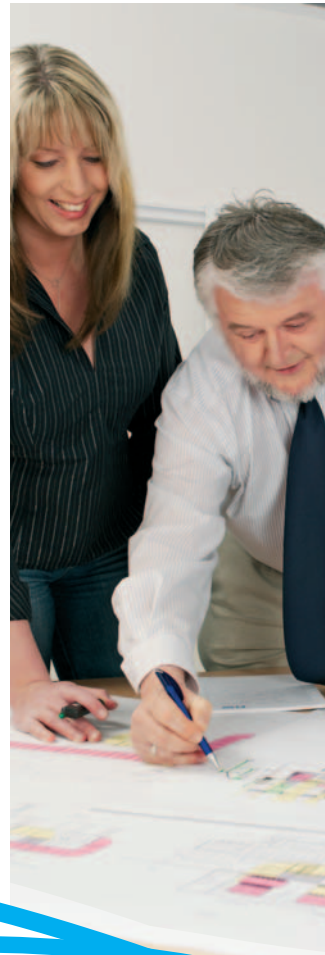


# Air with method

Dedicated solutions for the printing and paper industries



# We make air work on your behalf



Air is the medium we work with. Research and development, planning and consulting, manufacturing and service, whatever we do, the emphasis is on innovative air technology. Venti Oelde plants and components are used for collecting, handling and filtering of air, vapours, gases, dust and airborne solids.

An enthusiastic, experienced and knowledgeable team, numbering 250, ensure that individual customer requirements are implemented under economically expedient aspects. The resulting solutions are innovative, efficient, cost-effective and forward-looking. They are appreciated all over the world and underline the claim to technological leadership.

As long ago as 1930 Venti Oelde was planning, developing and manufacturing in their North-Rhine-Westphalian location, Oelde. Apart from industrial fans, their manufacturing programme includes dust collection and process gas cleaning plants, exhaust air treatment plants, ventilating, heating and air-conditioning plants, recycling and waste treatment plants as well as plants for surface technology.



The conceptual range of available industrial fans includes high-efficiency fans to handle gas and dust and heavy-duty fans for dust-laden process gas or clean air. These also number specially designed fans to circulate hot gas with a temperature to 1000 °C and high-pressure fans to handle gas, dust-free air, chips and other material.

The field of dust collection technology includes the capture, handling and filtering of dust or solid particles out of air and process gases. The primary elements of the quotation are the planning, manufacture, assembly and commissioning of air-handling plants using a variety of separating systems which are selected to meet the individual need.

Extraction of welding fumes and vapours and exhaust from baths and of heat produces a good "working climate". Venti Oelde develops total solutions for workplaces, booths, rooms and workshops of all sizes.

In the business segment heating and air-conditioning technology, air heating systems, ventilating plants with heat recovery and air-conditioning plants for workshops and other industrial areas of all sizes are planned, manufactured and installed.

Venti Oelde supplies treatment systems downstream of large shredders, mills and incinerators for recycling plants for material separation and the recovery of reusable waste as well as dust collection plants and air management concepts for waste treatment plants.

Venti Oelde supplies complete systems to dry surface applications to a wide variety of materials. As a result of many years working with partners in the relevant branches, specially developed drying systems can be integrated into complete surface treatment plants.

Maintenance, servicing, inspection, repairs as well as plant upgrading, rationalisation and enlargement complete the available services. Experienced specialists in a large number of outside offices and agents ensure expert support all round the world and quick contact to all business partners.

# Paper and foil industries ...

Every industry has its own specific processes which present individual and complex demands on air handling technologies. Air, for instance, is needed in a vast number of applications for manufacturing processes, for cooling, drying, conveying and manipulating, for selecting, cleaning, extracting, removing, recycling and also, of course, for climate control.

As a system provider with vast experience in this field, Venti Oelde is more than familiar with the often complex processes and requirements of the printing and paper industries, as well as those of the foil manufacturing and processing segments. A comprehensive range of air handling technologies combined with specialist products and system solutions and strongly supported by planning, consulting and maintenance services are the foundation for optimum results.

