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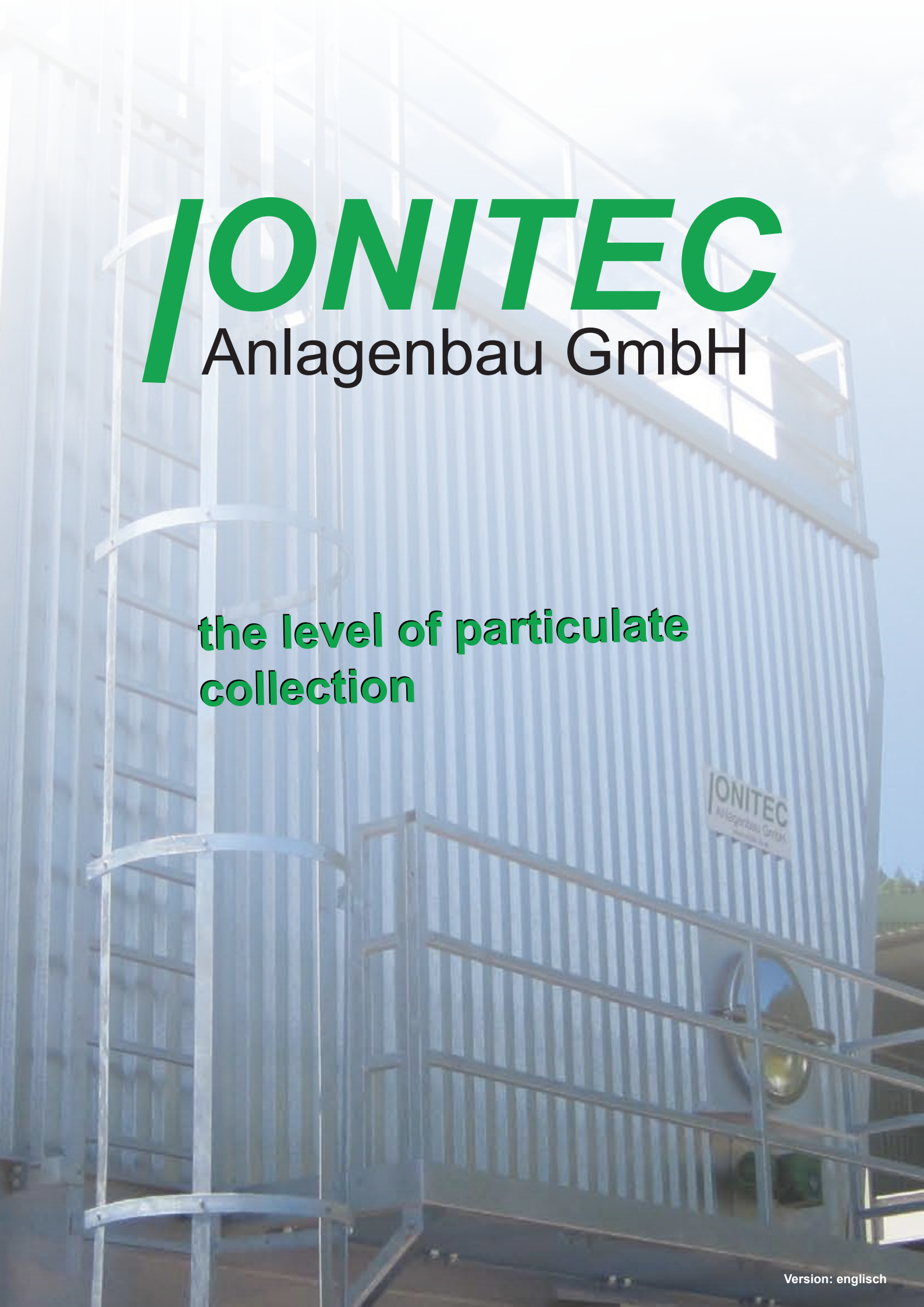
the level of particulate collection



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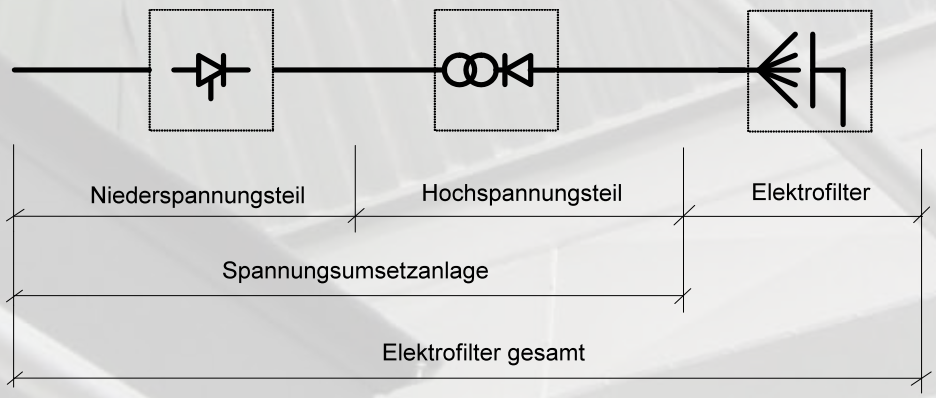
BRIEF DESCRIPTION ELECTRIC FILTER TYPE CEP, BRAND IONITEC

