

DATA SHEET

WINDBUSH

By



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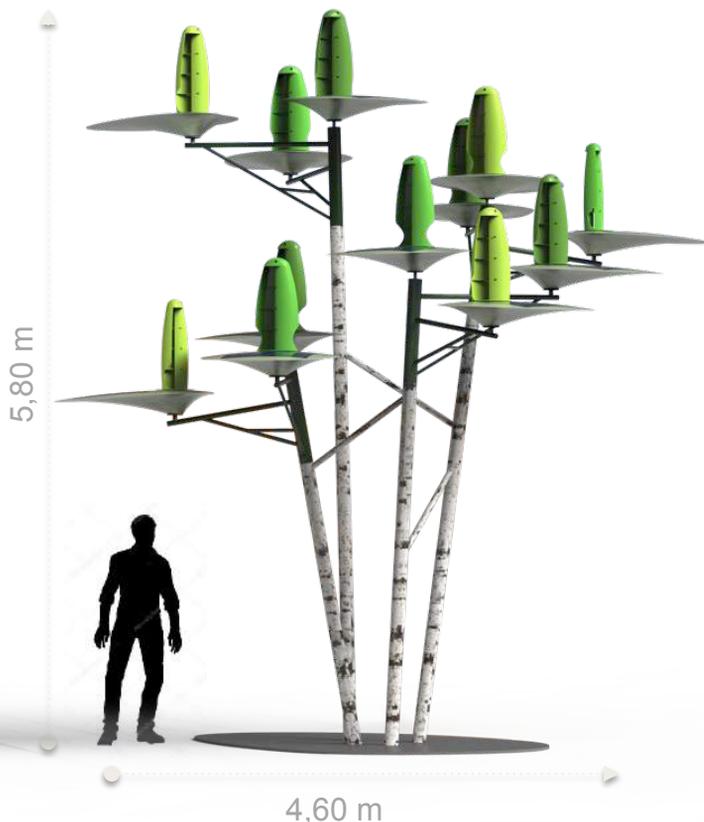
- General Principle
- Electrical Connection

4. Summary

THE WINDBUSH

The Windbush is composed of 12 Aeroleaf equipped with solar petal mounted on 4 trunks connected to each other. The set up has been optimized to collect as much wind and sun power as possible.

This hybrid solution is a first in the world. The Windbush becomes very relevant in sunny sites without much open area. The Windbush can be installed in rows,, in alleys or borders or simply in your backyard.



Installed Power Capacity: **4200 W**

Number of Aeroleaf : **12**

Number of Petal PV : **12**

Nominal Power per Aeroleaf: **163 W**

Nominal Power per petal : **51 Wc**

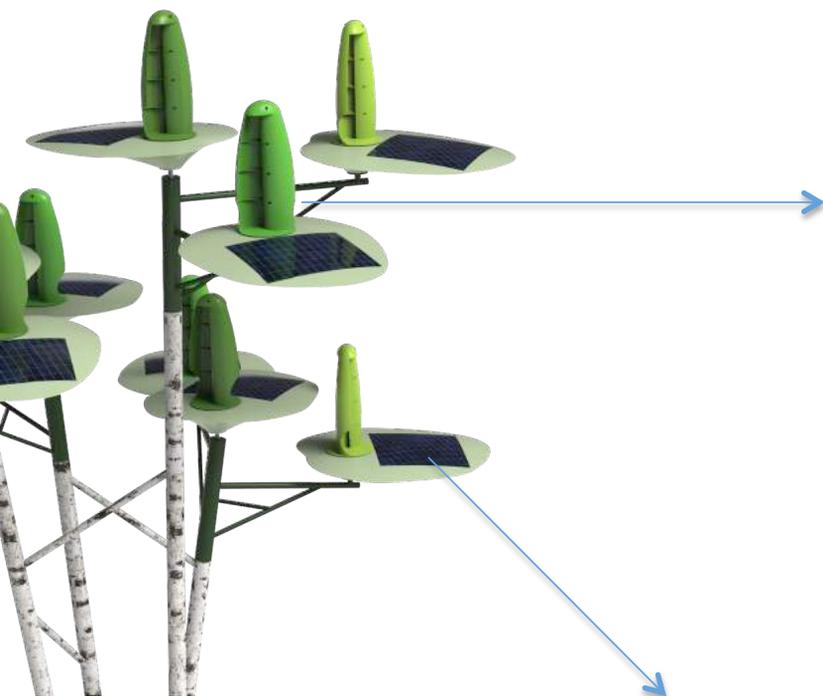
Elegantly designed and modestly sized, The Windbush can fit in multiple environments, urban or in the nature.

