

PROJECT

MMTech

New aerospace advanced cost effective materials and rapid manufacturing technologies

Funding: European (Horizon 2020)

Duration: May 2015 - Apr 2019

Status: Complete

Total project cost: €5,708,000

EU contribution: €5,708,000



Call for proposal: H2020-MG-2014_TwoStages

[CORDIS RCN : 193254](#)

Objectives:

This project will focus on the development of technologies and methodologies which have the potential to save costs and time across the whole life cycle of the aircraft (design, production, maintenance, overhaul, repair and retrofit), including for certification aspects. Moreover it will also target the integration of additional functions or materials in structural components of the aircraft, the increased use of automation.

The first proposed step is the introduction of the γ -TiAl alloy, a well-known promising advanced material for aerospace applications and a revolutionary manufacturing technology. Its specific stiffness and strength, as compared to its low weight, potentially leads to large weight savings (50%), and therefore lower mechanical loads on thermomechanical stressed parts, compared to the common Ni based super alloys. The integration of new material and new manufacturing technology will positively impact several aspects of the manufacturing and maintenance chain, starting from the design, the production and the repair.

The aim of this project is twofold:

- On one side the work will be focused on the development and integration at industrial of a IPR protected gas atomization process for producing TiAl powders, whose properties must be highly stable from batch to batch. Thanks to the stability of the chemical and granulometric properties of the powders, the application of the Rapid Manufacturing technique to the production of TiAl components will be economically affordable. While this technique is by now well-known, its main drawback resides in the scarce quality of the starting powders.
- The other main drawback for the wide industrial application of TiAl components is the integrated optimisation of all the machining steps, that means the setting up of machine tool characteristics and parameters, cutting tool geometry, substrate and coating materials, advanced lubrication technologies.

Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

The University Of Sheffield**Address:**

Firth Court Western Bank
Sheffield
S10 2TN
United Kingdom

Organisation Website:

<http://www.sheffield.ac.uk>

EU Contribution: €784,000

Partner Organisations:**Imperial College Of Science Technology And Medicine****Address:**

Exhibition Road, South Kensington
LONDON
SW7 2AZ
United Kingdom

Organisation Website:

<http://www.imperial.ac.uk>

EU Contribution: €400,000

Diad Group Srl**Address:**

Via Nicola Fabrizi 136
10145 Torino
Italy

EU Contribution: €420,625

Mondragon Automocion S Coop**Address:**

Av. Uribarri Etorbidea 19
20500 Arrasate Mondragon
Spain

Organisation Website:

<http://www.mondragon-corporation.com>

EU Contribution: €300,000

Mbn Nanomaterialia S.p.a.**Address:**

Via G. Bortolan 42
31030 VASCON DI CARONERA (TV)
Italy

Organisation Website:

<http://www.mbn.it>

EU Contribution: €571,500

Ce.s.i. Centro Studi Industriali Srl**Address:**

Via Tintoretto 10
20093 Cologno Monzese
Italy

Organisation Website:
<http://www.cesi.net>

EU Contribution: €436,000

Prima Industrie Spa

Address:
VIA ANTONELLI 32
10093 COLLEGNO
Italy

Organisation Website:
<http://www.primaindustrie.com>

EU Contribution: €360,000

Ideko S Coop

Address:
CALLE ARRIAGA 2
20870 ELGOIBAR
Spain

Organisation Website:
<http://www.ideko.es>

EU Contribution: €425,000

Efesto

Address:
55 AVENUE MARCEAU
75116 PARIS
France

EU Contribution: €400,000

Advanced Manufacturing (Sheffield)Limited

Address:
Club Mill Road
Sheffield
S6 2FH
United Kingdom

EU Contribution: €305,375

Teks Sarl

Address:
Rue Du Praya, Les Toits Blancs 23
5100 Montgenevre
France

EU Contribution: €495,000

Fidia Spa

Address:

CORSO LOMBARDIA 11
10099 SAN MAURO TORINESE
Italy

Organisation Website:

<http://www.fidia.com>

EU Contribution: €421,750

University Of Strathclyde**Address:**

Richmond Street
Glasgow
G1 1XQ
United Kingdom

Organisation Website:

<http://www.strath.ac.uk>

EU Contribution: €388,750

Technologies:

Additive manufacturing
Adaptive manufacturing processes and Rapid Manufacture for Gamma Titanium Aluminides (γ -TiAl)

Development phase: Research/Invention

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Other specified

Geo-spatial type: Other