Truck World

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Commercial-vehicle sensors

Modern safety systems and emission behavior of commercial vehicles are based on accurately measured values. Bosch provides the aftermarket with highly accurate sensors for these purposes.

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EDITORIAL

FOR ALL POWERTRAINS: BOSCH SPARE PARTS FOR WORKSHOPS

Dear truck fans,

The logistics sector combines two worlds: the present and the future. Whereas workshops are still repairing diesel engines, vehicle manufacturers already started the series production of commercial vehicles powered by batteries or fuel cells. Independently from the vehicle concept, Bosch sensors provide accurately measured values for the optimization of the emission behavior as well as for modern safety and assistance systems. In this edition, we'll inform you about the sensors Bosch offers on the automotive aftermarket.

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

Your commercial-vehicle team

2023 Dakar rally winner

Iveco won the 2023 Dakar rally on the Team Boss Machinery De Rooy IVECO – the 1,000 hp (735 kW) Iveco Powerstar was piloted by the Dutch pilot Janus van Kasteren Jr.

Highly precise

Bosch commercial-vehicle sensors

The requirements placed on the emission behavior and the safety equipment of commercial vehicles are constantly growing. Besides, there is also further development of automation and connectivity. All of this will increase the future demand for sensors even further. Sensors have become a significant source of revenues for workshops in terms of repair and maintenance. Bosch offers a broad range of powertrain and exhaust-gas system sensors measuring, for instance, pressures, speeds and temperatures. They stand out for their robust design and high-quality materials making them particularly resistant to deformations, tear and cracks. In order to ensure reliably high measurement accuracy throughout their long service lives, they are subject to the same functional and quality tests as original equipment parts. Their easy installation saves time and reduces the vehicle downtime while being at the workshop.

Differential pressure sensor, nitrogen-oxide sensor (NO_x), particulate matter sensor, exhaust-gas sensor and lambda sensor.

SENSORS FOR EXHAUST-GAS SYSTEMS OF TRUCKS

Exhaust-gas temperature sensors, differential pressure sensors, lambda sensors, particulate matter sensors and nitrogen-oxide sensors (NO_x) measure the values within the exhaust-gas system thus significantly contributing to emission management. **Lambda sensors** measure the amount of oxygen within the exhaust gas thus providing the engine control unit with the information required to set the proper air/fuel ratio. **Particulate matter sensors** allow reliable diesel particle filter monitoring thus contributing to reduced particulate emissions. **NO_x sensors** determine the amount of nitrogen oxides contained in exhaust gases thus supporting the NO_x reduction monitoring. **Exhaust-gas temperature sensors** monitor the optimum temperature range thus protecting high-quality components such as turbochargers, catalytic converters and diesel particle filters within the exhaust-gas system. In this way, they ensure optimum control behavior. **Differential pressure sensors** monitor the differential pressure of the particle filter and provide information on its saturation level to enable demand-controlled particle filter regeneration.

SENSORS FOR COMMERCIAL-VEHICLE ENGINE MANAGEMENT

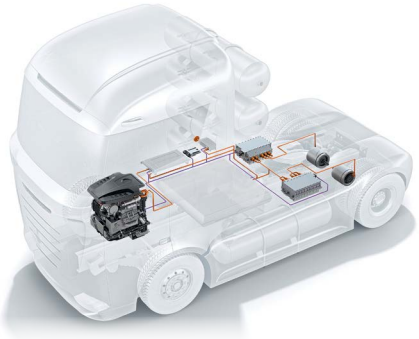
The range of engine management sensors include crankshaft speed sensors, air-mass meters, camshaft position sensors, rail pressure sensors, intake manifold and boost-pressure sensors (MAP) as well as temperature sensors. **Crankshaft sensors** detect the speed and position of the crankshaft, **camshaft position sensors** monitor the position of the camshaft. Based on these values, the engine control unit determines the precise injection timing. **Air-mass meters** measure the actual air-mass flow rate to optimize the air/fuel ratio. This contributes to efficient fuel combustion. **Rail pressure sensors** measure the fuel pressure within the fuel rail of direct injection engines. **Intake manifold pressure and boost-pressure sensors** quickly and accurately measure the pressure and temperature of the intake air of combustion engines.

