



Emissions Technology Solutions





Emission Control Solutions for a Cleaner World



Eminox provides aftertreatment systems and integration solutions that help to improve air quality by reducing harmful emissions from diesel engines.

We can provide a complete system integration solution for your Stage IIIB aftertreatment system, including bespoke pipework and silencers, to meet the space envelope of your equipment. We can provide support to engine manufacturers and equipment manufacturers in design and manufacture of emissions systems and components required for Stage and Tier legislation. We also design and manufacture retrofit emissions systems to meet local requirements.



Our packaging and integration expertise is supported by our proven experience of emissions technologies including:

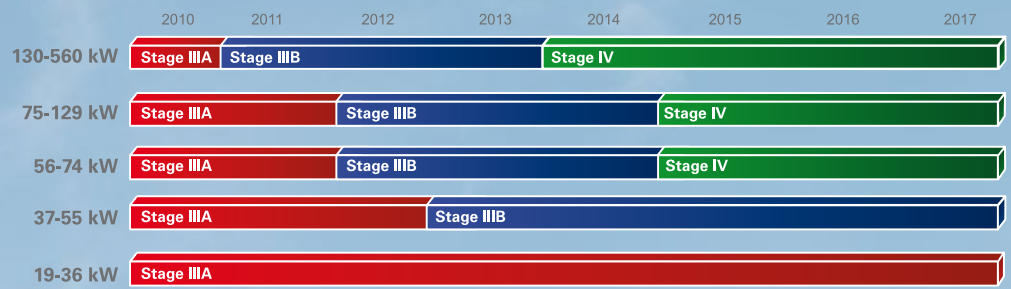
- Diesel Particulate Filters (DPF)
- Selective Catalytic Reduction (SCR)
- Active Regeneration (AR)



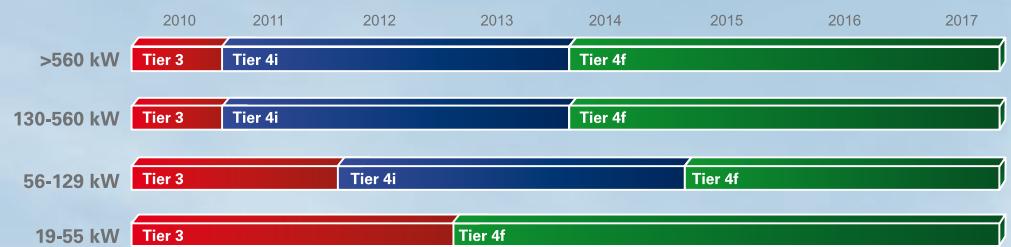
We have been supplying exhausts for non-road original equipment (OE) manufacturers including Caterpillar, Liebherr and Terex Demag since 1988. Our technologies have been used for emission control of on-road vehicles since 1997. As well as utilising our flexible cellular manufacturing capability for specialist requirements, we work with our OE partners on design, modelling, prototyping and validation.



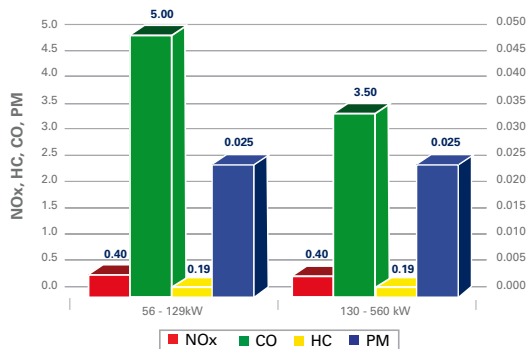
Europe: Stage Legislation



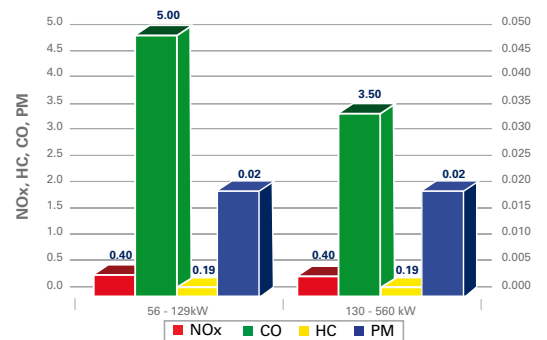
US: Tier Legislation



Non-Road Mobile Machinery Emissions Levels - Stage IV (g/kWh)



Non-Road Mobile Machinery Emissions Levels - Tier 4f (g/kWh)



