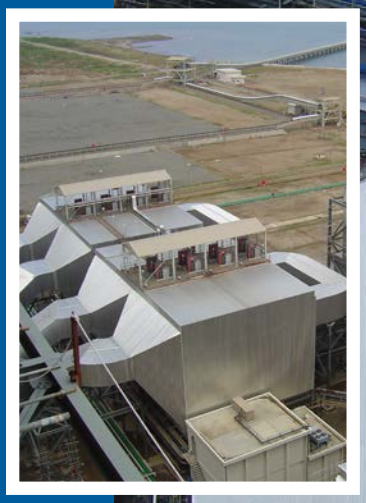
# Dry Electrostatic Precipitators

An established history of particulate control





BABCOCK & WILCOX

RENEWABLE | ENVIRONMENTAL | THERMAL

## Our combined experience includes more than 5000 ESP installations, worldwide.

Babcock & Wilcox (B&W) has a long history of providing innovative industry-leading emissions control solutions. Our experience with electrostatic precipitator (ESP) technologies, both wet and dry, includes our established OEM experience base and expertise as well as brands and technologies added through strategic acquisition:

- Hamon Research-Cottrell – acquired in 2022
- Joy Environmental and Western Precipitation – acquired in 1995

### *Operation and design*

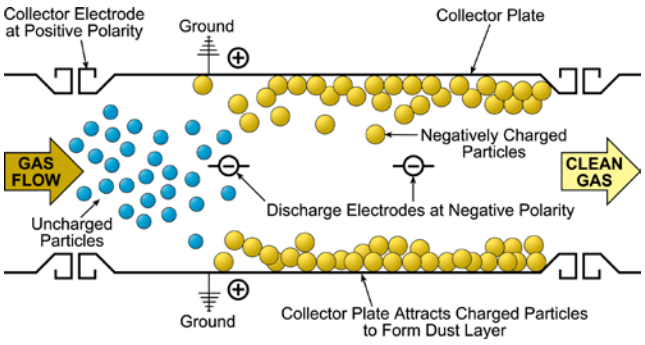
Since Dr. Frederick Cottrell's invention over a century ago, ESPs have been a primary technology for controlling particulate emissions. ESPs can be designed to meet stringent particulate emission standards with minimal pressure loss and high equipment reliability for extended plant operation.

Dry ESPs are employed as a primary particulate control device to remove coarse or large particulate matter ($PM_{10}$) where the flue gas or process gas temperature is elevated above the dew point.

Particles suspended in a gas enter the precipitator and pass through ionized zones around the high voltage discharge electrodes. The electrodes, through a corona effect, emit negatively charged ions into the gas which travel to the grounded collecting plates.

The ionized field around the discharge electrodes charges the particulate causing it to migrate to the grounded surface of the collecting plate.

The charged particles agglomerate on the collecting plates where the charge bleeds off. Rappers dislodge the agglomerated particulate, which falls into the collection hoppers for removal by an ash handling system.




### *Performance benefits*

- **High efficiency** — up to 99.9+% collection efficiency*
- **High temperatures** — up to 800F (427C)
- **Wide capacity range** — from a few thousand to several million actual cubic feet per minute (ACFM)
- **Low maintenance** — reliable electrical and mechanical components provide dependable and highly efficient operation with minimal maintenance

**when integrated as part of an appropriately designed emissions control system*

# Utility and industrial applications covering a wide range of fuels or process gas

## *Design features*

**Collecting plates** – B&W's collecting plates are manufactured under strict QA/QC standards applied to its design, procurement and manufacturing processes. Various designs can be applied to optimize particulate collection and reduce re-entrainment during rapping.

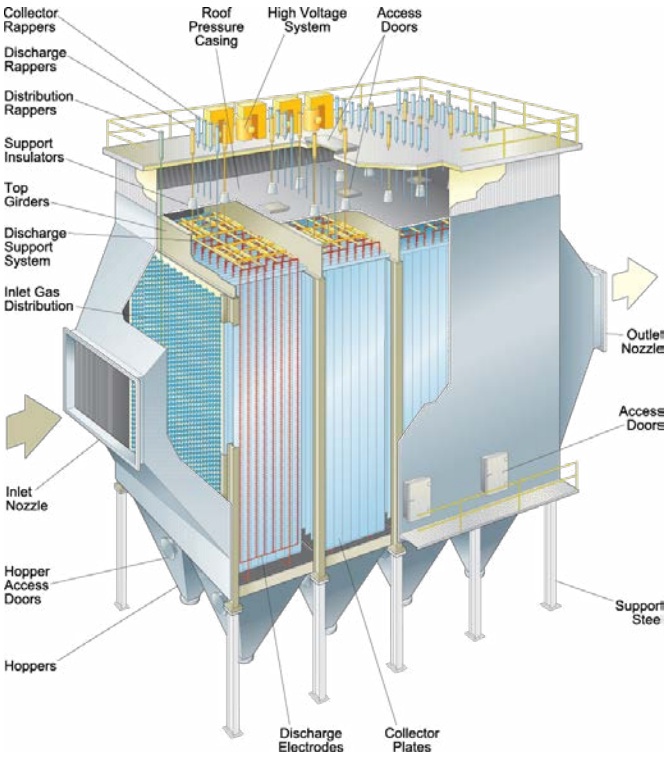
**Discharge electrodes** – multiple discharge electrode designs are available to generate intense and stable electric fields for each application. Discharge electrodes are grouped in independently connected bus sections with each section typically supported by four high-voltage insulators for maximum stability.

**Rapper system** – Our rappers have a long and proven history in precipitator rapping applications. Rappers are maintained on-line and are easily installed. Depending on the application, several types of rapping systems are available.

**Power supply** – Advanced, cost-effective power supplies provide the required high voltage and current for optimum close-to-spark threshold. We offer both conventional transformer/rectifier sets and 3-phase power supplies. For an additional power boost to any field, B&W's JuiceCan® power maximizer is an effective, low-cost option.

**Automatic voltage controllers (AVC)** – Our automatic voltage controller reacts automatically to sparking while providing for maximum power input to maintain high collection efficiency.

**Precipitator Manager™ control system** – B&W's Precipitator Manager control system software delivers monitoring and control capabilities for automatic voltage controllers, rappers, analog and digital I/O, and more, all in one program.




## *Applications*

Our experience crosses a wide range of industries, including:

- Power generation and independent power producers (IPPs)
- Petrochemical and oil refineries
- Pulp & paper
- Mining and metals
- Cement
- Glass manufacturing

## *Construction services, upgrades and parts*

We provide replacement parts, system upgrades and field engineering services for equipment originally provided by B&W as well as other manufacturers. We also provide specialized construction services through our subsidiary, Babcock & Wilcox Construction Co., LLC (BWCC). Working closely with BWCC, B&W engineers design for constructability – an advanced construction concept that minimizes on-site labor requirements, increases safety, reduces construction costs and downtime, and assures that product design features are properly applied for optimal performance.

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Established in 1867, Babcock & Wilcox is a global leader in renewable, environmental and thermal technologies and services for power and industrial applications.

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