Crankshaft sensor, camshaft sensor, air-mass meter, MAP sensor, temperature sensor and rail pressure sensor

< Truck brochure

FUEL CELL

BOSCH SENSORS FOR TRUCKS WITH FUEL CELL POWERTRAINS



As one of the leading suppliers of sustainable powertrain technologies, Bosch relies on a broad range of technologies. Fuel cell systems are an essential part of this range. Besides components such as fuel cell stacks and control units, Bosch also provides sensors:

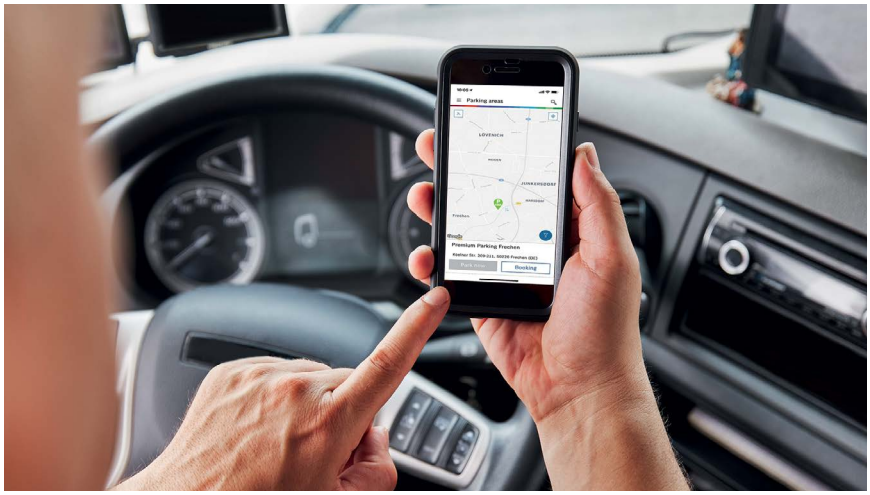
Air-mass meters are used on the cathode side to control the air mass supplied.

New **hydrogen concentration sensors** reliably monitor the admissible amount of hydrogen contained in the exhaust air of fuel cell systems. Moreover, there are applications to measure the H_2 concentration inside the cabin or close to the fuel cell module. **Temperature and pressure sensors** monitor the hydrogen supplied to the anode submodule.

FUEL CELL: BOSCH INVESTS IN FUTURE TECHNOLOGIES

Right from the beginning, Bosch has been involved in the development of fuel cells. This know-how will also be avaiable in the aftermarket. In the future and in addition to spare parts, Bosch also wants to offer suitable services as well as diagnostic solutions and trainings.

Bosch Secure Truck Parking: 15,000 parking lots in 14 countries



Bosch Secure Truck Parking: easy parking-lot search, booking and payment via app

The logistics sector faces huge challenges: According to recent studies, there is a lack of some 400,000 safe truck parking lots merely across the EU. This results in risky and dangerously parked vehicles and increases the rates of freight theft, the traffic and even CO_2 emissions of trucks searching for available parking lots. Furthermore, the drivers are under constant pressure to observe their legal driving and rest periods.

In order to face these challenges, Bosch Secure Truck Parking and TRAVIS Road Services are now joining their forces at an alliance against the lack of truck parking lots in Europe. At their new partnership, both companies pool available parking-lot shares providing haulers across Europe with the largest offer of suitable truck parking lots. “As of early 2023, users of Bosch Secure Truck Parking and TRAVIS Road Services can now access a total of some 15,000 parking lots at approximately 400 locations in 14 European countries. Besides Germany, this includes countries such as the Netherlands, Belgium, Great Britain, France and Poland,” Dr. Jan-Philipp Weers, director of Bosch Secure Truck Parking, explained.

JOINT FIGHT AGAINST THE LACK OF PARKING SPACES

Bosch and TRAVIS provide logistics companies with parking lots on different areas such as truck parks, company or hauler sites. Thanks to the high flexibility of their concept, new sites and parking lots can be added at any time. The users of both platforms thus benefit from the continuously increased reach of the range of offered parking spaces. Haulers can continue to search and book parking lots in real time and on the platform they are used to. For the payment, they get a paperless collective invoice.

INDIVIDUAL OFFERS REMAIN

Independently from their cooperation, both Bosch and TRAVIS will continue providing individual offers on their respective portals. On top of the offers on the platform, Bosch Secure Truck Parking also provides advice concerning all-in-all solutions for the transport and hauling sectors while contributing to security and service solutions. At several sites, this includes European security certificates as those emitted by the Transported Asset Protection Association (TAPA) or the EU Parking Standards. There is even a pan-European phone hotline. TRAVIS for its part offers combined booking of cleaning and repair services.

