

V A a T H S S S S A m W R L

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Abstract:

Simulation and evaluation of automotive body structural performance using CAE are indispensable for expanding the application of high strength steel sheets as a means of promoting weight reduction in automobile. JFE Steel has established a new environment for these application fields in order to establish Early Vendor Involvement (EVI) for automotive makers. As examples of application technologies supporting expanded use of high strength steel sheets, this paper introduces prediction/evaluation technologies using analytical techniques and joining techniques, as well as related systems which develop these technologies, and also describes part of JFE Steel's efforts in application evaluation technology.

1. Introduction

As the automotive industry moves toward weight reduction, the use of high strength steel sheets is becoming increasingly important. To support this trend, it is necessary to develop technologies for predicting and evaluating the structural performance of automotive body parts made from high strength steel sheets. In this paper, we introduce prediction/evaluation technologies using analytical techniques and joining techniques, as well as related systems which develop these technologies. We also describe part of JFE Steel's efforts in application evaluation technology.

2003.

The use of high strength steel sheets in automotive body parts has been increasing. To support this trend, it is necessary to develop technologies for predicting and evaluating the structural performance of automotive body parts made from high strength steel sheets. In 2003, we introduced prediction/evaluation technologies using analytical techniques and joining techniques, as well as related systems which develop these technologies. We also describe part of JFE Steel's efforts in application evaluation technology.

2. Prediction/evaluation technologies

In this section, we describe prediction/evaluation technologies using analytical techniques and joining techniques, as well as related systems which develop these technologies. We also describe part of JFE Steel's efforts in application evaluation technology.



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Fig.4 Estimation of Crash behavior by using CAE

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Fig.5 Accuracy of CAE estimation with/without strain rate effects

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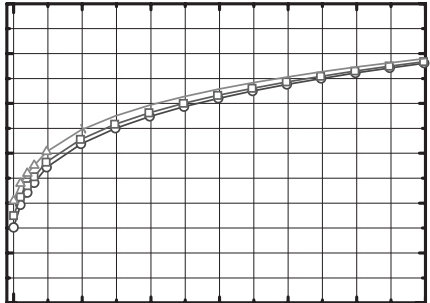


Fig.3 Strain rate sensitivity of stress-strain curve of mild steel

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