

Press Release

Exhibit demonstrates how diesel fuel can supply hydrogen to a fuel cell

Fraunhofer IMM to showcase diesel reformer for maritime power generation

How can fuel cell systems for maritime applications and specialized land vehicles be supplied with hydrogen without having to carry it in separate tanks? At Hydrogen Technology World Expo, taking place October 20–22, 2026, in Hamburg, Germany, the Fraunhofer Institute for Microengineering and Microsystems IMM will present a diesel reformer and demonstrate how diesel fuel can be converted into a hydrogen-containing gas directly at the point of use for power generation.

The diesel reformer is part of the development of a 25-kilowatt reformer–fuel cell system for maritime applications under the DIMARIT project, funded by Germany's Central Innovation Programme for SMEs (ZIM). The reformer converts the onboard fuel into a gas that, after further processing, supplies the fuel cell. Fraunhofer IMM's work has focused particularly on reactor technology and the coordination of process steps. The development team also addressed thermal management and the interaction between individual components. These factors are essential to ensuring reliable fuel conversion under changing operating conditions.

Hydrogen supply at the point of use

The development work addressed a practical challenge: Using fuel cells in mobile applications requires a reliable hydrogen supply. On vessels, the available installation space and the amount of fuel that must be carried are also key considerations. Converting diesel at the point of use can enable fuel cell operation without the need to store hydrogen separately. IMM is also investigating how synthetic diesel fuels can be used to produce hydrogen in the reformer. The goal is to enable suitable synthetic fuels, alongside conventional diesel, to supply a fuel cell in the future.

Potential Defense Applications

This approach is also relevant to mobile power generation for defense applications, where low noise emissions, low heat output, and low weight are important alongside fuel availability. Combining a diesel reformer with a fuel cell offers potential advantages: Compared with engine-driven diesel generators, the system requires fewer large moving parts and can reduce

acoustic and thermal signatures. Potential applications include supplying power to command and surveillance vehicles or field camps.

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Fraunhofer IMM at Hydrogen Technology World Expo

Hydrogen Technology World Expo in Hamburg brings together developments in stationary and mobile hydrogen applications. Fraunhofer IMM will exhibit in Hall B5, Booth 5G26. In addition to its work with diesel fuel, the institute will present a methanol reformer, technologies for producing hydrogen from ammonia, and carbon dioxide methanation technology. Dr. Gunther Kolb will discuss the potential use of diesel as a hydrogen source for fuel cells in defense applications on October 22, from 1:10 to 1:30 p.m., on Hydrogen Stage A.

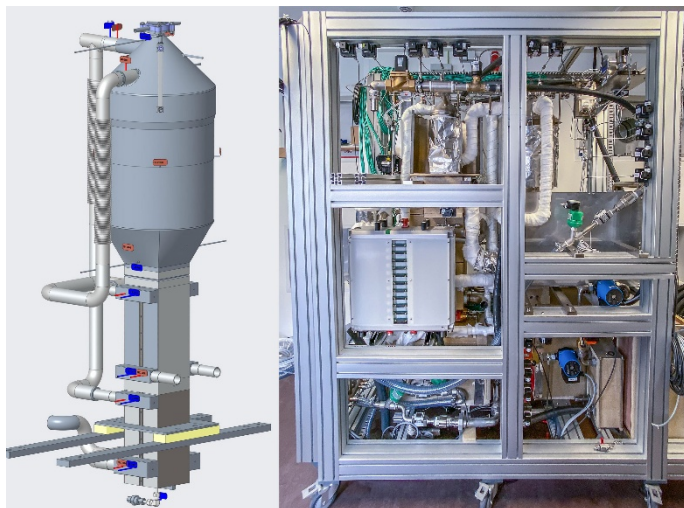


Fig. 1 CAD rendering of the diesel reformer and the complete system, including peripheral equipment and the fuel cell. The system is one of only a few current diesel reforming developments worldwide and, with an electrical output of 25 kW, is by far the largest of its kind. © Fraunhofer IMM

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