

Toulouse, 19th February 2018

World premiere for additive manufacturing: STELIA Aerospace presents a demonstrator for metallic self-reinforced fuselage pannels manufactured by 3D impression

STELIA Aerospace presents, as a world premiere, in partnership with Constellium, Centrale Nantes and CT Ingénierie, in the scope of the collaborative R & T project DEFACTO (DEveloppement de la Fabrication Additive pour Composant TOpologique), a demonstrator for metallic self-reinforced fuselage pannels, with stiffeners directly manufactured on the surface, through additive manufacturing.

This new technology should, in the long term, eliminate the current added stiffeners, which are attached to the fuselage pannels with fixing screws and sometimes welding.

This demonstrator, measuring 1 sq. meter, was manufactured by a robotic tool, through the deposit of aluminium wire merged by electric arc (WAAM - Wire Arc Additive Manufacturing). It presents a new disruptive design for pannel stiffeners, derived from the fuselage topological optimisation studies which have been carried out by STELIA Aerospace and CT Ingénierie since several years.

This new large dimension 3D print technology allows to envisage the manufacturing of such concepts in the future, thus freeing production from complex constraints due to the assembly of stiffeners.

With support from Constellium and Ecole Centrale de Nantes, STELIA Aerospace is currently studying additive manufacturing, a disruptive technology aimed at a new approach of production, where material is added by deposit instead of being removed by machining.

The DEFACTO project, planned on a 2.5 yers basis, represents an important investment, co-financed (50/50) by the DGAC (French Directorate General for Civil Aviation) and the partners involved.

It is part of a research strategy launched by STELIA Aerospace in 2014, about topological optimisation studies associated to 3D print demonstrators for elementary parts (such as fittings), large dimension parts (frames) and large sub-assemblies.

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The benefits sought for are new designs, the integration of functions, less ecological impact through the use of less material, weight gains and less recurring manufacturing costs.

Cédric Gautier, CEO of STELIA Aerospace, said: « with this 3D additive manufacturing demonstrator, STELIA Aerospace aims to provide its customers with innovative designs on very large structural parts derived from new calculation methods (topological optimisation). Through its R&T department, and thanks to its partners, STELIA Aerospace is therefore preparing the future of aeronautics, with a view to develop technologies that are always more innovative and will directly impact our core business, aerostructures. ».

About STELIA Aerospace and its partners :

With a turnover of 2,2 billion euros and 6,900 employees worldwide (4,600 in France, 600 in North America and 1,700 in Tunisia and Morocco), **STELIA Aerospace** is one of the world leaders in the field of aerostructures, pilot seats and Business class and First class passenger seats. STELIA Aerospace designs and manufactures the front fuselage sections for the entire Airbus family, as well as fuselage sections and specific sub-assemblies for Airbus, fully equipped wings for ATR, fully equipped central fuselages for Bombardier's Global7000, and complex metallic and composite aerostructure parts for Boeing, Bombardier, Embraer, Northrop-Grumman...

CT Ingénierie is a leading and innovative engineering group. The company's engineering and technical teams participate in the most innovative industrial programmes in Europe. CT Ingénierie belongs to The CT Engineering group, an international engineering group with business units in Europe, the US and Asia, and a supplier for the major industries in the aeronautical, automotive, railway, ship, industrial sites and renewable energy industries.

Constellium specialises in innovative and high value aluminium product manufacturing, with dedicated solutions for the aeronautical, automotive and packaging industries. With 11,000 employees throughout the world, Constellium is a worldwide company with 24 production sites and technology centres. C-TEC Technology Center, based in Voreppe (France), is the company's innovation centre, hosting 200 highly qualified employees.

A member of the Ecoles Centrales Group, **Centrale Nantes** is an engineer school, training engineers and Master and doctorate students, following academic courses based on the most recent scientific and technical developments and the best management practises. Founded in 1919, the Ecole Centrale de Nantes boasts a 16 hectare campus and 2,250 students including 1,340 engineering-students, 200 continuous training and apprenticeship engineering students, 240 doctoral students and 270 Master students.

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