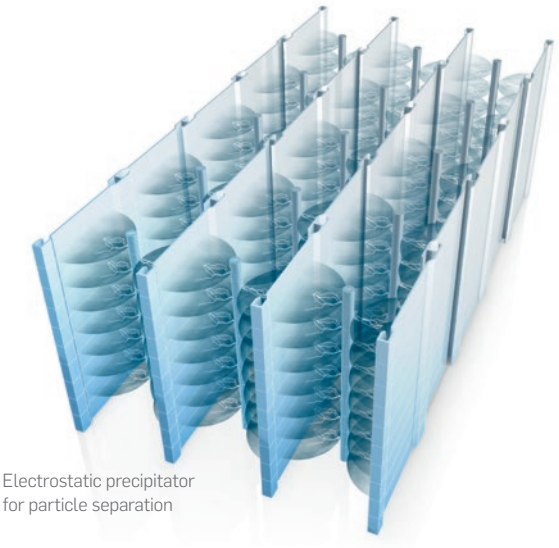
scheuch
TECHNOLOGY FOR CLEAN AIR

SCHEUCH ELECTROSTATIC PRECIPITATORS

INNOVATIVE TECHNOLOGIES
FOR DEDUSTING FLUE GASES

THE FORMULA FOR CLEAN AIR

THE BASIC ELECTROSTATIC PRINCIPLE



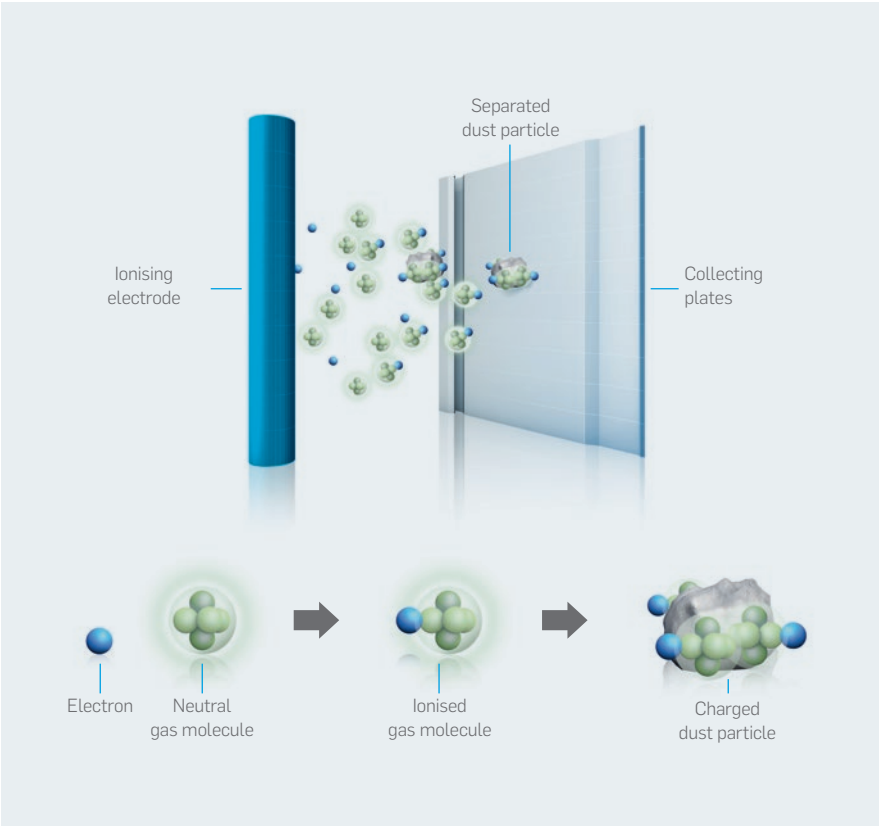
Electrostatic precipitator
for particle separation

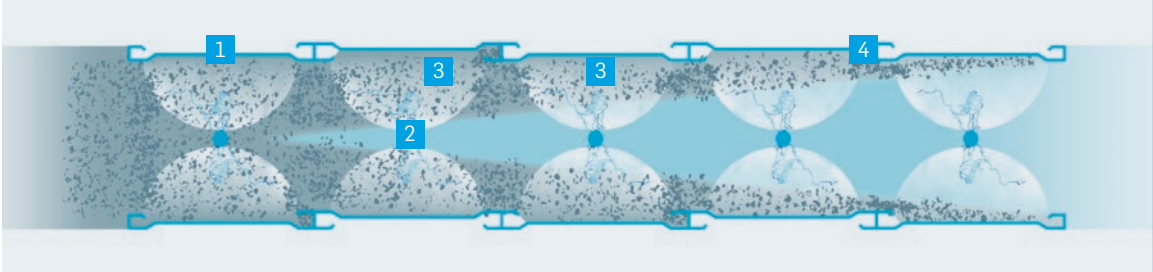
Unlike other separation technologies, electrostatic particle separation is effective even for very small particles. The separation efficiencies typically required for combustion processes are achieved through fully customizable and customer-specific plant designs. For this, our know-how and the combined experience of over 1000 reference projects are the deciding factors of success. The electrostatic precipitator technology ensures minimal clean gas dust emissions even in difficult applications.

