
BOSCH
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EASE OF USE
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Better performance
for the workshop
Diagnosis and replacement made easy –
The comprehensive range of services for
exhaust-gas treament

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Easy to test and replace
Denoxtronic from Bosch

Bosch offers a wide range of services for the diagnostics and maintenance of the Denoxtronic exhaust-gas treatment system. The market for the exhaust-gas treatment of diesel vehicles is continuously growing – and this means huge **potential** for workshops. As a systems developer, Bosch draws upon its many years of experience and **expertise** in this area. We offer the most suitable solutions for the entire **process** – from diagnostics and parts to replacement and training.

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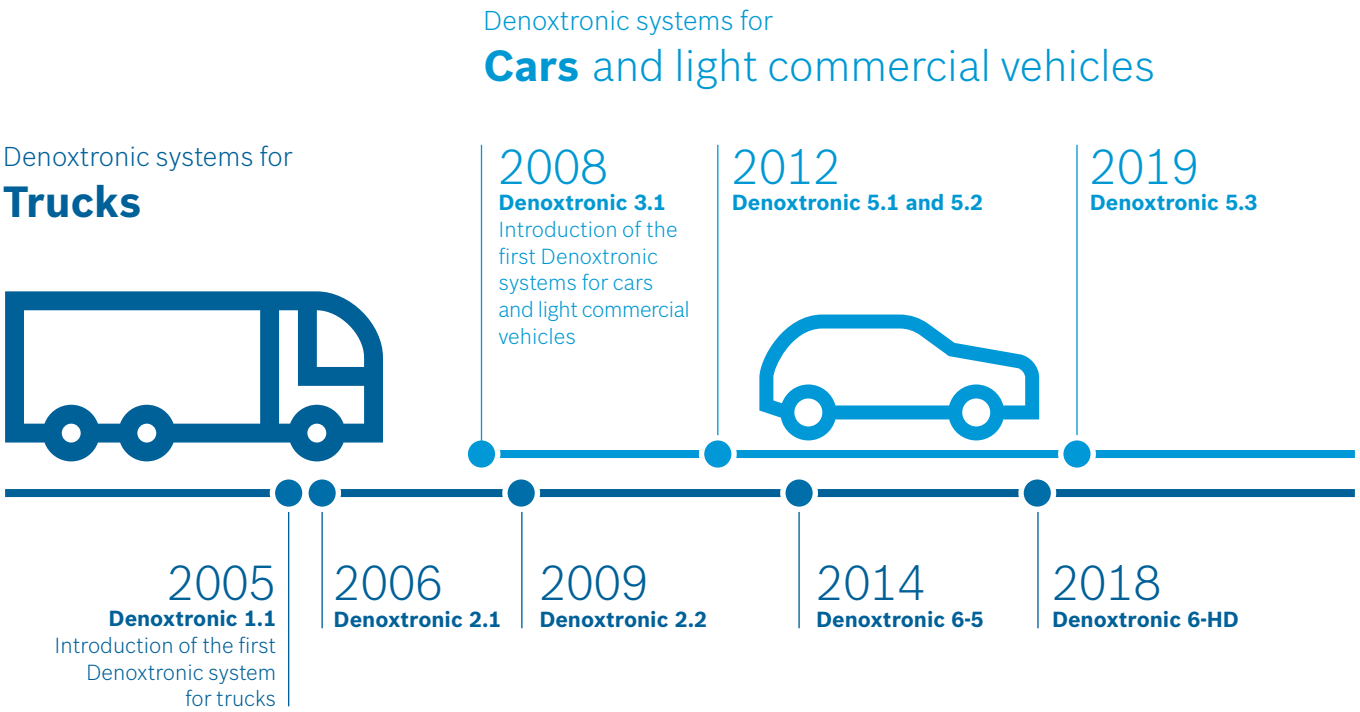
Exhaust-gas treatment
Denoxtronic from Bosch

Since the production of the first diesel truck in 1924, and the first diesel car in 1936, Bosch has been one of the world's leading providers of diesel technology. The exhaust-gas treatment and dosing system, Denoxtronic, is being used in a larger number of diesel vehicles than ever before. Therefore, it is growing in importance, and thus potential, for the workshop. The system injects an aqueous urea solution (AdBlue) into the exhaust stream and, in combination with the SCR catalytic converter, converts harmful nitrogen oxides (NO_x) into water and nitrogen.