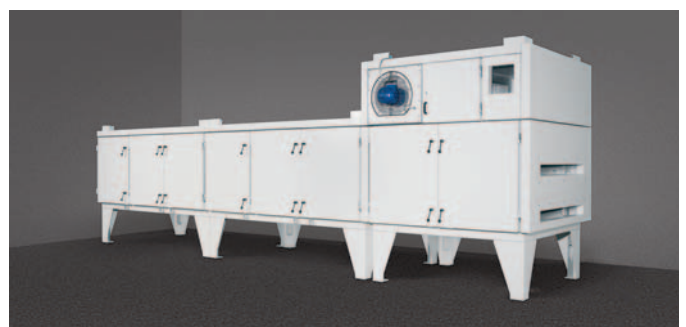
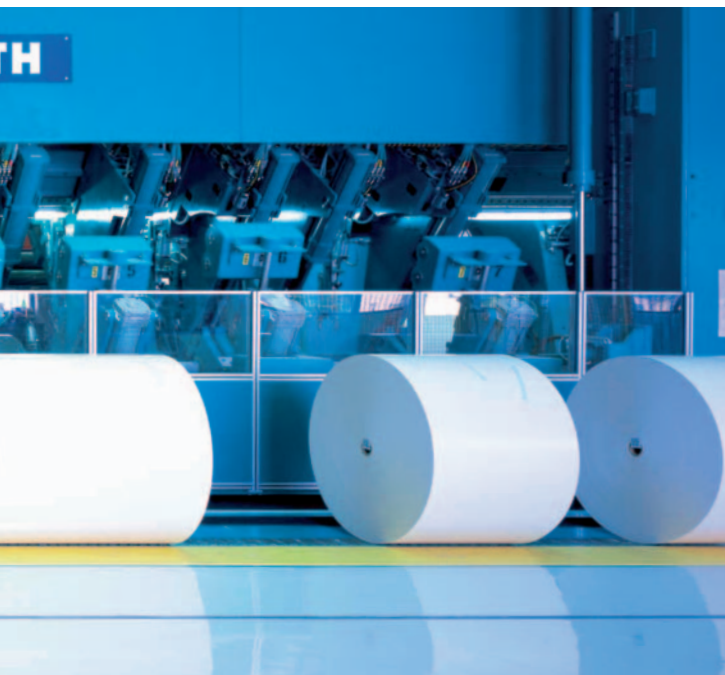




These benefit further if we can apply our specialised expertise at an early stage of the planning process. In this way, we can achieve the best possible performance and efficiency while keeping energy costs at a minimum. This is the reason why Venti Oelde always focuses on overall, integrated system solutions in which the functional interaction of all components is a key feature.

At the same time, we do not rely exclusively on existing system components; new and advanced developments guarantee users problem-free operational processes in which appropriate technologies ensure an absolute compatibility between ecology and economy.

Specialised engineering, dedicated research and the constant evolution of technological solutions are what make Venti Oelde an internationally recognised and respected industry partner.



# The advancement of printing technologies ...



By continually up-dating and further developing existing air handling and disposal systems, Venti Oelde has gained a reputation as a specialist in the field of gravure, offset and flexographic printing.

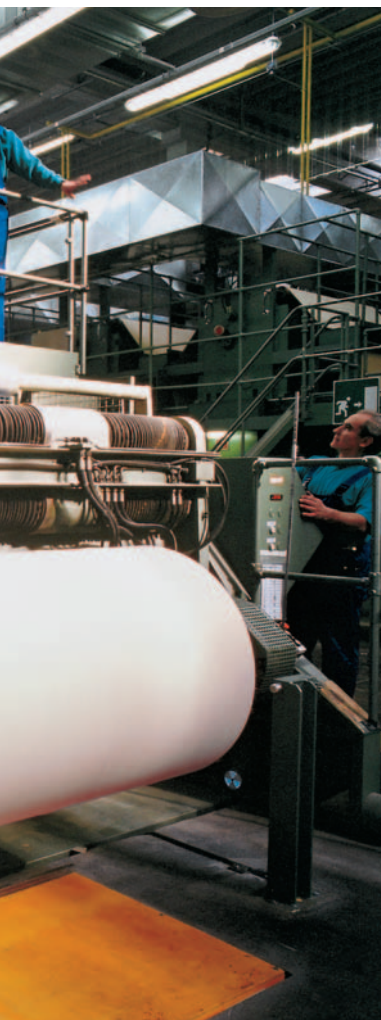
For this reason we take not only the printing presses into consideration, but also their surroundings.

When paper webs or foils are printed, the large quantities of process air required are contaminated with moisture and/or environmentally hazardous solvents. Printing machines generally operate with large volumes of

recirculated air in which the pollutants become more and more concentrated. Venti know-how ensures that the contaminated process air is centrally collected, continuously discharged and replenished with fresh air.

