



REDECAMGROUP



AIR POLLUTION CONTROL LEADER

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- CONCLUSION



WHO WE ARE



- Began 30 years ago as a family business
- Started with air filtration solutions for big names in cement industry.
- Diversified 15 years ago into FGT and other sectors
- Continue to expand, abreast of new technologies and needs
- Consistently lead the market with reliable, top quality, customized products

INDUSTRIES SERVED:

Cement & Lime
Metals & Mining
Coal & Oil Power
Waste-to-Energy & Biomass Power
Biomass & Pulp and Paper

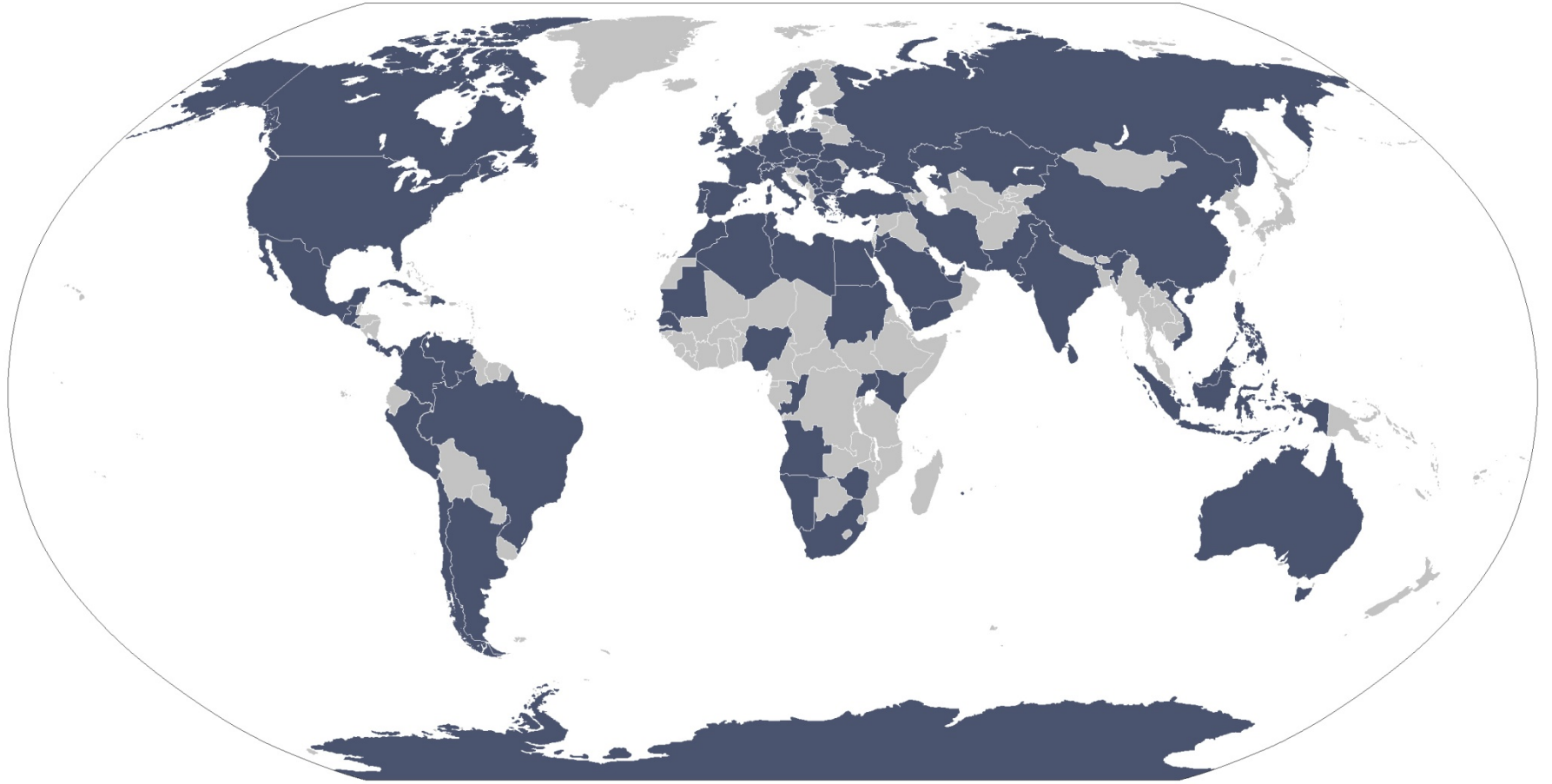
Our founding idea – that innovation can offer better solutions –
still holds true today

OUR GLOBAL REACH



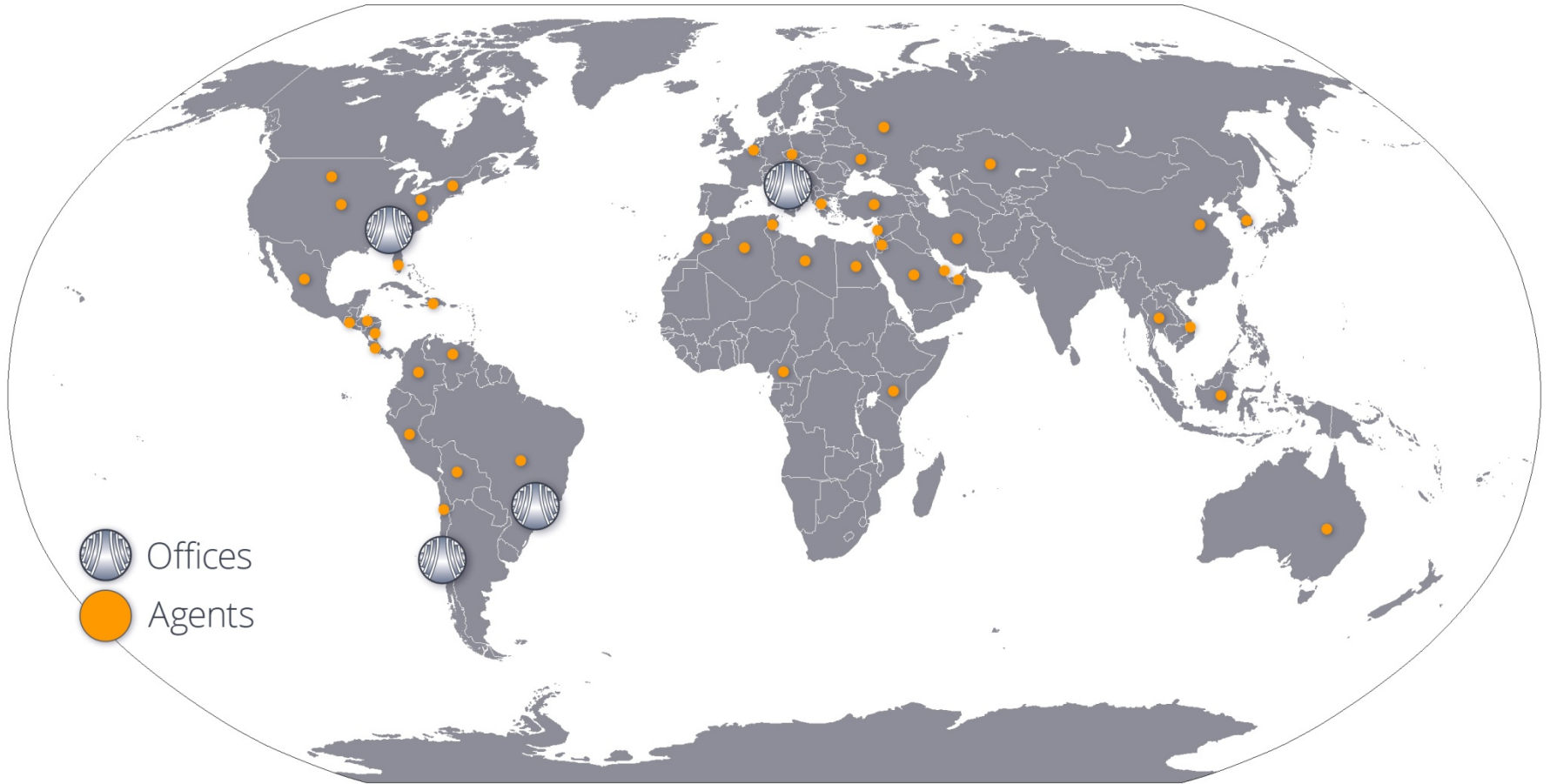
2,000 customers, including major players

