

Evaluation of Carbody Strength against Loads from the Side

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It is a regretful fact that despite ongoing efforts to reduce accident risk and ensure the safety of railways, fatal accidents sometimes still occur. At the Amagasaki accident in April 2005, one carbody was severely damaged by the side impact. For evaluating the carbody side strength, we performed static and dynamic compression tests using full-size partial carbodies and FE analyses under the same loading conditions as the empirical tests. The numerical results by FE analyses were consistent with the empirical results in terms of the load-time characteristics as well as deformed shape of carbodies. We developed a method for the evaluation of the impact deformation behavior of carbody against loads from the side by using FE analysis.