Beyond classic dedusting for fossil or wood-type fuels and other industrial processes, electrostatic precipitators have also been proven effective for biogenous fuels such as pressing residues from olive oil production, coffee grounds, nutshells or sunflower hulls. This trend requires a special electrostatic precipitator design and a vast amount of specialist expertise.

PARTICLE CHARGING AND SEPARATION

The particle separation process in the electrostatic precipitator is based on the principle of electrostatic separation. Electrons are emitted by a negatively charged ionising electrode and accelerated toward a positively charged collecting electrode. The particles that flow through the filter are negatively charged by these accelerated electrons/accumulating ions and also move in the direction of the positive collecting electrode.





1 Profiled collecting plates
2 Ionising electrode
3 Boundary layer
4 Collecting pockets

LATEST GENERATION OF ELECTROSTATIC PRECIPITATOR TECHNOLOGY

TAILORED TECHNOLOGY FROM SCHEUCH

1 GAS DISTRIBUTION SYSTEM

2 IONISING ELECTRODES

3 COLLECTING ELECTRODES

4 RAPPING MECHANISMS

5 HIGH-VOLTAGE UNIT

6 DUST DISCHARGE SYSTEM

7 TRACE HEATING

8 MAINTENANCE OPENINGS

FUNCTIONALITY

The dust-laden gas flows into the electrostatic precipitator's crude gas inlet, and is distributed evenly over the entire cross-section via gas distribution systems. When the gas passes through the electrical field, the particles or aerosols dispersed in the gas stream are separated out onto the collecting electrodes and thus removed from the gas stream. The dust, which is separated onto the profiled collecting electrodes and to some extent onto the ionizing electrodes, is cleaned off periodically using rapping mechanisms and is continuously discharged via the dust collecting trough below.

PROGRESS THROUGH INNOVATION

FOR EVERY APPLICATION

THE RIGHT SOLUTION – WHETHER LARGE OR SMALL

ADVANTAGES OF ELECTROSTATIC PRECIPITATORS

- High degree of separation even when it comes to fine dusts
- Largely unaffected by load fluctuations, flying sparks, overheating and sporadic drops below the dew point
- Low operating costs due to low pressure loss and maintenance requirements
- Long service life and high availability
- Can be retrofitted effectively in existing systems

SCHEUCH ADVANTAGES AT A GLANCE

- Experience from over 1000 reference plants in all kinds of applications
- Modular design with high degree of pre-assembly
- In-house production ensures maximum quality
- Demand-based design (combined systems with pre-separator or multi-field filter)
- Maximum separation efficiency – clean gas dust concentrations of <5 mg/Nm³ possible
- Hot gas resistance (up to 300°C standard design, temperature-dependent special design for higher temperatures)
- Extremely easy access for maintenance and servicing – e.g. access to high-voltage insulators from outside
- Optimal system integration with real-time regulation, e.g. with automatic power adjustment for energy optimisation
- Low noise levels
- Complete provider for retrofitting with fans, flue gas lines and sound damping measures

EFFICIENT COMPLETE SOLUTIONS

THE PERFECT DESIGN MAKES THE DIFFERENCE

Designing electrostatic precipitators for flue gas cleaning after combustion processes requires a great deal of process expertise, as a huge number of parameters need to be taken into account. On the one hand, the influencing factors of separation efficiency like the crude gas parameters and the ash composition , and on the other hand the general process conditions must be considered.

It is only by correctly evaluating the advantages and disadvantages of the various technologies and their combinations – with downstream heat recovery systems, for example – that the ideal customer-specific solution can be achieved.

PARAMETERS

FLUE GAS

Volumetric flow, temperature, pressure, flue gas moisture composition (O_2/CO_2/CO/SO_X), load conditions

DUST

Crude and clean gas dust load, grain size distribution, chemical analysis, dust resistance

DESIGN

Unit geometry, gas distribution, field count, insulation thickness

HV SYSTEM

Type, HV control, power regulation

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