BOSCH
Invented for life

Glow plugs

Duraterm, Duraterm High Speed and DuraSpeed from Bosch

Glow plugs
Overview

Bosch diesel technology and glow plugs – an excellent combination! This opinion is shared by international vehicle manufacturers equipping their vehicles with Bosch glow plugs. Know-how gained with original equipment is implemented in the Bosch workshop range.

Professional quality for workshop experts
The comprehensive Bosch diesel experience directly influences each and every detail of Bosch glow plugs. They are developed in cooperation with the vehicle manufacturers and exactly matched to each engine type. Workshops relying on Bosch glow plugs thus rely on professional Bosch quality.

A program without equal
At Bosch, workshops benefit from a comprehensive range of glow plugs providing the right solution for almost any diesel vehicle – older models included.

More than 95 years of experience with glow plugs
As a worldwide leader in development of injection systems, Bosch possesses comprehensive system know-how concerning diesel drives. Therefore, many international vehicle manufacturers rely on innovative Bosch glow systems.

Innovative technology
Glow plugs for modern diesel engines do not only support cold starts by means of preheating, their post-glowing function also ensures smooth operation and comfort across all load ranges. Modern diesel engines work with a compression so low that they require post glow. Bosch provides suitable glow plugs for precisely this purpose – featuring a long service life and being highly reliable. They ensure smooth operation, low consumption and thus reduced emissions.

A good choice for vehicle manufacturers
International vehicle manufacturers rely on Bosch glow-plug quality for their vehicles' original equipment.

Glow plugs
Program & product details

	Duraterm	Duraterm High Speed	DuraSpeed
	Bosch-patented 11-volts glow plug with short pre-heating and extended post-glow times	**In diesel engines, this reliable low-voltage glow plug is more than just a starting aid (preheating function). Thanks to its intermediate glow and post glow capabilities, it also contributes to efficiency and thus reduced engine emissions.**	**With its Bosch-patented design, this glow plug is particularly robust. The shape of its ceramic heating element and its location inside a protective tube reduce the risk of breakage even if lateral forces are applied.** Thanks to its excellent intermediate glow and post glow capabilities, it also contributes to efficiency and thus reduced engine emissions.
Scope of application			
Heating element	Metal	Metal	Ceramic
Voltage	11 V	4.4 to 5 V	7 V
Heating	850 °C < 4 s	1000 °C < 3 s	1000 °C < 2 s
Max. glow temperature	950 °C	1030 °C	1350 °C
Post-glow time	3 min	6 min	15 min
Advantages at a glance	▶ Comfortable starting behavior	▶ Comfortable starting behavior ▶ Easy on the on-board power supply during the start-up	▶ Comfortable starting behavior ▶ Easy on the on-board power supply during the start-up ▶ Regeneration glowing

Workshop-oriented packaging

Bosch glow plugs are available as **single packs** or in **packs of ten.**

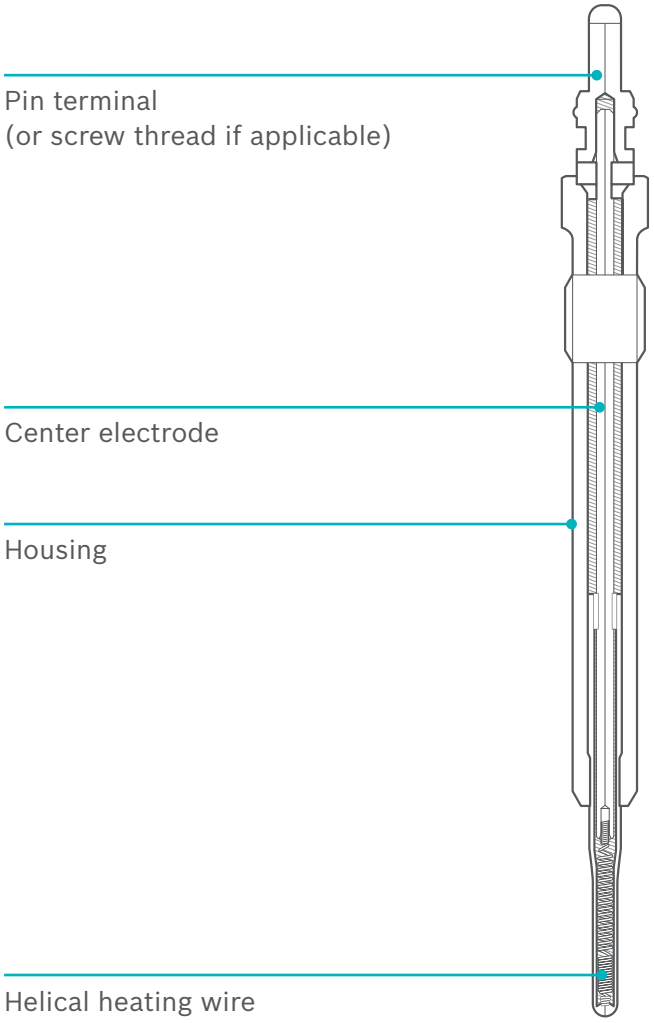
KeySecure Code label

The **KeySecure Code label** contributes to protection against product counterfeiting.

