INMA - Innovative manufacturing of complex titanium sheet components

The INMA project aims to transform the way many Titanium (Ti) sheet aeronautical components are manufactured today by developing an innovative, cost-efficient and ecological forming technology to shape complex geometries in Ti that will contribute to strengthen the European aircraft industry competitiveness, meeting society's needs.

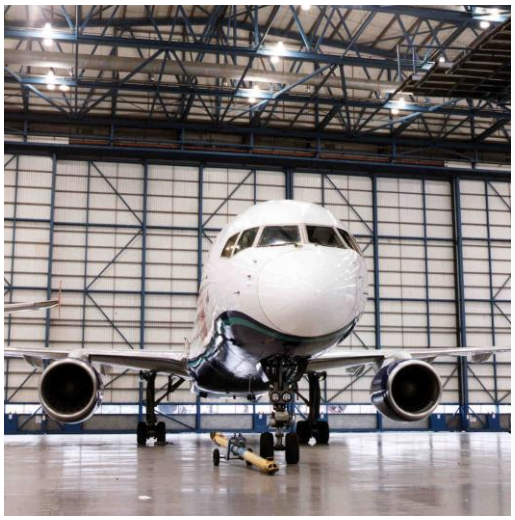
Project objective

The INMA project aims to develop an intelligent knowledge-based flexible manufacturing technology for Ti shaping that will lead to drastically reduced current aircraft development costs incurred by the fabrication of complex titanium sheet components, with a minimal environmental impact.

In particular, this project aims to strengthen European aircraft industry competitiveness by transforming the current inflexible and cost-intensive forming processes into a rapid and agile manufacturing process. This new technology, based on asymmetric incremental sheet forming (AISF), will transform the way many Ti sheet aeronautical components (such as after pylon fairings, fan blades, exhaust ducts and air collectors) are manufactured today.

Currently, the aircraft industry uses complicated and cost-intensive forming processes to shape complex Ti sheet components, such as deep drawing, hot forming, super plastic forming and hydroforming. In some cases parts are even obtained by hand working.

These techniques show severe drawbacks which include high costs, long industrialisation phases and high energy consumption rates. In comparison, the main features of the innovative AISF technology to be developed will be increased flexibility, cost reduction, minimised energy consumption and faster industrialisation.



The major impacts of the results obtained in the INMA project will be:

- Cost incurred by dedicated tooling will be reduced by 80% relative to current state-of-the-art
- The component lead times will decrease by 90%
- Buy-to-fly ratios will be up to 20% lower

For further information, please visit the project website at **www.inmaproject.eu**.

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