



YOUR PARTNER FOR SUSTAINABLE
AIR POLLUTION CONTROL WORLDWIDE

www.luehr-filter.com



OUR CORE ACTIVITY

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

ABOUT US



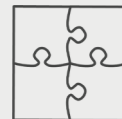
Globally active company
LUEHR FILTER GmbH



Practical experience in **plant engineering** in nearly all fields of industry



Development of **process-related solutions** for each individual case of application



Complete project handling from the engineering up to the plant operation



Support of systems after commissioning

FACTS AND FIGURES

OVER 80 YEARS OF PRACTICAL EXPERIENCE IN FLUE GAS CLEANING.

MEMBER OF MARTIN GROUP



LUEHR FILTER GmbH

Founded: 1938

Turnover: approx. 75 Mio. EURO

Head office: Stadthagen / Germany

Employees: approx. 350

Branch offices: in Austria and Poland

LUEHR FILTER Group

Subsidiary:

Lührfilter Ltd. - Great Britain

Holdings:

LUEHR FILTER Suzhou Co. Ltd. - China - Suzhou

Kuttner LLC - USA - Port Washington

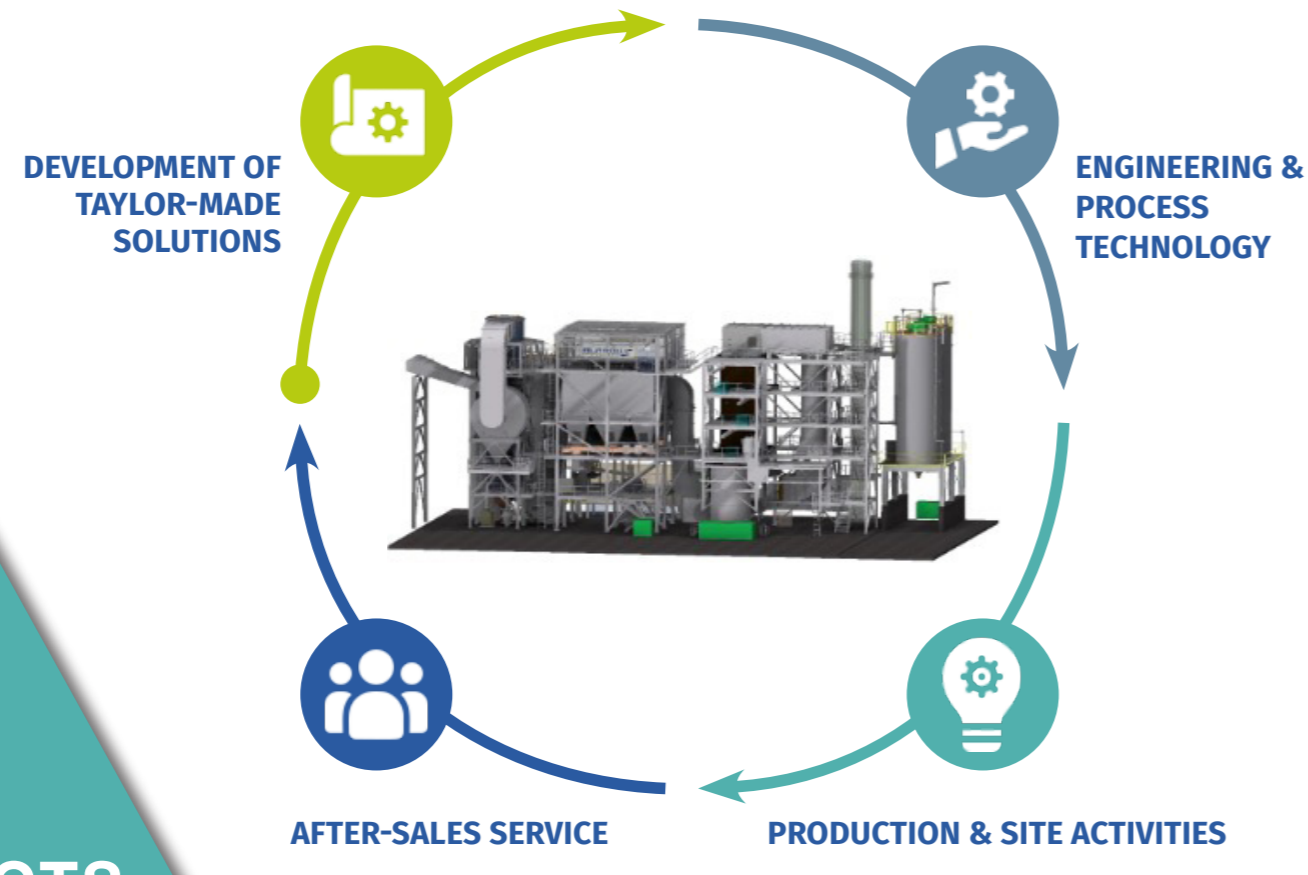
International representations:

