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Press Release

Clean, quiet and durable: Schaeffler tests new braking technology in the DTM Innovation Taxi at the Nürburgring

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- Wet lamella brake in the Innovation Taxi serves as a pre-development project for emission-free, low-noise and low-maintenance braking solutions
- Development goal is a highly integrated system solution for electric axles in series production vehicles
- DTM Innovation Taxi provides the ideal platform to test new series technologies under extreme conditions

The Schaeffler Innovation Taxi, an Audi R8 LMS GT2, has been a fixture at DTM race weekends since 2023. It brings new technologies to life for fans and guests and demonstrates how innovations mature under racing conditions. At the DTM race weekend at the Nürburgring from August 14 to 16, the Innovation Taxi will feature an innovative wet lamella brake for the first time.

Brake system with no brake dust, noise or maintenance intervals

The lamella brake in the Innovation Taxi is a pre-development project for series production. It is emission-free regarding brake dust, operates quietly and is designed for maintenance-free operation. The focus of the testing is the functionality and service life behavior of the system under the toughest conditions. Schaeffler is particularly investigating torque and friction stability behavior. Due to its concept and packaging constraints, the unit, also referred to as wet brake, has been integrated into the rear wheels of the Innovation Taxi. External influences on the brakes, such as moisture, no longer lead to corrosion. This results in stable friction conditions and consistent performance.

“DTM is an ideal environment for us to test new technologies under real conditions,” says Matthias Zink, CEO Powertrain & Chassis at Schaeffler. “With the wet lamella brake, we are demonstrating a solution that is being used in motorsport in this form for the first time and also provides important input for series development.”

From the racetrack to the road

A particular challenge in the Innovation Taxi is dissipating the high thermal loads generated by the enclosed rear-wheel brake. To address this, Schaeffler has developed a dedicated thermal management system with hydraulic pressure and

suction pumps as well as multiple heat exchangers. “The system in the Innovation Taxi is a special motorsport solution. Under highly dynamic operating conditions, very high cooling performance per brake is required,” explains Andreas Wassmer, Director Concept Car Development at Schaeffler. “The data and experience derived from this form the basis for designing an efficient lubrication strategy for future e-axles with an integrated braking system.”

The development goal is a highly integrated system unit for electric axles, combining the brake, actuator and oil/cooling circuit. In the long term, this could help replace conventional steel or drum brakes in suitable applications. A first concept vehicle with an integrated lamella brake was already presented to selected customers at the Schaeffler Automotive Symposium in Bühl last June. The prototype is now being shown to the general public for the first time as part of the DTM race at the Nürburgring.

Strong potential for future generations of electric vehicles

With the wet lamella brake, Schaeffler demonstrates how motorsport can serve as a development platform for sustainable mobility. The project combines motorsport, technology transfer and series development in a particularly tangible way. This is especially relevant for battery-electric vehicles. In these vehicles, most braking events are handled by the recuperating electric motor. For the remaining braking events, especially critical braking points, a mechanical braking system will continue to be required. Schaeffler’s lamella brake meets all the fundamental requirements of a modern braking system and offers several additional advantages. These include emission-free operation to support future Euro 7 requirements, reduced unsprung mass at the wheel and the associated improvement in ride comfort, as well as greater freedom in vehicle design. In addition, the wet lamella brake is ideally suited to future vehicle architectures in which brake-by-wire systems play a key role. In autonomous vehicle concepts in particular, it serves as a technological enabler for innovative and highly integrated braking system solutions.

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Emission-free, low-noise and maintenance-free – Schaeffler’s wet lamella brake. (Photo: Schaeffler)

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At the DTM race at the Nürburgring, the Schaeffler Innovation Taxi is running with the new lamella brake for the first time. (Foto: Schaeffler)

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From the racetrack to the road: the development goal is a highly integrated system unit for electric axles, combining brake, actuator and oil/cooling circuit. (Photos: Schaeffler)

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