

DATA SHEET

HYBRID WINDBUSH 12A

By



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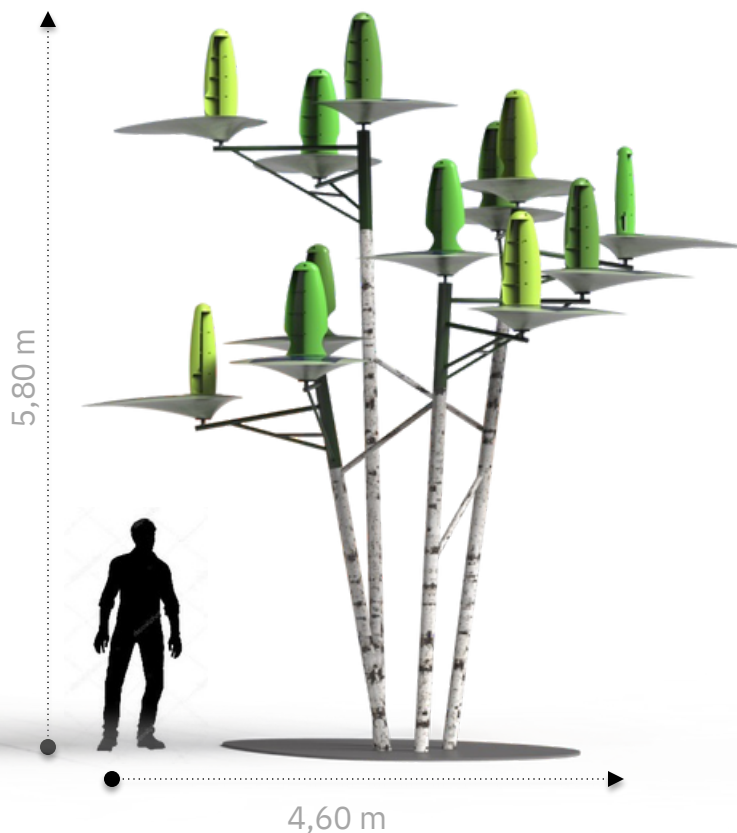
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HybridWindBush
anchor

THE HYBRID WINDBUSH

The Hybrid 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 Hybrid Windbush becomes very relevant in sunny sites without much open area. It 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 : **16**
Maximum Power per Aeroleaf: **300W**
Nominal Power per petal : **36 Wc**

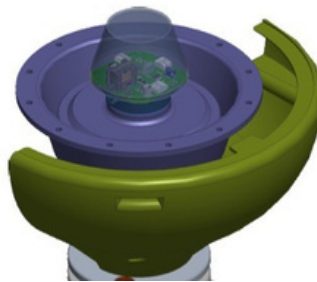
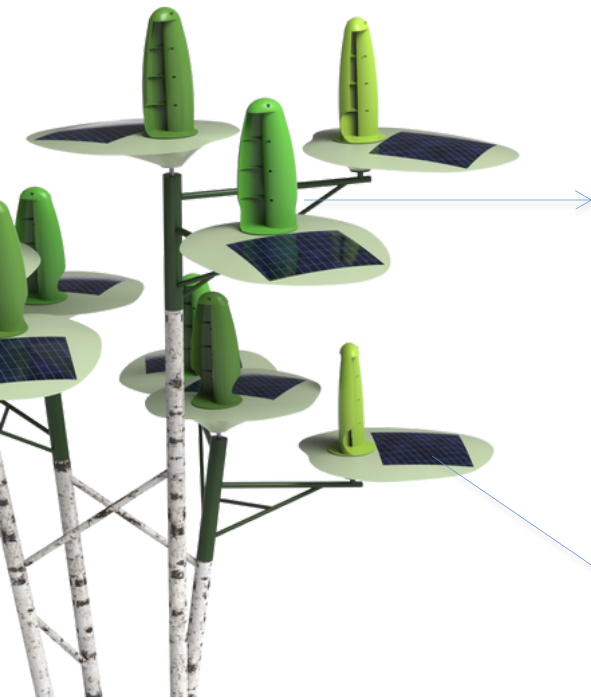
Elegantly designed and modestly sized, The Hybrid Windbush can fit in multiple environments, urban or in the nature.