Australia, Brazil, Finland, France, Italy, The Netherlands (Benelux), Norway and Switzerland

Production facilities: in Germany and China

Extensive
**RANGE OF PRODUCTS
 AND SERVICES**

We design and build complete systems for air pollution control from the project conception up to the service after the commissioning.



OUR QUALITY FEATURES:

- Partner for the entire lifecycle of the system
- Flexible adaptability to the required application
- Guaranteed performance within specified emission limit values
 - High availability at low operating costs
 - Robust system technology with long system service lives of 30 years and more

EMISSION LIMIT VALUES ACCORDING TO IED/BREF, NATIONAL LAWS

Solid pollutants
 Dust, heavy metals



Gaseous pollutants

HCl, SO₂, HF, Hg, PCDD/F, heavy metals, HBr, HI, B₂O₃, As₂O₃, NH₃, NO_x, ...



**LUEHR FILTER CREATES
 TURNKEY SYSTEMS FOR
 SUSTAINABLE
 ENVIRONMENTAL
 PROTECTION.
 OUR TAILOR-MADE
 SOLUTIONS MEET THE
 LATEST EMISSION LIMITS
 OF TODAY AND CAN BE
 ADAPTED FOR TOMORROW.**

Range of products and services

TECHNOLOGY PORTFOLIO

BASED ON OUR KNOW-HOW, WE OFFER EXTENSIVE EXPERIENCE IN THE DEVELOPMENT AND CONSTRUCTION OF CUSTOMISED SYSTEMS FOR THE SEPARATION OF PARTICULATE AND GASEOUS MATERIALS.

Selection of process-related concepts for sorption applications:

CONDITIONED DRY WITH SCR¹



¹SCR = Selective Catalytic Reduction

- **Additives:**
Ca(OH)₂/CaO, AC, NH₃
- **Separation:**
HF, HCl, SO_x, NO_x, heavy metals incl. Hg, PCDD/PCDF, ...
- When required 2-stage sorption
- Measures for heat recovery integrated



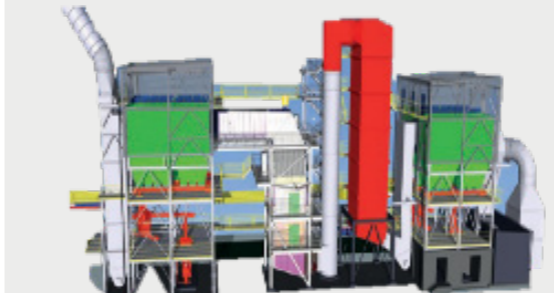
CONDITIONED DRY WITH SCRUBBER



- **Additives:**
Ca(OH)₂/CaO, AC, NaOH
- **Separation:**
HF, HCl, SO_x, NH₃, heavy metals incl. Hg, PCDD/PCDF, ...
- Prepared for integration of CCS/CCU
- Measures for heat recovery integrated



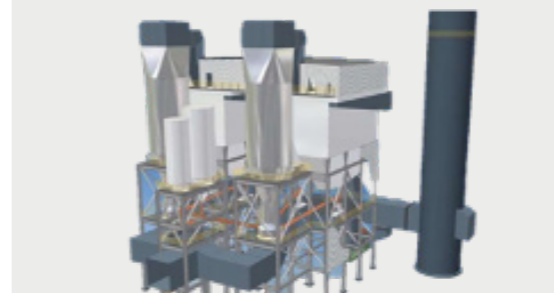
DRY SORPTION WITH SCR¹



- **Additives:**
NaHCO₃, Ca(OH)₂, AC, NH₃
- **Separation:**
HF, HCl, SO_x, NO_x, heavy metals incl. Hg, PCDD/PCDF, ...
- When required 2-stage sorption
- Integration of SCR without external energy supply



