

Turning the Wind in Your City to Electrical Power

New Improved 2008 Model

The Next Generation Ducted 10kW Wind Turbine

GHDWT-10kW08

Cost Down Strategy

Downwind Design

By setting up downwind design and reducing size of duct, structural load is minimized. With decrease of the wind turbine loads, smaller yaw motor and bearing are applied.

New Duct Shape

Reducing the size of the duct without loss in efficiency and structural rigidity, weight is reduced for 30%. Modularity and mobility of the duct is increased by setting it up from 3 sections.

New Stay-Arm Design

Due to the reduction in the duct weight, stay-arms yield approximately same 30% weight reduction.

Improved Power Performance

New Developed PM Generator (Outer Rotor).

Low cogging torque and bearing friction for enhanced starting characteristic of the generator.

New Control System

Better system response in case of turbulent wind. Improved power conversion efficiency in low wind speed condition with a battery bank.

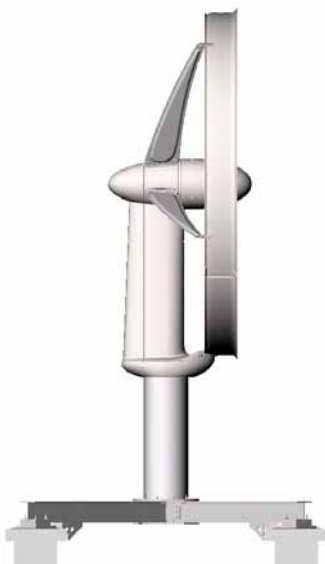
Installation and Maintenance

Turbine Installation

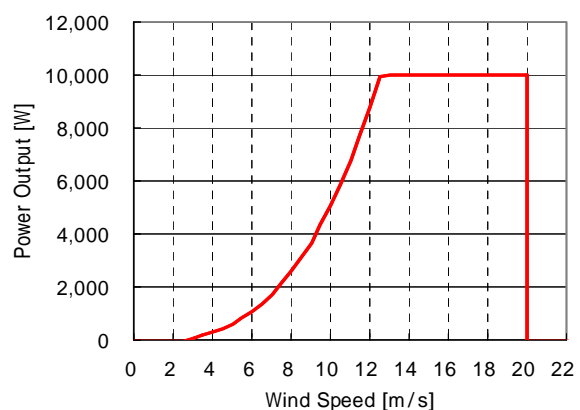
The main body of the turbine with the specially designed support can be erected within one day.

Maintenance

A supporting structure ensures above-the-ground work and easy accessibility.



Power Curve (theoretical)

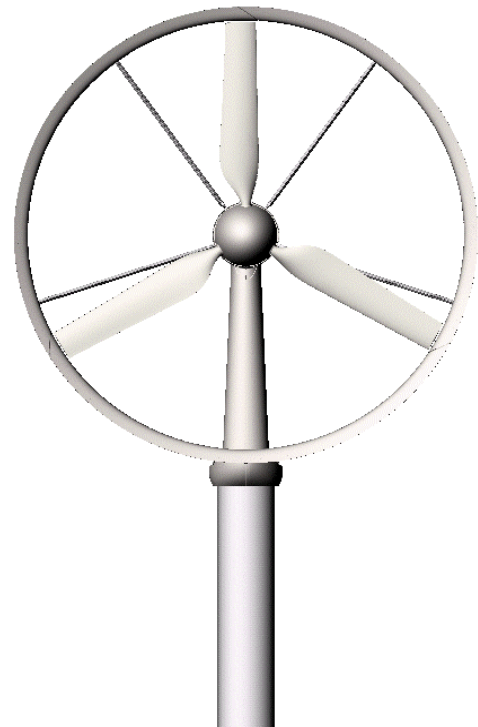


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Technical Specifications

Item	Specifications
Wind turbine type	Horizontal Axis, Downwind, Ducted
Wind turbine basic weight	Approx. 780kg
Number of blades	3
Aerodynamic control	Variable blade pitch control
Duct outer diameter	5 m
Rotor diameter	4.65 m
Rated power output	10kW at 12.5 m/s
Rotation start wind speed	2 m/s
Cut-in wind speed	3 m/s
Cut-out wind speed	20 m/s
Survival wind speed	60 m/s
Duct material	GFRP / Styrofoam core
Blade material	CFRP / Styrofoam core
Covering panels	GFRP
Generator	Permanent Magnet Synchronous
Rotor control system	Sensorless speed control
Power control	Inverter (AC/DC/AC) and battery bank
Yaw control	Active yaw
Main rotor protection	Drum brake
Secondary rotor protection	Blade feathering and yaw against wind
Power output	3P3W AC200V, Grid connected
Output frequency	50 / 60 Hz
Operation detection systems	Active system: reactive power fluctuation method Passive system: voltage phase jump detection



The specifications are subject of change without prior notice

Larger wind turbines ; solution for suburban areas

	Diameter	Rated Wind Speed	Annual yield at 5m/s	Note
Ducted 10kW	5.0 m	12.5 m/s	8,100 kWh	GHDWT-10kW08
No Duct 10kW	6.6 m	11.1 m/s	11,500 kWh	release schedule : winter 2008
No Duct 50kW	12.0 m	12.8 m/s	40,800 kWh	release schedule : summer 2009



Ducted



No Duct



No Duct