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Press Release

Schaeffler set to head ReDriveS research project for sustainable and circular use of electric axle drives

HERZOGENAURACH , *2026-01-16*.

- Schaeffler is overseeing the ReDriveS research project – this lighthouse project is funded by the German Federal Ministry for Economic Affairs and Energy
- Objective is to develop an industrial, automated, scalable, and non-destructive recycling concept for electric axle drives
- ReDriveS will provide a technological edge for compliance with statutory requirements while also ensuring cost-effective access to high-value materials in the future

Schaeffler is coordinating the lighthouse project ReDriveS – funded by the German Federal Ministry for Economic Affairs and Energy – with 25 partners from industry, SMEs, and academia. The objective of the project is to develop an industrial, automated, and scalable recycling concept for electric axle drive systems – from non-destructive disassembly to innovative recycling processes and digital data use. ReDriveS will therefore not just provide a technological advantage for complying with statutory recycling requirements but will also ensure future cost-effective access to high-value raw materials like rare earths. ReDriveS has a project volume of over €25 million, with total funding exceeding €16 million. The project will run for a period of 36 months and will play a key role in driving sustainable transformation in the mobility and automotive industry.

Prof. Dr. Tim Hosenfeldt, Head of Central Technologies at Schaeffler AG, says:
“With ReDriveS, we are launching a key project for the circular economy in electric mobility as consortium leader, together with the German Federal Ministry for Economic Affairs and Energy and strong partners. Our goal is to make electric axle drives significantly more resource-efficient through digital twins, automated disassembly, and high-quality recycling – thereby securing raw materials and supply chains, reducing CO_2 emissions, and strengthening Germany as a location overall.”

Preserving value sustainably

Through robot-guided non-destructive disassembly of electric axle drives, Schaeffler aims to pave the way for an ecologically and economically sound manufacturer-independent circular material flow for valuable materials –

something that is not yet happening for electric axle drives. Rare earths in magnets, as well as copper, aluminum, steel, and electronic components, play an especially important role. The scalable disassembly concept will support the repair of the axle drive, the reuse of subcomponents, or their recycling. An evaluation matrix processes information about the condition and geometry of the respective electric axle drives and will be able to derive economic disassembly scenarios for the disassembly robot. To this end, Schaeffler's second key task alongside project management is to develop a demonstrator linked to a digital twin that collects and processes data over the entire lifecycle of an electric axle drive. Depending on the condition of the electric axle drive components, the electric axle drive can be dismantled only into its main units (typically: motor, inverter, transmission) or broken down to component level (for recycling). The generic digital twin created in the project can be used independently of manufacturer. Regarding further market development of electric axle drives as a cornerstone of sustainable mobility, ReDriveS will also develop new data-based business models for axle drives. The digital twin is an important prerequisite for this as well.

As a national lighthouse project, ReDriveS addresses three key issues in the mobility transition: System capability, digitalization and sustainability. The project focuses on developing automated, robot-guided disassembly systems for electric axle drives, recycling processes for rare earth magnets (NdFeB) and other strategic materials, and establishing a digital ecosystem with digital twins for cross-manufacturer data use.

The project will play an important role in helping to strengthen the resilience of the electric mobility supply chain, meet future mandatory recycling targets, and contribute to the reduction of the future carbon footprint of electric vehicles in Germany and elsewhere in Europe.

Digitalization and circular economy for the automotive industry

With its combined focus on automation, digitalization, and the circular economy, ReDriveS exemplifies the transformation in the German automotive industry towards sustainable, data-driven and resource-efficient production systems. The final outcomes of the project are to be transferred into industrial applications and harnessed as an industry solution for OEMs, suppliers, and recyclers.

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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, 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. With around 110,000 employees and more than 250 locations in 55 countries, Schaeffler is one of the world's largest family-owned companies and ranks among Germany's most innovative companies.

Around 80 consortium participants came together at the Schaeffler headquarters in Herzogenaurach on January 12 and 13, 2026, to celebrate the official launch of the research project. (Photo: Schaeffler)

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