



***... YOUR PARTNER FOR SUSTAINABLE  
AIR POLLUTION CONTROL ALL OVER THE WORLD***



## ***WE, THE COMPANY LUEHR FILTER GMBH & CO. KG***

- ⊙ have been a worldwide acting company for more than 75 years
- ⊙ have practical experience in nearly all fields of industry
- ⊙ develop process-related solutions for each separate case of application
- ⊙ offer complete project handling from engineering to plant operation



*Particle separation*



*Chemical sorption*



*Adsorption*

### ***WE BUILD PLANTS FOR***

- ⊙ particle separation from air and/or flue gases
- ⊙ dry or semi-dry chemisorption of crude gases such as HF, HCl, SO<sub>x</sub>
- ⊙ adsorption e.g. of PCDD/PCDF and heavy metals such as Hg

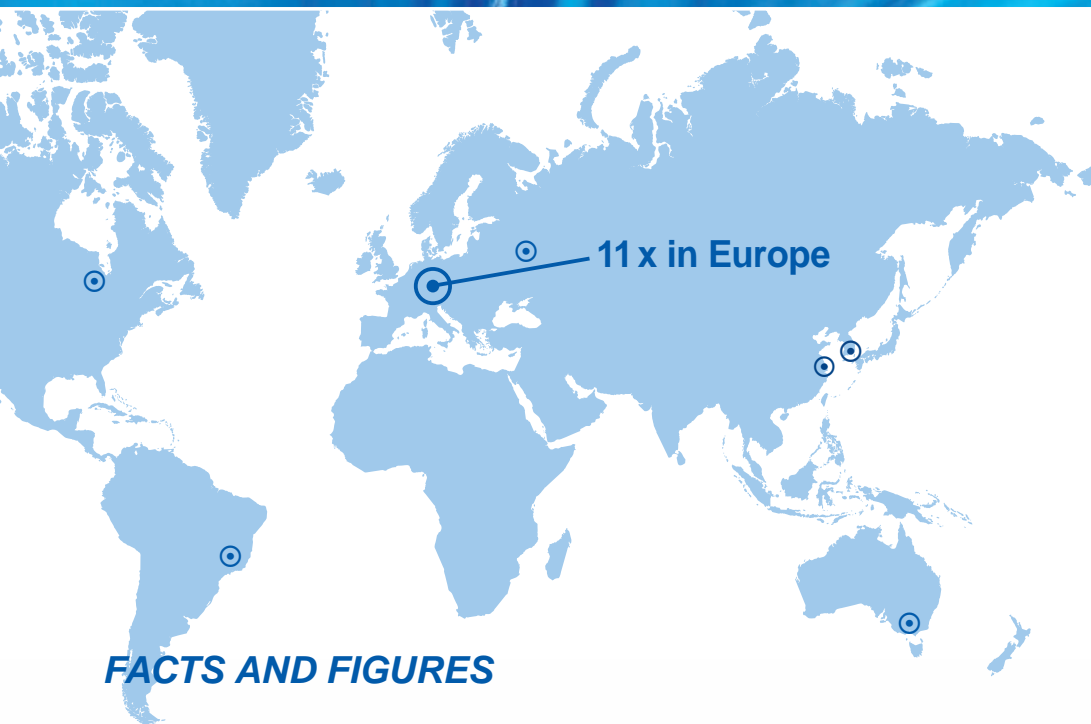
if necessary with integration of measures for heat recovery.

### ***OUR CORE ACTIVITY IS***

the forward-looking and innovative development of our products and procedures for the separation of particulate and gaseous substances from the air and/or process gas.



