

The Development of a Shearography Device and Its Applications

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Summary

Composites which are considered to be a sort of high-performance materials have been used in the aerospace industry, as well as other industries. Due to the high quality standards and the applicable safety purposes, highly precise and non-destructive test methods are highly demanded for both manufacturing and maintenance. This talk describes the portable shearography device which is developed in Shanghai University. The laser projection and inspection sensor are integrated and mounted on the tripod to meet the requirement of field inspections. Two loading systems including thermal and vibrating are introduced to achieve repeatable test results. Real-time phase shifting dramatically improves the image quality and the measurement of the defect size becomes possible. Examples illustrate that this system is efficient to detect material defects, such as delaminations, air bubbles or inclusions of foreign particles in composite materials. The application of the shearography device can substantially improve the quality assurance of composite structures.

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