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SKF at InnoTrans: Traction motor bearing units for the trains of the future

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The German Aerospace Center (DLR) is currently developing a new multiple-unit train concept for the “Next Generation Train” – or NGT for short. This is intended to allow trains to travel at up to 400 kilometers per hour. This technically demanding bogie, which will be presented at the InnoTrans International Trade Fair for Transport Technology (20th to 23rd September 2022, Berlin), contains traction motor bearing units developed in-house by SKF.

In the future, it will be possible to run double-decker multiple-unit trains, in which each unit is able to travel independently, on high-speed main lines. The concept saves energy and has been designed for long periods of use. The “train of the future” is faster, safer and more comfortable. To make it possible to use the full available surface area even on the lower deck, it was necessary to find a solution for the bogie, which is usually driven by axle-driven wheelsets. This is because there is usually a “disruptive” drive system above the axle which protrudes into the interior.

To solve the problem, the DLR opted for a structurally optimized bogie with single-wheel suspension equipped with mechatronic tracking and direct drive on the outside of the wheels. There is no axle between the individual wheels, meaning that the floor of the lower deck of the carriage can be designed flat throughout. Whereas a pair of axle-driven wheels must, by definition, run at the same speed and therefore maintain correct tracking for purely mechanical reasons, the individually driven wheels have to be synchronized by means of control technology.

SKF has manufactured new sealed, maintenance-free traction motor bearing units for this bogie. This solution was developed in close collaboration between SKF and the DLR. The first specimens are installed in the bogie prototypes which are on display at InnoTrans and whose load-bearing and running behavior are being tested on a research testbed developed by the DLR.

Stefan Gladeck, Director EMEA Railway, is convinced that the new technology will be ready for use after two or three years of testing and will meet with considerable

interest. “The double-decker multiple units make train planning more flexible, travel faster and can carry more people,” explains Gladeck. “It is vital to increase rail transport capacity and this takes innovation – with its traction motor bearing units based on this new technology, SKF is on board with us right from the very start.”

Alongside the traction motor bearing unit for the Next Generation Train on the German Aerospace Center testbed, SKF will also be presenting other railway industry innovations at InnoTrans. These most recent developments focus on performance improvements and sustainability, including in the field of freight transport. SKF’s trade fair booth is located in Hall 22b (Booth 670).

SKF's mission is to be the undisputed leader in the bearing business. We do this by offering solutions that reduce friction and CO2 emissions, whilst at the same time increasing machine uptime and performance. Our products and services around the rotating shaft, include bearings, seals, lubrication management, artificial intelligence and wireless condition monitoring. SKF is represented in more than 130 countries and has around 17,000 distributor locations worldwide. Annual sales in 2021 were SEK 81 732 million and the number of employees was 42,602. www.skf.com

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