



**BOSCH**

Invented for life

Driven by

**POWER**

**Fun to drive, dynamics, efficiency**  
Experience Bosch gasoline systems

# Fascinating motorsports and technologies

## Bosch know-how for race tracks and roads



### Did you know?

Bosch Motorsport is actively involved in races in

# 36

countries. Every day, Bosch Motorsport employees work on one objective: bringing success to teams and drivers alike.

Ever since car racing began in first place, Bosch has been contributing to top performance on race tracks worldwide – providing both components and know-how. As a highly esteemed partner, Bosch supplies components to individual teams and complete racing series. But even series-production vehicles benefit from motorsport-proven technological developments.



### System competence and know-how

The DTM is a competition for close-to-production prototypes. This is surely one of the main reasons for the fascination of this series. However, Bosch technology is not only used at DTM, but at several racing series around the world – and so are Bosch ignition systems, engine management, injection systems, electrical components and service parts.



### Spare parts, diagnostics and services

Quality leads to the goal! This applies to motorsport as well as to the maintenance and repair of series vehicles. That is why the Bosch program for dealers and workshops includes high-quality spare parts, modern workshop equipment for diagnosis, service and repair, and special training courses. The workshop software ESI [tronic] 2.0 Online covers all common vehicle brands and runs on the Bosch diagnostic testers of the KTS series.

# Gasoline systems

## Product range



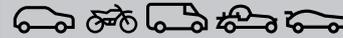
### Gasoline direct injection

- ▶ High-pressure pumps
- ▶ High-pressure injection valves
- ▶ Spare parts

### Manifold injection

- ▶ Injection valves for manifold injection systems
- ▶ Spare parts

Scope of application



### Fuel supply

- ▶ Fuel supply modules
- ▶ Repair kits
- ▶ Electric fuel pumps

### Ignition

- ▶ Ignition coils
- ▶ Ignition leads
- ▶ Spark plugs
- ▶ Ignition distributors
- ▶ Ignition modules

Scope of application



### Exhaust-gas sensors

Lambda sensors

### Sensors

- ▶ Air-mass meters
- ▶ Pressure sensors
- ▶ Rotational-speed sensors
- ▶ Knock sensors
- ▶ Temperature sensors, etc.

Scope of application



# Gasoline systems

## Overview

**High-pressure injection valves and pumps are key components** of gasoline direct injection systems. Already back in 1954, a Mercedes-Benz race car equipped with a mechanical Bosch direct injection system won the Grand Prix in the French town of Reims. And even today, race cars with Bosch direct injection systems are still highly successful worldwide.

### Gasoline direct injection

Mobility is growing worldwide. At the same time, there is a strong desire to reduce fuel consumption and emissions. In this regard, gasoline direct injection is considered to be a key technology with huge potential. High system pressures – in racing even up to 500 bar – contribute to powerful and efficient engine performance. As more and more vehicles equipped with Bosch gasoline direct injection systems are launched onto the markets, the demand for reliable maintenance and repair is growing concomitantly.

### Gasoline manifold injection

The gasoline manifold injection system is one of the most widely used gasoline injection systems in the world. It stands out for its well-proven technology which will, in future, assume a key role based on innovative further developments.

### Future-proof

Bosch is working on a combination of gasoline manifold and direct injection systems in order to reduce the fuel consumption even further. This will allow compliance with new and coming emission regulations.

More than  
**60 years**  
of experience with  
gasoline injection  
systems



# Gasoline systems

## Product details



	High-pressure injection valves	High-pressure pump	Manifold injection valves
	<p><b>High-pressure injection valves</b> allow quick and accurate injection of fuel right into the combustion chamber for optimized mixture preparation.</p>	<p><b>High-pressure pumps</b> compress the fuel to up to 350 bar thus ensuring optimum engine performance.</p>	<p><b>Manifold injection valves</b> accurately dose the required fuel quantity and spray it into the intake manifold.</p>
Scope of application			
Advantages at a glance	<ul style="list-style-type: none"> <li>▶ Efficient fuel consumption</li> <li>▶ Nozzles manufactured with high precision</li> <li>▶ Comprehensive service concept</li> </ul>	<ul style="list-style-type: none"> <li>▶ High driving comfort and fun to drive</li> <li>▶ Precisely manufactured individual components</li> <li>▶ Comprehensive service concept</li> </ul>	<ul style="list-style-type: none"> <li>▶ Efficient fuel consumption</li> <li>▶ Nozzles manufactured with high precision</li> <li>▶ Broad product range – even for flex-fuel systems</li> </ul>
Information	<ul style="list-style-type: none"> <li>▶ Almost half of all modern vehicles powered by gasoline direct injection engines are equipped with Bosch injection systems</li> <li>▶ Powerful and reliable throughout the complete service life thanks to robust and high-quality processing in line with OE standards</li> </ul>		<p>Well-proven technology: Manifold injection systems are the world's most widely used gasoline system</p>



