

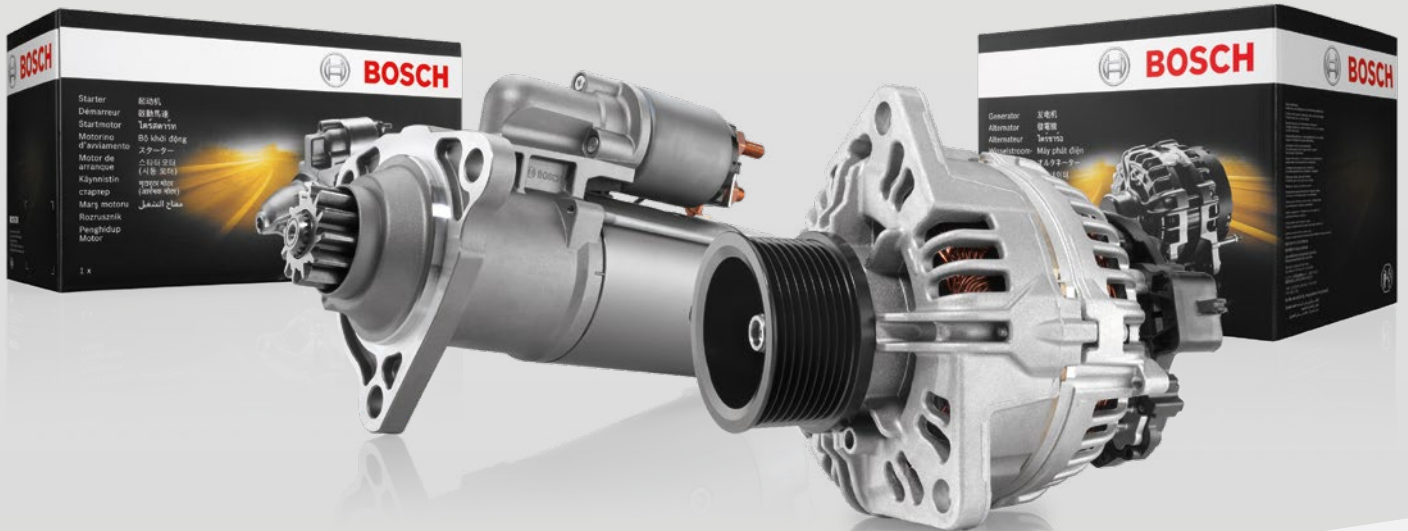


BOSCH

Invented for life

Commercial vehicle starters and alternators

Reliable in professional use



Bosch eXchange

Value-based commercial vehicle repair



Value-based repairs are in higher demand than ever before – and not just for older commercial vehicles. But how can this be achieved without compromising on quality? The answer is Bosch eXchange. With its comprehensive range of high-quality exchange products, commercial vehicle repair has become a success factor for automotive workshops.



Bosch eXchange



Commercial vehicle starters and alternators from Bosch are also available as **Bosch eXchange products**

Advantages at a glance

- ▶ **High quality and reliability:** Bosch eXchange products are tested to the same standards as original parts and have to pass stringent functional and quality tests
- ▶ **Outstanding price-performance ratio:** Up to 30% more affordable than comparable products in the Bosch new parts program, while still offering the same warranty
- ▶ **Resource-saving and environmentally friendly:** Bosch eXchange saves resources and makes an important contribution to the circular economy by reusing old parts

Commercial vehicle starters and alternators

Overview

In terms of reliability and profitability, the demands on commercial vehicles (CV) today are extremely high. After all, commercial vehicles only earn money when they are on the move. The Bosch starter and alternator program contains products of outstanding quality – and ensures satisfied workshop customers.

Reliable in professional operation

Bosch starters and alternators for commercial vehicles are carefully made from high quality materials and components. According to their future tasks, they are tested under extreme conditions. In professional operation – often in 24-hour operations every day – they ensure reliable starts and energy supply.

Excellent quality

The production of CV starters and alternators for the aftermarket is subject to the same stringent quality guidelines as the production of original equipment. The entire production process and the final functional and quality tests meet the same high standards applied to original equipment.

Competent, experienced, innovative

Bosch looks back at more than 100 years of experience with starters and alternators. The program continually includes innovative solutions that are suitable for a large number of commercial vehicles and that help modern powertrain systems to save fuel and reduce emissions.

Extensive product range

Buses, trucks, tractors, cranes or vans – the performance requirements of commercial vehicle starters and alternators are as different as the actual vehicle concept. That is exactly what the Bosch product range is designed for. The extensive range and fast availability ensure that commercial vehicles are quickly back in operation.



