

RENEWABLE SYNGAS FOR E-FUEL AND CHEMICALS PRODUCTION

**SUNFIRE-SYNLINK SOEC****PRODUCT**

Sunfire-SynLink SOEC is the world-leading high-temperature electrolysis solution based on solid oxide cells. The electrolyzer uses steam and CO<sub>2</sub> as feed to produce renewable syngas in only one process step. Smart integration of waste heat and CO<sub>2</sub> sources reduces electricity demand while flexible scaling enables a gradual phase-in of renewable syngas into existing infrastructures and processes.

**APPLICATIONS**

The electrolyzer provides renewable syngas as an essential feedstock for producing a variety of hydrocarbon products.

- + e-Fuel: Diesel, gasoline, jet fuel, marine diesel oil, etc.
- + Chemicals: Agrochemicals, pharmaceuticals, cosmetics, fine chemicals, etc.

**CORE ADVANTAGES**

- + **Co-electrolysis**  
High efficiency one-step conversion of CO<sub>2</sub> & water yields lowest syngas costs
- + **Versatility**  
Supply of a broad range of H<sub>2</sub>:CO molar ratios
- + **Reliability**  
Certified electrolyzers with proven long-term operation
- + **Flexibility**  
Modular design simplifies scaling to any desired electrolysis capacity
- + **Sustainability**  
No use of PGM-based materials in electrolyzer production

## SUNFIRE-SYNLINK SOEC – TECHNICAL DATA



### SYNLINK SOEC

Syngas production	
Net production rate	750 Nm <sup>3</sup> /h
Production capacity dynamic range	5 % ... 100 %
Hot idle ramp time	< 10 min
Delivery pressure	1 ... 40 bar (g) after compression
Available H <sub>2</sub> :CO ratios	1.5 ... 3.5
Power input and electrical efficiency	
System power consumption (AC)	2,890 kW
Specific power consumption at stack level (DC)*	3.4 kWh/Nm <sup>3</sup>
Specific power consumption at system level (AC)*	3.85 kWh/Nm <sup>3</sup>
System electrical efficiency**	82 %
Steam input	
Consumption	560 kg/h
Temperature	150 °C ... 200 °C
Pressure	3.5 bar (g) ... 5.5 bar (g)
CO <sub>2</sub> input	
Consumption	730 kg/h
Temperature	0 °C ... 40 °C
Pressure	6 bar (g) ... 8 bar (g)
Other specs	
Footprint***	~ 300 m <sup>2</sup>
Ambient temperature	-20 °C ... 40 °C

\* Power consumption at ambient pressure

\*\* Lower heating value of syngas (H<sub>2</sub>:CO = 2) referred to AC power input

\*\*\* Average space requirement for a 2.89 MW system comprising all auxiliary systems

Disclaimer: For illustrative purposes, all above values are based on a syngas ratio (H<sub>2</sub>:CO) of 2 and 100% pure CO<sub>2</sub> feed. Sunfire-Synlink is capable to deliver different syngas ratios and to process a wide range of CO<sub>2</sub> feedstocks, e.g. shares of hydrocarbons, CO, H<sub>2</sub>, and H<sub>2</sub>O. Any potential deviation of CO<sub>2</sub> feed will be evaluated by Sunfire.