

STEEL S4 EV

STEEL Solutions for Safe and Smart Structures of Electric Vehicles

Manufacturing solutions

MIG/MAG

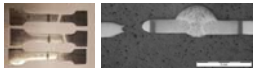


Laser welding



- Fiber connector
- Laser optics
- Cross jet
- Shielding gas nozzle
- Turret
- Robot
- Clamping device

Evaluation to ensure good mechanical joints properties, even for fatigue loads



Materials

Advance High Strength Steels (AHSS)

- | Materials | Color |
|---------------------------|------------|
| Steel DP800 | Grey |
| Steel DP1200 | Orange |
| Rigid element | Yellow |
| Aluminum | Cyan |
| Rubber | Dark Grey |
| Plastic (by rotomoulding) | Light Grey |
| Composite battery tray | Blue |



Modular design

Modular structure



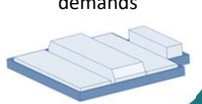
Modular powertrain

4WD through two identical motorised axles



Modular battery pack

up to 50 kWh to satisfy different market demands



LCA



- Energy demand and GHG emissions reduction for the chassis production by replacing primary steel with secondary steel
- Improving vehicle safety does not lead to a higher price or greater environmental impact.

Plan for efficient **recycling** and facilitated disassembling of the designed vehicles



Structural design for frontal and lateral crash and vulnerable road users protection

Designed and tested under Euro NCAP protocols for M1 vehicles



Frontal crash

- OLC: 38,9g
- Intrusions:
 - Floor areas < 18,8 mm
 - Steering column < 24,0 mm
 - Cockpit < 14,8 mm



Lateral crash

- Maximum deceleration < 29,5g
- No important intrusions (6,1 mm)
- Biomechanical values lower than threshold



Conclusions

- Optimised modular vehicle design
- Selected manufacturing processes to ensure HSS properties
- Good safety performance
- Minimum environmental impact and costs

Learn more: www.steel-s4-ev.eu

Consortium



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