



FutureSteelVehicle

7 Key Achievements

State-of-the-future design innovations that showcase steel's versatility and strength

Achieves 35% body structure mass savings

Uses 97% HSS and AHSS

Uses nearly 50% GigaPascal steels

Enables 5-star crash safety rating

Reduces total life cycle emissions by nearly 70%

Reduces mass and emissions at no cost penalty

The global steel industry continues the reinvention process of steel in the automobile. In the quest for more environmentally friendly vehicles, it is necessary to rethink the design of the car to host fundamentally different powertrains. New advanced hybrid, electric and fuel cell powertrains will radically change automotive structures and the material choices.

The FutureSteelVehicle (FSV) program delivers auto body concepts that address radically different structures for advanced powertrains, such as advanced hybrid, electric, and fuel cell systems. The goal of the research is the demonstration of safe, lightweight steel structures for future vehicles that reduce greenhouse gas emissions over the entire life cycle.

FSV uses state-of-the-future design optimization methodology coupled with an expanded portfolio of high-strength (HSS) and advanced high-strength steels (AHSS) and an array of steel technologies to achieve 35% mass savings in a battery electric vehicle (BEV). In addition, life cycle emissions are reduced, while enabling 5-star crash safety performance and maintaining steel's affordable costs.

In 2009, Phase I featured a comprehensive assessment and identification of advanced powertrains and future automotive technology applicable to high-volume vehicle production in the 2015-2020 timeframe. Phase 2, completed in 2011, developed optimized AHSS body structures for four proposed vehicles: battery electric and plug-in hybrid electric (PHEV-20) A-/B-Class vehicles; and plug-in hybrid electric (PHEV-40) and fuel cell (FCV) for C-/D-Class vehicles.

FSV is the fifth in a series of automotive steel research projects, following the UltraLight Steel family of projects, which revolutionized the kinds of steels normally applied to automobiles, as well as demonstrated innovative steel vehicle designs. In total, this body of research represents an \$80 million investment by the global steel industry. The application of these research findings is seen globally in many vehicles on the road today. FSV is expected to stimulate similar developments in upcoming advanced powertrain vehicles.