OUR GLOBAL REACH



Projects in over 85 countries and on every continent

OUR GLOBAL REACH



Redecam local agents around the world

TYPES OF PROJECTS



NEW BUILDS:

- Extensive project management experience
- Rapidity
- Flexibility
- Budget consciousness

RETROFITS, TRANSFORMATIONS AND UPGRADES:

- Performance of a new system
- Lower CAPEX
- Compliant with emissions regulations
- Rapid

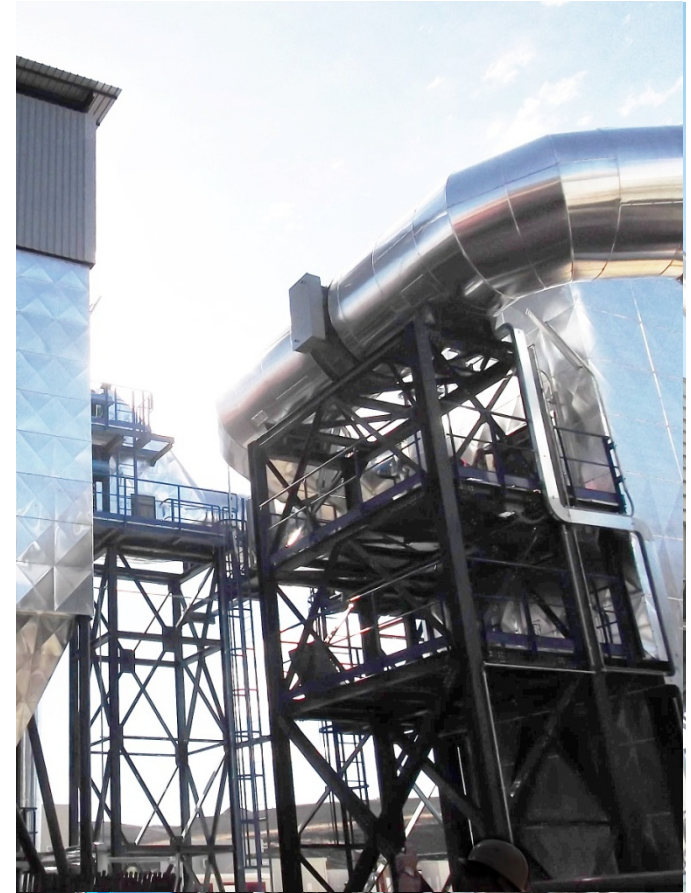


We're a one-stop shop in terms of air pollution control

WHAT WE OFFER



- **A comprehensive portfolio:** complete air filtration and flue gas treatment solutions
- **Unsurpassed performance:** we have installations operating at $< 2.5 \text{ mg/Nm}^3$
- **Turnkey solutions:** from design through commissioning, even in remote areas
- **Innovative systems:** we ensure our products constantly lead the industry
- **Technical support and services:** from Long-Term Service Agreements (LTSA) to on-site training



We tailor the right solution to suit your needs... including your budget

OUR PRODUCTS



AIR FILTRATION

- Bag Filters (baghouses)
- Electrostatic Precipitators
- Dual-Action Filters
- Dual-Input Integrated Systems
- Extreme High Temperature Bag Filters
- Nuisance Filters
- Cyclones

GAS CONDITIONING

- Gas Conditioning Towers
- Gas-to-Air Heat Exchangers
- Water Injection Systems
- Mixing Chambers

TRANSPORTATION, HANDLING AND STORAGE

- Screw Conveyors
- Pneumatic Transport Systems
- Hoppers
- Silos

FLUE GAS TREATMENT

- DeNO_x
 - Selective Catalytic Reduction (SCR)
 - Selective Non-Catalytic Reduction (SNCR)
 - Hybrid (SCR/SNCR)
- Dry Injection Desulfurization
- Mercury Adsorption System

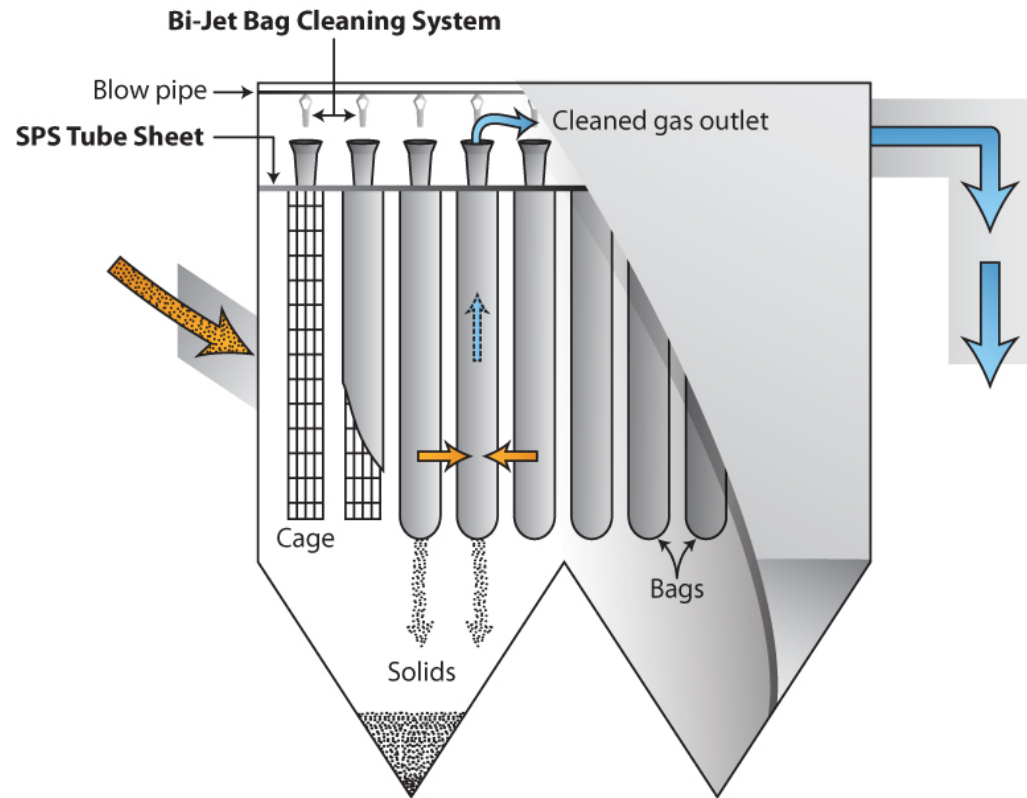
We develop the highest quality air pollution control products available

BAG FILTERS (BAGHOUSES)



Why our Bag Filters?

