Invented for life

BOSCH

Bosch glow plugs and spark plugs

More than 100 years of competence

Automotive progress
Spark plugs since 1902, glow plugs since 1922

The invention of the glow plug and spark plug paved the way for Bosch to become a globally successful developer and automotive supplier. Both products strongly influenced progress in vehicle engine development and are still being further developed today.

Competence and Know-how

Bosch has comprehensive know-how and extensive experience in the areas of gasoline and diesel injection. In close cooperation with vehicle manufacturers, Bosch develops spark plugs and glow plugs for original equipment, tailored to the requirements of the respective engine.

Extensive range

Throughout the last 120 years, Bosch has developed more than 20,000 different spark plug types. Today's program offers spark plugs for passenger cars, small engines and industrial applications.
Over the last 100 years, Bosch glow plugs have been continuously adapted to the changing requirements of diesel engines and have become increasingly powerful. They are now offered for almost every diesel vehicle in Europe.

Did you know?

In **1902,** the first series spark plug was built in combination with a high-voltage magneto.

In **1922,** the first Bosch glow plug for heavy oil engines relocated the necessary preheating of the engine to the inside of the combustion chamber. Previously, soldering irons or even open flames were used for this purpose.

Historical spark plug and glow plug

Glow plugs
Program and product details

	Duraterm	Duraterm HighSpeed	DuraSpeed
	The 11-volt glow plugs developed by Bosch in 1990 are based on comprehensive Bosch diesel experience and OE know-how.	For improved and reliable combustion in rather newer diesel engines. Quick preheating and long post-glow times of these pencil-type glow plugs developed by Bosch contribute to increased fuel efficiency while ensuring a long service life.	Featuring a Bosch-invented design, these glow plugs are particularly robust. The shape of their ceramic heating elements and their location inside a support tube reduce the risk of breakage even if subject to transverse forces.
Scope of application			
Heating element	Metal	Metal	Ceramic
Voltage	11 V	4.4 - 5 V	7 V and 11 V
Heating	850 °C < 5 sec.	950 °C < 3 sec.	1,000 °C < 2 sec.
Max. glow temperature	1,150 °C	1,150 °C	1,300 °C
Post-glow time	3 min.	6 min.	15 min.
Advantages at a glance	▪ **Comfortable starting behavior** through short preheating and long post-glow times ▪ **Smooth operation and high comfort** across all load ranges by regeneration heating	▪ **More than just a starting aid** by correctly adjusting the supply to the engine with the required temperature ▪ **Quiet idling and high comfort** across all load ranges from additional functions such as intermediate and regeneration heating	▪ **Outstanding starting comfort** via a very short heating phase, high glow temperatures and long post glowing ▪ **Easy on the alternator,** designed for low voltages in case of cold starts

