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Mercedes-Benz
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The All-New Mercedes-Benz GLC with EQ Technology: Excelling in Extreme Cold

- The new all-electric GLC elevates the renowned success of its predecessor
- Driving safety and comfort soar to new heights, even on snow-covered tracks
- Exceptional efficiency and range validated under Arctic conditions

Stuttgart/Arjeplog. The GLC has consistently reigned as one of the top SUV models from Mercedes-Benz and, in 2024, it was ranked globally as the brand's best-selling series. Now, customers can anticipate an exciting new chapter: The new all-electric GLC marks a significant milestone for Mercedes-Benz. Moving forward, a diverse array of powertrains will be introduced to meet a wide variety of customer demands. Engineered as a battery electric vehicle (BEV), the new all-electric GLC incorporates the latest technology from the esteemed brand, setting new benchmarks in performance, range, efficiency and charging speed, while maintaining of the exceptional versatility and practicality that GLC customers expect.

Recently, heavily camouflaged prototypes of the electric GLC undertook rigorous winter trials in the polar regions of Sweden. Facing temperatures plunging well below freezing and conquering snow-covered roads, these test vehicles triumphed over the most formidable natural conditions with unwavering resilience and exceptional performance.

"Our new electric GLC is a car without compromises – and we test it just as uncompromisingly. During winter testing in Sweden, our new, all-electric GLC demonstrated its reliability and robustness even under extreme conditions. It represents innovation and quality – a fact we have proven in the Scandinavian winter."

Christoph Starzynski, Vice President Overall Vehicle Development & Integration, Mercedes-Benz Group AG

Despite the unique challenges during the cold weather, the all-electric GLC rises to the occasion, delivering high efficiency and practical range. Even on winter roads, it upholds the exceptional safety and comfort standards that customers have come to expect from Mercedes-Benz.

The New GLC with EQ Technology on Ice and Snow: Confident Handling and Responsive All-Wheel Drive

During harsh winter testing in Swedish Arjeplog, the new Mercedes-Benz GLC showcased its exceptional ride qualities and handling, as well as superior traction on icy roads thanks to 4MATIC. The all-wheel-drive models feature a powerful front-axle drive unit, that can be swiftly engaged or disengaged using a Disconnect Unit (DCU) when needed.

To ensure optimal traction and driving stability on snow and ice, sensors detect spinning wheels and distribute torque according to the operating strategy. Since both electric motors are controlled independently, driving force remains optimally maintained.

The rear axle's electric drive unit developed entirely by Mercedes-Benz, sets new benchmarks, delivering impressive power. For exceptionally efficient energy use, both electric drive units are equipped with high-performance power electronics featuring cutting-edge silicon carbide inverters.

In addition to its responsive all-wheel drive and precise steering, the new braking system impresses on the Swedish tracks. This innovative system combines the previously separate components of the brake booster, master cylinder, and ESP® control into a compact module, providing a confident brake pedal feel that delivers precise and consistent feedback.

The system meticulously optimizes the recuperation of braking energy, thereby augmenting the vehicle's range. The concept guarantees that the driver consistently experiences a confident and transparent brake pedal feel, irrespective of whether braking is accomplished through recuperation or friction braking. Furthermore, the new braking system upholds the brand's exceptionally high safety standards: The system can also reliably switch to the hydraulic fallback level, thereby always ensuring safe braking behavior.

Travel with Confidence: Advanced BEV Technology for Long Range and Fast Charging

Equipped with state-of-the-art battery and drive technologies, the all-electric GLC achieves an impressive range even in frigid conditions. Technological marvels include an 800-volt architecture and sophisticated drive units featuring a two-speed transmission on the primary rear axle drive unit optimizing both efficiency and performance and significantly reducing charging times.

