

Diesel Systems

Denoxtronic 6-5 – Urea Dosing System for SCR systems



BOSCH
Invented for life



Customer benefits

- ▶ Engine operation can be optimized towards fuel efficiency (fuel savings up to 5%)
- ▶ Reduction of NOx emission by up to 95%
- ▶ Contributes towards achieving CN 4/5 and BS 4/5 emission limits
- ▶ Robust design, e.g. with active cooling of the Dosing Module
- ▶ Compliance with various packaging and installation requirements due to flexible, modular design
- ▶ 12 or 24 Volt operation
- ▶ Good price-performance ratio due to specific design for requirement profiles of emerging markets

In order to restrict vehicle emissions, the emission limits are continuously being reduced worldwide. In the years to come this will also be the case in the emerging markets. To comply with the new emission legislation (e.g. CN 4 from mid 2013) all vehicle classes will require active exhaust-gas treatment. This is why Bosch has developed a urea dosing system for application in commercial vehicles which has been specifically designed for the requirement profiles of these markets: the Denoxtronic 6-5.

Functional principle

The Denoxtronic injects AdBlue/DEF, a solution of 32.5% urea in water, into the exhaust stream upstream of the SCR catalytic converter. The urea is then converted via thermolysis and hydrolysis into ammonia. Inside the SCR catalytic converter, the ammonia then reduces the nitrogen oxides (NOx) into harmless water and nitrogen.

The Dosing Module which is actively cooled by engine coolant, precisely meters the required amount of AdBlue/DEF and atomizes it into the exhaust stream.

Control of the dosing and heating strategy as well as on-board diagnosis are preferably implemented in the engine control unit or optionally in a Dosing Control Unit. By processing the ongoing engine operation data and all required sensor data, the AdBlue/DEF volume is precisely adapted to engine operation point and catalytic-converter specific requirements to reach maximum hydrogen conversion. The system is either closed-loop or open-loop controlled.

The Supply Module is available with or without electric heating. The module sucks the AdBlue/DEF out of the tank and compresses it to the pressure required for atomization. As the AdBlue/DEF freezes at temperatures below -11°C, the compact Supply Module is robust against ice pressure and the Dosing Module is emptied at engine switch-off.

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Denoxtronic 6-5 - SCR尿素喷射系统



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博世 科技成就生活之美



用户获益

- ▶ 可优化发动机性能，降低发动机比油耗（降低5%的油耗）
- ▶ 氮氧化物排放减少达95%
- ▶ 可满足国四，国五，BS 4/5排放标准
- ▶ 基于鲁棒性的设计，如喷射单元主动冷却
- ▶ 模块化设计适用于各类组合和安装需求
- ▶ 提供12和24伏两种规格
- ▶ 针对新兴市场专门研发的高性价比产品

为了降低车辆的尾气排放，全球的排放标准日趋严格。在新兴市场未来的几年中亦是如此。为了满足新的排放法规的要求，例如2013年中开始实施的国四排放标准，车辆必须装配主动式的尾气后处理系统。因此，博世针对这些新兴市场的需求专门研发了商用车用尿素喷射系统：Denoxtronic 6-5。

工作原理

Denoxtronic系统在选择性催化转换器的上游将浓度为32.5%的尿素水溶液直接喷入尾气中，在高温尾气的作用下尿素发生热解和水解反应转换成氨气，这些生成的氨气在催化器中与发动机中排出的氮氧化物发生氧化还原反应，最终转化为无害的氨气和水。

喷射单元经过发动机水冷却后，定量将经过雾化的尿素水溶液喷射到尾气中。

尿素水溶液定量喷射、加热解冻以及车载在线诊断OBD功能，由集成在柴油机电控单元ECU中的软件模块来控制，或者由独立的喷射控制单元(DCU)控制。系统软件通过分析发动机的运行工况及传感器输入的信息来准确调控尿素喷射量，使得喷射策略适应发动机运行工况的需要，并最大限度地发挥催化器的转换效率，实现更低的排放。系统控制策略分开环和闭环两种。

供给单元可根据实际需要选择电加热或不加热两种。供给单元将尿素箱中吸出的尿素水溶液加压到雾化所需的压力水平。供给单元坚固耐用，即使在零下11度结冰的情况下未排空的供给单元仍具有抗冻功能。发动机熄火后，系统会把喷射单元里的尿素水溶液排空。

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