The Windbush does not require any concrete in the ground. The Winbush is simply installed with chemical anchors. Due to its set up, the Windbush is cost effective and cater for most of the proximity electrical needs

THE AEROLEAF AND THE SOLAR PETAL

New World Wind has also developed a high performance photovoltaic Petal in order to add a second source of power to the Aeroleaf.

The Petal is positioned at the bottom of each leaf and provides up to 51 Wc to be added to the 163 W from the Aeroleaf.



Polycrystalline semi-flexible film mounted on the petal

Each petal has 12 cells for an area of 0.35 m². That is 4.2 m² of photovoltaic area per Windbush.

The solar Petal is light and thin (less than 800g and 3mm). Besides, it is waterproof and robust.

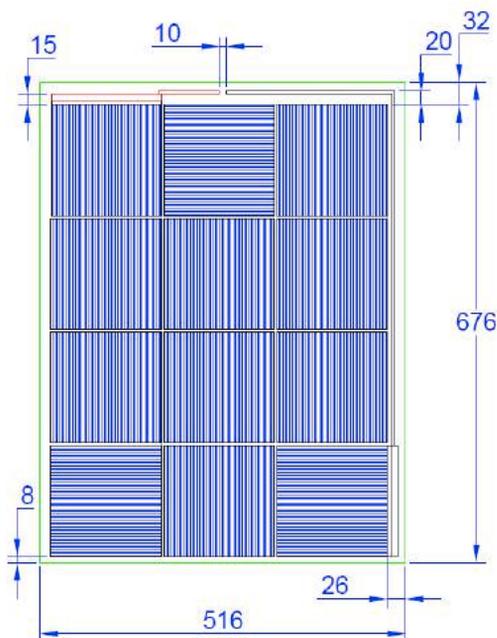
Given its gradient of 5° from horizontal, the solar Petal enables an increase of windspeed when getting close to the edge of the Aeroleaf, improving the efficiency by 5%.

This hybrid system increases the performance while keeping it organic.



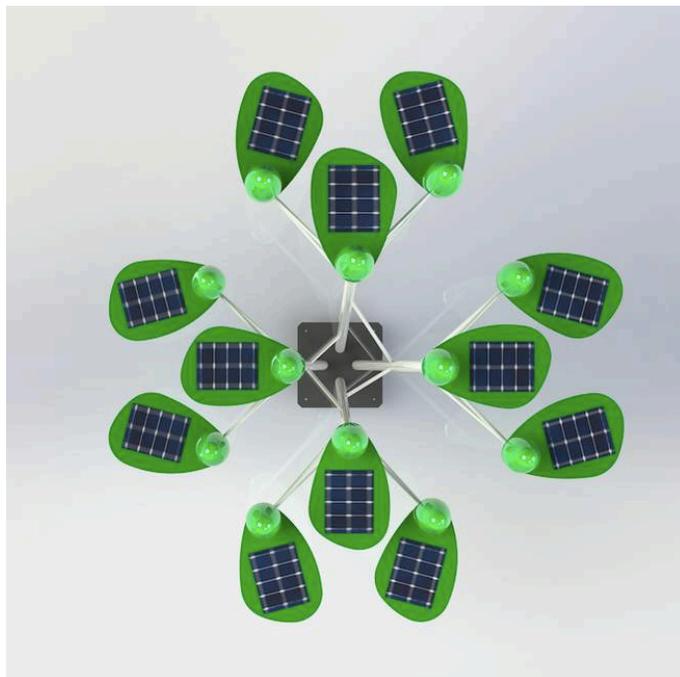
NWW Micro Generator

Proprietary technology with electronic regulation card embedded in each leaf for a maximum efficiency

