

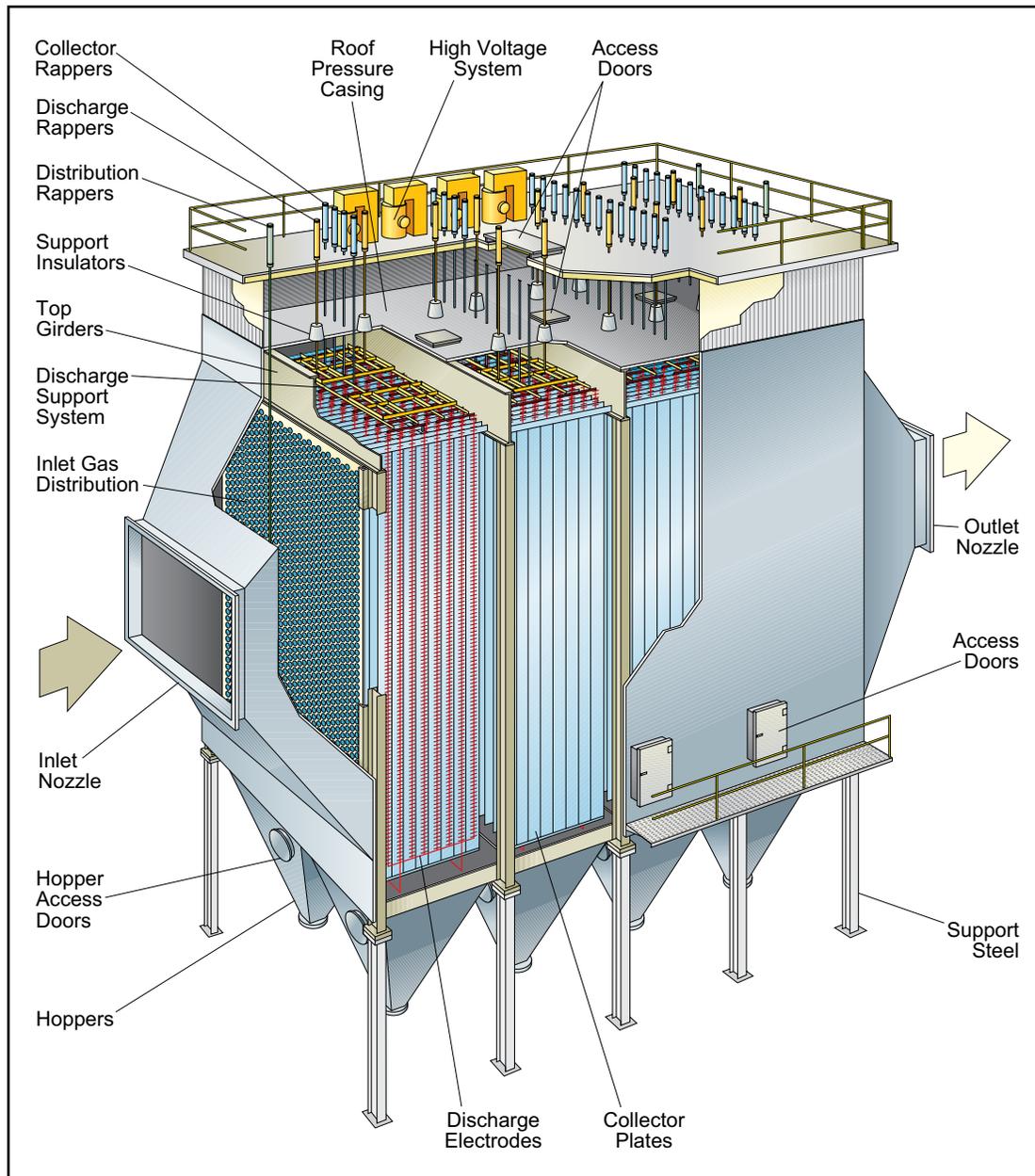
Electrostatic Precipitator Delivers Maximum Efficiency

Environmental equipment and upgrade services from Babcock & Wilcox (B&W) are designed to help meet today's stringent environmental requirements while increasing plant performance, reducing operating and maintenance costs, and improving reliability and safety.

Our dry electrostatic precipitator (ESP) delivers maximum particulate removal efficiency.

B&W's dry ESP has a proven record of performance and reliability. B&W, through its acquisition of Joy Environmental Technologies

and Western Precipitation in 1995, has provided precipitators to the utility and industrial sectors for a variety of applications that utilize a wide range of worldwide fuels. This experience includes approximately 50 gigawatts of installed capacity on U.S. coal-fired boilers.



B&W's electrostatic precipitator is designed to provide maximum collection efficiency with improved reliability and reduced operating and maintenance costs.

Design and operation

An electrostatic precipitator uses a high voltage electrostatic field to separate dust, fume or mist from a gas stream. The precipitator consists of vertical parallel plates forming gas passages 12 to 16 in. (30.5 to 40.6 cm) apart. Discharge electrodes are electrically isolated from the plates and suspended in rows between the gas passages.

A high voltage system provides power to the discharge electrode generating an electrical field. The particulate, entrained in the gas, is charged while passing through the electrical field. The particulate receives a negative charge, is attracted to the grounded collector plate, and forms a dust layer on the plate (Figure 1).

