, an efficient concept was developed for an automatic hall extraction system with direct extraction at welding workstations. In addition, two mobile extraction hoods on a welding robot were technically optimized to significantly improve fume capture.

»The solution was so practical and technically simple, it almost sounded too good to be true.«

Gerhard Braun,
WITRON Stahlfertiger GmbH & Co. KG





Orange = The contaminated exhaust air is extracted and filtered.

Green = The clean and fresh air-enriched supply air is returned to the hall.

CHALLENGE

An efficient, low-noise hall extraction system was required with direct capture via extraction arms and central air cleaning, combined with optimized mobile extraction hoods. In addition, the systems were to be installed outdoors, equipped with heat recovery, and operated in an energy-efficient manner with remote maintenance capability.

SOLUTION

ABSAUGWERK implemented an efficient hall extraction concept for WITRON with direct capture via extraction arms and central air cleaning via a ceiling pipe system. The control is simple yet ingenious: via toggle switch directly at the workstation. This allows employees to flexibly switch between extraction arm and hall extraction.

Thanks to integrated noise protection measures, the noise level remains below 65 dB(A). An intelligent ventilation control system regulates fresh air supply, recirculation mode, and heat recovery for clean air, a comfortable climate, and maximum energy efficiency.

The WITRON reference video at ***absaugwerk.de/en/witron***

MEDIA	• Welding fumes
PROCESSES	• Welding *(MAG)*, Robotic welding
PERFORMANCE	• Motor power: 18,5 kW + 37 kW • Max. airflow: 23.000 m³/h + 30.500 m³/h
SERVICE	Personal consultation, technical design, pipe system planning, production, installation, pipe system, commissioning, maintenance and after-sales support

»As operations manager, I have practical expertise and wanted a flexible solution that is simple, practical, and effective.«

Gerhard Braun,
WITRON Stahlfertiger GmbH & Co. KG


Fig. 1


Fig. 2


Fig. 3


Fig. 4

Fig. 1
R series 6000, 30 kW

Process: Welding
Material: Steel
Medium: Dry fumes
Capture: Hall extraction Push-pull plus
Discharge: Dust collection bucket

Fig. 2
P series 7000, 37 kW

Process: Welding, grinding
Material: Carbon steel, aluminum
Medium: Fumes, dust
Capture: Hall extraction Push-pull & inverse layered ventilation
Discharge: Dust collection bucket

Fig. 3
R series 4000, 22 kW

Process: Welding
Material: Steel
Medium: Dry fumes
Capture: Hall extraction Push-pull
Discharge: Cone downward

Fig. 4
8x S series 4000, 15 kW

Process: Welding
Material: Carbon steel
Medium: Dry fumes
Capture: Hall extraction Push-pull plus
Discharge: Dust collection bucket

360° all-round service

Consulting

Free needs analysis and individual quotation by our sales team.

Project planning

Personal support including an on-site inspection and the specification of technical parameters.

Installation

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

Commissioning

Mechanical and electrical system briefing covering functionality, safety and control.

Maintenance

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

After-Sales

The full range: Spare and wear parts, cleaning, training, repairs and retrofitting.

Training

Introduction to system components and performance of minor service and maintenance tasks.

Marketing

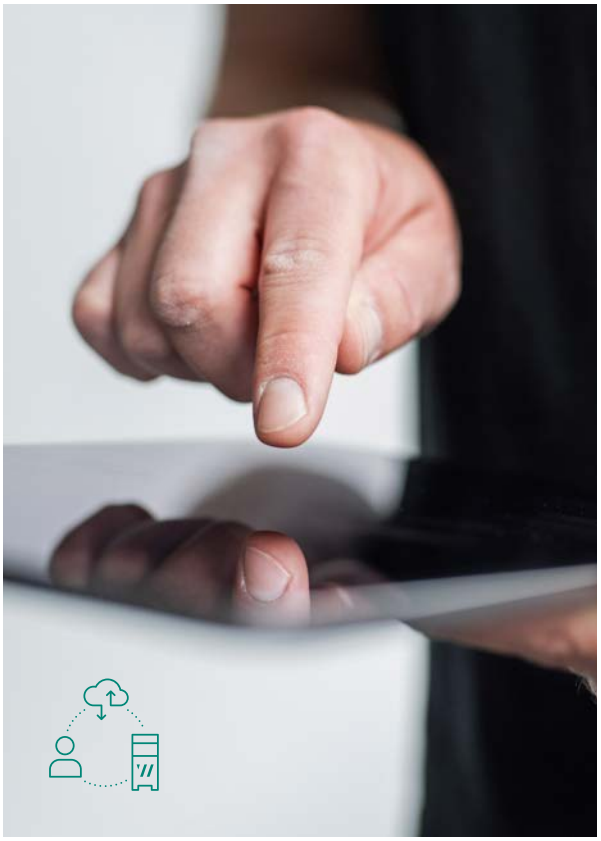
Support in marketing through videos as well as customised design and branding.

