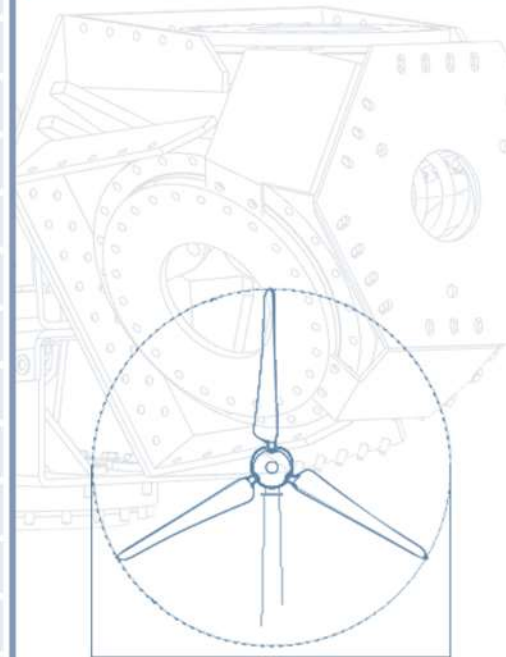


Our patented technology is an intelligent adaptation of the main systems which big turbines have to small turbines from 10 to 60kW. High security, maximum control and the best efficiency in power generation

### CARACTERÍSTICAS TÉCNICAS, ELÉCTRICAS Y DE FUNCIONAMIENTO

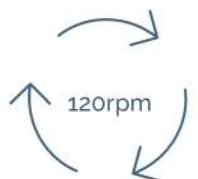
GENERATOR	Power	20kW
	Configuration	3 phases - 500V - Direct drive
TURBINE	Configuration	3 blades, horizontal axis, upwind
	Rated power	10kW - IEC 61400, software limited
	Applications	Direct grid tied - Micro grids
	Rotor speed	120rpm
	Start rotation	1.85m/s
	Cut production	30m/s
	Protection	Ip-65/Sand and hight protection
	Weight	1000kg
	Yaw	Aerodynamic downwind orientation
	ROTOR	Diameter
Swept area		75.4m <sup>2</sup>
Blade lenght		4.5m
Blade material		Fiberglass, flex resins and plyurethane
Regulation speed		Active pitch, electronical regulation and brake
BRAKE SAFETY SYSTEM	Pitch	Variable pitch with active control By wind and power
	Brake	Electromechanical safety brake
	Electronic control of:	- Wind speed - Temperature (opc.) - Voltage - Grid failure - Sensors failure
TURBINE CONTROL	Electronic System	Programmable system to adapt the turbine Register alarms
	Software	Customizable software. General screen of key parameters
INVERTER	Solar Inverter	Compatible with solar inverters of constant voltage at 500V



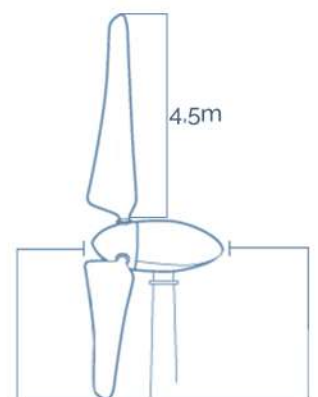
9.8m



1000kg



120rpm



4.5m

2.3m

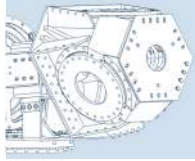
# E200L Wind Turbine DATA SHEET

THE HIGHEST TECHNOLOGY  
IN SMALL WIND TURBINES

*Service Life  
25 years!!*

**CLASS I WIND TURBINE**  
IEC 61400-2/NVI-A

## ACTIVE PITCH CONTROL



Patented technology

Characteristics:

- Sturdiness
- High endurance
- Full angle pitch control
- Spring passive security, if any fault
- Hydraulic control

Scalable technology from 5 to 100kW of power:

- Simple
- Very secure and fully controlled

## ELECTRONIC CONTROL



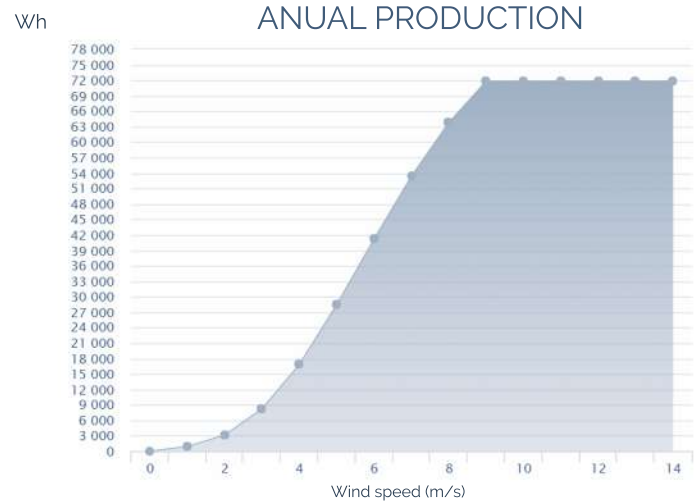
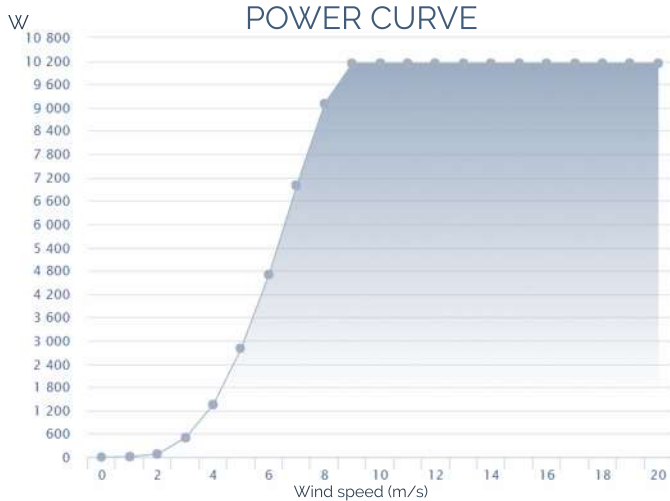
Multi-program functions:

Full control of:

- rpm                    - Nm
- Hz                    - V AC/DC voltage
- m/s

Reads all the turbine parameters, which let you decide the best actions in external controls to optimize your production and security.

The software enables different types of behaviours depending on the wind conditions to increase the efficiency.



## ACTIVE PITCH AND PASSIVE PROTECTION

The active pitch control enables the position of the blade for production to vary for each engine rotation speed and wind speed from the beginning up to high wind speed.

The benefits of mechanical simplicity and advanced electronics are combined to make a perfect tandem and maximize energy production.

## THE CFD AND AERODYNAMIC DESIGNS

For the full wind turbine design it has been done a complex aerodynamic study based on the most modern techniques of computational fluid dynamics.

In this case, the studies required a very high computing capacity and expert knowledge because the conditions are complex due to the wind turbines operation conditions.

## MONITORING SYSTEM

To say that our product is the best, it is necessary to prove it, so we have chosen to provide a complete monitoring system of various parameters of the wind turbine to left the user to check the production and its condition, even from the Internet, without being on site

\*\* This system is optional and customizable in several levels

\* The technical specifications described in this document are subject to modifications / changes without prior notice from the manufacturer. \*\* The images that appear in this document are not contractual

- Silent**  
 The aerodynamic profile of the blades is based in the FX profile series, and its design is for maximize production and minimize noise.
- Efficiency**  
 The control system allows to extract the power maximum available since the start of rotation and can adapt to any environment.
- Greater safety than ever**  
 3 security systems, active and passive: electromechanical active brake, aerodynamic and passive dock, which act in any condition.
- Waterproof**  
 The materials used are made with a tropicalization treatment to install in islands, deserts or aggressive environments.
- High endurance**  
 According to IEC 61400-2 the design of the wind turbine is classed as Class 1, with safety factors in the critical components of an  $F_s = 9$ .

