Blade Testing

On-site
Proven technology
With yearly thousands of blade and tower welding examinations, we have a proven knowledge and expertise in blade testing on-site.
Wind turbine blades are highly sophisticated products, composed of a variety of materials and composites. During operational life, the blades are subjected to demanding forces and have to withstand different types of loads all acting upon the blades. Since it is critical to maximise energy production and return on investment, it is important to minimise the risk of downtime. Damaged or faulty blades can, however, affect both personnel safety and overall performance of wind turbines. Therefore, the blades should be repaired as part of the owners’ or operators’ preventive maintenance program. For this, wind turbine owners and operators rely on professional on-site blade testing.

Our scanner solutions are developed in close co-operation with the world’s leading wind turbine manufacturers. We are a co-owner of and take active part in the Danish Blade Test Centre, a testing facility specialised in prototype approval testing of blades. Other partners are Risø National Laboratory of Denmark and Det Norske Veritas (DNV).
ATS-2 detects any type of structural defects i.e. fatigue cracks or bond line failures during blade operation.
ATS-2 | BLADE TESTING ON-SITE

PORTABLE ULTRASOUND SCANNER

We offer wind farm owners and operators a selection of on-site blade test solutions aimed at different testing and documentation purposes. The solutions that are specifically developed and designed for on-site testing are: ATS-2 and MWS-6.

ATS-2 is a portable scanner solution for accurate automated testing of turbine blades on-site. ATS-2 detects any type of structural defects i.e. fatigue cracks or bond line failures during blade operation. The scanner can be configured with different types and numbers of Y-modules, probes etc. depending on the testing requirements. ATS-2 is recommended for fast examinations of wind turbine blades.

System interface
ATS-2 is delivered with an interface to any original P-scan system. P-scan is designed with special attention to fast set up time, small equipment size and ease of use and is thereby offering increasing productivity in use. Furthermore, the system has great flexibility to adapt to different testing situations and covers all major ultrasound testing techniques.

Technical specifications

<table>
<thead>
<tr>
<th>Velocities</th>
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<tbody>
<tr>
<td>X-direction</td>
<td>Max 100 mm/s</td>
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<tr>
<td>Y-direction</td>
<td>Max 250 mm/s</td>
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<table>
<thead>
<tr>
<th>Stroke</th>
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<tbody>
<tr>
<td>Y-direction</td>
<td>2 x 500 mm</td>
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</table>

<table>
<thead>
<tr>
<th>Object dimensions</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Minimum curve</td>
<td>R 1000 mm</td>
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<tr>
<td>Minimum width</td>
<td>400 mm</td>
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</tbody>
</table>

FEATURES

- Portable collapsible structure, fit for easy transportation
- Track scanner for on-site examinations of segments of wind turbine blades
- Automated X Y scanner
- Two independent Y modules for compliance with curved surfaces
- Y-rails may be curved and supported by rollers for adaptable compliance
- Track suspended by robust frames attached to the object with vacuum suction cups
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MWS-6 is manually operated scanner, mainly used for semi-automated inspection of composite materials. It is an ideal portable solution for random spot check of erected blades, installed on-site. This device may easily be operated from an erected platform, along installed rotor blades.

**System interface**
MWS-6 is delivered with an interface to any original P-scan system. P-scan is designed with special attention to fast set-up time, small equipment size, and ease of use and is thereby offering increasing productivity in use. Furthermore, the system has great flexibility to adapt to different testing situations and covers all major ultrasound testing techniques.

### Physical specifications

| Width x length x height | 84 x 217 x 161 mm |

### FEATURES

- Scanner body with one probe holder and encoder wheel
- The scanner has two operator-programmable function buttons
- Accessories for scanning parallel with edge contour
We are among the leading technological consulting and service companies in Denmark and internationally. We make a targeted effort to sell highly specialised engineering knowledge for practical and cost-effective solutions to a wide range of businesses and industries. The solutions enhance customer competitiveness and are based on the customer and industrial insight that we have acquired over more than 70 years.

We are more than 1,300 employees located at the headquarters in Brøndby and in local offices all over Denmark and in the subsidiaries in Sweden, Norway, China, the USA and Singapore.

Wind turbine industry
Our division Sensor & NDE Innovation provides a wide range of technological consultancy services and actual solutions with the purpose of optimising and rendering the wind turbine industry's productivity more efficient.

We are worldwide leaders when it comes to applying the most innovative and effective sensor technologies to the wind turbine industry.

Example of use of our sensor technologies:
• On-site testing of blades and towers
• In production testing of blades and towers.

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