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Spring-back of Thick Uni-Directional Carbon Fibre Reinforced Composite Laminate for Aircraft Structure Application (Conference Paper)

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Abstract

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The springback phenomena of CFRP after curing process through autoclave manufacturing method results on the out of tolerance for its utilisation in aerospace industry. This paper relates to the measurements of springback for Uni-directional flat laminate as a first steps to the springback study for the real aircraft composite laminate structures. A flat laminate with dimension of 300 mm x 300 mm, 400 mm x 400 mm and 500mm x 500 mm with different number of ply; 20, 24 and 28 are manufactured. The choice of dimension and number of lay-up corresponds to the dimension and lay-up of rib structure. After process, the springbacks are measured using 3D scanner (optical-based three-dimensional) with an accuracy of 42 micrometers to obtain an accurate measurement. The analysis of the effect of dimension and number of ply to the magnitude of springback are presented within the range of specimen studied in this work.

Indexed keywords

Engineering controlled terms: Aerospace engineering | Aerospace industry | Aircraft manufacture | Airframes | Carbon fibers | Fiber reinforced plastics

Compendex keywords: Accurate measurement | Aircraft structure | Carbon fibre reinforced composites | Curing process | Manufacturing methods | Measurements of | Real aircraft | Rib structure

Engineering main heading: Laminated composites

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