



Electrostatic Precipitator



DRY ELECTROSTATIC PRECIPITATOR

The RIECO-BETH dry electrostatic precipitator can be used to extract fine dust particles from process gases up to a temperature of 400° Celsius by means of an artificial electrostatic charge. For this reason, the unit is used in particular for hot gas dust extraction from boiler plants and chemical processes.

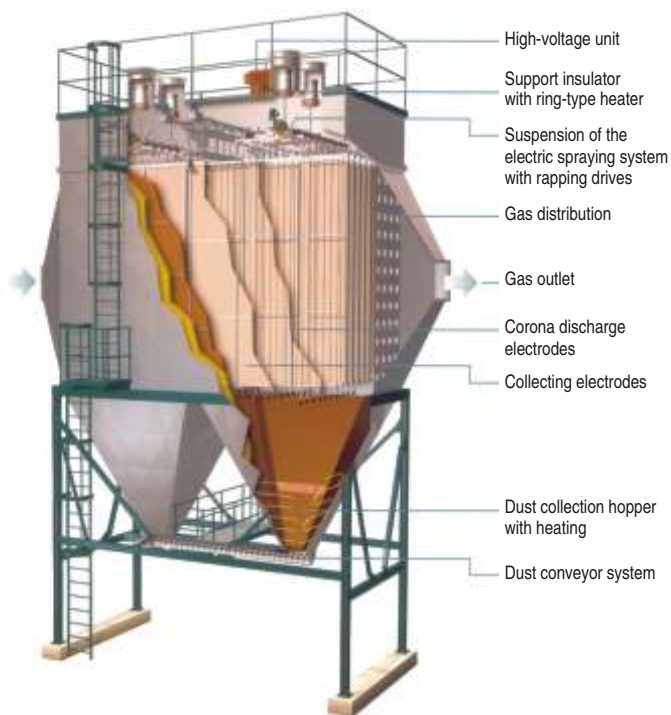
Principle of Operation

The dust-laden process gas enters the electrostatic precipitator horizontally, and is spread to a uniform flow profile across the entire filter cross-section by means of a gas distribution system.

By means of the high voltage (70 to 110 KV) applied between the corona discharge electrodes and the collecting electrode plates, the process gas and the dust particles are electrically charged.

On the route through the electric field, the charged particles are transported to the collecting electrode plates by the electric field strength, where they agglomerate with the existing dust particles which are then knocked off by a mechanical rapping hammer system.

The rapped off dust particles drop into the ESP hopper and are removed through the dust conveyor system. The purified gas leaves ESP through the gas outlet hood.



SHORT DESCRIPTION OF THE TECHNOLOGY

- Perfect gas distribution ensured by gas baffle plates and perforated plates which can be adjusted individually in case of larger gas volumes.
- Horizontal passage of the gas through the ESP lanes which consist of the suspended collecting electrodes in plate construction with dust collection channels.
- Within the lanes, corona discharge electrodes frames with high-performance electrodes made of stainless /special steel strips arranged in the centre.
- Attachment of the corona discharge electrodes by means of screw connections with self-locking nuts.
- Cleaning of the corona discharge and collecting electrodes by periodically acting motor-driven rapping systems.
- High availability through large lane spacing of 400 mm respectively
- Electric heating of the insulators & hopper of the ESP and of the dust conveying system to prevent any material baking caused falling short of the dew point.
- Dust extraction consisting of dust transport conveyor and rotary valve.
- High performance separation properties ensured by current high-voltage control systems.
- Filter housing insulation, low-power consumption of electrical system, installation and commissioning are part of the standard scope of delivery
- Extension of the electrostatic precipitator by other plant components, such as fans, silencers, duct-works and chimneys.



Electric corona discharge system (gas purification zones)



Collecting and corona discharge electrode rapping system

ADVANTAGES

- ✓ Electrodes in SS/Special steel.
- ✓ Separation of ultra-fine dust particles to meet the required Emission Norms.
- ✓ Continuous Dust Collection process.
- ✓ Low pressure loss (approx. 2.5 mbar) at a high degree of separation.
- ✓ Only one servicing maintenance per year due to few and slowly rotating plant components.
- ✓ Low energy costs compared to Fabric Filter separators.
- ✓ Volume flows between 500 and 15,00,000 m³/h per unit.
- ✓ Gas temperature up to approx. 400° C
- ✓ Individual solutions possible by a adaptation of the standard construction to the local conditions.
- ✓ Maintenance rendered by RIECO Service Team ensures continuous operation of the plant.

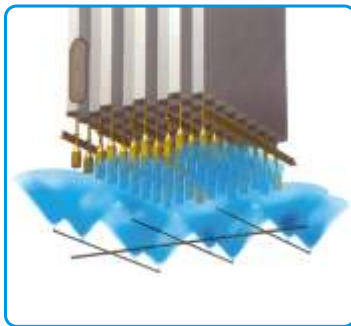


INDUSTRIAL ELECTROSTATIC PRECIPITATOR

For the removal of dust from large volumes of gas of 15,00,000 m³/hr. per unit, RIECO's range of Products includes the Industrial Electrostatic Precipitator.

In this size range, the electrostatic precipitator's are usually projected especially to the specific conditions.

For this reason, they are designed individually for each project and are adapted to the customer's requirements.



Gas conditioning and continuous moistening of the electrodes with spraying system



Electrodes cleaned by periodic flushing system

WET ELECTROSTATIC PRECIPITATOR

The wet electrostatic precipitator complements the RIECO product range with an extremely versatile dedusting system that is perfect for any process in which special dust or gas characteristic make dry separation impossible.

RIECO-BETH Wet Electrostatic Precipitator's are unbeatable since many years in view of operational safety, long-life cycle and collection efficiency. They are excellent suited for precipitation of finest with dust afflicted water drops, of aerosols and emissions containing tar or oil.

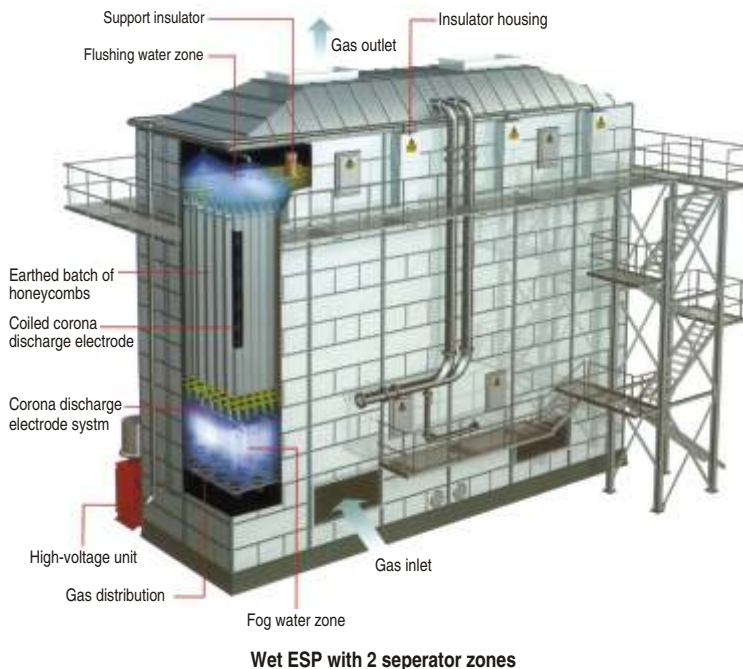
Another positive effect is the additional bound of toxic elements like for example HCL, SO₂, NaCL and HF.

Principle of function

The process gas enters the electrostatic precipitator horizontally, and is spread to a uniform flow profile across the entire filter cross-section by means of a gas distribution system. By means of the high voltage (78 to 135 KV) applied between the corona discharge electrodes and the honeycomb-type collecting electrodes, the process gas and the dust particles are electrically charged.

On the route through the electric field, the charged particles are transported to the honeycomb - type collecting electrodes by the electric field strength where they agglomerate with the existing dust particles and flushes off by a periodically working washing system.

The drain water flows from the honey comb through the gas distribution system to the filter bottom. The purified gas leaves the filter through the gas outlet hood.





OTHER RIECO PRODUCTS

AIR POLLUTION CONTROL SYSTEMS

- Bagfilters
- Tubular Cooler
- Scrubbers
- Cyclones
- Multicell Dust Collector
- Gas cleaning Plants for Mini Blast Furnaces & Spong Iron Plants
- Dust Extraction Systems
- Ventilation Systems

SIZE REDUCTION EQUIPMENTS

- Air Classifying Mill
- Universal Mills
- Micro Pulverisers
- Crushers

ACCESSORIES

- Centrifugal Fans
- Rotary Airlock Valves
- Ribbon Blenders
- Metal Detectors



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