VORTEX BED REACTOR EFA™



- **Additives:**
Ca(OH)₂/CaO, AC, NH₃
- **Separation:**
HF, HCl, SO_x, heavy metals incl. Hg, PCDD/PCDF, ...
- Advantages in case of volume flows > 250,000 Nm³
- Advantages in case of temperatures > 160°C



A LARGE NUMBER OF REFERENCES REPRESENT DECADES OF PROCESS ENGINEERING EXPERIENCE.

Comprehensive **SERVICES**

We are your partner starting from initial concept studies up to the support over the whole service life.

ENGINEERING

Concept studies, measurements, system engineering - mechanical & electrical, process & chemical engineering, programming, documentation, quality assurance

ASSEMBLY

Planning, management and supervision, component and system assembly, quality assurance

COMMISSIONING

Functional testing and optimisation of system parameters, performance tests, trial run, acceptance test, operator training

MAINTENANCE / INSPECTION

Realisation of inspections and revisions, repairs, spare part management

MODERNISATION

Analysis of the actual condition, development and implementation of modernisation concepts and measures

REMOTE ANALYSIS/SUPPORT

24/7 Technician hotline, diagnosis via remote maintenance

MOBILE TEST EQUIPMENT

Mobile and customisable test equipment for e. g. evaluation of particle characteristics on site under real operating conditions

CFD ANALYSIS

(COMPUTATIONAL FLUID DYNAMICS)

Flow analyses among others for the optimisation of gas flow and particle distribution as well as for the minimisation of pressure drops

FILTER BAG TESTING

Analysis of the actual condition, evaluation of the expected remaining service life

LABORATORY

Chemical & physical analyses, particle examinations, measurements, and crude gas analyses

DEMONSTRATION PLANT

A stationary demonstration plant including additive station, particle re-circulation and moistening as well as continuous measuring technology for the simulation of sorption systems

