Mercedes-Benz

Press Information
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Mercedes-Benz tests the new GLC under extreme conditions

Stuttgart/Arjeplog. Even though spring temperatures have started to arrive, the next-generation GLC has to prove its full reliability in the most extreme weather conditions as part of its final winter test, specifically on snowy and icy roads, with high winds and temperatures of up to negative 30 degrees, all taking place at the demanding test site in Arjeplog, Sweden. During the final application and test work, Mercedes-Benz checks to see how the extreme cold effects handling, ergonomics, thermal management and interior comfort, thus guaranteeing the results of the "digital development work" in real-world driving situations.

The winter testing is an essential and important quality component of the development process. With it, Mercedes-Benz ensures the customer readiness of new model series as part of the last maturity level check. A test center set up specifically for winter tests in Lapland in northern Sweden provides extensive testing opportunities: hill climbs with gradients of up to 20 percent and test tracks with varying coefficients of friction as well as handling courses and skid pads on almost sheer ice pose the stiffest of challenges for the powertrain and control systems.

The new GLC demonstrates its excellent performance with warming up and thermal comfort, impressive overall acoustics and top driving comfort, maximum driving safety and outstanding driving dynamics as well as high performance of its major assemblies.

During the final tests, the last details are analyzed by the engineers on-site or in close coordination with the relevant development departments. The start of the production tests begins after the initial successful completion. Meanwhile, several 100,000 km (62,100 mi) are covered with the vehicles in various endurance tests as part of an endurance test run program. In a parallel, cars produced locally in China are tested so that they, too, achieve the high Mercedes-Benz quality standard.

The results show: the next-generation GLC is able to defy ice and snow as well as extreme cold and can master even the most demanding test cycles.

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More information on the official fuel consumption and the official specific CO_2 emissions of new passenger cars can be found in the "Leitfaden über den Kraftstoffverbrauch, die CO_2-Emissionen und den Stromverbrauch neuer Personenkraftwagen" [Guide on the fuel consumption, CO_2 emissions and electrical consumption of all new passenger car models], which is available free of charge at all sales outlets and from Deutsche Automobil Treuhand GmbH at www.dat.de.

The new GLC - more appealing than ever

With more than 2.5 million vehicles delivered since 2008, the GLC (including its predecessor, the GLK) has become a popular mid-size SUV and segment leader worldwide. For several years, the GLC has been the best-selling model series from Mercedes-Benz to date. The third generation of the GLC will now follow on from this success story in 2023. It builds on the strengths of its predecessor and presents itself with the high recognition value and technical highlights of the current S- and C-Class. The new GLC is the most dynamic SUV from Mercedes Benz - on any terrain.

The most important highlights of the new GLC:

Assistance systems

The latest generation of the Driving Assistance Package contains additional and enhanced functions compared with the previous series. These reduce driver workload in day-to-day situations, for more comfortable and safe driving. When a dangerous situation emerges, the assistance systems are able to respond to impending collisions as the situation demands. The operating principle of the systems is visually shown on the driver display through a new display concept.

Enhancement of assistance systems (examples)

- On all types of roads – highways, country roads or in town – **Active Distance Assist DISTRONIC** can automatically maintain a preset distance from vehicles in front. One new feature is the response to stationary vehicles on the road at speeds up to 60 mph (previously: 37 mph).
- **Active Steering Assist** helps the driver to stay in lane at speeds of up to 130 mph. New features include additional lane detection with the 360° camera, forming an emergency corridor especially at low speeds, significantly improved availability and performance in bends on country roads and improved lane centering on freeways.
- The **Traffic Sign Assistant** detects not only conventionally signposted speed limits, but also signs on overhead structures and in construction zones. Even conditional instructions (i.e. "slippery when wet") are recognized by evaluation of all on-board sensors. A new feature comes in the guise of the warnings against driving through stop signs and red lights (as part of the Driving Assistance Package).
- **Intelligent parking systems** support the driver when maneuvering. Thanks to improved surround sensors, the parking systems give the driver even better support when maneuvering at low speed. Operation is faster and more intuitive thanks to integration into MBUX. Emergency braking functions also serve to protect other road users.

