



CMC TEXPAN

Machinery and Technology

WET ELECTROSTATIC PRECIPITATORS

**Efficient removal of contaminants
from combustion fumes**





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Fumes released from wood dryers and combustion systems may contain significant quantities of wood particulates and other contaminants.

An effective filtering is essential to avoid the release of these particles into the atmosphere, what would have an adverse impact on the environment, as well as represent a hazard for human health.

CMC TEXPAN's Wet ElectroStatic Precipitators (WESP), proposed in cooperation with company "AWS Corporation", represent an optimal solution for wood industry applications, as they offer efficient emission control for sub-micron particulate and other contaminants such as oil mist and VOCs

Their operating principle is based on the so-called "corona discharge" effect. A high voltage is applied and a strong electrical field is generated inside the machine; when the exhaust gas passes through the electric field in filtering chamber, contaminant particles contained in the gas stream are electrostatically charged; charged particles are then deflected and collected across the electrical field on a grounded tube, and the exhaust air flow is purified.

WESP units typically include a scrubber section, for pre-cleaning of hot contaminated gas from particles > 2 microns, and a collector section, making up the electrostatic section of the WESP.

The core of the collector section is a set of parallel arranged tubes (collecting tubes), each one housing an ionizing (discharge) electrode running down the middle of the tube itself.

A strong electrical field is generated between the central discharge electrode and the collecting tube by means of a high voltage transformer.



WITHOUT WESP



WITH WESP

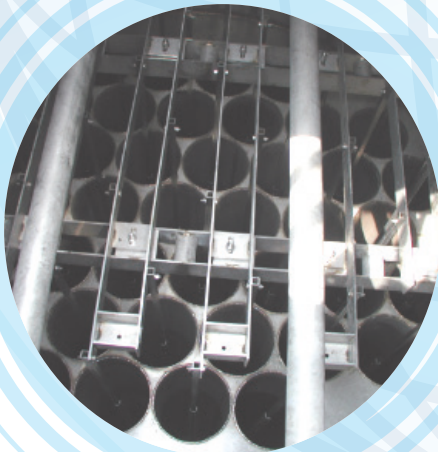
Discharge electrodes are charged negatively: electrons are emitted from them due to corona discharge effect and flow towards the collecting electrodes.

As particles pass through the gap between the discharge electrodes and the tube walls, they become fully saturated with negative charges and are entrained by these against the inner surfaces of the tube, so that they may be removed from the gas flow.

Ionizing electrodes (also called "rods") are made up by a square tubular profile, onto which laser cut plates with a sharp pointed profile are welded. Sharp point design ensures high intensity charging fields and higher efficiency; the rigid tubular core ensures greater reliability, no risk of breakage or bending.

Ionizing rods are fastened to support frames both at their top and bottom edge, thus ensuring perfect alignment and constant electrical field.

To ensure personal safety, the machine is equipped with mechanical interlocks requiring the complete shutdown of the plant before entering the system.



Advantages:

- Rod-type ionizing electrodes (instead of wires) → high intensity charging fields;
- Electrodes support frames → perfect and constant alignment of electrodes;
- Higher separation efficiency (> 97%);
- Compactness, robust design; automatic operation and low operating costs.

Above data are non-binding and they are provided for information purposes only.



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