

FEATURES

- **Generates electric power at lower wind speeds than other wind turbines – rated for 1624 Watts @ 11m/s**

- Produces 38W of power in low winds (7 mph or 3.1m/s) – enough power to charge a 12 V battery.

- Vertical three-blade turbine is ideal for roof-top sites on commercial buildings

- Complete system, once assembled, starts producing the power

- Includes electrical system to feed power to the grid via a commercial grid tie inverter. Optional electrical system for battery charging and battery management

XPS-1600

The Alchemy Power Inc. XPS-1600 uses a patented (US Patent # US 8314508 B2) wind-accelerator to produce power in low wind environments. XPS-1600 produces power more often – even in low wind speeds – thus improving annual power production and reducing the payback period!

The average wind speed on Earth is approximately 7 mph - 9 mph or around 3.1 m/s - 4 m/s and most conventional wind turbines are incapable of generating power at these speeds.

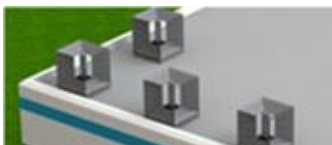
Whereas XPS-1600, with a cut-in wind speed of 5 mph or 2.2 m/s (a very gentle breeze) produces consumable power at speeds lower than the average wind speed on Earth!!

Most urban areas have low wind speed and other factors which make it hard for conventional wind turbines to operate effectively. Not only can a XPS-1600 be installed on top of flat roof-tops, multiple units can be installed on commercial buildings to offset or even reverse the cost of electric power for the building from the local electric power utility.

Each XPS-1600 only weighs appx. 380 lbs. or 170 kg which is approximately two or three people standing on the roof top.

The XPS-1600 generates:

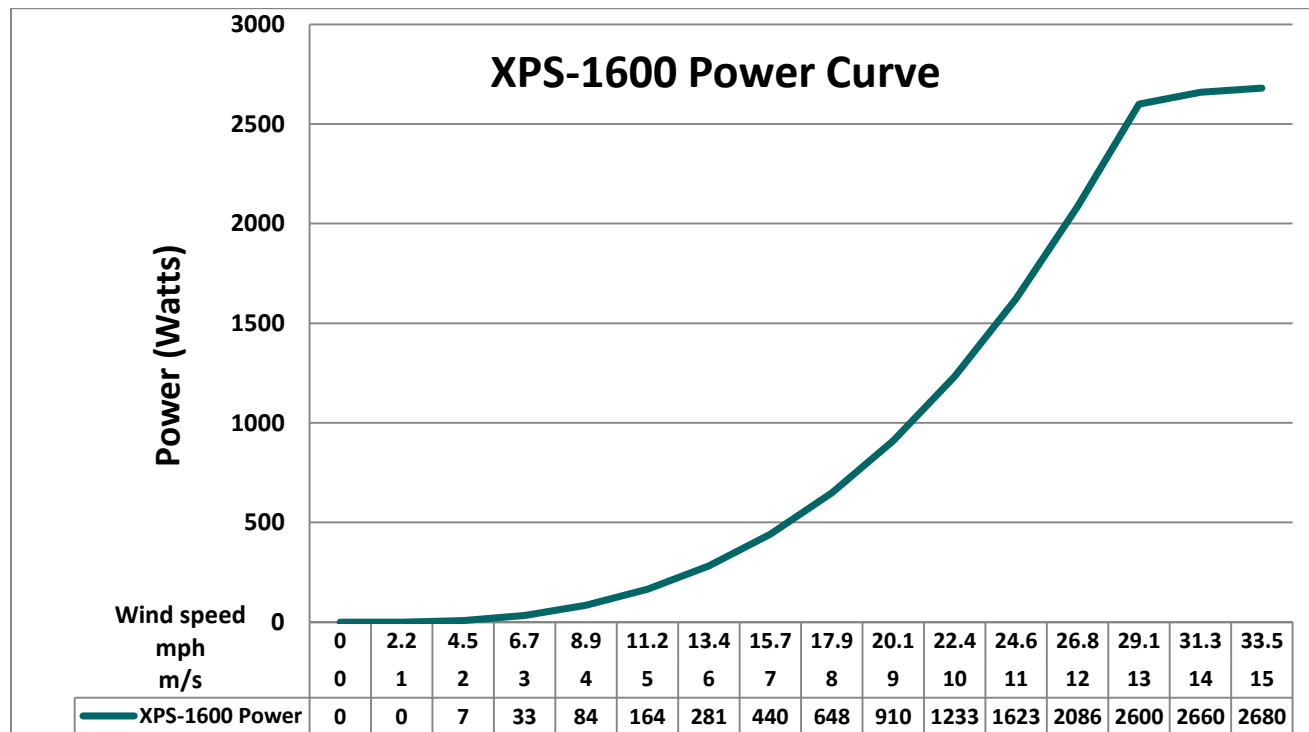
- **1624 Watts of power at 25 mph or 11 m/s winds**
- **38 Watts of power at 7 mph or 3.1m/s winds**



