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Abstract

Fiber reinforced plastics are being used as different niche products in automotive, aerospace and plant engineering industries due to their lightweight potential and superior mechanical properties in comparison with traditionally used materials. Using structurally integrated actuators, single-axis and joint free adaptive fiber reinforced plastic components can be realized. In this work, the development of adaptive pleated fiber reinforced plastics based on shape memory alloys is reported. Furthermore, simulation supported deformation behavior of developed samples is investigated by varying the pleat height, pleat thickness and the spacing between two pleats. The deformation behavior of the adaptive pleated fiber reinforced plastics predominantly depends on the pleat height and spacing between two pleats.

Keywords