

WET ELECTROSTATIC PRECIPITATORS (WESPs)

Effective control of fine particulate matter emissions

- PM_{2.5} and submicron particulate
- Condensables and aerosols
- Opacity reduction and elimination

Monroe Environmental® Wet Electrostatic Precipitator (WESP) is a state-of-the-art pollution control system for PM_{2.5}, submicron, and fine particulate control. Monroe Wet ESPs feature NAPCO patented filtration technology, a unique configuration and high voltage collection area design which provides for better collection efficiency and lower energy consumption versus competitive systems.

Monroe Wet ESP Design

Monroe Environmental Wet ESP systems are designed to meet the most stringent PM_{2.5}, opacity, and condensable particulate regulations.

The high intensity corona provides particle charging fields that are two to three times stronger than those of conventional precipitators – resulting in higher particulate charges, higher migration velocities, and smaller precipitator size.

As such, the Monroe WESP delivers extremely high reliability and outstanding collection performance.

Benefits of a Monroe Wet Electrostatic Precipitator

- **Reduced Installation Time:** Prefabricated skid-mounted electrostatic precipitator modules assemble easily and quickly – often in a day or less of crane time.
- **Low Maintenance:** All components that are exposed to the gas streams can be manufactured with stainless steel or specialty alloys for long life and low maintenance. Systems can be designed with no moving parts.



120,000 CFM Wet Electrostatic Precipitator treating waste fuel boiler emissions at a paper mill

- **High Collection Efficiency:** The unique and patented wet precipitation design provides for high collection surface area resulting in high particulate collection efficiency. Efficiencies of up to 99.9% have been achieved.
- **Zero Discharge:** Systems can be designed with zero discharge if required. Monroe's wastewater treatment expertise allows for efficient removal of solids and condensed liquids.
- **Low Energy Consumption:** The patented design allows for lower energy consumption than conventional wet precipitator systems.



5,000 CFM Multi-Stage Scrubber System with FRP acid gas scrubber and 317SS Wet ESP

Monroe Wet Electrostatic Precipitator Operation

The hot-polluted gas passes through an optional pre-scrubber, where it is cooled to its adiabatic saturation temperature. Particles above five microns are removed and vapors condense into fine mist.

- The particle and mist-laden gas stream then enters the Wet Electrostatic Precipitator
- The gas passes through air distribution baffles. Small liquid droplets are added to the gas stream from the fog headers.
- The particles, mist, and droplets are charged and removed from the gas by the high voltage electrical field
- The particles, mist, and droplets coalesce and drip into the conditioning section and are removed via the drain
- The clean cool gas leaves the Wet Electrostatic Precipitator

Modular, Adaptive WESP Designs Customized to Your Application

The Monroe Wet Electrostatic Precipitator System also offers the user maximum flexibility through a choice of innovative, adaptable modular designs that can meet any application or system layout requirement. Depending upon the particular contaminant properties and gas stream contents, the system can be configured to meet specific customer needs.

- Rugged, durable design
- Large inter-electrode spacing which prevents fouling and facilitates electrode flushing
- Significantly thicker ionization rods
- Unique pre-scrubbing treatment
- No back corona or rapping re-entrainment problems
- Low pressure drop across the unit
- Low water consumption



20,000 CFM Wet ESP for submicron particulate removal from oven exhaust at a textile plant



6,000 CFM Wet ESP and gas scrubber installation

Industries Served

- Building materials
- Chemical/petrochemical
- Food & beverage processing
- Glass & plastics
- Microelectronics
- Printing
- Pulp & paper
- Textiles
- Waste management
- And many others

800-949-0319