A heat exchanger returns the useful energy to the process. This allows up to 75% of the heat energy to be recovered. Air heavily contaminated with solvents is treated thermally by proven processes and environmentally hazardous contaminants removed.





Similar to the plug-and-play method used in computers, Venti develops pre-fitted compact units together with the users for printing machines such as for intermediate ink drying and bridge drying in flexo printing machines. The modern system solutions are standardised and extensible by a modular principle. Different heating systems can be easily installed. Electrical control units and monitoring sensors are integrated in the modules and tested before final assembly of the printing machines.

# Optimised drying processes ...

The drying process is not simply the removal of moisture from materials; coating and drying also change the physical and chemical properties of the materials involved.

For many years Venti Oelde has been a supplier of drying technologies for the printing and paper segments, as well as for the textiles, chemical, metallurgical and wood processing industries. The products offered range from laboratory equipment to large-scale industrial plants. Solutions with various heat transmission systems are just as much a part of the range as convection and contact dryers, IR and UV radiation dryers and combined drying systems. Depending on the application of requirements, the materials are supported on bars, rollers, fabric belts, conveyor belts, tension frames or air-cushions (flotation dryer).

The units are suitable for the drying of piece and bulk goods, fibrous pulps, boards, rolls, foils, films and pastes.

We also supply special constructions in the form of inert gas dryers, acid resistant dryers, reduced pressure dryers, dryers with integrated heat exchangers and with airlocks, capable of handling material widths between 100 and 5,000 mm.

Operating temperatures are up to 120°C for solvent based inks, up to 180°C for aqueous dispersions, 250°C for hardening and curing processes and up to 400°C for special applications.

The systems are available as standardised, modular components for further expansion as and when required. For instance, various winding and rewinding components, laminating machines and other feed and extraction systems can be simply attached, such as, for example, vacuum transport tables. Together with a co-operation partner, we also provide complete systems with a choice of 16 different coating application systems. In addition to this, several specially equipped laboratories are available for the performance of coating and drying tests.

Material feed systems, transverse and longitudinal cutting systems, edge trim extractors and protective foil rewinders, as well as VOC reclamation or oxidation plants, are, of course, all optional components of the range. The appropriate sensors, control and regulating systems essential for the assurance of constant quality are determined in close collaboration with customers.

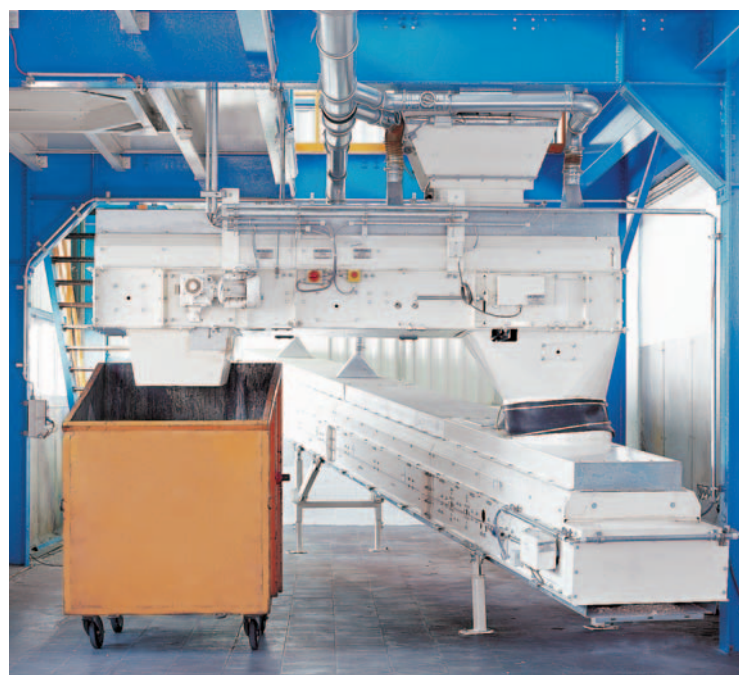




... decisive for quality and performance



# Conveying, treatment, filtering and disposal ...



Numerous forms of wastes are created in production facilities. In order to ensure problem-free production, any wastes produced must be removed from the immediate vicinity of running machines. Venti Oelde ensures clean and safe working environments by the removal, conveying and disposal of:

