

A review on crashworthiness studies of crash box structure

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ABSTRACT

Many studies have focused on the topic of vehicle safety, including the study on crashworthiness. In vehicle, a crash box structure is an integral component for ensuring the safety of a car. It serves as an energy-absorbing member, together with the front bumper in case of frontal collision during car accidents. Therefore, special attention has to be given towards this structure in order to have better understanding regarding its mechanism of deformation and absorbing kinetic energy from the collision, as well as on how to obtain good crashworthy properties from this structure. This study, primarily, is based on extensive literature survey pertaining to the topic of crash box. As the topic of energy-absorbing member in a car is extensive, this review solely focuses on crash box structure. The main motivation of this paper is to summarise the different approaches and aspects of researches performed on car crash box structure to gain comprehensive knowledge regarding the study on crash box.

KEYWORDS

Energy-absorbing member; Thin-wall structure; Crash optimisation; Crashworthiness enhancement; Finite element model

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