

# Truck World

A Bosch Automotive Aftermarket magazine | edition 33 | June 2022

## Bosch truck spare parts

**Bosch engine-management spare parts  
stand for high quality and reliability**

### **Servotwin**

The future CV  
steering system  
**Page 4**

### **Award winner**

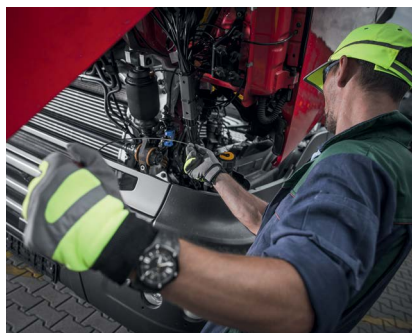
Bosch wiper blades  
received ETM Award  
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### **Particle counting**

New BEA 090 measures  
both quickly and accurately  
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## EDITORIAL

### THE WORLD OF BOSCH COMPONENTS AND SPARE PARTS



#### Dear truck fans,

commercial-vehicle workshops offer their customers high maintenance and repair standards – a significant contribution to the productivity of professional operators. After all, in daily operation, vehicles such as trucks, LCVs and buses need to work reliably. That's what the whole sector lives from.

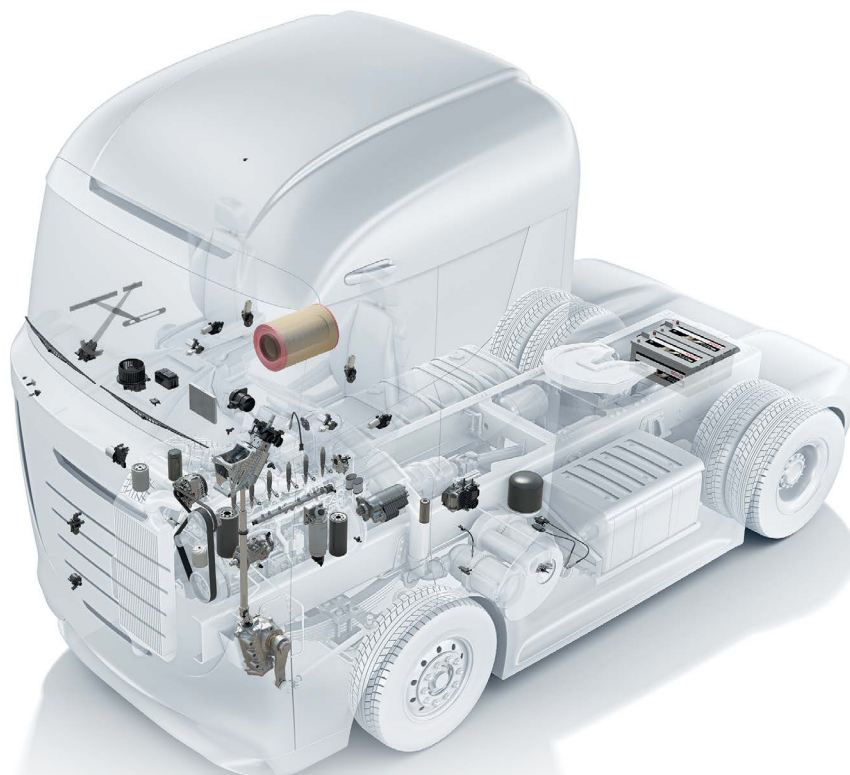
Bosch thus offers a comprehensive range of high-quality spare parts for CV maintenance and repairs. At this issue of the Truck World magazine, we will present Bosch engine-management products – produced in line with high standards and tested just like OE products.

Enjoy reading and have a great journey into the connected workshop future!

