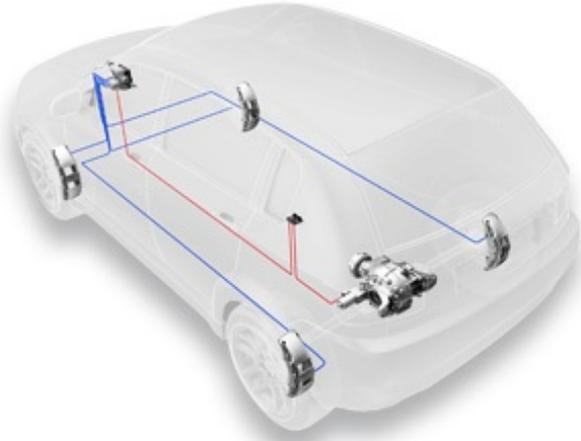


REAR-AXLE TRANSMISSION

For off-road and sports vehicles

Recently, ZF has introduced the next generation of electronic limited slip differential (eLSD). The heart of this improved active rear axle drive is a control unit that meets cyber-security standards for software updates via the cloud.



The rear-axle transmission is connected via CAN FD to the brake control unit (Photo: ZF)

The limited slip differential is networked by CAN FD with the vehicle's brake system, increasing both off-road and on-road driving dynamics, stability, and comfort. With the redesigned electronic slip differential, drivers of off-road vehicles and sports cars can enjoy adventures even more. "The new generation of our eLSD rear axle transmission supports a comprehensive, high-quality system network with additional vehicle functions," said Sebastian Dendorfer from ZF. "This means that driving conditions can be handled more easily, which leads to advantages in dynamics, safety and comfort."

Rear-axle transmissions have been successfully deployed in vehicles produced by major European and American manufacturers for more than 20 years. For the launched eLSDs, hardware requirements have been reduced which, in turn, increases the available space for the design of passenger compartments.

The supplier has overhauled the electronic control unit (ECU). Due to a new chip set, the ECU supports over-the-air-updates, allowing vehicle software to be updated via the cloud with the

most current cyber-security standards protecting the update process. Additional interfaces, such as the CAN with flexible data-rate (CAN FD) allow for a connection between the eLSD and ZF's Integrated Brake Control system (IBC). This allows for close interaction between drive and brakes. The result is better traction and over-steering protection as well as increased stability when towing or during lane changes. Off-road, the eLSD plays to its advantage, particularly when climbing hills. Moreover, the active limited slip differential helps to improve vehicle control during acceleration and μ -split braking. Improved modulated automatic braking and avoidance of high engine revving at traction maneuvers make for greater comfort.

The eLSD system features a potential locking torque of up to 3 000 Nm and is therefore also suitable for heavy vehicles and high-performance engines. Due to its principle, the rear-axle transmission is both compatible with different final drive ratios as well as different axle drive sizes.

[hz](#)