Commercial vehicle starters

Product range & details

Bosch offers a broad range of high-quality starters for on- and off-highway vehicles. Whether for 12- or 24-volt on-board system, for diesel vehicles with up to 30 l or large engines with up to 90 l (diesel) or 180 l (gasoline) of displacement, Bosch has the matching solution for all of them.



Starters for on- and off-highway vehicles		
Reliable starting performance: developed, built and tested for reliable vehicle engine starting even under the most adverse conditions. These commercial vehicles (CV) starters are geared to the specific field of application of the respective vehicle and ensure an extraordinarily long service life.		
On-board system	12 V	24 V
Performance at T=+20°C 100% SOC*	up to 5.5 kW	up to 13.2 kW
Performance at T= -20°C 80% SOC*	up to 4.2 kW	up to 10 kW
Diesel engine class	up to 9 l	up to 30 l
Scope of application		

* SOC = the battery's state of charge

Advantages at a glance

- ▶ **Excellent starting reliability:** the robust and compact commercial vehicle starter design ensures reliable performance under extreme conditions
- ▶ **High quality:** these starters are produced under the same production and test conditions as original equipment
- ▶ **Outstanding service life:** these starters are made out of high-quality components geared to the specific requirements of each application



Reliable starting of large engines

For use in large engine (up to 90 l diesel engines, up to 180 l gasoline engines), the Bosch range includes parallel-starter systems. It comprises two or three 24-volt starters combined at a relatively small installation space and combining their individual starting powers.



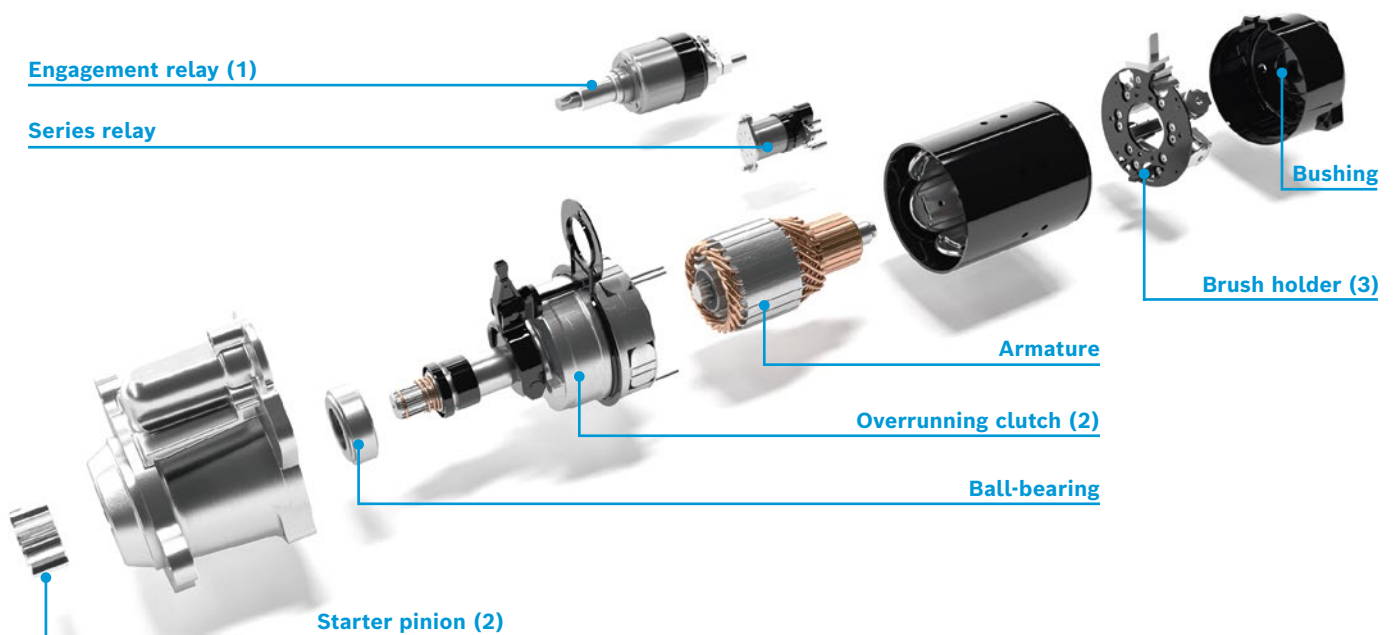
Bosch CV starters and alternators for renowned manufacturers

- | | |
|-----------------|-----------------|
| ▶ Ashok Leyland | ▶ Liebherr |
| ▶ CAT | ▶ MAN |
| ▶ CNH | ▶ Mercedes Benz |
| ▶ Cummins | ▶ MTU |
| ▶ DAF | ▶ MWM |
| ▶ DEUTZ | ▶ PACCAR |
| ▶ INTERNATIONAL | ▶ SCANIA |
| ▶ IVECO | ▶ TATA MOTORS |
| ▶ John Deere | ▶ VOLVO |
| ▶ Komatsu | ▶ WEICHAI POWER |

Spare parts for commercial vehicle starters

Product details

For quick and reliable CV starter repairs, Bosch provides workshops with selected spare parts – featuring high quality.



