Hot forming process for composites

FORBANS project

The purpose of this project is to further understanding, control and industrial maturity of the hot forming process for thermosetting carbon fibre composites.

Technical and economic impacts

- -50 % of feasibility tests performed using a digital model
- -30 % time saving on forming operations for large parts
- Reduction of non-quality by monitoring of forming kinematics

Keywords

Modelling // Simulation
Forming // Composites
Test bench

january 2016
Kick-off Meeting

november 2016
1st test bench campaign

Modular instrumentation test bench
july 2016

2nd test bench campaign
march 2016

june 2017
Analysis of test/simulation correlation

Standard specifications for industrial forming
october 2017

december 2017
Software optimisation strategy

End of the project
january 2018

INDUSTRIAL CONTEXT

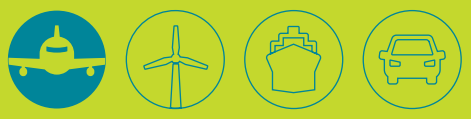
Use of the hot forming process in the production of large structural parts for the aerospace industry is an extremely complex process involving numerous parameters. In the bid to increase production rates while rationalising costs, greater control over the process offers a means of improving the performance and robustness of parts.

INNOVATIVES FEATURES

- Development of a modular instrumentation test bench to enable improved understanding and control of production cycles, to optimise the process, and thus to improve the quality of structural parts.
- Simulated hot forming of thermosetting composite materials with specific geometric features and correlation with test bench experiments.

INDUSTRIAL APPLICATIONS

Hot forming technology is used to produce many types of part. The results of the project will be of particular value for large, thick parts with complex shapes. The combination of automated flat draping and forming can be used to achieve competitive cycle times and costs, in line with current requirements.



Partners

- IRT JULES VERNE
- AIRBUS
- AIRBUS GROUP INNOVATIONS
- CNRS (LAMCOS)

Equipment

- Modular instrumentation test bench

Budget

- 1 740 k€

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