Workshop-oriented packaging

Bosch glow plugs are available in **packs of ten and with blister packaging.**

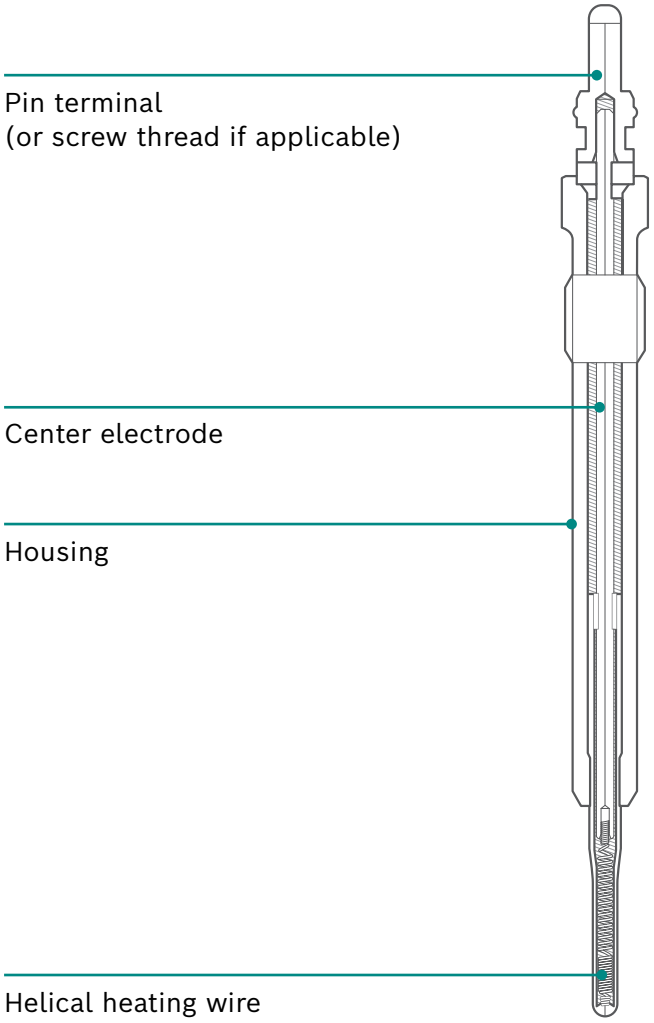
KeySecure Code label

The **KeySecure Code label** protects against product counterfeiting.

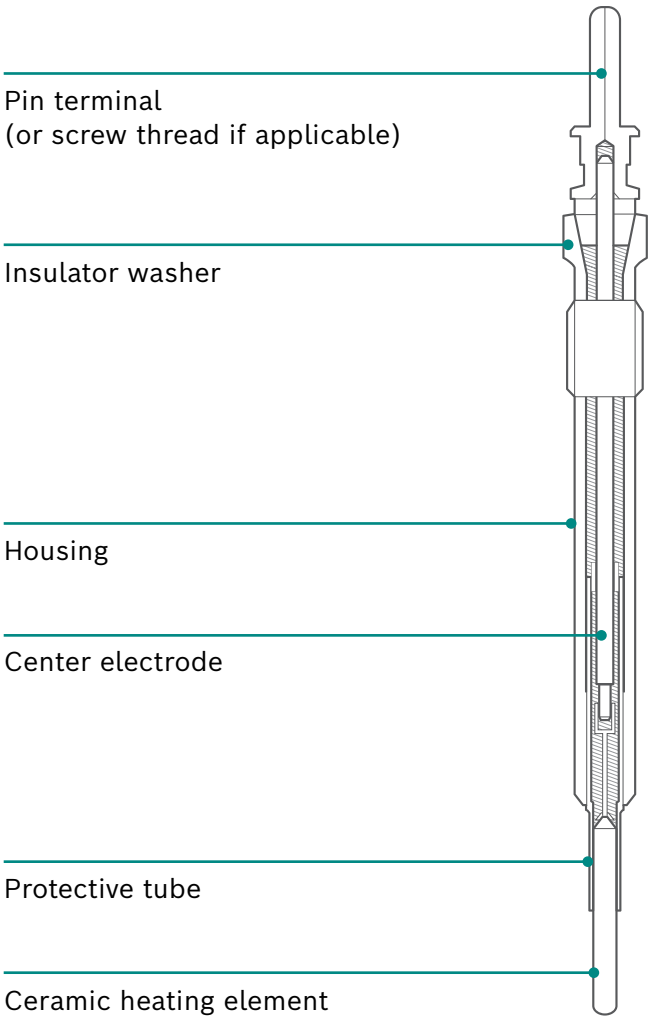
The label with a special seal on it shows the integrity of the packaging.

Glow plugs
Technology

Structure of Duraterm HighSpeed



Structure of DuraSpeed



Duraterm HighSpeed

This is how to define reliability and a long service life nowadays: Duraterm HighSpeed glow plugs have proven themselves millions of times. They start within less than

3 seconds.

Did you know?

Ceramic DuraSpeed glow plugs reach top values of up to

1,000 °C

within less than 2 seconds – even in case of very low ambient temperatures.

Glow plugs
Function

Much more than just a starting aid: Modern glow plugs do not only preheat the engine during the start-up, they also post-glow. This means they remain active although the engine is already running. In this manner, they ensure efficient and fuel-economic engine operation even in stop-and-go or city traffic.

