



Dust removal in non-ferrous high temperature processes

Sticky dust and acidic gas conditions can jeopardise the performance of your air pollution control system. Our ESPs are designed to cope with these challenging environments, ensuring low emissions and maximum reliability

Benefits

- Designed to withstand challenging conditions
- Low particulate emissions
- Reliable, low-maintenance operation
- Long life

Keeping particulate emissions low in high-temperature, non-ferrous metallurgical industries, such as Copper, Zinc, Lead, Nickel, and other base metals, can be a technical challenge. Acidic gases and sticky dust create difficult conditions for your electrostatic precipitator. If your system is not up to the task, you end up with dust build-up, high maintenance costs, and emissions that exceed compliance levels.

We have been designing and delivering ESPs to capture dust from smelters, converters and roasters in these industries for more than 75 years. Our proven technology delivers long-term, trouble-free operation and enables you to keep particulate emissions low.

Anti-blockage features for continuous emissions capture

At the heart of our ESP design for these challenging applications are features that avoid blockages and ensure maximum dust collection, so that you can be sure of reliably low emissions. The flexibility of these ESPs gives us the ability to match the design to the dust profile of different fields, so that you're always getting the best possible performance with the utmost energy efficiency.

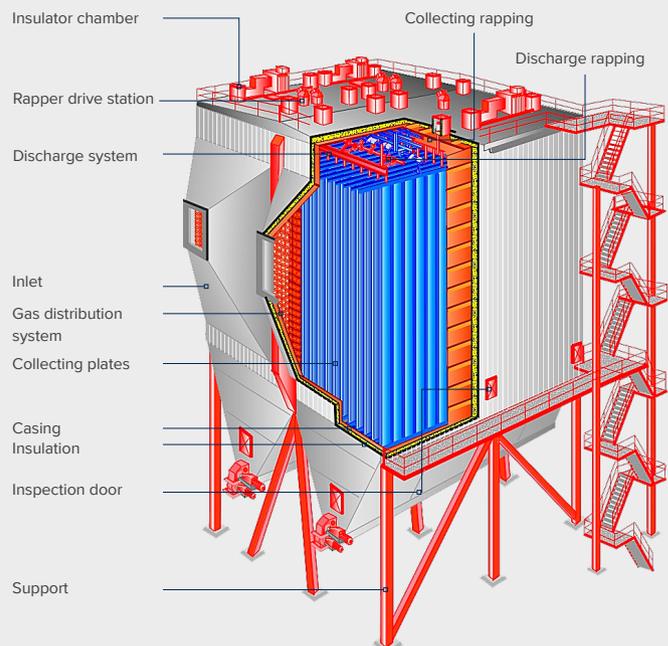
Tumbling hammer rapping systems are implemented throughout – on the gas distribution screens, on the discharge and collecting system, and on the hoppers. This prevents build-up that could cause serious maintenance issues, and is a more effective method than electromagnetic rapping.

- Our ESPs incorporate gas distribution screens with tumbling hammer rapping systems designed to reduce the risk of blocking and ensure continuous throughput. The flexible suspended bottom parts ensure dust settled on the bottom plate can slide to the bottom hopper for easy removal.
- Finger plate anti-sneakage baffles ensure a nearly turbulence-free internal gas flow, preventing gas and dust from seeping outside the active fields.
- The discharge electrode and collecting electrode designs are fixed in the top only, with guidance in the bottom. This allows for thermal expansion of the electrodes and frame system without deflection. By avoiding bending of the discharge and collecting electrodes, the high voltage system is able to maintain a stable operating performance.
- Full-length discharge electrodes prevent build-up of dust on intermediate parts of the horizontal frame parts.
- High-efficiency and reliable tumbling hammer rapping for both the discharge and collecting system provides bigger acceleration forces in the electrode systems than with electromagnetic rapping.
- The ESP is designed with the flexibility to select different emitter shapes in different fields. This enables us to select the optimal configuration in terms of dust properties / dust concentration.
- We will recommend one-phase or three-phase power supplies for different fields according to the concentration and electrical properties of the dust.
- The heated purge air system reduces the risk of dust build-up on electrical insulators.
- Integrated FLSmidth drag chains in the bottom hoppers eliminate the risk of false air ingress at a flanged connected drag chain. This prevents the re-entrainment of precipitated dust, high dust emissions from the ESP and corrosion.
- External tumbling hammer bottom hopper rapping helps avoid dust build-up in the hoppers.
- Full height heating zone for bottom hoppers in order to avoid acid condensation and dust build-up in the hoppers.

Customer story

The third chamber of a 30-year-old ESP from another supplier at a zinc fuming plant was completely renovated by FLSmidth in 1995. New discharge and collecting systems with rapping were installed, the old high voltage supplies were replaced with new Transformer / Rectifier sets, and a new FLSmidth PIACS® control system for the High Voltage supply and the rapping systems was installed. The casing was also renovated and bottom heating was installed with electrical heating elements.

"In the more than 25 years since the installation took place, the performance and availability of the ESP has been very good. Some minor modifications and modernizations have been carried out and there have, of course, been occasional disruptions, but generally the ESP has worked very well during its lifetime," says, Head of Maintenance, Fuming Plant at Boliden, Sweden.



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