

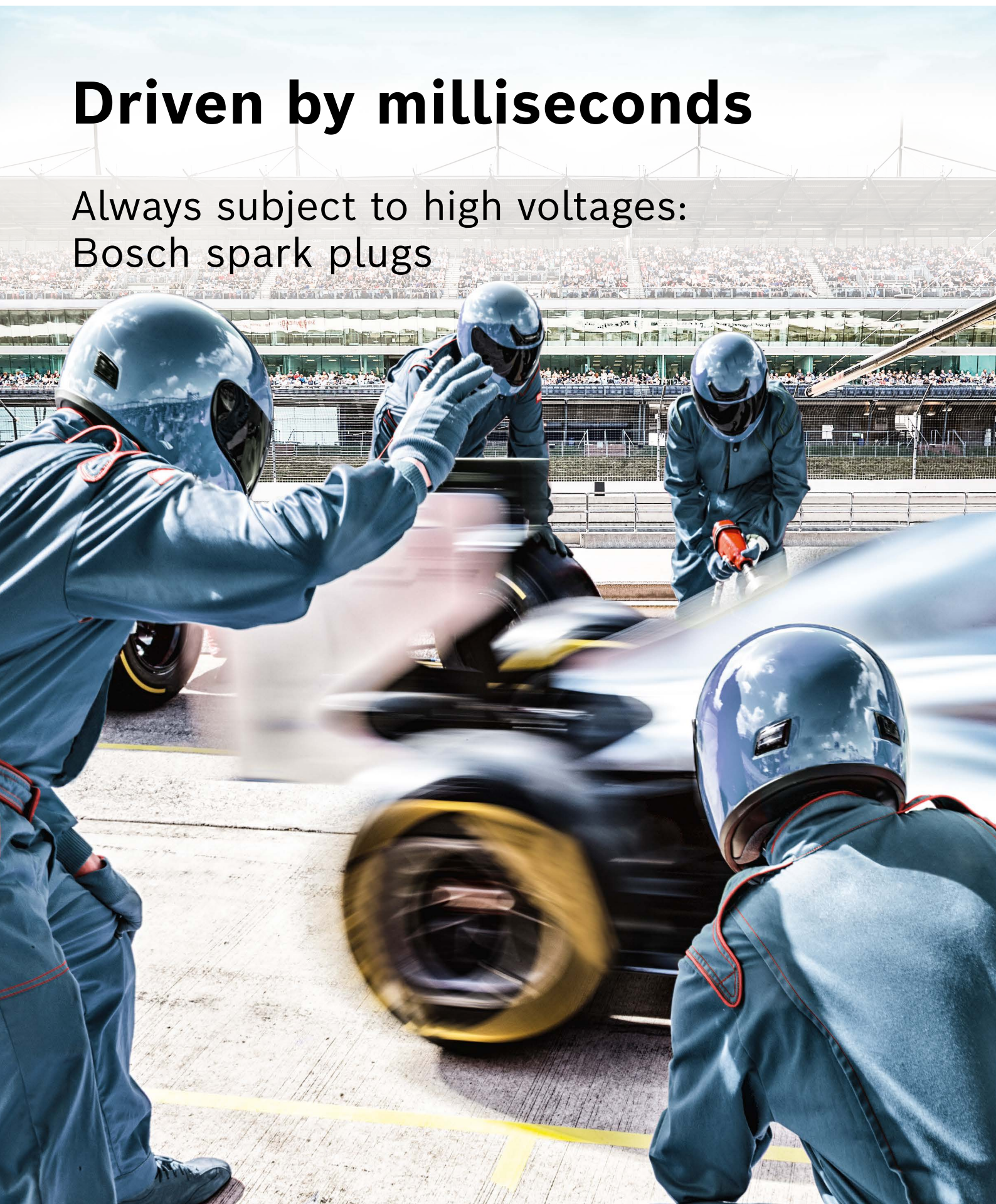
Invented for life



**BOSCH**

# Driven by milliseconds

Always subject to high voltages:  
Bosch spark plugs





# Motorsport technology for road use

## Efficient mobility with Bosch spark plugs



Around the world, motorsport teams rely on Bosch spark plugs. Racing innovations and experience is implemented at the production of spark plugs for series-production passenger cars as well. At these vehicles, they provide outstanding engine performance and ensure reliable and efficient everyday mobility for millions of people.



