Ultrasonic flaw detection of large-scale wind turbine blades

Overview

In view of the problem that the high noise and data redundancy in the voiceprint signal of the wind turbine blade lead to insufficient diagnostic accuracy and real-time performance and increase the acquisition cost, this paper combines sparse representation, compressed. In view of the problem that the high noise and data redundancy in the voiceprint signal of the wind turbine blade lead to insufficient diagnostic accuracy and real-time performance and increase the acquisition cost, this paper combines sparse representation, compressed. In-service wind turbines blades are subjected to high levels of stress. Consequently, the bonding between the blade's structural beams and shell must be characterized during manufacturing to help ensure blade integrity. The blades should also be clear of defects, such as delamination and wrinkles. The. non-destructive testing of wind turbine blades. However, it is fact that the ultrasonic flaw detection me hod has inefficiently employed in recent years.

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Failure monitoring and localization of wind turbine blades using

Ensuring effective monitoring of WTBs is vital to maintaining safe operation and mitigating failure risks. This study presents a structural health monitoring (SHM) system for WTBs ...

Wind turbine blade damage detection based on acoustic signals

This study explores the use of noise emitted during wind turbine operation for the assessment of blade structural integrity.

Research on damage detection technology for wind turbine blade ...

This study adopts a wind turbine blade damage recognition method that combines deep learning, compressed sensing, and sparse representation to enhance the accuracy and real-time ...

Damage identification of wind turbine blades based on deep

learning ...

To automate UT in the wind turbine industry, an image detection model based on deep learning called UCD-YOLO (Ultrasonic C-scan image Detection You Only Look Once) is proposed to ...

Inspection of Composite Wind Turbine Blades with Advanced ...

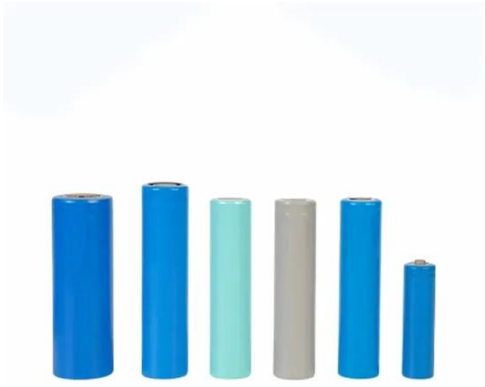
This paper illustrates how advanced ultrasonic phased array technology contributes to the improved integrity of composite wind turbine blades during manufacturing.

The application of ultrasonic phased array technology in wind turbine

In view of the above problems, this paper studies the non-destructive testing technology based on ultrasonic phased array to detect the blade defects of wind turbine, and analyzes the

Improved Inspection of Composite Wind Turbine Blades with ...

Materials used to construct wind blades, such as fiberglass and carbon reinforced plastics (CRP), pose particular challenges to ultrasonic inspection, and the industry



has been searching for a simple and ...

A Novel Defect Estimation Approach in Wind Turbine Blades Based ...

Based on an intermediate value between the maximum and minimum values, the calculation of the phase velocity threshold is used for defect detection, location and sizing. The operation of the ...

Ultrasound-based identification of damage in wind turbine blades ...

This work proposes the use of novelty detection methods combined with nondestructive ultrasound testing to identify structural problems in wind turbine blades. Ultrasound signals are ...

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