Know-how since 2005
In addition to Denoxtronic for commercial vehicles, there is also Denoxtronic for cars and light commercial vehicles, which has been available since 2008. Today, Bosch Denoxtronic systems are built into cars and light commercial vehicles around the world. In 2012, the second generation of Denoxtronic came onto the market and will continue to grow in the future. Since the introduction of the European exhaust-gas standards 4 and 5, the number of vehicles that are equipped with Denoxtronic has been increasing steadily. An increasing number of vehicle manufacturers are using the Bosch system to ensure that high performance diesel vehicles are compliant with emission limits.

Advantages at a glance

- **Reduction of NO_x emissions** ensure that vehicles are in compliance with applicable emissions standards
- **Fuel-saving engine design**
- **Proven, robust technology**

Exhaust-gas treatment
Market trends and potential

The comprehensive service program from Bosch offers every workshop a high degree of flexibility and the opportunity to serve the growing market – even without expert knowledge.

Growing demand for services
Many vehicles with Denoxtronic already have high mileage. As a result, the demand for services and cost-effective maintenance work for the system is increasing. Bosch has developed service solutions for this growing market: simple testing of the components according to manufacturers' specifications, replacement of defective modules and final testing to verify functionality. Bosch provides a one-stop solution for everything: equipment, tools and the software that are required for efficient and time-saving service. In this way, every workshop can carry out comprehensive diagnostics and maintenance on the Denoxtronic components.

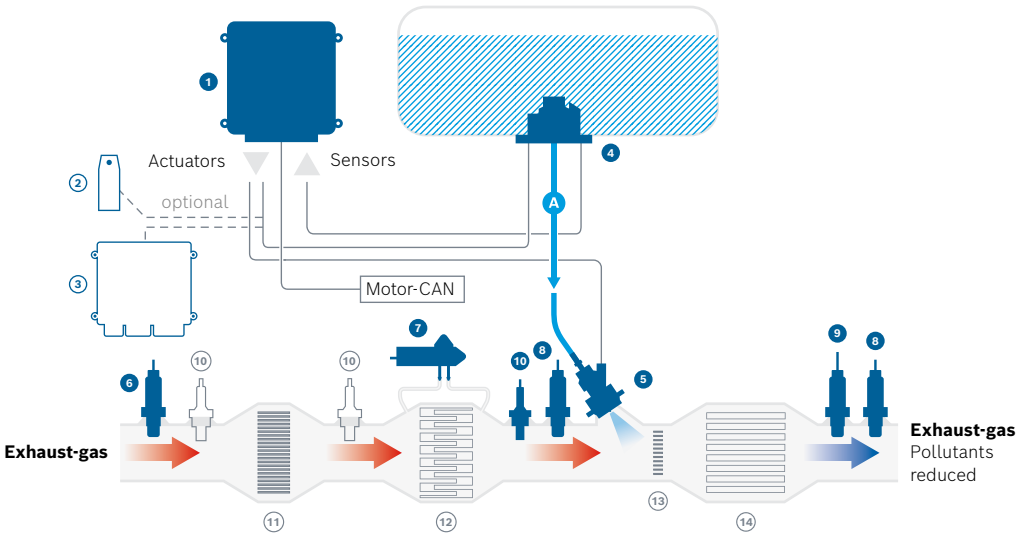
Did you know?

Approximately
14 Million
Denoxtronic systems are built into cars and light commercial vehicles around the world.

Denoxtronic operating principle
Technology

Denoxtronic is a precise dosing system for the reducing agent AdBlue and is used in conjunction with a nitrogen oxide catalytic converter (SCR = Selective Catalytic Reduction). During combustion in the engine, nitrogen oxides are produced and, for the most part, converted into water and nitrogen through the reaction with AdBlue.

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



Bosch components
1. Dosing control unit
2. Optional with engine control unit: heating control unit
3. Optional with engine control unit: glow-time control unit
4. Supply module
5. Dosing module
6. Lambda sensor
7. Differential pressure sensor
8. NO_x sensor
9. Particle sensor
10. Exhaust-gas temperature sensor

Further components
11. Oxidation catalyst (optional: NO_x-storage catalyst)
12. Diesel particle filter
13. Mixer
14. SCR catalyst

A AdBlue
Electrical connection
Hot/cold

During the exhaust-gas treatment, a selective catalytic reduction of nitrogen oxides (NO_x) takes place. The process is based on the fact that a reducing agent combined with oxygen reduces nitrogen oxides.

