Exhaust gas treatment
Denoxtronic 5 – dosing system for AdBlue® in SCR systems

Product benefits
- Support for meeting today's and future emission standards (LEV II, III, EU6)
- 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

Vehicle segments

1. AdBlue® supply module SM 5 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
**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 NOx 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 module which 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).

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**Technical characteristics**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosing quantity min./max.</td>
<td>200/2,000 g/h</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>4.5 – 8.5 bar</td>
</tr>
<tr>
<td>Spray quality</td>
<td>100 μm SMD (Sauter Mean Diameter)</td>
</tr>
<tr>
<td>Spray angle</td>
<td>10° – 23°</td>
</tr>
<tr>
<td>Filter retention capacity</td>
<td>Pkw: 8 g, LD: 26 g</td>
</tr>
<tr>
<td>Service life</td>
<td>8,000 h</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>12 V</td>
</tr>
<tr>
<td>Bosch control unit</td>
<td>MDG1 or DCU</td>
</tr>
<tr>
<td>Heater control</td>
<td>HCU-PC or integrated in DCU</td>
</tr>
<tr>
<td>Emission standards</td>
<td>LEV II, III, EU6</td>
</tr>
</tbody>
</table>

**Bosch components**

- Dosing control unit DCU/electronic engine control unit MDG1
- Optional with MDG1: heater control unit HCU-PC
- Optional with MDG1: glow control unit GCU
- Supply module SM 5.1 (PC)/SM 5.2 (LD)
- Dosing module DM 3.2/DM 3.4
- Lambda sensor
- Differential pressure sensor
- NOx sensor
- Particulate matter sensor

**Other components**

- Temperature sensor
- Oxidation catalytic converter (optional: NOx storage catalyst)
- Diesel particulate filter
- Mixer
- SCR catalytic converter
- AdBlue®
- Electrical connection
- Heat/cold