Your benefits

- **Everything from a single source**
- **In-house & third-party maintenance**
- **Free process analysis**
- **Personal on-site appointment**
- **Smooth & safe operation**
- **Avoidance of downtime & follow-up costs**
- **Worldwide support**
- **Remote diagnostics & maintenance**

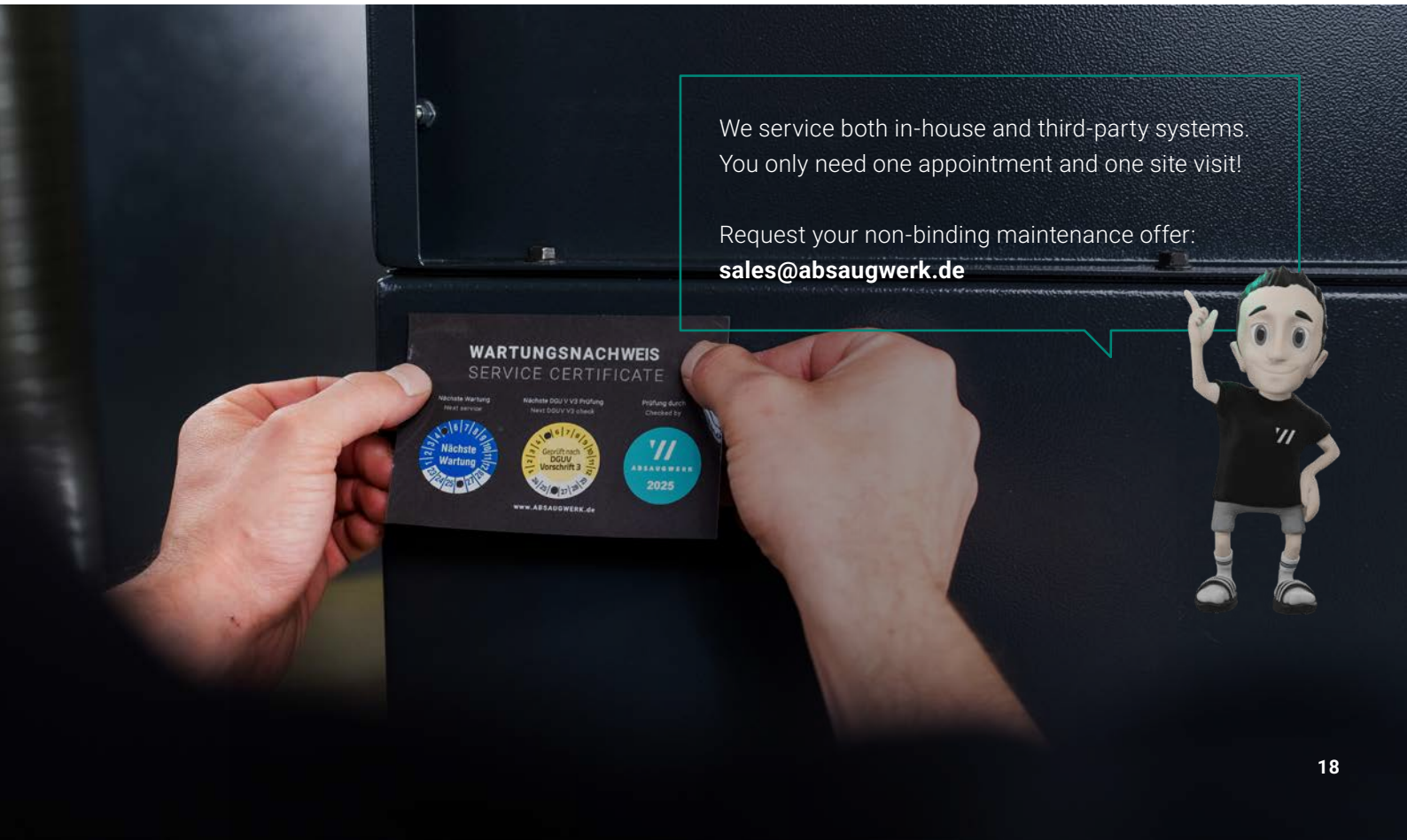
Maintenance

Unplanned system downtime can not only cause high costs, but also put employee safety at risk. To ensure that your extraction systems operate efficiently and reliably over the long term, ABSAUGWERK offers a comprehensive maintenance service. Regular inspections allow technical deviations to be identified at an early stage, before they develop into costly or safety-critical issues. Our many years of expertise and a well-structured service organisation ensure short response times and rapid fault resolution.



