

A close-up, low-angle shot of a white wind turbine nacelle and hub. The three blades are visible, extending from the central hub. The nacelle has the 'Vestas' logo in blue. On top of the nacelle, there are two red warning lights and two circular sensors. The background is a plain, light grey.

# V80-2.0 MW

Unsurpassed reliability and performance  
at high-wind sites in North America

**Vestas**

[vestas.com](http://vestas.com)

**Vestas**





A landscape photograph showing a rocky ridge in the foreground with sparse green vegetation. A low, rustic stone wall runs across the middle ground. In the background, a flat landscape extends to a horizon under a clear sky, with a single wind turbine visible on the left.

WE DELIVER  
ON THE PROMISE  
OF WIND POWER



## MATURE TECHNOLOGY AND LOW COST OF ENERGY

### **A reliable, high-performance workhorse**

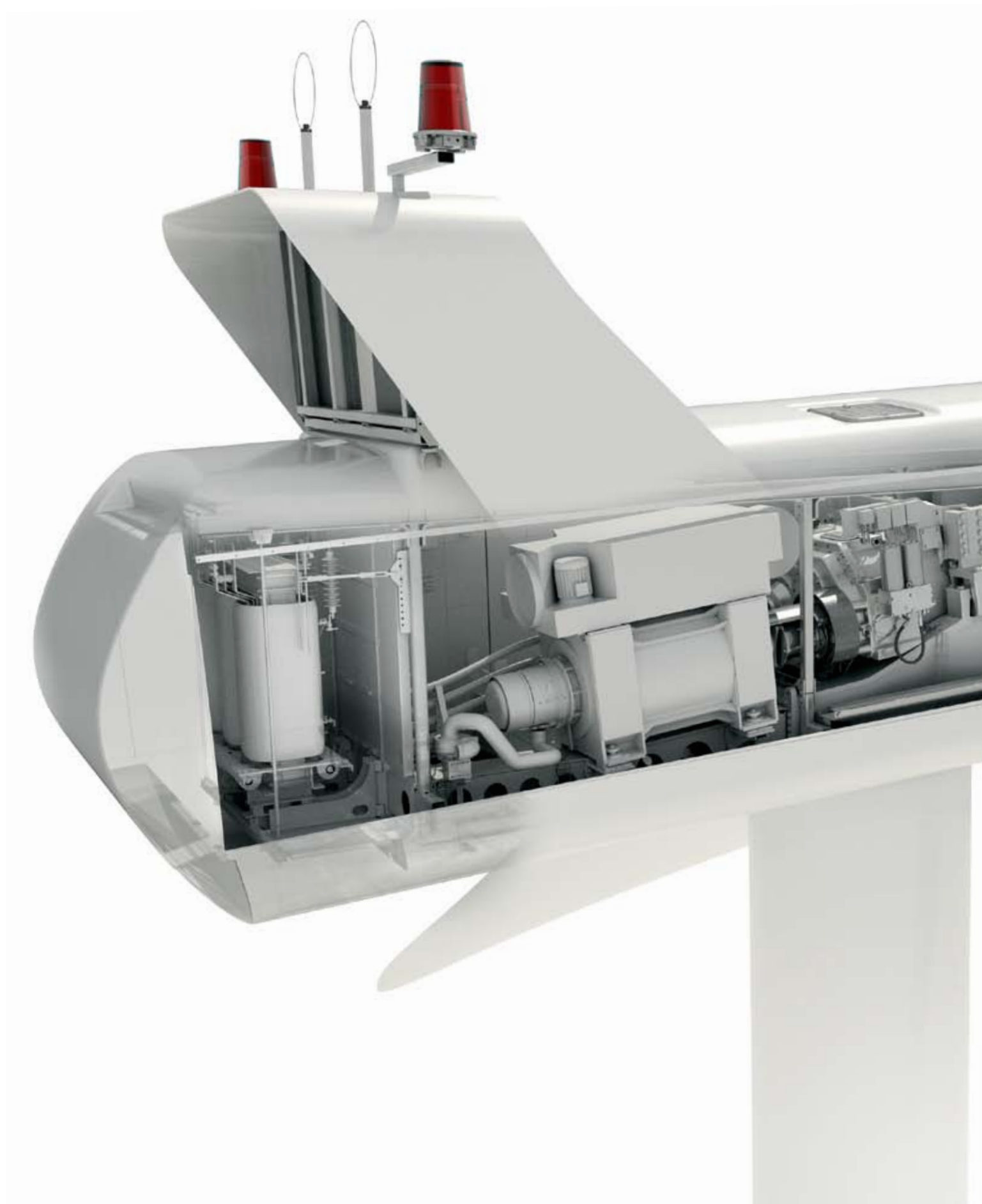
V80-2.0 MW is a rugged wind turbine designed for IEC IA sites. Since 2003, it's been demonstrating its ability to deliver high ROI at both onshore and offshore sites around the world. Even under extreme weather conditions the V80-2.0 MW keeps on delivering high, documented availability and performance.

