



- Ready-to-install
- Easy to control
- Compact design
- No gas compressor necessary
- Low maintenance

WS FLOX[®] FPM C₃

REFORMER

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Hydrogen for 3 kW PEM systems

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 C₃ fuel processing module fits 3-kW PEM fuel cell systems. Supplementary power, back-up power supply and other industrial applications are the typical markets. The unit is ready to install. Specially designed »Balance-of-plant« components complete the basic reformer and make the integration for the customer straightforward.

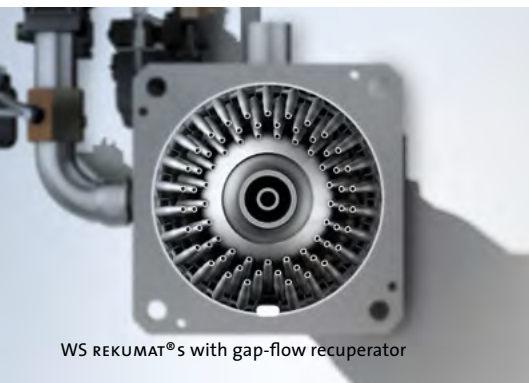


TECHNICAL DATA*		
FUEL PROCESSING MODULE	LOW-TEMPERATURE PEM FUEL CELL	HIGH-TEMPERATURE PEM FUEL CELL
Hydrogen capacity	3.0 Nm ³ /h (106 scfh)	4.0 Nm ³ /h (141 scfh)
Total mounting space	420 x 370 x 822 mm (LxWxH)	
Weight	62 kg incl. BOP	
Fuels	Natural gas, LPG, Methanol, DME	
Electric power demand	< 80 W	< 100 W
REFORMER		
Type	FLOX® Multifuel Reformer C3	
Size	700 mm (height), 350 mm (diameter)	
Efficiency	80 %**	
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 / 0-10 V	
Burner air supply	Air blower, 24 VDC / 0-10 V 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	

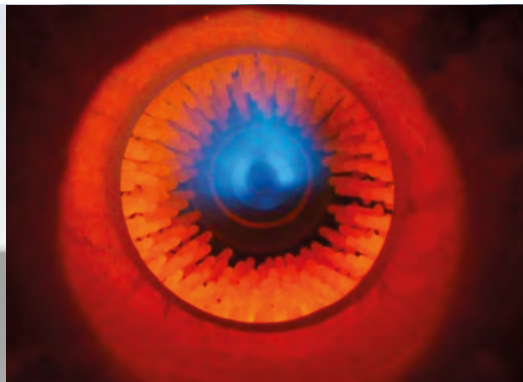
* All technical data without obligation. Status quo 04/2014.
Data is subject to change due to our continuous improvement efforts.

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

*** Reference value for typical EU gas composition



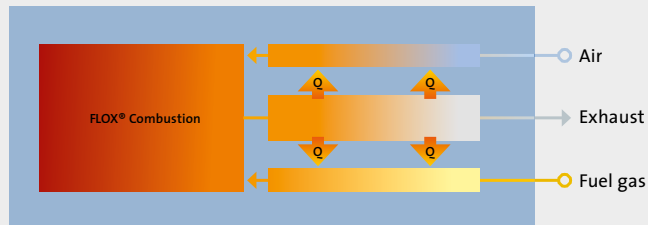
WS REKUMAT®s with gap-flow recuperator



Gas supply unit

FLOX® Combustion

All reformers are equipped with FLOX® burners and integrated exhaust gas recuperators. FLOX® combustion allows highest air preheating without NO_x formation and is insensitive against variations in gas composition and air fuel ratio as they occur in typical fuel cell systems. This paves the way to the simple control of the burner and the reformer system by just one temperature.



WS FLOX® FPM C3

REFORMER