MORE PARKING LOTS – INCREASED SECURITY

The alliance between Bosch and TRAVIS will provide haulers, their drivers and their customers with a noticeable increase in truck parking lots – most of them featuring high security standards. At the same time, they also relief the municipalities along the key transport axis from increased risks of accidents caused by dangerously parked trucks.

www.bosch-secure-truck-parking.com

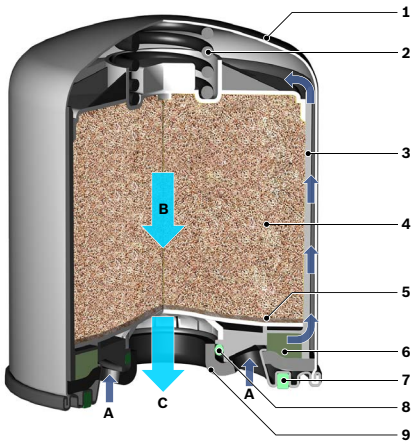
Air dryer cartridges: No chance for humid air

Bosch air dryer cartridges for commercial vehicle

Bosch air dryer cartridges protect the pneumatic system of commercial vehicles. They dehumidify compressed air and reliably remove particles and oil mist.

PNEUMATIC SYSTEMS IN TRUCKS

Compressed air is often used as energy source for numerous control and regulating processes in trucks. These include service and parking brake systems, trailer braking systems, air suspension, traction control systems and door operation, e.g. in buses. Moisture and dirt inside the compressed air system can result in system failures and cause unnecessary damage. Under compression, the air warms up and absorbs water vapour which releases condensate when it cools down to the ambient temperature. In case the water freezes in winter, it can result in malfunctioning valves or cause corrosion on air reservoirs, valves and cylinders. The lubrication of brake components can also be affected.



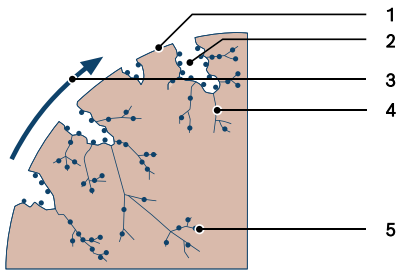
Air dryer cartridge (cutaway view)

Key:
1 Housing, **2** Compression spring, **3** Air drier container, **4** Air dryer granulate, **5** Fleece, **6** Prefilter, **7** Seal ring, **8** O-Ring, **9** Thread plate

A Compressed, humid air passes the prefilter, separation of coarse particles
B Drying of compressed air at the granulate container
C Dry, cleaned compressed air is returned to the pneumatic system

REGULAR REPLACEMENT OF AIR DRYER CARTRIDGES

Only regular replacement of air dryer cartridges can reliably prevent negative effects on the individual components of the compressed air system – particularly of the brake system. Bosch air dryer cartridges stand out for their high quality based on their special design. The Bosch range is continuously expanded. Use of high-quality air dryer granulate ensures high water absorption rates. Their robust design ensures a high pulsation and burst-pressure resistance. Integrated oil separators further increase the service life of the granulate.

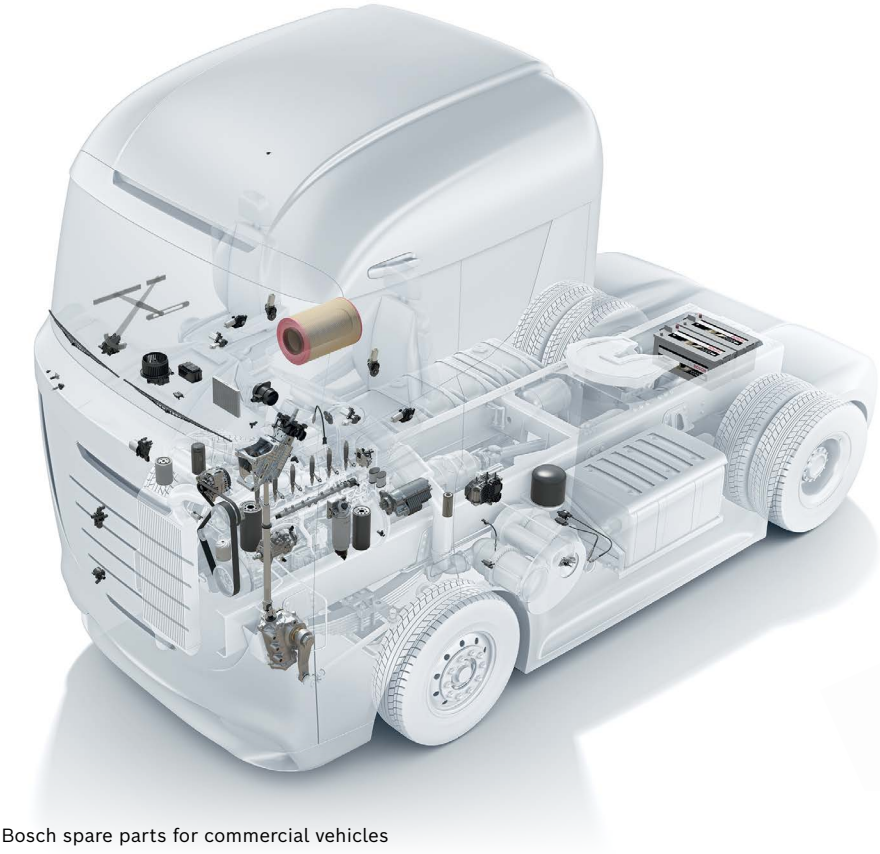


Microstructure of desiccant granulate:
1 Surface, **2** Pore, **3** Air,
4 Tiny channel, **5** Water molecule

