BOSCH
Invented for life

Glow plugs

Duraterm, Duraterm HighSpeed 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 vehicle manufacturers and perfectly matched to each engine. Workshops relying on Bosch glow plugs can rely on professional Bosch quality.

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

Glow-plug competence since 1922
As one of the world's leading developers of injection systems, Bosch possesses comprehensive system know-how – in particular concerning diesel powertrains. Subsequently many international vehicle manufacturers trust in 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. Working with such a low compression, modern diesel engines require post glowing. Bosch provides suitable glow plugs for precisely this purpose – featuring both a long service life and 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 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 pre-heating 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**.

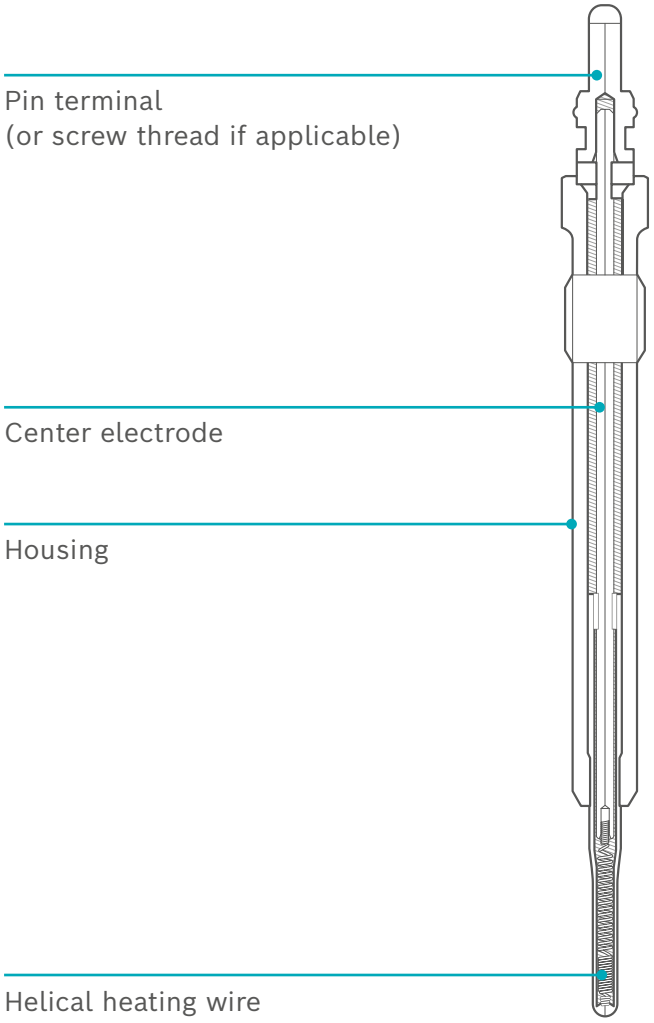
KeySecure Code label

The **KeySecure Code label** provides protection against product counterfeiting.

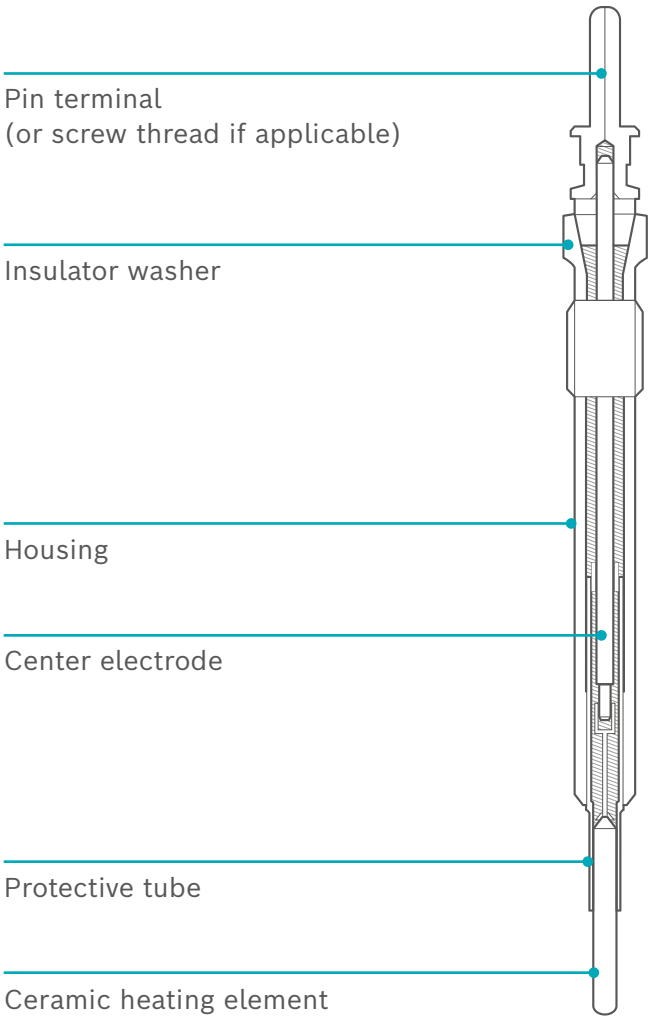
The label with a special seal on it guarantees the integrity of the packaging.

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.

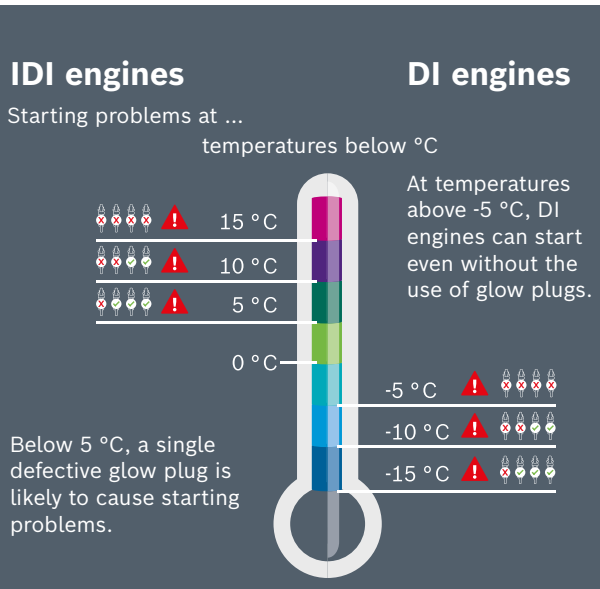
Post glow
Innovative diesel engines feature a lower compression. As a result, the diesel/air mixture does not ignite itself anymore in case of a cold engine. A post glow system is thus required. It remains active even though the engine is already running – for comfortable and fuel-efficient engine operation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

Regeneration of particle filters
Diesel particle 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 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

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

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.

What drives you, drives us

Bosch technologies are used worldwide in and most 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 provide the aftermarket and repair shops worldwide with modern diagnostic and workshop equipment and a wide range of spare parts for passenger cars and commercial vehicles:

- Solutions for efficient and effective 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 technical support
- Comprehensive range of trainings
- Targeted sales and marketing support

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