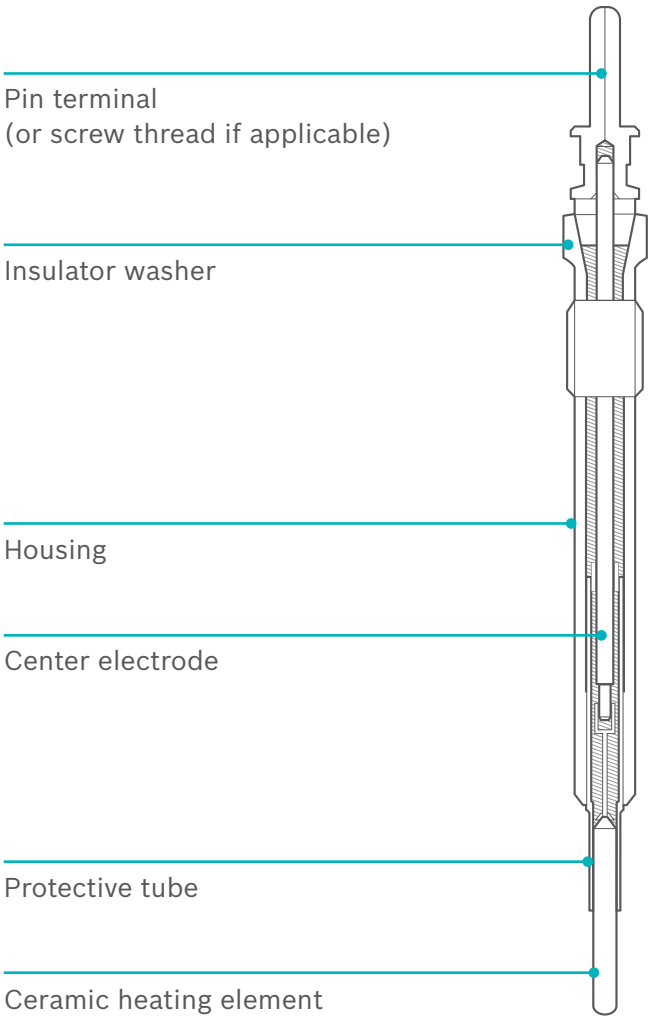
A special sealing label ensures the integrity of the packaging.

Glow plugs
Technology

Structure of Duraterm High Speed



Structure of DuraSpeed



Duraterm High Speed

This is how to define reliability and a long service life nowadays: Duraterm High Speed 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

1 350 °C

in 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. That is, 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.

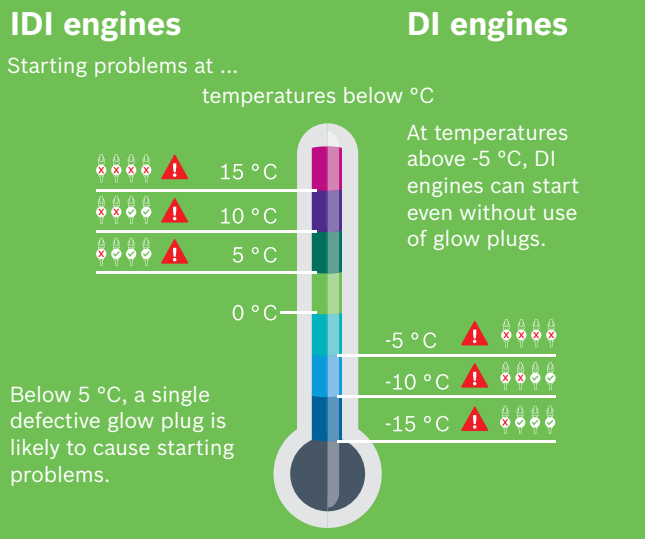
Post glow
Innovative diesel engines feature a lower compression. As a result, the diesel/air mixture does not ignite itself anymore in case of a cold engine. A post glow system is thus required. It remains active even though the engine is already running – for comfortable and fuel-efficient engine operation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

Regeneration of particle filters
Diesel particle filters almost completely 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, this fact causes 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 thus be checked in regular intervals reaching from 80 000 to 100 000 km.

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
- Increased fuel consumption

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 voltage – and workshops against possible consequences.

Glow plugs
Simple replacement

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. These tasks consume a lot of time.

Saving time with appropriate installation and removal techniques

- Select the matching glow plug from the glow plug portfolio
- Screw in the glow plug by hand – until the seal touches the cylinder head. Then, tighten it applying the appropriate torque (see chart).

Torques for Bosch glow plugs

Thread	Tightening torque
M 8	6-10 Nm
M 9	6-10 Nm
M 10	10-15 Nm
M 12	15-25 Nm
M 14	20-35 Nm

In case the vehicle manufacturer's specifications differ, those apply.

Preventing seizure and corrosion

In case of high mileages, glow plugs can corrode at the cylinder head or seize due to the high temperatures they are constantly subject to. In both cases, they can break because of the excessive force applied when trying to loosen them – thus leaving a part of them inside the threaded hole at the cylinder head.

The result: Time-consuming disassembly of the cylinder head would be required.

Therefore: Even without need for replacement, servicing should include loosening the glow plugs slightly and tightening them again in order to prevent seizure and corrosion.

Driven by efficiency

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 125 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
- One of 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

For additional information, please visit:

bosch-automotive-aftermarket.com

What drives you, drives us

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