

From e-motors to fuel cell drives: Schaeffler innovations premiere at IAA Transportation

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- Sustainable logistics: Schaeffler electrifies commercial vehicles and develops hydrogen mobility for the transportation sector
- Truck powertrains of the future: Demonstration van with fuel cell drive by Schaeffler on show at IAA
- Automation: Schaeffler develops chassis solutions for the fast-growing automated driving market

This year is Schaeffler's first appearance as an exhibitor at IAA Transportation, the world's leading platform for the transportation and logistics industry. Trucks and buses make up only four percent of the global vehicle stock, but account for 40 percent of global CO2 emissions in road transport. At the same time, the demands in transportation and logistics continue to increase. "This means the challenges for OEMs and suppliers are obvious: expanding electrification, reducing emissions, and developing smart solutions in automation and digitalization. We are leveraging our innovative drive and chassis products to support the development of sustainable logistics," said Klaus Rosenfeld, Chief Executive Officer of Schaeffler AG. As a trusted partner to the transportation and logistics industry for over 75 years, Schaeffler produces more than 80 million bearings annually for commercial-vehicle customers all around the globe.

Tomorrow's commercial vehicles will be electric

The greatest growth in the commercial vehicle powertrain market will come from electrification. "Schaeffler offers a very broad range of solutions for electric drives, and we are aiming for major growth here," said Matthias Zink, CEO Automotive Technologies at Schaeffler AG. These solutions include electric drives for cargo bikes and electric beam axles for pick-up trucks of up to 7.5 tons in weight, as well as systems and components for electrifying large trucks. As soon as next year, Schaeffler's first high-performance electric motors for commercial vehicles will go into series production. Alongside this, Schaeffler is already developing a new generation of oil-cooled electric motors with power conversion efficiencies of over 97 percent. Many individual components of these electric motors are manufactured in-house. For example, Schaeffler is one of only a handful of companies worldwide to have mastered such highly specialized stator winding technologies as hairpin winding and wave winding. These technologies will enable the company to produce motors of increasingly high performance.

Schaeffler anticipates that in 2030 around 60 percent of all commercial vehicles will still be powered by internal combustion engines, with about 20 percent powered with a hybrid function and approximately 20 percent all-electric. But by 2035 – just five short years later – the combustion engine share of the drive mix will have halved from 60 to 30 percent, according to Schaeffler's projections. At that point, all-electric and fuel cell-powered vehicles will together make up about 40 percent of the market.

Fuel cell drives

Schaeffler's technology focus for commercial vehicle powertrains also includes hydrogen. The company believes that the long-haul transportation sector will be the first adopter of fuel cell drives. However, vans will benefit from this technology too because they also regularly cover longer distances. At IAA Transportation, Schaeffler is presenting a fuel cell powered van. The vehicle's electric axle and fuel cell stack, as well as its energy management system was developed in-house – and in the process, has significantly expanded its systems know-how in fuel cell powertrains.

Schaeffler will be industrializing the production of bipolar plates, which are strategic fuel cell components, through a joint venture called "Innoplate". Under this joint venture Schaeffler is partnering with Symbio, itself equally owned by Forvia and Michelin, to manufacture these plates in high volume. The establishment of Innoplate was announced by Schaeffler and Symbio in June this year. The partners will commence their joint activities in Haguenau, France, as soon as regulatory approvals have been completed. Production of the high-power-density bipolar plates is expected to start in 2024.

Schaeffler develops systems and components for all types of powertrains for light and heavy commercial vehicles to decarbonize freight transportation even further. That is why Schaeffler also offers technologies to improve the efficiency of fuel injection systems. These include a variable valvetrain system designed specifically for commercial vehicles that lowers fuel consumption and emissions. Furthermore, the supplier is working on innovative engine technologies for alternative fuels. This applies particularly to the direct combustion of hydrogen in specially converted internal combustion engines. Schaeffler's variable valvetrain system has a part to play here as it enables very precise control of the air path regardless of the fuel mixture formation method, thereby ensuring greater efficiency.

Solutions for the automation of commercial vehicles

Schaeffler's product portfolio for commercial vehicles also includes chassis solutions for applications such as automated driving. "Here, too, we are gearing up for a growth market that will continue to gain momentum over the next few years," Matthias Zink said. For example, the joint venture Schaeffler Paravan Technologies is developing Space

Drive, a steer-by-wire system without any mechanical connection between the vehicle's steering wheel and steering gear. This opens major new design possibilities for vehicle manufacturers. Schaeffler is systematically developing this technology for use in large-series production vehicles with the aim of enabling both automation and remote control of trucks, buses, and freight transport and logistics vehicles, thereby making them more efficient, economical, and safer.

Click here for a press photo of Klaus Rosenfeld and Matthias Zink:

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Schaeffler Group – We pioneer motion As a leading global supplier to the automotive and industrial sectors, the Schaeffler Group has been driving forward groundbreaking inventions and developments in the fields of motion and mobility for over 75 years. With innovative technologies, products, and services for electric mobility, CO₂-efficient drives, Industry 4.0, digitalization, and renewable energies, the company is a reliable partner for making motion and mobility more efficient, intelligent, and sustainable. The technology company manufactures high-precision components and systems for powertrain and chassis applications as well as rolling and plain bearing solutions for a large number of industrial applications. The Schaeffler Group generated sales of approximately EUR 13.9 billion in 2021. With around 83,000 employees, Schaeffler is one of the world's largest family companies. With more than 1,800 patent applications in 2021, Schaeffler is Germany's third most innovative company according to the DPMA (German Patent and Trademark Office).

With its sights set on growth with technologies for commercial vehicles, this year Schaeffler is making its first appearance as an exhibitor at the IAA Transportation show in Hanover. Photo: Schaeffler (Digita Pixelpark)

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Schaeffler is presenting an array of innovative technologies for the transportation and logistics industry at IAA Transportation 2022. Photo: Schaeffler (Jung von Matt)

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Schaeffler's high-performance electric motors feature an efficiency of over 97 percent and a continuous drive power output of up to 300 kW. Photo: Schaeffler (Jung von Matt)

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At the IAA Transportation show in Hanover, Schaeffler is presenting a demonstration vehicle built from the ground up on the basis of an electric van. The vehicle is driven by a Schaeffler 3in1 e-axle powered by a fuel cell system made using Schaeffler components. Photo: Schaeffler (Daniel Karmann)

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Schaeffler provides innovative powertrain and chassis products that will help automotive manufacturers reduce their vehicles' fuel consumption and emissions and seize the opportunities afforded by automated driving and digitalization. Photo: Schaeffler

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