- Unsurpassed filtration
- Incomparable life expectancy
- Innovative solutions
- Guaranteed casing tightness
- Reduced energy costs



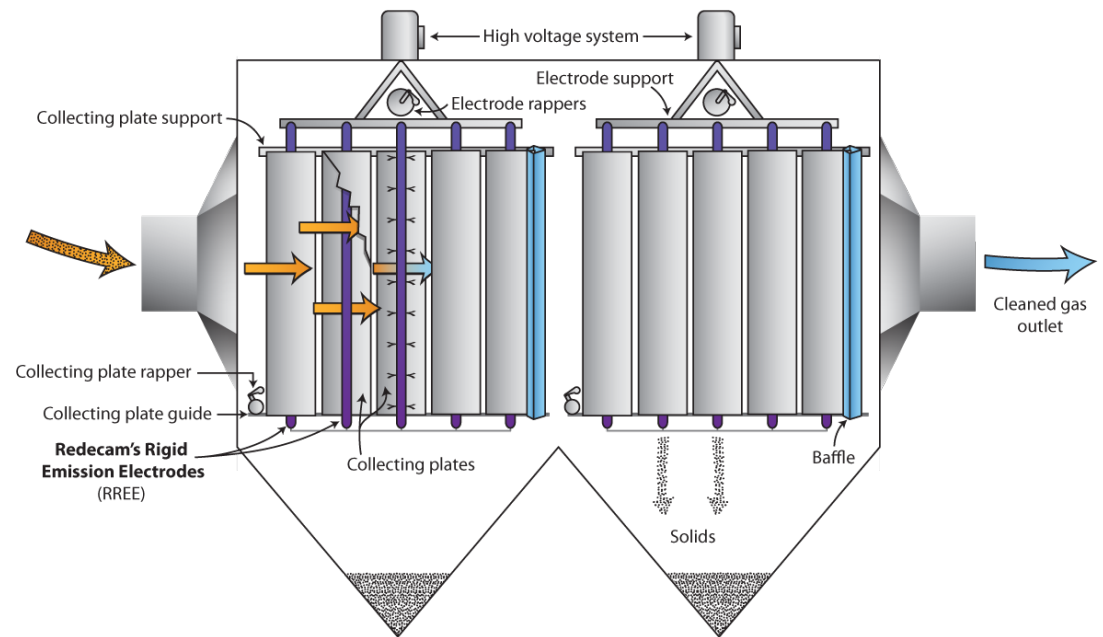
Our Bag Filters offer the highest particulate removal efficiency on the market, exceeding the most stringent emissions requirements

ELECTROSTATIC PRECIPITATORS



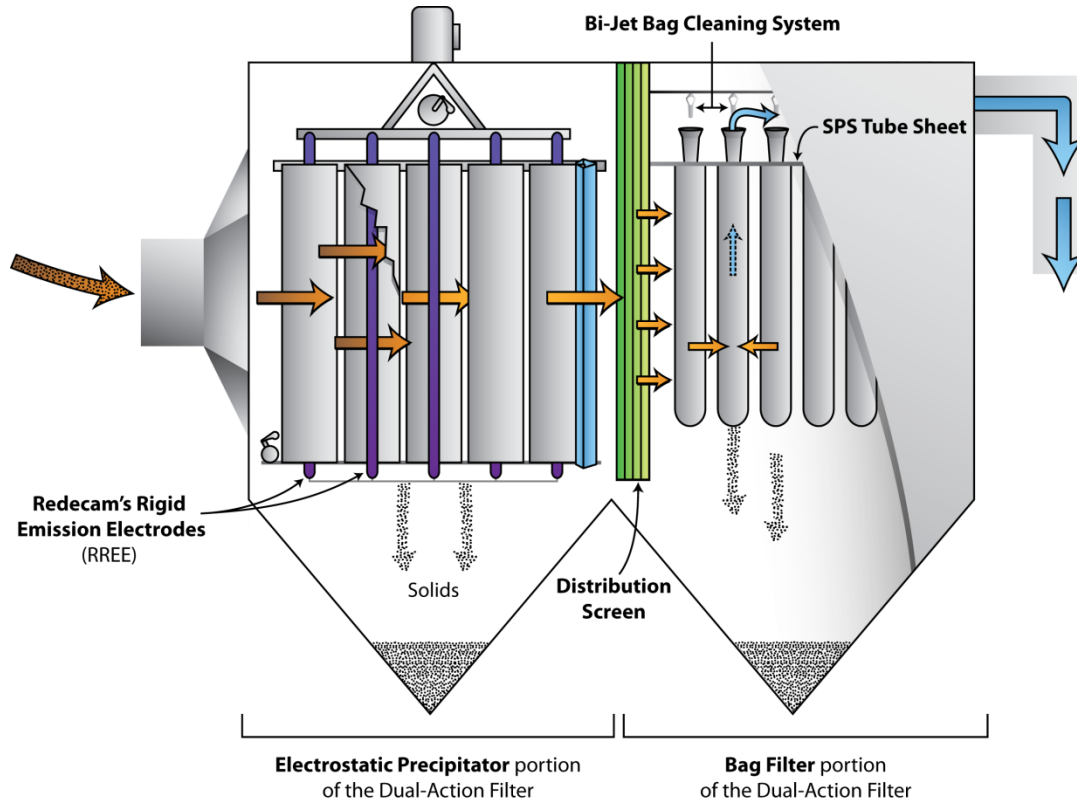
Why our Electrostatic Precipitators (ESPs)?

- Unparalleled reliability and longevity
- Optimized performance
- Improved efficiency
- Reduced dust re-entrainment
- Perfect alignment



Our "Electrode - Suspension - Rapping" technology = highest reliability and efficiency in dust collecting

DUAL-ACTION FILTERS



Why our Dual-Action Filters?

- Highly effective
- Lower CAPEX
- Lower OPEX
- Low levels of emissions for a longer time
- Homogeneous gas distribution
- Transformation solutions

Optimal particulate removal efficiency
Less expensive to install • Lower operating costs

EXTREME HIGH TEMPERATURE BAG FILTERS

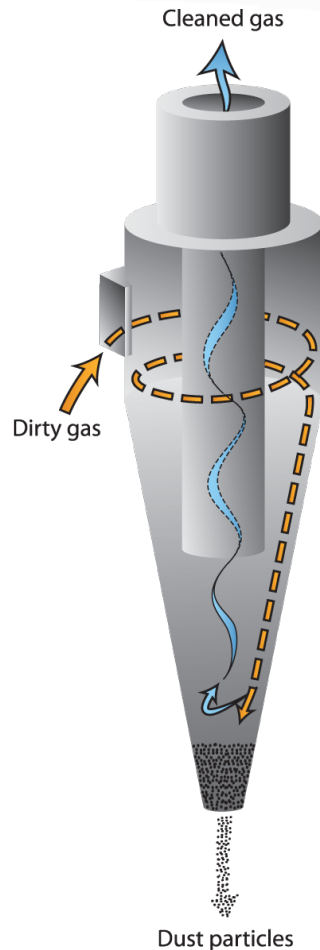


Why our Extreme High Temperature Bag Filters?

