Optimised for low to medium wind speeds •
Low sound level •
Excellent grid compatibility •
High reliability •

V82

Vestas®

[V82]

Optimised for low to medium wind speeds
With a larger rotor and a more powerful generator, the V82 outperforms any comparable megawatt-class turbine in areas with low to medium wind speeds. Hydraulic ACTIVE-STALL™ technology ensures that the rotor harnesses maximum energy from the available wind while minimising loads and controlling the power output. The output of 1650 kW is maintained above rated wind speed, and the ACTIVE-STALL™ technology furthermore provides fail-safe shutdown of the turbine in all conditions. With the V82 Vestas has designed a wind turbine that offers unparalleled performance at a truly cost-effective price.

Low sound level
Vestas has made a special effort to dramatically reduce the sound level of the V82. The result is clearly audible. At all wind speeds, the sound level of the V82 is among the lowest.
The V82 is also available with a two-speed generator, which makes it possible to reduce the sound level even further to meet specific requirements – for instance lower sound level at night time or at low wind speeds.

Excellent grid compatibility
Wind turbines have come to play an important role in managing grid operations due to the ever increasing contribution wind energy is making to the total production of electricity. In some markets, wind turbines are required to actively support and help maintain stability of grid operations on similar terms to conventional power plants. Vestas meets this new challenge by offering Grid+™ – Vestas' advanced grid compliance system featuring:

- Full load and dynamic phase compensation that supports reactive power regulation to maintain power factor within specified range.
- Uninterrupted power supply back-up to maintain full operation of all auxiliary systems in the wind turbine during grid disturbances.
- Continuous regulation of active and reactive power as well as voltage balance in the grid.
- Fault ride-through during grid disturbances.

High reliability
Like all Vestas turbines, the V82 has been approved by Det Norske Veritas (DNV) according to the strictest standards in the wind industry. The nacelle is based on the well tested and proven design of the V60/1000, V64C/1500 and the V72C/1500 of which more than 700 turbines are installed at sites ranging from arctic to tropical climates and in various wind regimes.

You benefit from our experience
Vestas has played a major role in the wind industry for more than 20 years. We have installed approximately 12,000 wind turbines in almost every corner of the world. This makes Vestas one of the most experienced wind turbine manufacturers in the market, and we make sure that our customers benefit from this vast amount of know-how and the feedback we receive every day. A good example is the fact that more than 2,500 Vestas turbines comprised by Vestas' service programme averaged 98.6% availability in 2003.

Optimal wind turbine for any site
The ability to design and supply tailored solutions is one of Vestas' absolute core qualifications achieved through decades of thorough product development. Our product programme is continuously optimised, and we offer the broadest product portfolio in the market. This is why Vestas is always able to supply a truly competitive wind turbine for any site, irrespective of wind regime, climatic conditions or site location.

Operational data

Nominal output	1650 kW
Power regulation	ACTIVE-STALL™
Rated wind speed	13 m/sec.
Rated wind speed according to IEC	11.6 m/sec.
IEC Class	II

Cut-in

One speed version	3.5 m/sec.
Two speed version	2.5 m/sec.
Cut-out – 10 min.	20 m/sec.
Cut-out – 1 min.	24 m/sec.
Cut-out – 1 sec.	32 m/sec.

Rotor

Rotor diameter	82 m
Rotor swept area	5281 m²
Blade pitch	Hydraulic, fail-safe

Rotor speed

One speed version	14.4 rpm
Two speed version	14.4/10.8 rpm

Brake system

Mechanical brake	Single unit disk brake, hydraulic fail-safe
Aerodynamic brake	Full blade pitch

Drive train

Gear type	Planetary/helical gears
Transmission	1:70.2 – 50 Hz 1:84.3 – 60 Hz
Cooling	Liquid cooling with pump
Main shaft	Forged shaft and flange
Main bearing	Self-aligning roller bearings
Oil lubrication	Automatic

Generator

Type	Asynchronous
Nominal voltage	690 V/50 Hz 600 V/60 Hz
Nominal frequency	50 Hz 60 Hz

Nominal power

One speed version	1650 kW
Two speed version	1650/900 kW
Cooling	Liquid cooling with pump

Yaw system

Type	Ball bearing slewing ring with gearing and disk brake
Yaw brakes	6 hydraulic brakes
Drive mechanism	6 helical gears with electric motors

Tower

Type	Conical, steel, painted
Hub height	According to approvals

Controller

Type	Computer control system
Grid cut-in	Thyristor coupling switch
Phase compensation	Regulated, staged
Remote control	WindMan® Professional

ACTIVE-STALL™

Vestas Wind Systems A/S, Alsvej 21, DK-8900 Randers, Tel: +45 9730 5000, Fax: +45 9730 5001
E-mail: vestas@vestas.com, www.vestas.com

Vestas®

V82.08.04.ver1.GB