WIND ENERGY

www.bksv.com/windenergy
Brüel & Kjær is headquartered in Denmark, the leading wind energy country in the world for the past 30 years.

Brüel & Kjær’s wind energy customers include top wind turbine manufacturers and leading sub-suppliers.

With probably the largest sound and vibration sales and support network in the world, Brüel & Kjær provides its customers with innovative solutions, systems and products covering the entire life cycle from design to operation.
BLADE DESIGN
Dynamic Pressure Fluctuation Measurement on Wind Turbine Blades

The aim of new design is to reduce noise levels from turbine blades and increase energy output by optimised blade aerodynamics, improve drive train reliability and lower maintenance and repair costs over the lifetime of the turbine.

Brüel & Kjær has teamed up with a world-leading blade manufacturer and renowned wind energy research centre to develop new measurement techniques that will lead to new blade designs.

Brüel & Kjær contributes to the group project entitled ‘Development of a Measurement Technique for Low-noise Airfoil Design and Validation’ by providing its world-renowned acoustic knowledge and experience, along with a diverse range of software and hardware.

The project is funded and sponsored by The Danish Energy Agency under the Energiteknologisk Udviklings- og Demonstrations Program (EUDP).

GEARBOX TEST RIG
Sound and vibration system for quality control

Brüel & Kjær’s test rig systems combine both sound and vibration measurements into one system.

The value and benefit for the customer is having a reliable, high-quality system that captures both sound and vibration measurements from one source at the same time in the same format. The ability to share, analyse and compare data from all locations worldwide is of great advantage and ensures high product quality for the end-user.

Leading gearbox manufacturers for wind turbines use Brüel & Kjær solutions to ensure their world-class quality and have installed Brüel & Kjær’s Data Acquisition and Analysis Systems in their production, on-site troubleshooting and R&D facilities around the world.
STRUCTURAL ANALYSIS

Our customers benefit from Brüel & Kjær’s complete and integrated offerings covering the entire sound and vibration measurement chain.

Top wind turbine manufacturers use Brüel & Kjær structural analysis solutions for various blade, gearbox, tower, nacelle and generator applications.

As a global leading sound and vibration supplier in the wind energy market, we deliver solutions, such as classic modal analysis, operational modal analysis, operating deflection shapes analysis and Test-FEA integration.

FIELD TESTING

From simple, single-channel measurements and handheld equipment to multi-channel structural dynamics, we can provide the equipment and the expertise to get it right first time. Several leading wind turbine manufacturers use Brüel & Kjær solutions for field testing of wind turbines worldwide.

Improve and optimise design through array technology

Our Pentangular Array is the newest in our range of array technology options for the wind energy market and provides localisation and identification of noise sources. This solution is transportable and the rugged design, battery-powered unit and rapid setup time of less than 10 minutes make it ideal for outdoor use.

A complete toolbox for field testing with handheld analyzer

Our Hand-held Analyzer is an advanced solution for sound and vibration measurement, analysis and recording and has an integrated digital camera. Measure, analyse and record results in the palm of your hand.

IEC 61400-11 Standard Measurement Solution

Simplify measurements according to the IEC 61400-11 standard with our new solution incorporating the best of our wide product range – from transducers to our world-renowned PULSE® platform. We cover the entire measurement chain and ensure that our transducers, acquisition systems and software applications perform and provide reliable and high-quality data.
Dynamic Wind Turbine Model Validation
Optimised design process with increased reliability and improved overall design

Together with partners, Brüel & Kjær has developed methodology for the validation of structural, aeroelastic and control models that are used in wind turbine design.

One example is the development of a Dynamic Wind Turbine Model Validation methodology that combines OMA and the Coleman transformation and takes into account correct boundary conditions, actual wind loading and aerodynamic damping.

Brüel & Kjær’s knowledge and expertise lie in its innovative algorithms combined with high-standard experimental techniques, which include sensor technologies, acquisition hardware and analysis software.

Brüel & Kjær’s Innovation Group specialises in complex algorithm design and has developed the validation of wind turbine simulation results.

NOISE MANAGEMENT
Noise Management of Wind Turbines and Wind Farms

Noise management of wind turbines and wind farms may be required for continuous noise monitoring to ensure that legal operating conditions are not breached, and to demonstrate to local authorities and communities that the business wants to be a good neighbour and limit its noise impact.

Brüel & Kjær has a wide range of noise monitoring terminals covering permanent installations and portable solutions for wind turbines and wind farms. The terminals can be remotely operated using a range of environmental noise monitoring and management software, as well as a subscription service plan.

Brüel & Kjær’s range of noise monitoring terminals is designed for external, unattended noise monitoring in all climatic conditions.
Brüel & Kjær offers a range of handheld options, for example, Handheld Analyzer Type 2270 for easy and accurate measurement, analysis and recording.

PULSE Reflex – Brüel & Kjær’s new world-class post-processing solution, includes PULSE Reflex Modal Analysis.

Brüel & Kjær’s Vibration Test systems provide comprehensive testing capabilities for small, medium and large wind turbine components.

The Brüel & Kjær Pentagonal Array System is a general purpose location, transportable beamformer intended for outdoor measurements.

Acoustic mapping of large stationary noise sources such as gearboxes or generators.


LAN-XI Notar works with any existing LAN-XI network.

Low frequency accelerometer.

Brüel & Kjær Pentagonal Array system is a general purpose location, transportable beamformer intended for outdoor measurements.

Surface Microphone for advanced studies of flow noise.

Automated Microphone Positioning 2D Robot Array.

The Surface Microphone for advanced studies of flow noise.

Acoustic mapping of large stationary noise sources such as gearboxes or generators.


Low-frequency accelerometer.

Brüel & Kjær Pentagonal Array system is a general purpose location, transportable beamformer intended for outdoor measurements.
Brüel & Kjær, in cooperation with Brüel & Kjær Vibro and HBM, offers:

- Complete solutions
- Integrated tools reflecting our wide experience and knowledge
- Reliability in both quality product and consultancy
- Solid foundation in key markets and cross-functional relationship with sub-suppliers
- Long-term partnership