

Category : Aircraft Interiors

Winner : Expliseat (France)



Partners : RocTool SA (France),
Hexcel (France),
Tencate Advanced Composites (Netherlands),
A&P Technology (USA)

Name of Product or Process :

The Titanium Seat

Description :



This aircraft seat, more than twice as light as the best competitors, is the most efficient economy-class seat for the A320 and B737 families. The Titanium Seat is the first composite aircraft seat to pass dynamic 16g crash tests.

At 4kg per passenger, this seat reduces fuel consumption for a saving of \$300,000 to \$500,000 per year per aircraft. Its combination of a composite-titanium structure and simple assembly makes it the market's top-performing seat.

The Titanium Seat was developed as a joint effort, using specific technologies such as RocTool's latest 3iTech® technology, where inductor coils are directly integrated in a steel compression mould. This unique technology was an ideal fit for Expliseat's requirements and part design challenges.

Expliseat was also looking for a high-strength fibre that would be compatible with the specific thermoplastic resin system developed for the application and, moreover, that would be unsized. HexTow® AS4 12k is perfectly suitable for Tencate's process and, in combination with the thermoplastic resin, it performed so well that it passed the most demanding tests for seat structures.

TenCate worked with Expliseat's team to establish the best resin/fibre combination for optimal mechanical performance, while adhering to stringent FST requirements.

The Titanium Seat provides 5 major advantages:

- ✓ Low weight due to its composite structure, resulting in fuel savings
- ✓ Robustness, with a subtle balance between composite and titanium
- ✓ Industrial scalability, using unique moulding technologies
- ✓ Reliability, with best-in-class composite materials
- ✓ Comfort, since composite moulding provides complete design freedom

Category : Consumer Electronics

Winner : Motorola Mobility (USA)



Partners : RocTool SA (France),
CompLam (Taiwan),
Ju Teng International Holdings Ltd. (Taiwan)

Name of Product or Process :

All-thermoplastic composite smartphone back covers

Description :



This innovation uses a lamination technique that allows high-volume production of thermoplastic composites in a wide variety of colours and weave patterns. Two products were made: the MotoX and the Ultra.

The MotoX has a rear housing made of PC/PET composites. Its excellent post-forming surface quality allows multiple finishing options such as high-gloss, low-gloss, or soft-feel painting.

The Ultra consists of a single-body housing designed with PC/PET/Kevlar composites. It has a “wrapped” 3D unibody that can be branded as “Kevlar strong”. The forming technology used provides excellent surface quality and allows high-gloss painting.

This innovation allows high-volume production thanks to best-in-class cavitation and cycle time when using the RocTool system. The combined forming capacity for the MotoX and Ultra is higher than 50,000 units per day. The products display an excellent surface quality and cosmetic appearance. The final product is a highly cosmetic, dimensionally stable thermoplastic composite, which fulfils the cosmetic standards of the smartphone industry.