Starting systems
Starting systems are used for diesel vehicles with max. 1 liter cubic capacity per cylinder. These systems increase the temperature inside the combustion chamber. For a reliable cold start, glow plug temperatures of at least 850 °C are required – closely related to the engine design and condition as well as to the ambient temperatures.

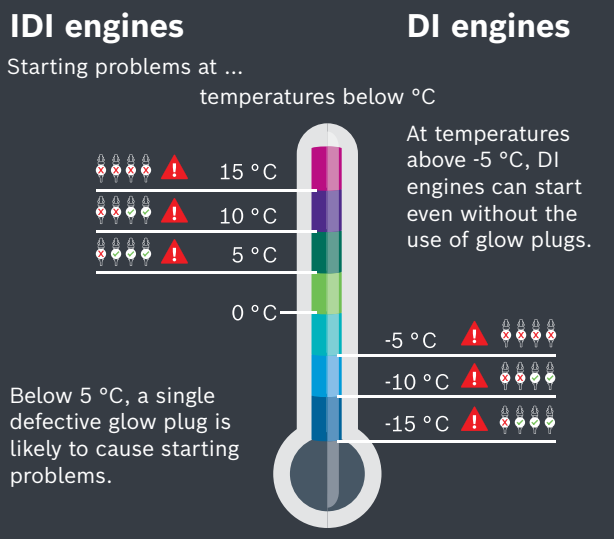
Post glow
Innovative diesel engines feature a lower compression. As a result, the diesel-air mixture does not ignite itself anymore in case of a cold engine. A post-glow system is thus required. It remains active even though the engine is already running – for comfortable and fuel-efficient engine operation e.g. in city or stop-and-go traffic.

Regeneration of particulate filters
Diesel particulate filters separate soot particles from exhaust gases. In order to prevent them from clogging the filter, separated soot particles are to be burnt periodically. This procedure is supported by modern glow systems heating up the filter by means of regeneration glowing.

Temperature-dependent starting behavior

The starting behavior of IDI and DI engines very much depends on the temperature. Especially in case of defective glow plugs during the cold season, which can cause starting problems.

With a single defective glow plug, IDI engines are likely to experience starting problems at temperatures below 5 °C. Workshops should thus warn their customers about this issue on time.



Glow plugs
Regular checking

Glow plugs are wearing parts. Their functionality should be checked at regular intervals.

Watch out! Listen up!

Different failures can be indicators for defective glow plugs:

- increased smoke generation in case of cold starts
- loud combustion noises before reaching the operating temperature
- unevenly running warm engine
- loss of power

Safe and accurate functional testing

Measurement procedure

- the resolution of the multimeter should be less than 100 mOhm
- clean the contacts, removing oil, dust or corrosion residues.
- determine the inherent resistance (offset) of the multimeter: connect both measuring electrodes and read out the measured value
- measuring points for installed glow plugs (engine switched off): Place the electrodes of the measuring instrument on the glow plug connector and on the engine housing (ground)
- glow-plug resistance = measured value minus inherent resistance (offset) of the multimeter

Evaluation

Resistance ∞ Ω: malfunction: defective glow plug

Resistance < 0,2 Ω: malfunction: defective glow plug

Resistance > 0,2 Ω and < 5 Ω: glow plug OK

Workshop tip

Measure with ohmmeter/ multimeter only

For functional tests, the resistance of glow plugs should only be measured with an ohmmeter or a multimeter. It protects glow plugs against overheating by direct battery voltages.

Glow plugs
Simple replacement

Saving time with appropriate installation and removal techniques

- remove defective glow plug and pay attention to the correct loosening torque
- choose a suitable glow plug from the range
- first screw in the glow plug by hand until the sealing seat touches the cylinder head – then tighten with the correct tightening torque

Torques for Bosch glow plugs

Thread	Loosening torque	Tightening torque
M 8	17,5 Nm	6 – 10 Nm
M 9	25 Nm	6 – 10 Nm
M 10	30 Nm	10 – 15 Nm
M 12	50 Nm	15 – 25 Nm
M 14	80 Nm	20 – 35 Nm

Please apply vehicle manufactures specifications, if they differ from above.

