

Experimental investigations on drilling of polymer matrix composites and GFRP/Aluminium stack

Scholar: Raja R

Abstract:

Glass fiber reinforced composite laminates were prepared by hand lay-up method. The woven fibers of 80 gram per square meter were used throughout this work. Three types of laminates were prepared (Cross ply, angle ply and random orientation). In this investigation drilling studies were conducted on GFRP composites made up of three different thermo-set resins namely epoxy bisphenol and vinyl ester. The tool used in the experimentation was twist drill bit of cemented carbide. An attempt was made to study the influence of drill bit material on the drilling of GFRP composite. Machine tool parameters such as spindle speed, feed rate and twist drill bit material were varied at three levels. Use of Glass-fibre reinforced plastic (GFRP) in the commercial aircraft along with aluminium or along with titanium is increasing. The work materials used in this experiment are GFRP laminate and Aluminium 2024 alloy. It is found that delamination effect is reduced by stacking.