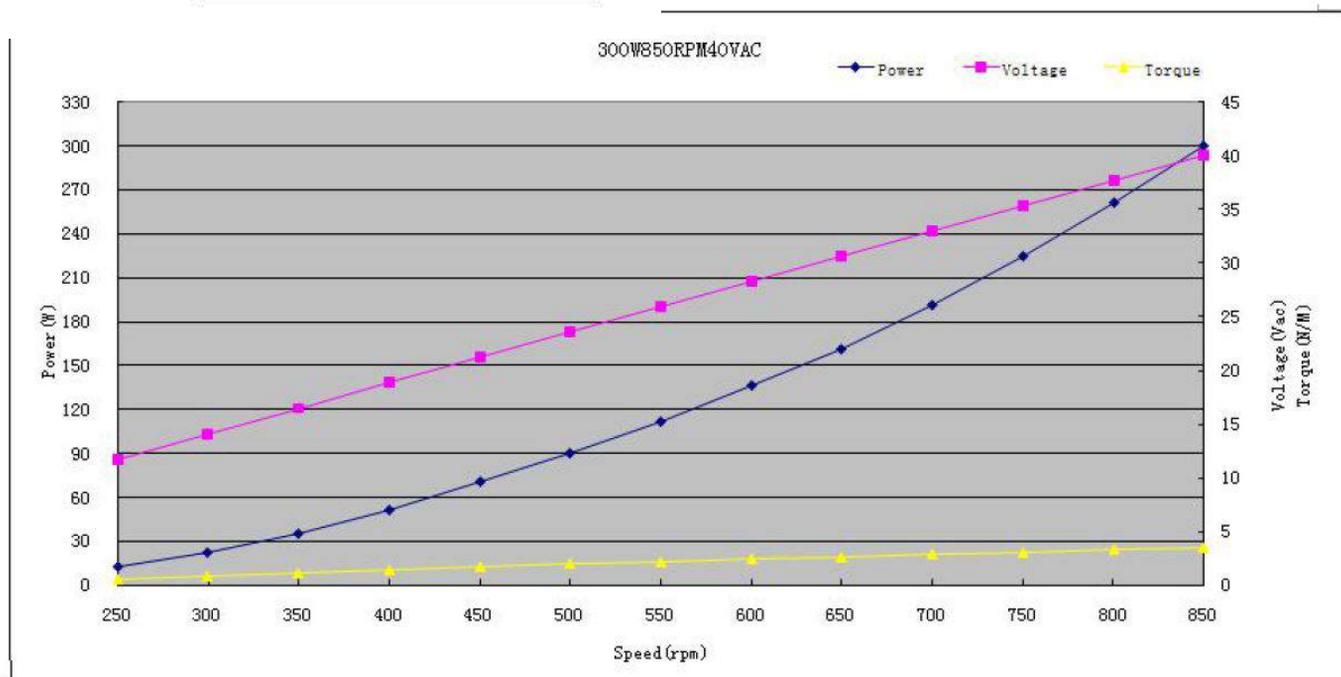


SXp51Custom Panel

Peak power - Pmax	51W ±5%
Rated Voltage - Vmp	6 V
Rated Current - Imp	8.5 A
Open Circuit Voltage - Voc	7.6 V
Short Circuit Current- Isc	9.1A
Temp. Coeff. Pmax	-0.38 %/°C
Temp. Coeff. Voc	-0.27 %/°C
Temp. Coeff. Isc	0.05 %/°C
Operating Temp.	-40 ÷ 85
Standard Test Conditions	(1000 W/m ² irradiance, AM 1.5, 25°C)
Number of cells	12
Strings of cells	3
Length	676 mm
Width	516mm
Thickness	2 mm
Weight	0.77 kg
Maximum system voltage	1000V
Over current protection rating	12A
Application class (IEC 61730) A/B/C	A
Protection class	Class 0



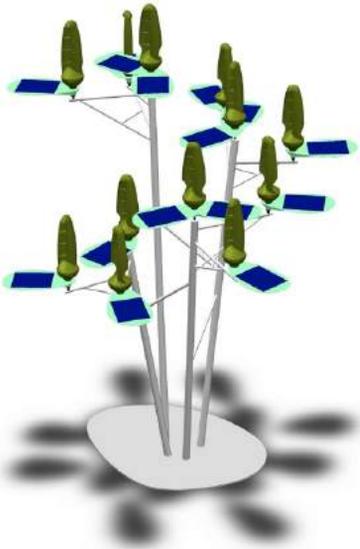
Sunwind Design® powered by Solbiane



Courbe de puissance par Aeroleaf (sans pétale)
Relation Tension/Puissance/Vitesse de rotation