Various iterations of high-voltage batteries will be available for the GLC. The premier battery variant will support DC charging with sustained rates of more than 320 kW[1]. Beyond their usable energy capacity, these batteries also differ in cell chemistry. The advanced battery cells utilize anodes with silicon oxide blended into graphite, achieving exceptionally high gravimetric energy density. This allows for longer ranges and lighter weight, enhancing overall vehicle efficiency and performance. Consequently, the GLC benefits from better fuel efficiency and greater practicality.

Even in the harshest winter conditions, the all-electric GLC astounds with exceptional temperature comfort, equipped as standard with an air-side heat pump. When it comes to heating the interior, this system utilizes approximately one-third of the electrical energy that a comparable electric heater would consume to achieve the same output under identical conditions.

As a multi-source system, the heat pump can simultaneously harness three energy sources: waste heat from the electric-drive unit, waste heat from the battery and ambient air. Integrated into the climate control system, it effectively cools in the summer and heats in the winter. This approach enables the heat pump to facilitate exceptionally high charging performance by preconditioning the high-voltage battery to its optimal temperature range prior to fast charging. Additionally, it aligns with Mercedes-Benz's commitment to ensuring that efficiency does not compromise passenger comfort and well-being. Even during fast charging, the interior maintains a comfortable temperature – a development objective rigorously tested and validated in Sweden's polar region.

[1] The figures are preliminary. There are no binding WLTP values available yet.

Mercedes-Benz's Rigorous Testing Program in Arjeplog and Beyond

For decades, Mercedes-Benz has subjected each new model to the most extreme conditions near the Arctic Circle enduring temperatures as low as minus 13 degrees Fahrenheit navigating snow-covered roads and traversing the sheer ice of frozen lakes. To facilitate this, the company operates a dedicated testing center in Arjeplog, close to the Arctic Circle in Sweden. Beyond road testing in the far north, the center, features meticulously designed test tracks, including challenging hill climbs with gradients up to 20 percent, test tracks with varying friction coefficients, handling courses and circular tracks on the nearly bare ice of the frozen lake, all of which impose significant demands on the drive and control systems.

To ensure the overall vehicle integrity, over 500 individual tests are conducted as part of the trial program for each new Mercedes-Benz model. For electric vehicles, more than a hundred drive-specific tests are added to the standard procedures, tailored specifically for the latest drive technologies. Approximately two-thirds of these tests focus on eDrive and charging. New challenges for electric vehicles include assessing the power output of the electric motor during a cold start with a chilled battery, evaluating range in real-world driving conditions, handling of charging cables, preconditioning, and optimizing the operating strategy including energy recuperation. Additionally, precise tuning of driving dynamics and the ESP® system is crucial.

To test various customer requirements and charging profiles, the Arjeplog test center offers the full range of charging options, from simple household outlets to wall boxes and fast-charging stations.

Systematic overall vehicle validation is a critical part of the development process of every Mercedes-Benz series, ensuring adherence to high-quality standards. In addition to winter testing, summer evaluations under intense sunlight and temperatures up to 122 degrees Fahrenheit are conducted in locations such as Arizona and South Africa.

Before a new vehicle enters series production, it must meet the stringent development standards and reliability benchmarks set by Mercedes-Benz. This process unfolds in several steps: First, digital preliminary designs and simulations are conducted to prove the feasibility of the concept. Next, individual components are validated on test benches or in corresponding test vehicles to assess the durability of the drivetrain and axle parts. Subsequently, the complete vehicle undergoes rigorous testing and approval. The customer's perspective is crucial: Even in extreme conditions and across all relevant use cases, a Mercedes-Benz must consistently deliver high functionality and reliability.

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Mercedes-Benz USA (MBUSA), headquartered in Atlanta, is responsible for the distribution, marketing and customer service for all Mercedes-Benz products in the United States. MBUSA offers drivers the most diverse lineup in the luxury segment with 18 model lines ranging from the sporty GLA SUV to the flagship S-Class and the dynamic all-electric vehicles from Mercedes-Benz. MBUSA is also responsible for Mercedes-Benz Vans in the U.S. More information on MBUSA and its products can be found at http://www.mbusa.com and www.mbvans.com.

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