#### Your commercial-vehicle team

##### Dates: 2022 FIA ETRC

<b>Slovakia Ring</b>	July	2 – 3, 2022
<b>Nürburgring</b>	July	16 – 17, 2022
<b>Most</b>	Sept.	3 – 4, 2022
<b>Zolder</b>	Sept.	10 – 11, 2022
<b>Le Mans</b>	Sept.	24 – 25, 2022
<b>Jarama</b>	Oct.	1 – 2, 2022



# Engine management

## No compromises on quality

All commercial vehicles require powerful powertrains in order to fulfill their transport tasks. Even though the development of alternative powertrains is progressing rapidly, large numbers of diesel powertrains continue dominating the commercial-vehicle sector. For their reliable operation, all of the components forming part of the engine management need to be well-matched and well-gearred to one another. This includes some direct engine components – such as pumps, injectors and fuel rails – as well as indirect components, e.g. sensors and filters.

#### BOSCH COMPONENTS FOR TRUCK INJECTION SYSTEMS

No matter whether common-rail or unit-injector systems, in-line or distributor injection pumps, Bosch technologies ensure powerful performance and efficient fuel combustion in millions of diesel engines. Bosch products and spare parts are based on the system know-how acquired over decades. They are subject to top quality expectations. This provides commercial-vehicle workshops with the certainty to always supply their customers with modern and robust spare parts featuring well-proven Bosch quality. The test and production procedures for spare parts are the same ones applied to original equipment. At common-rail systems, the **high-pressure pump** compresses the fuel to up to 2,700 bar and provides the amount required. For this purpose, it constantly supplies





the **high-pressure rail** with fuel and maintains a consistent system pressure. The **common-rail injectors** supplied by the rail via short pipes inject the fuel right into the engines' combustion chambers.



### NO COMPROMISES WITH BOSCH TRUCK FILTERS

Commercial-vehicle operation is uncompromisingly oriented towards the demands placed on reliability and profitability. The vehicles' risk of failure shall be minimized as far as possible. After all, they are the backbone of a business which can only provide the required profits in case of efficient operation. In order to protect the injection system and additional engine components, the Bosch filter range includes the right solution for all common types of commercial vehicles and engines. In terms of engine management, Bosch supplies diesel fuel filters, diesel water separators, coolant filters, air filters, oil filters, oil-mist separators and oil centrifuges.

**Diesel fuel filters** protect the injection system and clean the fuel reliably removing particles and water. For additional protection and due to the high flow rates of commercial vehicles, **diesel water separators** are often installed for prefiltration purposes and to separate water and large particles. **Coolant filters** protect the fine channels of the cooling system against particles and

other deposits. The intake air required for the air/fuel mixture also needs to be cleaned – this is done by **air filters**. **Oil filters** and **oil centrifuges** are used as main or bypass filters separating soot and metal particles from engine oil thus protecting the engine. **Oil mist separators** clean the by-pass gases returned to the engine intake duct separating oil mist and particles. To make sure all of these filters reliably fulfill their tasks, they should be replaced regularly and according to the replacement intervals specified by the manufacturers.



### BOSCH SENSORS: INNOVATIONS FOR COMMERCIAL VEHICLES

To improve the driving dynamics and the emission behavior as well as due to the progressing developments in the fields of automation and connectivity, commercial vehicles are equipped with a growing number of sensors. Sensor testing, maintenance and repair have become an important sources of revenues and a significant part of everyday workshop business. Bosch continuously develops innovative sensor solutions. A large number of sensors is equipped with special micro-mechanic sensor elements. They are designed for long service lives and provide extremely accurate measuring results.

In terms of engine management, the range includes crankshaft speed sensors, air-mass meters, camshaft

sensors, rail-pressure sensors, intake-manifold and boost-pressure sensors (MAP) as well as temperature sensors. **Crankshaft sensors** detect the rotational speed and the position of the crankshaft. These data are used by the engine control unit (ECU) to determine the precise injection/ignition timing. **Air-mass meters** measure the actual air-mass flow rate to optimize the air/fuel ratio. This contributes to efficient fuel combustion. **Camshaft sensors** determine the position of the camshaft. Their high measurement accuracy allows precise injection/ignition timing. **Rail-pressure sensors** measure the fuel pressure within the fuel rail of diesel direct injection engines. **Intake-manifold pressure and boost-pressure sensors (MAP)** quickly and accurately measure the pressure and temperature of the intake air