### **Built on a tried and tested design platform**

Vestas has installed more than 4,000 V80 turbines around the world, with at least eight new V80s installed every week. This makes the V80-2.0 MW one of the most thoroughly tested turbines on the market. It's built on a mature, reliable design platform, with several turbines sharing innovative, high-performance technology. It features a 6-gear yaw system, a proven, conventional drive train concept and a transformer, which is integrated with the nacelle to minimize power losses. Finally, the V80-2.0 MW is designed around a large number of standard components that several suppliers can provide, improving overall reliability and availability of the turbine.









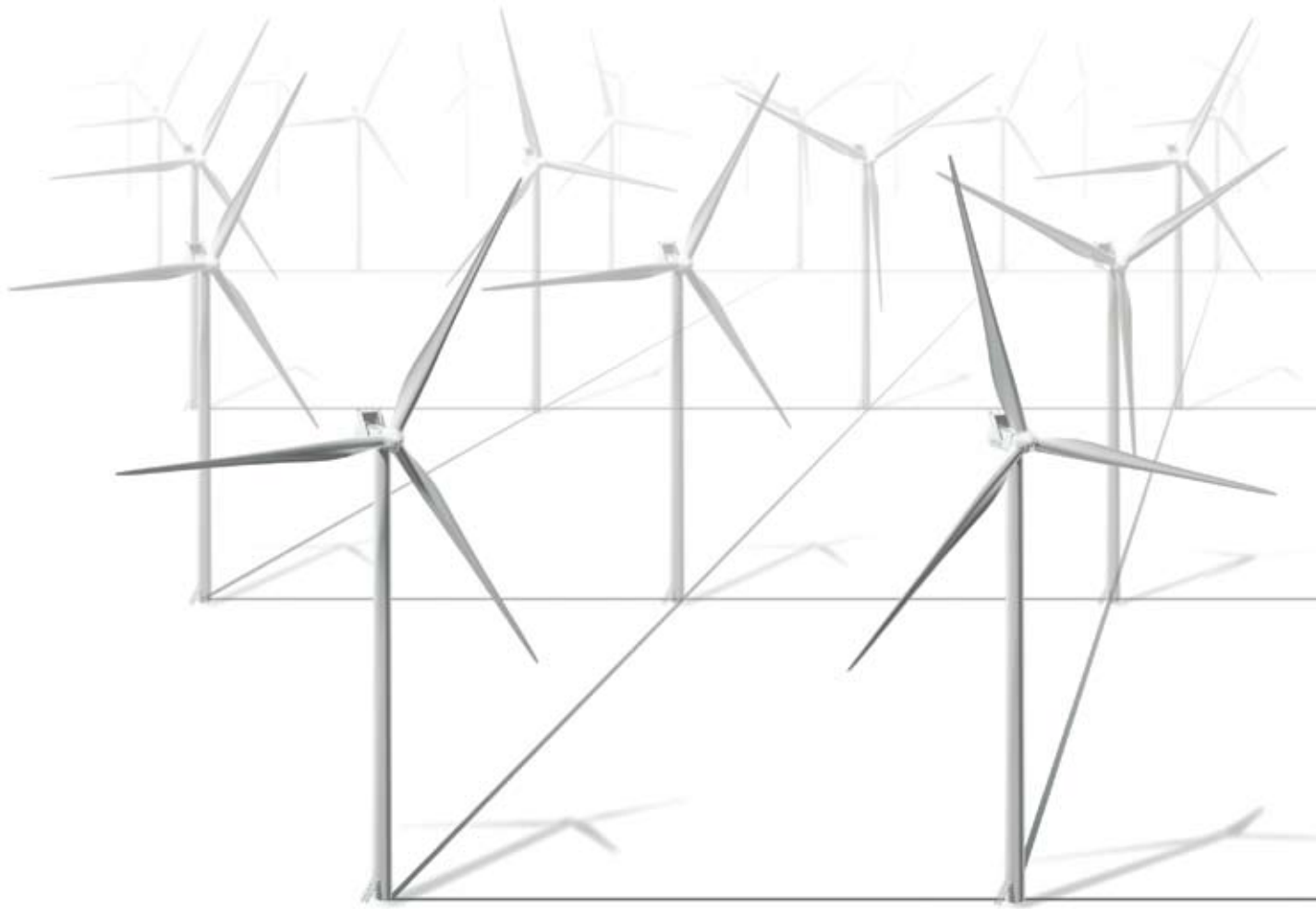
## WELL-TESTED RELIABILITY AND STEADY OPERATION

