Center for Precision Forming (CPF)

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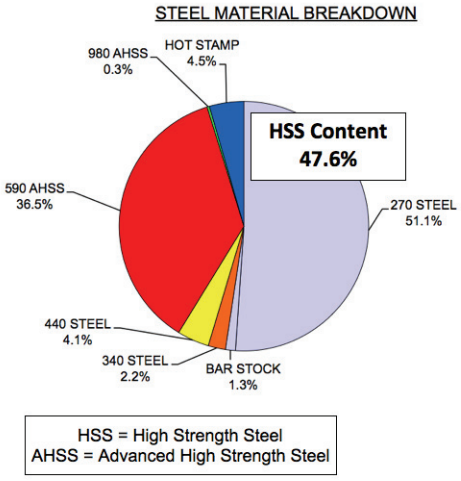
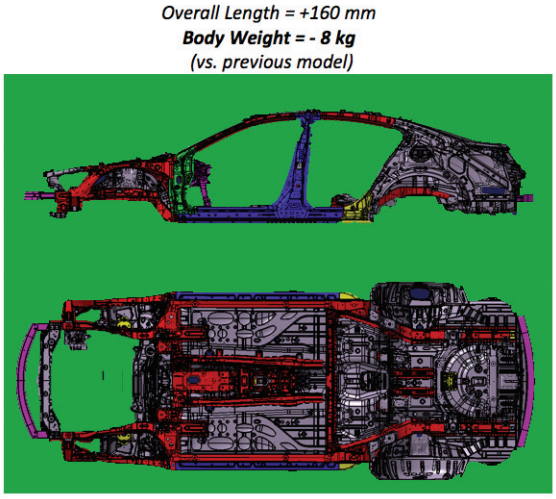
Forming Advanced High Strength Steels (AHSS)





Technology to manufacture automotive components from AHSS assists the automotive industry and its suppliers in producing vehicles that are light in weight, use less fuel, and reduce pollution. Members of CPF such as Honda, General Motors and Johnson Controls are benefiting from CPF's research on forming AHSS.

Research at the Center for Precision Forming focuses on aspects of forming behavior of high strength steels including: stamping, bending, edge cracking, die wear, lubrication, hot stamping, etc. Knowledge gained from this research will assist further implementation of advanced high strength steel (AHSS) in the automotive industry with the obvious benefit of lighter weight vehicles with resulting improvements in fuel economy and decreased carbon emissions.

Mild steel has traditionally been used for vehicle structures and closure panels because of its low cost and good formability. Implementation of AHSS can enable the use of thinner gage sheet (less volume and less mass) for comparable structural performance. The challenge is that AHSSs are much more difficult to form and assemble. This research advances the forming technology. Due to their higher strength, the automotive parts made from these steels exhibit considerable springback so that maintaining the part shape and tolerances requires a deeper understanding of the mechanical characteristics of these materials.

CPF is further developing well-known tests and developing new methods for predicting springback and for forming these materials to defect-free components for use in automotive manufacturing. The direct result is mass reduction without sacrificing performance and safety.

> **Economic Impact:** This forming technology advancement will help proliferate AHSS in vehicle structures through improves stamping, trimming and assembly procedures for automotive sheet metal components; thus improving the viability and competitiveness of the U.S. automotive industry. Because this technology assists in producing vehicles that are lighter weight, more fuel efficient and less polluting, the economic impact on the nation should be significant.

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