

Solutions For Your Clean Air Requirements



Wheelabrator Air Pollution Control Inc.

## for Particulate Control

### Fabric Filter Systems

Wheelabrator's long experience with fabric filtration enables us to offer you a range of collector designs, from pre-engineered cartridge units for local control of dust-generating operations to custom-engineered fabric filter systems able to clean millions of cubic feet of air per minute from utility and industrial processes.

Reverse Air and Shake/ Deflate Systems are custom-designed for each application and feature either a reverse "back washing" action or a rhythmic shaking of the filter tubes to release collected dust for disposal. They are especially well suited for use with coal-fired boilers and primary metals manufacturing processes such as smelting.

JET III® Pulse Systems periodically inject compressed air into the filter bags, flexing them in a programmed sequence to "pulse off" the dust.



Largest reverse-air fabric filter system in the U.S. controls emissions from a power plant's coal-fired boilers, cleaning 2,940,000 cubic feet of gas every minute.

JET III Systems offer high performance, low operating costs, and the flexibility to handle a wide range of demanding applications. Their on-line bag cleaning capability lets them remain in continuous operation while the bags are cleaned. Plus, the JET III can be shipped, pre-assembled, to keep installation costs to a minimum.

JET VIP™ Pulse Systems are designed for larger gas volume projects, using bags up to 26 feet (8 meters) in length. The JET VIP Intermediate Pulse Collector's large double diaphragm valves deliver a low pressure pulse through a "tuned" manifold delivery system. This cleans bags gently but thoroughly, promoting low emissions and long bag life. As always, Wheelabrator has given special attention to gas flow and dust distribution, necessary for "on-line" bag pulsing and trouble free operation.

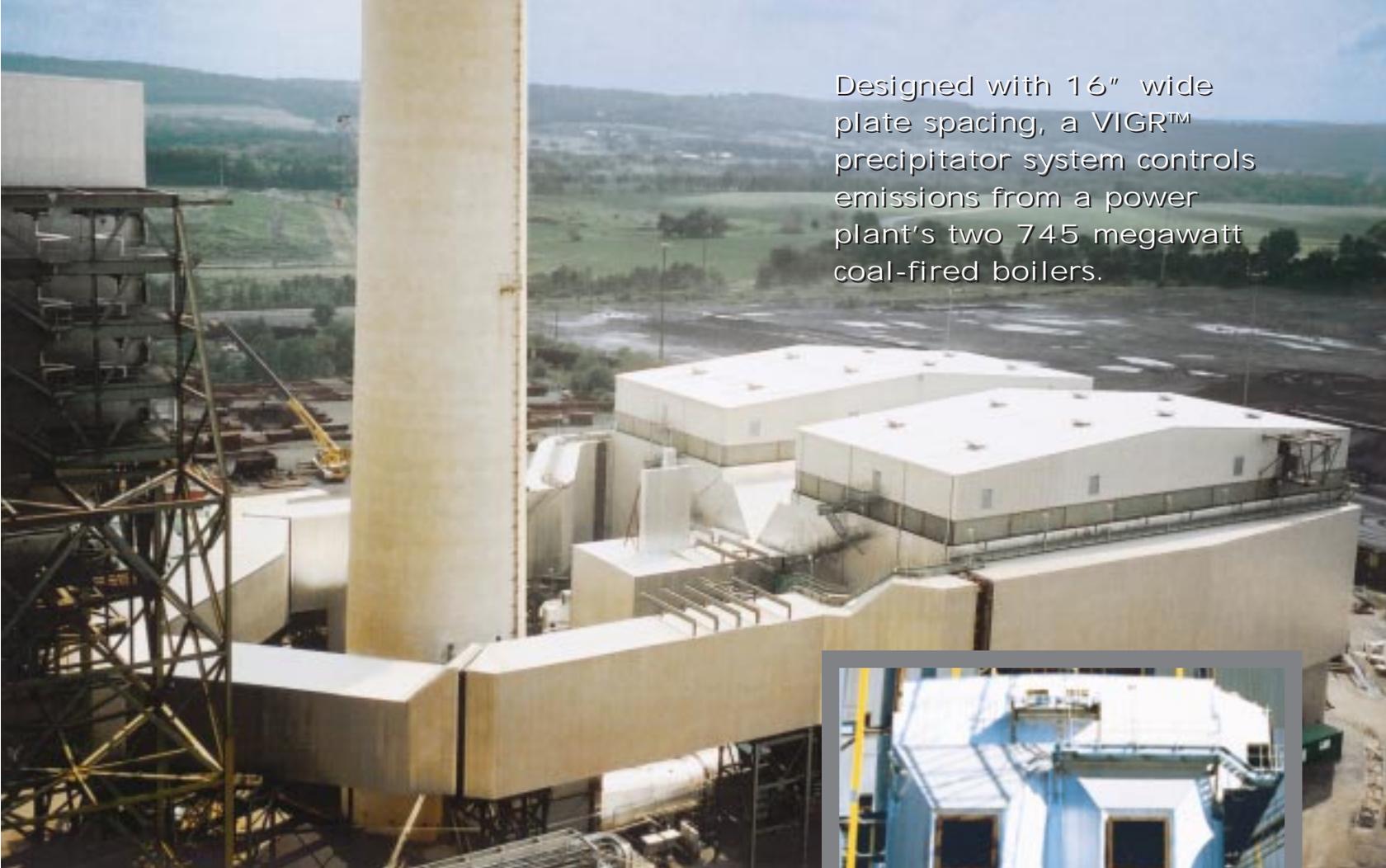
JET 2000™ Pleated Filter Systems provide more surface area than conventional tubular bags. The JET 2000 can be used in a wide range of industrial dust collection applications. The continuously operating filters are supplied in a heavy duty housing designed for top removal through roof doors or a walk-in plenum. The light weight filters are snapped in place without the need for tools and are cleaned by an efficient pulse jet.