### **Innovative solutions for lubrication**

The V80-2.0 MW offers a number of features that boost reliability and serviceability, including innovative solutions for lubricating key components such as the blade-bearing system and the yaw system.

### **Next-generation control system**

The V80-2.0 MW is equipped with the latest turbine control and operation software, a state-of-the-art modular software platform developed to run the next generation of Vestas turbines. This software ensures reliable, automatic management of the V80-2.0 MW around the clock. Furthermore the software supports the service organization in monitoring and troubleshooting the wind turbines on site and remotely.



## DESIGNED FOR HIGH YIELD AND EASY MAINTENANCE

### **Advanced grid operation and stable output**

The V80-2.0 MW is equipped with VCUS™ (Vestas Converter Unity System), which ensures a constant and consistent output to the grid. Along with the turbine's pitch control, VCUS™ also ensures energy optimization, low-noise operation and reduced load on the gearbox and other key components. Other VCUS™ advantages include effective fault ride-through and complete variable speed capability.

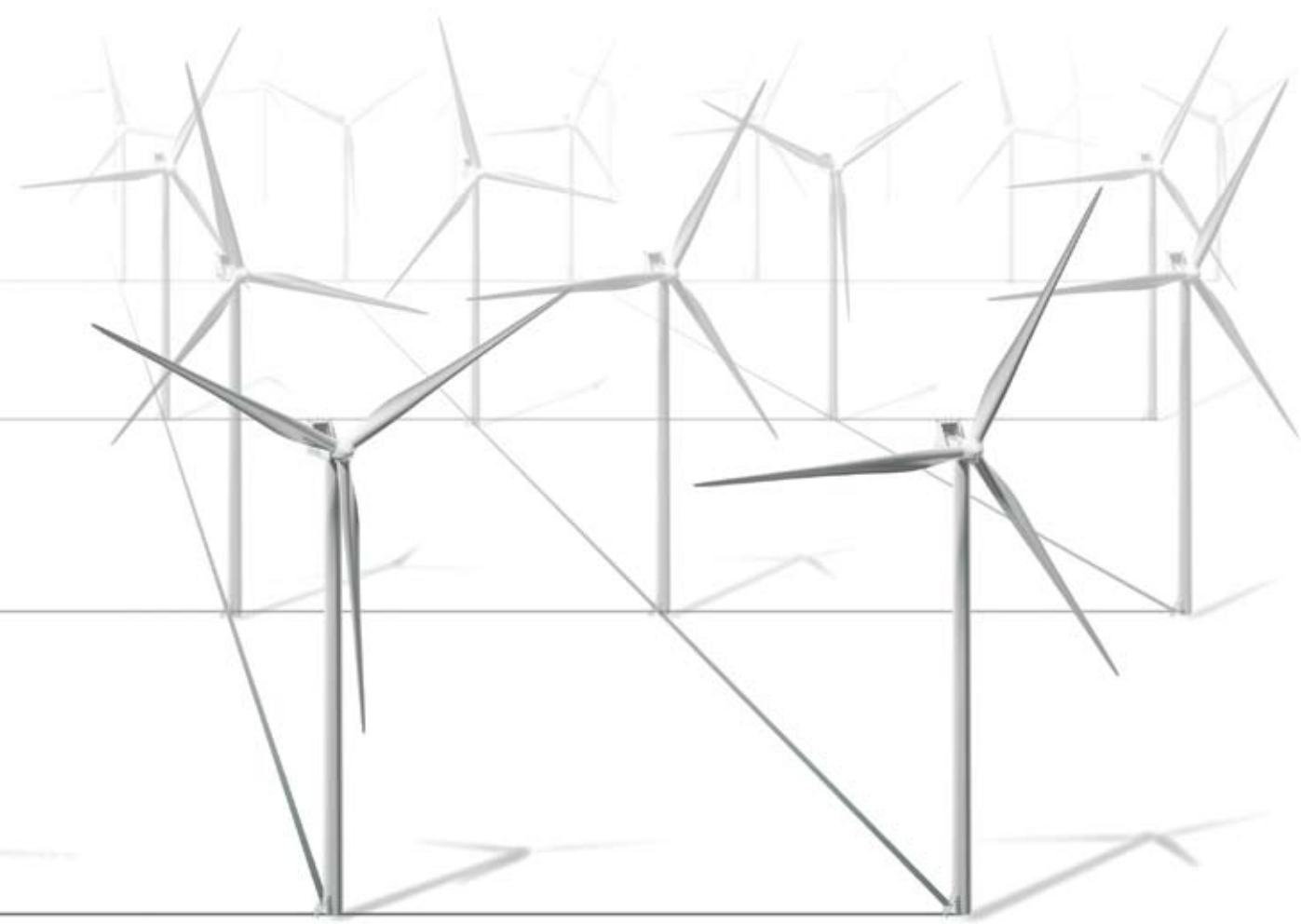
### **Safety first and easy maintenance**

