

- Ready-to-install
- Easy to control
- Ultra-compact design
- Low maintenance

# WS FLOX® FPM C1

## REFORMER

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### The reformer solution for 1 kW residential micro-CHP

The FLOX® Reformer product line comprises not only unique technical features but also WS Reformer's broad competence in manufacturing, duration tests and thousands of hours operational time in PEM fuel cell systems. We are dedicated to excellent customer support by sharing this experience during project planning, training and after-sales service.

The FPM C1 fuel processing module is designed for micro-CHP systems in residential applications. Special emphasize is put on compact size, low weight and design-for-manufacturing in order to meet the challenging cost targets at mass manufacturing.

CO-removal by single CO-shift and integrated selective methanation are the unique features of FLOX® steam reformers, which make operation as robust and simple as possible.



TECHNICAL DATA*		
FUEL PROCESSING MODULE	LOW-TEMPERATURE PEM FUEL CELL	HIGH-TEMPERATURE PEM FUEL CELL
Hydrogen capacity	1.2 Nm <sup>3</sup> /h (43 scfh)	1,5 Nm <sup>3</sup> /h (55 scfh)
Total mounting space	290 x 360 x 480 mm (LxWxH)	
Weight	appr. 30 kg incl. BOP	
Fuels	Natural gas, LPG, Methanol, DME	
Electric power demand	< 60 W	< 80 W
REFORMER		
Type	FLOX® Multifuel Reformer C1	
Size	420 mm (height), 270 mm (diameter)	
Efficiency	78 %**	
Reformate quality	> 75 % Hydrogen, < 10ppm CO, 150 mbar (2,2 psi), 200 °C	> 75 % Hydrogen, < 1 % CO, 150 mbar (2,2 psi), 200 °C
Load range	1:3	1:3
Load following	30 - 100 % in 60 sec.	30 - 100 % in 60 sec.
Life time	> 15,000 h (designed for 80,000 h)	
BALANCE-OF-PLANT (BOP)		
Desulfurization	Exchange intervall appr. 5,000 h***	
Water supply unit	Water pump 24 VDC / 0-10 V Buffer tank and DI-water filter on request	
Air supply unit	Air blower, 24 VDC / 0-10 V Solenoid valves, 1 x 24 VDC / 230 VAC, < 10 Watt Interface: burner control / system controller	
Gas supply unit	3 solenoid valves 24 VDC, 230 VAC, < 10 Watt Interface: burner control / system controller	

\* All technical data without obligation. Status quo 04/2014.  
Data is subject to change due to our continuous improvement efforts.

\*\* Based on lower heating value:  $LHV_{Hydrogen} / LHV_{Feed+Fuel}$

\*\*\* Reference value for typical EU gas composition



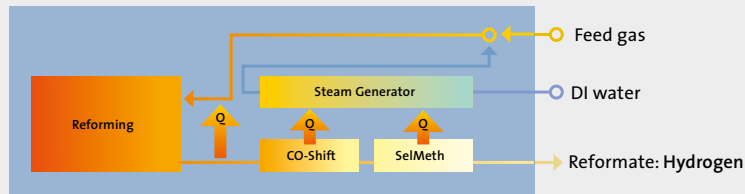
Customer interface



Burner air supply / feed supply

#### FLOX® Steam Reforming

Steam generation, reforming, CO-Shifting and selective methanation ("SelMeth") are combined by an unique and patented process. The key for highest CO purity is the precise tempering of the exothermic CO-Shift reaction and stable temperatures in the SelMeth. Sophisticated control algorithms are not necessary. The complete process is controlled by just one temperature.



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