

TECHNICAL BROCHURE

SNCR DeNOx systems

NOx reduction systems for biomass boilers, waste incinerators and industrial combustion processes.

**10+**

SNCR systems installed

IT · CH · FR

Italy, Switzerland and France

Turnkey

from supply to commissioning

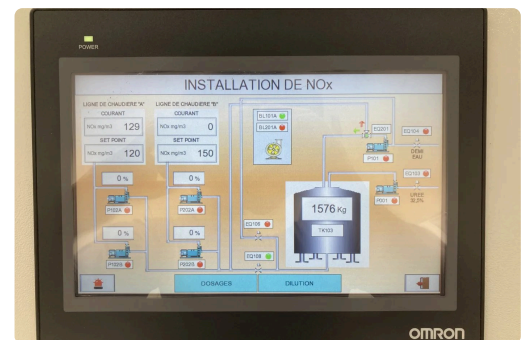
WHAT WE DO

Building and integrating SNCR systems

Company overview

Ecotherm builds SNCR DeNOx systems to reduce NOx emissions from combustion plants. We supply robust, reliable skid-mounted units designed for continuous operation and compliance with emission limits.

- Turnkey skid-mounted systems
- PLC-based dosing and monitoring
- Modular, scalable configuration
- Custom injection lances
- Compliance with European emission regulations



Bulle plant, Switzerland: dosing skid, injection lances on the boiler, operator panel

TYPICAL EFFICIENCY
30 – 60 %

TEMPERATURE
850 – 950 °C

REAGENT
Urea solution

ATOMISING AIR
3 – 5 bar

Process

- Injection points positioned after verifying the temperature window
- PLC-controlled dosing with process parameter monitoring
- Air/liquid atomisation for even reagent distribution
- Automatic adjustment based on measured NOx and boiler load
- Skid layout designed for easy installation and maintenance

Operational benefits

- Stable NOx reduction under varying load
- Lower operating costs through controlled reagent consumption
- Simple operation with minimal operator intervention
- Less complex installation than an SCR system
- Ammonia slip risk reduced by the dosing logic

CASE STUDY 01 • SCALABLE

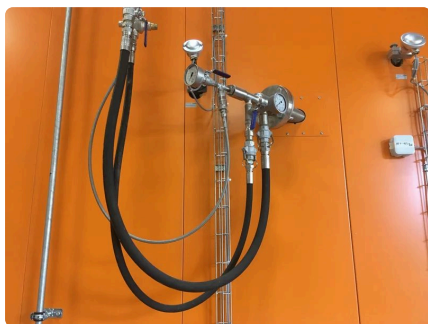
Three biomass boilers, one SNCR unit

SECTOR	BOILERS	TECHNOLOGY	CONTROL
Biomass	2 + 1 prepared	Centralised SNCR	PLC, setpoint per boiler

The project

The plant comprises three biomass boilers. At commissioning two boilers were in operation; the system was built to integrate the third unit later.

Each boiler has its own multi-lance injection configuration, defined according to the combustion chamber geometry and the temperature profile.



Injection lines on the boiler



Urea storage



Operator panel with process overview

SNCR system supplied

A centralised skid-mounted SNCR unit serves several boilers through a controlled reagent distribution network.

- Multi-lance injection lines for each boiler
- Flow meters on reagent injection
- Load cells to verify urea consumption
- PLC dosing with adjustable setpoints for each boiler
- Hydraulic circuit prepared for the third line

Results

Stable NO_x reduction under varying boiler loads, consistent compliance with emission limits and optimised reagent consumption.

A system designed for continuous industrial operation and ready for expansion.

CASE STUDY 02 • ESSENTIAL

1,600 kW biomass boiler: a simple, robust SNCR system

OUTPUT 1,600 kW	INITIAL NOx approx. 700 mg/Nm³	LANCES 2 injection lances	STORAGE 1,000 litre IBC
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Background

A single 1,600 kW biomass boiler with an initial NOx concentration of approx. 700 mg/Nm³. Emissions had to be brought below the permitted limits while keeping ammonia slip under control.

The goal was an SNCR system sized to the boiler: reliable and simple, without unnecessary plant complexity.

Configuration

A skid-mounted SNCR unit for a single boiler, sized on the flue gas flow and the required reduction efficiency.

- Urea storage in a 1,000 litre IBC container
- Mixing and dosing unit with PLC control
- Two injection lances
- Monitoring with flow meters
- Reagent piping in Rilsan (PA)
- Stainless steel components where required



Operation

The system was deliberately configured as a simple, robust solution:

- Controlled reagent injection
- Stable NOx reduction
- Predictable reagent consumption
- Easy access for maintenance
- Adaptable to the plant layout

Small footprint and simplified installation, with no oversizing.

Results

Stable NOx reduction in line with the project targets and emission limits met under normal operating conditions. A simple, efficient SNCR configuration, well suited to medium-size biomass boilers.

REFERENCES

Main SNCR installations

LOCATION	PLANT	SIZE	YEAR
France	Biomass boiler	2.5 MW	2026
Italy	Waste incinerator, grate furnace	18.7 MW	2025
Potenza, Italy	Biomass boiler, revamping	3.5 MW	2024
Nocera Inferiore, Italy	Waste incinerators	10,000 + 4,000 Nm ³ /h flue gas	2022
Bulle, Switzerland	Biomass plant	2 × 8 MW	2020–21
Wilderswil, Switzerland	Biomass plant	5 MW	2019
Eschlikon, Switzerland	Biomass boiler	1.6 MW	2019
Sarnen, Switzerland	Biomass plant, expansion planned	1.2 + 3.2 MW	2017
Cosio Valtellino, Italy	Biomass plant	6.5 MW	2015–16
Torrenova, Italy	Biomass cogeneration, 200 kWe	2.2 MW	2015

Selected references. Full list available on request.

ECOTHERM

Manufacturer of SNCR systems for NOx emission control

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