

Lightweight Design Method for Car Body by Structural Optimization

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A structural optimization method is one of the design technologies for weight reduction. To obtain a lightweight structure using a structural optimization method for a vehicle structure with a framed structure such as a conventional line train, it is necessary not only to use the optimization algorithm but also to set various constraints so that a manufacturable shape can be derived. we develop a structural optimization method aiming at reducing the weight of the framed structure and derived a lightweight carbody structure that can be actually manufactured. Furthermore, we verify that the structure is feasible by constructing a full-scale one for tests. This paper introduces the developed structural optimization method.