WINGSPAN FOR OFFSHORE CONDITIONS

OFFSHORE LM 61.5 P2

lmwindpower.com

LM WIND POWER

Blades

Engineering power offshore

The true power of the wind can be harnessed at sea. Offshore, an increased capacity of up to 50 percent is possible. With our experience you can rest assured that your blades deliver the real power of nature.

LM Wind Power will power your profitability
To fully exploit the potential of offshore wind resources, we offer our most advanced mass-produced wind turbine blade LM 61.5 P2. Engineered for precision and strength, a turbine equipped with these 61.5-meter long blades boasts a nominal capacity of up to 6 MW.

A track record of engineering excellence
Constructed from a pure glass fibre and polyester matrix, the LM 61.5 P2 is based on a 30-year legacy of proven blade design and manufacturing of more than 130,000 blades. The first LM 61.5 was installed in 2005 in Scotland and since then we have produced more than hundred blades for offshore projects.

Reliability by design
Partnering with LM Wind Power provides access to extensive knowledge within blade technology and design. In house fibre-level research and full-scale accredited multi-MW blade testing are at the root of the knowledge and expertise behind the world's largest blade.

Blade Effectiveness System with individual pitching
Our knowledge of the structural design of multi-MW blades protects your investment. We provide a unique Blade Effectiveness System featuring optical sensors embedded into the blade's fibre layers. This measures the forces that are truly exerted on the blade, not just estimations from the root section.

Level 1 lightning protection
To protect the 61.5m long blade it has been full-scale tested with the world's most thoroughly tested protection system: IEC 61400-24 level 1. LM Wind Power has supplied over 70,000 blades with lightning protection systems.

A certified wind class 1 solution of its own
LM 61.5 P2 has been subject to an extensive test programme exceeding certification requirements by including full-scale extreme loads of up to 22,000 kN/m and several dynamic tests corresponding to 20 years of operation.

A competitive weight-to-length ratio, that you can rely on

61.5 m
19.1 t

Due to an excellent weight-to-length ratio, wind turbine manufacturers can reduce costs on dimensioning of key components like drive-trains and main shafts. Two features contribute to this:

Pre-bending
This reduces the need for blade stiffness and therefore weight. Pre-bending the blade increases the swept area and the energy production – a significant advantage.

Full-scale test cycles
Test cycles with dynamic testing, extreme load testing and then dynamic testing is again your guarantee.

Photos in courtesy of REpower and Piet Simonsen

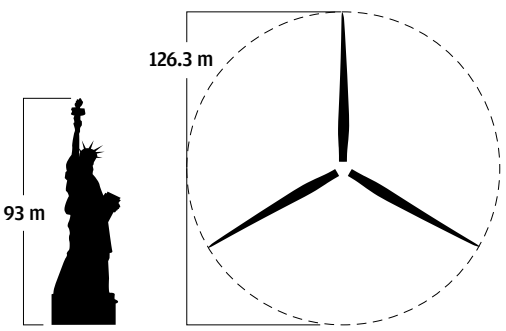
Logistics in action: LM 61.5 P2 on the way to COP15 in Copenhagen by truck.

OPERATING SINCE 2005

LM 61.5 P2 generates the results our partners want with the reliability they expect. Installed on 5-6 MW turbines in the IEC IA wind class, the LM 61.5 is already fully-operational in offshore wind farms near Scotland, Germany and Belgium.

Technical features of LM 61.5 P2

Length	61.5	m
Rotor diameter	126.3	m
Swept area	12,528	m^2
Weight	19,1	tons
Max chord	4,6	m
Blade area	186	m^2
M 36 bolts	128	pcs
Bolt circle diameter	3200	mm
Extreme load testing	22,000	kN/m
Dynamic testing (edgewise vibrations)	5	mio
Dynamic testing (flapwise vibrations)	5	mio



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The Power to Deliver

LM Wind Power is the world's leading manufacturer of wind turbine blades. We have a global footprint and are a valued partner in established and emerging markets all over the world.

We work closely with our customers to reduce the cost of energy and continue to invest in research and development. In addition to our own wind tunnel, we now have a new technology center to ensure that your turbines continue to generate ever more power.

LM Wind Power represents the state-of-the-art in blade technology. To further support our customer base we have also sharpened our focus on service and logistics. In 30 years, we have produced more than 130,000 blades from 5 to 61.5 meters and continue to establish our position among the world leaders in the growing wind power industry.