

For additional Information contact:  
[Green-Energy-Products.Com](http://Green-Energy-Products.Com), LLC  
 305.251.9630 - 800.639.8796 [info@green-energy-products.com](mailto:info@green-energy-products.com)

## CO2 NEUTRAL POWER GENERATION

Product Information WES KW10



WES 10KW wind turbine

### Wind energy is ...

- a free resource
- everywhere available and exhaustless
- carbon (CO<sub>2</sub>) free and cost efficient
- the ideal supplement to hydro- and solar power

On average, each person produces 6 tons of CO<sub>2</sub> emission from energy usage every year. With typical winds on a height of 10-15 meters above ground, the WES 10KW wind turbine generates annual voltage power which neutralizes the CO<sub>2</sub> emission of one to two persons per year.

The characteristics of the WES 10KW wind turbine allow silent operation and are best suitable for residential, noise sensitive areas.

### Small Wind Turbine (SWT)

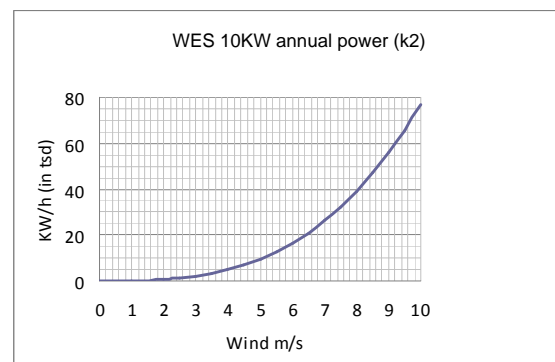
These novel types of windmills are especially designed to feed residential-, agricultural- and industrial power sources as well as for feed-in into the public power grid. The advantage of this technology is highest efficiency, low investment, simple technology and disburdens operation authorization.

### WES 10KW Wind Turbine

Genesis Invest small wind turbines account for a notably large spectrum of wind utilization. These novel types of vertical axis wind turbines are specifically designed for efficient reaping of low, inconstant and gusty winds existing in lower heights above surface. With the vertical rotor alignment, the WES 10KW has equivalent power performance to regular windmills but with much smaller design and does not produce noise or disturbing shadows. The system amortizes before its lifetime and consistently protects our environment.

### Conclusion:

- Highest operation silence
- Most efficient
- Acceptable installation size
- Wind direction independent
- Economical
- Aesthetic
- Your image



## Technical Description

Our H-rotor is designed for highest aerodynamic performance and smooth, silent operation. With our own developed wing profile combined with a pitch control, the system is able to independently start-up in low wind speeds of 1,5 m/s. This is due to the low-mass and the extreme strength of the full-carbon composite wings. The wings are equipped with lightning protection which can also be used as blade heating for deicing.

The wind direction tracing for optimal wing pitch adjustment is controlled by a wind vane. This allows the rotor to react immediately to changes in wind directions and therefore fully „reaping“ wind gusts. The aero dynamical performance rises in the third power versus the wind speed. Hence, the energy of a gust can be nine times as high as the actual, average wind. This supports the economic efficiency of the system significantly.

Due to the relative high rotation speed, the force produced by the rotor wings are transferred gear-less into the generator. The mechanics of the rotor and the generator case itself are almost maintenance free. The system is protected with an electro-mechanical and manual storm resp. emergency brake.

The AC-AC inverter is regulated with an optimized processor algorithm which adjusts optimal energy performance versus the rotation speed of the generator and increases the efficiency ratio by additional 3 to 4 percent.

## Technical Specification

### Operating data:

|                     |                                     |
|---------------------|-------------------------------------|
| Nominal capacity    | 10 Kilowatt                         |
| Power regulation    | PCS pitch control system            |
| Nominal speed       | 12 m/s wind speed                   |
| Start-up speed      | 1,5 m/s wind speed                  |
| Engage speed        | 2,5 m/s wind speed                  |
| Switch-off speed    | 16 m/s wind speed                   |
| Noise level         | < 35 db (5m distance)               |
| Operating endurance | 20 years                            |
| Certification       | IEC WT 01 (EN61400-1996)<br>aspired |

### Rotor:

|                        |                       |
|------------------------|-----------------------|
| Material               | full carbon composite |
| Rotor height           | 6.0 m                 |
| Rotor diameter         | 3.7 m                 |
| Wind surface area      | 22.1 m <sup>2</sup>   |
| Number of wings        | 3                     |
| Wing pitch control     | mechanical            |
| Nominal rotation speed | 180 rpm               |
| Max wing speed         | 140 km/h, 85 mph      |
| Wind tracing           | mechanical, active    |
| Lightning protection   | yes                   |
| Wing heating           | optional              |

### Drive:

|                    |  |
|--------------------|--|
| Axel driving shaft | vertical, central shaft                    |
| Bearing            | maintenance free,<br>water and dust sealed |

### Overspeed protection:

|                      |              |
|----------------------|--------------|
| Electrical brake     | generator    |
| Aero dynamical brake | active stall |
| Hydraulical brake    | disk brake   |
| Storm cut out        | yes          |

### Generator:

|            |                              |
|------------|------------------------------|
| Type       | permanent magnet, synchronic |
| Gear       | none, direct drive           |
| Max. Power | 25 KW, de-rated to 10 KW     |
| Cooling    | natural air cooling          |

### Inverter:

|               |                           |
|---------------|---------------------------|
| Nominal power | 10 Kilowatt               |
| Input         | 3-phase, 460 Volt +/- 10% |
| Output        | 110/230/380 Volt +/- 5%   |
| Current flow  | bi-directional            |
| Cooling       | air fan                   |
| Regulation    | net- and generator        |

### Mast:

|              |                                      |
|--------------|--------------------------------------|
| Type         | tapered, steel, white                |
| Mast heights | 9, 12, 15 m                          |
| Fundament    | 2,7 * 2,7 * 1 m<br>(reference value) |

**For additional Information contact:**

**[Green-Energy-Products.Com](http://Green-Energy-Products.Com), LLC**

**305.251.9630 - 800.639.8796 [info@green-energy-products.com](mailto:info@green-energy-products.com)**