Engine.

Product	The advantages for your customers	The advantages for you	Practical hint
V-belt and belt drive system. Exceptionally low noise and avoidance of squealing. 	• Long service life thanks to low mechanical wear. • Reduces the risk of consequential damage.	• Precisely adapted to auxiliaries such as alternator, water pump and air conditioning compressor.	• The Mercedes-Benz genuine poly-V-belt has a service life of at least 90,000 km (on regular conditions), enough to take a Mercedes-Benz around the world more than twice.
Starter battery. Fully maintenance-free high-performance product with a long service life. 	**Advantages of AGM technology:** • 3 times longer service life thanks to high cycle strength and chemical stability. • Exceptionally good cold-start properties. • High performance and therefore perfect for highly equipped cars. • High resistance to exhaustive discharge. • Lower self-discharging. • 100 % tilt- and leak-proof. **Advantages of lead-calcium-silver technology:** • 20 % higher service life compared to conventional batteries. • Greater stability when subjected to frequent short trips and enhanced cold-start capabilities.	• The Mercedes-Benz genuine starter battery gives your customer a high-quality product that is ideally adapted to the vehicle's energy requirements and can be stored for longer than conventional IAM batteries.	• AGM stands for Absorbent Glass Mat. In this battery, a glass fibre fleece is saturated with sulphuric acid. Compared to conventional car batteries, there is no fluid which could leak out in the event of an accident, for example. • The AGM batteries are ideal for highly equipped cars or vehicles and a start/stop function.

Products bearing this symbol were subject to a competitive comparison. A selection of the test results can be found on the following pages.

Product	The advantages for your customers	The advantages for you
Spark plugs. Ideally tuned to the engine – for higher output, lower fuel consumption and a long engine service life. 	• High-quality component structure thanks to the use of extremely resistant and durable materials. • Effective, environmentally friendly combustion.	• Specifically developed and tested for each Mercedes-Benz engine type.
Glow plugs. Help ensure a fast engine start and an effective, environmentally compatible warm-up phase. 	• Mercedes-Benz glow plugs reduce the risk of sooting as the ideal operating temperature is reached quickly.	• Specifically developed and tested for each Mercedes-Benz engine type.
Silencers. Extremely high level of sound attenuation without impairing the engine output. 	• Long service life and therefore highly economical. • Specifically developed and tuned for Mercedes-Benz vehicles. • Complex and stable structure thanks to high-quality V2A stainless steel.	• Mercedes-Benz genuine silencers are an ideal fit for our Mercedes-Benz models and therefore ensure short repair times.

Competitive comparison: spark plugs.

Original vs. competitor.

Mercedes-Benz genuine spark plugs are optimally tuned to the respective engine of a Mercedes-Benz. In this way, they ensure high levels of performance as well as low fuel consumption. In order to test their product quality, on behalf of Mercedes-Benz Group AG, Mercedes-Benz genuine spark plugs were pitted against six comparable competitor products. The test was entirely managed by NGK Spark Plug GmbH from Ratingen, Germany. Also involved were testing institutes such as Fraunhofer IWS and Aspekt Quality GmbH.

Here you will find an excerpt of the results:

TEST RIG

- Salt spray test
- Determination of the loosening torque
- Check of the specified heat value
- Measurement of the internal resistance
- Testing of the electrode distance

VISUAL CHECK

- Connections
- Spark plug cross-section image
- Precious metal alloy and electrode geometry

Salt spray test. During the salt spray test, the influence of water spray or salt contained in the air were simulated. Even after 100 hours of testing, Mercedes-Benz genuine spark plugs exhibited no signs of red rust. By comparison: more than half of the competitor products already started to show visible signs of red rust after just 25 hours; this became worse after 100 hours.

Loosening torque. After 100 hours of the salt spray test had elapsed, the loosening torque required to unscrew the spark plug was determined. A high loosening torque corresponds to minimal loss of power and solid seat. The loosening torque spectrum ascertained during the test shows significant differences between the individual average loosening torques of the various manufacturers – ranging from 14.28 Nm for the worst competitor product to 24.85 Nm for the Mercedes-Benz product.

Spark plug of one of the competitors before the 100-hour salt spray test.

Spark plug of one of the competitors after the 100-hour salt spray test.
Red rust is clearly visible at the hexagonal nut, washer and SAE terminal nut.

Heat value. The heat value shows how quickly the heat absorbed from the combustion chamber reaches the cylinder head. If this occurs too slowly, the spark plug becomes too hot, which can lead to uncontrolled, premature ignition and engine damage. On the other hand, "cold spark plugs" impair the self-cleaning characteristics, as soot particles cannot be completely burned off. This can result in misfiring and, in extreme cases, may even lead to engine damage. Mercedes-Benz approves a heat value of 6. One competitor product had a heat value of 8 and was thus unable to achieve the approved value (according to Mercedes-Benz nomenclature, this is a heat value of 7).

Internal resistance. The internal resistance of the spark plug, also known as suppression resistance, is specified by Mercedes-Benz as the engine manufacture and prevents interference with vehicle technology, e.g. with the radio. This is intended to ensure optimal suppression of interference in the entire component chain – from the ignition coil right up to the spark plug. The internal resistance must not be too high, as this means less ignition energy would be available. This leads to suboptimal combustion of the fuel/air mix and to an increase in fuel consumption and CO_2 emissions. During this test, Mercedes-Benz genuine spark plugs demonstrated a resistance value of 1–2 kOhm, whereby the vast majority of the competitor products demonstrated internal resistance values up to 8 kOhm. This can lead to negative ignition characteristics.

Electrode distance. The electrode distance between the earth electrode and the centre electrode is decisive for the ignition characteristics and service life. Together with one other competitor product, the Mercedes-Benz genuine spark plug exhibited the best electrode distance. The other competitors showed differences ranging from minor (0.05 mm) to major (0.848 mm) discrepancies.

Visual check of the connections. The visual check shows that the use of high-quality brass instead of simple steel substantially improves the connection quality. However, only Mercedes-Benz and one other competitor use the more cost-intensive brass.

Visual check of cross-sectional image. The earth electrode is required in order to withstand the extreme temperatures present in the combustion chamber. Only the Mercedes-Benz genuine spark plug features a three-ply, low-wear copper core. More than half of the tested competitor products do not have a copper core, whereby they are potentially more susceptible to wear and tear.

Visual check of precious metal alloy and electrode geometry. The visual check of the precious metal alloys and electrode geometry makes clear which product wins the endurance test. The platinum louvres of the Mercedes-Benz genuine spark plugs offers impressively high resistance to wear at the earth electrode. The fine iridium tips of their centre electrode (Ø 0.6 mm) enable good mix availability and flame propagation. One of the competitor products does not use precious metal alloys at the earth electrode. What's more, the diameter of up to 1.0 mm at the centre electrode leads to poor ignition characteristics.

Average distances after measuring several of each spark plug in new condition