Driven by EXPERIENCE

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Denoxtronic 2

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Denoxtronic diagnosis, replacement and service for experts – The comprehensive range of services for exhaust gas treatment

BOSCH

Invented for life



Exhaust gas treatment Denoxtronic from Bosch

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Professional Testing And Replacement Denoxtronic from Bosch

Bosch offers a wide range of services for the diagnosis and maintenance of the Denoxtronic exhaust-gas treatment system. The market for the exhaust gas treatment of diesel vehicles is growing continuously – 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 manufacture 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. Denoxtronic – the exhaust-gas treatment and dosing system that is being used in the majority of diesel vehicles, has great significance, and thus potential, for workshops. 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

These days, Bosch Denoxtronic systems are built in to commercial vehicles around the world. In 2005, the first Denoxtronic System for trucks was introduced. Since then Denoxtronic has been continuously developed to help to fullfill the stringent emission standards. 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 diesel performance vehicles are in compliance with emission limits.

Advantages at a glance

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

Exhaust Gas Treatment Market Trends & Potential

The comprehensive service program from Bosch offers diesel experts a high degree of flexibility and the opportunity to serve this important market.



Huge demand for service

A large number of trucks, construction vehicles and agricultural vehicles, as well as stationary systems (generators) are equipped with Denoxtronic. Numerous vehicles already have high mileages. This also increases the demand for services and cost-effective system repairs. To cater to the needs of this diverse market, Bosch has developed a service program for its aftermarket. Bosch provides everything from a single source: equipment, tools and the software that are required for efficient and time-saving service. Regardless of whether it is the replacement of defective modules or simply a routine change of filter which is required - every workshop can carry out comprehensive diagnostics and replacements of the Denoxtronic components. Due to the increasingly strict emissions standards, Denoxtronic systems will continue to be an important part of exhaust-gas treatment in the future.

? Did you know?

Approximately 12 Million

Denoxtronic systems are built in to commercial vehicles as well as construction and agricultural vehicles around the world.

Market trends and potential | Exhaust-gas treatment

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.

Bosch components Denoxtronic exhaust-gas treatment and sensors (e.g. for Denoxtronic 2.2) Denoxtronic: Dosing control unit / Electronic engine control unit Supply module Oenoxtronic filter 0 4 Dosing module 2 5 NO_x sensor 6 Particulate matter sensor Actuators Differential pressure sensor Sensors Diesel injection unit Diesel metering unit with 9 shut-off valve 10 Exhaust-gas temperature Engine CAN sensor Other components AdBlue tank ① Oxidation catalyst 13 Coated diesel particulate filter Exhaust-gas Mixer Reduced 15 SCR catalytic converter with pollutants ammonia slip catalyst 1 Ð Æ ß AdBlue 🖸 Diesel Electrical connection

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**, the **supply module** and the **dosing module**.

Hot

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.



Cleanliness is important!

Leaks can cause AdBlue to creep and crystallise in the air due to its low viscosity. A clean, separate work surface prevents the risk of leaks, e.g. via o-rings or seals.





AdBlue is a watery urea solution composed of up to 32.5% urea and up to 67.5% demineralized water. Due to its high water content, AdBlue freezes and expands at just



Denoxtronic Diagnosis Programme & Product Details



ESI[tronic] Evolution + KTS Truck an unbeatable team

ESI[tronic] Evolution Truck software, with OHW 1, OHW 2 and OHW 3 packages, together with KTS Truck, a modular diagnostics device for commercial vehicle and off-highway applications, make it possible to carry out extensive vehicle diagnostics on commercial vehicles, trailers, buses, agricultural vehicles, construction vehicles, engines and material handling equipment.

A Denoxtronic service or repair begins with the vehicle diagnosis by means of a KTS Truck and ESI[tronic] Evolution Truck or OHW. In many cases, the faulty component can be clearly identified at this stage.

Special accessories



(*) Depending on the equipment level in the workshop and the vehicle manufacturer and/or vehicle type, further optional accessories may be required. Contact your specialist wholesaler to discuss your specific needs.

Denoxtronic Components Programme & Product Details

	Denoxtronic 1.1	Denoxtronic 2.1
System pressure	3.8 bar	5.0 bar
Operating voltage	24V	24V
Maximum dosage amount	9 kg/h	9 kg/h
Applications	₽	G





	Supply module 1.1	Supply module 2.1				
Description	The supply module brings the AdBlue to the required pressure and feeds it to the dosing module.					
DCU	integrated	integrated				
Heating	electric	electric				





	Dosing module 1.1	Dosing module 2.1				
Description	The dosing module ensures the precise quantity of AdBlue is atomized and injected into the exhaust stream.					
Water chiller	No water chiller required (separate spray head provided)	through AdBlue circuit				

Advantages at a glance

- Support for compliance with the emission standards through reduction of the NO_x emissions
- Long service life thanks to proven, robust technology
- Efficient solutions for fast and easy replacement of the modules in the service



Bosch eXchange

offers an attractive option for fast and efficient vehicle repairs with its comprehensive replacement program. It comes with the same warranty as the Bosch new product range. The Denoxtronic 1.1, 2.1 and 2.2 supply modules are also available as Bosch eXchange products.

