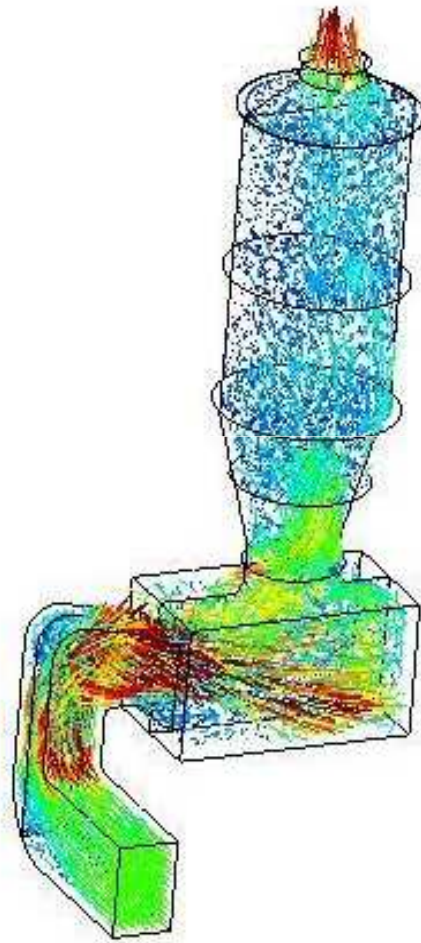


HIGH QUALITY DE-NOX SYSTEMS



SNCR and SCR Technologies

SNCR DE-NOX SYSTEMS



In SNCR Systems, either NH_3 or Urea solutions are appropriately sprayed in the gas stream to be cleaned at high temperature (usually $> 900\text{ }^\circ\text{C}$). The reagent converts NO_x into N_2 and H_2O vapor through fast enough reactions without the aid of any catalysts.

An optimal choice of the variables involved in the process, such as the injection temperature, the reagent distribution and mixing as well as the residence time, allow to achieve rather high removal performances (up to 60%) without significant ammonia slip at stack.

Ecospray proprietary lances and nozzles gives an excellent spray distribution in all conditions.



Urea air cooled spray lance



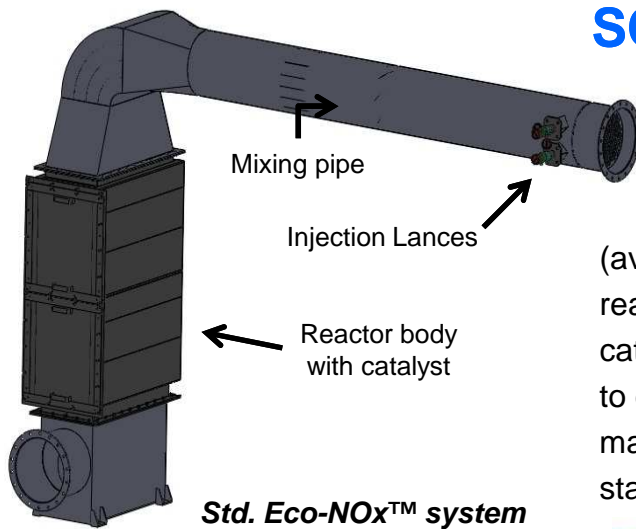
Urea water cooled lance



Very uniform hollow cone spray

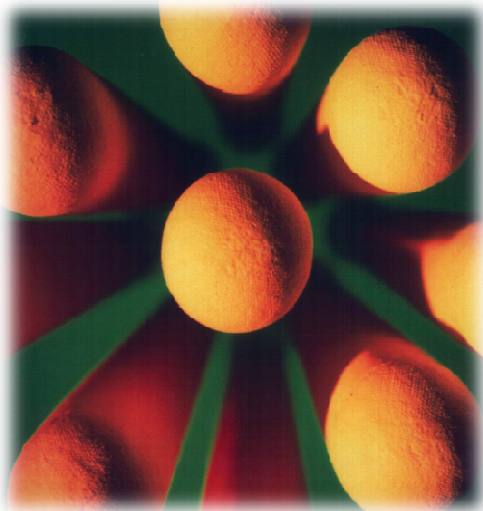
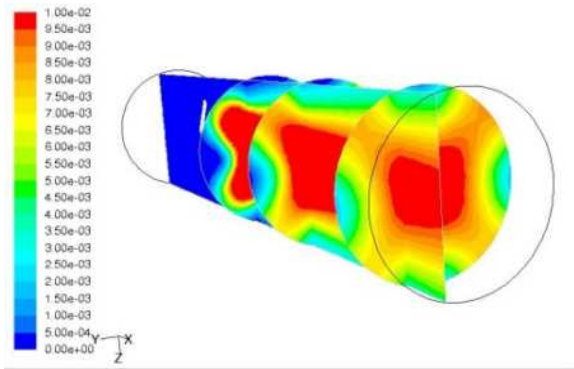
The most advanced systems, like EcoSpray ones, are made up of several spraying stages positioned in different areas of the combustion chamber. This allow to work with the most favorable process conditions and achieve max. efficiency at both full load and in regulation. Adjustment and dilution with water DEMI play also an important role in optimizing overall system.

