

Sup3rForm

Exploiting the full potential of **3rd Generation Q&P** and **medium-Mn steels** with superior formability for **lightweight structural applications** in future mobility



Formability of Q&P and medium-Mn steels

Investigating the global and local formability of new Q&P and medium-Mn steels and determining the main damage and deformation mechanisms.

Fracture toughness

Performing investigations to better understand the deformation and fracture mechanisms of Q&P and medium-Mn steels.

Microstructural modelling of AHSS

Developing high-resolution digital microstructural models with dislocation-based crystal plasticity models to represent the complicated microstructure of Q&P and medium-Mn steels and the underlying mechanisms.

Weldability

Investigating different experimental and numerical methods for an accurate description of the spot weld performance of Q&P and medium-Mn steels under both quasi-static and dynamic loads.

Crash resistance

Generating relevant insights about the crashworthiness of Q&P and medium-Mn steels and the influence of microstructure on crash ductility.

Fatigue

Providing further knowledge on the influence of microstructure on the fatigue resistance of Q&P and medium-Mn steels.

Edge fracture and crash modelling

Boosting a fracture-energy criterion to predict the energy absorbed at crack nucleation and propagation.

Consortium:



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