## MORE THAN 75 YEARS OF WORK EXPERIENCE GATHERED FROM THE CONSTRUCTION OF AIR POLLUTION CONTROL PLANTS



### FACTS AND FIGURES

- ⊙ **LUEHR FILTER GmbH & Co. KG** – Family owned private company
  - ⊙ Founded in 1938 | approx. 300 employees | turnover approx. 70 Mio. EURO
  - ⊙ Our headquarters are situated in Stadthagen, about 45 km west of Hanover.
- ⊙ **LUEHR FILTER Group** –
  - approx. 420 employees | turnover approx. 100 Mio. EURO
  - ⊙ Subsidiaries in Great Britain, Italy and Austria
  - ⊙ Holdings:
    - **MGF Gutsche GmbH & Co. KG** – Germany - Fulda  
(Manufacture of needle felts for filtration)
    - **EWK Umwelttechnik GmbH** – Germany - Kaiserslautern  
(Sales of dry & wet electrostatic precipitators and catalyst technology)
    - **LUEHR LMA Ltd.** – Turkey – Istanbul / Tuzla
    - **LUEHR FILTER Suzhou Co. Ltd.** – China - Suzhou
    - **LUEHR FILTER AUSTRALIA Pty Limited.** – Australia – Melbourne
    - **LUHR FILTER Polska sp.z o. o.** – Poland – Wroclaw
    - **BLUE BIRD Co. Ltd.** – South Korea – Seoul
    - **Kuttner LLC** – USA – Port Washington
- ⊙ **International representations:**
  - in Benelux, Brazil, Finland, France, Norway, Russia, Switzerland and Spain



Head office



Works



Works

## THE COMPANY ...

LUEHR FILTER is a worldwide, family-owned company with more than 75 years of practical experience in the development and construction of „Plants for air pollution control“. Our range of products includes all component parts, from the gas take-off up to the stack. Engineering, maintenance, and support services complete our package. Our worldwide references, which include installations in incineration plants for power generation, the iron and steel industry, the non-ferrous metal industry, the cement/lime/gypsum industry, the gravel and asphalt industry, and the chemical industry attest to our service capabilities.



*Flat-bag production*



*Sheet metal forming*



*Pre-assembly*



*Control panel construction*

## PRODUCTION FACILITIES

We are producing relevant core components of our product range in our own production facilities in Stadthagen. With this vertical range of manufacture we consistently achieve high levels of quality, flexibility, and delivery reliability to our customers.

## PROJECT REALISATION

LUEHR FILTER offers you turnkey, professional project realisation; from the project study, through project handling and services on site, to support services after commissioning of the plant. More than 80 highly qualified members of our technical team are across multiple departments, like process technology, project management, mechanical and electrical project handling, commissioning and service. In our office we are using up-to-date software such as AUTOCAD, Inventor, ELCAD, EPLAN, and MS Project, as well as different programming languages for the plant control. In addition, we are using CFD (computational fluid dynamics) for the optimisation of flow procedures together with external institutions.



## ... AND THE RANGE OF PRODUCTS AND SERVICES

**The range of products** comprises all necessary component parts for the solution of an application from the gas and particle collection up to the stack. Different, self-developed sorption procedures are available for the separation of gaseous substances.

- ⊙ Flat-bag filter
- ⊙ Flat-tube heat exchanger
- ⊙ Evaporative cooler
- ⊙ Sorption procedures

The range of products is completed by:

- |                        |                                                                 |
|------------------------|-----------------------------------------------------------------|
| ⊙ Mobile bed adsorbers | ⊙ Component parts for gas and particle collection               |
| ⊙ Stacks               | ⊙ Additive powder injection devices                             |
| ⊙ Fans                 | ⊙ Sound-absorbing measures                                      |
| ⊙ Dry hydrator for CaO | ⊙ Pneumatic transport devices                                   |
| ⊙ Gravel bed filters   | ⊙ Disposal stations                                             |
| ⊙ Cyclones             | ⊙ Vacuum cleaning plants                                        |
| ⊙ Ducting              | ⊙ Modernisation of existing filtration plants                   |
| ⊙ Control panels       | ⊙ Dry and wet electrostatic precipitators (through holding EWK) |

Important component parts are supplied from our production facilities in Stadthagen.

