Gaia-Wind 133-11kW Data Sheet

Annual Energy Production (AEP)*	
Annual Average Wind Speed (measured at hub height)	**Annual Energy Production (AEP)**
4 m/s	16,220 kWh
5 m/s	27,502 kWh
6 m/s	37,959 kWh
7 m/s	46,527 kWh

NOTES:
Figures listed are for 'clean wind sites'. Local topography such as buildings and trees can significantly influence turbine production.

Units shown in domestic electricity bills are in kilowatt-hours (kWh). 1 kWh is roughly equivalent to 1 bar of an electric fire burning for 1 hour.

*Microgeneration Certification Scheme (MCS) data

Target noise level (8m/s wind at hub height)	
Sound Power $L_{wd,8m/s}$	88.1 dB(A)
Noise Slope, SdB (dB/m/s)	1.015
Noise penalty	none

Target noise level (8m/s wind)	Distance required
45 dB(A)	57m
40 dB(A)	100m
35 dB(A)	180m

NOTES:
Since the rotor speed of rotation is constant, does not change with wind speed, and the blades do not pitch or furl, the noise profile of the turbine is very flat making it an exceptionally quiet machine.

*MCS data

Certification

UK: Microgeneration Certification Scheme. Certification no. TUV 0002
Denmark: Risø DTU 2009-1

APPROVED PRODUCT
MCS
TUV 0002

Operational parameters

Cut in wind speed (adjustable)
Standard setting, 3.5 m/s (5.6 mph)
Shut down wind speed (adjustable)
Standard setting, 25 m/s (56 mph)
IEC turbine class
Conforms to IEC 61400 Class III (suitable for sites with an annual average wind speed up to 7.5 m/s)
Survival wind speed
52.5 m/s (117 mph)
Temperature range
-20°C +50°C
Lifetime and servicing
20 years design life Service once yearly

Key component parameters

Twin blade rotor	Glass fibre, 13m diameter, swept area 133m^2, mounted on TEETER hub, fixed rotation speed 56 rpm
Gearbox	Two stage, gear ratio 18:1, low noise
Generator	11kW, 3 phase, 400V@50Hz (marine grade)
Towers	Lattice: 15m, 18m monopole: 18m, 27m (hot dip galvanised steel)
Component weights	Nacelle and rotor 900 kg 15m lattice tower 1,556 kg 18m lattice tower 1,955 kg 18m monopole tower 2,511 kg 27m monopole tower 5,275 kg
Standard presentation	Towers: dull grey (galvanised), blade and nacelle cover: grey-white(RAL 9002), reflection free

Control and monitoring system

Data input and management
Integrated microprocessor with multiple sensor inputs.
Data: wind speed, power, voltages, currents and phase, rpm, vibration and temperature alerts.
LCD display in control box.

System protection
Base level: Passive stall of blades limits power output.
Second level: Control system activates mechanical brake if:

- Wind speed exceeds 25 m/s
- Abnormal vibration
- Grid disconnected or generator overheats

Third level: Centrifugally activated aerodynamic brakes built into rotor tips as a final safety measure. Also manual override button which activates mechanical brake.

Gaia-Wind Ltd
100 High Craighall Road, Port Dundas
Glasgow, G4 9UD, United Kingdom

www.gaia-wind.com

Call us on: + 44 (0)845 871 4242 Follow us: