

Press Release

Aachen Colloquium 2023 – sustainable mobility of tomorrow holistically thought by FEV

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Aachen, October 2023 - The 32nd Aachen Colloquium Sustainable Mobility will bring together international experts from the entire mobility industry at the Aachen Eurogress from 9 to 11 October. FEV, a globally leading engineering provider, will present trend-setting new developments for the emission-free mobility of the future. At booth 5, visitors can also discover innovations from the fields of software development and energy technology that make an important contribution to the sustainable and safe future of our society.

“Sustainable mobility requires holistic solutions that take into account both passenger and freight transport on and off the road, as well as cross-sector thinking,” said Dr. Patrick Hupperich, CEO of FEV ahead of the conference. “At our booth at the Aachen Colloquium, we will show exactly this range.”

As part of FEV's presence at the show, visitors will experience a wide range of innovative hardware and software solutions. These cover everything from state-of-the-art electric drive units (EDU) in various scales to solutions for fuel cells, new battery concepts and digital solutions for software defined vehicles (SDV).

Electric drives for sustainable mobility

FEV has numerous innovations on display at this year's Aachen Colloquium. The portfolio ranges from an electric drive unit (EDU) for pedelecs and e-bike to a single-speed EDU for passenger cars and a combined e-motor/transmission package for commercial vehicles. This drive unit, developed for the Chinese market, has seven forward and two reverse gears. With a hybrid system efficiency of 95 percent, the integrated e-motor produces 130 kW of power and up to 600 Nm of combined torque yet weighs less than 120 kilograms.

Much smaller, yet no less revolutionary, is the drive FEV engineered for pedelecs and e-bikes. With a maximum torque of 150 Nm and a total of ten gears at a total weight of only four kilograms, the development from Aachen competes directly with established top-class models on the market. Unlike these, however, FEV's product has the ability to regenerate, so that recuperated energy can be fed back into the battery, thus increasing the range.

Hydrogen for zero-emission transportation

Together with Plastic Omnium New Energies, FEV is developing a fuel cell system with an output of 50 kW. FEV is supporting the French company throughout the entire development process, from system layout and mechanical design to assembly of the first prototype cells and calibration and validation of the finished system.

At present, various challenges still need to be addressed in order to achieve widespread entry into series production of fuel cell

vehicles. At the component level, this means increasing the durability of bipolar plates and optimizing their production. Together with the Fraunhofer Institute for Environmental, Safety and Energy Technology UMSICHT, Dätwyler and other consortium partners, FEV has developed a new type of bipolar plate in the “BiFoilStack” project. This combines the advantages of metallic and graphite materials and can facilitate the scaling of fuel cell technology on the market. For example, the power density of graphite compound plates is increased to 5 kW/l.

Digitalization in mobility

Electronic and IT-based hardware and software components are now an integral part of the mobility sector. In the area of software defined vehicle, FEV will be presenting a Hardware-in-the-Loop (HIL) demonstrator that can be used to simulate extensive environmental situations for vehicles of various automation levels. This significantly facilitates software development for modern vehicles.

FEV will also present the “Digital Loop” project, in which a solution for the virtual homologation of OTA (over-the-air) software updates is being developed together with six partners, such as Microsoft. The goal is to use “Digital Loop” to significantly accelerate the homologation process of such updates and to substantially reduce analog testing procedures without compromising safety standards and regulatory compliance during operation. Using a smart vehicle demonstrator provided by FEV, the system was recently presented at the IAA in Munich, where it met with great interest from the trade audience.

Long-standing core competencies and new fields of activity

Other exhibits at the conference-accompanying exhibition illustrate FEV's holistic approach to the sustainable mobility of the future. One highlight is the technology demonstrator of a newly developed, innovative battery housing that makes optimal use of the space available for energy storage. In the approach developed by FEV, the required structural performance is ensured by an "exoskeleton" concept that realizes a force flow above and below the battery pack. On the one hand, this keeps the loads occurring in the event of a crash out of the installation space used for the battery cells, while at the same time optimizing the rigidity of the overall system (battery and body).

Also on display at FEV's booth will be a flight-capable model of the "SkyCab", an air taxi that could be a component of modern mobility planning in the future.

For "The Dutch WindWheel" project, FEV has transferred its in-depth understanding of thermal processes and plant engineering to the building sector and is responsible for the technical equipment regarding energy and water supply in the prototype of the novel low-emission building.

Also represented at the Aachen Colloquium 2023 is "LONGRUN", one of the largest European projects for the development of environmentally friendly drives for commercial vehicles and buses. Under the leadership of FEV, 30 partners from 13 European countries have developed forward-looking solutions for long-distance passenger and freight transport over the past three years. The project will be presented at booth 10 directly opposite

the FEV booth. In addition, a closing event will be held on October 9 at the Novotel Aachen. Interested persons are cordially invited to obtain first-hand information about the project results there from 2 p.m. onwards.

The complete lecture program of the Aachen Colloquium 2023, in which FEV is represented with numerous innovative and exciting lectures, can be found at <https://bit.ly/ACK-program>.



Caption: FEV presents trend-setting new developments for the emission-free mobility at booth 5 at this year's Aachen Colloquium. © FEV

About FEV

FEV has always pushed the limits.

FEV is a globally leading engineering provider 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. It applies its forward thinking to the energy sector. And its software and system know-how will enable the company to lead 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 7,200 employees at more than 40 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 companies' partners, its people and the world. [#FeelEVolution](#)