- Exhaust air with concentrations of hydrocarbons, heat and moisture
- Fine dust particles from production abrasion that represent a respiratory hazard, adversely affect machine control systems and mechanical components and can frequently lead to impaired products

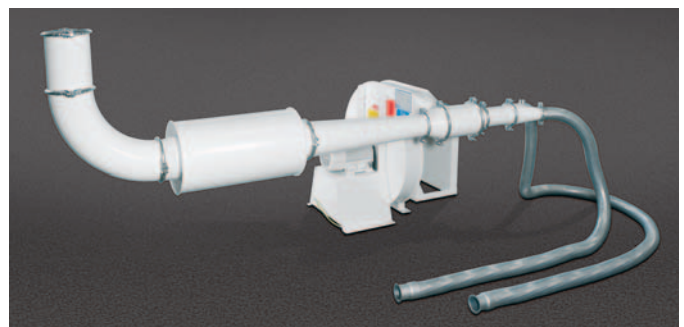
- Endless strips of edge trim resulting from the trimming of materials
- Punch waste, trimmings from formatting and rejects, discard wastes from starting and stopping machines

We design and construct material trapping devices in collaboration with leading machine manufacturers and operating personnel.

The selection of appropriate pipe cross-sections and the optimised configuration of pipework reduce energy costs and guarantee problem-free operation. The technical specialists at Venti Oelde employ computer-aided simulations for the individual design of custom solutions for every system.

We install everything from switching systems, monitoring and control technologies, as well as control systems for split-second rerouting of material flows to safety-relevant components and switchgear.

It goes without saying that Venti Oelde also offers isolated solutions for individual machines. Standard injector systems transport the endless strips to a recovery container or a recycling plant.

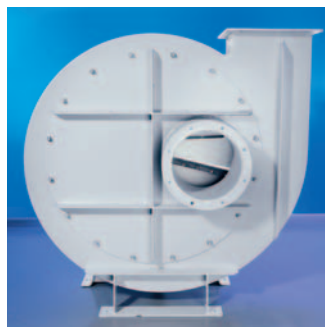


# Conveying, treatment, filtering and disposal ...

The material is conveyed by an impeller, specially formed for shredding, through an optimized ductwork to the filter or to a container.

In order to achieve safe and trouble-free transport and handling of the different waste, it is necessary to reduce the edge trims, cut-offs and discards to small pieces before and during conveying. We employ various methods depending on the given situation.

With tearing fans and pipe-mounted cutters we shred continuous product, such as edge trims. The selection and design of the machine is determined by the width of the edge trims, unwinding speed, type and thickness of the material. Tensile strength and coating of the waste are also determined and are taken into consideration in the calculations.



Anything conveyed by air requires separation at some stage. This task is fulfilled by various separator systems designed and constructed by Venti.



In particular, the complex subject of dedusting is an important field of action. Large quantities of microfine dust are produced around extremely fast-running machines. This contaminates the inhaled air and creates deposits which can result in substantial quality loss or interruptions during production. Dust must therefore be captured at its point of origin and guided to suitable filters. This applies to dust produced on winders, on the longitudinal and transverse cutters, on rotary die cutters and vertical punches and also to edge trim disposal. Only effective dust extraction can create the necessary cleanliness and a really “smoothly running” process. Cutting residues and discards can be treated fully automatically with Venti system technology, up to briquetting or compression.

Our manufacturing program includes different filter types. They are differentiated by their various cleaning methods, such as compressed air or medium-pressure cleaning and wet scrubbing and also by the type and composition of the filter media. This variety makes it possible for us to select process and filter individually. This applies particularly to sizes when the space for the filter is limited.



# Ingenious recycling ...

In their recycled form, production waste and waste of only one sort represent an enormous potential material asset. Another area of expertise provided by Venti Oelde is the collection and conveying of such valuable waste to an appropriate recycling process.

We move and dispose of plastics, cellulose, paper, paper- and cardboard, veneer, aluminium and textiles. We enable efficiency in a safe working environment in plants that capture, shred and dispose of edge trims, for example, with widths of up to 300 mm at a feed velocity of 4,000 m/min. As required, materials can either be returned to the production cycle or extracted from the overall system by means of routing devices.

Depending on requirements, the materials conveyed are extracted from the air stream by separators that are specially designed to perform optimum extraction of the materials involved.

The extracted waste is packaged in bales or compacted by pressing. Dust accumulating in the filter systems is collected in Big Bags or pressed in the form of blocks or pellets.



