

Reborn E-Class makes European debut 'in the metal' at Geneva Motor Show



Overview

The new E-Class from Mercedes-Benz represents the pacemaker when it comes to safety, comfort and environmental compatibility in this market segment. With its unique combination of driver assistance systems, this saloon further consolidates the leading position of Mercedes-Benz in the luxury class. Its features include a drowsiness detection system, Adaptive Highbeam Assist and the proximity control system which is capable of performing automatic emergency braking when there is acute danger of a collision.

Mercedes-Benz has improved the already exemplary long-distance comfort of the E-Class even further in the new saloon, principally through the use of intelligent bodyshell technology with up to 30 percent greater rigidity, further improved seats and a newly developed suspension whose shock absorbers automatically adjust to the current driving situation. The optional air suspension now works in combination with an electronic damping system.

The outstanding safety and comfort of the latest E-Class are matched by its environmental compatibility and economy: the four- and six-cylinder engines are direct-injection units, and consume up to 23 percent less fuel than before. The combined NEDC consumption of the new four-cylinder CDI engines is just 5.3 litres per 100 kilometres, which corresponds to 139 grams of CO₂ per kilometre. All the engines for the new E-Class meet the EU5 emission standard, while the emissions from the E 350 BlueTEC are already below the EU6 limits planned for 2014.

Along with the engines, the BlueEFFICIENCY package for the E-Class is in large part responsible for the considerable fuel savings. Engineers from every development department have worked together to optimise assemblies and components, to save fuel by means of reduced weight, a new form, improved functioning or efficient energy management.

Efficient, Clean and Blue

The work done in the wind tunnel was particularly successful, as the resulting drag coefficient of only 0.25 makes the new E-Class the world's most aerodynamically efficient luxury saloon. It better the already good Cd figure of the preceding model by another four percent, which represents a fuel saving of around 0.25 litres per 100 kilometres when driving at a motorway speed of 130 km/h. One of the measures taken to improve the aerodynamics is the adoption of automatically adjustable fan louvres which control the airflow to the engine compartment in line with the engine's cooling requirements.

Other BlueEFFICIENCY measures include newly developed tyres with up to 17 percent lower rolling resistance, energy-saving control of the alternator, fuel pump, air conditioning compressor and power steering, and the ECO start/stop function which switches the engine of the new E 200 CGI off when idling. Displays in the speedometer inform the driver how much fuel is being consumed (per 100 kilometres), and when the next higher gear should be selected in order to maintain an economical and environmentally conscious style of driving.

Engines

With three completely newly developed four-cylinder engines, the E-Class also remains one generation ahead where diesel technology is concerned. These engines feature latest-generation common-rail direct injection, fast piezo injectors, improved exhaust gas recirculation and an innovative twin turbocharger, making for fast responsiveness and good performance characteristics. These qualities are reflected in the figures: the new four-cylinder diesel engine that powers the E 200 CDI BlueEFFICIENCY with 100 kW/136 hp and the E 220 CDI BlueEFFICIENCY with 125 kW/170 hp, achieve a fuel consumption of 5.3 litres per 100 kilometres.

Customers can also choose to combine the E 350 CDI BlueEFFICIENCY and the E 350 V6 models, as well as the eight-cylinder E 500, with the latest-generation Mercedes all-wheel drive which is more efficient, lighter and more compact than the previous all-wheel drive technology. These advantages produce noticeably better traction and fuel savings.

Driver Assistance

The new E-Class is the first car in the world to be equipped with headlamps which adapt to the traffic situation and respond automatically to avoid dazzling other drivers. The optional Adaptive Highbeam Assist uses a camera on the windscreen to recognise oncoming traffic and vehicles moving ahead and to control the headlamps so that their beams do not reach the other vehicle.

