

Two materials S-frame representation for improving crashworthiness and lightening

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In this paper, different designs of a simplified front side rail structure of an automobile body (S-frame) from the point of view of crashworthiness and weight efficiency is studied. Various possible models of S-frame is presented and characteristics of each models are compared and discussed. It is shown that a hybrid S-frame made of steel and aluminum shows better characteristics from the point of view of passenger safety and weight efficiency