Clean air requirements for a Tennessee steel mill's electric arc furnace are met by a reverse air fabric filter system designed to clean 800,000 cubic feet of flue gas per minute.

Fabric filter system controls emissions from a foundry's molding sand preparation and casting shakeout operation.





Designed with 16" wide plate spacing, a VIGR™ precipitator system controls emissions from a power plant's two 745 megawatt coal-fired boilers.



Cartridge Collector Systems from Wheelabrator are compact, versatile cost-effective collectors that work on the same cleaning principle as the pulse jet. Depending upon the application, our cartridge filter systems offer the basic economic advantages of conventional fabric filters and, like pulse jets, can be preassembled and shipped to your site, ready to set in place.

#### Electrostatic Precipitators

Wheelabrator offers a variety of precipitator designs to clean gases from utility and industrial processes with throughputs up to 5 million ACFM.

HaRDE® Precipitators combine the reliable performance of rigid discharge electrodes with superior tumbling hammer rapping – a combination especially suited to difficult dusts. The hammers swing freely even under the most adverse conditions, and the “sweet spot”

impact results in less pin wear and the most efficient rapping available. Microprocessor controls help cut operating costs and improve efficiency for low emissions and long-term reliability.

VIGR™ RDE Precipitators feature rigid electrodes and external rapping. The VIGR RDE couples high collection efficiencies with energy-controlled, low-cost operation, and a rigid design which reduces maintenance. This type of precipitator is widely used in the pulp and paper, ferrous and non-ferrous metals, petrochemical, cement, and waste-to-energy industries, as well as electric power generating plants.

#### Flue Gas Conditioning

Flue Gas Conditioning is another of Wheelabrator's specialized capabilities. The Wheelabrator COMBUSTROL® FACT Flue Gas Conditioning System is a low-cost, flexible way to improve the

performance of poorly operating precipitators. COMBUSTROL FACT reduces opacity and particulate emissions by modifying flash resistivity and cohesivity through the addition of a conditioner to the flue gas system.

