

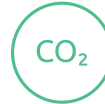
# HT PEM fuel cell stack ●

Blue World Technologies' high efficiency stack is available in 9kW and 18kW variants with market leading energy density.

Efficient coolant channels allow rapid heating and cooling of the stack to realise the shortest startup time among HT PEM (high temperature proton exchange membrane) stacks available on the market. The material design allows the choice of coolant to cope with a cold startup at ambient temperatures of -30°C to 50°C.

The S-series stacks are tolerant to CO content in reformat. This gives the flexibility in selecting methanol to water ratio at reformer input.

The stacks offer higher efficiency as an integrated methanol evaporator and air preheater optimise energy conversion.



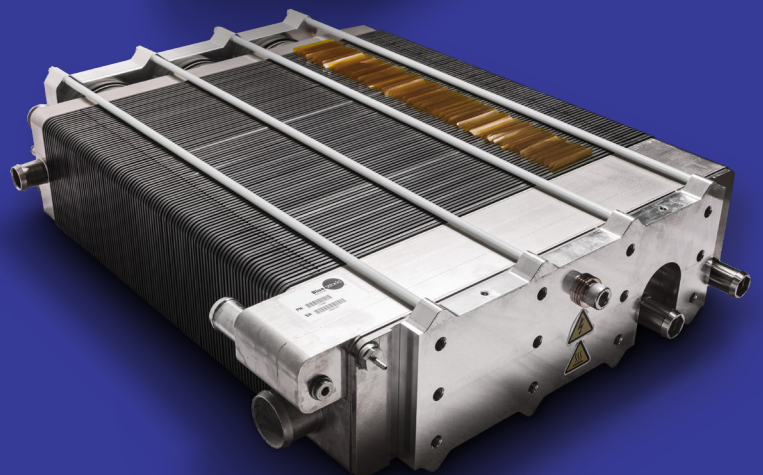
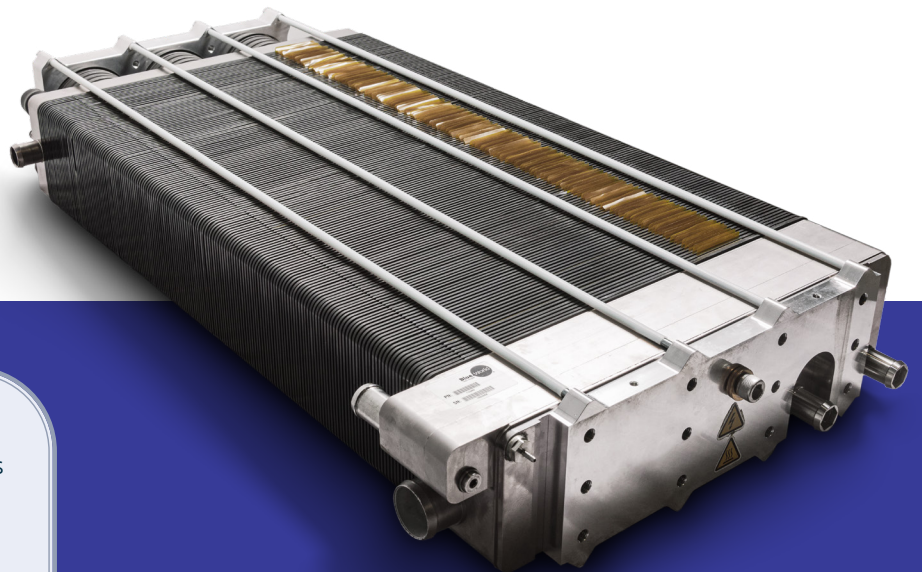
**CO<sub>2</sub> reduction**



