



SPRING END GRINDING

Long-term experience

Fully developed filter technology



Dialogue

Schnöring, Wire & Bending Systems



Process reliability

SINBRAN® - an innovative filter



KL Information

Keller Lufttechnik is a worldwide technology company specializing in the capture and separation of a variety of air pollutants, as well as the reduction of emissions in industrial applications. The family-owned company was founded in 1903 and is now run by the fourth generation, combining both tradition and innovation.

All industrial manufacturing processes produce air polluting substances. These substances are released during mechanical machining processes, thermal processes, in treatment technology, during the handling of cleaning agents and solvents, or during painting and refinishing processes.

Surface treatment is required for almost all manufactured products. This affects the physical and functional characteristics such as hardness, corrosion and wear resistance, as well as color or brightness. To meet those different requirements, surface engineering processes and coating technology are necessary for many applications. Keller Lufttechnik is able to offer innovative solutions such as energy-efficient filtration systems for coating processes, or the latest extraction systems for the blasting of components

Foreign substances in the air have an adverse effect on the manufacturing process and the final product. They must, therefore, be captured, separated and exhausted effectively and reliably. Keller Lufttechnik develops, plans and manufactures exhaust systems that present an appropriate solution for air quality control. To this end we rely on an extended and proven product range to solve problems in the fields of dry and wet separation, as well as in oil/emulsion mist separation. By utilizing innovative filtration technologies and systematic planning, we achieve optimum separation results. This way, Keller Lufttechnik provides custom tailored systems of the highest quality that include solutions to individual problems.

In addition, Keller Lufttechnik offers complete service packages covering the entire service life of all aspects of our exhaust systems: from the first draft, the approval and permit processes, the installation and commissioning, to after-sales and service.

Additional information: www.kl-direkt.de.



Surface filters, VARIO



Surface filters, L-CUT



Wet scrubbers, VDN



Oil mist separator, OENA



Emulsion mist separator, ENA



Baghouse filter, JET-SET®



Pleated pocket-type filters, PT



Work booths



Cyclone filters



KL-WETVAC

KL-References spring end grinding

Well-engineered filtration technology through long standing experience



The process of spring grinding causes the emission of fine dust, which is not avoidable even with the presence of the state-of-the-art machinery. The capture, extraction and separation processes involved in production are regulated for operational and occupational safety and environmental protection reasons. The handling of fine dust is often further complicated by presenting health hazards by being toxic as well as carcinogenic.

Keller Lufttechnik has lengthy experience and extensive knowledge of the extraction and separation of very fine dust emissions. Our technology is well-

proven in a variety of different situations. The modular concept of our components allows us to individually customize our system to find the right solution for your requirements.

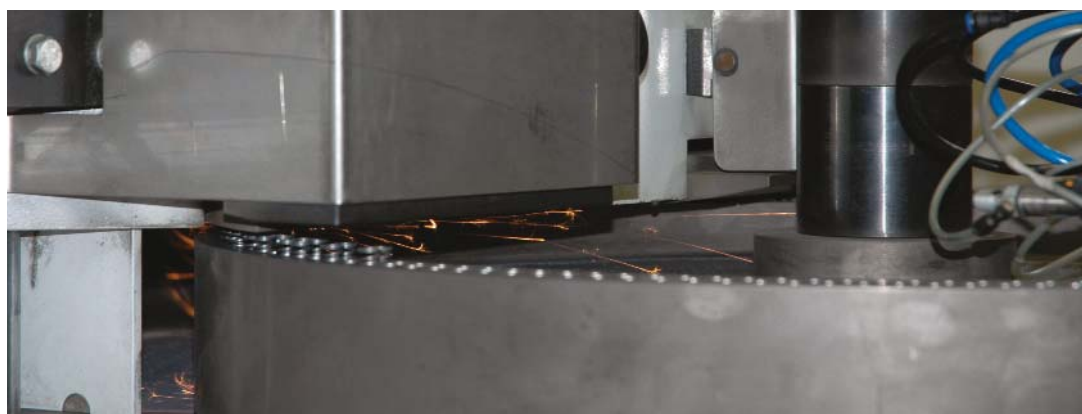
The VARIO series, which is one of our modular concepts, in combination with our high quality filter element SINBRAN®, is suitable for the extraction of extremely fine dust, e.g. spring grinding dust. The VARIO series is equipped with continuous compressed air cleaning and high efficiency filter elements for constant operational reliability.

