



- Cost-efficient
- Compact
- Easy to control
- Efficiency over 80%
- Low maintenance

WS FLOX® FPM C5

REFORMER

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Hydrogen for PEM fuel cells in the 5 kW class

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 collaborative development with our customers by sharing this experience during project planning, system integration and after-sales support.

The FPM C5 represents the high-end of micro-CHP applications. The unit is available for LT- as well as HT-PEM fuel cells, using equal parts and components. Reliable anode-off-gas combustion, jet-pump driven feed supply and highest reformate purity form the robust operation behaviour without sophisticated control strategies.

Special emphasize has been put on catalyst and material usage. As a result, specific weight, volume and cost are low and offer competitive system prices even at moderate production volume.



TECHNICAL DATA*		
FUEL PROCESSING MODULE	LOW-TEMPERATURE PEM FUEL CELL	HIGH-TEMPERATURE PEM FUEL CELL
Hydrogen capacity	5.0 Nm ³ /h (177 scfh)	6.0 Nm ³ /h (211 scfh)
Total mounting space	420 x 270 x 905 mm (LxWxH)	
Weight	74 kg	
Fuels	Natural gas, LPG, Methanol, DME	
Electric power demand	< 100 W	< 120 W
REFORMER		
Type	FLOX® Multifuel Reformer C5	
Size	800 mm (height), 350 mm (diameter)	
Efficiency	82 %**	
Reformate quality	78 % Hydrogen, < 10 ppm CO, < 2% CH ₄ 150 mbar (2,2 psi), 200 °C	78 % Hydrogen, < 0,5 % CO, < 2% CH ₄ 150 mbar (2,2 psi), 200 °C
Load range	1:3	1:3
Load following	30 - 100 % in 120 sec.	30 - 100 % in 120 sec.
Life time	> 15,000 h (designed for 80,000 h)	
BALANCE-OF-PLANT (BOP)		
Desulfurisation	Exchange intervall appr. 5,000 h***	
Water supply	Water pump 24 VDC / 0-10V	
Burner air supply	Air blower, 24 VDC / 0-10V Solenoid valves, 1 x 24 VDC, < 10 Watt Interface: burner control / system controller	
Fuel / feed supply	3 solenoid valves 24 VDC, < 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



Air supply unit



Gas interface

Jet pump: mixing and pressure hub

In fuel cell systems the process gas must overcome the pressure drop of reformer, stack, burner and pipings. Further on, reliable mixing of process steam and feed gas is essential. FLOX® reformers meet these requirements by specially designed steam jet-pumps. A gas compressor is not required and coking due to waterpump failure is inherently excluded.

