Daimler Truck AG

Press Information

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Cold, ice and snow successfully defied: Mercedes-Benz Trucks tests electric trucks in Finland

- **Mercedes-Benz Trucks development and test engineers tested the operational readiness of the eActros LongHaul and eActros 300 as a tractor unit under extreme conditions at temperatures down to minus 25 degrees Celsius.**
- **The tests focused in particular on the effects of extreme cold on handling, ergonomics and comfort. Tests also examined criteria such as the starting properties and drive components' protection from low temperatures, thermal management, charging properties and robustness of the sensors.**
- **Winter tests are also indispensable for conventional series production vehicles, such as the Actros, for further optimization of functions and systems.**
- **Dr. Christof Weber, Head of Global Testing Mercedes-Benz Trucks: "Testing our product range under extreme winter conditions is also an essential part of our vehicle development in terms of alternative drives. Haulage companies must be able to rely on our electric trucks in a highly competitive environment at any time of year, just as they are used to from conventionally powered vehicles."**

Leinfelden-Echterdingen / Rovaniemi, Finland – Haulage companies are placing the same demands on battery-electric trucks as on their counterparts with conventional diesel engines. Even in difficult weather conditions, such as cold, ice and snow, the vehicles must reliably do their job. Against this background, this year's Mercedes-Benz Truck winter tests in Rovaniemi, Finland, once again proved to be important endurance tests. This included vehicles from various model series – including prototypes of the battery-electric eActros LongHaul, with series readiness planned for 2024, and the battery-electric eActros 300 as a tractor unit as well as the conventionally powered Actros L with diesel engine. Under extreme climatic conditions, such as on snowy and icy roadways, harsh winds and temperatures down

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to minus 25 degrees, the development and test team tested the individual models in order to derive possible measures for further optimization.

Dr. Christof Weber, Head of Global Testing Mercedes-Benz Trucks: "Testing our product range under extreme winter conditions is also an essential part of our vehicle development in terms of alternative drives. Haulage companies must be able to rely on our electric trucks in a highly competitive environment at any time of year, just as they are used to from conventionally powered vehicles. For this reason, our test engineers in Finland put the vehicles through their paces for six weeks."

Comprehensive catalog of criteria

Mercedes-Benz Truck development engineers took a close look at all the functions and systems of the vehicles in practical use on the trip to Finland. For example, support when changing lanes as part of the Active Sideguard Assist or active lane guidance with Active Drive Assist in the Actros L. Since several national borders had to be crossed, it was also possible to measure the impact of country-specific lane markings, traffic signs or digital map data on the performance of the assistance systems installed in the trucks. The fact that the trucks were tested all day long also allowed aspects such as the comfort of the driver’s seat to be evaluated.

Focus on battery-electric trucks during tests on the Arctic Circle

In the case of the eActros LongHaul and the eActros 300 Tractor, experts paid particular attention to the battery properties and the electric drivetrain on site in adverse weather conditions. For this purpose, elements including starting properties and drive components' protection from low temperatures, software and interfaces were tested. In addition, thermal and energy management systems were subjected to intensive testing. Both ensure that both the drivetrain and the driver’s cab are temperature-controlled correctly and energy-efficiently, even at low temperatures.

This showed, for example, that the eActros LongHaul generally heats the cab faster than a diesel truck thanks to its smaller heating circuit with high output. However, since the energy for this is taken from the batteries installed in the vehicle and therefore the range is reduced, so-called pre-conditioning of the electric truck at a charging station is advisable. After pre-conditioning, the eActros LongHaul loses less range even in extremely low temperatures.

Dr. Christof Weber, Head of Global Testing Mercedes-Benz Trucks: "We are very satisfied with our test results. The tests of the batteries and electric drivetrain properties at extreme temperatures or of the vehicle's driving properties on slick, icy roads show: Even in very wintry conditions, our battery-powered trucks are fully operational."

The winter test also included numerous tests on driving and braking properties on surfaces with different levels of grip as well as the impact of slush, for example, on the effectiveness of the sensors of driver assistance systems. Also tested was how the Trailer Stability Assistant can reduce the risk of tractor-trailers skidding during cornering or evasive maneuvers on winter roads and how the MirrorCam handles different contrast conditions on ice and snow.

Start of series production soon

The eActros 300 model variant as a tractor unit, introduced for the first time at IAA Transportation 2022 in Hanover, can pull all common European semitrailers, taking into account the maximum permissible overall vehicle combination length. The electric truck is based on the same technology as the eActros 300/400. Three battery packs, each with 112 kWh of installed battery capacity[1], enable a range of up to 220 kilometers[2] on a single battery charge. Series production is scheduled to start in the second half of 2023.

In 2024, the eActros LongHaul is scheduled to be ready for series production for long-distance transport. Mercedes-Benz Trucks unveiled a concept prototype of the electric truck at IAA Transportation in Hanover last year. The series-production eActros LongHaul boasts a range of around 500 kilometers on a single battery charge and will enable high-performance charging. At IAA, it was awarded the “2023 Truck Innovation Award” by the “International Truck of the Year” jury. Batteries with lithium iron phosphate (LFP) cell technology are used in the eActros LongHaul. These are characterized, above all, by a long service life and more usable energy.

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Daimler Truck at a glance
Daimler Truck Holding AG ("Daimler Truck") is one of the world's largest commercial vehicle manufacturers, with over 40 main locations and more than 100,000 employees around the globe. The founders of Daimler Truck have invented the modern transportation industry with their trucks and buses a good 125 years ago. Unchanged to this day, the company's aspirations are dedicated to one purpose: Daimler Truck works for all who keep the world moving. Its customers enable people to be mobile and get goods to their destinations reliably, on time, and safely. Daimler Truck provides the technologies, products, and services for them to do so. This also applies to the transformation to CO2-neutral driving. The company is striving to make sustainable transport a success, with profound technological knowledge and a clear view of its customers' needs. Daimler Truck's business activities are structured in five reporting segments: Trucks North America (TN) with the truck brands Freightliner and Western Star and the school bus brand Thomas Built Buses. Trucks Asia (TA) with the FUSO and BharatBenz commercial vehicle brands. Mercedes-Benz (MB) with the truck brand of the same name. Daimler Buses (DB) with the Mercedes-Benz and Setra bus brands. Daimler Truck's new Financial Services business (DTFS) constitutes the fifth segment, the product range in the truck segments includes light, medium and heavy trucks for long-distance, distribution and construction traffic and special-purpose vehicles used mainly in the municipal and vocational sector. The product range of the bus segment includes city buses, school buses and intercity buses, coaches and bus chassis. In addition to the sale of new and used commercial vehicles, the company also offers aftersales services and connectivity solutions.

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[1] Nominal capacity of new battery, based on internally defined boundary conditions, may vary depending on use case and ambient conditions.
2 The range was determined internally under optimal conditions, including 3 battery packs after preconditioning in partially loaded distribution traffic with a semi-trailer at 20°C outside temperature.