

PROJECT

NEWCORT

Novel Processes and Equipment in Composite Repair Technology

Funding: European (Horizon 2020)

Duration: Jan 2016 - Dec 2019

Status: Complete

Total project cost: €588,745

EU contribution: €588,745



Call for proposal: H2020-CS2-CFP01-2014-01

[CORDIS RCN : 199352](#)

Objectives:

NEWCORT will develop and validate novel processes and equipment for the repair of composite airframes. Three key stages in the bonded composite repair procedure were identified, namely material removal & surface preparation, heating for polymerization of patch and positive pressure application for improved compaction of patch layers. In all three stages novel processes will be developed, either through integration of innovations already existing within the proposing consortium or through research focused in targeted areas. For material removal, developments include process optimization to enable close tolerance applications for curved thick composite structures, potentially combined with scarfed pre-cured patches, potential simplification of stepping requirements and adaptation of material removal equipment to most frequent geometries (e.g. fuselage curvature). Novel heating processes and equipment will focus on the polymerization of new types of resins (e.g. M20 at 140°C), possibly including thermoplastic materials, through application of new power supply control logic, dielectric sensors for curing and viscosity monitoring, heating flux sensors for improved curing control, heating mats with embedded thermocouples and dielectric sensors, simulation software for selection of blankets and thermocouples installation topology, as well as development of Quick Composite Repair (QCR) kits for most frequent aircraft repair cases. Finally, the development of positive pressure application equipment for flat / curved structures will be studied, together with optimized pressure measurement devices and control software, mountable to most frequent repair cases (e.g. composite fuselage curvature). The application of such novel processes in real-life aeronautical environment will be guaranteed, through the simultaneous development of all the associated application equipment, resulting in TRL-7 solutions, ready to undergo a full validation campaign during the last project steps.

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)

Lead Organisation:

Gmi Aero

Address:

13 RUE GEORGES AURIC CAP 19
75019 PARIS
France

Organisation Website:

<http://www.gmi-aero.com>

EU Contribution: €310,000

Partner Organisations:

Swerea Sicomp Ab

Address:

Fibervaegen - Oejebyn 2
94126 Pitea
Sweden

EU Contribution: €69,620

National Technical University Of Athens

Address:

Heroon Polytechniou 9 (polytechnic campus)
15780 ZOGRAFOS
Greece

Organisation Website:

<http://www.martrans.org>

EU Contribution: €77,500

Advances & Innovation In Science & Engineering Co Ee

Address:

Odos Gymnasiarchou Madia 17
82100 Chios
Greece

EU Contribution: €62,250

Panepistimio Patron

Address:

University Campus- Rio
26500 Patras
Greece

Organisation Website:

<http://www.upatras.gr>

EU Contribution: €69,375

Technologies:

Composite materials
Novel Processes and Equipment in Composite Repair
Technology

Development phase: Demonstration/prototyping/Pilot Production

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Other specified

Geo-spatial type: Other