Like all other Vestas turbines, the V80-2.0 MW is designed for safe, convenient maintenance. All rotating parts are shielded, and all the components are positioned to minimize service time and manpower, no matter what service task is involved.

### **Can be installed almost anywhere**

The V80-2.0 MW is designed for fast, easy transport by truck and rail to virtually any site in the world. The weight, height and width of all parts and main components are designed in consideration of local and international limits for standard transport. Installation, service and maintenance can be carried out using standard tools and equipment.





### **Market-leading aerodynamics**

Vestas designs and manufactures some of the world's lightest, most efficient turbine blades. The 39-meter blades on the V80-2.0 MW sweep an area of 5,027 m<sup>2</sup> and help deliver the high capacity and profitability the V80-2.0 MW is known for. The 39-meter blades, made from glass fibres in an epoxy resin, are designed and manufactured by Vestas utilizing our well-proven technology. Lightning protection receptors and down-conductors help protect the blades and the turbine from lightning.

### **Special options**

The V80-2.0 MW is available with a number of special options that can be provided at the customer's requests. These options include:

- Condition monitoring system
- VestasOnline®, Compact or Business
- Switchgear
- Aviation markings on the blades
- Aviation lights
- Company logo
- Ice detection system
- Low temperature package allowing operation in temperatures as low as -30°C.

## INNOVATIVE TECHNOLOGY FOR QUIET AND COOL OPERATION

### **CoolerTop™ saves energy and reduces sound levels**

The environmentally friendly CoolerTop™ cools the water used in the turbine's cooling system by channeling wind into the heat exchanger. This boosts reliability, not least by reducing the number of moving parts and electrical components in the cooling system. CoolerTop™ also reduces the turbine's own energy consumption and it keeps sound levels low.

### **Low sound levels, high productivity**

The V80-2.0 MW is a quiet turbine throughout its power curve, but it is even quieter during low-noise operation. The turbine can be operated in configurable modes that keep within defined noise levels, without having a significant effect on production. This makes the V80-2.0 MW ideally suited for sites where sound levels are a concern.





***Vestas***®





## VESTAS TAKES CARE OF YOUR INVESTMENT ROUND THE CLOCK

### **Verified component lifetime**

At the Vestas Testing Centre and Technology R&D, engineering experts and technicians use state-of-the-art testing methods to ensure that the turbine meets our standards for safety, performance and reliability throughout the 20-year service life. These tests push the components beyond their specifications. One method is known as Highly Accelerated Life Testing, which is performed in a HALT chamber. Extreme fluctuations in temperatures combined with heavy vibrations are just some of the stress tests the components are subjected to here. This enables Vestas to address design flaws before a turbine is introduced to the market.

### **Surveillance 24/7/365**

Our surveillance services are manned 24/7 all year round to provide real-time surveillance, remote troubleshooting and other services. These services can also detect potential errors and disruptions before they occur, as data from your turbines is gathered and analyzed. This enables us to prepare a plan for preventative maintenance, saving you from unexpected production stops and costly downtime. Vestas has service centers around the globe and we are able to cover your every need, from simple cleaning and planned maintenance to emergency call-outs and on-site inventories customized for your turbines.