The XPS-1600 includes the wind accelerator, turbine and the necessary electronics to harness the power generated.

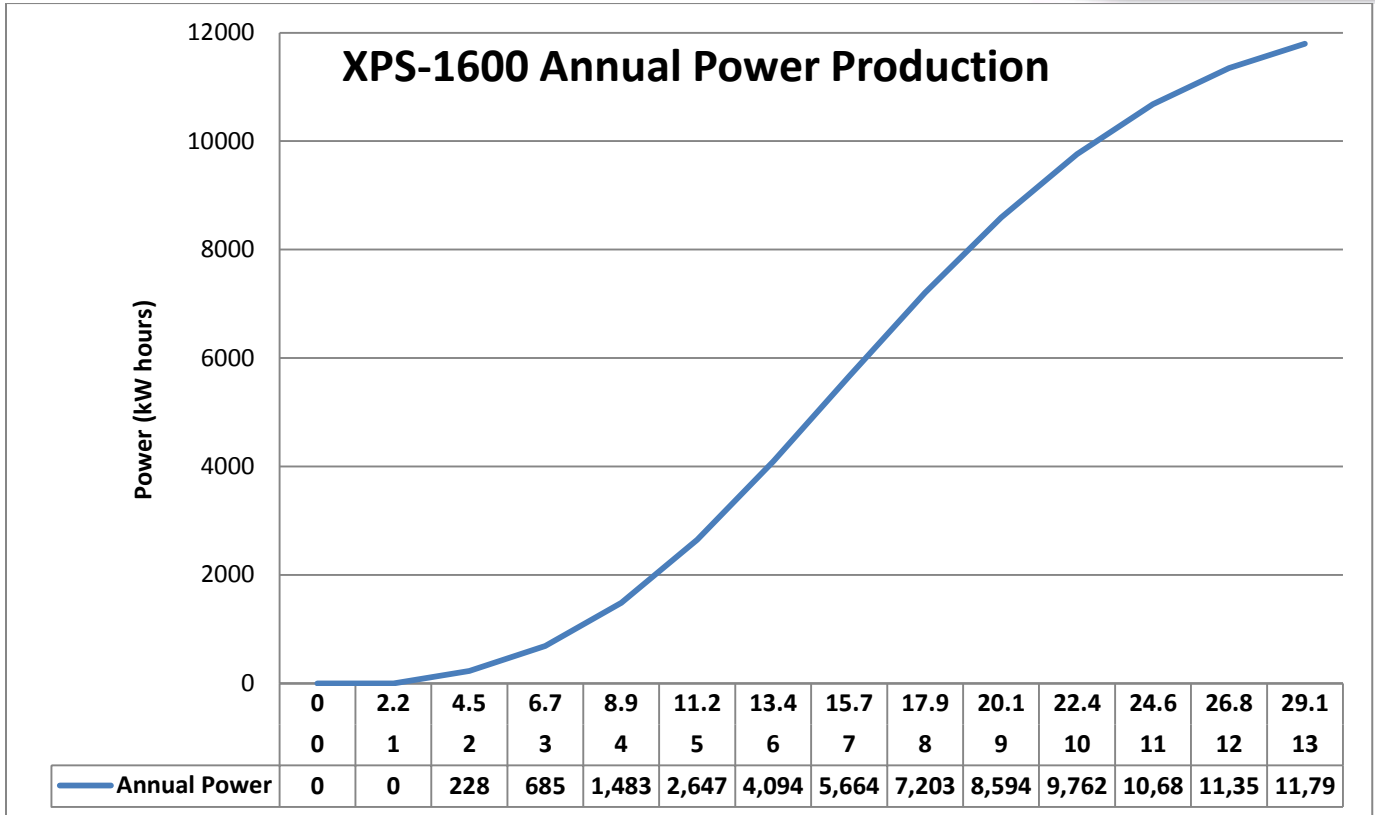
Once the recommended foundation is built, the XPS-1600 can be installed on top of the foundation. The electronics provided can be connected to a gfrid-tied inverter. The electronics also provides the necessary electronic braking to protect the wind turbine during high speeds.

