Aurosajan Complex, Auroshilpam, Auroville 505101, INDIA

Auroville Wind Systems

Genie 2000
WIND ENERGY SYSTEM

Genie 2000 SPECIFICATIONS:

PERFORMANCE

START-UP WIND SPEED	2.5 – 3,0 m/s
CUT-IN WIND SPEED	3,0 m/s
RATED WIND SPEED	12.0 m/s
CUT-OUT WIND SPEED	None
FURLING WIND SPEED	13.0 m/s
SURVIVAL WIND SPEED	55 m/s
RATED POWER	2000 watts
ROTOR SPEED	150-450 RPM

MECHANICAL

ROTOR TYPE	3 Blade Upwind
ROTOR DIAMETER	3.35 m
BLADE PROFILE	NACA
SWEPT AREA	8.8 m^2
OVERSPEED PROT.	Furling and electronic
GEARBOX/BELTS	Direct Drive
TEMPERATURE RANGE	-40C to +60 C

ELECTRICAL

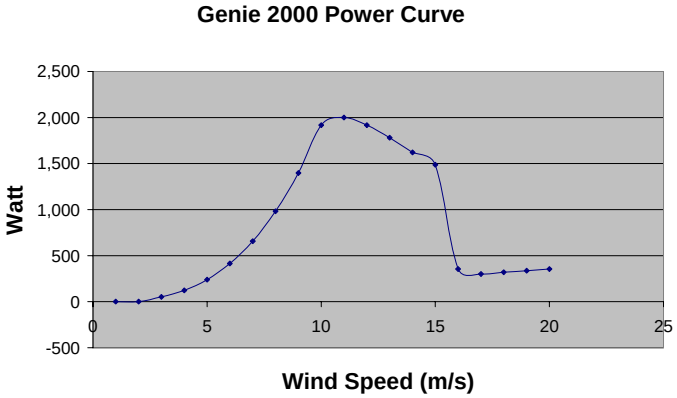
WITHOUT ELECTRONICS	3 Phase AC, Variable Frequency
WITH CONTROLLER	Regulated DC, 120 Volts
WITH INVERTER	220 VAC, 50 HZ Single Phase
GENERATOR	Permanent Magnet Alternator

Please note that technical specifications may change without notice.

100% SAFETY – 4 BRAKE SYSTEMS

Mechanical, automatic – furling of the tail-vane
Mechanical, manually – furling of the tail vane
Electronic – dump load is fully activated
Electrical – short circuit relay is activated

SHIPPING DIMENSIONS: (Generator and controller only)	155x80x60 cm, 120 kgs



Contact: ph/fax: +91 413 2623384/5, 2622705 e-mail: AWS@Auroville.org.in

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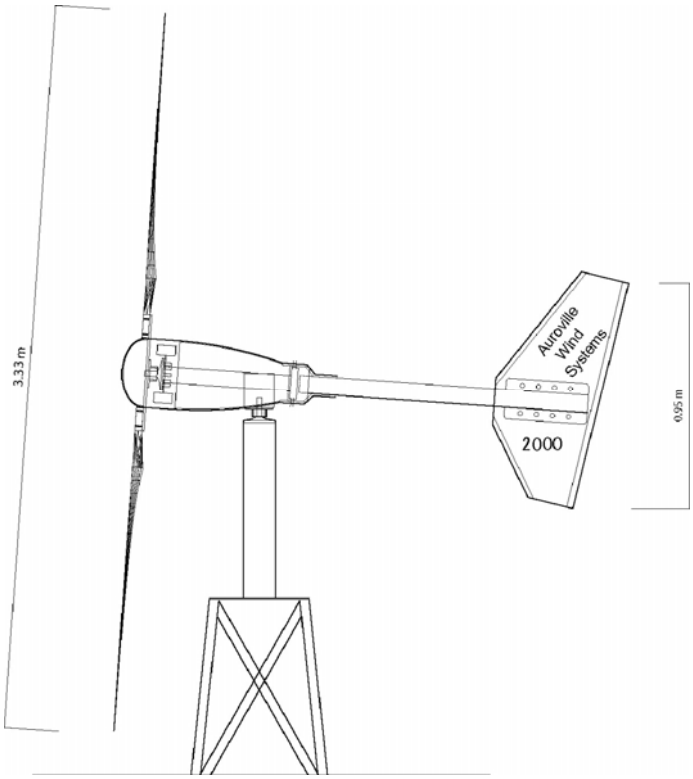
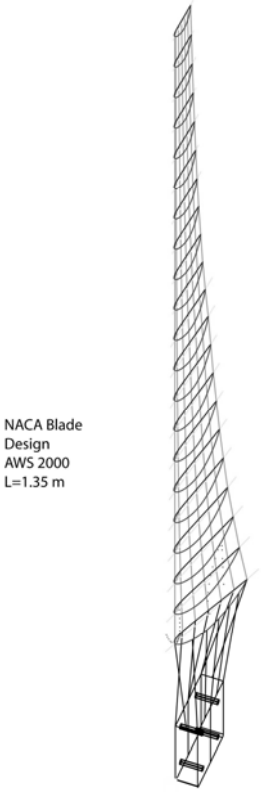
Please Visit our Web Site at: http://www.AurovilleWindSystems.com