< Truck brochure

### SPARE PARTS FOR DIESEL SPECIALISTS

Bosch supplies workshops with a comprehensive range of parts for repairs on diesel injection systems. This includes genuine spare parts and spare parts of equivalent quality for almost any commercial vehicle – even for older models:

- ▶ Pump elements
- ▶ Injection nozzles
- ▶ Pressure valves and valve sets
- ▶ Seals and gasket kits



Spare parts for value-based repairs on diesel injection systems

# Servotwin – latest generation of CV steering systems



Platooning: Electrified and connected steering systems allow automated driving

There is a long list of commercial-vehicle assistance systems based on the connectivity of steering systems and on-board electronics: These include highway pilots, traffic-jam assistants, blind-spot assistants, automatic emergency braking on vulnerable road users, adaptive cruise control (ACC Stop & Go), lane-departure warning systems, turning assistants, maneuvering distance warning systems and many more. To facilitate such features, an increasing number of commercial vehicles is equipped with Servotwin electrohydraulic steering systems.

## SERVOTWIN SUCCESS – INCREASING NUMBERS

The commercial-vehicle manufacturers' demand for these steering systems is continuously growing. By now, several modern commercial vehicles are already equipped with electrohydraulic steering systems such as Bosch Servotwin. This number is expected to continue growing in future. For commercial-vehicle workshops, this means: Servotwin will be on the service schedules even more often in future.

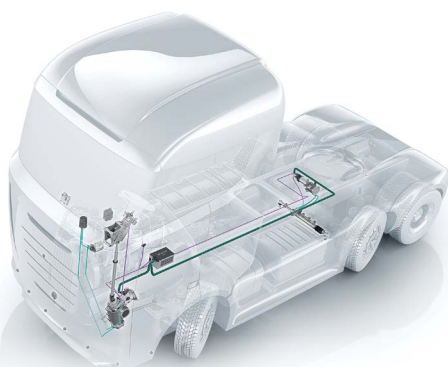
## BASED ON CLASSIC HYDRAULIC STEERING SYSTEMS

The electro-hydraulic Bosch Servotwin steering system basically consists of the RB-Servocom hydraulic ball-and-nut power steering system and a platform-based combination of an electric motor with control unit and a worm-gear transmission. The ball-and-nut power steering system – based on the principle

employed in a classic hydraulic power steering system – provides most of the steering assistance. An oil circuit and a power cylinder provide the hydraulic steering assistance. In addition, a turning motion of the steering wheel and the steering moment applied are detected by turning-angle and torque sensors and transmitted to the integrated electronic control unit. Taking other vehicle parameters into account – for instance, speed and load – it then determines the required additional steering moment. By means of an electric motor and a worm-gear transmission, the additional steering moment then acts on both of the input shafts of the RB-Servocom thus assisting the driver when steering. By the connection of the steering system to the on-board electronics, Servotwin is not only suitable for its integration into comfort and driver-assistance features, but also into automatic driving functions.



< More information



Bosch Servotwin on a commercial vehicle



Bosch Servotwin commercial-vehicle steering system

# Award winner!

## Bosch wiper blades received ETM Award



Bosch wiper blades for commercial vehicles

The story of Bosch wiper blades' success began in 1926. That year, the first electrically driven wiper blade was launched onto the market – the basis for numerous other innovations such as wiper blades with spoilers, windshield washer systems or Bosch jet wipers with integrated jets. The story of success continues by means of Bosch Aerotwin flat wiper blades with Power Protection Plus wiper rubber technology and a patented coating – down to the present day.

### ETW AWARD: READERS VOTED FOR HIGH QUALITY

Bosch wiper blades are carefully checked before being integrated into the program. Besides specified standard tests, Bosch also performs



Bosch wiper blades for commercial vehicles

additional and even stricter quality tests prior to the product release. Due to their high quality, these wiper blades are highly esteemed. This year's ETM Award and the choice of the readers of the specialist magazines **trans aktuell**, **lastauto omnibus** and **FERNFAHRER** are a clear sign of this fact.