- Optimal performance: $\geq 1 \text{ mg/Nm}^3$
- Resistant
- Lower CAPEX & OPEX
- Saves on energy costs
- Safe
- Easy installation and maintenance

Withstands temperatures of up to 1000°C (1832°F)

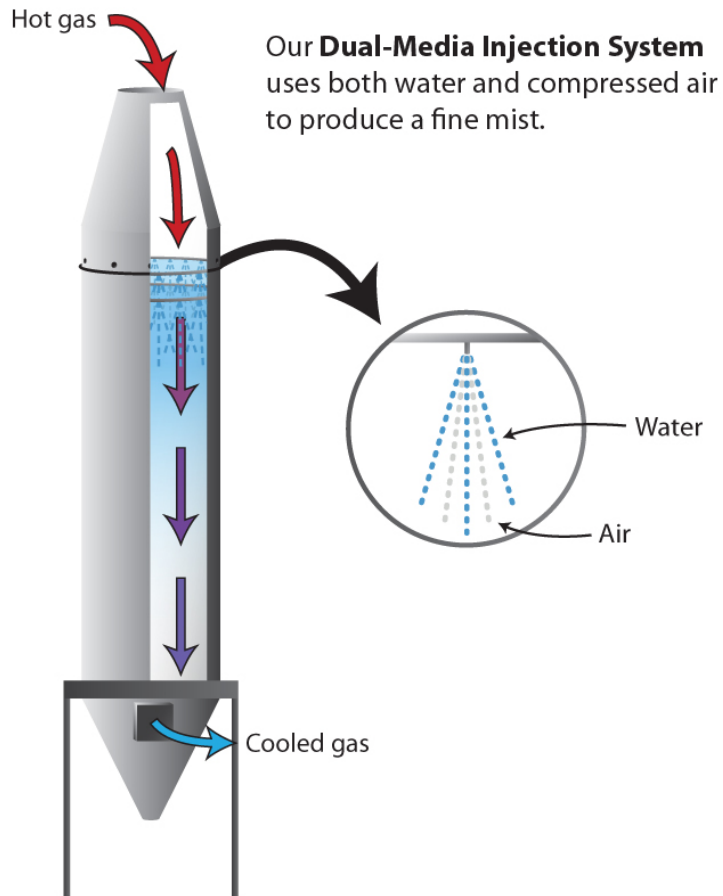
CYCLONES



Why our Cyclones?

- Superior particulate removal
- Cost-effective
- Multiple options
- Durable
- Maintenance-free
- Easy installation

GAS CONDITIONING TOWERS



Why our Gas Conditioning Towers?

- Even mixing
- Smaller tower size
- Optimized control system
- Reduced energy costs

Two models:

- Spillback Injection System
- Dual-Media Injection System

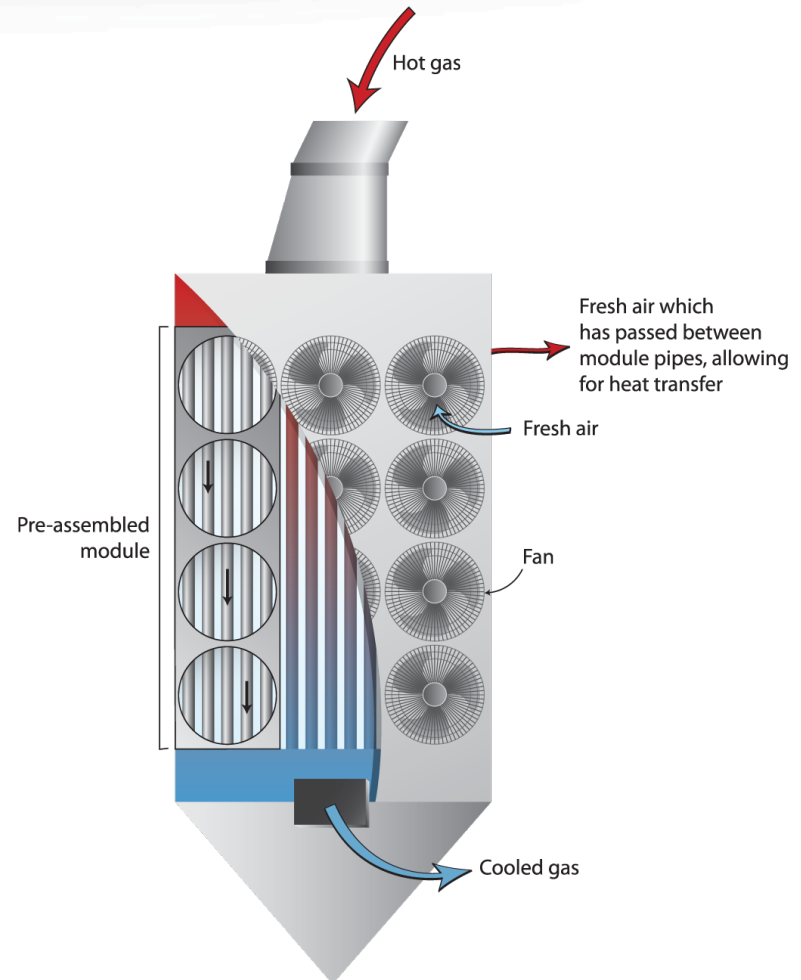
We use model tests and computer simulations to optimize timing and gas distribution

GAS-TO-AIR HEAT EXCHANGERS



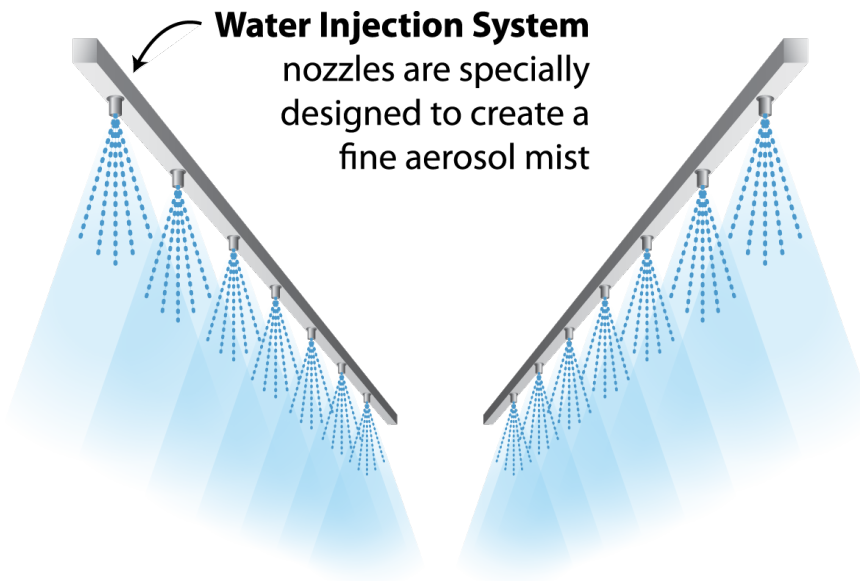
Why our Gas-to-Air Heat Exchangers?