References

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No spring end grinding without an extraction system

Schnöring, Wire & Bending Systems belongs to the leading manufacturers of pressure springs and spring elements.



A conversation at Schnöring with the Managing Director graduate engineer Mr. Andreas Wagner and the Technical Director Mr. Curt Nürnberger.

KI-direkt: Schnöring GmbH in Schalksmühle is a medium-sized, family-owned company in the third generation. What is today's company philosophy?

Dipl.-Ing. Andreas Wagner: We see ourselves as service company for our customers. In doing so, we are a reliable partner for our customer. Beginning from the development on to the construction and further to the fabrication and production run. Our strength lies in technically ambitious solutions and therewith we are able to achieve a considerable benefit for our customers. There is a significant tendency towards component and system suppliers. Our core competence is the processing of chrome-nickel steels. In this sector we are the accepted innovation leader.

KI-direkt: Are you able to meet these high requirements?

A. Wagner: Our employees have been the basis of our success for three generations. Excellent quality, constant learning and motivation as well as commitment belong to the advantages of our team. This is supported by a modern organization with a flat management, team organization and the relocation of components in some areas. Moreover, we dispose of ultra-modern technical equipment in which we permanently invest. In our production sites you can find the latest CNC machines as well as the latest Bihler machine systems (multicenters and blanking automated systems).

KI-direkt: In which branches are your products basically used?

A. Wagner: We have acquired a wide customer spectrum in different branches with our experience and know-how in the sector of pressure springs and spring elements. To point out our main focus: automotive, electrical industry, white goods and furniture hardware industry.

KI-direkt: What are your development objectives?

A. Wagner: We have compiled our growth targets on a huge sector portfolio. Sales volume and productivity are the characteristics on which our ambitious growth planning with annual increasings in the double-digit percentage is oriented. An important contribution thereto provides an expansive development in export - today it is already 50 % of the company's sales volume.

KI-direkt: Let us talk about the spring end grinding and the filter technology. Which requirements arise hence for the production at Schnöring?

Curt Nürnberger: Whether steel or Nirosta spring, the spring end grinding is indispensable for the processing of our pressure springs. Alongside with a whole series of various factors, the filter technology and the extraction system are directly

related to the grinding capacity. Grinding is impossible without an extraction system. The influence on the production availability and therewith the added value chain is huge. Three years ago we moved into our production site with a predominantly newly equipped grinding machine technology. We also had to deal with the question how the future filter technology has to look like. Until that time the extraction of spring end grinding had been solved by a wet filter. We had a lot of problems with this solution e. g. the daily maintenance, the disposal of the sludge and the therewith connected downtimes - it was a catastrophe. For us, it was clear that the only alternative for the new production site was an outside installed separationsystem.

KI-direkt: Why did you choose a Keller system?

Curt Nürnberger: We had definite ideas about the efficiency of the extraction system and filter echnology. This was in accordance with our machine's manufacturer. Keller experts presented a convincing projection and design for the new system which has fully met our requirements.

A. Wagner: Decisive was of course the fact, that in comparison



.. spring end grinding

with other competitors, the price-performance ratio was acceptable.

KI-direkt . . . and how do you feel about the support and assistance of the parent company?

Curt Nürnberger: We feel excellently and, above all, professionally supported. A further example is the outside installation of the system. The size and the huge ductwork, which is necessary for the production, lead to sorrows of surrounding residents. They worried about possible consequences and if they are eventually affected in their daily life. This issue had already been taken into consideration during the system design. Keller systems have proved for years that there have never been any problems concerning the sound level. All emissions are optimally adhered to. What contributed to the satisfaction of our residents.

KI-direkt: Have all expectations been met after the commissioning of the system?