The Hybrid Windbush requires a small foundation integrating the passage of the cables in the sleeves (see drawing in appendix).

Due to its set up, the Hybrid Windbush is cost effective and cater for most of the proximity electrical needs

THE AEROLEAF AND THE SOLAR PETAL

New World Wind offers now 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 36 Wc to be added to the 300 W from the Aeroleaf.



NWW Micro Generator

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

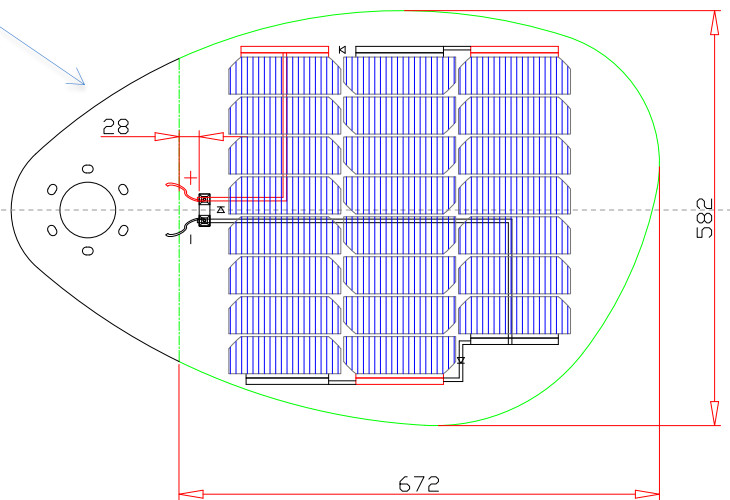
Monocrystalline semi-flexible film mounted on the petal

Each petal has 23 cells for an area of 0.3 m². That is more 4,8 m² of photovoltaic area per Windbush.

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

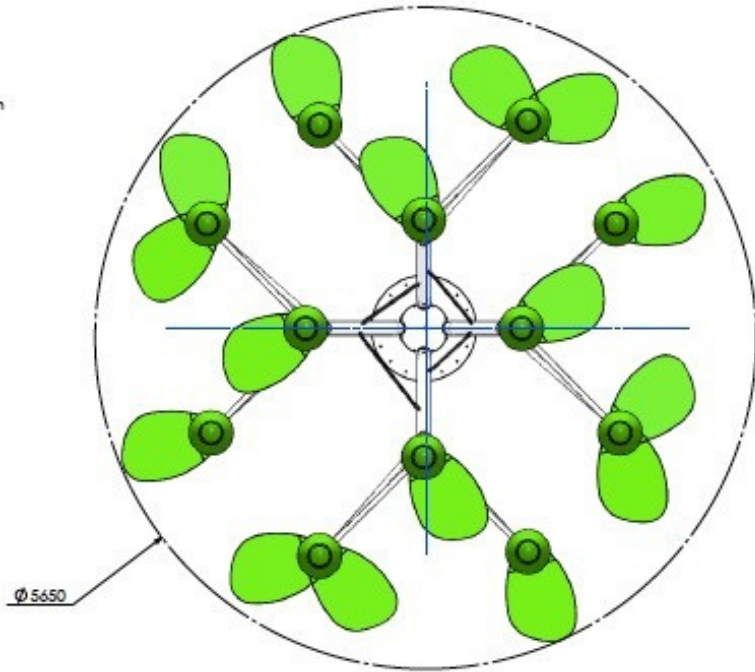
Given its gradient of 5° from horizontal, the solar Petal enables an increase of windspeed when getting close to the edge of the Aeroleaf, improving the efficiency by 5%.

This hybrid system increases the performance while keeping it organic.