SCR DE-NOx SYSTEMS



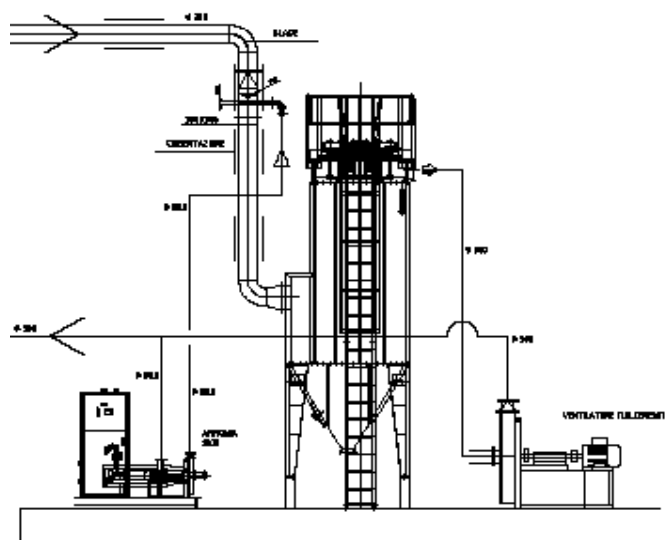
Also in SCR Systems either NH₃ or Urea are sprayed in the gas stream but at relatively low temperatures (avg. 300 ÷ 400 °C) because the conversion reaction is accelerated by using suitable catalysts. With SCR technology it is possible to easily reach over 90% NO_x removal maintaining very low ammonia slip at the stack (< 5 mg/Nm³).

Thanks to its vast experience in almost every spray liquids application, Ecospray has developed a multi-nozzle system able to reach the highest levels of distribution uniformity



Ecospray has recently developed and introduced into the market its innovative **Eco-Cer™ DeNOx Filter** that installs a new type of ceramic filtering elements (Cerafil TK type).

These elements allow to work at temperatures > 400 °C and combine excellent dust removal efficiency along the time (emissions < 5 mg/Nm³) with terrific NO_x removal performances, up to 95% efficiency and over, as well as for CO, VOC & Dioxins reduction.



CONTROL & DOSING SYSTEM



Urea dosing rack for diesel generators

All Ecospray regulating and dosing systems are controlled by PLC.
We can supply various PLC brands according to each customer's specific requirements.
All our PLC's are developed and programmed directly in-house.
Our regulating and dosing systems can utilize either NH_3 or Urea solutions.



Dosing rack made of stainless steel

Software main loops include :

- Gas temperature control
- NOx emission control
- Reagent's dosage control
- Dilution control
- Spray quality control
- Ammonia slip control

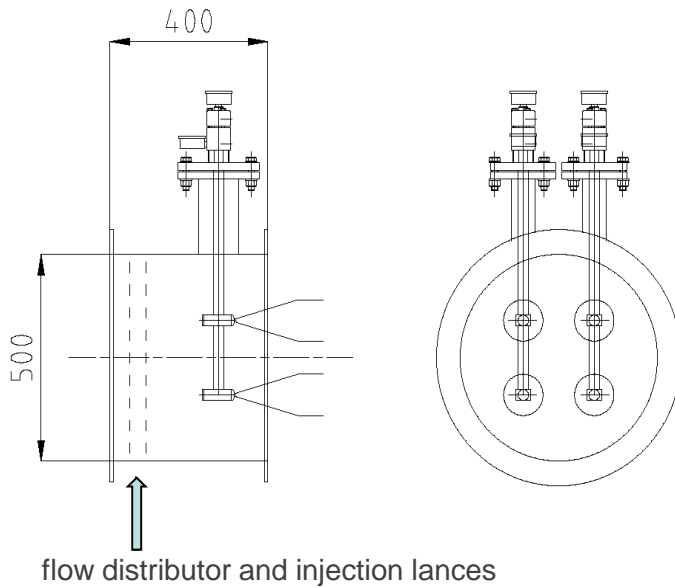


Skid made of plastics for SCR in one incineration plant (NH_3 injection)

A graphic touch screen display is installed on the control box. It helps to easily set up all regulations and monitor the process variables. It is also possible to transfer a.m. variables through profibus or ethernet cards.
Skids can be realized in various high quality materials like stainless steel and or plastic according to their use and positioning.

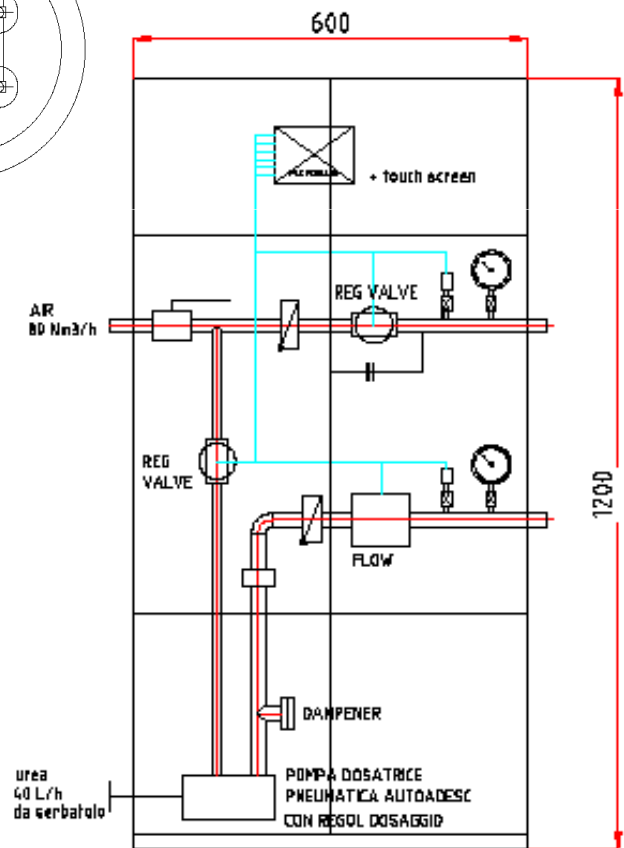
DENOX EQUIPMENTS

Scheme of the lance / nozzle / flow distributor group
(distributor is positioned up-stream the urea injection)



Integrated instrumentation
on each lance

Urea Injection Skid
Typical Lay-out





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