HaRDE precipitators were erected on site and then rolled into place to minimize boiler downtime at a pulp and paper mill.

## for Acid Gas Control

### Flue Gas Deacidification Systems

Wheelabrator's answer to sulfur dioxide and acid gas emissions is the variety of scrubbing systems we offer for removing SO<sub>2</sub> and acid gases from utility and industrial coal-fired boilers, waste-to-energy systems, and other industrial processes. To match our systems to your exact requirements, we analyze your acid gas emission control needs and determine which type of scrubber offers the most value and performance.

Wheelabrator flue gas scrubbing systems are known for their reliability and simplicity of design. We offer all the major technologies for SO<sub>2</sub>, acid gas, and fly ash removal, and are experts at solving problems involving various fuel types and applications.



SO<sub>2</sub> emissions from a 350 megawatt power station's two coal-fired boilers are controlled by a wet scrubber system using magnesium lime as a reagent.

Dry Injection Systems, in combination with fabric filters, offer an economical, reliable choice for

applications requiring lower levels of SO<sub>2</sub> and acid gas emission control. They are often superior to other designs in terms of cost efficiency, thanks to their simplicity and lower capital and maintenance costs.

Spray Dryer Systems are used for applications with more demanding SO<sub>2</sub> and acid gas control requirements. In this type of scrubber, a lime- or sodium-based scrubbing liquor is atomized into the flue gas to absorb the acid gases. Simultaneously, the hot flue gas evaporates the scrubber liquor, leaving a dry product for disposal. The reaction products and process ash are then collected by an electrostatic precipitator or fabric filter system.

Wet FGD Systems are used where SO<sub>2</sub> and acid gas control requirements are most stringent. Wheelabrator Wet FGD Scrubber technology includes open spray (single and double loop) tower and



Spray dryer scrubbers and fabric filters control emissions from three municipal solid waste-fired boilers at a 2,250 tons per day refuse-to-energy facility.

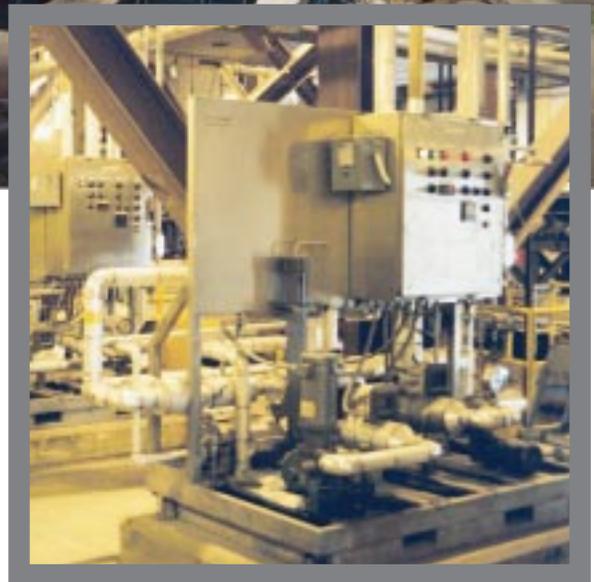


Wheelabrator supplied a wet scrubber system, HaRDE electrostatic precipitators and a 420-foot reinforced concrete chimney to control SO<sub>2</sub> and particulate emissions from a 440-megawatt power plant's coal-fired boilers.

Dual-Flow Tray designs. We're also experienced in the use of sodium- and calcium-based absorbents and special customer waste streams.

The NO<sub>x</sub>OUT<sup>®</sup> Process is a cost-effective, non-catalytic chemical process

designed to meet today's stringent NO<sub>x</sub> reduction requirements. It has been proven to significantly reduce nitrogen oxides from the combustion of various fuels such as coal, lignite, oil, gas, biomass, and municipal solid waste. By injecting non-hazardous chemicals into high-



temperature zones in the combustion process, NO<sub>x</sub>OUT converts nitrogen oxides into harmless nitrogen, carbon dioxide, and water. Because it requires minimal space and offers low installation costs, the process can be easily retrofitted to most existing units.

