



Diesel power for the workshop with glow plugs from Bosch



BOSCH

Invented for life

Diesel: strong market for the workshop with Bosch as a partner

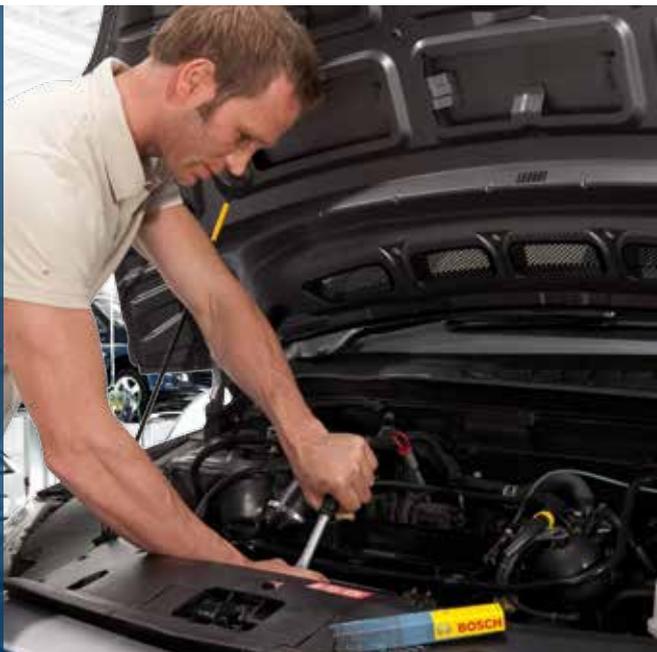
Despite the hype surrounding electric and hybrid vehicles – diesel is still the most environmentally friendly and attractive type of drive. This is unlikely to change in the next few decades.

Current sales figures back up this trend. Even after the financial crisis, almost every second new car registration in Europe involves a vehicle using economical diesel technology. This opens up enormous revenue opportunities for workshops.

Another trend is having a growing influence on modern drives: low compression with greater specific power output. A particularly important factor for these power units is optimal integration of the preheating system. As the world-wide leading developer of engine management systems and fuel-injection systems, Bosch has comprehensive knowledge of this field. You and your workshop profit from this. Bosch provides you with parts, bytes and services at one stop.



Glow plugs with the power of persuasion: Bosch Duraterm and Bosch DuraSpeed



Bosch glow plugs:
First choice for modern
diesel engines



Modern electronic preheating systems

Glow plugs play an important role in modern diesel engines. They work with such low compression that post-heating is required. This is only to ensure concentric running of the engine with reduced fuel consumption and lower emissions. Bosch delivers perfect system performance consisting of an electronic glow control unit and the glow plugs Duraterm and DuraSpeed, for almost all vehicles in Europe. In their original equipment, a large number of manufacturers rely on innovative preheating systems from Bosch.

Partner for retail and workshops

Bosch offers a comprehensive range of preheating systems in original equipment quality. Electronically readable quick search numbers enable reliable, simple and rapid identification. Bosch also ensures effective protection against product counterfeiting. In short: You get the highest quality of diesel technology for a sustained increase in workshop revenues.



Duraterm – proven a million times over

The Duraterm glow plug is a genuine permanent success with regard to reliability and service life. It starts within less than 4 seconds.

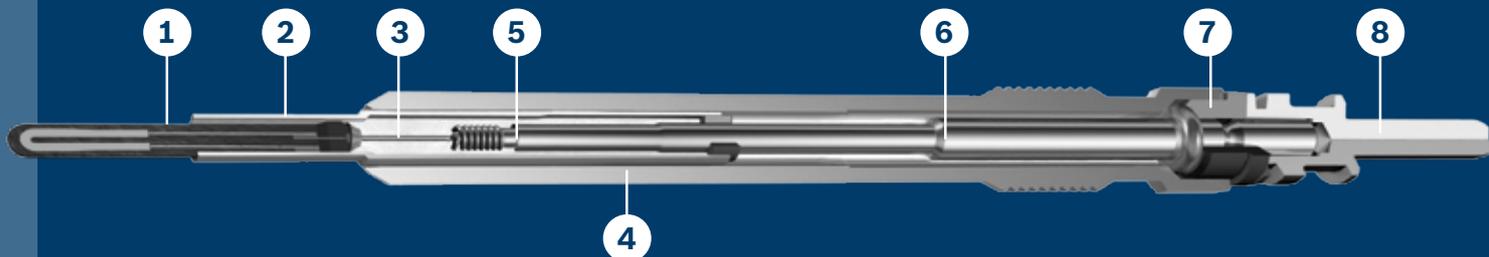


DuraSpeed – extremely hot for diesel power

Fast, faster, DuraSpeed. The ceramic sheathed-element glow plug reaches peak performance of up to 1,300 °C within less than two seconds, even at extreme temperatures.

