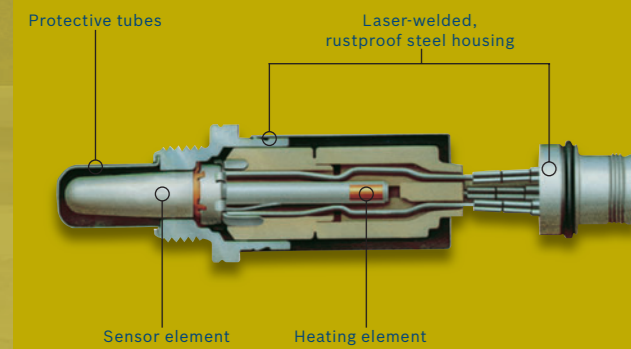


## Bosch keeps the environment in top shape



**The global leader: Bosch lambda sensors**  
The heart of the lambda sensors is the sensor element. As the leading developer and manufacturer, Bosch guarantees that innovative materials and processes are used in its production facilities. Bosch lambda sensors are patented, are optimally designed to prevent breakage and thermal shocks and have been 100% tested for operating. The presence of additional porous coatings on the sensor ceramics protects it against dirt and increases its service life.

## Regular sensor replacement with Bosch – simple, quick, profitable

### Save money with each kilometer you cover

	with an old lambda sensor	with a new Bosch lambda sensor
Average driving performance per year	14,000 km	14,000 km
Average fuel consumption per 100 km	10.4 l	9.0 l
Annual fuel consumption	1,456 l	1,260 l
Fuel price per liter	€ 1.25	€ 1.25
Annual fuel costs	€ 1,820 / year	€ 1,575 / year

**It can only pay off – for you and your customers:** 15% less fuel consumption or a cost saving of around € 250 per year (given an annual driving performance of 14,000 km and a fuel price of € 1.25 per liter)

**15% saving!**

Exhaust emission standards and limit values are becoming stricter and stricter. The trend in emission values clearly shows that lambda sensors have become indispensable in the fight to reduce exhaust emissions efficiently. Many newer vehicles actually have two (or more) lambda sensors; they each monitor each other and control the catalyst. This is the only way to further reduce exhaust emissions.

Lambda sensors ensure an optimum air-fuel mixture. This enables the 3-way catalyst to reduce elements such as hydrocarbons, carbon monoxide and nitrogen oxides in the exhaust emission by up to 99%. This in turn means that even the strictest exhaust emission limit values can be complied with.

Bosch has made a further major contribution to creating environmentally-friendly engines by developing the planar lambda sensors. These now reach their operating temperature in less than five seconds and can therefore ensure an outstanding performance from the beginning, even in the cold-start phase with its high emission rate. Never before has there been a more effective method of cleaning exhaust emissions.

**What many do not know:**  
Even lambda sensors are not immune to wear and tear.

**Lambda sensors are exposed to extreme strain from ...**

- ... harmful environmental influences such as salt or dirt.
- ... temperature shocks.
- ... mechanical strain from street chippings etc.
- ... Contamination due to poor fuel quality, discharge of silicon when the coolant leaks or carbon- and oil backlog in the exhaust emission.

The engine will only operate reliable and the exhaust emission values will only be correct if the lambda sensor is in perfect working order. The sensors must therefore be checked every 30,000 km, and replaced when they reach the recommended replacement interval\*. They can be replaced easily and without the need for special tools.

\* The recommended replacement intervals are listed in the Bosch catalogs, ES[tronic] and Tecdoc.

**Result: Check the sensors regularly and replace them on time, and you will save up to 15% in fuel costs.**

## Better: Bosch lambda sensors

The advantages at one glance:

**Bosch lambda sensors ...**

- ... **save up to 15% in fuel costs** or around € 250 per year with a new sensor.
- ... **prevent secondary expensive damage** such as a defective catalyst.
- ... **minimize exhaust emission** thanks to optimal composition of the air-fuel mixture – even the strictest exhaust emission values can be complied with.
- ... **optimize the engine performance.**
- ... **are insensitive** against water spray and contamination thanks to the use of a rustproof, laser-welded steel housing.
- ... **have a long service life** thanks to constant innovations such as optimized electrode protection coatings and suitable protective tubes.
- ... **are patented** and always feature state-of-the-art technology.
- ... **are 100% tested for operating.**
- ... **are perfectly well prepared for rapid installation** thanks to a pre-lubricated thread.

Where you find Original Bosch Quality:

Robert Bosch GmbH  
Automotive Aftermarket  
AA / MKG 2  
Auf der Breit 4  
76227 Karlsruhe  
Germany

www.bosch.de

# Change

## now



# The No. 1 from the beginning – Bosch lambda sensors



Getting more out of your car, right **from the start**

Look **to the future**, choose Bosch!

The key to driving economically – use **the right sensor!**

Lambda sensors **from Bosch**

0 km

30,000 km  
CHECK NOW!

60,000 km  
CHECK NOW!

90,000 km  
CHECK NOW!

120,000 km  
CHECK NOW!

150,000 km  
CHECK NOW!

180,000 km  
CHECK NOW!

50,000 (-80,000) km  
CHANGE NOW!

100,000 (-160,000) km  
CHANGE NOW!

160,000 km  
CHANGE NOW!