The Lane Tracking package for the new E-Class includes Blind Spot Assist familiar from the S-Class, and as a new development, Lane Keeping Assist which seeks to prevent the vehicle from leaving the road unintentionally. When the system recognises that the car is drifting from its lane, the driver is prompted to take countersteering action by brief but unmistakable vibrations of the steering wheel. The images from the windscreen camera are also used by the new, optionally available Speed Limit Assist, which recognises speed limit signs as the car passes them, then displays the relevant speed limit in the speedometer.

Thanks to an innovative technology, the new E-Class is very sensitive to its driver's attention level, and warns him or her of drowsiness in good time. This new ATTENTION ASSIST drowsiness detection system, which is standard equipment, is equipped with highly sensitive sensors that continuously monitor more than 70 different parameters. Observing the driver's steering behaviour has proved to be a particularly strong indicator: several years of practical research by Mercedes engineers have shown that drowsy drivers make minor steering errors which they often correct very rapidly in characteristic ways. These corrections are recognised by a highly sensitive steering angle sensor.

Safety and Comfort

During the course of its development, the new E-Class was subjected to more than 150 high-speed crash tests. The crumple zone principle invented by Mercedes safety pioneer Béla Barényi has been continuously improved by the engineers in Sindelfingen. The front-end deformation zone of the E-Class acts on four independent levels, and is even more effective than before. The increased use of extra-high-strength steel alloys also helps to ensure that the bodyshell is able to withstand high impact forces. Around 72 percent of all the body panels are made from these high-tech steels -- yet another unrivalled figure in passenger car development.

With seven airbags as standard, belt tensioners, belt force limiters, crash-responsive head restraints and ISOFIX child seat attachments, the new E-Class has even more extensive safety features than the preceding model. Another new feature is the Active Bonnet, the latest development to result from Mercedes-Benz's long-standing commitment to pedestrian protection. It is standard equipment in the new E-Class. In the event of an impact, a system of springs raises the rear section of the bonnet by 50 millimetres in a fraction of a second, thereby increasing the available deformation space. Thanks to the cleverly designed mechanism, the driver is able to reset the Active Bonnet to its normal position without having to visit a workshop.

Standard equipment includes a further improved suspension with adaptive shock absorbers. These automatically adapt to the current driving situation by reducing the damping forces when driving normally, thereby noticeably improving ride comfort. When taking bends at speed or during rapid evasive action, the system switches to the maximum damping effect so that the saloon is stabilised to best effect.

A version with dynamic damping characteristics and a lowered suspension is available as an optional alternative to the standard suspension (standard for the AVANTGARDE line). The air suspension system optionally available for the V6 models (standard in the E 500/E 500 4MATIC) has for the first time been combined with an electronically controlled damping system which processes various sensor signals and controls each wheel independently. In this way Mercedes specialists have achieved significantly better ride comfort while improving handling safety and agility at the same time. The driver is able to select either Comfort or Sport mode at the touch of a button.

Cubism, Contours and Coachwork

In 1995 the E-Class was the first Mercedes model to appear with the widely acclaimed twin-headlamp face - a highly symbolic design feature that still characterises the identity of the E-Class. The designers have now reinterpreted these four "eyes" as rectangles, with a direct reference to the interesting geometrical shapes found in cubism. They resemble precious gems that have been precisely set into the wings. In the same way, the radiator grille with its three-dimensional chromed surround, dynamic arrow-shape and more upright position underlines the status of the car as the epitome of a business saloon.

A sophisticated interplay between lines and surfaces is one of the hallmarks of today's Mercedes design. Large concave or convex surface areas are structured by taut, clearly defined lines. This design concept has been perfected down to the last detail in the new E-Class. The side contours become connecting features that influence the entire body design, that is to say not just the side aspects but also the front and rear-end styling.

At the rear, this harmonious flow culminates in a new feature: a graceful line that follows the rear wheel arches and lends a clear shape to the imposing, muscular contours of the rear wings. Here Mercedes aficionados will recognise styling features reminiscent of the famous "Ponton Mercedes", introduced in 1953.

(from Mercedes-Benz press release)