### Workshop tip

## “Step by step” – Removal and installation instructions for high-pressure pumps on video



High-pressure pump



# Ignition

## Overview

**Reliable and high voltage for ignition systems:** In order to ignite the air/fuel mixture, gasoline engines need ignition sparks. Using electric energy from the battery, the ignition coil generates the required high voltage. Via ignition leads, it is forwarded to the spark plugs generating the ignition sparks.

### Innovations for road traffic and motorsports

In motorsports, Bosch ignition systems are among the most common components, but even series-production vehicles benefit from their advantages. For workshops this means: premium quality – of components and services alike.

### Range with numerous solutions

As a globally leading supplier of ignition systems, Bosch provides a complete range including all system components from ignition coils and leads to spark plugs and through to ignition modules and matching spare parts for almost all gasoline-driven vehicles – even for older models.

### Ignition system experience

In 1902, Bosch presented the high-voltage magneto ignition also known as arc ignition. Today, Bosch has particularly extensive experience in production and development.

### Manufacturers demand a high level of competence

Bosch bears a comprehensive know-how – particularly in terms of gasoline systems. Therefore, several international vehicle manufacturers rely on the innovative Bosch ignition components.



# Ignition components

## Product details



	Ignition coils	Ignition leads
	<p><b>Ignition coils</b> transform a vehicle battery's voltage into the high voltage required by the spark plugs to ignite the air/fuel mixture.</p>	<p><b>Ignition leads</b> transmit high voltage from the ignition coils to the spark plugs with almost no energy loss.</p>
Scope of application		
Advantages at a glance	<ul style="list-style-type: none"> <li>▶ Outstanding cold starting behavior</li> <li>▶ Lasting mechanical stability</li> <li>▶ Excellent heat, vibration and corrosion resistance</li> </ul>	<ul style="list-style-type: none"> <li>▶ High driving comfort and fun to drive</li> <li>▶ Outstanding conductivity and stability</li> <li>▶ Corrosion-resistant connections</li> </ul>
Information	<p>As one of the world's leading suppliers of ignition components, Bosch provides a broad range of ignition coils including compact ignition coils, pencil ignition coils and multi-spark ignition coils</p>	<p>As one of the world's leading suppliers of ignition components, Bosch provides a broad range of ignition leads individually geared to the respective vehicle</p>



### Ignition components

#### Spare parts

- ▶ Ignition distributor caps
- ▶ Ignition rotors
- ▶ Ignition contacts
- ▶ Ignition capacitors
- ▶ Ignition modules



# Spark plugs

## Product details

**Bringing motorsport technology onto the road:** Around the world, motorsport teams rely on Bosch spark plugs. Bosch launches racing innovations and experiences for workshops as well. Workshops customers can thus also benefit from the high performance, accuracy and quality of Bosch spark plugs.



### Advantages at a glance:

- ▶ **The matching spark plug** with high quality and for almost any engine
- ▶ **Equipped with innovative technologies** used for original equipment
- ▶ Developed for particularly **high performance specifications**



### Best Brand 2020 readers' poll



\*"auto motor und sport", issue 07/2020

#### Bosch spark plugs were voted "best brand"

For the 15<sup>th</sup> time already, the readers of the „auto motor und sport“ magazine voted for the best brands in the areas of automotive accessories, suppliers and services at the renowned "BEST CARS" readers' poll (issue 07/2020). Besides Bosch batteries,

filters, wiper blades, workshop chains and tools as well as Bosch spark plugs were also voted „best brand“.

