

Truck World

A Bosch Automotive Aftermarket magazine | edition 36 | June 2023

Complete range

The requirements placed on truck batteries are increasing. The broad Bosch portfolio includes suitable batteries for almost any type of commercial vehicle.



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EDITORIAL

TRUCK TECHNOLOGIES – A CHANGING SECTOR



Dear truck fans,

in 1924, the first diesel-powered truck was revealed at the IAA. More than 100 years later, this technology still drives most commercial vehicles. However, ongoing climate change calls for alternatives. We are therefore in the thick of a process changing the complete transport and workshop sectors. Bosch supports current commercial-vehicle technologies – e.g. providing powerful batteries supplying safety and convenience features. By now, however, there is also another reality: Electric powertrains and fuel-cell systems developed by Bosch are already driving commercial vehicles, as well. For additional details, please read this edition of our Truck World magazine.

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

Your commercial-vehicle team

Dates: 2023 FIA ETRC

Nürburgring	July 15 – July 16
Most	Aug. 26 – Aug. 27
Zolder	Sept. 9 – Sept. 10
Le Mans	Sept. 23 – Sept. 24
Jarama	Sept. 30 – Oct. 1



Top performers

Powerful truck batteries

Whereas in the past, commercial-vehicle starter batteries were mainly needed to supply the starter, the horn, the radio and the lighting system with energy, the requirements they face nowadays have changed significantly. Especially so-called hoteling functions in long-haul traffic and the growing number of electrical consumers – such as parking cooler and heating systems, coffee makers, fridges, laptops, auxiliary lamps, entertainment systems and tail lifts – often push starter batteries to the limit. Energy-intensive driving profiles such as short-distance and distribution traffic with stop-and-go traffic and frequent engine starts are an additional burden for the on-board power supply.

AGM AND EFB TECHNOLOGIES

Specifically for these demands, powerful batteries featuring AGM (Absorbent Glass Mat) and EFB (Enhanced Flooded Battery) technologies have been developed. Due to their special structure and design, they are vibration-proof, feature a higher deep-cycle resistance and are more resistant to harmful deep discharge.

BOSCH TA AGM BATTERIES

The most powerful commercial-vehicle Bosch batteries featuring AGM technology and a patented PowerFrame® (grid) support start/stop systems. Bosch TA was specifically designed for advanced comfort and hoteling features. Long-distance trucks with high energy demand are thus reliably supplied



Bosch TA batteries for commercial vehicles

with energy – even when traveling for several days or with low state of charge.

BOSCH TE EFB BATTERIES

Extremely powerful and vibration-resistant CV batteries featuring EFB technology and a patented Power-Frame® (grid) for optimized current flow and reduced corrosion are designed to cope with huge energy demands of numerous hoteling functions in long-distance traffic, off-highway and heavy-duty applications.

PROFESSIONAL SERVICING

Besides the increased requirements placed on batteries, professional battery service has also become more important. Topping up conventional wet batteries with distilled water has become a relic of bygone times. Concerning professional advice regarding the selection of the suiting battery, the know-how of workshop experts has become ever more important. After all, the right battery helps cutting the total cost of ownership of commercial vehicles while increasing the vehicle fleet's cost effectiveness and operational readiness.

THE PROPER TECHNOLOGY

Again and again, commercial-vehicle workshops face batteries with decreased performance after just one year of use or even less. This is often the case, if the engine isn't restarted during statutory rest periods. In this case, the breakdown service usually replaces the battery to get the truck running again. This doesn't only cost valuable time, it

also gets the tour mixed up. Often, the cause isn't even a low-quality energy storage, but the incorrect battery type. The main reason for this is the omission of the check of operating conditions and a lack of know-how concerning the battery application. As a result, batteries are often used which are not suitable for the vehicles' application profiles. Depending on the intended application purpose and vehicle equipment, apparently more economic batteries can thus cause increased operating costs than batteries of higher quality. This can, for instance, be the case if a recommended AGM battery is replaced by a conventional wet battery.