**Cost savings**

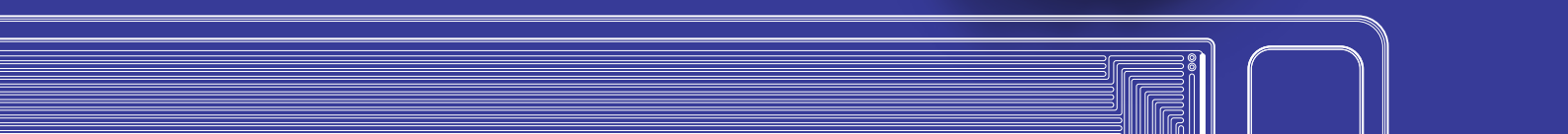


**Air pollution reduction**



## FEATURES

- ✓ **Integrated evaporator:** Simplifies the evaporation process and cuts down on energy consumption
- ✓ **High CO tolerance:** Can accept higher concentrations of carbon monoxide of 1-3%
- ✓ **Simple efficient cooling:** It operates at 160-180 °C and is liquid cooled which enables a simple cooling system due to the relatively high temperature difference
- ✓ **Optimised Waste Heat Utilisation:** Liquid cooling medium enables use of the high value waste heat
- ✓ **Reduced BOP components:** This eliminates the need for Cell Voltage Monitoring and humidification processes



Parameter	Units	Blue S9	Blue S18
Rated power [1]	Watts	9,000	18,000
Stack dimensions	L*W*H mm	See drawing	See drawing
Stack weight	kg	39	57
Stack voltage @rated power	V DC	43	77
Stack voltage @OCV [2]	V DC	111	197
Current at rated power	Amp	238	
Stack operating temperature	°C	120-180	
Stack storage temperature	°C	> -30	
Minimum stack air inlet pressure with listed flow rate	bar(g)	0.4	
Maximum stack air inlet pressure	bar(g)	0.8	
Air flow requirement	-	Stoichiometry 2-3	
Normal air consumption at rated current density (at stoichiometry of 2.5 and oxygen concentration of 21 vol.%)	SLPM	898	1589
Max fuel supply pressure	bar(g)	0.8	
Feed gas specification	Hydrogen rich gas [3]		
Fuel flow requirement	-	Stoichiometry 1.15-1.3	
Normal hydrogen consumption at rated current density (at stoichiometry of 1.25)	SLPM	189	334
Minimum stack fuel inlet pressure with above listed flow rate	bar(g)	0.15	
Coolant type	MultiTherm 503®		
Pressure drop	bar(g)	0.3	
Supply pressure range	bar(g)	0.3 to 0.5	
Flow-rate range	kg/s	0.3	

CONTACT

For more information, pricing, and availability please contact Blue World Technologies at [info@blue.world](mailto:info@blue.world) or visit [www.blue.world](http://www.blue.world)



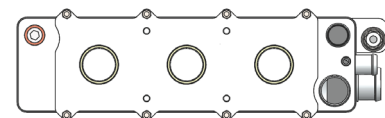
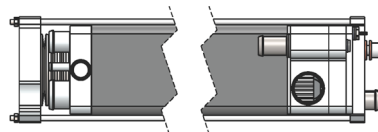
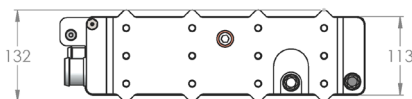
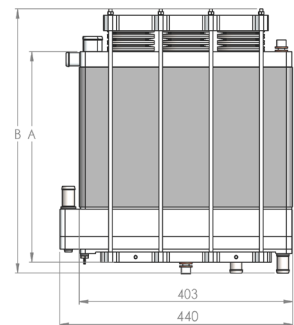
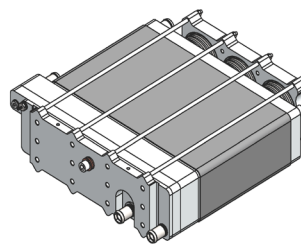
[1] Power at the start of product life and is determined by pressure, temperature, reformate composition, anode/cathode lambda.

[2] Theoretical value

[3] For further information please contact Blue World Technologies' sales team.

Number of cells	A (mm)	B (mm)	Dry weight (kg)
90	489	582	39
160	769	895	57

Dimensions A and B: +/-10 mm tolerance  
 Dry weight: +/- 1 kg tolerance  
 All dimensions at storage conditions at 20 °C



The drawings and specifications depicted in this data sheet are intended for general reference only. They may not accurately depict the actual product, which may contain variations from the depicted specifications. Blue World Technologies reserves the right to make changes to product design, materials, and specifications without any prior notice.