Electric filter plant:

An electric filter plant is an electric plant used for the separation of solid airborne particles from a gas stream by means of an electric field. The plant makes use of the magnetic effect exerted by electric forces on electrically charged particles. Since this principle also works with minute particles, electric precipitators are high-performance dedusters with a particle precipitation efficiency of up to 99 per cent.
They are used in particular for the purification of large gas volumes with high temperatures, their great advantage being a comparatively low energy consumption.
An electric filter plant usually consists of the following assemblies:

- **Voltage-converter including**
  - Low-voltage side with devices for switching the plant on and off, for regulating, controlling, limiting and supervising current and voltage (switch cabinet)
  - High-voltage side with the devices for converting the voltage (transformer, rectifier, rectifying device)
- **High voltage supply system** (Isolators and rigid lines)
- **Electric filter**

Each plant may contain several of the above-mentioned components.
Schematic diagram (functioning principle)



Prinzipschema Elektrofilter

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Electric filter assembly:

The electric filter is that part of the electric filter plant, where the airborne particles are electrically charged and precipitated.

Upper part of electric filter:

The upper part basically consists of the filter housing with electrodes and knocker system.

Lower part of electric filter:

The lower part basically consists of the filter bunker connected to an ash discharge screw, the spray electrode knocker and the out-of-balance motors.

Precipitation proces:

The precipitation process in an electric filter can be subdivided into four sequential stages:

- Charging of particles in the electric field
- Transportation of charged particles to precipitating electrode
- Adhering of particles to precipitating electrode and layer formation
- Removal of dust layer from precipitating electrode

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Filter zone:
The filter zone is a group of electrodes within a filter housing that can be turned off separately.

Precipitating electrode – collector plate
The precipitating electrode is an electrode inside the filter housing onto which the airborne particles are precipitated.

Spray system – spray electrode
The spray system comprises all corona electrodes within a filter zone.

Precipitating electrode knocker system:
The precipitating electrode knocker system consists of a knocker shaft with hammers positioned offset from each other for cleaning the collector plates.

Spray electrode knocker system:
Particles are knocked off by means of a pendulum knocker, which is controlled via cams.

Bunker vibrator – out-of-balance motor:
To avoid dust deposits in the filter bunker area, a vibrator is force-fit mounted to the outside of the filter bunker. The bunker vibrator produces vibrations inside the system which lead to the cleaning of the housing parts inside the filter.

Ash discharge screw:
The ash discharge screw mounted to the bunker transports the collected ash either into an existing system or directly into the ash container via a bucket wheel.

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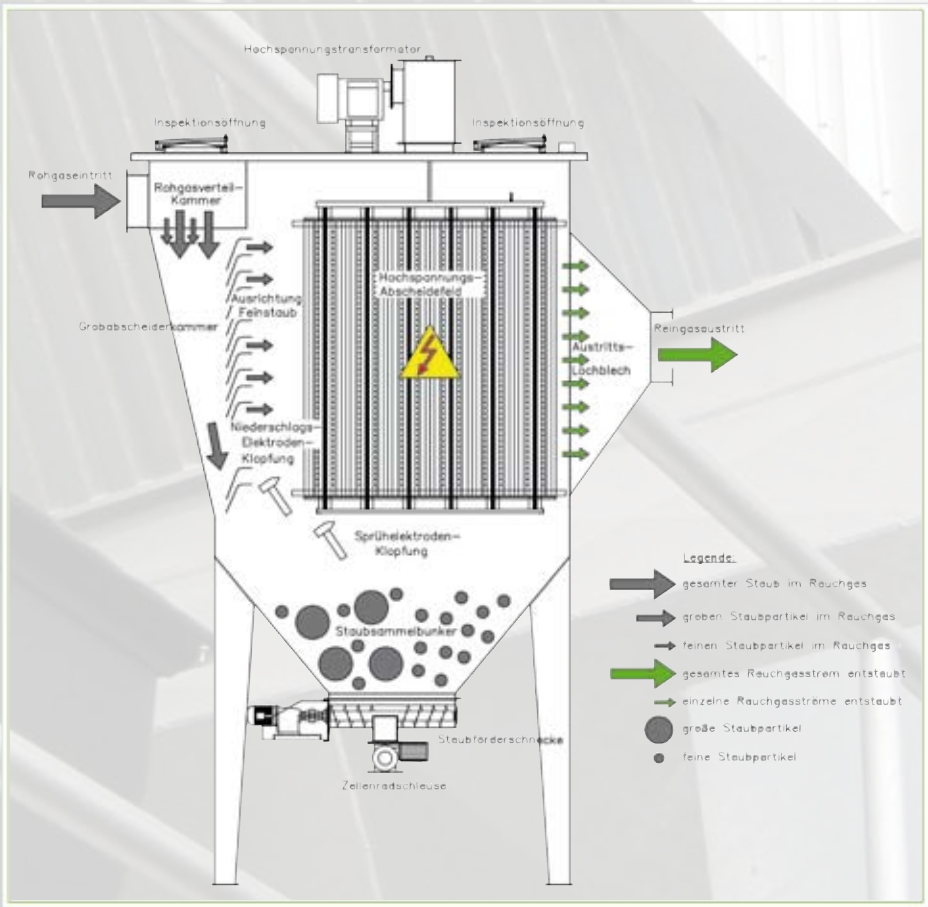
IONITEC electric filters are used for de-dusting the exhaust gases of a biomass combustion plant. Combustion exhaust gases are introduced through the inlet cover into the electric filter, where they are de-dusted.
Distribution plates are mounted inside the inlet cover to distribute the raw gas evenly over the entire cross-section of the filter.

