



IABG testing method for rotor blades of wind power stations



IABG developed a new and improved concept for dynamic fatigue tests on rotor blades that offers significant advantages over traditional testing methods. In general, the proof of fatigue strength for rotor blades is obtained in dynamic fatigue tests endured over several millions of stress cycles, i.e., by vibration tests in line with the resonance principle.

The test frequency is hereby limited by the initial natural bending frequency of the item under test. For current blades, this lies clearly below one Hertz, which leads to long testing times and thus, in the end, to high costs. The blade deflection curve appearing in resonance tests often varies from the real-operation deflection curve due to aerodynamic loads. Here, exceedingly high or low stress levels can appear locally that negatively impact testing quality.

The patented test method of IABG can significantly reduce or avoid these deficiencies.

The new method allows for increasing the natural bending frequency, improved simulation of the deflection curve, setting a medium load during the test cycle, as well as for doubling the testing frequency.

IABG test concept	Impact
Elastic pinning through hinged supports and spring elements	→ Quick adaptation of the test device
Increasing system rigidity	→ Increasing test frequency
Positive influence on the deflection curve	→ Improved test quality, compensation of interfering masses
Adjustable static initial load	→ Testing under near-reality medium load
Impact & swivel tests	→ One test stand, two test types

Advantages

- Shorter test times
- Improved quality of proof
- Increasing strength reserves
- Multiple test types in one stand
- Combination of simulation and testing

IABG
Einsteinstrasse 20
85521 Ottobrunn
Germany
Phone +49 89 6088-2030
Fax +49 89 6088-4000
info@iabg.de
www.iabg.de

Berlin Bonn Dresden Erding Hamburg Hannover Karlsruhe Koblenz
Lathen Letzlingen Lichtenau Noordwijk(NL) Oberpfaffenhofen