### AEROTWIN FLAT WIPER BLADES

Bosch Aerotwin flat wiper blades stand out for their superb wiper performance even under extreme weather conditions. They feature Power Protection Plus wiper rubber technology with patented coating, tailor-made high-tech Evodium spring strips for increased contact pressure and a universal adapter as a combi interface for the most common U-hook sizes. Available in lengths between 500 and 800 mm, they ensure a clear and clean view throughout their entire long service life.

### TWIN WIPER BLADES

Bosch Twin metal-bracket wiper blades for commercial vehicles are available in lengths between 400 and 1,000 mm. They come with a two-component wiper rubber featuring a smooth-running coating. Evenly distributing the contact pressure, they ensure effective and quiet windshield cleaning throughout their long service life. Featuring a triple corrosion protection, the robust metal-bracket system works safely even under extreme weather conditions. A Quick-Clip adapter comes preassembled.



### BOSCH WIPER BLADES ARE ETM BEST BRAND 2022\*

The big readers' poll for the ETM Awards, based on a uniform method since 1987, is considered as a benchmark for the commercial-vehicle sector. 5,978 readers of the **trans aktuell**, **lastauto omnibus** and **FERNFAHRER** magazines evaluate vehicles and services. The ETM Best Brand Award 2022 is awarded to products of 29 different categories. Bosch commercial-vehicle wiper blades received 61.7 % of the votes. "At Bosch, we're extremely proud about winning at the wiper blades category – and grateful. It is both a recognition and an incentive for the future," Andreas Wegner, Bosch Channel Manager Truck, said noticeably touched as he received the award.

\*<https://www.eurotransport.de/themen/etm-award-2022-die-gewinner-11207856.html>



# Bosch air filters in comparison: quality pays off



Bosch air filters for commercial vehicles

## BEWARE OF CHEAP AIR FILTERS!

Being in operation almost around the clock, most commercial vehicles feature high annual mileages. To meet the requirements placed on them, their engines should be protected in the best possible manner. In this regard, air filters provide a major contribution. After all, on an average, approx. 10,000 liters of air are required for the combustion of 1 liter of fuel. Perfectly working air filters are indispensable. Therefore, low-quality alternatives are not really an option as they might affect the filters' functionality. Bosch air filters stand out for their microporous filter media, a high number of pleats as well as high-quality sealing materials. Relying on Bosch quality thus pays off for professional operators.

## USE BOSCH FILTERS, BE SAFE

Bosch air filters protect the engine, ensure a long filter service life and contribute to optimum engine performance. Their multi-layer filter media with special impregnation ensures a long service life, a high particle separation rate as well as a high moisture resistance and tensile strength. Furthermore, the large filter surface with embossing ensures a high dirt-particle absorption capacity and a low flow resistance. In this regard, proper fitting does matter. Bosch filters feature a high fitting accuracy and high-quality sealing materials. Both of these factors ensure reliable sealing, prevent by-passes of unfiltered air into the intake duct and thus poor air/fuel mixture quality.

### IN COMPARISON: BOSCH FILTERS AND LOW-QUALITY FILTERS

#### Bosch filters



Large dust-holding capacity through high number of pleats



Moisture resistance through impregnation with special resin



Inflammation protection through special coating (according to the OE equipment)



Permanently stable pleat geometry through sufficiently dimensioned glue beads



No bypass of unfiltered air due to high-quality polyurethane seal



No loss of filter surface through careful processing of the sealing material

#### Low-quality filters



Small number of pleats  
► Reduced service life



Conglomeration of pleats due to wetness  
► Poor fuel-mixture preparation  
► Reduced engine performance  
► Increased fuel consumption



Fire hazard caused by aspirated cigarette stubs or backfire  
► Vehicle fire



Unstable pleat geometry  
► Reduced service life  
► Poor fuel-mixture preparation  
► Reduced engine performance  
► Increased fuel consumption



Poor processing, low-quality sealing material  
► Increased wear of the engine  
► Accumulation of dirt on the air-mass meter



Excessive use of sealing material  
► Reduced service life  
► Poor fuel-mixture preparation  
► Reduced engine performance  
► Increased fuel consumption

# Bosch BEA 090: tracking particles



BEA 090 particle counter

As of January 1, 2023, particle counting will become mandatory for diesel vehicles featuring emission class Euro 6/VI. Using Bosch BEA 090 particle counters, the emission analyses can be complemented by this function.