Wheelabrator's NO<sub>x</sub>OUT system uses modular components that minimize installation and start-up, and speed and simplify capacity expansion, retrofits and upgrades.

Largest utility wet FGD system in the U.S. controls SO<sub>2</sub> emissions from two 440-megawatt coal-fired boilers.

## that keep your systems running at peak efficiency

### Upgrading/Rebuilding Services

If your existing air pollution control system needs to meet changing emissions standards, or if it has been in operation for some time, Wheelabrator can bring your system in line with the latest technology.

For example, Wheelabrator can upgrade older, weighted wire and rigid frame precipitators, or convert the units, when possible, to the latest rigid electrode design. We can convert older or undersized shaker collectors to pulse collectors, to upgrade performance or add collection capacity to an existing system. We can enhance the SO<sub>2</sub> removal performance of wet or dry FGD systems with our Dual-Flow Tray design and patented two-fluid slurry nozzle. Last but not least, we engineer, supply, and install auxiliary equipment such as cooling towers, material handling equipment, precoat systems, canopy hoods, water-cooled ducts, sidedraft hoods and mist eliminators on existing systems to help optimize their performance.



Wheelabrator redesigned and rebuilt this electrostatic precipitator with rigid discharge electrodes, magnetic rappers, microprocessor controls, and conversion from "hot side" to "cold side" operation.

### Control Systems Optimize Efficiency

The Wheelabrator WAPC 2000™ Automatic Power Control is a microprocessor-based, automatic voltage control system that helps electrostatic precipitators operate at peak efficiency. Designed to virtually eliminate control downtime, the WAPC-2000 can be quickly and easily installed with minimal disruption and expense — either as a complete new system or as a retrofit to an existing facility.

The Wheelabrator CCC™ Central Computer Control System monitors stack emissions, dust quantities, and precipitator operating functions, and compares them with desired conditions, adjusting automatically to save energy and reduce

emissions levels. It annunciates faults and recommends corrective action. The microprocessor-based CCC's color graphics are easy to read and offer a simple presentation.

### Replacement Parts Maintain Your System In "As-New" Condition

To keep your systems in continuous, reliable operation, we offer quality replacement parts for Wheelabrator and most other manufacturers' equipment. These replacement parts meet the same high standards as the originals. And we also stock a variety of retrofit kits to convert certain parts for more efficient operation in today's clean air systems.



WAPC 2000™ Automatic Power Control for electrostatic precipitators.

How can Wheelabrator help you?

The more complex your air quality control needs, the more you'll appreciate the expertise Wheelabrator Air Pollution Control can provide. Contact us today for more information on our clean air technologies.

- Particulate control
- Acid gas control
- NO<sub>x</sub> control
- Flue gas conditioning
- Rebuild/retrofit services

## WORLDWIDE ORGANIZATION

Wheelabrator's unmatched technology and experience in clean air system design are available to customers virtually anywhere in the world through our extensive network of international representatives.



### Putting clean air technologies to work for you

Innovation. Experience. Quality. These are the reasons why choosing Wheelabrator for your air pollution control needs represents far more than just a purchase of equipment. It is an investment in the experience, depth and scope of an industry leader totally focused on your clean air needs. Now and for the future.

### Invest in our experience and expertise

We've pioneered emissions control technologies and installed them in thousands of facilities worldwide. Wheelabrator offers you a wide range of technologies, plus a variety of designs within each technology, to meet your toughest clean air requirements. We can apply these technologies — fabric filter, electrostatic precipitator, flue gas deacidification, and computerized control and optimization systems — singly or in combination, to help you fulfill compliance requirements. Moreover, we offer

single-source, turnkey systems and services including:

- Complete process analysis
- Total system design and equipment supply
- Full erection and start-up services
- Compliance testing
- Complete technical support

Wheelabrator provides these capabilities for new facilities or to upgrade and optimize existing systems. Our goal is to help you meet current and future environmental standards with low overall costs, low maintenance, and total reliability.



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