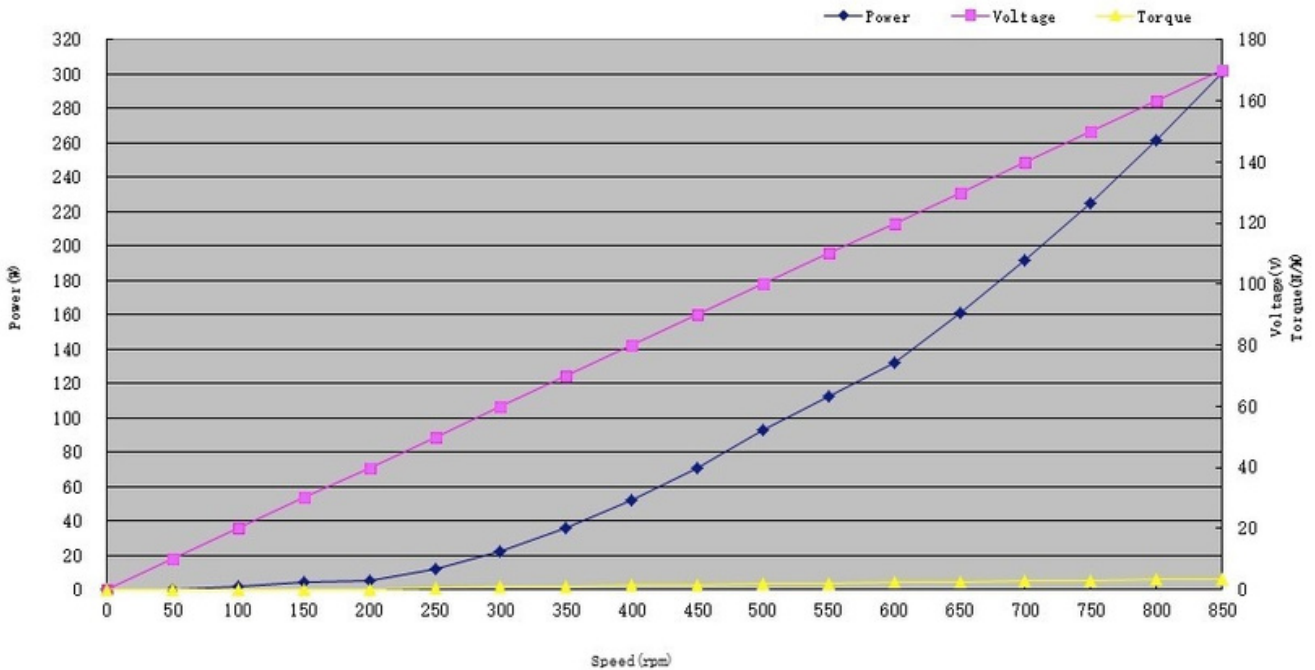


SXIT34 - 672x582 mm

| | |
|--------------------------------|-------------------------------------|
| Peak power - Pmax | 34 W ±5% |
| Rated Voltage - Vmp | 17,8 V |
| Rated Current - Imp | 3, A |
| Open Circuit Voltage - Voc | 21,7 V |
| Short Circuit Current - Isc | 3,13 A |
| Temp. Coeff. Pmax | -0.40 %/°C |
| Temp. Coeff. Voc | -0.32 %/°C |
| Temp. Coeff. Isc | 0.05 %/°C |
| Operating Temp. | -40 + 85 |
| Standard Test Conditions | (1000 W/m² irradiance, AM1.5, 25°C) |
| Number of cells | 23 |
| Strings of cells | 2x8 cells + 1x7 cells |
| Length | 672 mm |
| Width | 582 mm |
| Thickness | 2 mm |
| Weight | 0,8 kg |
| Output | 0,3 m length - 4mm² section |
| Maximum system voltage | 1000V |
| Over current protection rating | 12A |
| Application class (IEC 61730) | A |
| A/B/C | A |
| Protection class | Class 0 |