#### **Asset management and operation risk mitigation**

Your wind turbines have to be maintained with great care to avoid exposing your investment to unnecessary risks. And that is exactly what Active Output Management is designed to ensure – that you get the greatest possible return on your investment in a Vestas wind turbine.

AOM provides a number of advantages, such as detailed plans for service and maintenance, online monitoring, optimization and troubleshooting, and a competitive insurance scheme.

We even offer a full availability guarantee, where Vestas pays compensation if the turbine fails to meet the agreed availability targets.

#### **Project management for effective plants**

The better your turbines fit your wind site, the more profitable your plant will be. That's why Vestas offers to take on project management from the initial wind measurements to complete installation of the wind power plant. More than 30 years of international experience and local expertise enable us to complete:

- Wind and site studies
- Selecting wind turbine types
- Designing the wind power project
- Installing the wind farm
- Servicing and maintenance throughout the turbine's service life
- Monitoring and remote troubleshooting.

## TECHNICAL DATA FOR V80-2.0 MV

<b>Power regulation</b>	pitch regulated with variable speed
<b>Operating data</b>	
Rated power	2,000 kW
Cut-in wind speed	4 m/s
Rated wind speed	16 m/s
Cut-out wind speed	25 m/s
Wind Class	IEC IA
Operating temperature	standard range -20°C to 40°C. low temperature option -30°C to 40°C.
<b>Rotor</b>	
Rotor diameter	80 m
Swept area	5,027 m <sup>2</sup>
Nominal revolutions	16.7 rpm
Operational interval	10.8-19.1 rpm
Air brake	full blade feathering with 3 pitch cylinders
<b>Tower</b>	
Type	tubular steel tower
Hub heights	67 m and 80 m
<b>Generator</b>	
Type	4-pole asynchronous with variable speed
Nominal output	2,000 kW
Operational data:	60 Hz 690 V
<b>Gearbox</b>	
Type	3-stage planetary/helical

### Main dimensions

#### Blade

Length	39 m
Max. chord	3.5 m
Blade	6,500 kg

#### Nacelle

Height for transport	4 m
Height installed (including CoolerTop)	5.4 m
Length	10.4 m
Width	3.4 m
Weight	69 metric tonnes

#### Hub

Max diameter	3.3 m
Max. width	4 m
Length	4.2 m
Weight	18 metric tonnes

#### Tower

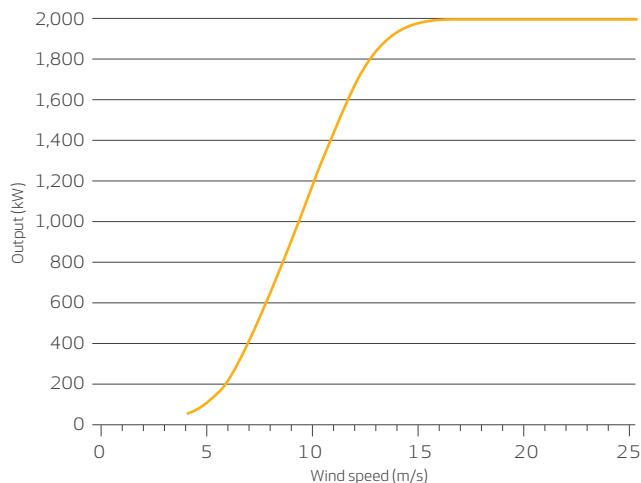
##### 67 m

Weight	117 metric tonnes
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##### 80 m

Weight	155 metric tonnes
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### Power curve V80-2.0 MW



All specifications are for informational purposes and are subject to change without notice. Vestas does not make any representations or extend any warranties, expressed or implied, as to the adequacy or accuracy of this information.



### **No. 1 in Modern Energy**

The world needs ever-greater supplies of clean, sustainable energy. Modern energy that promotes sustainable development and greater prosperity for all our planet's inhabitants. Vestas wind turbines are already generating more than 60 million Mwh of electricity every year – enough to power all of Spain, for example – and we are ready to go even further. After more than 30 years in business, Vestas continues to pioneer the wind energy business, achieving breakthroughs that transform our entire industry.



No. 1 in Modern Energy

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