

Division Energy topics and competencies at a glance:

Benefit from 20 years experience in fuel processor development for stationary, mobile (aviation, maritime, ground transport) and portable applications. Apart from the reformer, the fuel cell hydrogen supply requires devices for evaporation, heat exchangers, a reactor for water-gas shift and in case of low temperature PEM fuel cell technology a reactor for CO removal and other balance-of-plant. The whole assembly is named fuel processor. IMM has developed compact and highly integrated high-performance components for that. The fuel processor design needs to be optimized for your specific application:

- the fuel cell type,
- the power range,
- the specific environment,
- the specific market requirements (achievable price and sales numbers) because fabrication techniques need to be chosen accordingly.

Talk to our experts to get the optimum solution for your system!

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Safe time, cost and energy

Tailor-made for your reactions

IMM biogas
reformer

Energy supply for stationary applications

Biogas is a sustainable alternative to natural gas for many applications. Stationary fuel cell applications require compact and sustainable hydrogen supply considering also the still limited availability of compressed or cryogenic hydrogen.

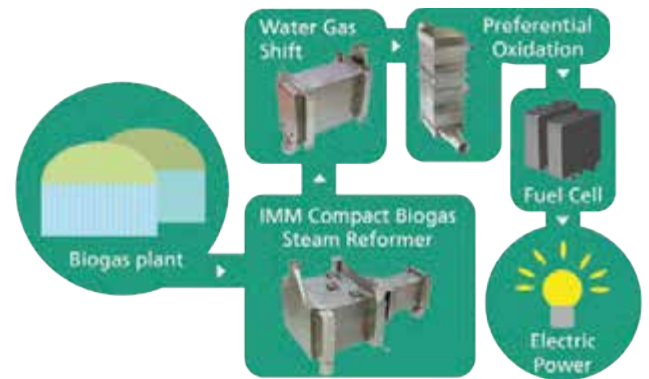
After being converted to hydrogen (reformed) biogas can be fed to a fuel cell which produces electric power. This process requires extremely high temperatures in the range of 750°C. The Fraunhofer IMM biogas reformer technology has been specifically developed for this temperature level.

IMM catalyst coated reformer technology

IMM has developed a highly compact biogas reformer, which has several advantages compared to conventional technology, which originate from our unique catalyst and reactor technology.

By making use of downstream catalytic conversion process, the hydrogen content of reformed biogas (reformate) is increased. Subsequently the traces of residual carbon monoxide are removed through the preferential oxidation reaction.

»» The robustness of our technology has been proven in practical applications under conditions of start-up, stationary operation and load changes.«



Your benefits

- higher system efficiency
- reactor fabrication similar to automotive high pressure heat exchangers or fuel cell metallic bipolar plates
- low cost fabrication steps: embossing, screen printing and laser welding allow cost reduction for product ramp-up

What makes our solutions unique?

- robust catalyst, no pre-treatment necessary, no performance drop after longer shut-down.
- higher activity compared to conventional technology (originating from large scale industrial processes) allows minimum catalyst demand (and cost).
- catalyst coatings similar to automotive exhaust cleaning reduce catalyst demand.
- stable reactor operation at partial load allows system modulation.
- plate heat exchanger technology allows optimum heat integration and higher system efficiency compared to conventional technology (fixed bed reactors).