Digitalization

- New generation of steering wheel with three spokes and redesigned control panels with Touch Controls for controlling navigation, telephone or entertainment, as well as the cruise control function or optional proximity control
- Like the S-Class and the C-Class, the new GLC comes with the second generation of the MBUX (Mercedes-Benz User Experience) infotainment system. The interior has thus become even more digital and intelligent. The system is intuitive to operate and capable of learning, and it also offers functions such as Smart Home and music streaming. MBUX can be conveniently controlled with the adaptive voice assistant "Hey Mercedes."
- MBUX with, among other things, augmented reality (additional information such as house numbers are virtually superimposed on the video image of the surroundings on the central display, traffic lights are also shown) and a special Off-Road menu.
- Also new is the optional transparent hood, part of the 360° camera, which, when the Off-Road drive program is selected, shows the real view of the ground under the front end, combined with a virtual representation of the driving lane based on the current steering angle, on the central display.
- Large screens as standard (12.3-inch driver display, 11.9-inch central display). Superb images on the LCD screens make it easy to control vehicle and comfort functions.
- Digital Light with projection functions and customizable Coming Home / Leaving Home animation.

Efficient technology

The 4-cylinder M254 engine with 1,999 cc displacement, outputs of up to 255 hp or 295 lb-ft of torque and all the innovations of the modular engine family. They include NANOSLIDE® cylinder coating, CONICSHAPE® cylinder honing (trumpet honing) and the exhaust after treatment system positioned directly on the engine.

The M254 engine is electrified with a 2nd-generation starter-alternator integrated into the transmission with an output of 23 hp and 147 lb-ft of torque in conjunction with a 48-volt on-board electrical system.

The road to series production maturity

Ever since the invention of the automobile by Carl Benz and Gottlieb Daimler, Mercedes-Benz has been intensively testing its products before delivering them to customers. Systematic vehicle testing is an essential core competence in Mercedes-Benz vehicle development to ensure the highest quality standards of the products and the best customer experience. Simulation, calculation and digital preliminary design of all components and the entire vehicle serve as early validation and are prerequisites for efficient and short development processes. Before a vehicle goes into series production, each component and, above all, the integration of the individual functions into the overall vehicle must reach the level of maturity defined in detail in advance. Initial tests in a few prototypes are used for the preliminary validation of, for example, drive trains or chassis systems. The combination of digital design and trials in major assembly carriers enables Mercedes-Benz to produce the first target vehicle from series tools.

The GLC of the 254 model series is based on the successful concept of the predecessor 253 series. The technical basis of the GLC is the current C-Class (drive architecture, MBUX), which has been consistently adapted and further developed for use in a mid-size SUV. The basic safeguarding was therefore done with the C-Class trials. For the GLC, the tests were supplemented with special SUV requirement profiles, such as the safeguarding of off-road properties.

The most important trial steps overview:

- Focus of digital testing: validation ground clearance and sand management including off-road package, simulation of water management and water crossings, handling and driving safety vibration behavior (NVH), validation constructability (i.e. can the car, as designed and constructed, be built in large-scale

production), crash behavior (accident simulations to evaluate passive safety), aerodynamics, weight etc. using VR tools.

- Focus of testing on the road and on test rigs: overall vehicle validation of pre-tested components in the new vehicle environment and in interaction with further developed systems, validation of durability in the changed SUV vehicle environment and durability
- Ratio of digital testing to real-world testing: 35% / 65%
- Expert knowledge: until a new vehicle is approved, numerous experts from a wide range of fields have to carry out the vehicle-specific applications. Overall, several hundred specialists are involved in testing.
- In overall vehicle tests and endurance runs, the overall integration of all systems and components is carried out with corresponding heat and cold profiles.
- Miles driven during testing: approx. 11,265,408
- Development period: approx. 4 years
- Countries where the GLC has been tested: Germany, in particular the test site in Immendingen, Austria, Finland, France, Sweden, Spain, Italy, Dubai, South Africa, USA, Mexico, China, Japan
- Approval process: after each digital development phase (components, prototypes, pre-production vehicles), a maturity check is carried out by the project management. Validation and functional validation is carried out in real-world testing by those responsible for the assemblies as well as by the overall vehicle test department.
- Approval by Development and the start-up of series production are followed by the final customer approval from Quality Assurance.

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