Denoxtronic Components Programme & Product Details

Denoxtronic 2.2	Denoxtronic 6-5	Denoxtronic 6-HD
9.0 bar	5.0 bar	9.0 bar
12V or 24V	12V or 24V	12V or 24V
12 kg/h	5.4 kg/h	15 kg/h







Supply module 2.2	Supply module 6-5	Supply module 6-HD						
The supply module brings the AdBlue to the required pressure and feeds it to the dosing module.								
not integrated	not integrated	not integrated						
electric or through cooling water circuit	electric	electric or through cooling water circuit						







Dosing module 2.2/2.5

Dosing module 2.2/2.5 The dosing module ensures the precise quantity of AdBlue is atomized and injected into the exhaust stream.

through cooling water circuit	through cooling water circuit	through cooling water circuit			

Advantages at a glance

- Support for compliance with the emission standards through reduction of the NO_x emissions
- **Long service life** thanks to proven, robust technology
- **Efficient solutions** for fast and easy replacement of the modules in the service



Dosing module 2.6

The replacement of the Denoxtronic filter is a maintenance measure that should be carried out regularly. In this way, compliance with the legally required emissions standards is ensured. The replacement interval is determined by the vehicle manufacturer and can be found in the ESI[tronic] maintenance schedule.

Denoxtronic Filters Programme & Product Details

Bosch Denoxtronic filters protect the Denoxtronic injection system in commercial vehicles and off-highway vehicles. They reliably remove particles from AdBlue thus contributing to optimum dosing.



Advantages at a glance

- High particle separation rate due to microporous filter medium with special impregnation
- High particle holding capacitydue to large filter surface
- Chemical resistance to aggressive AdBlue due to usage of high-quality materials
- Frost resistance through compressible compensation elements

(i) Clean AdBlue for an optimal dosage

This video shows how the exhaust-gas treatment system in commercial vehicles works and what role the Denoxtronic filter plays in keeping it working.





Denoxtronic filter Programme & Product Details

Filter spare-part sets for repair and servicing

Тур/КІТ				0	Τ	0	Ĩ			d''	I
Denoxtronic 1 Service	1 457 436 042		•	٠		٠	٠	٠			DAF, MAN, IVECO, Scania, Volvo
Denoxtronic 1 Repair	F 00B H40 025					٠	٠		٠		DAF, MAN, IVECO, Scania, Volvo
Denoxtronic 2.1 Service	1 457 436 006	٠				٠	٠				Case, IVECO, KHD, Renault, Volvo
Denoxtronic 2.1 Repair	1 457 030 020								٠		Case, IVECO, KHD, Renault, Volvo
Denoxtronic 2.2 Service	1 457 436 088		•		٠					•	Cummins, IVECO, Mack, Nissan, Renault, Volvo
Denoxtronic 6.5 Service	1 457 436 039		•		•					•	Perkins, IVECO, CNH, JCB, Daimler India, CAMC (China)
Denoxtronic 6HD Service	1 457 436 057		•		٠					٠	MAN, John Deere, IVECO, CNH





Replacement of Denoxtronic 2.1 filters

The filter is screwed onto the housing cover of the Denoxtronic supply module and is extracted from the housing along with the cover. In case the filter detaches from the cover or gets stuck at the housing, it can be extracted using the extraction tool.



Replacement of Denoxtronic 2.2 filters

Using the extraction tool, the filter is extracted from the Denoxtronic supply module. The matching extraction tool is included within the service kit.

Departronic particulate-filter regeneration Programme & Product Details





Metering unit

The metering unit of the Departronic system determines the required dosing quantity and forwards it to the injection unit.

Injection unit

The injection unit of the Departronic system ensures a precise fuel injection and handles its atomization and distribution within the exhaust pipe.

Advantages at a glance

- ► **Fuel savings** through the high efficiency of the particulate-filter regeneration
- Maintenance-free, long service life thanks to robust design
- High performance quality through proven Bosch know-how
- Efficient solutions for fast and easy replacement of the modules in the service

? Did you know?

Departronic

Unlike pure engine-internal measures of particulate-filter regeneration such as post-injection, Departronic doses and injects the fuel upstream of the oxidation catalytic converter and the diesel particulatefilter. Efficient regeneration of particulatefilters is achieved by optimum adjustment of injection timing and quantity.

Exhaust Gas Sensors Programme & Product Details



Lambda sensor

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

Exhaust-gas temperature sensor

Exhaust-gas temperature sensors monitor the optimum temperature range and protect high-quality components such as turbochargers, catalytic converters and diesel particulate filters in the hot exhaust-gas system. They ensure ideal regulation behaviour of the exhaust-gas cleaning components.



Differential-pressure sensor

Differential-pressure sensors monitor the pressure difference of the particulate filter and thereby provide information about their loading condition. This provides a demand-based particulate-filter regeneration.

Advantages at a glance

- High performance and reliability over a long service life through functional and quality tests according to the same standards as original equipment
- Outstanding corrosion resistance in the high-stress area around the exhaust-gas system thanks to high-quality materials and robust design
- Reduced stay of the vehicle in the workshop and time savings thanks to trouble-free installation of the sensors

i Program extension planned for particulate and NO, sensors

An increasing number of light and heavy commercial vehicles are being equipped with particulate and NO_x sensors. As a result, sensors are becoming increasingly important for aftermarket business. The Bosch workshop program already offers particulate and NO_x sensors for many vehicles in the market and will also be extended for commercial vehicles in the near future.

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.

To them, we dedicate 130 years of pioneering spirit and expertise in research and manufacturing.

And it is for them that we continue to work constantly to develop unique combinations of spare parts, diagnostics solutions and services:

- Solutions for efficient and effective vehicle repairs
- ▶ innovative workshop equipment and software
- one of the largest spare parts offerings for new and replacement parts worldwide
- ▶ large dealership network for quick and reliable parts supply
- competent technical support
- comprehensive educational and training offerings
- ▶ targeted sales and marketing support

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