### Competence and know-how

Bosch holds comprehensive know-how and a wealth of experience in the field of gasoline injection and ignition technology. In close cooperation with the vehicle manufacturers, Bosch develops original-equipment spark plugs geared to the specific requirements of each engine. Innovative motorsport spark plugs are also used for road vehicles – although in modified versions.



### Spark-plug technology for numerous applications

Modern engines place high and highly differing demands on spark plugs. At the production of the latter, Bosch thus uses different electrode alloys with specific advantages to be able to meet exactly the specific requirements of the respective engine. And yet Bosch does not only offer matching spark plugs for series-production passenger cars. Its range also includes spark plugs for small engines and even for industrial applications.



### Innovations for the future

Back in

# 1902

Bosch presented its first spark plug together with a high-voltage magneto ignition system thus marking a milestone on the path to the rapidly growing motor vehicle production of the following decades.

# Spark plugs

## Overview

Modern vehicle engines need to meet increasing demands. They are judged based on factors such as fuel economy, low emissions and fun to drive. Many vehicle manufacturers rely on the high quality, reliability and performance of Bosch spark plugs for their vehicles' original equipment.

### System and component developer

Thanks to its close cooperation with vehicle manufacturers, Bosch gained outstanding know-how – concerning components such as spark plugs as well as gasoline injection systems. It allows Bosch to offer a comprehensive range of spark plugs and ignition components matching the specific requirements of different engines on the aftermarket.

### Technological competence

The aftermarket also benefits from motorsport and original-equipment innovations. Future trends and technologies are implemented at the production of spark plugs for series-production passenger cars and are often even further developed before being launched onto the workshop and retail markets.

### High market coverage

With a high worldwide market coverage, Bosch supplies matching spark plugs for almost any vehicle – and geared to the specific requirements of the respective engine.

### High quality

Following the first Bosch spark plug launched in 1902, several other patents have also been filed. These include, for instance, the Continuous Wave (CW) laser welding method, an invention from 2011, clearly increasing the durability of the welded connection on the center electrode. Innovative alloys such as nickel, yttrium and precious metals ensure a long service life. Production procedures such as the heat-shrink assembly, nickel-coated spark plug housings and threads ensure a high reliability and a long service life.



# Precious-metal spark plugs

## Product range & details



	Bosch Platinum	Bosch Double-Platinum	Bosch Iridium	Bosch Double-Iridium	Bosch EVO
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Scope of application Bosch spark plugs are designed for a permanently reliable ignition performance in the respective engine. They are developed and produced with the same quality as original equipment spark plugs.

Application					
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### Advantages at a glance

- Outstanding engine protection due to nickel-plated housing and thread
- Excellent ignitability for high performance due to specifically developed precious metals or alloys of the center electrode
- Hassle-free spark plug replacement due to factory-set electrode gap
- High wear resistance due to highly heat-conductive electrodes
- High gas tightness and stable heat value through heat shrink assembly



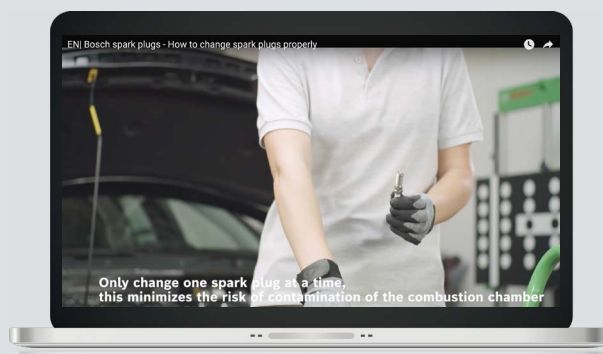
### Workshop tips in the video



#### Changing spark plugs – you know how

Instructions for changing spark plugs in the film:

1. Take the spark plug out of the packaging – do not grease or oil the thread.
2. Screw spark plug with your hand into the cylinder head until it bottoms out.
3. Tighten the spark plug with a torque wrench.
4. Observe the specified and type-specific torque.



