

## Vertical Wind Turbine Catalogue

Model: GV-1KW    Vertical axis wind turbine    | Off-grid system | Folding tower

### Overview

GREEF 1KW Vertical axis wind generator (VAWTs) is a type of wind generator where the main rotor shaft is set vertically. VAWTs offer a number of advantages over traditional horizontal-axis wind generator (HAWTs). They can be packed closer together in wind farms, allowing more in a given space. They are smaller, but rather due to the slowing effect on the air that HAWTs have, forcing designers to separate them by ten times their width.

GV-1KW vertical Axis wind generator are rugged, quiet, light, Omni-directional, and they do not create as much stress on the support structure. They do not require as much wind to generate power, thus allowing them to be installation at urban .They are easily maintained and can be installed on rooftop and similar tall structures.



### Recommended for:

- Household,Garden,farm,Urban ,Rooftop
- Telecom sites.
- Rural electrification programs. Island , sentry, island, sight lighting

## Technical specification

<b>Model</b>	<b>GV-1KW</b>
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### Performance

<b>Rated Power</b>	<b>1kW</b>
<b>Max Power</b>	<b>1.5kW</b>
<b>Start Wind Speed</b>	<b>2.8m/s (6.27mph)</b>
<b>Rated Wind Speed</b>	<b>11m/s(24.64mph)</b>
<b>Working Wind Speed</b>	<b>3-25m/s (6.72-56 mph)</b>
<b>Safety Wind Speed</b>	<b>50m/s(112mph)</b>

