

Topic: Press release INLINE
Author: PROFACTOR
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New European project investigates a production line for PEMFCs (proton exchange membrane fuel cells)

High demand on alternative and zero-emission vehicle engines expected

STEYR. Fuel cell and electrically driven vehicles represent the future in post-fossil mobility. Fuel cells are based on hydrogen. The manufacturing of these high complex units is currently done manually; therefore, the costs per unit are very high. A consortium consisting of 5 partners (Profactor, Fronius, ElringKlinger, KITwbk, OMB Saleri) develop together in the international project INLINE an innovative design of a flexible, scalable, high quality production line for hydrogen fuel cell manufacturing.

Industrial partner Fronius produces fuel cells for material transport, e.g. fork lifters. Fuel cells are in this field an option to electrical driven vehicles, one advantage is that there is no long charging needed. The company expects a high demand, which cannot be served with the traditional manufacturing of the fuel cells. "We develop and design the key components for a scalable production line up to an outcome of 50.000 units per year," says Daniela Kirchberger, project manager for INLINE at PROFACTOR.

Complex components and time-consuming manufacturing slowdown the technology

A main part in this 3,2 million European funded project is the developing of new concepts for the manufacturing of two key components: the tank valve regulator and the media supply unit. These two components have been identified as bottlenecks in the production process of the fuel cell. Hydrogen and cooling medium are channeled through the media supply unit into the fuel cell. The production line will be planned with the help of simulation models. This simulation shall provide an easy evaluation of different designs and production scenarios.

Assisted Systems support Assembly Workers

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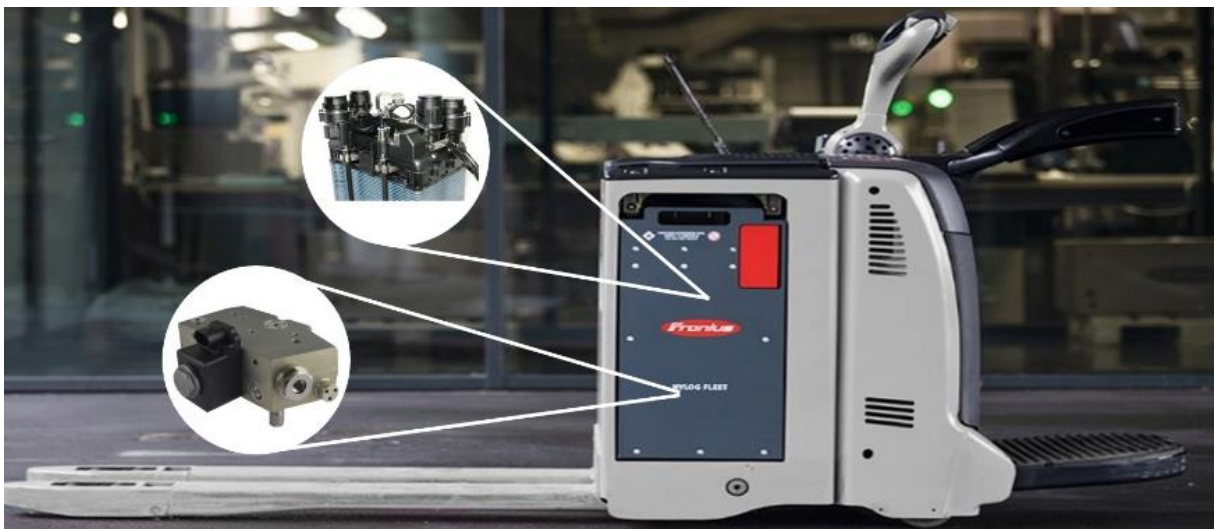
During project duration assisted assembly stations will be developed. These stations shall support the workers during assembly and will be able to cope with flexible lot sizes. Daniela Kirchberger refers to the high expectations in this three year lasting project: „We aim at a reduction of the cycle time from 15 to 2,5 hours. That would be a quantum leap in this technological field.“

Jules Verne was dreaming of a future of the fuel cell

The author Jules Verne described the fuel cell already in 1879 as „coal of the future: the segmented elements of water, hydrogen and oxygen, will secure the energy supply of the whole planet for an incalculable time period.“

A fuel cell is a galvanic cell. It transforms the chemically bounded energy (hydrogen) directly into electrical energy. Normally oxygen is used as oxidation catalyst. The power efficiency of a fuel cell is higher than of a combustion engine. Fuel cells are more lightweight than batteries of electrical engines due to their high energy density.

Fuel cell driven vehicle engines represent the vision of zero-emission engines.



Title: The components of the fuel cell system: lower circle: tank valve regulator; upper circle: media supply unit. These two components are the bottlenecks in the current production process.

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project name:

An innovative Design of a Flexible, Scalable, High Quality Production Line for PEMFC Manufacturing

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Duration:

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Webseite:

www.inline-project.eu

Partner

Fronius International GmbH

ElringKlinger AG

Karlsruher Institut für Technologie (KIT) wbk Institut für Produktionstechnik

OMB Saleri S.p.A

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