SCHEMATICS

The power produced by the photovoltaic Petals is added to the electrical bus circulating the power from the Aeroleaves. The electricity is conducted through each branch to the electrical cabinet. The power sum is made and optimized by the Inverter

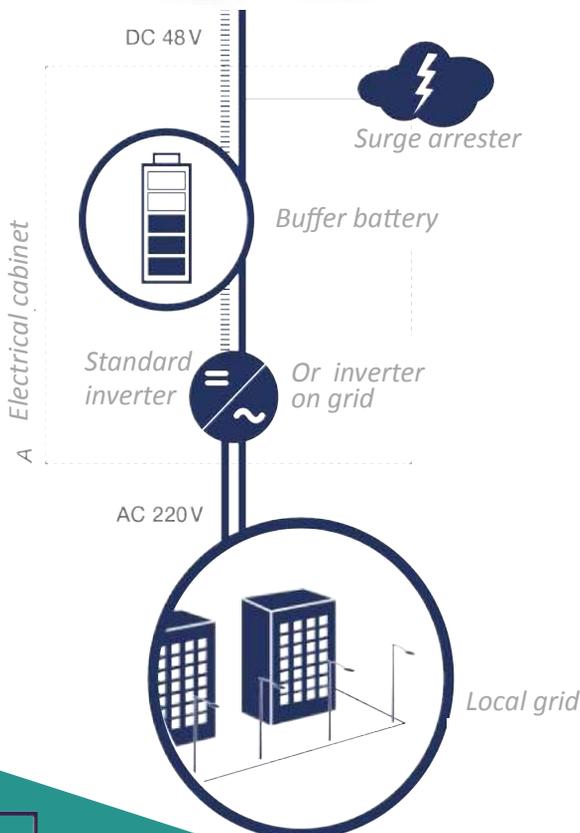


New World Wind provides an electrical cabinet compliant with the electrical standards in France/Europe. We will comply to your country requirements.

The Electrical cabinet is made of:

- A battery, allowing to temporarily regulate the electricity production to limit peaks and solely for short time needs. It is not for storage.
- A standard inverter that outputs the current at the desired voltage / frequency, or optionally a specific inverter UPS that re-injects alternating current directly into the local grid of the installation (TGBT).
- All the security systems required for electrical grid connection (fuse wire, switchgears, lightning conductor and isolation switch).

As such, the electrical cabinet is readily available for connection to local grid.



INSTALLATION

The Installation does not require neither concrete nor steel root like the WindTree. The Truncks are anchored in the ground using chemicals anchors provided by New World Wind. Truncks are then interlocked with reinforcing rods. The installation only requires a flat and solid ground to maintain the Windbush safely.

The Installation requires a lifting mechanism to position the Aeroleaves and the solar Petals at the end of each branch.

The Installation is provided by NWW. However, the client can decide to be in charged and shall respect the technical recommendations provided by **NWW**.