A urea-water solution is used as a reducing agent in vehicle applications. The urea-water solution is known under the name **AdBlue.** The AdBlue dosing system from Bosch, called Denoxtronic, is a modular system. It ensures the exact measurement and distribution of the reducing agent AdBlue.

Denoxtronic consists of the **dosing control unit** 1, the **supply module** 4 and the **dosing module** 5.

The supply module brings AdBlue to the required pressure and feeds it to the dosing module. The dosing module ensures the precise quantity of AdBlue is atomized and injected into the exhaust stream. The intermediate dosing control unit calculates the required amount.

Denoxtronic service offer
Overview

Thanks to many years of experience and expertise in original equipment, Bosch also offers the aftermarket a wide range of efficient diagnostic, replacement and service solutions for all aspects of exhaust-gas treatment. This enables the workshop to carry out service easily and efficiently through precise diagnosis and clear identification of defective components as well as the rapid replacement of Denoxtronic modules.

Did you know?

Nitrogen oxides can be reduced even more effectively and efficiently through further development towards double dosing: Depending on the driving situation, urea is injected into a catalytic converter either close to or far from the engine.

A video about the exhaust-gas treatment can be found here:

Denoxtronic diagnosis
Program & product details

Using the Denoxtronic PC/LD test kit and a diagnostics device, e.g. KTS series from Bosch, the components of the Bosch Denoxtronic exhaust-gas treatment system are tested directly on the car or light commercial vehicle. Thanks to the clear identification of the defective component, a suitable solution can be found quickly.

Denoxtronic PC/LD test kit
0 986 613 900

Advantages at a glance

- **Targeted and professional testing** of Denoxtronic components directly on the vehicle saves time and enables solutions to be found quickly
- **Extensive test options** are covered and the functional tests provided by the vehicle manufacturer are supported
- **Easy use and application:** suitable for every workshop, not only for diesel experts

Workshop tip

The comprehensive **diagnostics solutions** (KTS 560, KTS 590 and ESI[tronic]) from Bosch make it possible to achieve a targeted and fast diagnosis of the Denoxtronic components.

Denoxtronic diagnosis
Program & product details

Testing made easy
The diagnosis of the system is performed with a diagnostics tester (e.g. KTS 560, KTS 590 and the workshop software ESI[tronic]). In order to identify hydraulic, pneumatic or mechanical faults in the system, it is also necessary to have an off-board diagnostic test kit. For this purpose Bosch provides Denoxtronic test kits. These support functional tests such as draining the Adblue system, bleeding the system and circuit leak tests, dosing quantity measurement, pressure build up and dosing spray pattern tests. The kit includes a range of adapters and fittings to enable the functional tests listed above.