# Precious-metal spark plugs

## Technology

**Improved head bending strength**  
of the insulator

**Special ceramic material**  
with high dielectric strength

**Special nickel coating**  
of housing and thread for  
improved corrosion protection

**Solid washer,**  
non-compressible

**Specially developed design**  
of the insulator nose

**Aligned and welded ground electrode**  
(in combination with solid washer)  
for an exact positioning in the combustion  
chamber

**Extremely fine precious-metal  
pin** welded via CW laser welding  
method on the center electrode



### Cup terminal

Engines with reduced displacement or with less cylinders (downsizing) and increased boost pressure need a higher ignition voltage. For these purposes, Bosch developed spark plugs featuring a longer insulator for improved fl ashover resistance. For length compensation, they are equipped with a so-called cup terminal.



### Solid washer

In case of engines with modern gasoline direct injection systems, the ideal spark plug alignment towards the injection valve decides about accurate ignition of the fuel mixture. For the precise positioning within the combustion chamber, Bosch spark plugs are equipped with a solid and non-compressible washer and a specifically oriented thread.



# EVO spark plugs

## Technology

Robust design against Mega Knocking

### Mechanical robustness:

Improved design features on insulator and housing increase the head bending strength and gas tightness (cylinder head), low sensitivity during assembly and repeated installation and removal of the spark plug.

**Important:** Observe the prescribed torque when installing the spark plug!  
**Use a torque wrench!**

### Long service life:

The use of iridium precious metal (pin) at the center electrode and platinum precious metal (plate) at the ground electrode reduces the wear on the electrodes and increases the service life of the spark plug.



### Thermomechanical robustness:

Improved insulator design features provide greater resistance to irregular burns and **mega knocking**.

### Electrical robustness:

Improved design features on the insulator increase the dielectric strength (>45 kV).

### Improved corrosion protection:

Improved corrosion protection through the use of a process developed by Bosch for nickel coating of the spark plug housing.



## Mega Knocking



These highly developed engines can experience irregular combustions, so-called **Mega Knocking**. This self ignition is not triggered by the ignition timing but caused by unburnt fuel residues or tiny particles contained in returned gases. Mega Knocking can result in extreme pressure build-up and even in engine damage if it occurs in case of an incorrect piston position.




# Spark plugs without precious metal

## Product range & details



	Bosch Nickel	Bosch Super 4
Scope of application	<b>Bosch Nickel spark plugs</b> are equipped with a ground electrode made of nickel alloy. They provide outstanding spark plug technology and are available for a wide range of applications.	<b>Bosch Super 4 spark plugs</b> provide particularly high protection against carbon fouling thanks to their surface air gap technology. They are an alternative recommendation for older passenger car models.
Application		
Advantages at a glance	<ul style="list-style-type: none"> <li>■ Outstanding engine protection due to nickel-plated housing and thread</li> <li>■ Smooth engine operation and steady acceleration due to a high heat conductivity of the ground electrode made of nickel alloy</li> <li>■ Hassle-free spark plug replacement due to factory-set electrode gap</li> <li>■ High wear resistance due to a highly heat-conductive center electrode with copper core</li> <li>■ High gas tightness and stable heat value through heat shrink assembly</li> </ul>	<ul style="list-style-type: none"> <li>■ Outstanding engine protection due to nickel-plated housing and thread</li> <li>■ Lag-free acceleration due to excellent ignitability by means of four thin electrodes with long spark gaps</li> <li>■ Outstanding protection against carbon fouling due to surface air-gap technology</li> <li>■ Hassle-free spark plug replacement due to factory-set electrode gap</li> <li>■ High gas tightness and stable heat value through heat shrink assembly</li> </ul>

 **Best Brand 2023 readers' poll**

LESERWAHL

**BEST BRAND 2023**

KATEGORIE  
Zündkerzen

Heft 08/23

**auto motor und sport**

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

For the 19<sup>th</sup> time already, the readers of "auto motor und sport" (a famous German motor magazine) chose the best brands in the areas of automotive accessories, suppliers and services at the renowned "BEST CARS" readers' poll (issue 08/2023). Besides Bosch batteries, filters, workshop chains and tools, Bosch spark plugs were also voted "best brand".

„auto motor und sport“, issue 08/2023

 **Available packaging**

**Bosch spark plugs** are available on the aftermarket featuring different packaging sizes, tailored to the market needs.



# Spark plugs for special applications

## Product range & details



	Bosch spark plugs for small engines	Bosch industrial spark plugs
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Scope of application

**Bosch Nickel spark plugs for small engines** are equipped with a ground electrode made of nickel alloy. They are available for a wide range of applications.

**Bosch industrial spark plugs are available** as Bosch Double-Platinum or Double-Iridium spark plugs. They are used in stationary gas engines.

