

PROJECT

IIAMS

Innovative Infusion Airframe Manufacturing System

Funding: European (Horizon 2020)

Duration: Oct 2018 - Mar 2020

Status: Complete

Total project cost: €2,846,625

EU contribution: €1,992,638



Call for proposal: H2020-CS2-CFP07-2017-02

[CORDIS RCN : 218071](#)

Objectives:

The IIAMS project is related to the advanced low-weight and high-performance structures domain. More specifically, it is included inside the ITD Airframe development area and it involves the manufacturing and assembling of a new concept of a composite wing box structure that will be tested on the turboprop aircraft prototype of the programme.

The main objective is to develop an innovative pilot system able to manufacture an integrated R/H and L/H composite wing box structure according with JTI-CS2-2017-CFP07-AIR-02-53 topic specifications. This pilot system will be based on Out of Autoclave resin infusion technology, and its ultimate purpose is to demonstrate that an alternative technology (to prepreg + autoclave) with lower costs, reduced lead times and lesser environmental footprint can achieve similar design tolerances and quality levels. The result of this development will also allow portability.

Methodology:

Mtorres will optimise its AFP technology to manufacture with the maximum productivity the spar and stringers to simplify the movement of the hot forming station. They propose to use a light table design to enable the human collaboration with robots as well as to facilitate the direct taping of dry fibres on the mould. Mtorres will use multi-function connections and optimise the ancillaries to simplify the subsequent infusion and curing processes.

The infusion process will be simulated using specific software and CFD to avoid dry spots, increase the speed, minimise waste materials, decrease the exothermal risk and viscosity development. Then, experimental trials will be carried out using a precise control of the temperature and measuring the resin and hardener flows. It will be validated the use of self-heated mould and blankets but also "onsite" air ovens that can be placed on top of the tools during the cure process. It will be design, build and test lightweight tooling and modular and collapsible moulds to facilitate the demoulding process.

Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Other programmes: JTI-CS2-2017-CfP07-AIR-02-53 Innovative & Flexible pilot plant Means for highly integrated AFP infusion wing box aiming at flying demonstrator manufacturing

Lead Organisation:

M Torres Diseños Industriales Sa

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Organisation Website:

<http://www.mtorres.es>

EU Contribution: €1,992,638

Technologies:

Aircraft design and manufacturing
Box wing aircraft

Development phase: Research/Invention

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Other specified

Geo-spatial type: Other