Areas of application*

The following models can be tested using the PC/LD test kit

Audi	A3 1.6 TDI, A3 2.0 TDI, A3 30 TDI, A3 40 TDI, Q2 1.6 TDI, Q2 2.0 TDI, Q3 2.0 TDI
BMW	316d, 318 d, 320 2.0 d, 320 d, 325 d, 418 d, 420 d, 425 d, 430 d, 435 d, 520 d, 525 d, 530 d, 535 d, 725 d, 725 ld, 730 d, 730 ld, 740 d, 740 ld, 750 d, 750 ld, M 550 d, X 5 M 50 d, X 5 sDrive 25 d, X 5 xDrive 25d, X 5, xDrive 30 d, X 5 xDrive 40 d, X 6 M 50 d, X 6 xDrive 30 d, X 6 xDrive 40 d, xDrive 35 d
Fiat	Ducato 130 Multijet, Ducato 150 Ecojet
Hyundai	H 350, Solati 2.5
Mercedes-Benz	109 CDI, 111 CDI, 114 CDI, 116 CDI, 119 CDI, 210 CDI Sprinter, 213 CDI Sprinter, 216 CDI Sprinter, 219 CDI Sprinter, 310 CDI Sprinter, 313 CDI Sprinter, 316 CDI Sprinter, 319 CDI Sprinter, 350 CDI Sprinter BlueEfficiency, 413 CDI Sprinter, 416 CDI Sprinter, 419 CDI Sprinter, 510 CDI Sprinter, 513 CDI Sprinter, 516 CDI Sprinter, 519 CDI Sprinter, C 300d T-Modell, E 200 BlueTec, E 220 BlueTec, E250 BlueTec, E 300 BlueTec, E 300 d, E 350 BlueTec, GL 350 BlueTec, GLS 350 d, ML 250, ML 250 BlueTec, ML 350, ML 350 BlueTec, Sprinter 2500, Sprinter 3500
Renault	Alaskan 2.3 Dci, Master III 2.3 Dci, Megane IV 1.6 Dci, Talisman 1.6 Dci, Trafic III 1.6 Dci
Seat	Alhambra 2.0 TDI, Arona 1.6 TDI, Ateca 1.6 TDI, Ateca 2.0 TDI, Ibiza 1.6 TDI, Leon 1.6 TDI, Leon SC 1.6 TDI, Leon SC 2.0 TDI, Leon ST 2.0 TDI
Skoda	Karoq 2.0 TDI, Kodiaq 2.0 TDI, Superb 1.6 TDI, Superb 2.0 TDI, Yeti 2.0 TDI
Volkswagen	Amarok 2.0 TDI, Amarok 3.0 TDI, Arteon 2.0 TDI, Beetle 2.0 TDI, Caddy 1.6 TDI, Caddy 2.0 TDI, California T6 2.0 TDI, Caravelle T6 2.0 TDI, Crafter 30 2.0 BiTDI, Crafter 30 2.0 TDI, Crafter 35 2.0 BiTDI, Crafter 35 2.0 TDI, Crafter 50 2.0 Bi TDI, Crafter 50 2.0 TDI, Golf 2.0 GTD, Golf 2.0 TDI, Golf Sportsvan 1.6 TDI, Golf Sportsvan 2.0 TDI, Golf VII, Multivan T6 2.0 TDI, Passat 1.6 TDI, Passat 2.0 TDI, Polo 1.6 TDI, Sharan 2.0 TDI, Tiguan 1.6 TDI, Tiguan 2.0 TDI, Tiguan Allspace 2.0 TDI, Touran 1.6 TDI, Touran 2.0 TDI, Transporter T 6 2.0 TDI, T-Roc 2.0 TDI

* The areas of application are dependent on the vehicle manufacturer and diagnostics device. Please inquire from your wholesaler.

Denoxtronic 3.1 components
Program & product details

Supply module kit 3.1*

The **supply module** brings the AdBlue to the required pressure and feeds it to the dosing module.

Heating pot kit 3.1*

The **heating pot kit** contains the tank heater, for thawing the AdBlue at negative temperatures, and the level sensor. In addition, it is equipped with a maintenance-free filter.

Dosing module 3.1/3.2

The **dosing module** ensures the precise quantity of AdBlue is atomized and injected into the exhaust stream.

* In the case of Denoxtronic 3.1, the **supply module** is positioned on the AdBlue tank, tank maintenance can be carried out since the **heating pot kit** and **supply module** are replaceable.

Advantages at a glance

- **Reduction of the NO_x emissions** ensure that vehicles are in compliance with applicable emissions standards
- **Proven, robust technology** for long service life
- **Plug-and-play solution** for quick and easy replacement of the modules

Did you know?

Bosch Denoxtronic filters

are “lifetime products”, i.e. they are integrated in the Denoxtronic module and cannot be changed; during the vehicle's service life, as defined by the manufacturer, they reliably remove particles from the AdBlue and thus support optimal dosing.

Denoxtronic 5.x components
Program & product details

Pump kit 5.x

The **pump** brings AdBlue to the required pressure and feeds it to the dosing module.

Supply module 5.x

The **supply module** brings AdBlue to the required pressure and feeds it to the dosing module. It contains the tank heater for thawing of the AdBlue at negative temperatures and the level sensor. In addition, it is equipped with a maintenance-free filter.

Dosing module 3.1/3.2 | **Dosing module 3.3** | **Dosing module 3.4** | **Dosing module 3.5** | **Dosing module 3.6**

The **dosing module** ensures the precise quantity of AdBlue is atomized and injected into the exhaust stream. In the Bosch Portfolio there are both air as well as water-cooled dosing modules.

