

An experimental study of low velocity impact (LVI) on fibre glass reinforced polymer (FGRP)

Abstract

This paper investigates the low velocity impact load and absorbed energy corresponding to the incident impact level of Type C-glass/Epoxy 600 g/m² and Type E-glass/Epoxy 800 g/m² composites. A number of low velocity impact test were performed under various incident impact energies ranging from approximately 5 to 20 J using a drop weight impact tester. Results showed that peak impact load and peak energy increase with an increase in incident impact energy. The absorbed energy increases with an increase in incident impact energy. 10-ply Type E-glass/Epoxy 800 g/m² has a higher impact resistance compared to 10-ply Type C-glass/Epoxy 600 g/m². Therefore, Type E-glass/Epoxy 800 g/m² is recommended as the material for low velocity impact.

Keyword: Drop weight test; Fibre glass reinforced polymer (FGRP); Low velocity impact (LVI); Impact damage; Non-destructive testing (NDT)