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Embedding Technologies of FBG Sensors in Composites: Technologies, Applications and Practical Use

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Surface mounted optical fibre sensors, like Fibre Bragg Grating (FBG) sensors, are gaining increasing attention in the field of experimental stress analysis and health monitoring of structures and gas turbines. Optical fibres lend themselves to integration within composite structures due to their small size and fibrous nature. But optical fibres are vulnerable at the ingress and egress regions of the composite structure. This makes the manufacturing process difficult and expensive. NLR has developed two embedding techniques to avoid the problem with emerged fibres from the laminates during manufacturing by hand lay-up as by fibre placement robot technology. These embedding techniques will be explained in this paper.

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Ключевые слова:

Содержание

Abstract

Introduction

Embedded optical fibre sensors in composite materials

Embedding techniques

Mechanical testing

Conclusion