DESICCANT GRANULATE

The desiccant granulate features a grain size of 1–3 mm. Pores and tiny channels create a large internal surface for the collection of water molecules. The amount of granulate inside each air dryer cartridge – about 1 kg – has an internal surface of 1 million m², which is equivalent to approx. 20 soccer pitches.

Bosch light and vision spare parts for commercial vehicles



Bosch spare parts for commercial vehicles

Commercial vehicles need to stay reliable and profitable. For this purpose, the drivers shall be able to fulfill their transport tasks and complete their intended daily mileage – even when driving at night, under heavy rain and with water and dirt splashing onto the windshield thus affecting the visibility. Therefore, companies don't make any compromises if they want to prevent any safety risks and work profitably. They rely on the first-class quality of Bosch wiper blades, and bulbs – for headlights, turn signals and cabin alike.

TURN SIGNAL BULBS

Combining high vibration resistance and high quality, Bosch turn signal bulbs feature particularly long service lives. The robust and powerful bulbs are an excellent 24-volt lighting solution.

HEADLAMP BULBS

Powerful vehicle lighting is particularly important in autumn and winter. By means of the Trucklight, Trucklight Maxlife, Xenon HID and Xenon White HID product lines, Bosch thus offers both durable and robust 24-volt bulbs for commer-cial vehicles.

CABIN LIGHTING

Professional truck drivers often spend a lot of time inside their vehicle cabins. Even during their breaks, they often read books and magazines, communicate via tablet computers or eat inside the cabin. Therefore, the cabin lighting of trucks is even more important than for cars. Powerful Bosch cabin lamps for trucks create a suitable and glare-free atmosphere.

WIPER BLADES

By means of highly sophisticated requirement specifications, Bosch developed wiper blades perfectly geared to the windshields of commercial vehicles and ensuring outstanding visibility. Due to their design and the materials used, they are particularly durable while providing reliable wiping performance. Whenever having to replace wiper blades, Bosch recommends quiet and durable Bosch Aerotwin flat wiper blades (available in lengths between 500 and 700 mm) featuring an aerodynamic profile and innovative Power Protection Plus wiper rubber technology. Particularly resilient Twin wiper blades (400 – 1,000 mm) stand out for their robustness. They feature a metal bracket system and triple corrosion protection.

Team Hahn Racing well prepared for 2023 ETRC

Photo: Bartscher/Team Hahn Racing

Dates: 2023 FIA ETRC

Misano	May 20 – May 21, 2023
Hungaroring	June 3 – June 4, 2023
Slovakia Ring	June 10 – June 11, 2023
Poznań	June 24 – June 25, 2023
Nürburgring	July 15 – July 16, 2023
Most	Aug. 26 – Aug. 27, 2023
Zolder	Sept. 9 – Sept. 10, 2023
Le Mans	Sept. 23 – Sept. 24, 2023
Jarama	Sept. 30 – Oct. 1, 2023

BOSCH INSIDE 2023 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

HVO diesel (Hydrotreated vegetable oil) and 1,200 hp drive Jochen Hahn's Iveco S-Way on European race tracks.

Team Hahn Racing and their passion for the title

Jochen Hahn – Vice-Champion of the FIA ETRC (European Truck Racing Championship) – knows about the strong competitors he'll face throughout the 2023 season. This requires perfect preparation – something, Team Hahn Racing is really good at. By now, they won six FIA ETRC titles. And yet, the whole team is as passionate about the main objective as if it was their first day: They want to win the title again this season. Bosch is also highly committed to supporting this objective. The technical partner provides components and spare parts.

Photo: Bartscher/Team Hahn Racing

Jochen and Lukas Hahn

A COMPLETE REVISION

As part of the preparations, the Hahn race truck is taken apart, checked meticulously, cleaned and mounted together again. The engine and the gearbox are revised and all wearing parts and key components are reconditioned or replaced. In case of race trucks driven on the circuits, this also implies checking the cables and harnesses and replacing them if required. In early April, the team will test the truck at the Iveco test track in the Danube valley close to Ulm. From April 17 to 19, they will take it to the Czech Autodrom in Most for tests under real racing conditions. So, let the season begin! Only Lukas Hahn will have to wait somewhat more. His "hot summer" starts on Nürburgring in July and will take him through to Most in August.

www.team-hahn-racing.de

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