- Enhanced heat exchange
- Perfect seals
- Reduced equipment costs
- Reduced power consumption
- Increased pressure stability
- Easily transportable for less costly delivery



Initial cost-savings • Enhanced plant operation • Reduced operating costs

WATER INJECTION SYSTEM

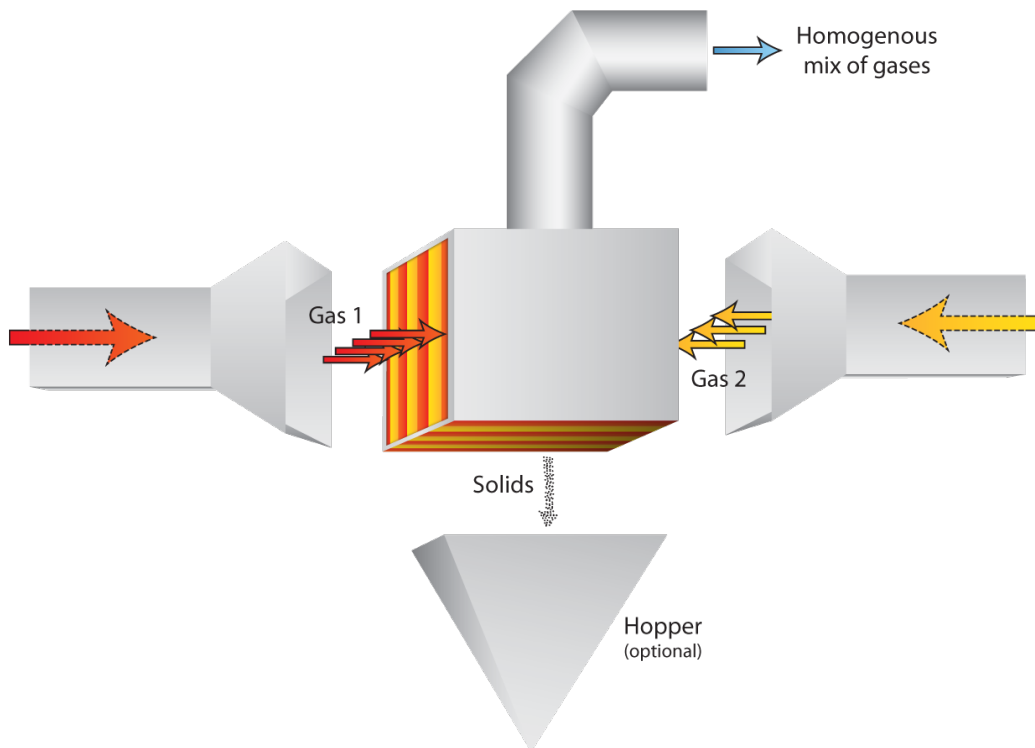


Why our Water Injection System?

- High evaporation rates
- Homogenous temperature distribution
- Allows for compact layout
- Suitable for retrofits
- Reduced energy consumption

No competitor achieves our evaporation rates

MIXING CHAMBERS



Why our Mixing Chambers?

- Customized design
- Ideal when water is not available
- Double as a dust pre-separator
- Effective emergency backup
- Can act as a spark arrestor

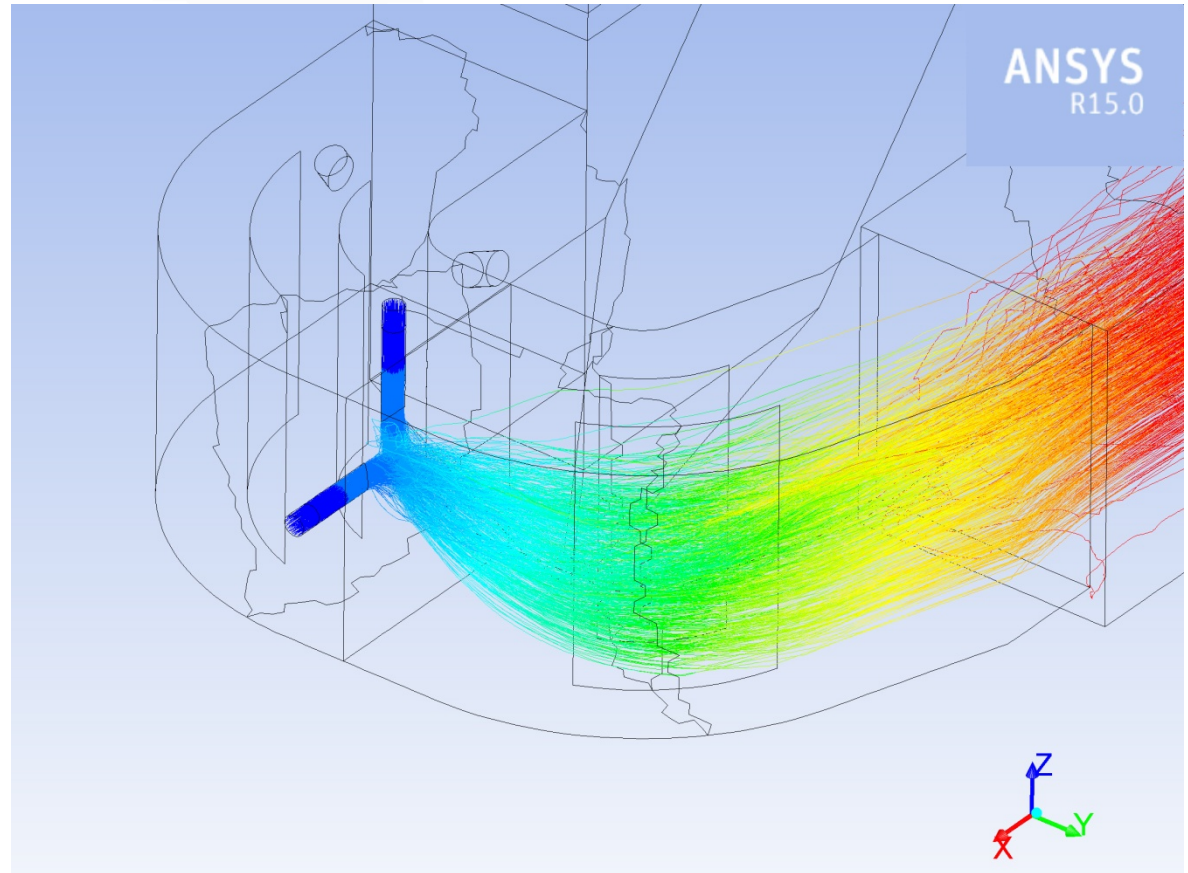
We tailor each of our Mixing Chambers based on your duct layout and process flow