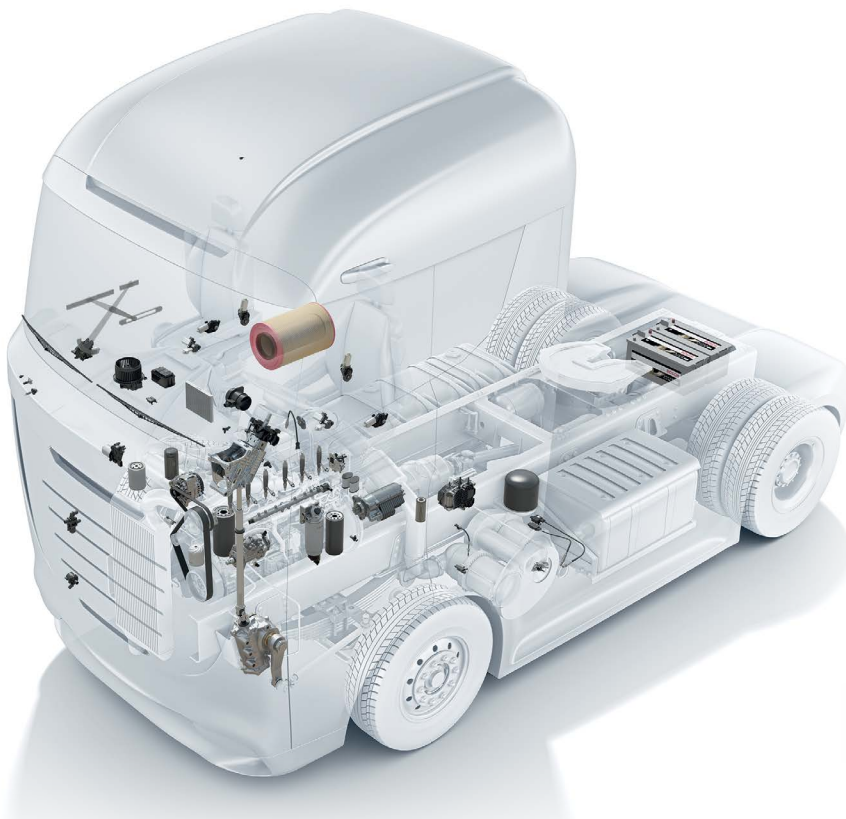
Workshops will find the right battery for each commercial vehicle at [boschaftermarket.com](https://www.boschaftermarket.com)

Charging and testing batteries

Fully-automatic Bosch BAT 690 battery chargers feature universal charging characteristics (UNI) making them suitable for all types of batteries. They (automatically) include special characteristics for WET, AGM, Gel, EFB and LFP batteries as well as a soft charging phase for deeply discharged batteries.



Bosch spare parts for commercial-vehicle steering systems



Bosch spare parts for commercial vehicles

As particularly safety-relevant vehicle components, steering systems are maintenance-free to the greatest possible extent. They are usually designed to last for the complete vehicle lifecycle. For sure, steering pumps and attachment parts can be worn or damaged over time and should then be replaced. However, steering systems themselves must usually not be replaced unless their functionality is negatively affected in the event of an accident or by mechanical overloads.

Steering systems are specifically tailored to the respective vehicle.

Therefore, the Bosch portfolio mainly comprises steering systems developed and produced as original equipment. Nevertheless, Bosch offers comprehensive maintenance and repair support for steering systems. This includes diagnoses, service manuals and quickly available spare parts.

SERVOCOM STEERING SYSTEMS



Since power steering systems for commercial vehicles have been launched, the well-proven ball-and-nut power steering principle has continuously been

advanced into RB-Servocom. By now, RB-Servocom is the world's most widely used commercial-vehicle power steering system featuring a compact design.

STEERING PUMPS



Bosch steering pumps are available as vane pumps, tandem pumps and radial-piston pumps. They provide the oil pressure required for the operation of commercial-vehicle hydraulic steering gears at any time.

WORKING CYLINDERS



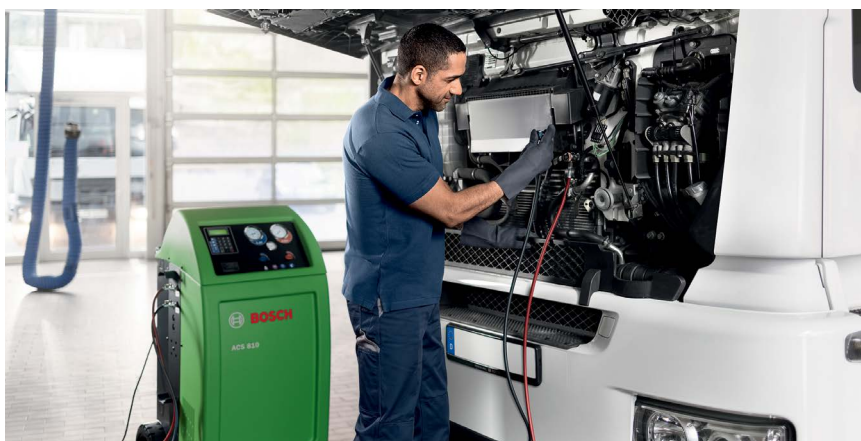
Working cylinders support the hydraulic steering systems e.g. in case of multiple steered front axles or rear-axle steering.

