FLOX® FPM C1 - Hydrogen for Fuel Cells.

The multi-fuel, ready-to-install and ultra-compact fuel processing module in the 1-2 kW range.

With the product line FLOX® Reformer compact C1 to C6 WS Reformer has been well-known as one of the few independent industrial suppliers in the fuel cell markets. At this year’s FCEXPO 2010, WS Reformer presents the new generation of ultra-compact fuel processing modules (FPM-C1) for the first time in Asia. The FLOX®-FPM C1 is addressed to fuel cell system integrators, heading towards a robust business case by outflanking the risk of the unsolved problem of hydrogen supply. In the micro-CHP market, the unit opens the door for fuel cell systems at a size of conventional wand-hanging boilers. The “multi-fuel” feature offers the use of several renewable as well as commercial fossil fuels.

Fuel processing, fuel cells and solar cells together are the three cornerstones for an independent and reliable off-grid power-supply.

Cost Reduction – From the reformer to an integrated Fuel-Processing-Module (FPM).

During the development cost reduction was first priority. Compact size (50l), optimised weight (<30kg) as well as design-for-manufacturing are the fundamentals for reaching the cost targets. All „Balance-of-plant“ components – desulfurisation, air- and gas supply as well as water treatment system are integrated and are completely assembled. The control with only one temperature control loop couldn’t be simpler. At the system integrator, design work, engineering and assembly efforts are thus drastically reduced. The reformer has been tested continuously on test stands for more than 5000h and has been operated in several fuel cells systems for up to 1000h including several hundred start-stops – without failures in design and degradation of catalysts.
Future oriented – 70% higher Power Density with HT-PEM Fuel Cells.

Compared with the LT-PEM version, in HT-PEM systems the new FPM achieves a 70% higher power density. In this sense, WS Reformer adds another cost-relevant advantage to the well known benefits of the HT-PEM technology: more robust and reliable operation by reduction of components and heat release at higher, “usable” temperatures.

With a mounting volume of 50l in total, load range from 15-100%, load following in seconds at CO-levels below 1%, the fuel-processing-module is able to supply hydrogen for up to 2,5kW HT-PEM stack power.

Apart from micro-CHP, the FLOX®-FPM C1 opens fuel cells the markets of off-grid power generators and “battery-range-extenders” even in small electric vehicles.

“Design for Manufacturing”: Concept for 10.000 pcs/a established.

Starting with a small series production in 2008/09, the supply chain and the complete manufacturing process was analysed and optimised by the „value-stream-design“ method. It turns out, that the manufacturing process can be scaled-up to annual production quantities of 10.000 units. And this holds true without any significant change of the structural design or the process.

WS Reformer: Reliable Supplier and Competent Development Partner for Customised Solutions.

“We consider WS Reformer a long-term and promising investment with huge potential. The company creates organic growth by straightforward marketing at the front-edge in the developing market,” Dr. Georg Schöpfelder, co-owner and financial director describes the strategy of the company.

Managing director, Dr.-Ing. Hans-Peter Schmid highlights the competencies:” Working more than 6 year in reformer technology and having sold over 60 units of different hydrogen outputs demonstrates our experience. We do not only know, what is essential in manufacturing, but also the success factors and key parameters of the complete fuel cell system. Customized solutions and scaling-up to 20kW system power is not a big deal for us. In the framework of several R&D programs, we reform successfully liquid fuels in the same units.”

About WS Reformer GmbH.

WS Reformer GmbH is a privately owned company, located in Renningen, Germany. It incorporates the long-term experience of its sister company WS Wärme­prozesstechnik GmbH (www.flox.com) in industrial heating technology, manufacturing know-how and supply-chains for small- to medium-scale production.

WS Reformer GmbH puts its developing and market focus on steam reformers for fuel cell systems in the 1-10 kW class and reformers for decentralised on-site hydrogen production in the capacity range 50 to 400 Nm3/h. The proprietary and patented FLOX® combustion technology, used in thousands of industrial burners world-wide demonstrates the companies strategy of holding leadership in innovation.