

PEM

1 MW Polymeric Electrolyte Membrane containerized electrolyzer stack complemented by the balance of plant (BoP).



Key features

- H₂ Output: 200 Nm³/h (~ 18 kg/h), up to 35 barg, 99.999% purity
- High degree of redundancy
- Rapid reaction times to variable renewables
- N₂ or other gasses provided for purging

Specification

Nominal H₂ flow	200 Nm ³ /h ~ 430 kg/24 h	Net volume flow rate
H₂ outlet pressure	Up to 35 barg	
H₂ purity	Up to 99.999% in molar fraction	Impurities only H ₂ O and O ₂
Nominal O₂ flow	100 Nm ³ /h	Net volume flow rate
O₂ outlet pressure	Atmospheric	
Sound pressure level	< 60 dB(A)	at 10 m
Flexibility	10% – 100%	Of nominal production rate
Stack nominal electrical power consumption	930 kW 990 kW	Beginning of life (BOL) Near end of life (EOL)
Specific power consumption (efficiency)	5.1 kWh/Nm ³ _{H₂} 55.8 kWh/kg _{H₂} 64.5%	Including all utilities inside the battery limits of the electrolyzer container (at beginning of life) Optional dryer excluded
System efficiency over different loads	60 – 100%: 5.1 kWh/Nm ³ 30 – 60%: 5.3 kWh/Nm ³ 10 – 30%: 5.7 kWh/Nm ³	Optional dryer excluded
Ambient operating temperature	-20 – 40 °C	
Nominal water consumption	400 L/h	Purified water
Water inlet conductivity	< 0.1 μS/cm	
Water inlet temperature	20 – 74.5 °C	
Hot startup time	0 – 10% in 30 seconds	
Hot standby power consumption	Max. 300 kW	Stacks are hydrated and electrolyte solution is in circulation at minimum temperature
Cold startup time	0 – 10% in 5 minutes	Depending on ambient temperature
Ramp-up time	10% – 100% in 60 seconds	Anode water at ≥20° C
Cold standby power consumption	Max. 50 kW	All components are in standby and container heating is on
Shut down time	From min to max in 1 second	
Shut down period	Max. 8 weeks	
Maximum Voltage	1 500 VDC	
Frequency	50/60 Hz	
Dimensions	L: 12.2 m × W: 2.4 m × H: 2.6 m	
Weight	~ 30 t	
Stack lifetime	~ 80 000 operation hours	