300W-850RPM-170 VAC

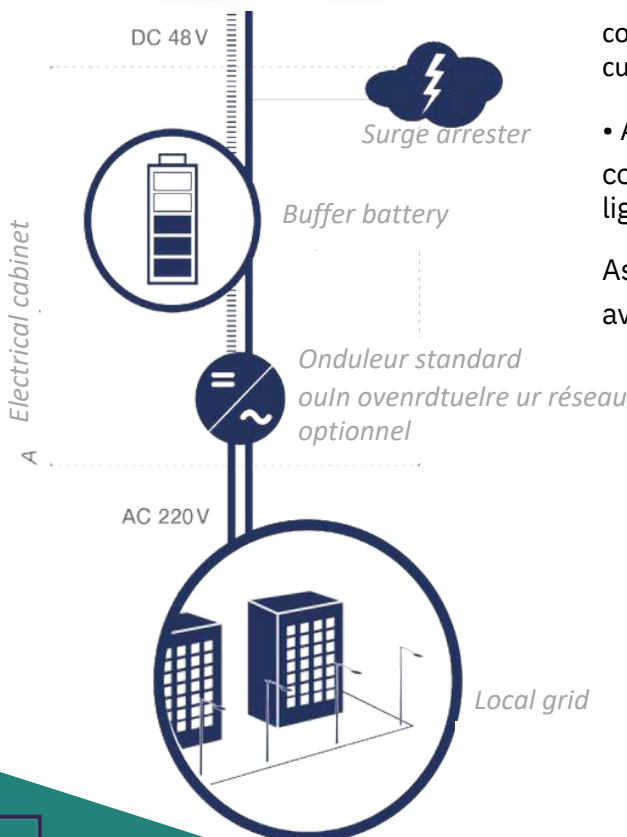
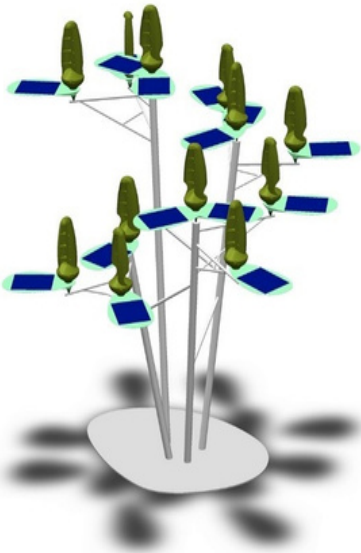


Power curve by Aeroleaf (without petal)

Voltage / Power / Rotation speed

SCHEMATICS

The power produced by the photovoltaic Petals is added to the Aeroleaves electric bus. The electricity is routed through each branch to the control cabinet. The power sum is made through 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 specific inverter dedicated to self-consumption that connects directly to the customer's main switchboard (TGBT).
- All the security systems required for commissioning (fuse wire, switchgears, lightning conductor and isolation switch).

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

Installation can be carried out by NWW teams or by the customer, subject to compliance with the recommendations established by NWW. .

The Installation requires a lifting mechanism of 12 m span to position the Aeroleaves and the solar Petals at the end of each branch.

The client shall however prepare:

