

Convion C60 fuel cell co-generation system

Convion C60 is a modular power generator capable of combined heat and power generation. Due to its high operating temperature solid oxide fuel cell (SOFC) technology, the generator has an industry leading electrical efficiency and it can be configured for operating with different fuel gas compositions such as natural gas or biogas. Modular architecture makes possible installation of multiple C60 units in parallel for desired level of power output and redundancy.

Each module is a separate generator, able to operate independently and autonomously, yet connected for remote management and monitoring. C60 is designed to be installed parallel to the power grid but it is capable of disconnecting from the grid and securing critical power loads in case of a grid outage.



Convion C60

Electric output	60	kW net-AC*
Electrical efficiency	60	% (LHV)*
Thermal output**	24	kW (LHV, exhaust cooled to 55°C)*
Total efficiency	84	% (LHV) (exhaust cooled to 55°C)*
Range of electric output	60–30	kW (continuous modulation range 100–50%, in island mode, 0–100%)
Electrical efficiency at 50% output	60	% (LHV)*
Installation requirements for rated performance	Elevation <1000 m, -20...+40°C, outdoor installation.	
Electrical connection, capability	3 x 380–440V AC, 50/60Hz, in accordance with local grid code	
Noise level	< 70	dB(A) at 1 m

Water consumption	None
Fuel supply pressure	4 bar-g (+/- 0.2 bar-g)
Fuel envelope, LHV	440–850kJ/mol @ 25°C; equivalent to biogas compositions with 55–100%-mol CH ₄ with CO ₂ as a diluent
Nominal fuel intake	10.7 Nm ³ /h (natural gas, ref. T= 0 °C, p=101,325 kPa)
Fuel gas cleaning	Built-in gas clean-up system is designed for removing odorants used in natural gas. Maintenance action required at 6-month interval. Applicability of biogas or special gases must be approved by Convion particularly with regard to sulphur, halogens or siloxanes.
Process air consumption	470–670 Nm ³ /h
Exhaust gas	200°C, 575 kg/h, dew point 37°C
Heat recovery connection**	Built-in heat exchanger hardware temperature limit is 120°C, 10 bar-g; actual water temperature shall be lower than the limit.

EXHAUST EMISSIONS

Nitrogen oxides, NO_x	≤ 2.6 ppm-v/ ≤0.05 g/kWh (below detection limit)
Sulphur dioxide, SO₂	≤ 3 ppm-v/ ≤0.07 g/kWh (below detection limit), sulphur removed from fuel before use
Carbon monoxide, CO	≤ 1.7 ppm-v/ ≤0.02 g/kWh (below detection limit)
Particulates (PM)	Negligible
Volatile organic compounds	Negligible
Carbon dioxide, CO₂	330 kg/MWh _e

SYSTEM SIZE AND WEIGHT

Height	~2330 mm
Length	~2780 mm
Width	~2090 mm
Weight	~5900 kg

Notes: Presented design values have not been confirmed and do not imply guaranteed performance.

* As quantified in reference ambient temperature 288,15 K (15 °C) and pressure 101,325 kPa

** Heat recovery unit is an optional accessory