Curt Nürnberger: We are fully satisfied. Since the commissioning we have not looked after the system. It is running without any

problems, exactly according to our requirements. Independent from the production type, with springs of a diameter of 0,4 - 3 mm and a spring end diameter of 3 - 35 mm, whether steel spring or Nirosta spring, the extraction is regulated and is running. Unlike our earlier solution, we reach the highest possible availability smoothly and efficiently. We like that, because we cannot work without an extraction system. We need it for suction and cooling - otherwise nothing works.


A. Wagner: Especially the availability of the systems is a priority for the production, taking into consideration that we are working 3-shifts here at Schnöring. The concept with two Keller extraction systems ensures the availability and provides a production without problems and downtimes.

KI-direkt: Which experience did you have with the Keller maintenance and service?

Curt Nürnberger: Also in this aspect we are absolutely satisfied. All systems are running to full load. We have a comfort-maintenance contract with Keller which ensures the availability. Excellent reaction

times, competent and reliable service technicians cater for a high degree of satisfaction.

A. Wagner: For us it is an "all inclusive careless package". This is exactly what we expect from our systems.

KI-direkt: Thank you for the conversation. 

Contact: Thomas Schneider



Phone: +49 7021 574 191

Email: St@kl-direkt.de



Performance parameters of the extraction system

Surface filter PT

- with SINBRAN® filter elements
- designed for approx. 17.000 m³/h 37 kW (process line 1) and 15.000 m³/h/30 kW (process line 2)

Main dimensions of the filter system:

System 1 + 2 each with approx. 2.300 x 2.800 x 2.500 mm

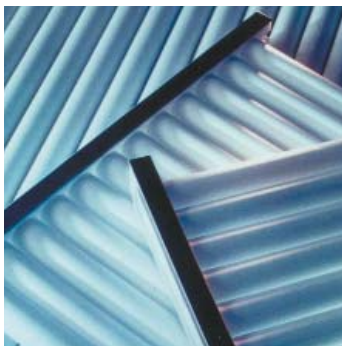
Warranty data:

Adherence of the requirements of sound insulation < 45 dB(A) in approx. 80 m distance of the point of measurement, measurement process in accordance with DIN EN ISO 3744 emission level 0,1 mg/m³

Technical characteristics (System accessories):

Automatic fire identification and fire-extinguishing system to detect and suppress a fire in the filter already in his origin to protect the employees and the production site

SINBRAN®: An innovative filter



The use of adequate and optimal filters brings along considerable advantages for a company. It ensures an optimal functional reliability and satisfying economic results both for new systems and for retrofittings of existing systems. SINBRAN® is an innovative and at the same time proven filter which fully meets those requirements - a new kind of rigid body filter.

Keller Lufttechnik and Gore developed in close collaboration this new kind of filter for dedusting processes: SINBRAN® is a combination of sintered, porous polyethylene with a GORE-TEX®-membrane laminated onto it. SINBRAN® filter elements combine advantages of membrane filters with those of rigid body filters.

The rigid body disposes of a large filter surface area on confined

space and thus provides a high mechanic load and a long service life.

The GORE-TEX®-ePTFE-Membrane results in a surface filtration with extremely high filtration efficiency which means that dust particles are retained almost completely at the filter surface. They do not reach the sintered body and thus cannot clog it. A relatively small pressure loss is the result. The filter cleaning happens through short compressed air pulses during the filter process. The construction of the filter heads ensures the compatibility to existing filter systems.

Environmentally friendly product

SINBRAN® filter elements consist of sintered, porous polyethylene tubes with a laminated GORE-TEX®-membrane on the outer surface. They are recyclable, environmentally friendly and therefore suitable for use in the pharmaceutical and food industry. SINBRAN® filter elements are manufactured free of adhesives or polyethylene solvents, stainless steel, silicone rubber and PTFE. This is why it is absolutely problem-free to take the filter elements to pieces and recycle them as raw material.

Best experience with SINBRAN®

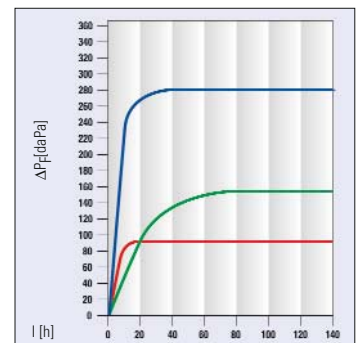
The separation of fumes created during laser cutting processes requires a special filter type for submicron particles. SINBRAN® filters have proved their efficiency over several thousand hours of operation, with emission levels below the detection limit at pressure losses which lie far below the detection limit of conventional rigid body filters. Moreover they proved their high stability against abrasive wear at other applications like for example the separation of coarse ceramic dust.