Periodic rapping separates the accumulated dust layer from both the collector plates and discharge electrodes. The dust layer released by the rapping collects in hoppers and is removed by an ash handling system.

System benefits

B&W's dry ESP offers many distinct advantages, including:



B&W's dry electrostatic precipitator has a proven record of performance and reliability.

- **High efficiency** — up to 99.9+% collection efficiency (even with fine particles)
- **High temperatures** — up to 800F (426.7C)
- **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

- **Extensive application experience** — nearly 150 years of experience designing and manufacturing steam generating systems and environmental equipment, and applying this technology to a variety of industries for multiple uses

Design features

Gas distribution plates

Perforated plates and vanes provide uniform gas and particulate distribution through the precipitator.

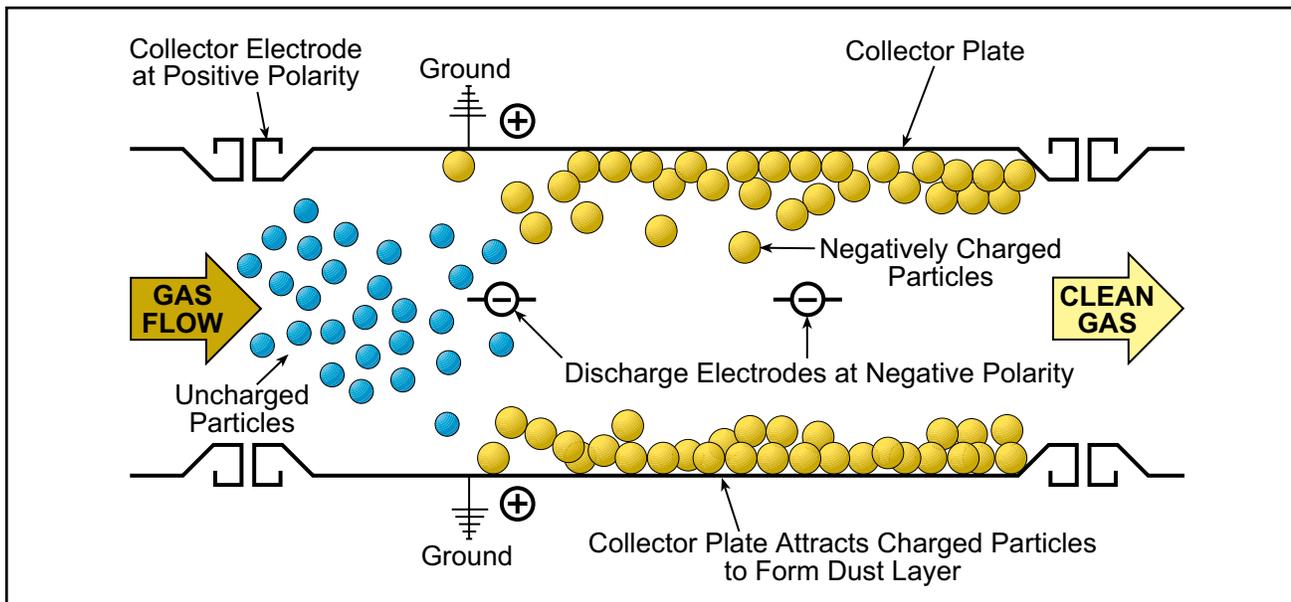


Figure 1 An electrostatic precipitator separates dust, fume or mist from a gas stream using a high-voltage field.

Collector plates

B&W offers collector curtains up to 19 ft (6 m) deep x 52 ft (16 m) high, and each curtain consists of panels or plates 40 in. (1 m) wide. Each panel is roll formed from steel coils, which reduces fabrication costs, erection costs and operational issues.

Discharge electrodes

B&W offers multiple discharge electrode designs 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

B&W 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.

High voltage power supply

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

Automatic voltage controllers

Our automatic voltage controller reacts automatically to sparking while providing for maximum power input to maintain the highest collection efficiency possible.



As a single-source supplier, B&W offers a full range of design, retrofit and construction services as well as quality original equipment replacement parts.

Precipitator management system

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

Full scope environmental services and solutions

With nearly 150 years of experience, B&W continues as a leading original equipment manufacturer and supplier of environmental equipment, systems and services (in addition to a full range of steam generation equipment) such as:

- Low NO_x burners
- Selective catalytic reduction (SCR) systems
- Fabric filter baghouses
- Wet and dry electrostatic precipitators (ESP)
- Multiple-tube mechanical dust collectors

- Wet and dry flue gas desulfurization (FGD) systems
- SO₃ mitigation systems
- Mercury other hazardous air pollutant (HAP) mitigation systems
- Performance assessment
- Rebuilds and replacement parts

This broad range of experience and expertise provides B&W with the insight necessary to evaluate, recommend and implement cost-effective solutions to help meet all your environmental emissions requirements. We also act as a single-point contact for a flexible package of environmental upgrade services, facilitating tight project schedules within stringent budgets.

Capitalize on B&W's vast experience, innovative technologies and flexibility to reduce operating costs and emissions on your next new or retrofit environmental equipment project.

Energy | Environmental

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Established in 1867, Babcock & Wilcox is a global leader in advanced energy and environmental technologies and services for the power and industrial markets, with operations, subsidiaries and joint ventures worldwide.

For more information, or a complete listing of our sales and service offices, send an e-mail to info@babcock.com, or access our website at www.babcock.com.

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