## CPC MEASUREMENT METHOD

Already since 2014, CPC (condensation particle counting) – used for filter testing in medical regards as well as at laboratories and universities – has been used for particle counting at motor-vehicle type approvals. This measuring principle features a series of advantages. The most important one might surely be the high measuring accuracy. Another one might be the procedure's independence from the particle size and distribution. BEA 090 even copes well with charged particle – often resulting from exhaust-gas treatment. More-

over, the measured results can be reproduced at any time. All in all, this measurement method is designed to be particularly future-proof. As a result, BEA 090 will still be able to count the amount of particles if the limit values are lowered – which is very likely to happen in future.

## USER-FRIENDLY, ROBUST AND CAREFREE

Well-proven and intuitive BEA-PC software quickly guides the user through the guideline-6-compliant



BEA-PC guides through emission analyses

emission analyses in an easily understood manner. Via Bluetooth or USB, the measured values are transmitted to the emission analyzer or right to the workshop computer. Isoprobly is required as a measurement fluid. It is replaced by simple and safe exchange of bottles. Users don't even need tools to do so. Except for the externally located standard filters, there are no wearing parts on the device.

**Bit.ly/bosch-partikelzaehlung**  
(German only)



## EXHAUST-GAS TREATMENT WELL EXPLAINED

In a compact and modern manner, a new animation video presents the Bosch exhaust-gas treatment range for CVs.

This clip shows how the exhaust-gas treatment system works in commercial vehicles and the roles Denoxtronic, Departronic and the Bosch sensors play in it.



**Watch the  
clip now!**



# Successful ETRC season opening for Jochen Hahn

## BOSCH INSIDE 2022 HAHN TRUCK

- ▶ Batteries
- ▶ Crankshaft sensor
- ▶ Camshaft sensor
- ▶ Diesel injection system with EDC7U control unit and unit injectors
- ▶ Fuel-filter replacement box
- ▶ Fuses
- ▶ Heavy-duty alternator
- ▶ Intake-manifold pressure sensor
- ▶ Oil filter
- ▶ Relays
- ▶ Ribbed V-belts
- ▶ Wiper blades



Photo: Bartscher/Team Hahn Racing

2022 FIA European Truck Racing Championship: The race trucks were real crowd pullers in Hungary as well

## Eight races, six podium ranks: Hahn satisfied about the season opening

The 2022 FIA ETRC season has begun. After the first two rounds – on Misano World Circuit at the Italian Adriatic coast and on Hungaroring close to Budapest – Jochen Hahn now ranks among the top three pilots. He already performed eight thrilling high-class races and finished on the podium six times. Three times second and three times third – that's proof of a successful season opening. With a total of 78 points, Hahn now ranks third on the overall standings.

### CRASH ON HUNGARORING

A series of accidents occurred at the start of the second Hungaroring race. Hahn's Iveco S-Way was also involved. Besides damaged tires, doors and suspension components, parts of his truck's bodywork were also torn off. There was no way to get the truck back on track on time for the race. The team worked restlessly repairing it – the next day, it was ready to race again. On Sunday evening, Jochen Hahn said highly satisfied: "I want to sincerely thank our whole team by heart. The



Jochen Hahn, Hungaroring Juni 2022

repair work lasted way into the night, but on Sunday, our S-Way was as good as new. Despite our dropout, we managed to gain 33 points on Hungaroring. That's what we want to build on in three weeks on Slovakia Ring."

[www.team-hahn-racing.de](http://www.team-hahn-racing.de)

## IMPRINT

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