

Press Release

Schaeffler at InnoTrans 2026 (Hall 21, Booth 430)

Schaeffler presents technologies for the automation of freight wagons

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- Schaeffler is shaping the rail freight transport of the future
- The autonomous axlebox generator, modular power system and electromechanical actuators are accelerating the automation of rail freight wagons
- First projects are undergoing field tests

At InnoTrans 2026 in Berlin, Schaeffler is showcasing the axlebox generator, modular power system ITRS (Innovative Technology for Railway Systems) and electromechanical linear actuators – innovative system components that are already readying freight wagons for automated and interconnected rail logistics.

“Our innovations form the basis for automated processes in rail freight transport, whether for digital automated couplers or automated opening and closing systems. They enable loading and unloading processes to be accelerated while substantially reducing downtimes,” says Frank Steinmetz, who heads rail freight transport activities within the rail sector at Schaeffler. “A reliable and operationally safe power supply is a key prerequisite for the ongoing development of such solutions – and that’s precisely what we are facilitating in collaboration with our partners in the rail industry.”

As a key component of the ITRS system architecture, axlebox generators offer an autonomous power supply for rail freight wagons and provide the technical basis for digitalization, connectivity and automation in rail freight transport. Electromechanical linear actuators replace pneumatic or hydraulic systems and offer significant advantages in operation: they support the digital monitoring of positions and speeds, are robust and durable – even under harsh operating conditions – and work according to the “power-on-demand” principle, where energy is only consumed if the actuators are actively engaged.

Axlebox generator for autonomous electricity production

Thanks to their autonomous energy supply, Schaeffler axlebox generators are enabling key functions in the next generation of rail freight cars. They generate energy within the power system as the basis for automation solutions, to reduce

or completely replace manual activities. These include the automatic triggering of actuators for the automatic opening and closing of tarpaulins, doors and hatches on bulk cargo wagons. Axlebox generators represent a permanent and reliable energy source for other electronic components used for communication, for sensors to capture load status, for GPS trackers, or for automated brake testing.

Schaeffler axlebox generators are designed for standardized European bogie configurations and axles in rail freight transport (Y25 and UIC standard) and can therefore be used in new vehicles or retrofitted to existing freight wagons.

First automation projects undergoing field tests

Schaeffler is working with its Slovenian partner Realtronik on solutions for automating rail freight wagons based on the modular, integrated system ITRS. ITRS is a power system consisting of a Schaeffler axlebox generator and coordinated battery management system from Realtronik, which provides a high-performance onboard power supply for the corresponding applications. The first successful pilot projects in the market using the power system are receiving positive feedback from customers and highlight the need to push technologies for the automation of freight wagons to be able to increase the share of rail freight in the overall market.

Linear actuators for electrified freight cars

With its EWELLIX electromechanical linear actuator series CAHB-2xE and CAHB-2xS (smart variants with integrated controller) and the powerful EMA series of high-performance linear actuators (EMA50 to EMA100, 10kN to 50kN), Schaeffler is replacing pneumatic or hydraulic systems with a highly efficient alternative. In harsh railway operations, the electromechanical linear actuators offer significant advantages: they support the digital monitoring of positions and speeds and are largely unaffected by temperature fluctuations over a large range. In addition, they work according to the "power-on-demand" principle, using energy only if directly activated. In the event of an unforeseen power failure, they are self-locking, which keeps the flaps in a secure position.

To overcome the pressing challenges in rail freight transport, the associated logistics have to be digitalized, interconnected, and automated. By presenting the axlebox generator, ITRS power system, and electromechanical linear actuators at InnoTrans, Schaeffler is showing how automation solutions for rail freight transport can already be technically supported and implemented. The bottom-up approach with incremental extensibility, depending on requirements and degree of automation, enables fast and cost-efficient solutions for automation and digitalization.

Schaeffler Group – We pioneer motion: The Schaeffler Group has been driving forward groundbreaking inventions and developments in the field of motion technology for 80 years. With innovative technologies, products, and services for electric mobility, CO₂-efficient drives, chassis solutions and renewable energies, the company is a reliable partner for making motion more efficient, intelligent, and sustainable – over the entire life cycle. Schaeffler describes its comprehensive range of products and services by means of eight product families: From bearing solutions and all types of linear guidance systems through to repair and monitoring services. Schaeffler is with around 110,000 employees and more than 250 locations in 55 countries, one of the world's largest family-owned companies and one of Germany's most innovative companies.

Schaeffler is working with its Slovenian partner Realtronik on solutions for freight car automation based on the integrated solution ITRS (Innovative Technology for Railway Systems). Pictured: a freight wagon with a Schaeffler axlebox generator and a battery management system from Realtronik. Image: (Schaeffler)

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The axlebox generator from Schaeffler is fully integrated, wear-free, retrofittable, and scalable in terms of performance. (Image: Schaeffler)

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With its EWELLIX electromechanical linear actuators series CAHB-2xS (smart variant with integrated controller), Schaeffler is offering a highly efficient alternative to pneumatic or hydraulic systems. (Image: Schaeffler)

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