WES50

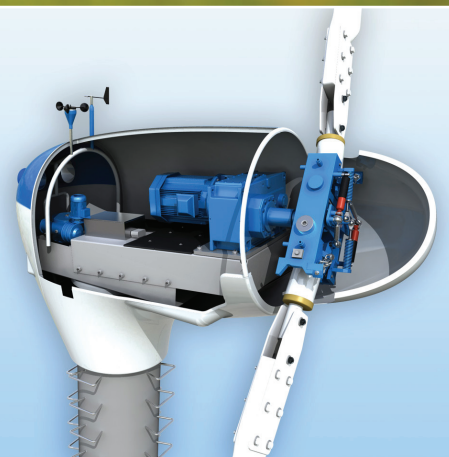## *'Bringing renewable energy everywhere'*

The WES50 with a rotor diameter of 20 meters is especially designed for areas with lower wind speed (class III). This two bladed wind turbine with a new cover is a reliable 50 kW midsize wind turbine with a high performance. The mechanical part of the WES50 is based on the original proven design from 1983. For the electrical part, power conversion and control, the latest technology is used. The WES50 is also available as Hybrid Wind/diesel system.
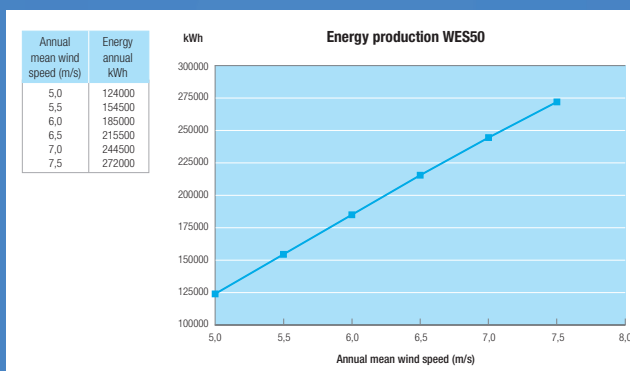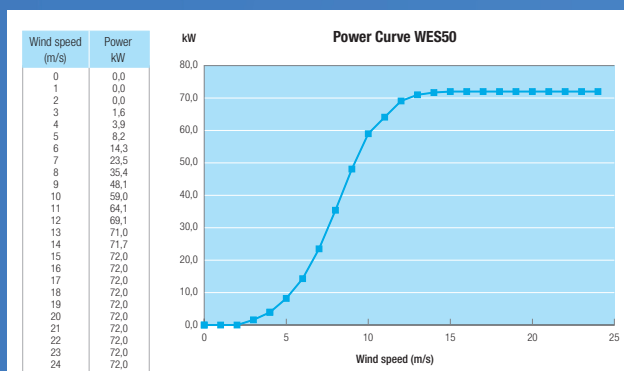
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TECHNICAL SPECIFICATIONS

Wind speed (m/s)	Power kW
0	0,0
1	0,0
2	0,0
3	1,6
4	3,9
5	8,2
6	14,3
7	23,5
8	35,4
9	48,1
10	59,0
11	64,1
12	69,1
13	71,0
14	71,7
15	72,0
16	72,0
17	72,0
18	72,0
19	72,0
20	72,0
21	72,0
22	72,0
23	72,0
24	72,0

Power Curve WES50 (kW vs Wind speed (m/s))

Annual mean wind speed (m/s)	Energy annual kWh
5,0	124000
5,5	154500
6,0	185000
6,5	215500
7,0	244500
7,5	272000

Energy production WES50 (kWh vs Annual mean wind speed (m/s))

GENERAL

Life expectancy:	Minimum 20 years
Rated power:	50 kW
Cut in Wind speed:	< 3 m/s (6.7mph)
Cut out Wind speed:	25 m/s (56mph)
Rated wind speed:	9,5 m/s (21mph)
Survival wind speed:	52,5 m/s (117mph)
Wind class:	III
Yawing:	Active
Passive power regulation:	Blade-angle adjustment
Active power regulation:	Fully variable back-to-back IGBT system
Towers heights:	24 m, 30 m (31 m lattice)
Number of blades:	2
Rotor diameter:	20 m
Noise emission at 8 m/s:	45 dB(a) at 100 m
Operating temperatures:	from -20°C up to + 40°C

ELECTRICAL

Power:	72 kW
Voltage:	400V/50Hz 3 phase + neutral or 400V/60Hz 3 phase + neutral
Connection:	grid connected / Hybrid
Converter:	back-to-back inverter (IGBT)

MATERIAL SPECIFICATIONS

Blades:	carbon and glass fibre reinforced epoxy
Nacelle:	steel
Cover:	polyester
Tower:	steel (hot dip galvanized)
Foundation:	concrete block with anchor

WEIGHTS

Blade assembly:	130 kg per blade
Rotor:	900 kg
Nacelle incl. Rotor and blades:	3.300 kg

KEY COMPONENTS

Generator:	ABB
Gearbox:	Siemens
Converter:	Control Techniques (Emerson)

APPLIED STANDARDS

Degree of protection:	IP55
Complies with standards:	NEN1010 (electrical), EN50308 (safety), EN6096 (wind turbines) Ul1741, G59/2 (anti Islanding), IEC61346-2000 (Cabinet)
CE-mark:	yes