Developments of Manufacturing Processes by Twice Core-Foaming for Composite Sandwich Structures

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ABSTRACT

The research is going to develop new manufacturing processes for the composite sandwich structures and tubes. However, this method is going to adopt the foam as the core stuff. In the processes, the foam will be applied to product pressure to expand the long-fiber composite structure tubes. The methods will increase the product stability and reduce the extra works for processes of mending, which will decrease the cost and promote the competition abilities of the products. To develop lightweight sandwich composite structure in the past, the thermosetting plastic were the major parts of core and the exterior-mold pressure was the integrant pressure during the curing processes which cause lot of more part lines and more patch-up. However, the Blown film method was used to manufacture composite tube structures and frequently cause the uneven pressure make the phenomenon of the uneven strut-wall thickness. Therefore, these methods will decrease the quality of product and stability. This research is going to use the thermoplastic and second foaming produced the interior pressure are substituted for the original methods, the Blown film and the thermosetting core. The present method will decrease the number of parts lines and offer enough pressure by foaming for the air bubble discharged from the laminated composite. The aspects of the research will discuss the relationships between foaming ratio, pressure and temperature.

Keywords : composite ; foaming ; sandwich structures

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