

Composite Rotor Sleeves Project Completed – Exclusive Web Meeting for OEMs and E-Drive Developers to showcase Technology Insights and Connect the Value Chain

Aachen, September 2025 – OEMs and Tier-1 suppliers in the field of electric powertrains are under increasing pressure to improve performance, efficiency, and scalability of their drive systems. One key enabler now reaching industrial mass-production: composite-based rotor sleeves. These lightweight, high-performance components offer significant advantages in terms of mechanical containment of rotor components to achieve more efficient designs for high-speed rotation – especially in demanding automotive, aerospace and industrial applications.

Following 9 months of collaborative research, a consortium of 15 leading companies – Arkema Group, Covenstro Deutschland AG, DOMO Engineering Plastics Europe S.p.A., Hexcel Composites SASU, Huntsman Advanced Materials, Hutchinson SA CRI, Kümpers GmbH, LG Electronics Deutschland GmbH, Maru Hachi Corporation, Rassini Supensiones S.A. de C.V., Schunk Kohlenstofftechnik GmbH, Swancore Netherlands B.V., Syensqo, Toray Carbon Fibres Europe S.A., Toyota Motor Europe N.V./S.A. – has completed a comprehensive analysis and benchmarking project led by AZL Aachen GmbH. The project systematically analysed the state-of-the-art, compared materials, design strategies, and processing methods for rotor sleeves made from thermoset and thermoplastic carbon fibre composites. The result is a comprehensive market and technology analysis, documented in a 384-page final report – and ready to be implemented into cooperations.

To support OEMs and motor developers in leveraging these findings, AZL is now hosting a dedicated web meeting – designed specifically to demonstrate the practical relevance, supply chain maturity, and technology details of composite rotor sleeves for electric drives. Participation is free of charge.

The event will provide a strategic overview of the technology's capabilities and will highlight the concrete potential for integration into series production. It starts with an introduction to the current state of the technology and its role in enabling the next generation of electric motors. AZL will then present the consolidated results from the project's work packages. Key insights include comparisons of rotor sleeve designs (press-fit vs. direct-wound), material classes (thermoplastic and thermoset carbon composites), mechanical and thermal performance benchmarks and production KPIs.

In the second part of the meeting, participants will get the opportunity to meet the consortium behind the recently finished project – from composite material suppliers and machine manufacturers to rotor sleeve producers. Each partner will briefly pitch their unique expertise and offerings, helping OEMs identify reliable contacts for implementation projects.

Fabian Köster, Development Engineer Composites at Schunk Kohlenstofftechnik GmbH, explains: "As a technology leader and high-volume manufacturer in the field of rotor sleeves, Schunk considers it essential to actively shape innovation. Our participation in the AZL project reflects our strong belief that future viability and competitiveness can only be secured through early involvement in technological developments. The AZL info event offers OEMs and partners across the entire value chain a valuable opportunity to exchange insights on

the current state of rotor sleeve technologies, explore emerging trends, and collaboratively develop solutions for tomorrow's challenges."

For OEMs, this event provides not only an update on emerging technology, it also offers direct access to a ready-to-engage partner network. It also marks the official launch of a follow-up experimental project.

This follow-up initiative will shift from theoretical analysis to experimental validation. Its goal is to benchmark the performance of different material and process combinations under real-world production and operating conditions.

The follow project includes four work packages. The first work package will define the production concepts and materials to be tested experimentally, including the design of test methods and auxiliary equipment for press fit operations. The second work package is targeting a production process consisting of separate winding and press fitting on the rotor. It includes manufacturing of sleeves using wet winding, towpreg winding and thermoplastic tape winding. Strength testing of the sleeves will consider different prestress levels, while also the quality of the laminate will be evaluated. The third work package will do the same, but in this case for a process, directly winding on the rotor. Evaluation will also include high temperature testing and long term durability. Finally in the fourth work package all process and strength test results will be evaluated on cost, quality, and performance, leading to benchmarking of various materials, and clear recommendations for cost efficient rotor sleeves.

The web meeting, hosted on September 25th, is open to OEMs, motor developers, innovation managers, and system integrators seeking to accelerate their next electric powertrain generation. A registration link will be provided for all interested participants.

Contact

Philipp Fröhlig

Head of Industrial Services

Email: philipp.froehlig@azl-aachen-gmbh.de

Telephone: +49 241 475 735 14

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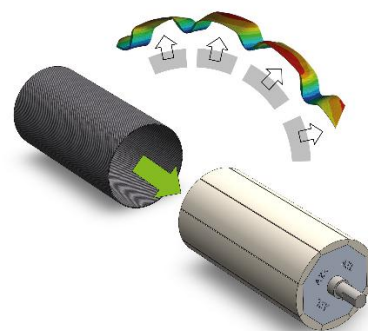
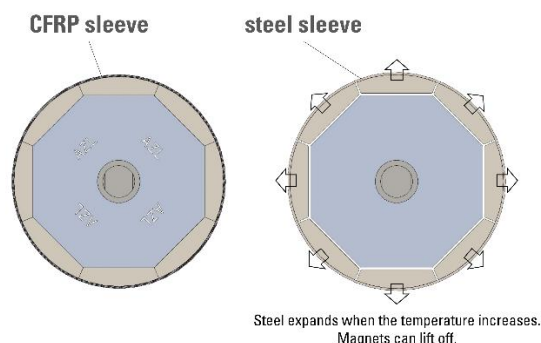


Image 1: Effect of high temperature on rotor sleeve © AZL Aachen GmbH

Image 2: Tight fitting requirements © AZL Aachen GmbH



Image 3: Fabian Köster © Dominik Fröls – DF Fotografie / AZL Aachen GmbH

About AZL Aachen GmbH

AZL stands for excellence in lightweight production. As one-stop shop for market and technology know-how, the senior staff of AZL supports companies of the entire value chain, in the development, benchmarking and improvement of design methodologies, manufacturing techniques and products. Located in the heart of one of the leading high-tech ecosystems, RWTH Aachen University, AZL assist in experimental evaluation of all relevant technologies related to composite-based multi-material technologies with decades of technology expertise and cutting-edge infrastructure.

In addition to individual cooperation, the AZL Partnership framework offer access to services and a network of international companies along the lightweight value chain. With three pillars advisory, engineering and partnership network, the AZL develops competitive innovations for economically highly relevant market segments and finds suitable partners for industrial implementation and establishment in the market.

www.lightweight-production.de