Sheathed-element glow plug technology in detail: Bosch Duraterm and Bosch DuraSpeed

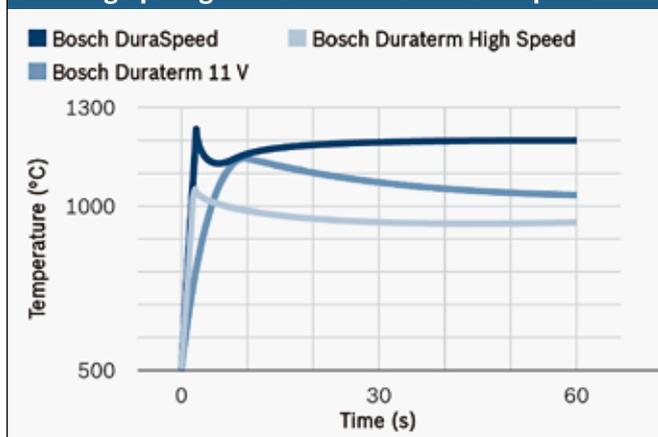
Bosch DuraSpeed



Structure of the ceramic Bosch DuraSpeed:

- | | |
|--------------------------|--------------------------------|
| 1 Ceramic heater element | 5 Terminal stud |
| 2 Metal tube | 6 Center electrode (extension) |
| 3 Power connection | 7 Insulating washer |
| 4 Housing | 8 Connector |

Heating-up diagrams: Duraterm and DuraSpeed



Bosch glow plugs get to the point quickly: The startup times of modern diesel engines are correspondingly short

The right solution for every diesel engine

The comprehensive range of sheathed-element glow plugs from Bosch provides the right solution for almost every diesel vehicle – even for older cars. Professional quality from the original equipment manufacturer Bosch, where systems with post-heating capability are developed in close collaboration with vehicle manufacturers. This experience is included in every engineering design detail – also for sheathed-element glow plugs. All components are precisely adapted to each engine type.

Bosch Duraterm 11 V: Enduring power

Reliable and long-lasting glow plug

- ▶ Starts within less than 4 seconds
- ▶ Post-glow time up to 3 minutes (depending on version)
- ▶ Saves fuel by reducing soot
- ▶ Longer engine service life as a result of improved combustion of the fuel

Bosch Duraterm High Speed: Faster starts better

Glow plug with 4.4V low voltage or 5V nominal voltage

- ▶ Starts at above 1,000 °C in less than 3 seconds
- ▶ Improved cold-running
- ▶ Engine start almost the same as with a gasoline engine
- ▶ Lower fuel consumption with same output

Bosch DuraSpeed: Rediscover diesel

Cutting-edge technology from the original equipment

- ▶ Maximum preheating temperature of 1,300 °C reached in less than 2 seconds
- ▶ Low power input
- ▶ Post-glow time of up to 15 minutes
- ▶ Very quiet running and low fuel consumption with the same power output

Like this your customer drives with clean economy: Glow plugs for modern diesel systems



Clean combustion: Protects the environment and the engine



Bosch Duraterm and Bosch DuraSpeed: Packs of 10 or individual packs



DuraSpeed from Bosch – more driving comfort and clean technology convince diesel customers

The striking features of Bosch DuraSpeed glow plugs include not only the extremely high temperatures and absolute speed but also

their number 1 position with regard to the environment.

- ▶ Even with a cold engine: Smooth running and starting response almost like a gasoline engine
- ▶ Stabilizes combustion when driving in urban areas – perfect for regeneration of the particle filter
- ▶ Prepared for the future with start/stop systems
- ▶ Reduced fuel consumption with the same power output as a result of intelligent energy management
- ▶ Lower emissions due to adaptation of the preheating temperature to each operating state of the engine
- ▶ Up to 60% lower exhaust gas opacity values compared to standard preheating systems
- ▶ Extended service life

Key Secure label: Bosch quality for your customers



You play safe with the original!

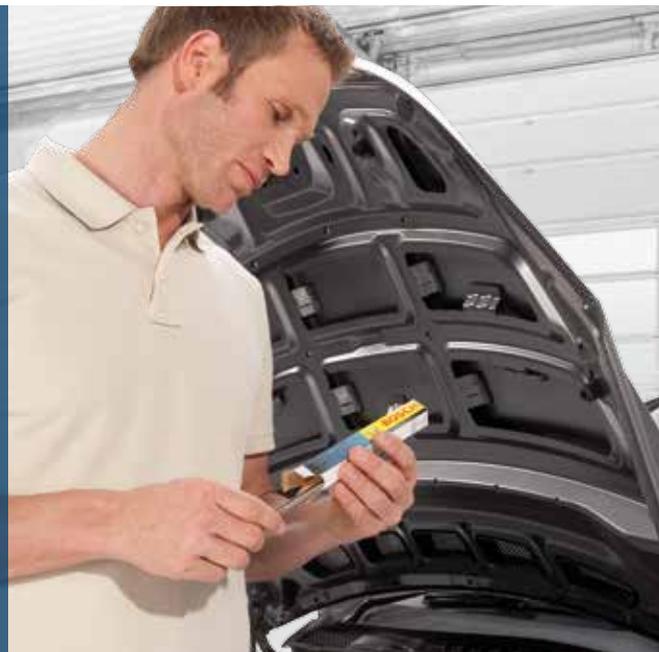
In the case of glow plugs, Bosch has enhanced protection against product counterfeiting:

- ▶ Key Secure label with a hard-to-copy hologram on every package
- ▶ 15-digit Key Secure code: The authenticity of the glow plug can be checked at www.protect.bosch.com on the internet
- ▶ QR code: Can be read with standard scanners or per cellphone. Immediate verification per e-mail or text message

Professional solutions for the workshop: Glow plugs from Bosch



Voltage test (MMD 302): The glow plug has to be replaced



Found quickly: Matching Bosch glow plug from the range

Torques for safe glow plug installation



Torques for Bosch Duraterm

Thread diameter	Tightening torques
8 mm	6 – 10 Nm
10 mm	10 – 15 Nm
12 mm	15 – 25 Nm
14 mm	20 – 35 Nm

Torques for Bosch DuraSpeed

Thread diameter	Tightening torques
8 mm	8 – 12 Nm
10 mm	15 – 20 Nm

Torques for connecting nuts

Thread diameter	Tightening torques
4 mm (M4)	max. 2.5 Nm
5 mm (M5)	max. 5.0 Nm

The right installation and removal techniques save time

- ▶ Voltage test on the glow plug with multimeter (e.g. Bosch MMD 302 digital multimeter, order number 0684 500 302)
- ▶ No voltage flowing: The glow plug has to be replaced.
- ▶ Select the matching glow plug from the range
- ▶ Before installation, check the thread for cleanliness
- ▶ First screw in the glow plug by hand – until the seal seat makes contact with the cylinder head. Then tighten with the right torque (see table).

Flexible and patented

- ▶ The DuraSpeed from Bosch with its patented, flexible design is particularly rugged.
- ▶ The shape of the heater element and its seat in a protecting tube reduces the danger of breakage even if lateral forces are applied.
- ▶ The ceramic material for the heater element also guarantees high heat resistance and long service life.

Repaired quickly and carefully:

That leads to satisfied customers



Installation: Tighten with the right torque



Satisfied in every way: Professional service convinces your customers

Reliable and precise functional test

For the functional test, the glow plug resistance should be measured using only an Ohmmeter / multimeter. This protects the glow plug (especially Bosch GLP 0 250 403 XXX and 0 250 402 XXX with nominal voltage < 11 V) against overheating due to direct battery voltage. It also protects the workshop against possible consequences such as injuries or engine damage due to molten metal parts.

- ▶ The resolution of the multimeter should be less than 100 mOhm
- ▶ For a good measurement connection, wipe oil, dirt or corrosion off the contacts
- ▶ Determine the inherent resistance (offset) of the multimeter: Place the ends of the measurement electrodes together and read off the measured value
- ▶ Measuring points when installed (engine off): Apply the electrode of the measurement device to the connector of the glow plug and engine housing (ground)
- ▶ Resistance value of the glow plug = measured value minus inherent resistance of multimeter (offset)

Resistance values:

Resistance $\infty \Omega$:	Malfunction: Glow plug defective
Resistance < 0.2 Ω:	Malfunction: Glow plug defective
Resistance > 0.2 Ω and < 5 Ω:	Glow plug OK

Check regularly every 80,000 – 100,000 km

Glow plugs are wearing parts and therefore have to be checked regularly to ensure they function perfectly. Experience has shown that glow plugs usually reach their wear limit in quick succession. For the customer, replacing the complete set costs less than repeatedly replacing individual defective glow plugs. This is because connection lines and conductor bars have to be removed before each replacement.

Engine loud, unsettled, lack of power? Check the glow plugs!

Defective glow plugs can cause many different malfunctions. With the following symptoms, it can be worthwhile checking the glow plugs:

- ▶ Increased smoke formation, especially after a cold start
- ▶ Combustion noise is louder than normal when the engine is cold
- ▶ The engine runs unevenly despite a warm engine
- ▶ The power output drops or fuel consumption increases

Bosch: Bringing you the workshop of the future

For over 125 years, innovations from Bosch have kept vehicles in motion to ensure that people get from A to B safely and comfortably.

Bosch Automotive Aftermarket offers workshops and retailers a comprehensive portfolio of products that is unmatched worldwide:

- ▶ Efficient diagnostics
- ▶ Innovative workshop equipment
- ▶ Quick and reliable delivery service
- ▶ The most extensive range of spare parts worldwide – for new and replacement parts
- ▶ Workshop concepts for all requirements
- ▶ Comprehensive range of training courses
- ▶ Targeted sales and marketing support
- ▶ Skilled hotline
- ▶ Workshop portal available 24 hours a day
- ▶ Favorable leasing offers for workshop equipment and software
- ▶ And many other services to guarantee your success

When this is all combined, not only the parts fit into place but also the time schedule, organization, and the result.



Order no. 1 987 720 608



Order no. 1 987 720 018

Spare parts catalogs:

The range of products from Bosch is available as a catalog in printed form or electronically (eCat). Ask your Bosch wholesaler. (Fig. - glow plugs and diesel spare parts)

Your address for genuine Bosch quality:

For more information:
www.bosch.com



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