Advantages at a glance

- **Reduction of the NO_x emissions** ensure that vehicles are in compliance with applicable emissions standards
- **Proven, robust technology** for long service life
- **Plug-and-play solution** for quick and easy replacement of the modules

Did you know?

With the **Denoxtronic 5.x**, the supply module is located under the AdBlue tank and this is where the pump can be replaced separately.

Exhaust-gas sensors
Program & product details

Lambda probe
Lambda probes measure the oxygen content in the exhaust-gas and provide the necessary information for the optimal air-fuel mixture to the engine control unit. They thereby support a clean combustion to ensure that emissions standards are complied with.

Particle sensor
Particle sensors make it possible to safely monitor the diesel particle filter and thereby support the reduction of the particle emissions.

NO_x sensor
NO_x sensors measure the nitrogen oxide content in the exhaust-gas and provide assistance in ensuring reliable regulation and monitoring of the NO_x reduction.

Exhaust temperature sensor
Exhaust-gas temperature sensors monitor the optimum temperature window and protect valuable components such as turbochargers, catalytic converters and diesel particle filters in the hot exhaust system. In this way they ensure ideal regulation behaviour of the exhaust-gas cleaning components.

Differential pressure sensor
Differential pressure sensors monitor the pressure difference of the particle filter and provide information about their loading condition. This makes demand-controlled particle filter regeneration possible.

The advantages at a glance

- **Functionality and quality tests according to the same standards as those applicable to the original equipment:** for high performance and reliability over a long service life
- **Reliable signal output:** to ensure compliance with the current exhaust-gas standards
- **High-quality materials and robust design:** for excellent temperature and corrosion resistance in the demanding area around the exhaust-gas tract
- **Trouble-free installation:** saves time and increases the efficiency of the workshop

Denoxtronic in the workshop
Overview

Learn more about servicing Denoxtronic on passenger cars and light commercial vehicles

Workshop tip

Before servicing the tank, the AdBlue must be drained completely. It must then be refilled with fresh AdBlue.

Did you know?

With the Denoxtronic PC/LD test kit and a diagnostic tester, different function tests (depending on vehicle manufacturer specifications) can be carried out with built-in components, e.g.:

- Pressure test
- Dosing quantity tests
- AdBlue quality tests (composition and contamination)
- Spray pattern test

Denoxtronic service tool
Program & product details

With Denoxtronic 3.1, the heating pot is installed firmly with the tank unit. For the removal of defective heating pots, and the replacement or installation of new heating pot kits, workshops require special service tools. With the Denoxtronic 3.1 tool set, the defective components can be replaced effectively.

Denoxtronic 3.x tool set
0 986 610 680

Workshop tip

The “Bosch Denoxtronic work bench” is suitable for all **maintenance work** on components of Denoxtronic systems in cars and commercial vehicles. It combines practical design with the necessary safety features, ensuring professional and appropriate work with a high degree of efficiency.

Technical training
Overview

For workshops, trained employees are a great asset because vehicles today are increasingly complex and new technologies also present new challenges. Only with the necessary expertise, is it possible for workshop employees to carry out diagnosis, maintenance, and service work on current vehicle models efficiently and cost-effectively.

Training content and goals
In the special diesel technology and the exhaust-gas treatment system training courses, technicians are taught the professional testing of components and systems using KTS and ESI[tronic] in conjunction with the Denoxtronic test kit. In this way, a targeted and fast diagnosis/ troubleshooting of the vehicle can be learned. The aim is to achieve independent troubleshooting as well as repair and maintenance of modern exhaust-gas treatment in cars.

30 Training center
around the world

4920 training courses
with 74600 participants worldwide in 2018

540 practical training courses
on various disciplines available

109 Courses
relating to diesel and exhaust-gas treatment

Information on current training can be found at:
boschaftermarket.com

What drives you, drives us

Bosch technologies are used worldwide in almost all vehicles. People, and assuring their mobility, is what we are focused on.

Therefore, we have dedicated over 130 years of pioneering spirit and expertise in research and manufacturing to achieving this.

We continue to work on our unique combination of solutions for spare parts, diagnostics and workshop services:

- Solutions for efficient and effective vehicle repairs
- Innovative workshop equipment and software
- The world's most comprehensive range of new and exchange parts
- Large network of wholesale customers, for quick and reliable parts supply
- Competent technical support
- Comprehensive educational and training offers
- Targeted sales and marketing support

Find out more at: boschaftermarket.com

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