

Simulation and Experimental Work on a Thin-Walled Structure Under Crushing

ABSTRACT

This study investigates a thin-walled cylindrical structure subjected to impact loading. Both simulations and experiments were performed to predict the deformation mode and its deformation rate. In the simulation, a three-dimensional finite element model of a soft drink can was developed and post-processed using ANSYS and LS-DYNA commercial packages, respectively. The experimental work was carried out by dropping a flat weight from a certain height to crush the specimen, using a drink can to represent the thin-walled structure. A high-speed camera was employed to capture the entire process of the crush. The simulation and experiment showed strong agreement.

Keyword: Thin-walled structure