# Fuel supply

## Product details



	Fuel supply module	Repair kit	Fuel pump
	<p><b>Fuel supply modules</b> with integrated electric fuel pumps supply gasoline and diesel engines with the required amount of fuel at a certain pressure.</p>	<p><b>Repair kits</b> for fuel supply modules include a fuel pump and all required wearing and assembly parts for economical repairs.</p>	<p><b>Electric fuel pumps</b> supply gasoline and diesel engines with the precise amount of fuel at the required pressure and under all operating conditions.</p>
Scope of application			
Advantages at a glance	<ul style="list-style-type: none"> <li>▶ High driving comfort and fun to drive</li> <li>▶ High degree of safety through application-specific design</li> <li>▶ Quick and precisely fitting installation</li> </ul>	<ul style="list-style-type: none"> <li>▶ Specifically developed for different types of fuels</li> <li>▶ Precisely manufactured individual components</li> <li>▶ Easily understood installation instructions</li> </ul>	<ul style="list-style-type: none"> <li>▶ High driving comfort and fun to drive</li> <li>▶ Use of state-of-the-art materials and coatings</li> <li>▶ High degree of safety through application-specific design</li> </ul>
Information	Comprehensive range of fuel supply modules for the large majority of passenger cars	Well-proven components developed in close cooperation with the vehicle manufacturers	In 1967, Bosch supplied the first gasoline injection system equipped with an electric fuel pump

### Workshop tip

## Professional repairs with Bosch kit solutions

Repair kit solutions allow workshops to provide value-based and economical repairs on fuel supply modules – all wearing parts combined into a single kit.



# Sensors

## Overview

**Sensors, an important part of everyday workshop business:** No matter whether for motorsport or series applications, in order to improve driving dynamics and emission behavior, vehicles are equipped with more and more sensors. Testing, maintaining and repairing them are important sources of revenues for automotive workshops.

### Innovative technology

Bosch continuously develops innovative sensor solutions. The majority of the sensors are equipped with special micromechanical sensor elements. They measure extremely precisely and are also designed for a long service life. The test and production procedures for spare parts are the same as those used for original equipment.

### Huge experience – high quality

40 years of sensor development and production made Bosch one of the largest sensor manufacturers worldwide. Bosch sensors are perfectly geared to the respective type of vehicle and can be replaced easily.

### Complete range with high market coverage

Bosch provides a multitude of sensors for all kinds of motor vehicles. Thanks to continuous updates, the comprehensive range is always state of the art.



# Sensors

## Product details



	Air-mass meter	Lambda sensor	Camshaft sensor	Crankshaft sensor
	Air-mass meters measure the actual air mass flow rate to optimize the air/fuel ratio. This contributes to efficient fuel combustion and powerful engine performance.	Measuring the exhaust-gas oxygen content, lambda sensors provide the engine control unit with relevant information on the ideal air/fuel ratio.	Camshaft sensors determine the position of the camshaft. Thanks to their high measurement accuracy, they allow precise injection/ignition timing.	Crankshaft sensors detect the rotational speed and the position of the crankshaft. These data are used by the engine control unit (ECU) to determine the precise injection/ignition timing.

Scope of application	
----------------------	--



	Knock sensors	Intake-manifold pressure sensor	High-pressure sensor	Temperature sensors
	Knock sensors detect engine knock both accurately and reliably thus helping to maintain engine performance and a long service life.	Intake manifold pressure and boost pressure sensors quickly and accurately measure the pressure and temperature of the intake air of combustion engines.	High-pressure sensors monitor the fuel pressure inside the fuel rail of gasoline direct injection engines.	Temperature sensors measure the temperature of air and media such as fuel, water, and oil. This contributes to efficient and safe engine operation.

Scope of application	
----------------------	--

**Bosch sensors**

The complete range comprises more than

# 3000

sensors for gasoline/diesel/gas-driven vehicles – Bosch innovations for automotive progress

**Did you know?**

**Bosch also offers many products and services for classic vehicles:**

In the current brochure Bosch Classic shows one Overview of the broad Spare parts program for Young and old timers from A to Z and alternator to wiper blade.

**[www.bosch-classic.com](http://www.bosch-classic.com)**

# What drives you, drives us

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

**Learn more:**  
[boschaftermarket.com](https://boschaftermarket.com)

*Your local retailer:*

**Robert Bosch GmbH**  
Automotive Aftermarket

Auf der Breit 4  
76227 Karlsruhe (Germany)  
Germany

[www.bosch.com](https://www.bosch.com)