ATTACHMENT PARTS AND ACCESSORIES

The Bosch range includes additional steering-system spare parts and accessories such as pressure limiter valves, steering shafts, pitman arms, universal joints, bevel boxes, ball joints, flow indicators, flow limiter valves and hydraulic accumulators. All of these products are subject to stringent tests and meet OE quality requirements.



Improved environment in trucks and buses



Bosch offers workshops a complete range of A/C service units

A/C service units for buses and trucks must be designed to cope with high system volumes, special components and functions of large air conditioning systems.

COMMERCIAL-VEHICLE A/C SERVICE

Bosch ACS 810 A/C service units are designed for specifically these demands and R134a-based A/C systems with high capacities. Featuring workshop-friendly hard-

ware and a user-friendly menu navigation. There are also components optimized for bus systems and a complementary range of accessories. ACS 810 automatically manages recovery, recycling and refilling of refrigerant. Their 5-meter service hoses can be connected to all R134a A/C systems. Integrated 2-liter oil bottles receive large amounts of compressor lubricant during the oil injection and recovery. A double fan ensures temperature control and constant refrigerant pressure during the recovery phase. This protects the internal components against overheating. By means of the 0.5 bhp high-performance pump, the system is quickly filled with refrigerant. The integrated tank will hold up to 35 kg of refrigerant.

AUTOMATIC OR MANUAL

Two operation modes are available for the A/C service: fully automatic or manual recovery, vacuum and filling functions. A continuously

updated database includes the values for practically all European cars, vans, LCVs and trucks.

FLUSHING KIT AS ACCESSORY

In case blockages, clogging or receiver-drier defects are identified, or if components need to be replaced, dirt particles must first be removed by thoroughly flushing the system. For this purpose, an optional flushing kit can be ordered for ACS 810.



Flushing kit

BOSCH A/C SERVICE UNITS

By means of ACS 863 (for R1234yf refrigerant), ACS 753 (for R134a) and complementary accessories, Bosch provides modern A/C service units. ACS 863 automatically detects the refrigerant used. The deep-recovery function of both of these devices means that the vehicle A/C system can be almost completely drained, due to the recovery rate of up to 99%.



Bosch ACS 810 and 863 A/C service units



Hydrogen-powered future

Bosch fuel cell-electric drive technology for CVs

Bosch believes in a hydrogen-powered future and is investing continuously in this area. The company has been working on fuel cell-electric drive solutions for many years now – and to great success: the first fuel cell-electric trucks with Bosch powertrain technology have been on the roads since 2021. The benefits of this technology – local CO₂ neutrality combined with a high range and rapid, straightforward refueling – are unquestionable, particularly in the case of long

daily travel distances. Today, the fuel cell has reached the necessary level of maturity to play an important part on the road to climate-neutral mobility.

FUEL CELL POWER MODULE

The fuel cell power module combines the fuel cell stack, as well as the subsystems for the hydrogen and air supplies, the cooling circuit, and current supply in one compact module. With its impressive service

life, robust design, and performance class, the product is designed to cope with commercial vehicles' applications.

READY FOR USE IN ANY SEGMENT

The fuel cell-electric drive can be used in any vehicle segment – not least because the available product portfolio is designed to satisfy the most specific of requirements. Bosch offers its customers an extensive array of individual com-