Design > Prototype > Manufacture





From Integration to Complete Aftertreatment Systems



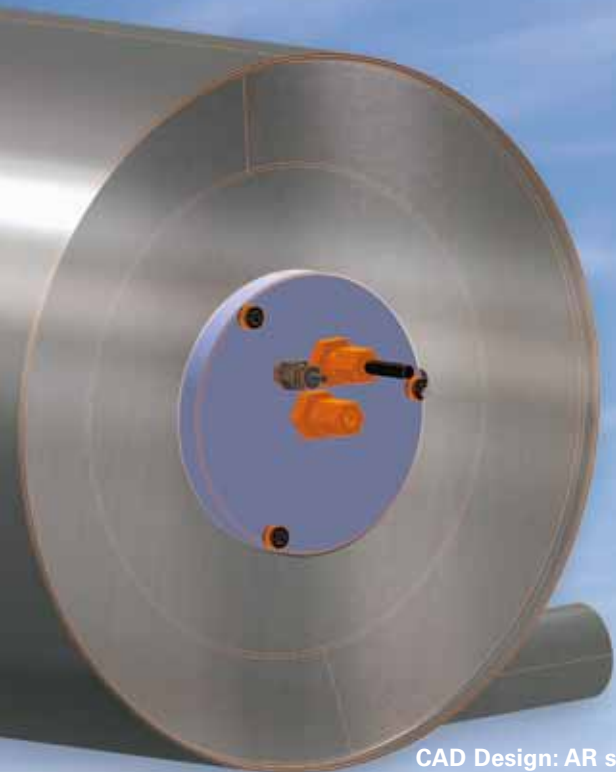
We are one of Europe's leading manufacturers of aftertreatment systems and have extensive experience of systems integration. Our expertise includes technologies for the reduction of particulate matter (PM) hydrocarbons (HC) carbon monoxide (CO) oxides of nitrogen (NOx) and how to combine them to meet the emissions requirements of Stage and Tier legislation.

Stage IIIB and Tier 4i emissions limits allow flexibility to select from a range of technologies including DPF, SCR, EGR and AR. The more demanding standards of Stage IV and Tier 4f are likely to require the combination of SCR or EGR with DPF and AR. Whatever the combination, EminoX has experience of integrating these technologies, having worked with OE manufacturers on solutions to meet advanced on-road emissions standards including Euro V.

DPF: Full flow closed filter expertise with a range of substrates including cordierite, silicon carbide and metallic substrates. After sales support with specialist filter servicing technology to maintain optimum filter performance.

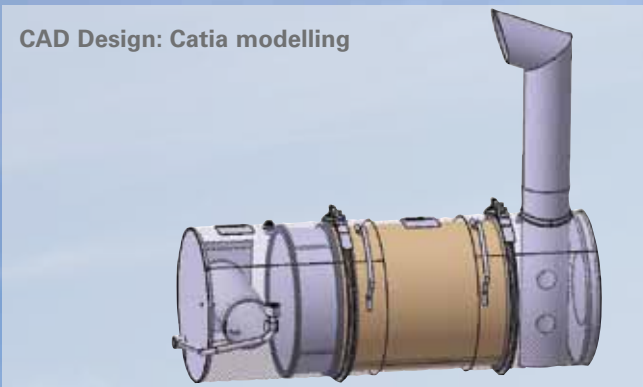
SCR: Unique space-saving mixing technology solutions for more compact systems. Specialists in dosing strategy, nozzle design and regeneration, to avoid urea deposits.

AR: Full flow burner technology for low temperature applications. Fully automated regeneration with dynamic ECU algorithm, no user intervention or impact on normal operation. Regeneration strategy to maintain low back pressure with low impact on fuel consumption.

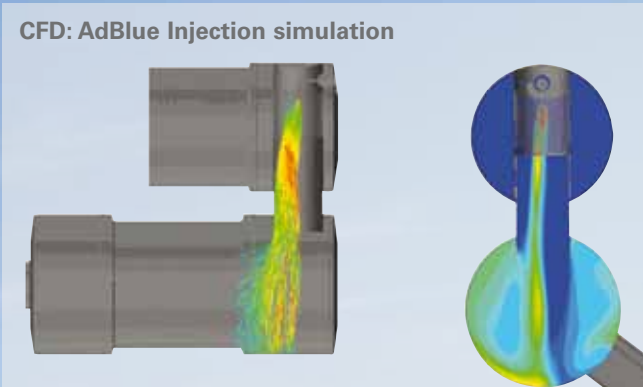


CAD Design: AR system

CAD Design: Catia modelling



CFD: AdBlue Injection simulation

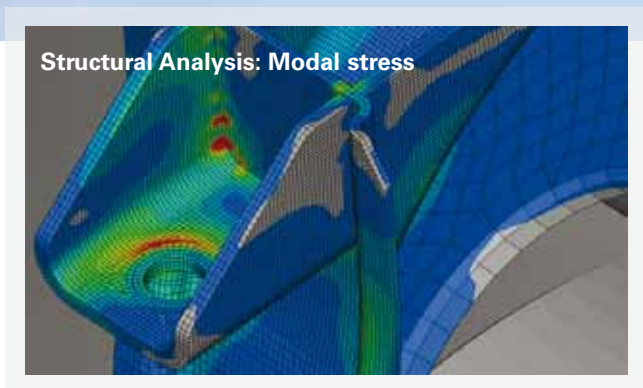


Our experience of these emissions technologies combined with our extensive applications engineering expertise allows us to deal with the most challenging systems integration requirements.

