

With SCR Emitec sets new standards as a full-range supplier

Road traffic accounts for almost half (47 %) of nitrogen oxide emissions in urban areas. In contrast to the issues relating to particulate matter, traffic is the main source of NO_x pollution. On 1 January 2010 the annual immission limit for nitrogen oxides was cut dramatically to improve air quality in urban areas. The limit for nitrogen dioxide (NO₂) is now as little as 40 µg/m³.

SCR technology, selective catalytic reduction, reduces nitrogen oxide emissions from passenger cars and commercial vehicles by over 90 per cent. The SCR process uses hydrolysis to produce the ammonia needed to convert the nitrogen oxides into steam and nitrogen inside the SCR catalyst. A more uniform distribution of the urea-water solution in the exhaust gas greatly improves this process. It is also important that the SCR catalyst lights off quickly after the engine has started.

EMITEC Gesellschaft für Emissionstechnologie mbH in Lohmar near Cologne has established itself on the market as a full-range supplier of exhaust aftertreatment systems with SCR. Following the takeover of the Danish/French company NoNO_x Emitec is able to deliver the right emission control systems with SCR technology for any motor vehicle (cars, trucks and non-road), stationary machinery, power stations, locomotives and ships that operate in the megawatt range. The injectors for the AdBlue ammonia solution are manufactured in-house or sourced from other suppliers. Every parameter, such as spray angle, spray width, droplet size, etc., can be adapted to the specific application.

A complete SCR system consists of an oxidation catalyst, a hydrolysis catalyst, where necessary, and an SCR catalyst to ensure compliance with future emission limits. The components are usually installed close to the engine. Due to the lack of space in the engine compartment Emitec soon focused on developing very compact systems using its turbulence-generating metal substrate profiles. These profiles break up the laminar flow inherent in smooth catalyst channels and so improve mass transport and the conversion of pollutants. The structured metal foils offer great potential for greater catalyst efficiency. Turbulence-generating metal substrate profiles also help improve the distribution of the injected urea-water solution.

Radially open perforated structures (PE designTM), longitudinal metal profiles (LS design[®]) and their combination reduce hydrocarbon (HC) and carbon monoxide (CO) emissions quickly and effectively. The two pollutants would otherwise impact on the high nitrogen dioxide ratio (NO_x/NO₂) that is essential for maximum nitrogen oxide conversion in the downstream SCR catalyst. LS and PE structures in the SCR catalyst significantly improve uniform ammonia distribution and the resulting increase in efficiency makes it possible to reduce the volume of the SCR catalysts by up to 30 per cent.

Press enquiries:

The electrically heated catalyst EMICAT can solve a number of emission problems in SCR systems by raising the exhaust gas temperatures of modern low-temperature diesel engines by up to 100 °C in passenger cars (and by a crucial 20 to 30 °C in commercial vehicles). The Emicat prevents the catalyst from cooling during the intermittent operation of diesel engines that are used in hybrid vehicles or as range extenders in electric cars. It also provides for maximum conversion rates as soon as the engine is restarted. Injecting the AdBlue urea solution directly onto the hot E-catalyst further improves the evaporation of the urea-water solution.

SCR dosing systems



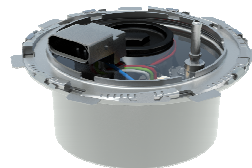
Large engines



Trucks, air-assisted



Trucks, airless

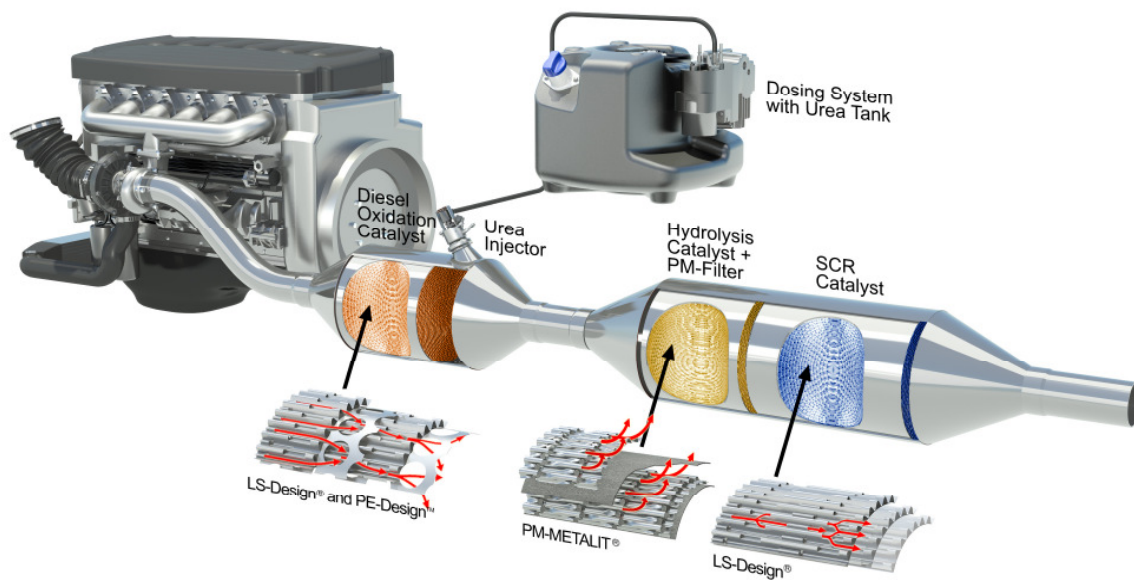


Cars

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