Press Release

FEV develops sustainable fuel cell propulsion for future aviation

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Aachen, June 2026 – FEV, a leading international innovation service provider for sustainable mobility solutions on land, at sea, and in the air, is developing next generation propulsion systems for light aircraft and gyrocopters based on highly efficient fuel cells. The goal is to meet aviation-specific requirements for energy density, thermal management, and weight. The latest developments are currently being showcased at ILA Berlin 2026.

“The achievable energy density is one of the biggest challenges for the use of currently available fuel cell systems in aviation,” said Dr. Christian Eschmann, Vice President FEV aerospace. “For example, an aircraft for up to nine passengers requires about twice the energy density of today's ground-based systems. FEV is working on solutions to significantly increase performance in this area.”

25 years of experience and system expertise in fuel cells

Cooling is another key challenge: while combustion engines release most of their exhaust heat directly into the environment, fuel cell systems must dissipate almost all of their heat via the coolant. This requires more complex and heavier cooling systems,

which increases the total weight and, depending on the flight profile, can increase hydrogen consumption by up to 30 percent. With 25 years of experience, FEV has extensive expertise in the design, integration, and validation of fuel cell components and complete systems.

As part of its benchmarking activities, FEV has analyzed a large number of fuel cell systems available worldwide and visualized the results in scatter plots. These enable an objective performance evaluation and form the basis for the targeted further development of its own aviation powertrains. In addition, FEV develops intelligent control concepts that optimize operation in terms of voltage, efficiency, and service life.

Innovative lightweight design solutions for aviation

A key focus of this work is on weight-optimized system architectures. In the BiFoilStack consortium project, FEV is working with partners from industry and research to develop foil-based bipolar plates as an important development focus for fuel cells, which are specifically designed for aviation applications. They combine the corrosion resistance of metallic materials with the low weight of graphite. They are manufactured using a precise stamping and foil welding process, resulting in significant weight savings while maintaining performance. At the same time, manufacturing costs can be reduced by up to 20 percent.

Technologically open strategy for sustainable mobility

In addition to fuel cell technologies, FEV pursues a technology-open development strategy and is working in parallel on hydrogen combustion engines, solutions for sustainable aviation fuels

(SAF), and battery systems. The company develops and tests the latter at the eDLP – the world's largest independent test center for high-voltage batteries, operated by FEV. In doing so, the company addresses multiple pathways to defossilization, ranging from short-term transitional technologies to fully emission-free powertrains.

The experts from FEV aerospace are presenting their latest solutions from 10-14 June at ILA Berlin, Hall 2 Booth 312.

Footage

Caption: FEV's AERO ALPHA - FEV develops powerful and weight-optimized fuel cell solutions for sustainable aircraft propulsion systems. Source: FEV

About FEV

FEV has always pushed the limits.

FEV is a globally leading engineering provider in the automotive industry and internationally recognized leader of innovation across different sectors and industries. Professor Franz Pischinger laid the foundations by combining his background in academia and engineering with a great vision for continual progress. The company has supplied solutions and strategy consulting to the world's largest automotive OEMs and has supported customers through the entire transportation and mobility ecosystem.

As the world continues to evolve, so does FEV.
That's why FEV is unleashing its technological and strategic expertise into other areas, applying its forward thinking to the aerospace and energy sectors. Thanks to its software and system expertise, the company also leads the way making intelligent solutions available to everyone. FEV brings together the brightest minds from different backgrounds and specialties to find new solutions for both current and future challenges.

But FEV won't stop there.
Looking ahead, FEV continues to push the limits of innovation. With its highly qualified 5,600 employees at more than 45 locations globally, FEV imagines solutions that don't just meet today's needs but tomorrow's. Ultimately, FEV keeps evolving – to a better, cleaner future built on sustainable mobility, energy and software that drives everything. For the company's partners, its people and the world. #FeelEVolution