Modern **RESEARCH AND DEVELOPMENT**

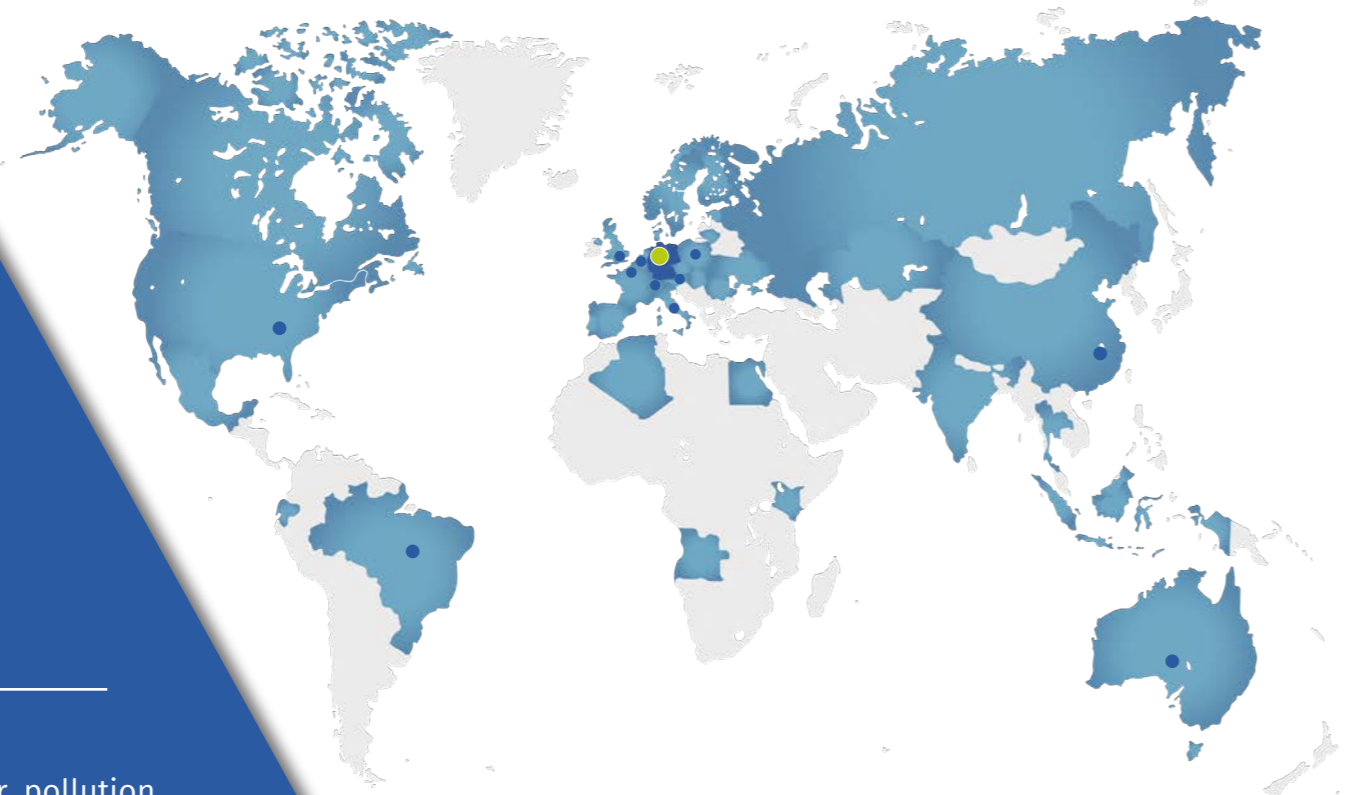
As one of the leading global suppliers in the field of flue gas treatment systems, it is a requirement for us to offer our customers innovative solutions on a state-of-the-art level. That is why we are continuously investing in our research and development.



OUR INDUSTRIES Iron/Steel | Energy | Construction materials | Recycling | Minerals | Chemicals | Ceramics

GLOBAL REFERENCES > 700 | > 600 | > 300 | > 200 | > 200 | > 100 | > 100

> 2,000 REFERENCES since 2000



■ Project realisations ● Head office ● Partner

Global **REFERENCES**

LUEHR FILTER has realised systems for air pollution control all over the world for a wide range of applications in a variety of industries.

Our focus markets today
POWER GENERATION



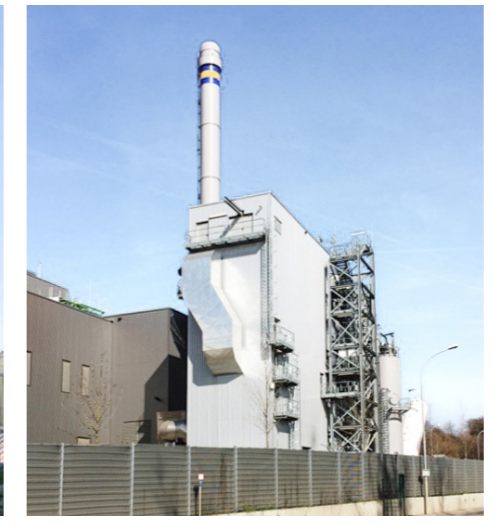
Domestic & commercial waste



Refuse derived fuel



Sewage sludge



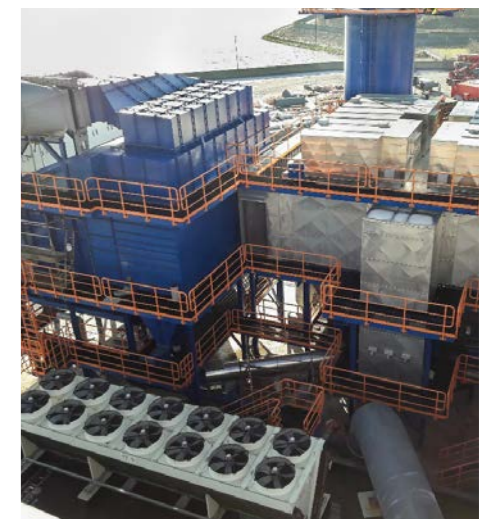
Biomass

... as well as hazardous waste and other materials/fuels.

