

Hot and cold metal forming processes

LIPSKIN project

IRT
JULES
VERNE

The project concerns the development of innovative processes for hot and cold forming of an aluminium alloy to create a lip section (leading edge of an engine air inlet). It focuses in particular on the development of a mixed HF/SPF (Hot Forming/Super Plastic Forming) process and cold drawing.

Technical and economic impacts

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

Keywords

Aluminium alloy // Cold drawing
Hot forming (HF/SPF)
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 particularly the case with air inlet lips made of aluminium alloy, which have stringent specifications in terms of mechanical and aerodynamic performance, but also in terms of aesthetic appearance.

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 and improve control of the quality of formed parts, this project provides equipment and processes capable of supporting technological advances in tomorrow's aerospace industry.



Partners

- ▶ IRT JULES VERNE
- ▶ ACB
- ▶ AIRBUS
- ▶ ARTS & METIER ANGERS

Equipment

- ▶ Hot-Forming press

Budget

- ▶ 990 k€

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