

Press Release

On track with fuel cells and battery systems

Freudenberg pursued its e-mobility strategy with innovative technologies and new partnerships in 2020, even in a tough market environment

Weinheim, December 7, 2020. Freudenberg continues to advance the development of complete electric battery, fuel cell and hybrid systems for heavy-duty and commercial vehicles. Thanks to targeted development activities, the technology group expanded its market position in 2020, and is playing a pioneering role in electrified drivetrain systems for trucks, buses, ships, and trains.

This year, Freudenberg achieved several milestones in the commercial shipping sector. The Group is supplying one of the world's largest marine sector battery installations which will equip two P&O-operated ferries. The roughly 1,200 high-performance batteries in each of the ferries will be equally divided between a total of four battery rooms and networked with each other. XALT Energy, a Freudenberg subsidiary company since December 2018 and headquartered in Midland, Michigan, USA, will be supplying the batteries. Today, XALT batteries are deployed in city buses, particularly in New York and Los Angeles. The ferries are expected to be in regular operation between Dover (England) and Calais (France) from 2023.

Freudenberg's methanol-powered maritime fuel cell system has also received "Approval in Principle" for its safety concept from DNV GL, the classification society. This is an important step towards its use on board. As early as 2021, systems funded by

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the research project “Pa-X-ell2” will be installed on the cruise ship AIDAnova. Five innovation partners – Freudenberg, Lürssen, Meyer Werft, AIDA Cruises and the DNV GL – are working on this together. Freudenberg has developed the technology with a view to deploying it in container shipping. All the components are in a pre-manufactured system unit that allows for easy installation. The individual container has a rated output of up to 500 kilowatts and can be scaled with other units to achieve total outputs in the double-digit megawatt range for heavy ocean-going vessels.

New collaboration with Quantron

Freudenberg’s fuel cell technology has also been a success in onshore applications. The company has partnered with Quantron, a specialist in commercial vehicle conversion, to develop a special system for heavy-duty 40-ton trucks. The goal is to test the technology for performance, everyday use suitability and system durability under continuous commercial driving conditions. The Energy Research Program of the Bavarian State Ministry of Economic Affairs, Regional Development and Energy is funding the project which is one of the first to explicitly support fuel cell development for heavy-duty commercial vehicle deployment. The plan is to have a first test vehicle with the new drivetrain technology on Bavarian roads by mid-2021. The vehicle, named Energon, was presented to the public in early August.

And in late 2019, Freudenberg announced partnership agreements with FlixBus for buses with fuel cell drivetrains and with the U.S. manufacturer Motor Coach Industries for long-distance buses with high-energy lithium-ion battery packs.

A look to the future

Freudenberg’s batteries and fuel cells, or even a combination of the two, are also putting rail travel on the right track – particularly when it comes to non-electrified branch lines and shunting traffic.

Freudenberg experts consider hybrid solutions, i.e. a combination of fuel cell and battery, ideal for heavy-duty and commercial vehicles. The two technologies complement each other – and provide distinct advantages when it comes to weight, installation space and range. Freudenberg can deliver both systems from a single source, also achieving optimal configuration for customers. Whether battery separators, fuel cell membranes, cells, stacks or complete solutions, the technology group has unique value creation expertise.

- Graphic ferry: The Freudenberg batteries are designed to enable emission-free maneuvering in the port as well as allowing the 230-meter ship to dock and depart.
- Photo truck: A first test vehicle with the new fuel cell technology is expected to be rolling across Bavarian roads in mid-2021.
- Graphic truck: The goal is to test the fuel cell systems for performance, durability and range under continuous commercial driving conditions.

About the Freudenberg Group

Freudenberg is a global technology group that strengthens its customers and society long-term through forward-looking innovations. Together with its partners, customers and research institutions, the Freudenberg Group develops leading-edge technologies and excellent products and services for more than 40 markets and for thousands of applications: Seals, vibration control components, technical textiles, filters, cleaning technologies and products, specialty chemicals and medical products.

Strength of innovation, strong customer orientation, diversity, and team spirit are the cornerstones of the Group. The 170-year-old company holds strong to its core values: a commitment to excellence, reliability and pro-active, responsible action.

In 2019, the Freudenberg Group employed approximately 49,000 people in some 60 countries worldwide and generated sales of more than €9.4 billion. For more information, please go to www.freudenberg.com.