



Energy System **Solutions**

**12 KW FORKLIFT
MODULE**



100 KW GENSET



1 MW POWER GENERATOR



Energy System Solutions

Our energy system products

- Complete hybridized energy systems including fuel cell modules, batteries and power conversion
- Power from several kW to multiple MW
- Application fields in UPS, data centers, Gensets and mobility
- Reliable energy systems based on our proprietary fuel cell and battery technology



Reliable



Efficient



Sustainable

12 kW forklift module

- Thermal management and hydrogen storage incl.
- Low temperature start-up time below 5 min
- Refueling in 3 min (at 350 bar)
- Operating time of more than 4.5 h
- Lifetime of more than 25,000 h

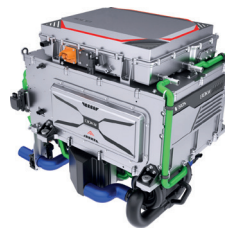


2,5-t forklift

Rated power	12 kW
Peak power	15 kW
Dimensions & weight	1025 x 710 x 880 mm ³ at 460 kg
Operating temperature*	-20 °C to 45 °C
Output voltage	48 V to 80 V
H ₂ storage pressure	350 bar
Available hydrogen	1.2 kg (allows 18 kWh _e)

100 kW Genset

- PEM fuel cell modules: VISTAH 130
- Power conversion at 400 V / 50 Hz (3 phases)
- Communication interface via LAN/CAN
- Variable hydrogen supply depending on availability (bottled H₂, composite storage, pipe supply etc.)
- Lifetime of more than 20,000 h

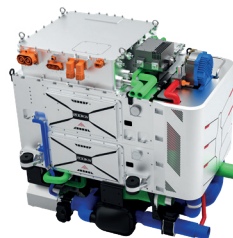


VISTAH 130
(FC module used)

Rated power	100 kW
Peak power	110 kW
Protection grade	IP55
Dimensions & weight	1900 x 1340 x 2000 mm ³ at 2,7 t
Acoustic emissions	≤ 75 dBA
Start-up time	≤ 10 s
Operational temperature*	-20 °C to 45 °C

1 MW PEMFC Power Generator

- Heat dissipation via top-side radiators
- PEM fuel cell modules: VISTAH 200/250
- Battery banks from 120 to 240 kWh
- Power conversion to 400 V at 50 Hz (3 phases)
- Safety and fire prevention and suppression systems incl.
- Lifetime of more than 20,000 h



VISTAH 200
(FC module used)

Rated power	1000 kW
Peak power	1100 kW
Protection grade	IP55
Dimensions & weight	11620 x 2665 x 3215 mm ³ at 20 t
Acoustic emissions	≤ 75 dB
Start-up time	≤ 30 s
Operational temperature*	-20 °C to 45 °C

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* Valid to a max altitude of 3000 m and with RH between 5% and 95%.