For off-grid applications, the XPS-1600 can be connected to a battery charger or a standalone inverter for charging batteries and connection to the necessary load. The XPS-1600 can produce 38 Watts of power – enough power to charge a 12 V battery.



Power generated by the XPS-1600, in Watts, at different wind speeds.

Annualized power production depends on the average wind speed at the location. Using Weibull distribution, the XPS-1600 is expected to generate over 2,600 kW-hr annually with an average wind speed of 11 mph or 5 m/s. The graph below shows the anticipated annual power production based on average wind speeds.



Potential Total Power produced by the XPS-1600 annually, in kW-hrs, based on the average wind speed at a given location.

XPS-1600 produces power more often, even at low wind speeds, improving the overall power produced on an annual basis, improving the return on investment.

The vertical three blade turbine makes it ideal for all uses. The turbine is quiet and does not produce a whistling sound or a whooping sound as it rotates. The sound level measured is compared to that of a conversation or a dishwasher.

Add an external grid-tied inverter with the XPS-1600 to offset the power from the grid.

Add an external inverter and battery banks / Batter charge management system with XPS-1600 to garnish the power for off-grid applications.



Specifications

General Information

Model Number: XPS-1600
Rated Power: 1624 W at 11 m/s wind
AWEA Rated Wind Speed: 24mph or 11 m/s
Start-Up Wind Speed: < 3.5 mph or 1.6 m/s
Cut-In Wind Speed: 4.5mph or 2 m/s
Cut-out Wind Speed: 30mph or 13 m/s
Survival Wind Speed: 100 mph or 44 m/s
Turbine Blades: 3
Material of Blades: Aluminum
Material of Alternator: Steel/Aluminum
Bearings used: Nachi, sealed roller bearings
Alternator Type: AFPM, starting torque < 2 N-m
Braking: Active Electronic braking
Operating Environment: 2.3 mph to 60 mph or 1 m/s to 30 m/s
Operating Temperature: -10° C to +60° C
AWEA Rated Sound Level: 38dbA

Dimension/Weight:

Turbine Diameter: 2.7 ft, 34 inches or ~1 m
Turbine Height: 8 ft or 2.44 m
Accelerator dimensions – 6ft x 6ft x 13ft or 2.6m x 2.6m x 6m
Total Weight: 380 lbs or 170 kg

Foundation:

Recommended 10ft x 10ft or 3m x 3m foundation, concrete or wooden base, with foundation capable of bearing a minimum of 600 lb or 280 kg static load and dynamic load to support wind speeds of 100mph or 45 m/s with XPS-1600.

Hurricane straps reinforcements are recommended for wooden foundation.

Electrical:

Drive System: Direct Drive
Generator: Permanent Magnet, Three-Phase

XPS-1600 Electronics

Inputs: Alchemy Alternator
Outputs: External load such as grid-tied inverter
Maximum power: Max 3,600W
Output V: 0-120V DC

Output Current: 0-30A DC
Speed Control: Active Electronic Braking
Load Resistor for excess Power burn off
MPPT: Adaptive MPPT technology to maximize power output

Safety:

UL, CE and other tests pending

Warranty:

Limited warranty for three years. Optional, extended warranty upgrade for five years available.

Please follow your local regulations to install the XPS-1600 at proper location and using proper permits. Always consult your local certified civil engineer or structural engineer if you are planning to install the XPS-1600 on top of the roof.



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