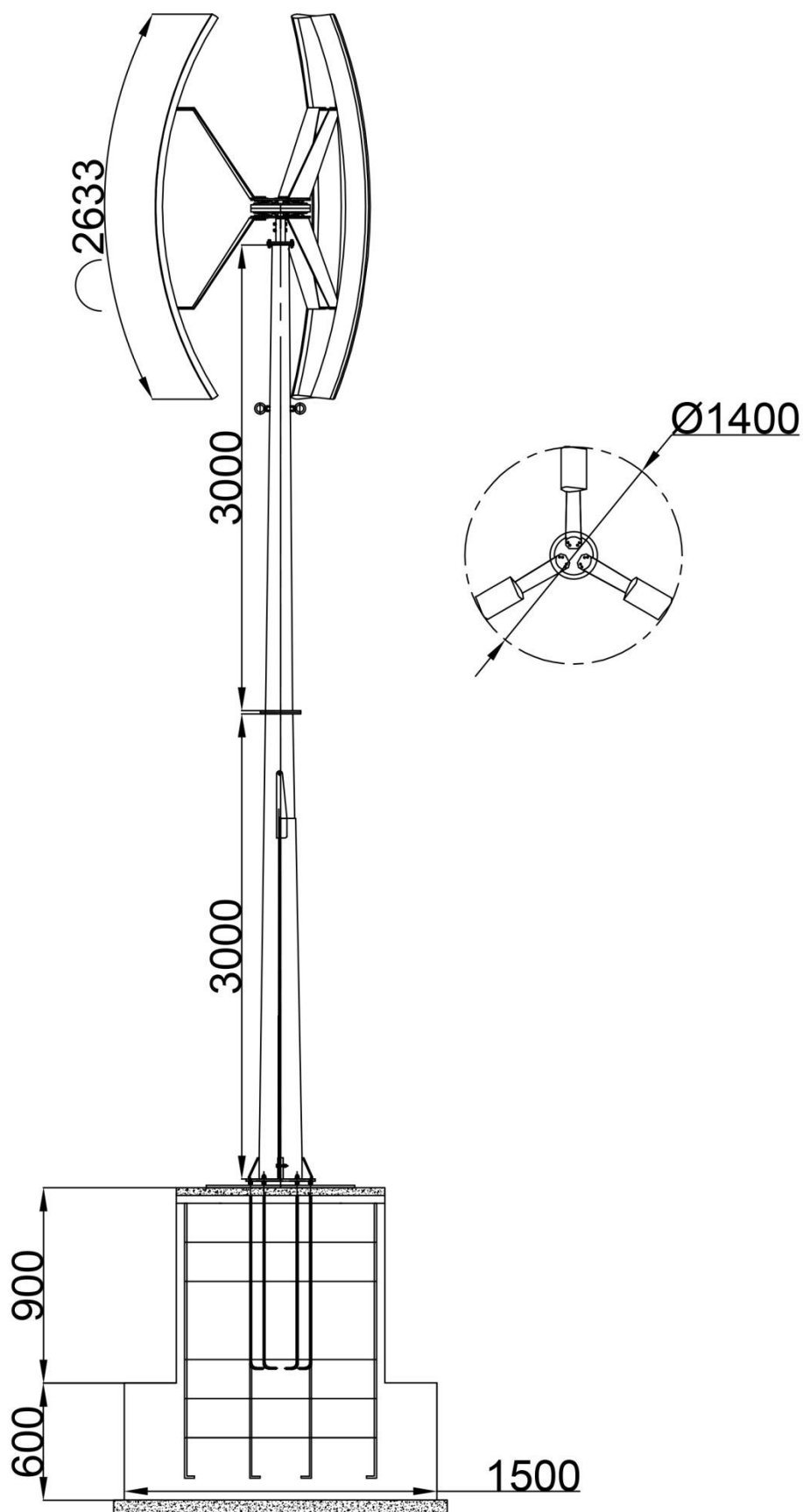
### Physical Parameters

<b>Blades Length</b>	<b>2.633M(8.64t)</b>
<b>Blades Rotor Diameter</b>	<b>1.4M(4.59ft)</b>
<b>Blades Material &amp;Quantity</b>	<b>FRP /3PCS</b>
<b>Mill Weight</b>	<b>175kg</b>
<b>Swept Area</b>	<b>4.68 m<sup>2</sup></b>
<b>Tower Height</b>	<b>6m (19.68ft.) Free folding tower</b>

