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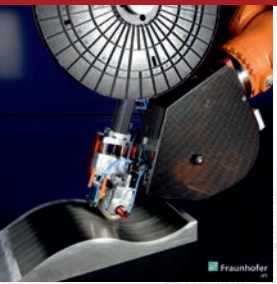
Selective tape-laying for cost effective manufacturing of optimised multi-material components



www.stellar-project.eu

Project Aim

The aim of the Stellar project is to develop the manufacturing process for high-speed placement of carbon, glass and polymer fibre reinforced matrices, in selected locations in a composite structure, to provide the optimum reinforcement, weight and cost profile within a part.

Concept

The concept of this project is to develop the design methodologies, manufacturing processes, equipment and control systems needed for localised placement of different fibre-reinforced thermoplastic composite tapes onto different substrates, creating locally reinforced components that are fully weight-optimised.

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Automated Tape Laying Development

To achieve this, the project will focus on development of the Automated Tape Laying (ATL) process to selectively place reinforced thermoplastic tapes in three manufacturing routes:

- Selective reinforcement of existing components
- Direct additive manufacture of components
- Manufacture of selectively reinforced tailored blanks for compression moulding

Outcomes

The manufacturing process developed will have a significant effect on the weight of structures, as for the first time it will allow different reinforcement fibres to be used synergistically in the same thermoplastic polymer matrix, to produce hybrid multi-material structural components with optimised performance and weight.

Project Partners

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