Ensuring quality and efficient inspection

We know that blade quality is a key issue for the long-term rotor blade performance. The AMS-60 Mobile Blade Scanner indicates fiber misalignments and UD fiber waviness (wrinkles) in Spar Caps and Girders, along with laminate integrity, delaminations and voids.

The scanner is designed to be used on vertically oriented blades and it only requires one operator to manage the entire inspection. A complete blade survey is accomplished in a short inspection time around 2 hours.

Advantages

• self-propelled autonomous scanner unit
• single man scanner operation
• simultaneous meander surface and line scanning
• high inspection speed
• inspection of vertically oriented blades
• mapping of main Girder laminates and bond-lines visualization
• assessment of UD fiber waviness - wrinkles and undulations.

The AMS-60 Mobile Blade Scanner is dedicated to perform non-destructive testing (NDT) on vertically oriented rotor blades. The scanner makes continuous NDT on very long rotor blades feasible which will reduce production costs and ensure product quality.
**Application**
AMS-60 is an automated scanner device for ultrasound inspection of Spar Cap Girder structure of fibre reinforced rotor blades for wind turbines. The inspection is performed with a forklift mounted scanner while the Spar Cap Girder structure of the rotor blade is placed vertically. The inspection includes simultaneous:

- Line scans for indications of GFR waviness (wrinkles) along the length axis of the Spar Cap Girder structure with two probes in fixed position
- Meander surface scan across the Spar Cap Girder structure for mapping indications of laminate defects, for example dry fiber areas.

During inspection, the forklift is driven by the operator along the rotor blade. The operator positions the scanner unit at the correct position (height) with help of video camera. The scanner unit is mounted on a motorized arm that forces the probes against the blade surface and compensates for the changing distance.

**Design**
The AMS-60 includes a scanner unit, which is connected to a motorized swing arm system. The arm is mounted on the crane of the forklift tower. The tower is used to elevate the scanner unit to the desired height.

The auxiliary equipment needed for operating the system is placed in at cabinet mounted on the front of the forklift. The forklift provides electrical power to the inspection system so no external power cables are needed during scanning operation.

**Scanner unit**
The scanner unit consists of a frame equipped with two scanning Y-modules, carrying 2-4 probes, and a set of 2-4 fixed stationary line scan probes. The frame also has three contact wheels and is connected to the base frame though horizontal joints.

The base frame is connected to the swing arm though a vertical joint. The two sets of joints together with the three contact wheels makes sure that the scanner unit is aligned with the blade surface when it is moved against the blade surface.

**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<tbody>
<tr>
<td>Height x width x length (min.)</td>
<td>2.6 x 1.1 x 3.22 m</td>
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<tr>
<td>Weight</td>
<td>3 ton</td>
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<tr>
<td>Inspection height (centre line)</td>
<td>max 4 m</td>
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<tr>
<td>Speed</td>
<td>Pre-selected inspection speeds 1-7 m/min</td>
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<tr>
<td>Noise emission</td>
<td>&lt; 70 dB</td>
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Further information
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