A pneumatic conveyor system transports plastic edge trim strips to a shredder. The consistency, rigidity, size and volume of the waste produced are used as a basis for the determination of the ideal machine capacity required. This calculation also takes intermittent peak loading into account. The shredded materials are subsequently returned entirely to the coating system.





Venti Oelde has succeeded in developing a treatment process that separates composites without the need for mechanical tearing or shredding. The system is based on a multi-stage screening system in the highly accelerated airstream, followed by separation in a multi-stage separator system. This innovative process enables the achievement of extreme product purity. The entire material transport is performed by an integrated, low-pressure, pneumatic system which ensures gentle handling of materials.



One of our numerous developments: a registered design rotating screen separator that can be installed as a substitute for cyclones and conventional screen separators, and serves as a compact unit for the extraction/separation of high-volume materials from air streams. Its applicability for wide range of applications is shown in its suitability for the handling of edge trim, punch waste, corrugated cardboards, paperboard etc, its extreme operational safety, fire and explosion prevention characteristics and its particular suitability for large air volumes and material flows.



# An optimum climate ...



Venti Technology provides an environmentally and worker friendly climate on an economical basis.

Legal requirements define the maximum permissible amounts of hazardous substances for various workplaces in industry and trade. Venti engineers are acquainted with these guidelines and plan all-round solutions for workplaces, booths and workshops of all sizes.

With precise planning and intelligent air systems, it is possible to control the temperature and humidity in the working area optimally, as required. In the case of various types of printing machinery (flexo and rotogravure printers), workplace air conditioning requires specialised knowledge which "ordinary" air conditioning technicians do not usually possess.

One of our tasks is to achieve a balance between investment and operating costs. A central theme is heat dispersal and heat recovery, requiring creative ideas, know-how and constant up-dating of existing systems. Our experience in other branches of industry is included in our considerations and often enable completely new systems to be developed.

The use of intelligent Venti air handling engineering means that, as well as improving the workshop environment, a continual increase in production volume is achieved. An increase in the printing speed requires, in some printing processes, compliance with temperature limits and humidity figures in the printing shop. Precise planning makes possible an exact regulation of temperatures and humidity in the working area according to the requirements. About 75% of the heat energy carried by exhaust air can be recovered by means of heat exchangers in the paper drying air-stream. We can thus reduce your operating costs and increase your productivity, ensuring an optimum production process.







# An optimum climate ...

Control engineering is of fundamental importance in the field of overall plant planning. In collaboration with the customer, Venti Oelde develops special control equipment for each specific task. Data crucial to operating continuity are gathered while the required safety equipment is integrated into each system.

Venti Oelde can provide both simple and compact control engineering systems and highly complex plant control systems using PC and monitor.

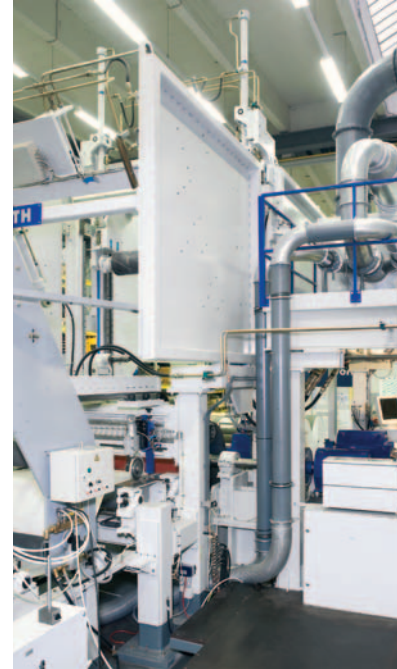




# Special solutions ...

Our customised solutions are as wide-ranging as your requirements.

The Venti Wet Scrubber proves to be an excellent choice for removing dust during laser cutting of coated materials. It is a cost-efficient device that is easy to maintain. The system's separating performance is determined by means of dust analysis. A special feature is its sludge disposal system developed in close collaboration with our customers.



An edge trim vacuum extractor for feed velocities of up to 4,000 m/min was developed in collaboration with our customers. The edge trim strips are gathered, conveyed and shredded in one smooth process.



The contaminated air containing ink and plastic particles must be extracted constantly during the manufacture of thermal papers. Venti Oelde has designed and constructed a special wet scrubbing system particularly for this purpose.



We have developed a special type of centrifugal fan for drying the recirculated air for flexo printing machinery. The fan is equipped with two outlets for blowing and discharge air.



