

Analysis of Delamination in Drilling of Composite Materials

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Abstract : In this paper analytical model based on the mechanics of oblique cutting, linear elastic fracture mechanics (LEFM) and bending plate theory has been presented to determine the critical feed rate causing delamination in drilling of composite materials. Most of the models in this area used LEFM and bending plate theory; hence, they can only determine the critical thrust force which is an incorporable parameter. In this model by adding cutting oblique mechanics to previous models, critical feed rate has been determined. Also instead of simplification in loading condition, actual thrust force induced by chisel edge and cutting lips on composite plate is modeled.

Keywords : composite material, delamination, drilling, thrust force

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