Exhaust-gas treatment

Denoxtronic 5 – dosing system for AdBlue® in SCR systems

BOSCH
Invented for life

PRODUCT BENEFITS

- Support for meeting emission standards (Euro 6 and Tier 2 Bin 5)
- Diesel engine operation optimized for fuel efficiency
- Business model adapted to established fuel business model
- Highly economical due to standardized supply module
- Less installation space needed, robust design

1. AdBlue® supply module SM 5.1 with delivery module
2. AdBlue® dosing module: air cooled DM 3.2
3. AdBlue® dosing module: water cooled DM 3.4
4. Dosing control unit (DCU) with SCR functions

up to

–95 % NO_x

contribution to the reduction of nitrogen oxide emissions with a conversion rate of up to 95 %

TASK

The Denoxtronic dosing system injects AdBlue®, a solution of 32.5 % urea in water, into the exhaust-gas flow. The urea is then converted via thermolysis and hydrolysis into ammonia, which in turn breaks down the nitrogen oxides in the exhaust into water and nitrogen.

FUNCTION

A supply module draws the AdBlue® from a tank using a diaphragm pump and compresses it to the system pressure of 4.5 to 8.5 bar required for atomization. The dosing module calculates the optimum quantity of AdBlue® based on engine operating and sensor data in order to reduce the NO_x efficiently. Once the quantity has been calculated, the dosing module adds the atomized urea solution into the exhaust-gas flow upstream of the SCR catalytic converter. A dosing or engine control unit controls the dosing and heating strategy and handles on-board diagnostics. Maximum nitrogen oxide reduction can be achieved by means of precise operating data and adapting to the specific catalytic-converter requirements. Because the AdBlue® solution freezes below –11 °C, the supply module in the AdBlue® tank is ice-pressure resistant. The dosing module is emptied when the engine is switched off.

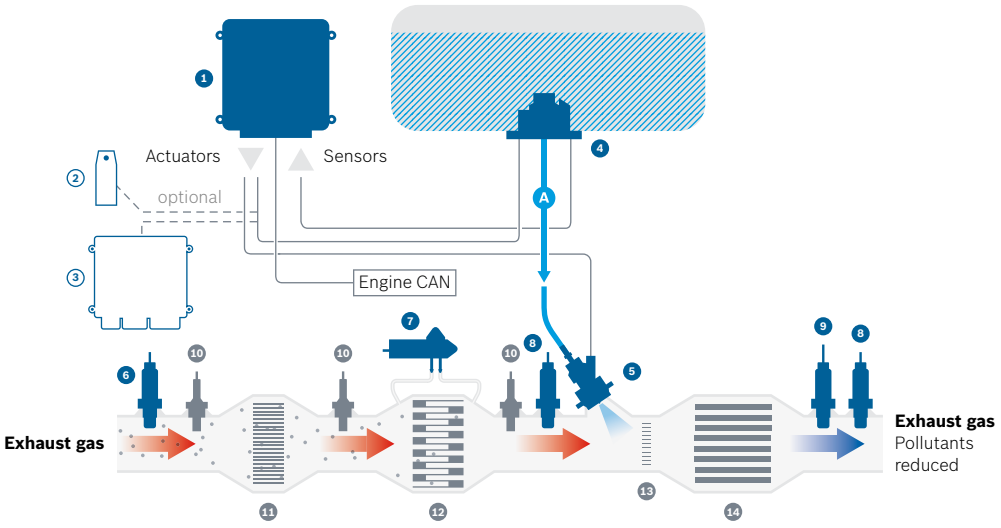
VARIANTS

The lineup includes a standardized supply module for cars (SM 5.1) and light-duty commercial vehicles (SM 5.2). The supply module is welded to the AdBlue® tank via a standardized mechanical interface. SCR control is handled by either the dosing control unit (DCU) or an engine control unit (with HCU-PC or GCU). Delivery includes dosing modules for use in the underbody (air cooled, DM 3.2) or in the engine compartment (water cooled, DM 3.4).

TECHNICAL CHARACTERISTICS

Dosing quantity min./max.	200/2,000 g/h
Operating pressure	4.5 – 8.5 bar
Spray quality	100 µm SMD (Sauter Mean Diameter)
Spray angle	10° – 23°
Filter retention capacity	PC: 8 g, LD: 26 g
Service life	8,000 h
Operating voltage	12 V
Bosch control unit	MDG1 or DCU
Heater control	HCU-PC or integrated in DCU
Emission standards	Euro 6 and Tier 2 Bin 5

Exhaust-gas treatment
Denoxtronic (PC/LD) and exhaust-gas sensors



Bosch components

1. Dosing control unit/ electronic engine control unit
2. Optional with engine control unit: heater control unit
3. Optional with engine control unit: glow control unit
4. Supply module
5. Dosing module
6. Lambda sensor
7. Differential pressure sensor
8. NO_x sensor
9. Particulate matter sensor

Other components

10. Temperature sensor
11. Oxidation catalytic converter (optional: NO_x storage catalyst)
12. Diesel particulate filter
13. Mixer
14. SCR catalytic converter

A AdBlue®

Electrical connection

Heat/cold

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