

WES

WIND ENERGY SOLUTIONS

WES¹⁸ mk1

80 kW





Wind Energy Solutions is a Dutch manufacturer of small to medium-sized wind turbines with generator capacities up to 250 kW. Our products are the result of over 20 years of evolution in wind turbine technology. WES wind turbines are operating in many different locations world-wide. They are characterized as being robust, reliable and easy to install in remote places, which enables our mission; “To Bring Renewable Energy Everywhere”.

We believe that wind energy solutions can and should be applied in virtually any situation. As long as there is sufficient wind and a need for a reliable and renewable source of electricity, WES has a wind energy solution that works for you. Our aim is to help you make use of a renewable source of energy so that the environment and our future generations will benefit as well. In other words: TURNING WIND INTO PROFIT.

Some WES applications:

- Schools / office buildings
- Poultry/Cattle/Dairy farms
- Resort hotels
- Remote islands
- Agricultural businesses
- Manufacturing plants

WES¹⁸ mk1

The WES18 mk1, known as the “farmer’s turbine”, has the reputation of being durable and reliable. The typical two-bladed rotor has a unique hinge system and a passive blade-angle adjustment. This unique mechanism needs very little maintenance. Over 600 units have been installed at (agricultural) businesses, small communities and at coastal and mountainous sites. Its weight and size allow for easy installation at remote locations. Installation without a crane is possible.

With the WES18 mk1 connected to your farm, business, school, golf club, resort or any other location, you can harvest the wind and generate your own green energy. In other words, “produce it where you use it”! This powerhouse can produce, depending on the wind availability, an average of 180.000 kWh/year of reliable and renewable energy. It takes little imagination to see the enormous reduction possible in your electricity bill!

STATE OF THE ART

The WES18 mk1 is equipped with a “State-of-the-Art” control cabinet with IGBT converters and a user and maintenance friendly IPC interface. The control system has effective functions, including dynamic output control. It assures high power quality and low harmonics and enables secure operation, even in weak grids. A Remote Monitoring System is optional. The WES18 is also available as a stand-alone or Hybrid Wind/Diesel system with a lattice tower.



KEY POINTS

FEATURE	BENEFIT
IGBT control cabinet	weak grid corrective capability
IPC user interface	fully automatic functions and user-friendly
Hinged blades	low stress loads on the drive train
Low weight and height	easy transport and installation
Mechanical design	low maintenance
Unique mechanical rotor	optimum reliability

Quality

Where applicable, the specifications of the co-operating Dutch utility companies and the Dutch national authorities have been a guideline for the design and construction of WES wind turbines. These specifications are accepted and confirmed by many international authorities and belong to the world's most severe and progressive regulations in the field of wind energy.



TECHNICAL SPECIFICATIONS

GENERAL SPECIFICATIONS

Supplier / manufacturer	WES BV
Life expectancy	minimum 20 years
Service maintenance	twice a year
Nominal Power	80 kW
Cut in wind speed	< 3 m/s - 6,7 mph
Cut out wind speed	25 m/s - 56 mph
Nominal wind speed	12 m/s - 27 mph
Survival wind speed	60 m/s - 134 mph
Yawing	active yawing
Passive power regulation	blade angle adjustment
Active power regulation	fully variable back-to-back system
Hub height	18 - 30 - 40 m
Number of blades	2
Rotor diameter	18 m
Noise emission at 8 m/s	45 dB(a) at 100 m.

ELECTRICAL SPECIFICATIONS

Power	80 kW
Voltage	400V/50Hz 3 phase or 400V/60Hz 3 phase
Connection	grid connected
Converter	back-to-back inverter (IGBT)

APPLIED STANDARDS

Degree of Protection	IP55
According	NEN1010 & NEN6096
First safety	passive blade pitch
Second safety	yawing out of the wind

GENERATOR

Type	a-synchronous
Number of poles	4
Frequency variable	25 – 80 Hz

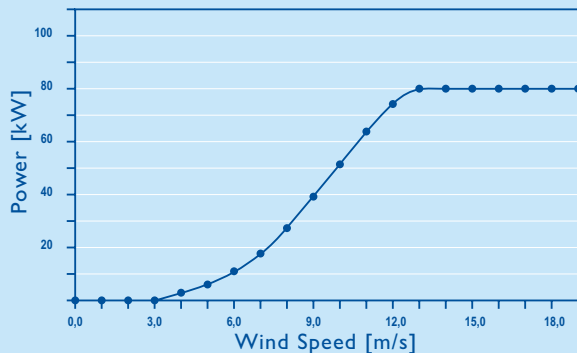
WEIGHTS

Blade	86 kg
Rotor	900 kg
Nacelle incl. rotor	3.000 kg
Tower: 30 m.	8.020 kg
Tower: 40 m.	9.400 kg

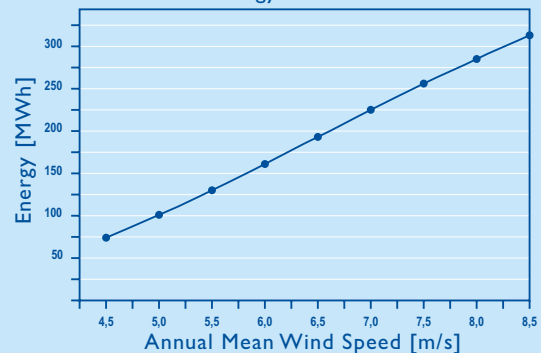
MATERIAL SPECIFICATIONS

Blades	carbon fibre reinforced epoxy
Blade length	7.8 m
Tower	steel: tubular or lattice
Foundation	concrete block with anchor or tube
Corrosion protection	galvanised steel and other non-corrosive materials.

Power Curve



Energy Production



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