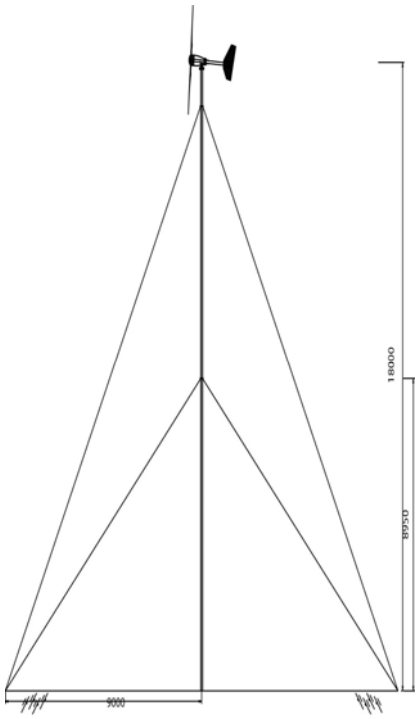
The Genie 2000 is the smallest wind generator in our range of products.
In areas with wind speed in the range of 5 m/s it will provide enough power for a household (light, small appliances, TV, computer). Back-up power is stored in a battery bank. An inverter provides grid quality 230 Volt AC.



Dimensions (top-left)



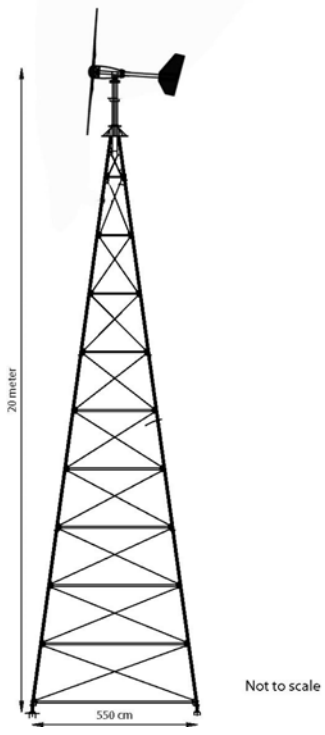
Optimized CAD Blade Design for low start-up wind speed (top-right)



Mounted on Guyed Pipe Mast (left)

or

Free-standing Lattice Tower (right)



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The working principle of the wind generator:

The wind generator is designed to provide utility grade power for domestic purposes. (light, TV, computer, small machinery, kitchen appliances, and also water pumping).
The wind generator utilizes the power of the wind to produce electricity. With increasing wind speeds the power output of the generator increases. The minimum wind speed required is 3.1 m/s (11.2 km/h). The rated output of 2.0 kW is reached at wind speeds of 12.0 m/s (37.8 km/h).
The generator output current is passed through the wind-turbine-controller, which produces a DC current of nominal 120 Volt to charge a battery bank. The battery bank (usually lead acid, tubular type) is used as a buffer and storage device. With the help of an inverter power can be drawn from the batteries at 220 V, AC (in single phase or 3 phase, as desired). The wind generator can also be used for running directly a water pump.
The wind generator is designed to withstand wind speeds up to 160 km/h. It is protected against high wind speeds by a specially designed tail-vane arrangement. When the wind-speed exceeds the normal operating conditions, the tail-vane will fold horizontally inward toward the rotor, thus turning the rotor out of the wind. This is achieved fully automatically.
In case of cyclonic storm warnings, it is however recommended to take preliminary precaution and shut down the wind generator.
In the standard configuration the wind generator is mounted on a 20-meter high freestanding lattice tower.
The wind generator requires very little maintenance. It should be inspected at regular intervals (4 weeks) to verify the proper functioning and visual and acoustic checks should be carried, which would reveal any abnormalities.

The "***Genie controller"*** of the wind turbine is mounted in a separate cabinet and it fulfills several tasks.

- It converts the wind generator output of 3 phase variable frequency and variable AC voltage into a regulated DC current to charge the battery bank.

- It monitors the battery charge condition and protects it from overcharging.

- It dissipates excess power from the Wind Generator if the battery is fully charged (dump load)

- It will disconnect the load (inverter) in case the battery is empty in order to protect the battery from damage

- It can be set to provide equalization charge to the batteries and extends the battery life.

- It can control and regulate the charge of the battery through a SPV array if the generator is set up in wind-solar-hybrid mode.

- In the extended data logger version it monitors and records the performance of the wind generator and any device connected to it (power metering, generator performance, wind speed etc.) and 5 more channels are available for other data, such as temperature, rainfall or humidity.