

High-speed photographic study of chip formation during end milling of GFRP composites

Abstract

The chip forming process during end milling of glass fibre reinforced composites has been investigated in this study. The qualitative results from a high speed video camera has showed that discontinuous and fracturing of chips has been created due to the heterogeneity and insufficient ductility of the composite materials. The high-speed photography footage has also disclosed that a layer of delaminated chip can be formed as the tool cutting edge fractured the workpiece along the fibre orientation. The fracture of chips into smaller segments accelerated as the cutting speed increases. Likewise, shorter fragment of chips were created as the tool cut at different fibre orientation or angle. This makes it difficult to denote any chip formation processes during the end milling experiments.

Keywords; Chip Formation, Fibre Reinforced Polymer Composites, Machining, Milling