**Function**  
Lambda sensors measure the level of oxygen in the exhaust emission. This means that combustion engines can be regulated in such a way that the catalyst works optimally. Result: minimum levels of exhaust emission, optimum engine performance and up to 15% less fuel consumption.



**Unheated lambda sensors**  
The unheated lambda sensors paved the way for the exhaust emission regulation of the future. They need a minimum working temperature of 350 °C and must therefore be installed in the direct proximity of the engine.

Replacement interval:  
every 50,000 – 80,000 km



**Heated lambda sensors, 3-core**  
In order to facilitate the installation of lambda sensors away from the engine, they were equipped with a heater in their next stage of development. This is the first time that it has been possible to ensure a constant functional temperature of the sensor element above 350 °C.

Replacement interval:  
every 100,000 – 160,000 km



**Heated lambda sensors, 4-core**  
The sensor signal is not guided over the housing, it is guided over an additional fourth connection. Through this increase of further signals it can be possible to recognise a cable brake which would ineffective the lambda control.

Replacement interval:  
every 160,000 km



**Planar lambda sensors**  
The planar lambda sensors consist of several ceramic foils with a built-in heater. They reach their operating temperature twice as quickly as the previous lambda sensors, and can thus halve emissions in the critical cold-start phase.

Replacement interval:  
every 160,000 km



**Planar wideband sensors**  
Unlike the previous sensors, the planar wideband sensors are fitted with two measuring cells and a 6-core connector. They provide extremely accurate measurements both in the fat and meagre area. Even gas and diesel engines can be controlled using them.

Replacement interval:  
every 160,000 km



**Universal lambda sensors**  
Thanks to the support of the universal plug, a small number of universal lambda sensors replace a large number of original sensors. Therefore the cable of the built-in sensor is cut at a suitable point. The universal plug is now connecting the universal sensor together with the end of the cable in the vehicle.



**Innovation prizes**  
Impressive! The Bosch universal lambda sensor range:

- "Innovation Award" at the Automechanika, Frankfurt, 2004
- "Silver Trophy" at the Equip Auto, Paris, 2003

Exhaust emission standards are becoming stricter and stricter. It is therefore increasingly important to monitor the exhaust emissions closely and to adjust the engine control accordingly. This is exactly what a lambda sensor does. There are around 37 million vehicles registered with a petrol engine in Germany, and an increasing number of these have more than one lambda sensor. Lambda sensors are now being used recently more and more in diesel engines, and with increasing tendency. This is the reason behind an increase in the demand for lambda sensors in the aftermarket.

**Profit of the Bosch lambda sensors.**  
As the inventor and leading manufacturer, Bosch paves the way when it comes to quality and product diversity. With 30 years of experience and a total production output of 400 million units, Bosch is the leading global player for original equipment and aftermarket.

**Only impeccable lambda sensors ...**

- ... save up to 15% in fuel costs.
- ... allow to comply with the strictest exhaust emission values.
- ... prevent expensive damage to the catalyst.

**An enormous potential for workshops and retailers!**

**Bosch is the No. 1 for lambda sensors!**

30 years lambda sensors – 1976 Bosch invented the first lambda sensor, 2006 Bosch is celebrating its anniversary.

**Today ...**

- ... Bosch is the largest producer in the world with a total number of more than 400 million lambda sensors.
- ... Bosch has the greatest level of manufacturing know-how with an output of 33 million sensors per year.
- ... Bosch is the driving force behind development with the innovations which it is constantly creating.
- ... Bosch is the market leader in original equipment and aftermarket.
- ... all lambda sensors delivered by Bosch to retailers meet original equipment quality standards.
- ... the Bosch product range is unique in its diversity.

- ... Bosch supplies the highest quality in data with reliable and complete specifications.
- ... Bosch guarantees very quick delivery schedules thanks to its international distribution network.

All vehicle manufacturers in Europe and most vehicle manufacturers of the world place their trust in lambda sensors from Bosch. Bosch lambda sensors give you that decisive edge over the competition and allow you to offer your customers what they need - environmentally-friendly, fuel-efficient and long-living spare parts.

**Original or universal? Bosch offers both.**

With its wide range of original sensors for accurate solutions and the award-winning universal product range\*, Bosch can offer you the right sensor whatever your requirements.

**The Bosch original product range:**

- Original lambda sensors always have the original connector.
- They can fit into the vehicle precisely with no need for further work (plug & play).
- The manufacturer's requirements are met 100%.
- The Bosch original lambda sensors cater for over 75% of the vehicle population in Europe.

**The Bosch universal product range:**

- A mere 9 universal sensors are required to replace around 1,000 original lambda sensors.
- The nine universal sensors cater for different sensor elements and heating powers.
- The benefits for you: low storage costs and very high availability rates.
- Short numbers make it easier for you to keep track of the sensors.
- No special tools are required for installation purposes.

- Universal lambda sensors have one universal connector. It is patented, guarantees a secure, electrical contact and connects to the wiring harness in the vehicle without any problems. It can resist extreme shaking, temperatures and wetness.
- A comprehensive installation manual is included with all universal sensors.

\* Bosch has won two innovation prizes for its universal lambda sensors: "Innovation Award" at the Automechanika, Frankfurt, 2004 and "Silver Trophy" at the Equip Auto, Paris, 2003

**NEW** Universal lambda sensors now in planar technology!