

WES

WIND ENERGY SOLUTIONS

WES mk1

80 & 250 kW

- 25 Years proven technology
- Container transport
- One crane install
- Fast passive pitch
- Low-maintenance
- Internet access
- Remote monitoring

TURNING WIND INTO PROFIT



COMPANY



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 25 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
- Small wind parks
- Resort hotels
- Remote islands
- Agricultural businesses
- Manufacturing plants

RELIABLE ENERGY

Whether with the WES18 or the WES30 connected to your farm, business, school, hotel 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”. These powerhouses can produce, depending on the wind availability, an average of 180.000 kWh/year (WES18) or 600.000 kWh/year (WES30) of reliable and renewable energy. It takes little imagination to see the enormous reduction possible in your electricity bill!



EFFICIENT, RELIABLE & ALL-ROUND

The WES18 mkI 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.

The technology and design of the WES30 mkI is based on the WES18 mkI with noticeable differences being its size, the tower and efficient aerodynamic shape of the blades. The WES30 mkI is commonly used as a solitary wind turbine or in wind parks and it has the reputation of being durable and reliable. Over 300 units are installed and many are operating in wind parks, particularly in weak (diesel) electricity grids. Its weight and size allow for easy installation in remote locations and installation on a lattice tower is possible, making the WES30 mkI an all-round wind turbine.

State of the Art

Both WES18 mkI and WES30 mkI are equipped with a “State-of-the-Art” control cabinet with IGBT converters and a user 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 included and makes all the information available on every computer connected to internet. The WES18 and WES30 turbines are also available as Hybrid Wind/Diesel system.

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
Remote monitoring	output data available anywhere

Quality

For the design and manufacturing of the wind turbines WES works according strict quality systems. The products comply with EN, UL and IEC standards and the CE guidelines for machines.



GENERAL SPECIFICATIONS

80kW

250kW

Supplier / manufacturer
Life expectancy
Service maintenance
Nominal Power
Cut in wind speed
Cut out wind speed
Nominal wind speed
Survival wind speed
Yawing
Passive power regulation
Active power regulation
Tower height
Number of blades
Rotor diameter
Noise emission at 8 m/s
Operating temperatures

WES BV
minimum 20 years
twice a year
80 kW
< 3 m/s (6.7 mph)
25 m/s (56 mph)
13 m/s (29 mph)
60 m/s (134 mph)
active yawing
blade angle adjustment
fully variable back-to-back system
18 - 24 - 30 - 39 m
2
18 m
45 dB(a) at 100 m
from -20°C up to +40°C

WES BV
minimum 20 years
twice a year
250 kW
< 3 m/s (6.7 mph)
25 m/s (56 mph)
13 m/s (29 mph)
60 m/s (134 mph)
active yawing
blade angle adjustment
fully variable back-to-back system
30 - 39 - 48 m
2
30 m
45 dB(a) at 300 m
from -20°C up to +40°C

ELECTRICAL SPECIFICATIONS

Power
Voltage

80 kW
400V/50Hz 3 phase + neutral or
400V/60Hz 3 phase + neutral
grid connected
back-to-back inverter (IGBT)

250 kW
400V/50Hz 3 phase + neutral or
400V/60Hz 3 phase + neutral
grid connected
back-to-back inverter (IGBT)

Connection
Converter

APPLIED STANDARDS

Degree of Protection
Complies with standards

IP55
NEN1010 (electrical), EN50308 (safety),
EN6096 (wind turbines), ULI1741 (anti
islanding), IIEC61346-2000 (cabinet)
yes
passive blade pitch
yawing out of the wind

IP55
NEN1010 (electrical), EN50308 (safety),
EN6096 (wind turbines), ULI1741 (anti
islanding), IIEC61346-2000 (cabinet)
yes
passive blade pitch
yawing out of the wind



CE mark
First safety
Second safety

GENERATOR

Type
Number of poles

a-synchronous
4

a-synchronous
6

WEIGHTS

Blade
Rotor
Nacelle incl. rotor and blades

100 kg
900 kg
3.300 kg

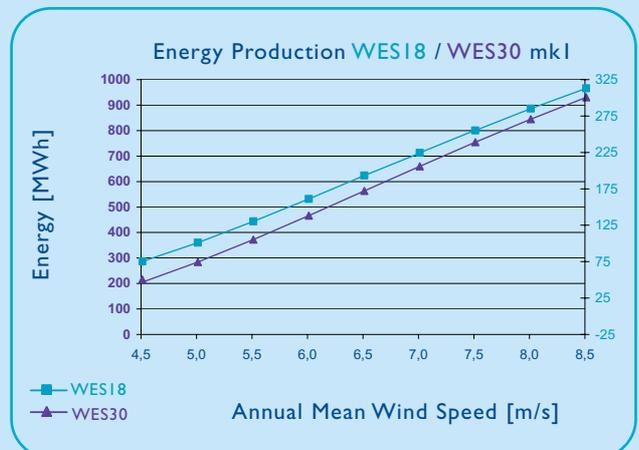
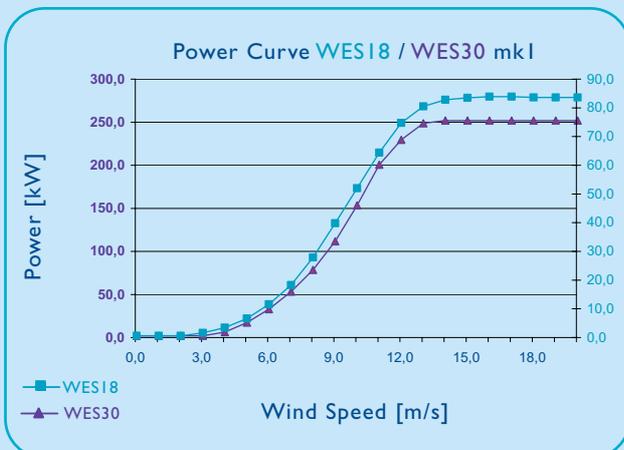
315 kg
2.970 kg
10.700 kg

MATERIAL SPECIFICATIONS

Blades
Nacelle
Cover
Tower
Foundation

carbon and glass fibre reinforced epoxy
steel
polyester
steel (hot dip galvanized)
concrete block with anchor

carbon and glass fibre reinforced epoxy
steel
polyester
steel (painted)
concrete block with anchor



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