HAIRMATE

Hybrid AIRcraft seating MAnufacturing & TEsting



LEITAT

Acondicionamiento Tarrasense



AMADE Universitat de Girona



ALPEX ALPEX Technologies GmbH

Motivation

Within the HAIRD project a new seating with reduction of Deep Vein Thrombosis (DVT) risk, multi-functionality and simple surfaces for composite manufacturing was designed.





Sub-component definition and description

The combination of SMC, WCM, and PCM is very promising to realize complex, integral and hybrid part. Interfaces, process technologies and tooling have to be developed. ALPEX will produce a tooling system for 4 parts: seat rest and back structure inner and outer shell as shown below.

Fig. 1: HAIRD seating structure.

HAIRMATE improves the HAIRD seat based on a seat redesign through FEM simulations and manufactures moulds for manufacturing and testing the next generation aircraft seating using efficient manufacture processes and low-cost carbon-fibre based materials:

- Sheet Moulding Compound (SMC)
- Wet Compression Moulding (WCM)
- Prepreg Compression Moulding (PCM)

Project ambitions and objectives

Ambition 1: Moulds design and manufacturing for SMC, WCM and PCM processes.

Ambition 2: Life Cycle Assessment Data

projects and business development.

Ambition 3: Full validation and testing of the seating.

Ambition 4: Improve the robustness of the product through

Fig. 2: Sub-components of HAIRD seat structure

Physical and numerical testing

Tests will be performed to define the mechanical and fire safety properties of the materials developed for manufacturing of the seating. Full-scale seating will be tested to investigate the structural reliability and to enhance the HAIRD seating design to the industry and thus to the market.



Fig. 3: (a) physical testing (b) numerical testing

Key dates and facts



Grand agreement Nr.:	821300
Project start:	Nov. 2018
Project end:	Oct. 2022
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