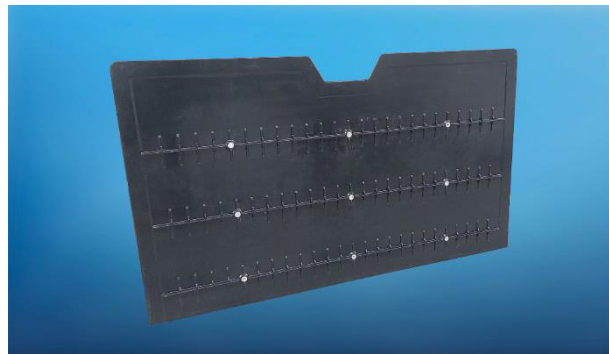


SUCCEED IN TRANSFORMATION

Mubea



Thermoplastic Underbody Protection



Innovation:

- › Underbody protection made of continuous reinforced thermoplastic material
- › Application of different fibers (glass, flax, etc.)
- › Combination of different process technologies
- › Integration of fixing elements, inserts possible
- › Suitable for high volume production technologies
- › Fully automatized production

Customer Benefit:

- › Cost- and weight saving compared to aluminum
- › Usage of thermoplastic joining methods
- › Better thermal insulation compared to metal applications
- › Non-conductive and non-corrosive material
- › Improvement of acoustic behavior (compared to metal protection)
- › Reduction of CO2 footprint
- › Increased vehicle range and payload

Status:

- › Process development ongoing
- › Further validation of mechanical performance