Compact unit for the food industry. This unit consists of two supply air and one exhaust air unit and is used in the aseptic zone of a filling machine in the drinks industry. Similar units have been developed for suction belts on automatic folding and gluing units and for the transport of cardboard and cut-offs.



New environmental regulations are challenges for innovation, development, established and new companies. Particularly the VOC Directive of the European Union (VOC stands for Volatile Organic Compounds, such as solvents) demands compliant preliminary work. Rotary printing, reel offset and illustration gravure printing, laminating, adhesive coating and many other techniques are specifically affected.

In such cases, there are various options ranging from biological exhaust air treatment and thermal oxidiser systems to solvent reclamation.



# Full service from the outset

The services that Venti Oelde provides start with the first contact and extend right through to support during regular operation – because competent advice requires a holistic approach.

From projecting to the planning phase and from engineering to the installation, you have a personal contact for advice and assistance the whole time. In this way, we bring the desired solution to fruition in the shortest time.

We see conscientious planning as the key factor for efficient operations. Venti Oelde configures fans according to the individual requirements of the customer and based on our own appraisal and performance analyses and airflow simulations; at the same time, we also investigate optimisation potentials for existing plants.

As the experience gained in the design and construction of comparable projects is utilized in each new development and optimisation process, our customers directly benefit from our competence in the construction of large fans, convection dryers, recycling and ventilation systems. We exploit our expertise in aerodynamics, acoustics and vibration engineering in the continuing optimisation process of our systems. In this way, Venti Oelde can provide solutions for even the most demanding tasks in a wide range of fields.

Our comprehensive range of services promote cooperation, and build up the trust required for long-term and successful partnerships.

Venti Oelde specialists are there personally for all relevant work – for installation and commissioning as well as maintenance and servicing. They instruct your employees on-site and, as a special service, also carry out training of your qualified personnel. All backed-up by our Service-Hotline, available around the clock.

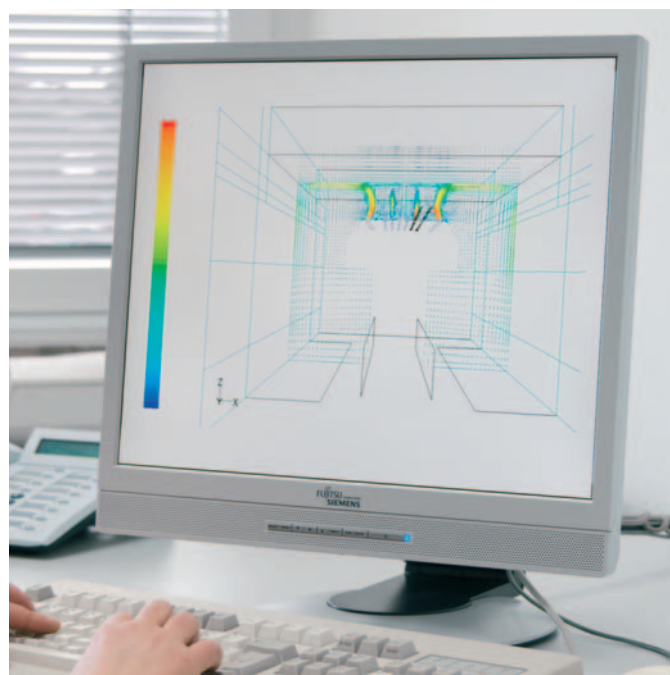
Should an interruption in production be necessary to expand existing plants or to carry out repairs, we will do the necessary work at night and weekends. In this way, downtime is reduced to a minimum.

In addition to our conventional maintenance service, we also offer telemonitoring of the plant with electronic data transmission. The tele-diagnosis provides us early with concrete indications of irregularities and allows us, when required, to carry out a rapid and precise fault analysis. With this form of preventive maintenance we can as a rule avoid costly repairs in advance. Should the customer so desire, we offer specific and controlled online monitoring.





We meet every new challenge with our great store of expertise and a large portion of curiosity: we are constantly testing new processes and procedures in our evaluation and assessment department and the knowledge gained in this process is invested directly in the development of innovative, long-term strategies for complex demand scenarios. We are only satisfied when our ideas become practical realities – and are proud to identify ourselves completely with the results.



- Industrial fans
- Dust collection and process air cleaning plants
- Exhaust air treatment plants
- Ventilating, heating and air conditioning plants
- Recycling and waste processing plants
- Surface technology



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