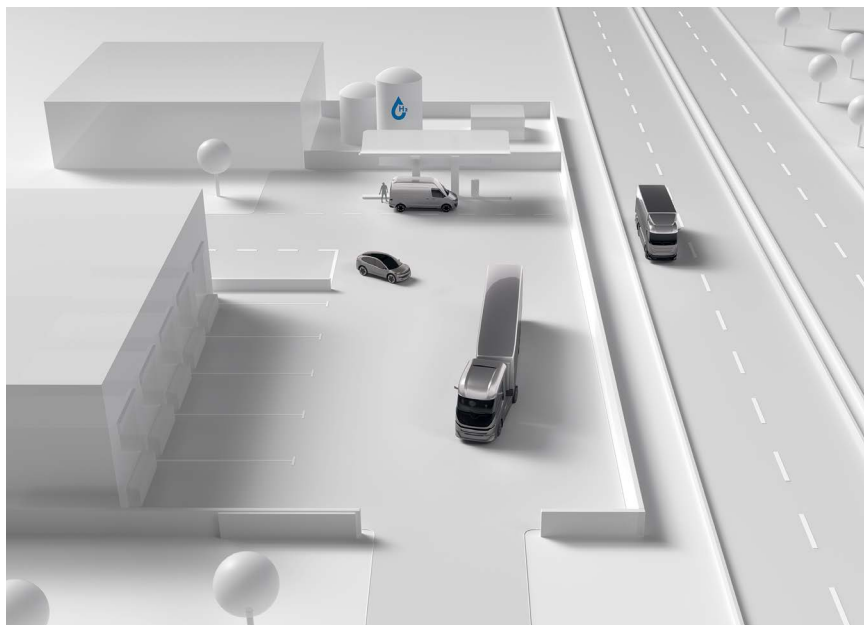
The fuel cell power module generates electricity from hydrogen in vehicles – as OneBox or TwinBox, depending on the driving force.



The stack – heart of the fuel cell system – generates the electrical energy used to power the fuel cell electric vehicle.



The air compressor provides the desired quantity of air in combination with the power electronics.



Heavy and light commercial vehicles, passenger cars: Bosch develops fuel cell solutions from components and modules to comprehensive software and connectivity technologies

ponents and modules as well as system integration with software and connectivity solutions that deliver the highest levels in quality and flexibility. Customers not only benefit from application-specific expertise and production-ready technology, but also from a global network and local expertise in industrial application. Thanks to continuous economies of scale and the consistent refinement and further development of individual components, the fuel cell-electric drive from Bosch represents a cost-effective powertrain solution for customers in all segments.

GLOBAL CUSTOMER PROXIMITY

The core competencies of Bosch in the field of fuel cell-electric solutions include the development from efficient components to complex systems, the collaboration in both cross-regional and cross-divisional teams as well as industrialization in very high quantities and with maximum quality and reliability standards. With partners in Europe, the U.S. and China, Bosch has gathered extensive practical experience in the most diverse applications and is now commencing volume production based on this combined expertise.



The hydrogen gas injector ensures the need-based supply of hydrogen to the fuel cell system.



The fuel cell control unit (FCCU) is the central control unit for operation of the fuel cell system.

FUEL CELL

BOSCH AND NIKOLA – PIONEERS IN USA AND EU



Bosch – the right partner with the right technology

In Europe and the U.S., Bosch is paving the way for fuel cell technology in CVs and is successfully demonstrating its suitability. For some years now, the company has been working with the American company Nikola on the development and production of heavy-duty fuel cell trucks for long-haul transport. When a startup mentality is combined with 130 years of automotive expertise, the results truly reflect the “best of both worlds”. So the first 40-ton trucks are already in the starting gates in Europe, which the US start-up produces in a joint venture with Iveco. Bosch is supplying fuel cell power modules along with many other electronic components.



Team Hahn Racing success in Poland

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

Photo: Bartscher/Team Hahn Racing



At the first truck racing event in Poznań (Poland), Jochen Hahn managed to consolidate his second rank on the ETRC overall standings.

Poznań: victory for Lukas, podium positions for Jochen

The FIA European Truck Racing Championship premiere in Poland – on circuit Tor Poznań – was a complete success. Crowds of fans enjoyed the first truck racing event ever in Poland.

For the first time of the running season, besides Jochen Hahn, his son Lukas also took part in the races. At the first qualifying on Saturday, Jochen Hahn got hold of the second position on the grid. He successfully managed to keep his position throughout the race and across the finish line. Lukas performed even better: Making the best out of his



Start-to-finish victory: Lukas Hahn won 2nd race.

pole position start at the second race, he accomplished a perfect start-to-finish victory. The first Sunday race began with a severe crash and a canceled race shortly after it had started in first place. Unimpressed by the happenings, Jochen Hahn

prevailed at the restart and kept rank two all the way across the line.

“Even though the last race didn’t turn out as I had expected, our Team Hahn Racing experienced an almost perfect racing weekend,” Jochen Hahn summarized the weekend. “I was able to consolidate my second position on the overall standings, Lukas achieved a brilliant victory and was top of the podium at all of the Promoters Cup classifications. Now, we’re looking forward to our home race on Nürburgring in three weeks.”

www.team-hahn-racing.de

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