**Our service activities** comprise all services beginning at the project inception through the After-Sales service.



*Flat-bag filter*



*Flat-tube heat exchanger*



*Evaporative cooler*



*Sorption procedures*

## MAIN COMPONENTS ...



Flat-bag filter



Flat-tube heat exchanger



Evaporative cooler

### FLAT-BAG FILTER

The constructive features of the horizontally or vertically installed flat-bag filter elements, particularly in combination with the different – off line – cleaning systems included in our range of products offer, among other things, the following advantages:

- ⊙ the reliable observance of requested residual particle contents in the clean gas
- ⊙ exceptionally long filter fabric service lives
- ⊙ low maintenance
- ⊙ low space requirement

Flat-bag filters are used for gas volumes from 1.000 m<sup>3</sup>/h, up to more than 1.000 000 m<sup>3</sup>/h.

### FLAT-TUBE HEAT EXCHANGER

Flat-tube heat exchangers are – if necessary – installed upstream of flat-bag filters, in order to reduce the temperature of the gases to be cleaned to a temperature admissible for the filter fabric, or to adjust the optimum process temperature.

During development of this heat exchanger, special importance was given to the objective of achieving a reliable continuous operation, combined with a constant cooling of gases, even in the case of high particle loads in the gas, or of a strongly adhesive character of these particles. Occasional manual cleaning proved to be unnecessary for maintaining the heat transfer.

Corrosion of the cooling tubes will be avoided, if necessary, by means of suitable measures, for example heating of cooling air and additive powder injection upstream heat exchanger.

### EVAPORATIVE COOLER

During the evaporative cooling, liquid droplets are injected into the gas flow by means of spraying lances reducing the heat during the evaporation process. In most cases, two-component nozzles (water and compressed air) are used for the spraying. There is also the possibility of using one-component nozzles as an alternative. In that case, conveying pumps with a higher pressure rise will be necessary.

## ... AND TECHNIQUES

### SORPTION PROCEDURES

LUEHR FILTER has developed different procedures for the following applications

- ◉ Chemisorption of acid crude gases such as HF, HCl and  $\text{SO}_x$  with Ca- or Na-based additive powders
- ◉ Adsorption of PCDD/PCDF, as well as Hg and Hg-compounds by means of activated carbon/activated coke or other additives with large internal surface

The sorption procedures we apply are based on the **LUEHR – Conditioning Rotor-Recycle Process (KUV)**.

Particularly when using Ca-based additive powders, the realisation of high additive particle recycle rates proved to lead to a definite improvement of the separation efficiency for acid crude gas components such as HF, HCl and  $\text{SO}_2$  and/or to a reduction in the additive powder injection quantity.

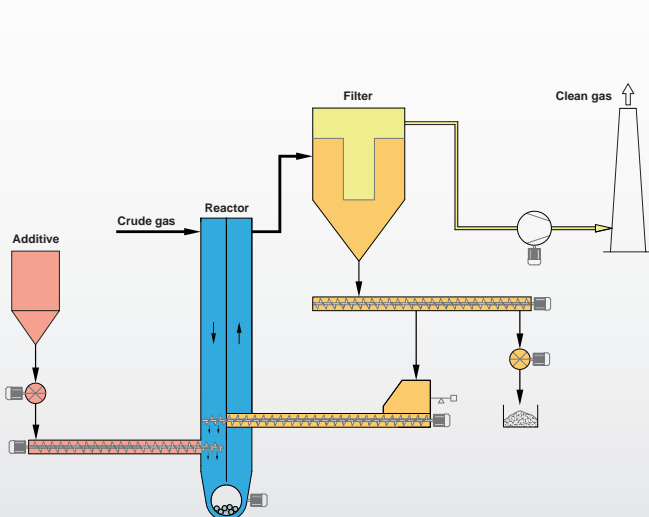
The LUEHR – Conditioning Rotor-Recycle Process allows the reliable recirculation of large recycle quantities, even if problematic particles such as  $\text{CaCl}_2$  form a larger part of the particle spectrum. A widely homogeneous distribution of the recirculated particles in the flue gas flow will be achieved. Pneumatic conveying methods, which are prone to frequent breakdowns, are not used.



