



Photo: Andreas Lander



TECHNICAL FACILITIES AND EQUIPMENT FOR RESEARCH AND DEVELOPMENT

Process Development Lab

- Lab scale stationary fluidized bed gasifier
- Lab scale variable fuel gas cleaning
- Gas mixer for synthesis gases
- Gas measurement systems (GC, WLD, IR, FID)

Electrical Engineering Lab

- Programmable controllers with test setups
- Synchronous power system metrology (phasor measurement units)
- Electric vehicle charging station tests bench

Experimental Testing Facility

- Stationary fluidized bed combustion plant CFBC 100 (approx. 15 kW)
- Bubbling fluidized bed combustion plant BFBC 100 (approx. 60 kW)
- Fluidized bed gasifier FBG 400 (approx. 120 kW)
- Fuel and flue gas cleaning unit
- Gas and Stirling engine CHPS
- PLC for the testing units

CAE Equipment

- User and developer software for process simulation
- Software for plant development and engineering
- User and developer software for control systems
- Software for the modeling and simulation of electric power systems

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EFFICIENT ENERGY CONCEPTS FOR THE FUTURE

SUSTAINABLE UTILIZATION OF RENEWABLE SOLID FUELS

As experts in process and plant engineering, we develop state-of-the-art thermal conversion systems. For our clients, we produce customized plants that recover energy from biomass, biogenic residues or high calorific wastes.

We design such plants as cogeneration systems geared toward thermal firing capacity in the range of 1 to 10 MW and primarily for distributed utilization. In the process, we are able to draw on years of experience with fluidized bed technology and provide future plant operators technological solutions for complex plant systems with optimal control.

We research technologies and methods, which are essential to the control and monitoring of the operation of electric power systems and distributed energy conversion plants. In the process, we implement innovative measuring systems for electric power systems and advanced software solutions.



EFFECTIVE AND ENVIRONMENTALLY COMPATIBLE UTILIZATION OF BIOMASS AND RESIDUES

SUSTAINABLE ENERGY CONVERSION

- By recovering heat from renewable fuels in highly efficient conversion plants
- By developing plant solutions based on fluidized bed combustion and gasification technology
- By developing cogeneration solutions based on innovative cycles (e.g. ORC, Stirling)
- By generating and cleaning fuel gas for use in engines, turbines and fuel cells

SECURE ENERGY SUPPLY

- By compiling standardized maintenance history files for energy conversion plants to optimize availability
- By supporting decision making with maintenance history files to efficiently manage plants and maintenance
- By developing new forms of inspection and test scheduling based on integrated product documentation
- By analyzing process control data to evaluate plant condition to optimize operation

EFFICIENT ENERGY USE

- By creating closed material and energy cycles in production processes
- By developing the utilization of internal energy carriers and optimizing internal power systems
- By recovering heat from production residues as fuels in distributed energy conversion plants
- By creating efficient solutions for energy supply integrated in production

OPTIMAL ENERGY DISTRIBUTION

- By improving power system monitoring systems with new methods of measurement and visualization
- By optimizing the functionality of high precision measuring equipment and its applications in electric power systems
- By producing development solutions that integrate electric vehicles in electric power systems as temporary storage devices
- By integrating distributed power sources based on renewable energy in the power system

