Forming Technology

Forming Technology Research Department is developing new technologies of forming and performance evaluation to apply our advanced steels to automotive bodies effectively. We support automotive customers with the developed technologies through EVI (Early Vendor Involvement) activities.

New Forming Technology

New forming technologies are being developed to improve formability of high strength steels especially by applying state-of-the-art techniques like press-motion control of a servo press machine. Prototyping is ongoing on difficult parts such as complex shape panels and UHSS structural parts. JFE can support customers by the development of not only advanced steel sheets but also forming technologies.

CAE Technology

CAE technologies are being developed, for example with more sophisticated models of Bauschinger effect and elastic/plastic anisotropies. The accuracy of CAE prediction is improving in various issues in press forming such as fractures, wrinkles, stretch-flange-fractures, springback, and surface distortion. With our advanced CAE technologies, we can offer our customers solutions to various forming issues.

Performance Evaluation of Automobile Body/Part

Strength, rigidity and durability of automotive bodies and parts are evaluated by numerical and experimental analysis. Based on the data, we propose suitable materials, shapes, and joining conditions to our customers for the development of bodies and parts.

Analysis of Automotive Body Structures

Our database of automotive body structures and materials is being updated through performance evaluation and disassembly investigation. Based on the database, suitable materials, structures, and fabrication processes are proposed to our customers considering weight and cost reduction, and structural optimization.

Weight percentages of various strength steels in automobile body

Projected area of vehicle (m²)
Torsional rigidity (N·m/deg)

1470MPa 1%
1180MPa 6%
780MPa 13%
590MPa 37%
440MPa 5%
270MPa 39%