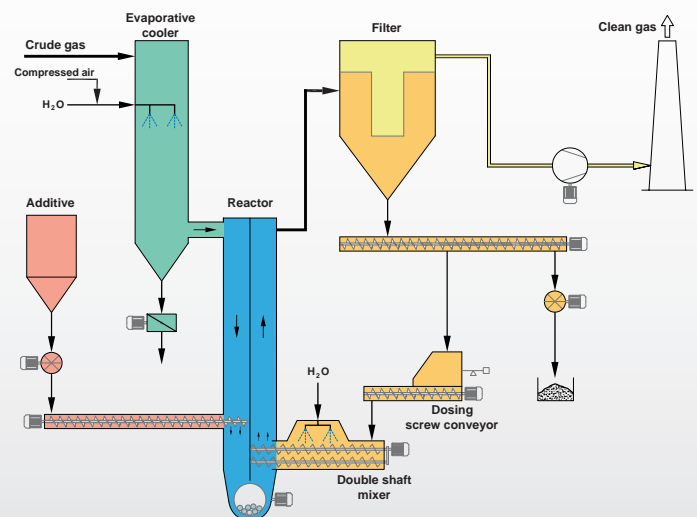
*Dry sorption*



*Conditioned dry sorption*



*Dry sorption*



*Conditioned dry sorption*

*Variants of the Conditioning Rotor-Recycle Process*



## ***SUPPORT SERVICES***

LUEHR FILTER offers a wide range of support services starting with concept studies, continuing with assistance during project commissioning, and ending with provision of services on site. Our qualified, purpose-trained staff, in all areas and service departments, will be pleased to assist you with the following tasks:

- ⊙ Concept studies
- ⊙ Plant layout
- ⊙ Electrical/I&C-engineering
- ⊙ Assembly services
- ⊙ Commissioning
- ⊙ On-site plant measurements
- ⊙ Inspection and maintenance
- ⊙ After-Sales Service
- ⊙ Chemical analyses
- ⊙ Flat-bag testing
- ⊙ Research and development

We do not only offer you our assistance during the engineering of a favourable application-related solution and project handling, but also by extensive services after the commissioning of the plant. Predominantly, this consists of the following:

### ***INSPECTION AND MAINTENANCE***

Our specially trained team is, among other things, available for the following services:

- ⊙ Inspection of plants, if necessary, also in connection with contractually agreed several years' maintenance contracts
- ⊙ Plant maintenance during scheduled downtimes
- ⊙ Troubleshooting
- ⊙ On-site measurements
- ⊙ Support service and training of operating staff
- ⊙ In case of need quick support through our always available hotline

As a result of our extensive practical experience, we can assure you of high operational availability of your air pollution control plant.