Loosening corroded glow plugs

High mileages bear the risk, that the glow plugs will corrode or burn into the cylinder head, due to constant high temperatures. While loosening it, due to excessive forces, the glow plug might be turned off. A part of it could get stuck in the cylinder head bore, causing a time-consuming cylinder head remotion.
Tip: Spray glow plugs several times with penetrating oil, let it work 30 minutes, and loosen them at engine operating temperature.

Workshop tip

Replace the whole set at once

Glow plugs usually get worn in quick succession. Experience has shown that replacing the whole set of glow plugs is cheaper than having to replace them one by one and one after another. The reason: Connection lines and conductor bars have to be removed for each replacement, which is time-consuming.

Glow plug replacement in the video

Find out more in the video about changing glow plugs easily and smoothly.

https://www.youtube.com/watch?v=rDr022-dm3s

Precious-metal spark plugs
Product range and details





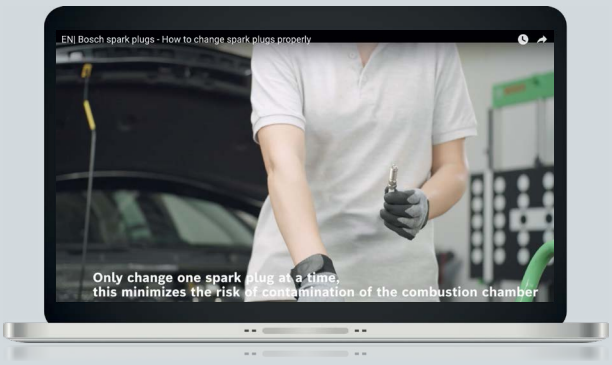
	Bosch Platinum	Bosch Double-Platinum	Bosch Iridium	Bosch Double-Iridium	Bosch EVO
Scope of application	Bosch spark plugs are designed for a permanently reliable ignition performance in the respective engine. They are developed and produced with the same quality as original equipment spark plugs.				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

Solid washer,
non-compressible

Special nickel coating
of housing and thread for
improved corrosion protection

Specially developed design
of the insulator nose

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

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

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.

Spark plugs without precious metal
Product range and details

	Bosch Nickel	Bosch Super 4
Scope of application	**Bosch Nickel spark plugs** 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.	**Bosch Super 4 spark plugs** 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	■ Outstanding engine protection due to nickel-plated housing and thread ■ Smooth engine operation and steady acceleration due to a high heat conductivity of the ground electrode made of nickel alloy ■ Hassle-free spark plug replacement due to factory-set electrode gap ■ High wear resistance due to a highly heat-conductive center electrode with copper core ■ High gas tightness and stable heat value through heat shrink assembly	■ Outstanding engine protection due to nickel-plated housing and thread ■ Lag-free acceleration due to excellent ignitability by means of four thin electrodes with long spark gaps ■ Outstanding protection against carbon fouling due to surface air-gap technology ■ Hassle-free spark plug replacement due to factory-set electrode gap ■ High gas tightness and stable heat value through heat shrink assembly

Best Brand 2024 readers' poll

„auto motor und sport", issue 08/2024

Bosch spark plugs were voted "best brand"

For the 20th 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 08/2024). Besides Bosch batteries, filters, workshop chains and tools, Bosch spark plugs were also voted "best brand".

Available packaging

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

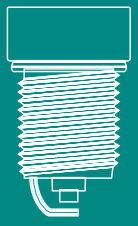
Spark plugs for special applications
Product range and details

	Bosch spark plugs for small engines	Bosch industrial spark plugs
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

Workshop tip

Mounting

1. Take the spark plug from the packaging. Do not grease or oil the thread.
2. Screw the spark plug into the cylinder head by hand until it is seated.
3. Tighten the spark plug with a spark plug spanner.
4. Observe the predefined and type-specific torque, e.g. 23 Nm.



Spark plug and glow plug catalog

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

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

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