FLUE GAS TREATMENT



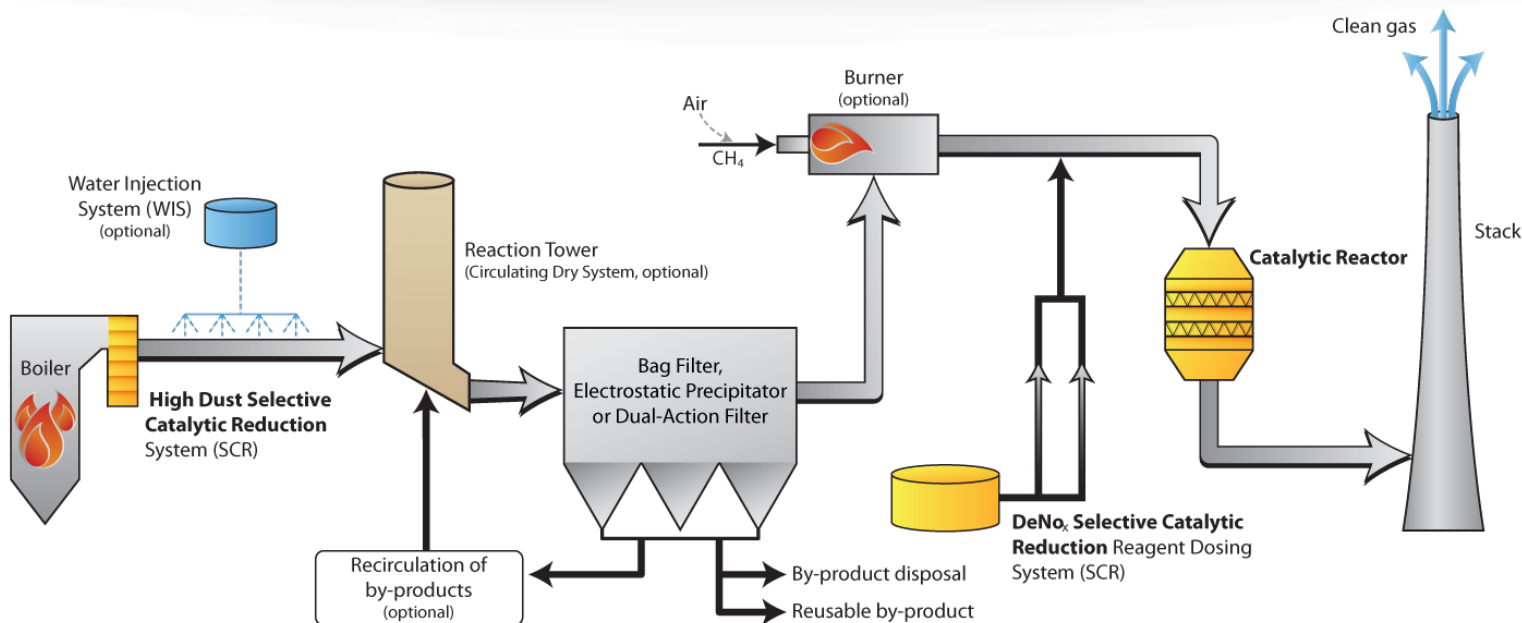
Our flue gas treatment offers:

- Perfected timing
- Optimized mixing technology
- Efficient injection points
- Reusable by-product
- Low sorbent consumption



Our One-Step Cleaning Solution is a cost-effective way to adhere to all environmental legislation.

DENO_x SYSTEMS: SELECTIVE CATALYTIC REDUCTION (SCR)



Why Our SCR?

- Optimum effectiveness, reducing NO_x ≤ 95%
- Reagent flexibility
- Customized catalytic chambers
- Catalytic layers are extruded titanium dioxide (TiO₂)
- Can install and commission during regular downtime

Our SCR offers optimal effectiveness

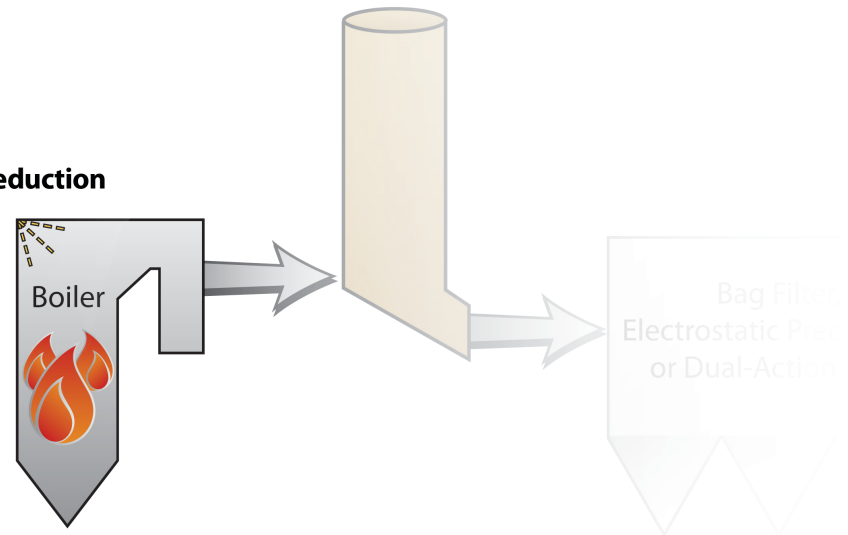
DENO_x SYSTEMS: SELECTIVE NON-CATALYTIC REDUCTION (SNCR)



Why Our SNCR?

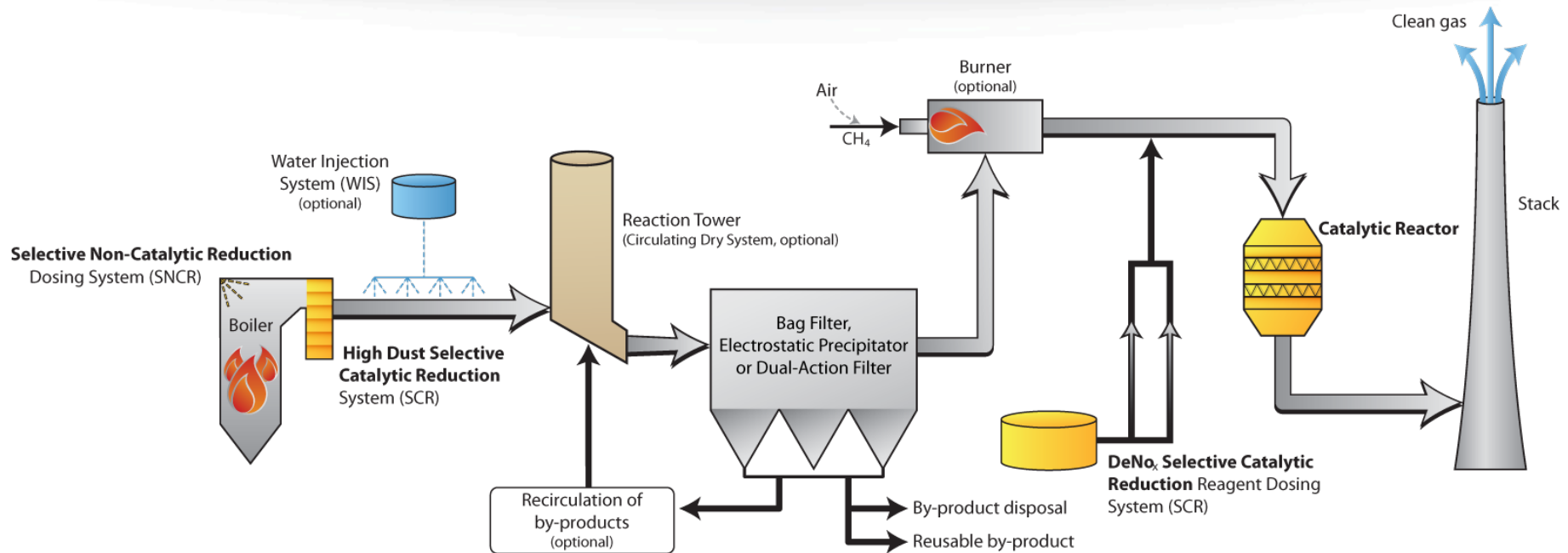
- Effective, $\leq 65\%$
- Lower CAPEX
- Optimized use of reagent
- Low maintenance
- Fast installation

Selective Non-Catalytic Reduction Dosing System (SNCR)



