EcoCAT™
EMISSIONS REDUCTION SYSTEMS
A Division of R.F. MacDonald Co.

EcoCAT™ Selective Catalytic Reduction (SCR)

SAFELY AND EFFICIENTLY REDUCE NOx
NOx REDUCTION IN EXCESS OF 95%, DOWN TO 2 PPM

EcoCAT's™ Patented Technology Utilizes the Safest, High Performance NOx & CO Reduction SCR Technology for Industrial Applications

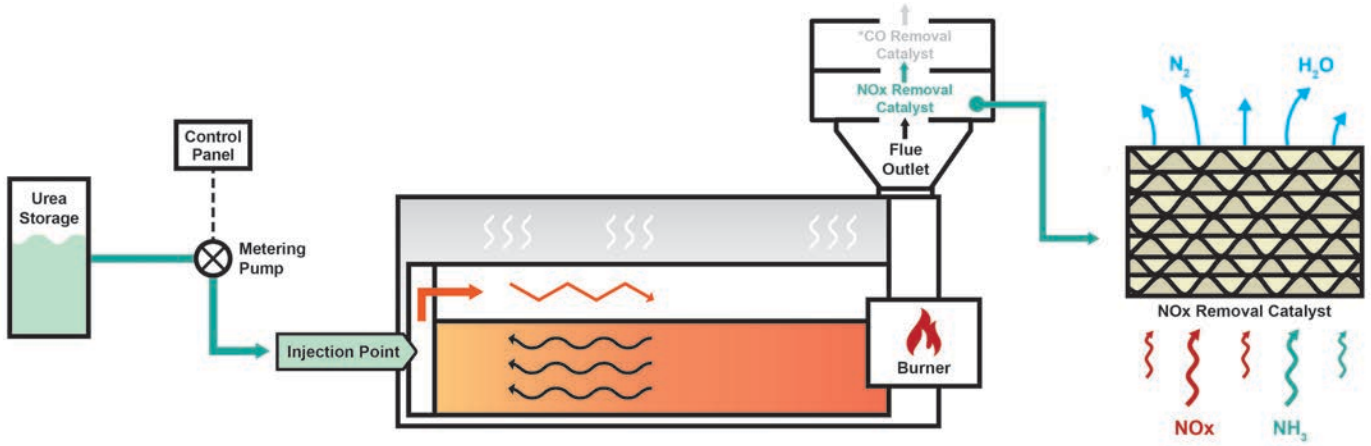
Reduce NOx in a flue gas stream in excess of 95%, down to 2 ppm

Selective Catalytic Reduction (SCR) is a post-flue gas treatment that is capable of reducing NOx emissions from a wide variety of boiler systems. SCR is one of the most effective ways of reducing NOx in a flue gas stream with reductions in excess of 95%!

- The industry's only totally integrated systems
- Ammonia transforms NOx into harmless nitrogen
- Flow modeling used to optimize every system
- Applications for any fuel-fired equipment

EcoCAT SCR technology continues to be the most effective method of NOx reduction, as it does not sacrifice boiler performance, unlike other NOx reduction technologies.

NOx Reagents (Ammonia Sources)	PURE ANHYDROUS	AQUEOUS	UREA
Hazard Rating (Level of toxcity): 3 = Extreme 2 = Moderate 1 = Low	3	2	1
Level of Usage Risk Compared:	**Highest Risk**	**Moderate Risk**	**Low Risk**
Ease of Use / Operation Readiness:	Ready to Operate	Vaporized before use	Needs vaporization Conversion
Safety Requirements:	Training, Emergency Planning, Fire Dept. Audit	Training, Emergency Planning, Fire Dept. Audit	Onsite Training
Most Common Applications:	Power Plants, Industrial Facilities	Agriculture, Food Processing, Utilities	Hospitals, Schools, Univerities and Prisons



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Total Engineering Support

The RFMCO team is dedicated to providing you an engineered solution to ensure emissions compliance while maximizing your system performance, safety, and sustainability.

Over the years, we have helped many customers achieve and maintain single-digit NOx levels with a wide array of technologies, products, and unique solutions for individual applications.

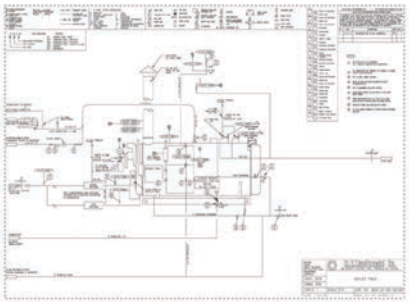
Mechanical

Highly experienced draftsmen to produce AutoCAD and Solid drawings.

Electrical

Hardwired and computer-based systems for supervisory control.

Submittals and O&Ms



Complete submittal package including mechanical, electrical, seismic, final As-Build documentation with O&M manuals.

CASE STUDY: Direct Urea Injection with SCR Technology

Customer: Loma Linda University Health | Loma Linda, CA

Application: Steam suppply for main campus hospitals

Overview: As part of Loma Linda University's Campus Transformation Project, two new hospital towers were added, increasing the facility's demand for steam. To meet this expanded capacity while maintaining compliance with stringent emissions regulations, Loma Linda selected R.F. MacDonald Co. to provide a fully integrated boiler room solution.

Key Challenges:

- Increased steam demand from hospital expansion
- Compliance with South Coast Air Quality Management District (SCAQMD) sub-5 PPM NOx emissions regulations
- Elimination of hazardous chemical storage (ammonia-based systems)

Solution:

R.F. MacDonald Co. supplied and supported the installation of three Cleaver-Brooks CBEX Elite 1,400 HP firetube steam boilers, each capable of producing up to 48,300 pounds of saturated steam per hour.
To meet environmental regulations, the system incorporated the patented Direct Urea Injection with Selective Catalytic Reduction (SCR) Technology, eliminating the need for anhydrous or aqueous ammonia.

Scope of Work:

- Engineering and installation support
- Supply and integration of boiler and emissions system
- Complete startup and commissioning services

Results:

Profire XL Burner with Direct Urea Injection SCR:

- Achieves sub 5 PPM NOx emissions
- Maintains sub 5 PPM ammonia slip
- Delivers a 10:1 turndown ratio

Operational Advantages:

- Reduces costs associated with ammonia vaporizers
- Lowers electrical load requirements
- Minimizes overall system footprint

Your Premier Supplier of Ultra-Low NOx Systems, Parts, Service and Support

CORPORATE
25920 Eden Landing Rd.
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Modesto, CA 95358
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SERVICE

- Factory-trained field service technicians
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BOILER TRAINING

- Basic to advanced boiler system training
- Visit rfmacdonald.com/training

RENTAL

- In addition to new SCR equipment sales, we can provide rental equipment for your existing system.

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