(1) Engagement relay

- ▶ **Long service life:** due to the high quality of the plastics and metals used
- ▶ **Suited practically any application:** depending on vehicle and starter
- ▶ **Excellent switching reliability:** thanks to copper contacts with special contact design – in part even with silver-coated copper surfaces

(2) Starter pinion with overrunning clutch

- ▶ **Trouble-free and reliable engaging:** due to optimized system featuring a special pinion geometry and engagement spring
- ▶ **High wear resistance:** thanks to optimized greases and curing procedures as well as to the use of high-quality materials

- ▶ **Long service life:** overrunning clutch equipped with optimized bearing bushings

(3) Brush holder

- ▶ **Long service life:** due to optimized carbon brushes featuring a special material composition
- ▶ **Protection against corrosion:** thanks to brush holders made of synthetic materials or coated metal
- ▶ **Consistent performance throughout the entire service life:** coil springs ensure the right contact pressure of the brushes

Commercial vehicle alternators

Product range & details

Bosch commercial vehicle alternators ensure a reliable on-board power supply for on- and off-highway vehicles with a large number of electrical consumers. They are designed for most diverse applications and reliably cover energy demands – even in case of extreme requirements.



Alternators for on- and off-highway vehicles

Bosch commercial vehicle alternators are the preferred choice in terms of reliability and durability. They are developed, built and tested to reliably supply the electrical consumers of commercial vehicles – even under extremely adverse environmental conditions.

On-board system	14 V	28 V
Output at 1800 rpm	40 – 100 A	20 – 65 A
6000 rpm	70 – 240 A	50 – 150 A
Level of efficiency in %	63 – 71 %	68 – 72 %
Scope of application		

Advantages at a glance

- ▶ **Excellent reliability in terms of power supply:** the robust and compact design of commercial vehicle alternators ensure an outstandingly high power output under extreme environmental conditions
- ▶ **High quality:** these alternators are produced under the same production and test conditions as original equipment
- ▶ **Powerful energy supply:** outstanding charging current even at low engine speeds due to specifically matched high-quality components



KTS Truck & ESI[tronic] 2.0 Truck

The solution for simple diagnoses and quick repair of on- and off-highway vehicles.



Did you know?

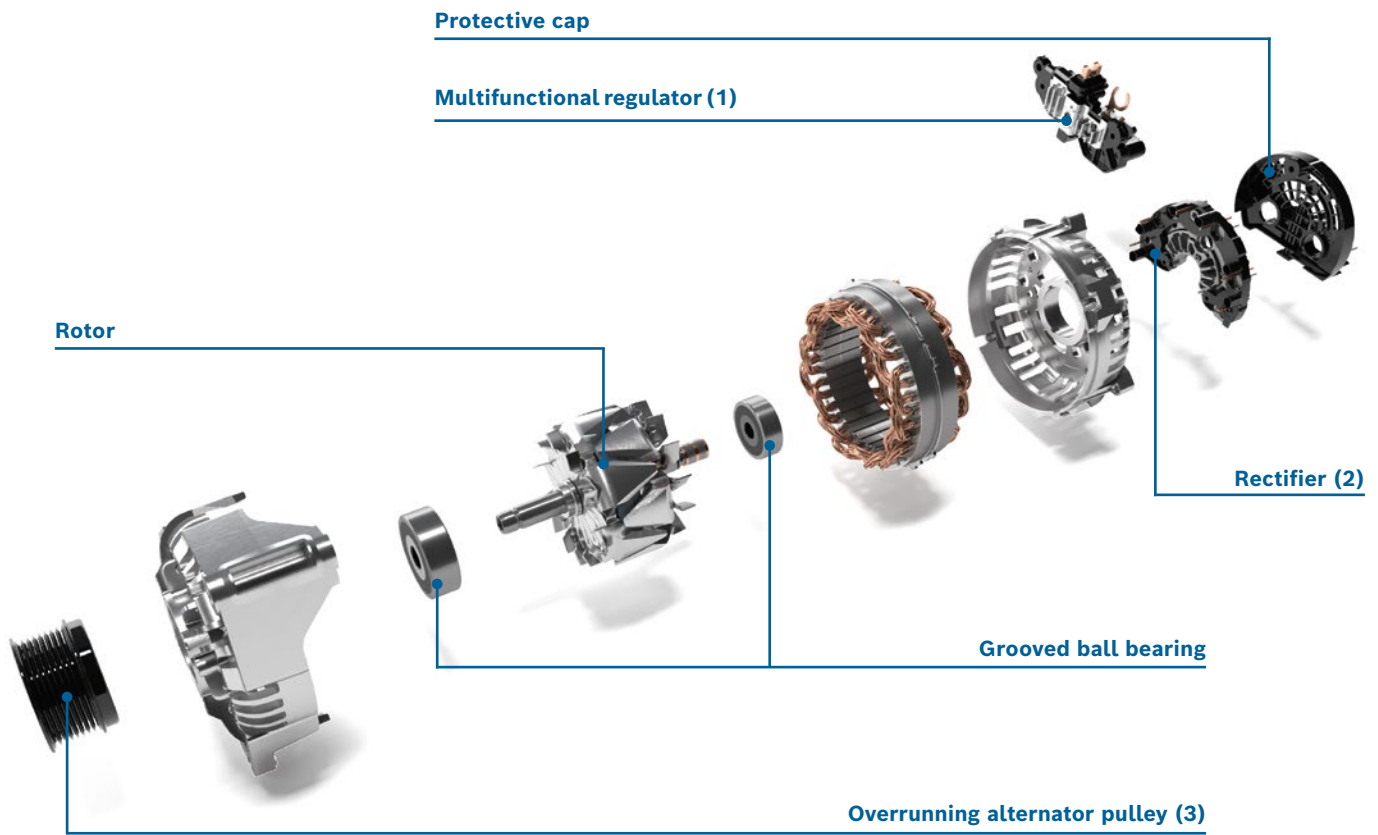
In order to meet different requirements, the Bosch range includes commercial vehicle alternators with modular performance features:

- ▶ **Service life:** particularly robust and durable due to increased number of ball bearings and reinforced bearing bushings
- ▶ **Temperature:** extremely heat resistant due to temperature-resistant sealing of ball bearings
- ▶ **Belt tension:** for extreme belt forces with reinforced bearing shields and bigger A-ball bearings
- ▶ **High ambient temperature:** coping even with extreme heat due to optimized ventilation system, high-temperature bearings and stator insulation materials

Spare parts for commercial vehicle alternators

Product details

For quick and reliable CV alternator repairs, the Bosch range thus also includes selected spare parts – featuring high quality.



(1) Multifunctional regulator

- ▶ **Long service life:** due to brushes with optimized material mixture
- ▶ **Geared to the respective type of vehicle and alternator:** the parts are aligned with the OE specifications
- ▶ **Ensuring current flow throughout the entire service life:** by means of special connectors and high-quality materials
- ▶ **Protection against alternator overheating and overloads:** the control voltage is adjusted to ensure exact functionality of the on-board power supply and stable battery charging

(2) Rectifier

- ▶ **High temperature resistance**
- ▶ **Reduction of voltage peaks:** due to individually tested Zener diodes
- ▶ **Reliable protection of the vehicle against overvoltages:** permanent current rectification prevents the emergence of overvoltages
- ▶ **High operational reliability:** special connection of all diodes by liquid welding

(3) Overrunning alternator pulley

- ▶ **Protection against dust entry:** for being closed on both sides
- ▶ **Aligned with the engine type:** diameter, surface and number of grooves are perfectly matched
- ▶ **Relief for the belt drive**

Driven by efficiency

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

Therefore, we have dedicated the last 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, diagnostic devices, workshop equipment and services:

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

More information about Bosch starters and alternators on request.

bosch-automotive-aftermarket.com

**What drives you,
drives us**

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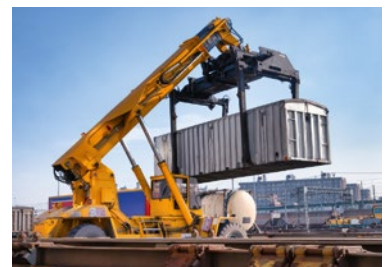
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Commercial vehicle starters and alternators

On- and off-highway

Wherever commercial vehicles are deployed in the world, the starters and alternators used must reliably deliver high levels of performance. That is why many trucks, construction and agricultural machinery as well as water and rail vehicles are equipped with Bosch starters and alternators to ensure safe starts and reliable energy supply.



Starters und alternators for on- and off-highway
The Bosch program is designed to meet the performance requirements of a large variety of vehicle concepts. Accordingly, its commercial

vehicle starters and alternators meet the high demands of logistical tasks in road traffic as well as the harsh environmental conditions in off-highway applications.