Our SNCR is the cost-effective DeNO_x option

DENO_x SYSTEMS: HYBRID SNCR/SCR

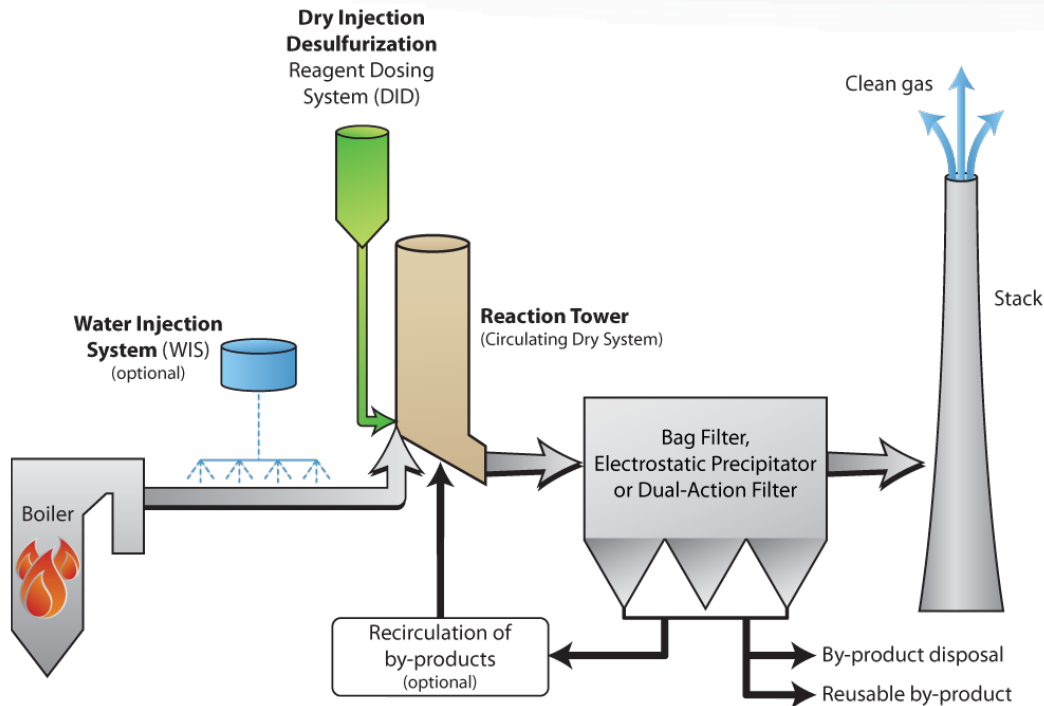


Why Our Hybrid SNCR/SCR?

- Highly effective, $\leq 90\%$
- Lower CAPEX
- Lower OPEX
- Compact

Our hybrid is a newer technology, often an ideal choice

DRY INJECTION DESULFURIZATION



Removes:

- SO₂
- SO₃
- HCl
- HF

Why our DID systems?

- High performance, $\leq 98\%$ effective
- Cost-effective - CAPEX
- More compact
- Lower installation costs
- Lower maintenance costs
- Captures more pollutants
- Minimizes production of NO_x (greenhouse gases)

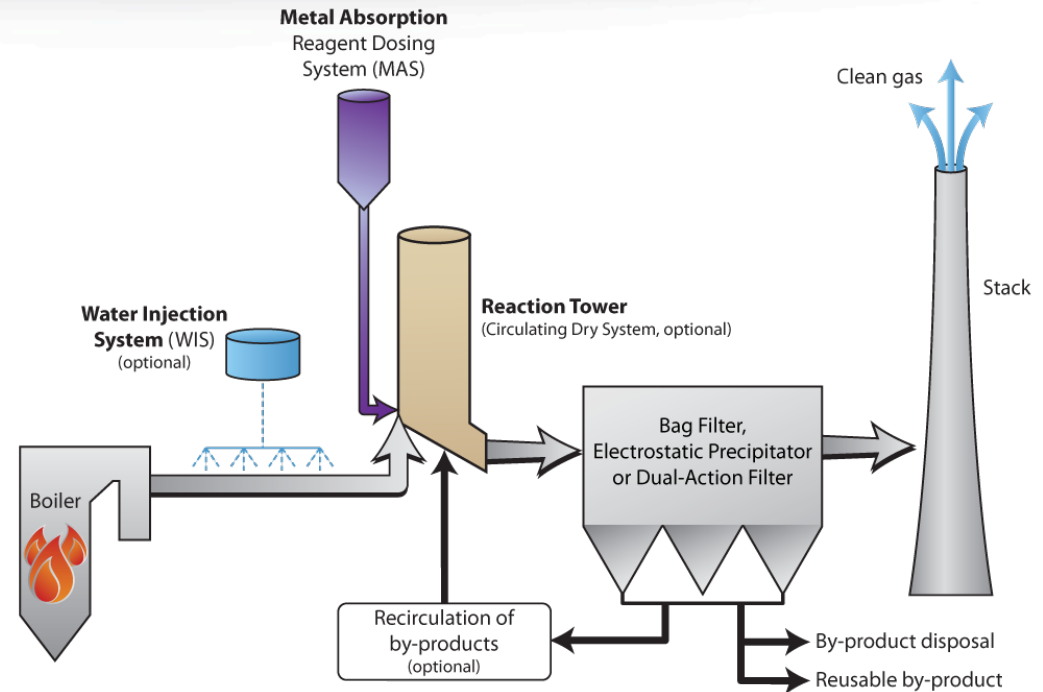
Our DID system is high performance, cost-effective and compact

MERCURY ADSORPTION SYSTEM



Why our Mercury Adsorption System?

- Proven technology, $\geq 90\%$ effective
- Reduced CAPEX option
- Low reagent consumption
- Expertise choosing right adsorbent
- Flexible operations system
- Low maintenance



Removes:

- Mercury
- Furans
- Dioxins
- Lead
- Cadmium
- Arsenic
- Chromium
- Manganese
- Other metals

Our MAS cost-effectively and efficiently helps you surpass your mercury and metals reduction targets

HANDLING PRODUCTS



Our handling products:

- Withstand high capacity loads
- Offer low power consumption

Amongst our offering:

- Screw conveyors
- Redlers
- Bucket elevators
- Pneumatic transport systems
- Silos
- Hoppers



We can provide all ancillary equipment, offering you a complete air pollution control system

TECHNICAL SUPPORT & SERVICES



We can:

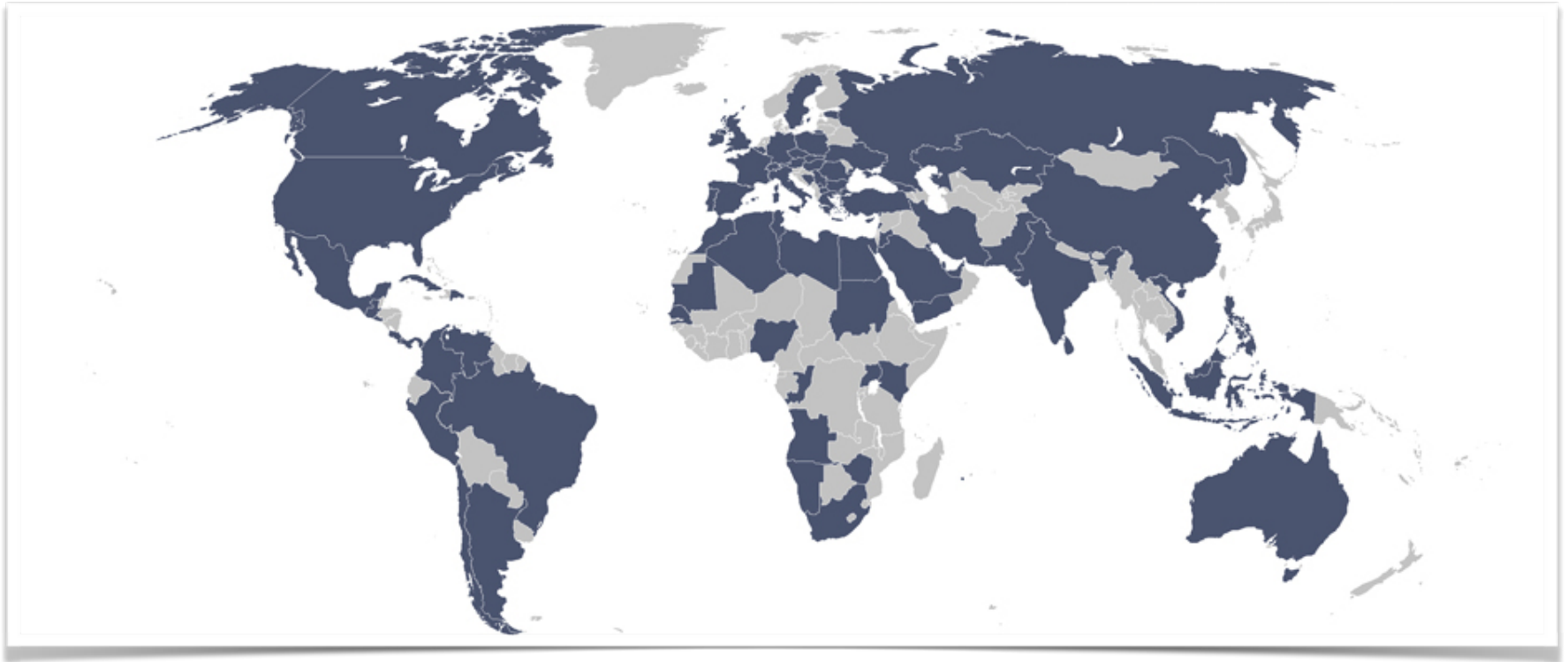
- Lower your operating costs
- Improve your system's performance
- Extend the life of your equipment
- Avoid unforeseen, expensive shutdowns

We offer:

- Long Term Service Agreements (LTSAs)
- Maintenance
- Inspection Expertise
- APC Performance Optimization
- Troubleshooting
- Spare Parts
- Upgrades, Retrofits and Transformations
- On-Site Training



We offer LTSAs, but are also available on short-notice



OUR GLOBAL PORTFOLIO

- CEMENT
- METALS & MINING
- BIOMASS & WTE POWER
- LIME
- COAL & OIL POWER
- BIOMASS & PULP AND PAPER



CEMENT



ROANOKE CEMENT COMPANY PLANT



Our Client: Titan America

Country: USA (Virginia)

Turnkey, transformation and upgrade

We transformed the existing ESP into a Redecam Bag Filter and added a Gas-to-Air Heat Exchanger to ***adhere to the most stringent NESHAP rules*** and ensuring **emissions were under 10 mg/m³**.

Our Solution:

- Bag Filter
- RF-Model Gas-to-Air Heat Exchanger

AONCHOND CEMENT PLANT



Our Client: Holcim

Country: Vietnam

Retrofit

We successfully **used the existing support structure to lower costs.** Our air filtration solution drastically reduced the average dust concentration to **3-7 mg/Nm³.**

Our Solution:

- New Bag Filter using existing support structure
- Reduced average dust concentration from 40-50 mg/Nm³ to 3-7 mg/Nm³





LIME



BLACK RIVER & GRAND RIVER LIME PRODUCTION FACILITIES



Our Client: Carmeuse

Country: USA (Kentucky & Ohio)

Retrofits

We replaced the entire air filtration systems at both plants. At Black River, we **used the existing support structure to minimize costs.**

Our Solution:

- Bag Filters
- At Black River, replaced obsolete U-tube heat exchanger with a Redecam Double-Passage Heat Exchanger



METALS & MINING



TRAVI E PROFILATI DI PALLANZENO



Our Client: Duferdofin-Nucor

Country: Italy

Upgrade at existing plant

We improved the system's **effectiveness and efficiency** by adding Cyclones and a Gas Conditioning Tower designed to **avoid mud clogs** and speed air filtration.

Our Solution:

- Cyclones
- Gas Conditioning Tower



ALUMINIUM DE GREECE PRODUCTION FACILITY



Our Client: Aluminium de Greece

Country: Greece

Turnkey improvement to air filtration system

Instead of replacing the existing ESP, we added a Bag Filter, offering **flexibility to run cost-effectively** and ensuring a **longer filter bag lifespan.**

Our Solution:

- Bag Filter
- Mixing Chamber





COAL & OIL POWER



TOCOPILLAS COAL-FIRED POWER PLANT



Our Client: GDF Suez

Country: Chile

Turnkey, transformation, APC

We engineered **solutions for 4 lines** and added flue gas treatment to comply with new regulations. ***Installation and commissioning were completed in 30 days.***

Our Solution:

- Transformed 4 existing ESPs into Bag Filters
- On 2 of 4 lines, added 2nd Bag Filter
- 4 Dry Injection Desulfurization systems

MEJILLONES COAL-FIRED POWER PLANT



Our Client: GDF Suez

Country: Chile

Turnkey, transformation, APC

We transformed existing ESPs into Bag Filters, providing higher efficiency and installed a flue gas treatment system to comply with new regulations... ***all in 35 days.***

Our Solution:

- Transformed 2 existing ESPs into Bag Filters
- 2 Dry Injection Desulfurization systems



BIOMASS & WTE POWER



ENNA BIOMASS INCINERATION POWER PLANT



Our Client: FriEl Green Power and RWE

Country: Italy

Turnkey, APC, greenfield

We designed an air pollution control solution that was **cost-effective and compact**, offering flexibility for future uses.

Our Solution:

- Bag Filter
- Dry Injection Desulfurization with hydrated lime
- Mercury Adsorption System
- DeNO_x: Selective Catalytic Reduction (SCR) with ammonia
- ID fan
- Stack



US NAVY HOSPITAL THERMAL REDUCTION SYSTEM



Our Client: Pennram Diversified Manufacturing Corp.

Country: USA, product for Guantanamo Bay, Cuba
Turnkey, APC, greenfield

Our supplied high performance Bag Filter, as well as our **Mercury Adsorption** and **DID system**, *exceed all emissions requirements.*

Our Solution:

- Bag Filter (fully pre-assembled to reduce on-site installation time and costs)
- APC system with reactor and recirculation
- Mercury Adsorption System
- Dry Injection Desulfurization - hydrated lime
- Auto feed system
- Manual ash removal via vacuum



BIOMASS & PULP AND PAPER



OYKA PULP AND KRAFT PAPER PLANT



Our Client: Oyka Paper Packing

Country: Turkey

New system at existing plant

We improved air pollution emissions with our ESP that consistently **ensures the highest reliability and efficiency**, even when at maximum capacity.

Our Solution:

- ESP
- Oversight and assisted with installation



ADM'S RONDONÓPOLIS BIODIESEL PLANT



Our Client: ADM

Country: Brazil

Turnkey greenfield

We suggested and provided a **turnkey air filtration solution**, including our **innovative** Electrostatic Precipitator (ESP) system that would offer **high efficiency** while being **cost-effective**.

Our Solution:

- ESP

WHY CHOOSE REDECAM?



Our outstanding products



Our air pollution control portfolio



Our flexibility



Our global reach



Our rapidity



Our customer focus

We develop customers *for life*