Conclusion

SINBRAN® combines the advantages of membrane filters with those of rigid body filters: large surface area on confined space, high mechanic load and long service life at low pressure loss and convincing separation efficiency.

An innovation of Keller Lufttechnik and Gore.

- Standard rigid body filter
- Textile filter
- SINBRAN®



The SINBRAN® filter elements show distinctly less pressure drop in comparison to conventional filter elements during the entire operating period and at the same air-to-cloth ratio.



Solutions for your applications

Iron and steel/Non-ferrous metal			
Brushing machines	•		
Lathes	•		•
Pressure die casting	•		•
Spring grinding	•		
Hot-dip galvanizing	•	•	
Milling machines	•		•
Shot-blasting	•		
Hardening shops	•		
Sand casting	•		
Cooling sections	•		
Laser machining	•		
Polishing machines	•	•	
Fettling shop	•	•	
Sand treatment	•	•	
Grinding machines	•	•	•
Melting furnaces (cupola, induction)	•	•	
Welding processes	•		
Abrasive-blasting machines	•	•	
Thermal spraying	•		
Thermal cutting	•		
Transfer machines	•		•
Machine tools (cooling lubricants)			•
Machine tools (minimum quantity lubrication)	•		•
De-scaling	•	•	
Chemical, pharmaceutical and food industries			
Biofiltration	•		
Genetic engineering	•	•	
Laboratory technology	•	•	
Painting	•		
Surface technology	•	•	
Pharmaceutical production	•	•	
Pneumatic transport systems	•		
Drying plants	•		
Finishing		•	
Recycling	•		
Material sorting	•		
Plastics and rubber			
Rubber cylinder machining	•		
Plastics extruder		•	
Tire buffing machines	•		

Electrical and electronic industries			
Electrical and electronic industry	•		
Electronic parts production	•		
Semi-conductor industry	•		
Pulp, paper, printing			
Baling presses	•	•	
Book binding shops	•		
Printing shops	•	•	
Guillotine-type cutters	•		
Roll cutter	•		
Winders	•		
Pulp and paper products	•	•	
Wood processing			
Building component processing	•		
Fiberboard processing	•		
Flax processing	•		
Wood panel processing	•		
Insulation material processing	•	•	
MDF processing	•	•	
Pneumatic transport systems	•		
Chipboard processing	•	•	
Waste disposal - Recycling			
Waste recycling	•		
Asbestos disposal	•		
Waste and hazardous waste recycling	•		
Building material, nonmetallic mineral processing			
Mining and tunnelling	•		
Drilling engineering	•		
Glass production	•		
Glass processing	•		
Ceramics production	•		
Kilns	•		
Mineral fiber processing	•	•	
Grinding	•		
Miscellaneous			
Air conditioning and ventilation	•		
Coal treatment	•		
Coke plants	•		
Exhaust systems for large-scale catering establishments	•		
Leather processing	•	•	
Textile processing	•	•	

The separating technologies:

- dry separation
- wet separation
- oil/emulsion mist separation

Trade shows

We take part in the following national trade shows in 2009:

HMI, Hanover

20.-24.04.

LIGNA, Hanover

18.-22.05.

CERAMITEC, Munich

20.-23.10.

BLECHEXPO, Stuttgart

01.-04.12.

We look forward to your visit.

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www.kl-direkt.de

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Editor:

Keller Lufttechnik GmbH + Co. KG

Neue Weilheimer Straße 30

73230 Kirchheim unter Teck

Telefon +49 7021 574 - 0 · Fax 52430

www.kl-direkt.de

Responsible:

Jens Alber

E-Mail: ja@kl-direkt.de

Design:

www.loerz-company.de

The information given in the leaflet does not have the function to convey a defined idea. Due to the application range variety, an individual advice by our engineers is absolutely necessary. We remain at your service for any additional questions you may have.