

PowerWind 500

The PowerWind 500 is perfectly tailored to the requirements of smaller community wind installations. It combines a superb profitability due to outstanding energy yield with a low sound power level. Moreover its aesthetic design and reduced heights make the PowerWind 500 perfect to integrate in community surroundings.

The PowerWind 500 is a variable-speed, pitch-controlled wind turbine, certified in accordance with IEC wind class IIA. It has a rated power output of 500 kW and a rotor diameter of 56 m. The turbine design is based on the well-proven modular drive train concept and combines robust mechanical engineering with state-of-the-art power electronics. Many years of wind energy experience and the success of the 900 kW PowerWind 56 have been drawn on in the creation of this new model.

Designed to simplify logistics, the PowerWind 500 is particularly beneficial for locations which are difficult to access or have weak infrastructure.



PowerWind 500

The PowerWind 500 has a superb profitability due to the highest energy yield in its class.

- Higher energy yield than all other comparable wind turbines in the same class due to large rotor diameter
- Variable speed and pitch control allow maximum energy production at reduced drive train loads
- Multiple tower sizes from 44-50 m

Low sound power level due to reduced rotor speed.

- Sophisticated turbine design concept allows lower rotational speed and therefore a very low sound power level

The PowerWind 500 is modelled after the proven modular drive train concept — sharing the same mechanical robustness as the established PowerWind 56.

- The newly developed PowerWind 500 is designed with a maximum rated power of 500 kW
- High reliability due to sophisticated components from reputable European manufacturers
- Robust engineering

By using a full-scale converter in the megawatt class, the PowerWind 500 benefits from the experience gained with multi-megawatt turbines.

- Minimal disturbances (harmonics and flicker) due to use of a full-scale converter
- Large reactive power control range for potential of grid support
- Fault ride through in accordance with international grid requirement (optional)

By consciously reducing the system dimensions, difficult logistics requirements are met.

- Transport in containers possible
- Transport of the three rotor blades on a single truck
- Lesser crane requirement than multi-megawatt turbines, therefore significantly higher crane availability
- No special permit for road transport required in many countries

With its full range of features, the PowerWind 500 perfectly matches the requirements of smaller community wind installations.

- Highest energy yield due to large rotor diameter
- Low sound power level due to reduced rotor speed
- Compact design facilitates logistics and installation even in difficult locations
- Full-scale converter makes the system suitable even for weak grids

All key components are sourced from reputable European manufacturers and meet high durability standards.

- Close cooperation with leading companies in the wind industry
- Core suppliers certified to ISO 9001: 2008

The modern control concept offers web-based system monitoring and control.

- Simple web-based remote monitoring (SCADA) independent of a specific site

The high importance given to environmental protection is clearly reflected in our design.

- Where possible, no hydraulic units are used
- Enclosed oil and grease collecting trays
- Use of a readily biodegradable, non-water hazardous transformer fluid (Midel)

Compliance with all applicable safety standards is guaranteed.

- Lightning and surge protection corresponds to the lightning protection zone concept of IEC 61400-24
- Design of the tower fixtures is in accordance with DIN EN 25817-B and EN 50308

The PowerWind 500 was developed to provide easy service and maintenance.

- Accessibility to all main components with the possibility of easy replacement
- Customized service packages available

Performance

Rated power output	500 kW
Cut-in wind speed	3 m/s
Rated wind speed	10 m/s
Cut-out wind speed	25 m/s
Rotor diameter	56 m
Rotor swept area	2,463 m ²
Rotor speed	6-24,9 rpm
Speed control	Individual electrical pitch
Aerodynamic breaking	Individual full span pitch
Operating temperature range	-20 °C to +45 °C
Power factor	0.9 ind. to 0.9 cap.
Wind class	IEC 61400 IIA
Gearbox	One planetary and two spur gears
Gear ratio	1:54.2
Mechanical brake	Disc brake on high-speed shaft (hydraulic)
Yaw drive	3 AC motor drives with planetary gear
Yaw brake	Friction brake

Generator	Asynchronous, air-cooled
Nominal rotation	1,350 rpm
Enclosure class	IP 55
Converter	Full-scale converter (water-cooled)
Tower	Conical steel tower
Hub height	44, 46, 49, 50 m
Nacelle	Glass fibre reinforced plastic
Blades	Glass fibre reinforced plastic
Blade length	27.1 m
Number of blades	3
Control system	PowerWind
SCADA	PowerWind SCADA System
Grid connection	50 Hz/690 V

Available from:
 PowerWind GmbH
 Kehrwieder 8
 20457 Hamburg
 Germany
 info@powerwind.de