Larger particles are precipitated in the pre-precipitator to ensure maximum corona discharge in the high-voltage field.

The exhaust gases from which the coarse particles have been removed flow into the precipitation channels of the first high-voltage field. There the particles are charged in a strong electric field, as charge carriers they move through a field with the same polarisation to the precipitation plates, where they are precipitated by means of dipole formation.
The fine particulate matter thus precipitated agglomerates and is periodically knocked off the plates.
The precipitating electrodes are constructed in such way that the dust already precipitated is not swept along with the gas stream during the knocking-off process, but falls down into the dust bunker.
The dust precipitated on the spray electrodes is cleaned in the same way, using a similar knocking interval.
The ash is collected in the bunker of the electric filter and removed by a joint discharge screw.
Out-of-balance motors are installed to ensure removal of ash dust from the bunker funnels.



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List of references:

Year 2010 (company established in October 2010):

- **Projekt Rothrist** (Suisse) 800 kW :
  volume flow rate 3.800 bm³/h, ash precipitation of 150 mg/nm³ to <20 mg/nm³;

- **Projekt Saint Die** (France) 6.000 kW :
  volume flow rate 31.000 bm³/h, ash precipitation of 200 mg/nm³ to <50 mg/nm³;

- **Projekt Muolen** (Suisse) 1.200 kW :
  volume flow rate 6.000 bm³/h, ash precipitation of 500 mg/nm³ to <20 mg/nm³;

- **Projekt Bad Friedrichshall** (Germany) 750 kW :
  volume flow rate 3.500 bm³/h, ash precipitation of 500 mg/nm³ to <50 mg/nm³;

- **Projekt Wangen** (Germany) 800 kW :
  volume flow rate 4.000 bm³/h, ash precipitation of 500 mg/nm³ to <20 mg/nm³;

- **Projekt Murau** (Austria) kW :
  volume flow rate 25.000 bm³/h, ash precipitation of 800 mg/nm³ to <50 mg/nm³;

- **Projekt La Palud** (Suisse) 8.000 kW :
  volume flow rate 40.000 bm³/h, ash precipitation of 150 mg/nm³ to <20 mg/nm³;

- **Projekt Weiz** (Austria) 6.000 kW :
  volume flow rate 31.500 bm³/h, ash precipitation of 200 mg/nm³ to <10 mg/nm³;

- **Projekt Ormalingen** (Suisse) 1.200 kW :
  volume flow rate 6.000 bm³/h, ash precipitation of 500 mg/nm³ to <20 mg/nm³;

- **Projekt Baumgartenberg** (Austria) 3.000 kW :
  volume flow rate 15.700 bm³/h, ash precipitation of 150 mg/nm³ to <20 mg/nm³;

- **Projekt Nottuln** (Germany) 800 kW :
  volume flow rate 4.000 bm³/h, ash precipitation of 500 mg/nm³ to <50 mg/nm³;

- **Projekt Flatnitz** (Austria) 2.500 kW :
  volume flow rate 14.000 bm³/h, ash precipitation of 150 mg/nm³ to <20 mg/nm³;

- **Projekt Hasslacher** (Austria) 1.400 kW :
  volume flow rate 6.800 bm³/h, ash precipitation of 500 mg/nm³ to <30 mg/nm³;

- **Projekt Iseltal** (Austria) 1.600 kW :
  volume flow rate 8.300 bm³/h, ash precipitation of 500 mg/nm³ to <30 mg/nm³;

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Production facility
LMS company, A-9400 Wolfsberg

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Excerpt from our reference plants

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