



# COMPLETE SOLUTIONS

Selective Catalytic Reduction Systems



## KEY FEATURES:

### WIDE APPLICATION

Industrial and Utility  
Oil, Gas, Solid Fuels  
Complex Installations

### TURN-KEY SERVICE

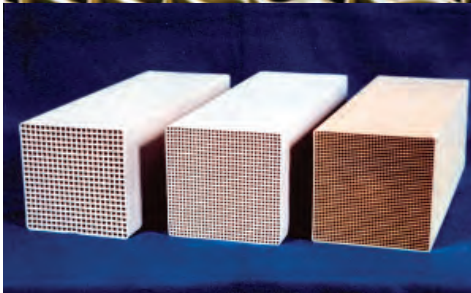
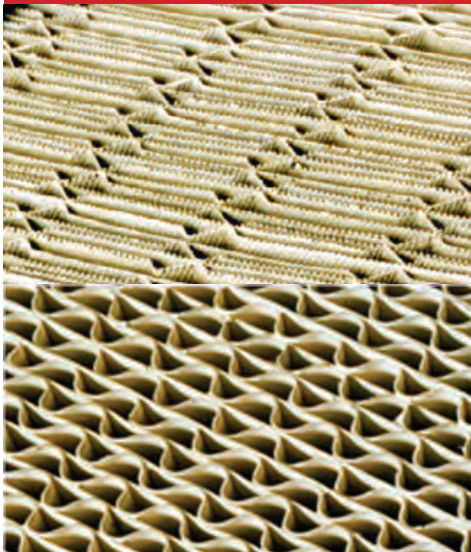
Design  
Supply  
Erection  
Start-up

# SCR TECHNOLOGY

As a boiler OEM, we can assess the operational impacts of an SCR installation including modified flue ducting, economizer bypass and fan impacts. As a construction, engineering and equipment company we can supply the complete SCR system on a turnkey basis.

Our professionals apply the latest research, design, engineering, construction and management resources to provide single-source project execution. We utilize flow model testing, computational thermal/hydraulic and structural analyses, plus the latest in 3-D CAD design.

Through experience, we have developed extensive knowledge of catalyst technology (honeycomb, plate, and fiber) and have established close relationships with key suppliers. We know the right catalyst to use for each fuel, boiler type, and NOx reduction target. We also help our clients develop catalyst expansion and replacement strategies to ensure the system we install today will meet their NOx reduction goals for years to come.



## FW HAS ADVANCED THE "STATE-OF-THE-ART" IN SCR TECHNOLOGY

- Simplified catalyst loading/unloading system
- Integrated ammonia injection grid and mixer design
- Economizer bypass for low load operation
- Patented In-Duct Heat Exchanger for vaporizing ammonia
- Patented Aqueous Ammonia "Stripper"
- Multiple catalyst formulations and designs

# SCR EXPERIENCE

Foster Wheeler has supplied over 130 SCR systems worldwide, for a variety of applications from large-scale pulverized coal (PC) utility boilers, to industrial process heaters and boilers, to combustion turbines. We supplied the first four SCR systems on utility plants in the United States, complementing our extensive global experience.

- First SCR delivered: Powerine, 1982
- First SCR on a US Coal Fired Boiler: Carney's Point, 1993
- First SCR on a 100% Petroleum Coke Fired Boiler: Deepwater, 2006

## FLUE GAS CONSTITUENTS

- Sulfur
- Dust (Pluggage)
- Chlorine
- Dust (Erosion)

## REAGENTS

- Anhydrous Ammonia
- Aqueous Ammonia
- Urea

## FUEL TYPES

- Gas • Coal • Oil • Others

## FLUE GAS CONDITIONS

- High Dust (Upstream ESP)
- Low Dust (Downstream FGD)
- Clean Gas (Oil and Natural Gas Firing)

## AMMONIA VAPORIZATION

- Steam
- Electric
- Patented In-Flue / In-Duct HX



### Muskingum River Unit #5

Location: Waterford, OH  
 Customer: American Electric Power  
 Start-Up Year: 2005  
 Capacity: 600 MWe  
 Fuel: Coal  
 Reagent: Urea  
 NOx Removal Efficiency: 90  
 Flue Gas Quality: High Dust  
 Scope: Turnkey



### Petersburg Units #2 and #3

Location: Petersburg, IN  
 Customer: Indianapolis P&L  
 Start-Up Year: 2004  
 MWe Capacity: 460 - 560 MWe  
 Fuel: Coal  
 Reagent: Anhydrous  
 NOx Removal Efficiency: 90  
 Flue Gas Quality: High Dust  
 Scope: Turnkey



### Roxboro Units #1, #3, #4

Location: Roxboro, NC  
 Customer: Progress Energy  
 Start-Up Year(s): 2001-2002  
 Capacity: 350 - 385 MWe  
 Fuel: Coal  
 Reagent: Anhydrous  
 NOx Removal Efficiency: 79-84  
 Flue Gas quality: High and Low Dust  
 Scope: Turnkey



We offer a full range of steam generator equipment, aftermarket products and services to the power, industrial, and waste-to-energy sectors. Our global manufacturing and engineering network can deliver cutting edge products and expertise, quickly and cost competitively with best in-class quality. Established in 1891, our experience comes from a heritage of designing, servicing, and continually improving steam generating equipment.

#### Steam Generators

- Circulating Fluid Bed
- Pulverized Coal
- Oil & Gas
- Supercritical Steam

#### Industrial Steam Generators

- Package
- Grate & MSW
- Metallurgical Waste Heat
- Heat Recovery Steam Generators

#### Auxiliary Equipment

- Feedwater Heaters
- Condensers
- Biomass Gasifiers

#### Services & Environmental Products

- SCR and SNCR Systems
- Low NOx Combustion Systems
- Boiler Replacement Parts
- Construction Services

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