REMOTE MAINTENANCE – WORLD WIDE WERK

In automated production environments, reliability is essential. Our remote maintenance systems monitor system parameters in real time and automatically notify us of critical deviations. This enables our service technicians to respond immediately, regardless of location. Intelligent monitoring, modern alarm functions and secure VPN encryption provide fast support, protect your data and offer maximum flexibility at the same time.



We service both in-house and third-party systems.
You only need one appointment and one site visit!

Request your non-binding maintenance offer:
sales@absaugwerk.de

real. sustainable.

SUSTAINABLE EXTRACTION SOLUTIONS

With their high separation efficiency, our dedusters are ideally suited for *recirculating air operation*,* even in processes involving carcinogenic substances. A frequency inverter adjusts the extraction performance to actual demand, saving energy. From the very beginning of development, we focus on minimal flow resistance and efficient airflow design. The result: high-performance systems with very low energy consumption and an exceptionally durable, sustainable design. In this way, our dedusters make an important contribution to resource-efficient and energy-efficient production.

RESPONSIBILITY WITHIN THE COMPANY

All of our entrepreneurial activities are based on ecological, social and economic responsibility. Clean air in production halls protects the health of employees, helps prevent illness and makes workplaces safer. At the same time, machinery, tools and workpieces are protected, significantly extending their service life and increasing the economic efficiency of the entire operation.

** The cleaned air is so clean that it can be returned directly to the working environment. An integrated cross-flow heat exchanger uses the heat of the exhaust air for energy recovery, further reducing heating energy consumption.*

70% lower heating costs

Your benefits

- **High-quality & durable**
- **Low energy & operating costs**
- **Low maintenance & personnel-friendly**
- **Cleanable permanent filters**
- **Flexible system components**
- **Winter/summer mode *(opt.)***
- **Frequency inverter *(opt.)***
- **Cross-flow heat exchanger *(opt.)***
- **Primary explosion protection**

Quality from Neu-Ulm!

Our WERKER are professionals in their field and see themselves as part of the overall WERK. With more than 200 years of combined experience in extraction technology, we create durable and robust extraction systems handcrafted and »MADE IN NEU-ULM«! Every system undergoes strict quality and safety testing before it leaves our WERK.

