

NEDSTACK FCS 13-XXL

Stack specifications and operating conditions

Electrical – Beginning of life	
Rated power ¹	13.6 kW _e
Voltage range	58 – 94 V
Current range	0 – 230 A
Mechanical	
Cell count	96 cells
Weight	39 kg
Size (excl. connectors)	580 x 196 x 288 mm
Fuel	
Composition ² (dry)	Hydrogen according to ISO 14687-2 Grade ≥ 2.5
Inlet temperature	50 – 60 °C
Humidification	50 – 80% RH at coolant inlet temperature
Maximum operating pressure	250 mbarg
Allowable working pressure	450 mbarg
Pressure drop ³	< 60 mbar
Stoichiometry	≥ 1.25
Minimum H ₂ flow	59 NI/min
Maximum H ₂ consumption	154 NI/min
Air	
Composition ²	Filtered air
Inlet temperature	55 – 60 °C
Humidification	75 – 85% RH at coolant inlet temperature
Maximum operating pressure	200 mbarg
Allowable working pressure	450 mbarg
Pressure drop ³	< 110 mbar
Stoichiometry	≥ 2.0
Minimum air flow	96 NI/min
Maximum air flow	732 NI/min
Cooling	
Coolant	Demineralized water or BASF Glysantin FC G20
Conductivity	< 10 µS/cm
Inlet temperature	60 – 65 °C
Coolant temperature increase	< 5 °C
Maximum operating pressure	450 mbarg
Allowable working pressure	450 mbarg
Pressure drop	< 100 mbar for demi-water / < 250 mbar for Glysantin FC G20
Cooling capacity	< 18 kW _{th}
MEA	
Safety differential pressure anode	50 mbar above cathode pressure
Maximum allowable differential working pressure	300 mbar
CVM unit	
Power supply	18 – 32 VDC
Communication interface	CAN 2.0B, baud rate 500 kbit/s
Emissions	
Water production	< 0.6 L/kW _{h_e}
External hydrogen leakage	< 1 mL/min/cell (BoL)
Ambient conditions	
Climate conditions	-20 – 55 °C, 0 – 100% RH
Altitude	< 2000 m above sea level

¹ At reference conditions, see page 2.

² Contact Nedstack for a specification of allowable contaminants.

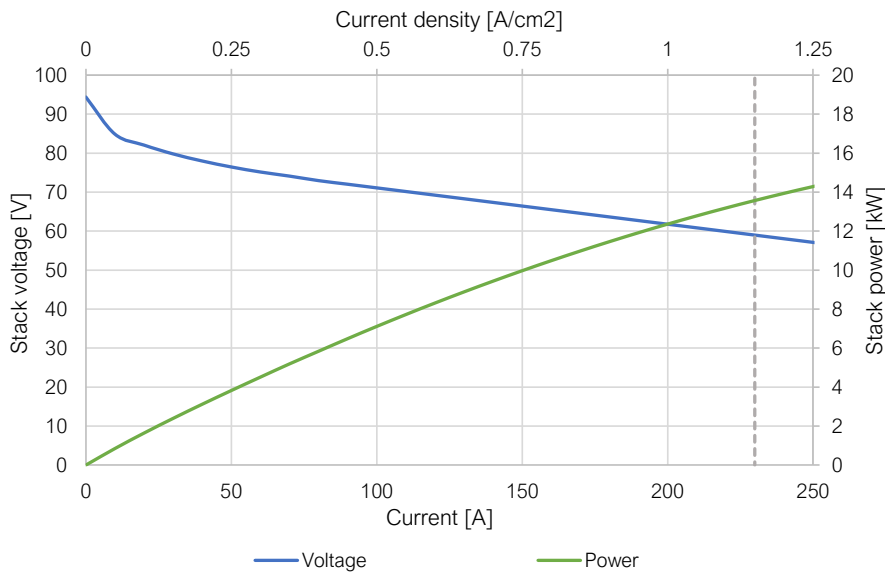
³ At reference stoichiometry, see page 2.

Appearance impression



Stack performance

Beginning-of-life stack performance at reference conditions given below.



Current (A)	0	40	80	120	160	200	230
Stack voltage (V)	94	78	73	69	66	62	59
Stack power (kW)	0.0	3.1	5.8	8.3	10.5	12.4	13.6

Stack temperature	
Coolant inlet temperature	62 °C
Coolant outlet temperature	< 67 °C
Anode	
Inlet humidity	80% RH at 62 °C
Backpressure	100 mbarg
Stoichiometry	1.25
Cathode	
Inlet humidity	80% RH at 62 °C
Backpressure	Ambient
Stoichiometry	2