*Chemical analysis*

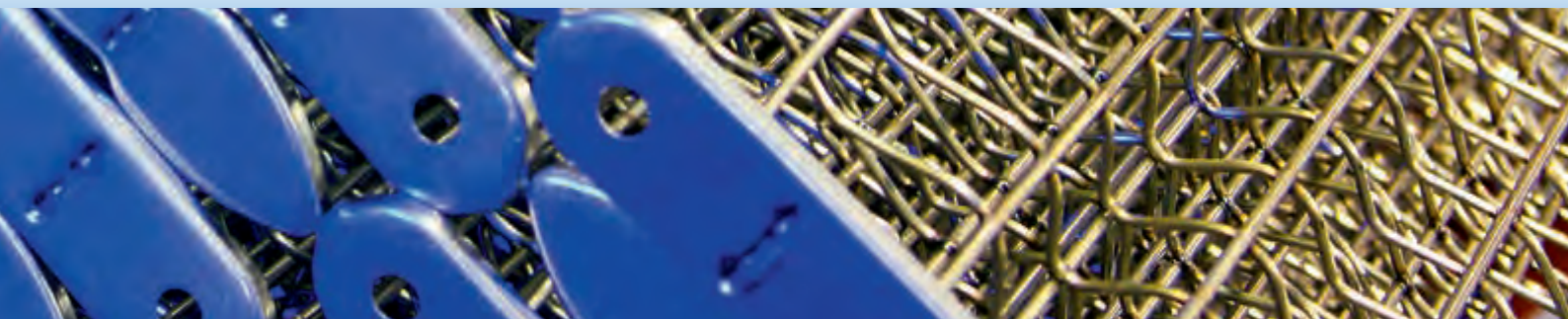


*Flat-bag testing laboratory*



*Spare part management*





## **FLAT-BAG TESTING**

The availability of a plant mainly depends on the satisfying condition of the installed flat-bags. Therefore, it is of particular importance for each plant operator to be aware of the actual condition, and particularly of the remaining service time, of the used filter bags. In this respect, we offer examinations of the flat-bags installed in your filtration plant in our flat-bag testing laboratory. The results of examination will be submitted to you in a detailed report. Of course this report also informs about the expected remaining service life and, if necessary, makes proposals concerning a process optimisation.



*Elaboration of plants*

## **SPARE PART MANAGEMENT**

Our team in charge of the spare and wear part management will serve you for assurance of your plant availability.

- ⦿ Based on our experiences, we will prepare a concept for the storage of spare and wear parts.
- ⦿ Filter bags and other essential spare parts of filtration plants will be manufactured in our shops. In doing so, we offer the provision of original spare parts, considering high quality demands.
- ⦿ In case of need, we offer you the organisation of a consignment stock.
- ⦿ Besides the delivery of spare and wear parts, our scope of services also includes the optimisation of plant operation.



*Erection of plant*



*Research and development*

## **HOTLINE**

Our daily 24 h hotline is available for you for quick troubleshooting, and if necessary, for remote analysis of electrical controls.

## REFERENCES



- ⊙ Sinter strands
- ⊙ Casting bay
- ⊙ Burdening
- ⊙ Electric arc furnace
- ⊙ Room de-dusting
- ⊙ Flame-cutting machine
- ⊙ ...

### STEEL



- ⊙ Cupola furnace
- ⊙ Induction furnace
- ⊙ Sand processing
- ⊙ Moulding plant
- ⊙ Blasting plant
- ⊙ Cast treatment
- ⊙ ...

### IRON AND STEEL FOUNDRY



- ⊙ Melting furnace for Al
- ⊙ Processing for Al
- ⊙ Melting furnace for Ms
- ⊙ Melting furnace for Cu
- ⊙ Melting furnace for Pb
- ⊙ Recycling of Zn
- ⊙ ...

### NON-FERROUS METAL INDUSTRY



- ⊙ Waste incineration
- ⊙ RDF incineration
- ⊙ Sludge incineration
- ⊙ Biomass incineration
- ⊙ Coal incineration
- ⊙ Tyre incineration
- ⊙ ...

### INCINERATION PLANTS



- ⊙ Clinker cooler
- ⊙ By-pass de-dusting
- ⊙ Cement mill
- ⊙ Drying and grinding plants
- ⊙ Lime shaft kiln
- ⊙ Gypsum calcining plant
- ⊙ ...



#### **CEMENT/LIME/GYPSUM**

- ⊙ Tunnel ventilation
- ⊙ Crushing plants
- ⊙ Screening plants
- ⊙ Mills
- ⊙ Construction waste recycling
- ⊙ Material handling
- ⊙ ...



#### **MINING AND QUARRYING**

- ⊙ Glass tank
- ⊙ Mineral and glass wool furnaces
- ⊙ Enamel and ceramic frit kiln
- ⊙ Ordinary ceramic
- ⊙ Fine ceramic
- ⊙ Granular bed filter for HF sorption
- ⊙ ...



#### **CERAMIC**

- ⊙ Salt production
- ⊙ Sugar industry
- ⊙ Tobacco industry
- ⊙ Paper industry
- ⊙ Spray dryer
- ⊙ Rotary dryer
- ⊙ ...



#### **CHEMICAL**

*Find the contact person responsible for your area  
on [www.luehrfilter.com.au](http://www.luehrfilter.com.au)*



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