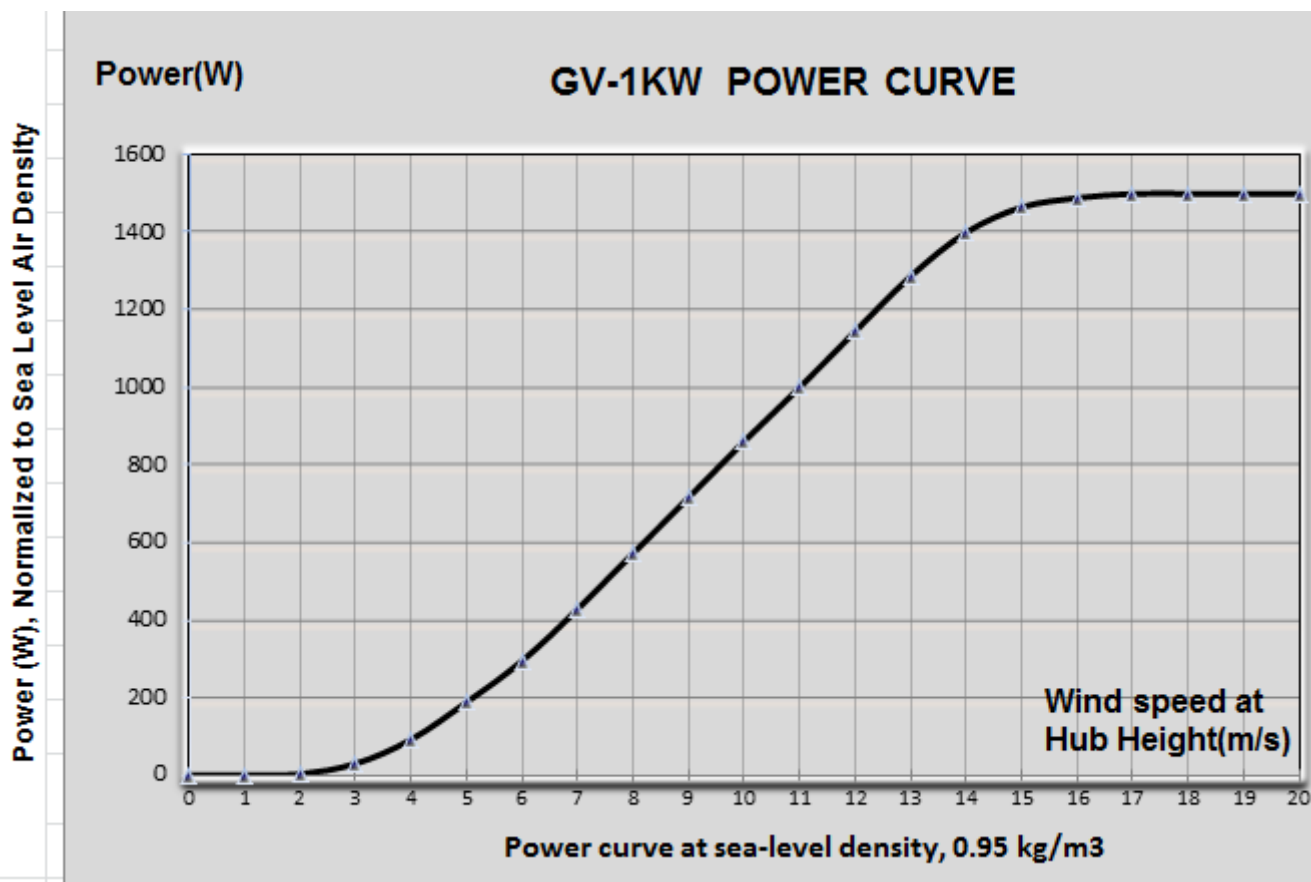
### Generator Parameters

<b>Generator Type</b>	<b>Axial Flux Coreless outer rotor disc permanent magnet direct drive generator</b>
<b>Rated Speed</b>	<b>150RPM</b>
<b>Start Torque</b>	<b>&lt;0.3N.M</b>
<b>Option Voltage</b>	<b>24V/48V</b>
<b>Protection Method</b>	<b>Electromagnetic Brake +PWM</b>
<b>Protection Grade</b>	<b>IP54</b>
<b>Working Temperature</b>	<b>-40-50°C</b>
<b>Life time</b>	<b>20 Years</b>

## Dimension



## Power Curve



## Annual Energy Production

This data will have  $\pm 10\%$  difference according to real condition.

Annual Wind	3	4	5	6	7	8	9
Production(kWH)	29	263	811	1652	2585	3756	5018
Annual Wind	10	11	12	13	14	15	16
Production(kWH)	6275	7546	8764	10030	11274	12264	12833

## Sound Data

Test position: At 15m away from generator (average value of 3 point-rears, left, right.)

Wind Speed (m/s)	3	4	5	6	7	8	9	10	11
Sound( dB )	1.31	3.02	6.20	9.43	13.42	22.08	32.54	36.45	37.22
Wind Speed (m/s)	12	13	14	15	16	17	18	19	20
Sound( dB )	45.11	45.20	45.25	45.33	45.44	45.62	45.76	45.85	46.00

Note: The sound value includes wind noise.

## Pictures



## Axial Flux Coreless Generator

**GREEF VAWTs use axial flux coreless disc generator which have following advantage:**

1. Torque Patent Technology: use newest "Precise Coil" technology. No hysteresis and gear notches effect make the start torque very low  $<0.3N.M$ , it can make the wind turbine have low start wind speed.
2. Original Structure: use disc coreless motor to take place traditional motor makes it less drag
3. Higher Reliability: special structure make it bigger ratio of power to volume, power to weight and have long life of 8 times longer than traditional motor.
4. Gearless, direct drive, low RPM generator.

