

Innovative metal forming processes

CELLULE HF project

IRT
JULES
VERNE

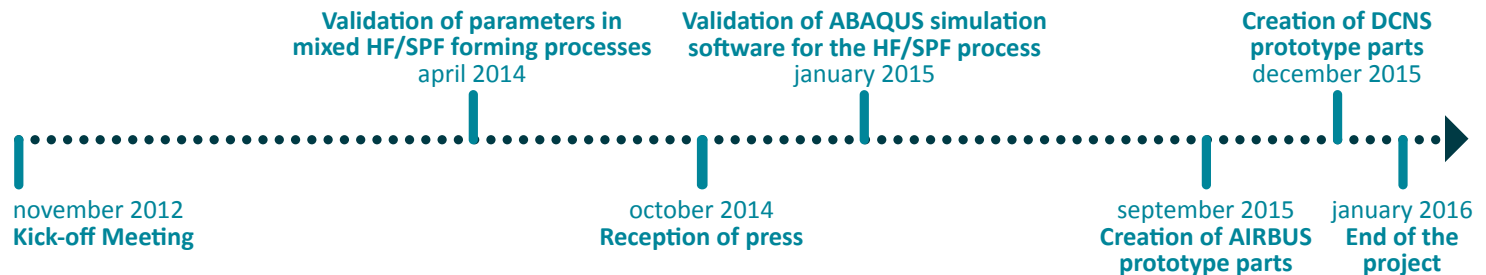
The project concerns the development of innovative hot forming processes using titanium alloys to create complex parts for the aerospace and naval industries. It focuses in particular on the development of a mixed HF/SPF process and the associated tooling.

Technical and economic impacts

- ▶ Improved productivity
- ▶ Improved control over quality of parts
- ▶ Reduced manufacturing costs

Keywords

Mixed HF/SPF process
High-temperature forming of titanium
Complex parts // Innovative tooling



INDUSTRIAL CONTEXT.....

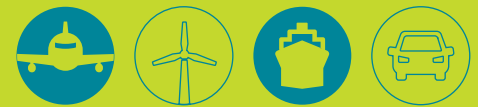
As production rates accelerate, the aerospace industry is constantly seeking to improve the quality of parts and to reduce costs, particularly through the introduction of innovative processes. This is the case regarding titanium alloys used for structural parts that are formed by means of hot-forming processes. These new processes are also of interest in the naval industry, where they enable more high-performance complex parts to be produced.

INNOVATIVES FEATURES.....

- ▶ **Press:** presence of a device enabling the incorporation of new functions to ensure greater control over the final thickness of formed parts.
- ▶ **Forming moulds:** development of suitable moulds to form large complex parts.
- ▶ **Processes:** development of processes to improve the quality of formed parts and reduce cycle times
- ▶ **Process simulation:** development of a complete simulation programme validated by comparison between simulation and tests on prototype parts.

INDUSTRIAL APPLICATIONS

By helping reduce the production costs of parts, this project provides equipment and processes capable of supporting technological advances in tomorrow's aerospace industry, with suitability for uses envisaged in the naval industry.



Partners

- ▶ IRT JULES VERNE
- ▶ ACB
- ▶ AIRBUS
- ▶ AIRBUS GROUP INNOVATIONS
- ▶ DAHER
- ▶ DCNS
- ▶ ARTS ET METIERS ANGERS (LAMPA)
- ▶ CNRS (IMN)
- ▶ UNIVERSITE DE NANTES (IMN)

Equipment

- ▶ Hot-Forming press

Budget

- ▶ 4 800 k€

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