Windlens

Small Wind Big Power

Next Generation Windturbine

Windlens Turbine

WL5000

Windlens Turbine is the next generation small wind which can be installed anywhere

- Significant reduction in wind turbine noise
- Concentration of Wind Energy ("Wind-lens" technology)
- Compact and Highly Efficient
- Adaptable to the surroundings
- Highly Safe System
- Significant reduction in bird strike
- System has safety-conscious image

5kW Big Power

Highly Efficient Small Wind

◆Concentration of Wind Energy ("Wind-lens" technology)

Wind speed increase to 1.3~1.5 times by vortices created by "wind-lens". "Threefold increase in output power compared to conventional wind turbines due to the concentration of wind energy. Since the power generation is proportional to the cube of the wind speed, the output increase to be about three times. (Based on comparisons the same blade without the duct)"

The concentration of wind energy makes low cut-in wind speed.

◆Compact

Specially designed wind-lens leads to a smaller rotor blade diameter.

◆Low noise

In Addition to compact blades, the vortices generated from blade tips are considerably suppressed by the interference with the boundary layer within the diffuser shroud, which achieve the quietness.

◆Free Yaw

The brim at the exit of diffuser makes the wind turbine rotate following changes in the wind direction.

Highly Safe System

◆Treble Brake System

①Electric Stall Regulation : In strong winds, the blade rotation speed is automatically reduced by a stall-control system.

②In case of rotor speed or power outage high, mechanical brake stops windturbine surely.

③Short circuit brake : Also short circuit brake works with the mechanical brake.

◆Reassurance

System has safety-conscious image.

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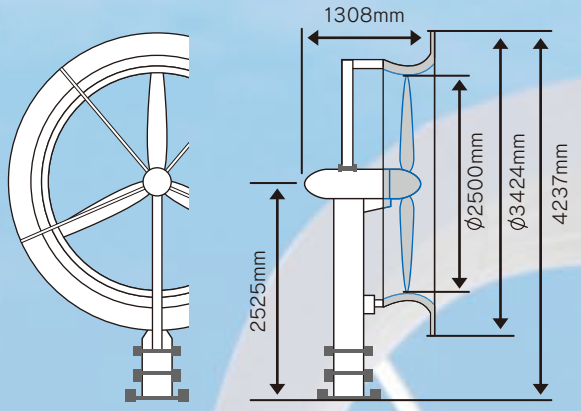
Outline Dimensional Drawing

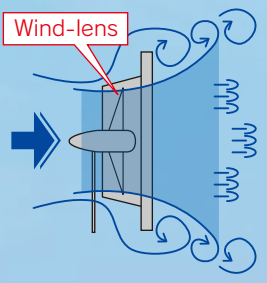


Mechanism of the "Wind-lens" Technology

① Vortices created by the brim reduce the pressure behind the turbine.

② It makes more wind flow to the low pressure region, which increase the wind speed 1.4times.

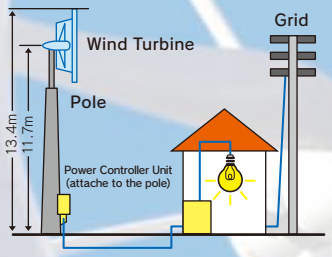
③ Since the power generation is proportional to the cube of the wind speed, the output increase to be about three times. (Based on comparisons the same blade without the duct)



System Drawing

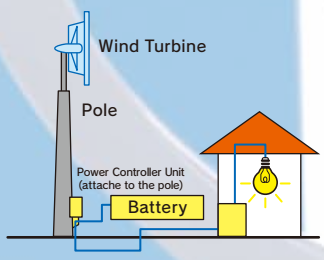
Grid Feeding

The system connects to the grid power, and when the turbine generates only small electricity it purchases electricity from the power company.



Battery Charging

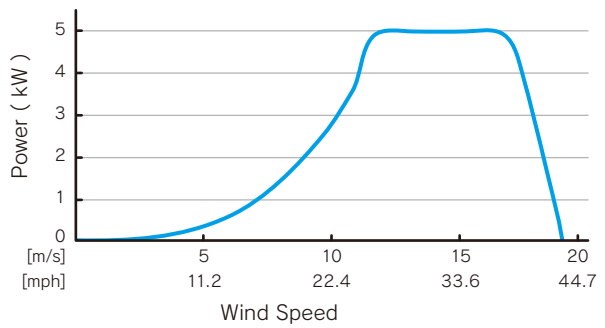
When wind turbines generate electricity more than usage, the electricity is stored to the battery and when the generated electricity is less than usage, the electricity of the battery is used.



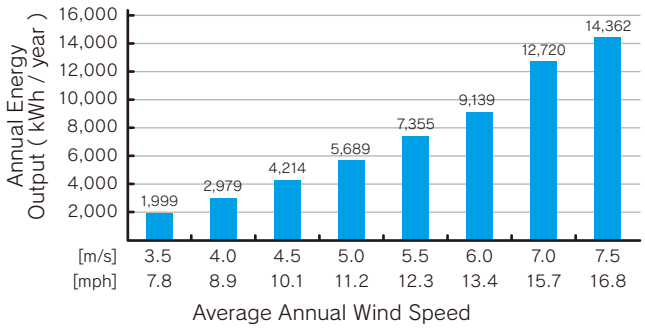
Technical Specifications

Rated Capacity	5kW
Rated Wind Speed	12m/s / 26.8mph
Rotor Diameter	2.5m / 8.2ft
Lens Diameter	3.4m / 11.2ft
Swept Area	4.9m² / 52.8ft²
Swept Area (include lens)	9.0m² / 98.5ft²
Type	Downwind rotor with lens
Power Coefficient	Cp = 0.95 (Cp*=0.51based on lens dia.)
Blade	3-GFRP
Alternator	IPM Alternator
Yaw Control	Passive
Braking System	Electrical Stall and Mechanical Braking
Electric Control	Converter and Inverter
Cut-in Wind Speed	3m/s / 6.7mph
Cut-out Wind Speed	17~20m/s / 38.0~44.7mph
Survival Wind Speed	About 60m/s / 134.2mph
Grid Feeding Type	3 phase / Single phase 220-380VAC, 50-60Hz
Off Grid Type	Battery Charging / AC 100V output 2kW Solar hybrid system
Weight	650kg / 1433lbs
Installation type	Mono pole tower / Building roof top
Energy Monitoring	Wireless Zigbee / RS485 PC can receive the data.

Power Curve



Annual Energy



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