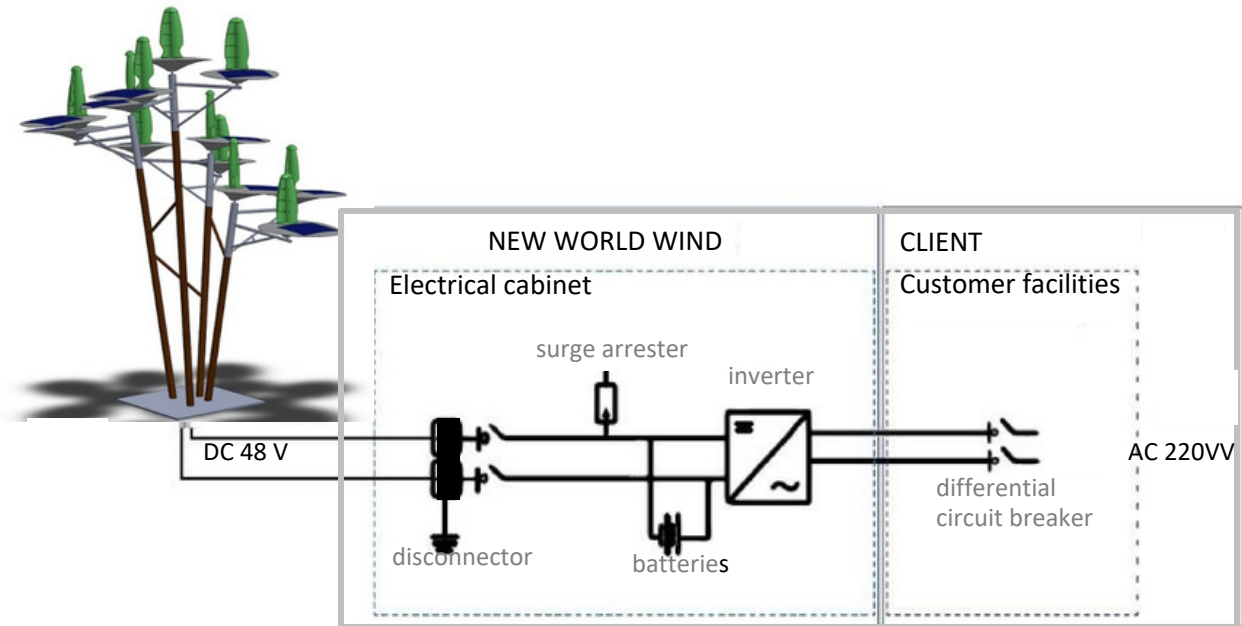
- Earthworks
- Small concrete block (according to attached appendix)
- The trench + Installation of sleeves between the HybridWindbush and the electrical cabinet (20 meters max)
- Grounding the Aeroleaf
- The Anchoring base for the electrical cabinet (if needed)



A security perimeter of 8 meters around the Hybrid Windbush is necessary to allow the elevator to maneuver around.

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

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



SCHEMATIC OF ELECTRIC INSTALLATION

The Hybrid 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 Hybrid WindBush and its electrical cabinet, NewWorldWind is also providing the electrical wires between the Bush and the Cabinet.

The overall installation is compliant with the current European standards. In case of specific difficulties, NewWorldWind can propose adaptations to make the installation possible (on estimate).

The electrical cables sleeves between the Hybrid WindBush 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 customer facilities.

SUMMARY

MECHANICAL SPECIFICATIONS

| | |
|-------------------------|---------|
| Height | 5,80 m |
| Diameter HybridWindbush | 4,60 m |
| Height Aeroleaf | 0,95 m |
| Total Weight | 1200 kg |
| Number of Aeroleaves | 12 |
| Number of Petals | 16 |

AEROLEAF SPECIFICATIONS

| | |
|----------------------------|--|
| Starting speed | 2,5 m/s (9km/h) |
| Maximum Power per Aeroleaf | 300 W |
| Maximum Wind | 43 m/s continuously, 50 m/s in gusts (180km/h) |

PETAL SPECIFICATIONS

| | |
|--|--------|
| Power per solar Petal | 36 Wc |
| Total photovoltaic power per Bush | 576 W |
| Solar petal weight (support + photovoltaic film) | 6,5 kg |

ELECTRICAL SPECIFICATIONS

| | |
|-------------------------|------------|
| Installed capacity | 4176 W |
| Voltage required | 48V |
| Inverter voltage output | 110 V-230V |

SITE INSTALLATION

| | |
|--|--------------|
| Installation Timeframe | 2 |
| Maximum Distance between the Bush and the electrical Cabinet | days 10 m |

RESPONSIBILITIES

| | |
|---|----------------|
| Preparation of underground Sleeves | Client |
| Earthworks + small concrete block | Client |
| Installation of the Bush and Aeroleaves | New World Wind |
| Installation of the Electrical Cabinet | NewWorld Wind |
| Connection between the HybridWindbushand the electrical cabinet | New World Wind |
| Connection between the NWW cabinet and the customerfacilities | Client |



Key notes

- The HybridWindbushdoesn'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)