We use a range of techniques as part of our system integration and component design process, allowing us to predict air flow, back pressure, acoustics and noise attenuation. Our practical injection and mixing technology experience is supported by CFD analysis.

Combined with our rapid prototyping and testing capabilities, we can deliver a complete project from concept to supply.

Structural Analysis: Modal stress



Durability testing: Shake test rig



Retrofit

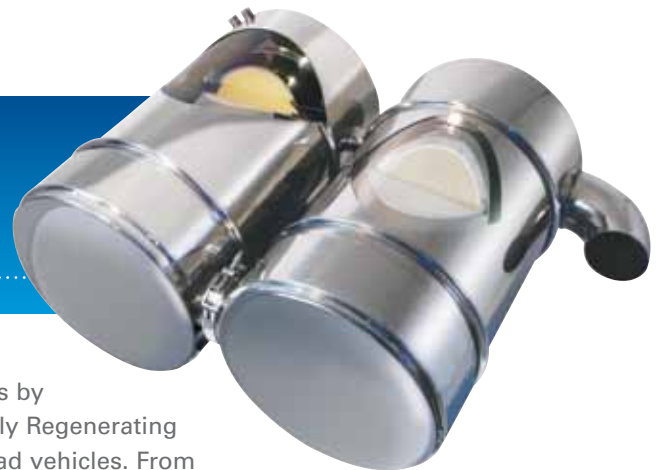


Eminox supply the retrofit market with emission control systems to meet local emissions requirements, our systems have been used extensively as part of air quality improvement programmes across Europe. The Eminox CRT® (Continuously Regenerating Trap) and FBC (Fuel Borne Catalyst) are approved for major retrofit programmes

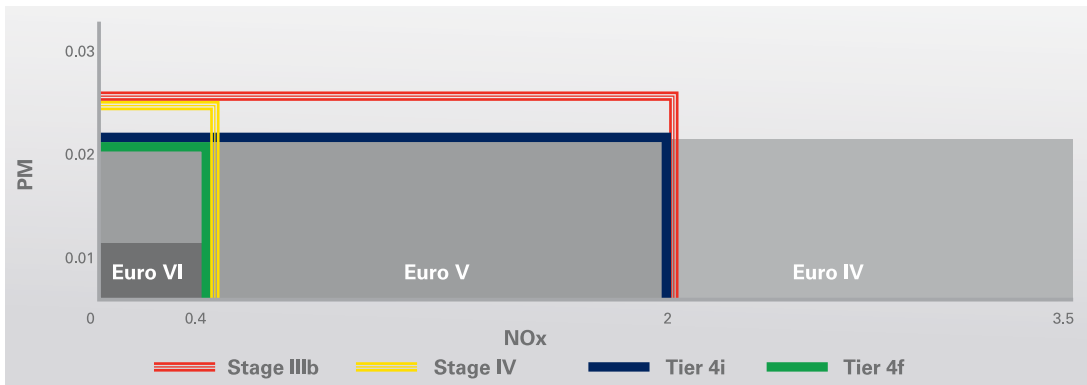


We supply complete systems, housed in robust stainless steel units, with modular construction for ease of maintenance. Electronic service indicators are supplied as standard, to monitor back pressure and provide alerts on maintenance requirements.

Original Equipment



Eminox began working with engine and vehicle manufacturers by supplying exhaust silencers, moving on to supply Continuously Regenerating Trap® (CRT) closed filters as option fit for Euro II and III on-road vehicles. From this we developed concepts for Euro IV after-treatment systems, using a combination of DPF and SCR technology. We developed a unique compact urea/exhaust gas mixer device to cope with the small space envelope found on many vehicles. These systems were also able to meet the emissions requirements of Euro V and EEV.



Eminox now works with some of Europe's leading manufacturers on complete after-treatment systems for line fit, also providing specialist components to meet individual challenges.



Doosan Moxy

Doosan Moxy, a leading manufacturer of Articulated Dump Trucks (ADT) asked EminoX to engineer a bespoke exhaust system for the MT36 / 41 ADT. By moving from standard exhaust components to a complete purpose designed system, Moxy were targeting specific improvements, including;

- Greater durability of flexible section and silencer unit.
- Improving system alignment for easier installation and maintenance.
- Vibration suppression to avoid transmission to the operators cab.
- Resistance to corrosion

The challenge was to achieve these improvements at minimum cost by working within the existing space envelope and maintaining interchangeability. The new system must also perform to strict limits on back pressure, transmission loss and acoustic performance.

EminoX used its exhaust manufacturing experience, combined with advanced modelling, prototyping and testing capabilities to develop an exhaust system meeting all of these challenges.



By re-routing the flexible section in the front pipe the length was optimised giving significant durability improvements. The two silencers and also mounting cradles were re-designed, improving adjustability in the system, almost eliminating stress and tensions. Other tension and alignment issues were reduced by replacing a single inter-pipe between the two silencers, with five adjustable components, creating adjustability on two previously fixed axis.

As well as increasing durability of key components, these changes allowed easier installation of the system, and resolved vibration issues. High grade stainless steel provides corrosion resistance.



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