RECYCLING



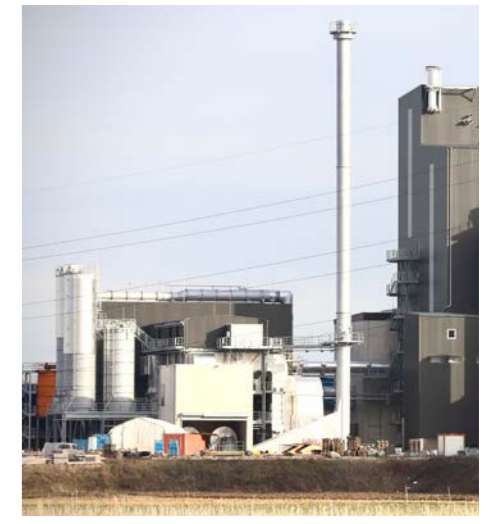
Zinc



Lead



Copper



Shredder light fraction

... as well as aluminium, brass, electronic scrap, and further materials.

Reference example
FLUE GAS TREATMENT DOWN-STREAM WASTE INCINERATION

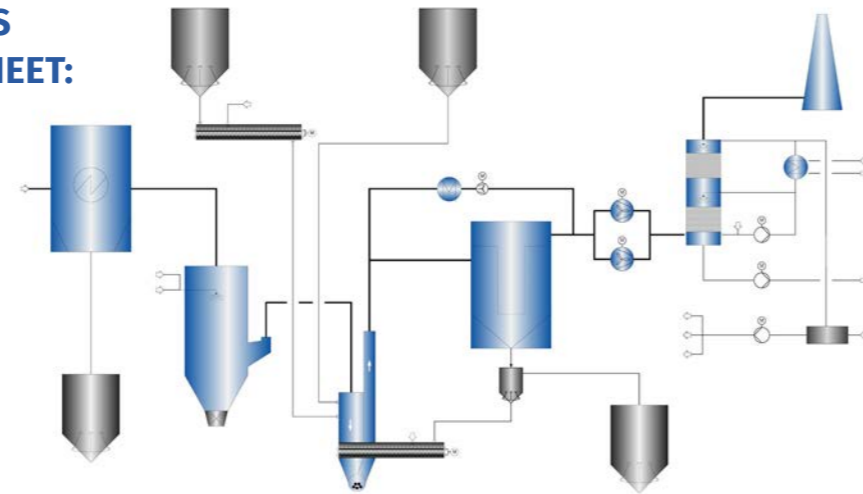
PROCESS TECHNOLOGY:

- 1st stage Particle separator with ESP
- Conditioned dry sorption with $\text{Ca}(\text{OH})_2$ and activated coke
- 2-stage scrubber with heat recovery

SCOPE OF SERVICES:

Engineering, manufacture, assembly, and commissioning

PROCESS FLOW SHEET:



3D MODEL:



VOLUME FLOW:
112,140 Nm³/h humid

TEMPERATURE:
139°C

COMMISSIONING:
2016

©Tammervoima Oy



Reference example
**SORPTION STAGE
DOWNSTREAM
SINTER STRAND
WITH ESP**

PROCESS TECHNOLOGY:

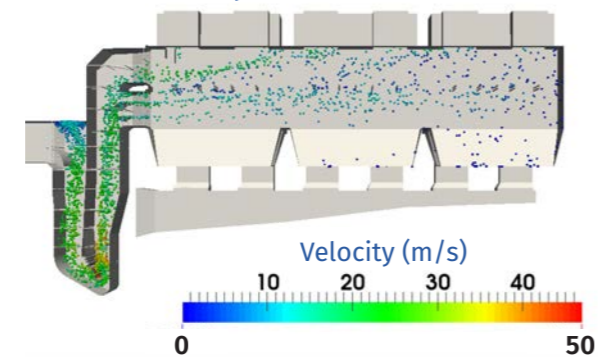
- Conditioned dry sorption with $\text{Ca}(\text{OH})_2$ and activated carbon