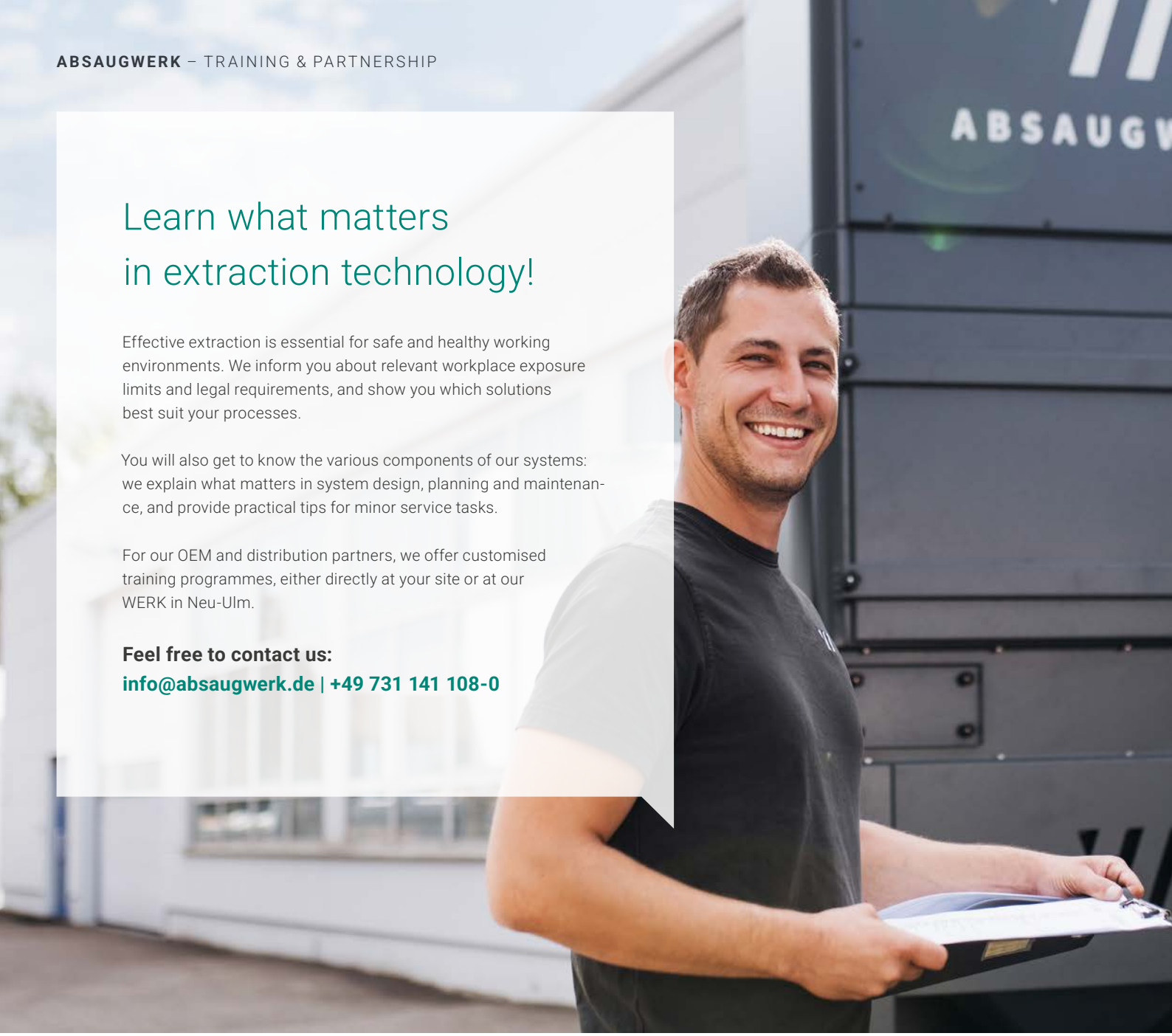
We continuously invest in training and technology to keep moving the market forward. Our innovative strength has been recognised with the BSFZ seal – a mark of research-based development and publicly funded innovation. Our goal: better working conditions, sustainable environmental protection and your success with perfect workpieces.

We configure extraction systems individually and provide premium service directly from our WERK. That's what makes our solutions **real. better.**

FuE BSFZ - 2025 -

Every WERKER considers themselves part of a responsible society and a healthy environment.

MADE IN GERMANY



Learn what matters in extraction technology!

Effective extraction is essential for safe and healthy working environments. We inform you about relevant workplace exposure limits and legal requirements, and show you which solutions best suit your processes.

You will also get to know the various components of our systems: we explain what matters in system design, planning and maintenance, and provide practical tips for minor service tasks.

For our OEM and distribution partners, we offer customised training programmes, either directly at your site or at our WERK in Neu-Ulm.

Feel free to contact us:
info@absaugwerk.de | +49 731 141 108-0

real. personal.

ABSAUGWERK stands for lived values that go far beyond technology. Our employees share not only expertise, but also common values of teamwork, responsibility and trust. This culture forms the foundation of our success and our »feel-good philosophy«.

Within our network, we also focus on genuine partnerships: open, respectful and on equal footing. We believe in long-term relationships built on reliability and mutual appreciation, because only together can something be created that truly lasts.

ABSAUGWERK GmbH
Messerschmittstr. 22
DE-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

In the first step, your work processes are analysed, pollutant sources are identified and existing extraction systems are reviewed in order to determine the exact extraction requirements.

02

Personal on-site visit

Our experts assess the local conditions directly at your site and take precise measurements to plan the ideal solution for your operation.

03

Individual quotation

Based on the analysis and technical drawings, you will receive a customised quotation within a short time, offering the most economical solution for your needs.

04

Production

Once the technical drawings have been approved and the order placed, we immediately begin procurement, manufacturing and scheduling for installation.

05

Installation

Our installers set up the complete extraction system, including pipe system, and support you during commissioning. Performance and functionality are carefully tested and documented – ensuring a smooth start-up.

absaugwerk.de

real. better.