



A key technology makes history: Bosch celebrates 50 years of the lambda sensor

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Launched in 1976 as a pioneer in exhaust-gas treatment, still one of the leading manufacturers today

- ▶ Key technology celebrates its 50th anniversary in 2026
- ▶ Around 1.7 billion units manufactured worldwide to date
- ▶ Precise measurement technology used far beyond the passenger car sector

Karlsruhe/Plochingen – Developed by Bosch in 1976 and first installed in production vehicles by Volvo that same year, the lambda sensor marked a technical revolution in the automotive industry. Today, it has become an indispensable component in gasoline and diesel vehicles. In 2026, Bosch celebrates the 50th anniversary of a key technology that significantly contributes to reducing pollutant emissions and fuel consumption. With around 1.7 billion units produced by Bosch worldwide, the lambda sensor has established itself as a vital component for more efficient combustion.

Pioneering work that became a global standard

50 years ago, Bosch readied the lambda sensor for series production to enable effective exhaust-gas treatment in the 3-way catalytic converter. The sensor precisely measures the residual oxygen content in the exhaust gas and provides the engine control unit with the crucial information needed to regulate the optimal air-fuel mixture ($\lambda = 1$). This is the only way for the catalytic converter to achieve its full effect and reliably convert pollutants.

Initially developed for use in gasoline engines, the next technological step followed with the development of the wide-band lambda sensor. This also enabled its use in diesel engines and engine concepts such as gasoline direct injection, significantly expanding its range of applications. What began as pioneering work is now a key technology in exhaust-gas treatment, with production sites in Germany, Southeast Europe, North America, China, and India.

From series production to the replacement parts market

Thanks to its decades of expertise, Bosch is one of the leading manufacturers of lambda sensors for original equipment – making it a key player in the replacement parts market. The lambda sensor portfolio covers around 70 percent of the vehicle fleet in the European market with approximately 1,000 part numbers. Every lambda sensor for the workshop market undergoes strict quality and release processes and complies with the standards of series production.

Bosch's expertise in exhaust-gas sensors extends far beyond the lambda sensor: Bosch offers its workshop partners a wide range of particulate, NOx, and exhaust-gas temperature sensors. These components are important for complying with modern emissions standards. Customers benefit from receiving all relevant exhaust-gas sensors from a single source. This comprehensive solution simplifies procurement, supports good compatibility, and ensures high quality.

Versatile technology far beyond the vehicle

The success story of the lambda sensor is no longer limited to the passenger car sector. Today, its precise measurement technology is also used in trucks, motorcycles, modern heating systems, and even in Bosch's "PerfectBake" ovens, where it ensures optimal baking results.

Press photos and infocharts are available on the Bosch Media Service at

www.bosch-press.com.

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About Bosch Mobility Aftermarket

The Bosch Mobility Aftermarket division (MA) is one of the world's leading providers of spare parts, diagnostic solutions and repair-shop equipment for passenger cars, two-wheelers and commercial vehicles. Its product portfolio includes products made as Bosch original equipment, products developed in-house and specifically manufactured for the aftermarket, as well as services. In addition to new parts, the range also comprises a large number of remanufactured exchange parts, thereby contributing to a resource-conserving circular economy. A key pillar in this context is the Bosch eXchange program, with which the division generated around 400 million euros in sales in 2025. Around 16,000 associates and a global logistics network ensure fast and reliable supply to distributors and repair shops worldwide. MA also supplies modern testing and repair-shop technology, diagnostic software, training, as well as technical information and services, which are increasingly being expanded through software- and AI-based solutions. In addition, the division includes the "Bosch Service" workshop concept with around 13,000 workshops worldwide, as well as "AutoCrew" with more than 700 workshops in over 100 countries. Furthermore, with Bosch Classic, MA supports owners of classic and modern classic cars with a wide range of spare parts and services.

Additional information can be accessed at <http://www.boschaftermarket.com>

About Bosch

The Bosch Group is a leading global supplier of technology and services. It employs roughly 413,000 associates worldwide (as of December 31, 2025). The company generated sales of 91 billion euros in 2025. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. With its business activities, the company aims to use technology to help shape universal trends such as automation, digitalization, electrification, and artificial intelligence. In this context, Bosch's broad diversification across regions and industries strengthens its innovativeness and robustness. Bosch uses its proven expertise in hardware, software, and services to offer customers cross-domain solutions from a single source. It also applies its expertise in connectivity and artificial intelligence in order to develop and manufacture intelligent, user-friendly, and sustainable products. With technology that is "Invented for life," Bosch wants to help improve quality of life and conserve natural resources. The Bosch Group comprises Robert Bosch GmbH and its roughly 500 subsidiary and regional companies in over 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. Bosch's innovative strength is key to the company's further development. Bosch employs some 82,000 associates in research and development.

Additional information is available online at <http://www.bosch.com/>, <http://www.bosch-presse.de>.