Application



Advantages at a glance

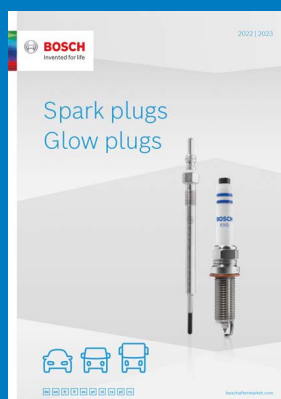
- Outstanding engine protection due to nickel-plated housing and thread
- Excellent starting behavior due to spark plug technology which is engineered to the requirements of the respective engine
- Hassle-free spark plug replacement due to factory-set electrode gap
- High wear resistance due to a robust, solid center electrode made of nickel
- High gas tightness and stable heat value through heat shrink assembly

- Outstanding engine protection due to nickel-plated housing and thread
- Excellent ignitability for high performance due to specifically developed alloys at the center and ground electrode
- Hassle-free spark plug replacement due to factory-set electrode gap
- High wear resistance due to a highly heat-conductive center electrode
- High gas tightness and stable heat value through heat shrink assembly



### Spark plug catalog

The right spark plugs for passenger cars and light commercial vehicles can easily be found in the catalog.





# Bosch spark plugs

## Quality

**Quality is not negotiable:** There can be no compromises when it comes to product quality. High-quality materials, excellent workmanship and specifications tailored precisely to the respective engine – this is how Bosch spark plugs deliver their outstanding performance.



Bosch spark plug quality comes from:

- Compliance with global, strict **quality standards** and regular **quality audits**
- **Use of raw materials** optimized for the respective application
- **Tightly cooperating production network** for a high efficiency
- **Continuous market observation** for product improvement

# Reliable workshop partner

## Bosch supports all drive types



 Did you know?

# 2,2 Mio.

hybrid electric or battery electric vehicles are currently driving on Germany's roads\*. For workshops, they increasingly represent a major service and repair potential.

\*German Federal Motor Transport Authority (1.1.22)

Gasoline and diesel engines are still the predominant drive systems in the passenger car market. However, new registrations of energy-efficient hybrid-electric or battery-electric vehicles are increasing constantly. Like vehicles with pure combustion engines, these cars also require regular service and repairs. Bosch offers workshops a growing portfolio of high-quality services for this purpose.



### Spare parts, workshop equipment, services and support

The sales and workshop program includes high-quality spare parts and diagnostic equipment as well as training courses and Technical Support. Bosch thus offers a complete package to support workshops in the maintenance and repair of vehicles.



### Competence and know-how

Bosch knows the technical requirements of vehicles very precisely and offers innovative and reliable solutions in its aftermarket range.



### Services for modern vehicles

As a developer of innovative solutions and supplier of hybrid and electric drive technology for original equipment, Bosch is helping to shape technological change in the vehicle and workshop market.



# Bosch spark plugs: Technology that also fits for hybrid vehicles

For internal combustion engines used in hybrid vehicles, the emissions legislation still applies. The modern spark plugs from Bosch can therefore be used in hybrid vehicles without any restrictions.



## Bosch spark plugs: fit for hybrids

The electric motor supports the combustion engine quietly in inner-city traffic and effectively with its power in high-load operation. This relieves the spark plugs, but leads increasingly to colder operating points. This increases the sooting and causes the spark plug to cool down more frequently.

Deposits can build up on the insulator nose, which can create a partially conductive, competing pathway. This can result in an inefficient spark or in the worst case in ignition failure. However, this doesn't occur with Bosch spark plugs as they are subject to cold-start tests implying such an extreme temperature behavior.



### **Bosch EVO – future-oriented technology**

#### **The market for hybrid electric vehicles will continue to grow.**

The engines used will also increase in performance and efficiency. The particularly robust Bosch EVO spark plugs are already designed for this.





# What drives you, drives us

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

Therefore, we have dedicated over 130 years of pioneering spirit  
and expertise in research and manufacturing to achieving this.

We provide the aftermarket and workshops worldwide with modern diagnostic and workshop  
equipment and a wide range of spare parts for passenger cars and commercial vehicles:

- solutions for efficient vehicle repairs
- innovative workshop equipment and software
- one of the world's most comprehensive ranges of new and exchange 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

**Find out more at:**  
[boschaftermarket.com](https://boschaftermarket.com)

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