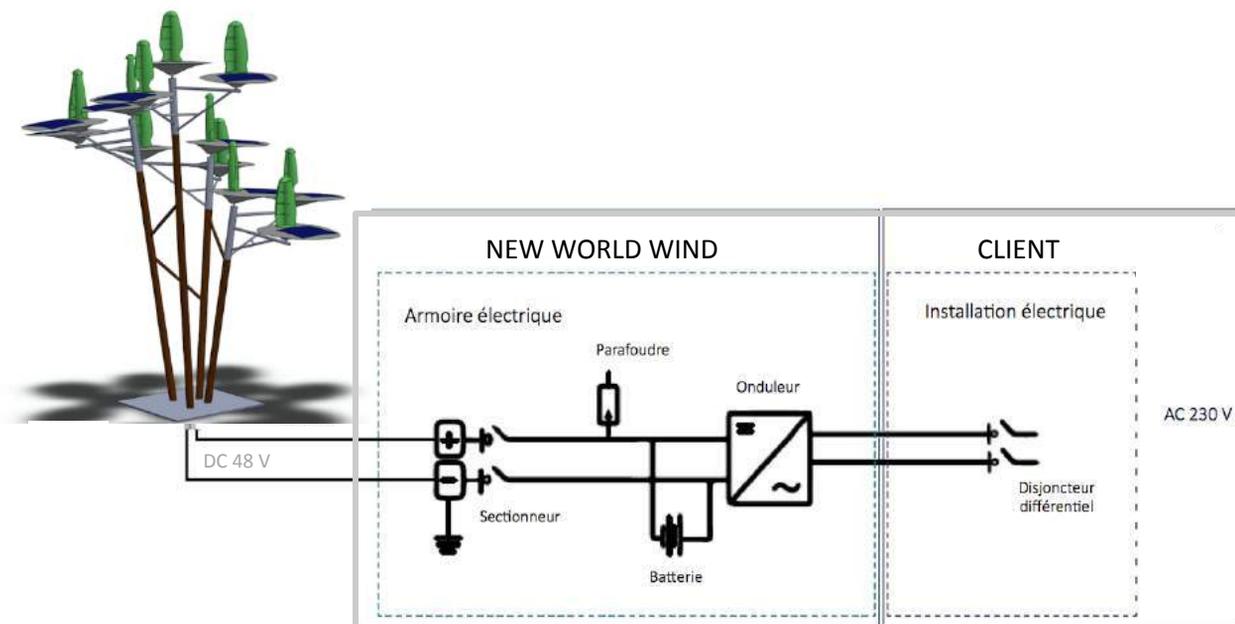
The client shall however prepare:

- The installation of the cable sleeve between the Windbush and the electrical cabinet (20 meters max)
- Grounding the Aeroleaf (25 mm² earth cable).
- The Anchoring base for the electrical cabinet (if needed)

A **security perimeter** of 8 meters around the Windbush is necessary.

The full installation (mount and electric connection) can be done from 1 to 2 days (depending on the site)

The Windbush is based on the concept of on-site generation and direct consumption of the electricity in the connected building/area.



SCHEMATIC OF ELECTRIC INSTALLATION

The Windbush is connected to the local grid through the NewWorldWind electrical cabinet. A dedicated space should be prepared for the cabinet, within a maximum distance of 20 meters. In addition to the WindTree and its electrical cabinet, NewWorldWind is also providing the electrical wires between the WindTree and the Cabinet.

The overall installation is compliant with the current European standards.

In case of specific difficulties, New World Wind can propose adaptations to make the installation possible (on estimate).

The electrical cables sleeves between the WindTree and the Electrical cabinet is explained in the civil engineering specifications. Similarly, any specific protection and wiring until the Electrical cabinet shall be prepared by the Customer to allow for the connection between the Electrical cabinet and the local grid.

SUMMARY

MECHANICAL SPECIFICATIONS

Height	5,80 m
Diameter Windbush	4,60 m
Height Aeroleaf	0,95 m
Total Weight	< 1000 kg
Number of Aeroleaves	12
Number of Petals	12

AEROLEAF SPECIFICATIONS

Starting speed	2,5 m/s (9 km/h)
Nominal Power per Aeroleaf	163 W
Maximum Wind (gusts)	43 m/s (155 km/h)

PETAL SPECIFICATIONS

Power per solar Petal	51 Wc
Photovoltaic Power by voltage	612 W
Weight per Petal	6,5 kg

ELECTRICAL SPECIFICATIONS

Installed capacity	4212 W
Voltage required	48 V
Inverter voltage output	230 V

SITE INSTALLATION

Installation Timeframe	from 1 to 2 days depending on the site
Maximum Distance between the Windbush and the Electrical Cabinet	20 m

RESPONSIBILITIES

Preparation of underground Sleeves	Client
Preparation of the ground (flat and robust)	Client
Installation of the Windbush and Aeroleaves	New World Wind
Installation of the Electrical Cabinet	New World Wind
Connection between the Windbush and the electrical cabinet	New World Wind
Connection between the NWW cabinet and the local network	Client



Key notes

- The Windbush doesn't require a declaration of site works under the French standards, other local regulations would have to be respected
- simplicity of implementation
- Possibility to mount the Bush yourself (subject to NWW recommendations)