

عنوان مقاله:

Machining Operation Parameters in Drilling Process; Variation of Thrust Forces in Epoxy Based Nanocomposites

محل انتشار:

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خلاصه مقاله:

During the past decade, polymer nanocomposites have emerged relatively as a new and rapidly developing class of composite materials and attracted considerable investment in research and development worldwide. Direct machining of polymers can be an option for personalized products and for manufacturing product samples. To obtain high quality products and reduce machining costs, it is very important to understand the machining conditions so as to achieve enhanced machining performance. The influence of machining parameters (feed rate) and tool type (cemented carbide, HSS and coated HSS) on thrust force in drilling of epoxy, epoxy/clay and epoxy/TiO₂ nanocomposites are investigated. Variation of input parameters, feed rate and tool type affects the thrust force. The cemented carbide tool creates less thrust force than HSS and coated HSS tools. The thrust force in drilling process of epoxy/TiO₂ nanocomposite was more significant than epoxy resin and epoxy/nano clay. The minimum thrust force (13 .N) was obtained in feed rate of 0.02 mm/tooth in neat epoxy with carbide tool

کلمات کلیدی:

Drilling, Machining Parameters, Tool Type, Nanocomposites

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