SCOPE OF SERVICES:

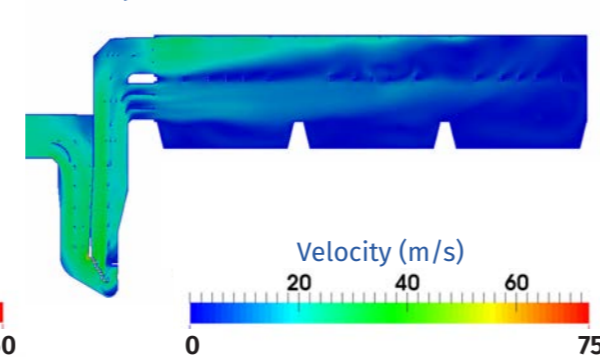
Engineering, manufacture, assembly,
and commissioning of sorption stage

CFD ANALYSIS:

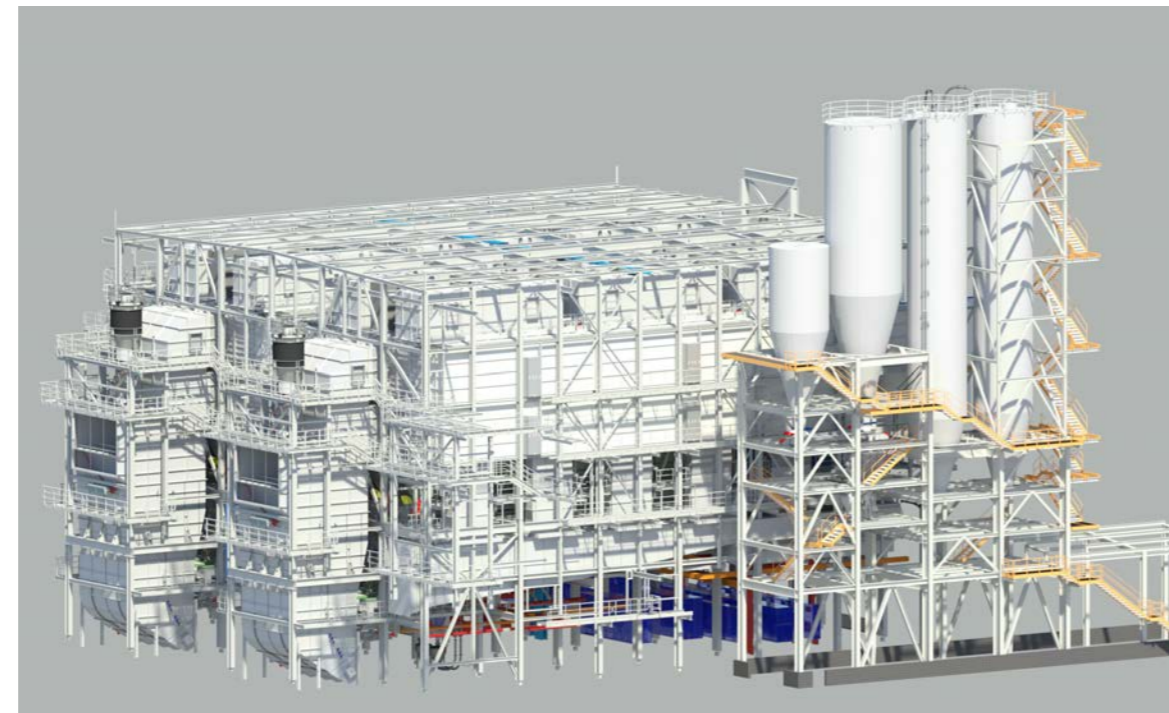
Particle density



Velocity distribution



3D MODEL:



VOLUME FLOW:
1,350,000 Nm³/h humid

TEMPERATURE:
105°C

COMMISSIONING:
2017

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LUEHR FILTER GmbH

Enzer Straße 26
D - 31655 Stadthagen

Phone +49 5721/ 708 – 0
Fax +49 5721/ 708 – 214

project@luehr-filter.com
www.luehr-filter.com

