

PROJECT

TRINIDAT

Tilt Rotor INlet Innovative Design And Testing

Funding: European (Horizon 2020)

Duration: Feb 2019 - Jan 2022

Status: Ongoing

Total project cost: €3,346,396

EU contribution: €3,346,396



Call for proposal: H2020-CS2-CFP08-2018-01

[CORDIS RCN : 220991](#)

Objectives:

The TRINIDAT project addresses the aerodynamic characterisation of an already available intake geometry (as supplied by ITD) and optimisation of the intake performance by using CFD based optimisation tools leading to redesigned high-performance intake shapes to be implemented on the Next Generation Civil Tilt Rotor (NGCTR) configuration. A purpose of the optimisation is to improve the flow steadiness and uniformity at the Air Intake Plane of the engines such as to comply with the requirements put forward by the engine manufacturer.

The initial characterisation and optimisation will rely on dedicated CFD studies, the final validation will be made with full size model tests in DNW-LLF 6x6 wind tunnel, allowing reliable testing at full scale Mach and Reynolds conditions. For efficient testing of basic and optimized left-hand and right-hand intake geometries in airplane, helicopter and intermediate Extreme Short Take-Off and Landing mode, a modular wind tunnel model equipped with a remotely controlled tilting forward nacelle part will be designed and manufactured. A remotely controlled highly instrumented rotatable rake will be installed in the model to enable detailed and efficient measurement of the flow at the engine air intake plane. Apart from the aerodynamic optimisation of the intakes, the project will also identify icing and snow conditions to be considered for certification and will subsequently analyse the ice and snow effects on the nacelle inlets and ducts to provide early input for anti-icing measures that might be needed for NGCTR.

The partners of the consortium, gathering renowned Research Centres (NLR, DNW), 2 Industrials (Deharde, ALTRAN), 1 SME (ADSE) and 1 University (UT), will use their complementary expertise and facilities to provide an optimized inlet geometry for NGCTR, based on CFD and wind tunnel analysis, with high potential for certification in snow/icing conditions.

The TRINIDAT project will last 36 months for a total budget of €3,346,397.

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)

Other programmes: JTI-CS2-2018-CfP08-FRC-01-23 Experimental characterization and optimization of the RH and LH Engine intakes configuration of the next generation Tilt Rotor

Lead Organisation:

Stichting Centrum Voor De Ontwikkeling Van Transport En Logistiek In Europa

Address:

Van Nelleweg 1
3044 BC Rotterdam

Netherlands

Organisation Website:

<http://www.cetle.org>

EU Contribution: €733,823

Partner Organisations:

Deharde Gmbh

Address:

AM HAFEN 14A
26316 VAREL
Germany

Organisation Website:

<http://www.deharde.de>

EU Contribution: €1,011,404

Stichting Duits-Nederlandse Windtunnels

Address:

VOORSTERWEG 31
8316 PR Marknesse
Netherlands

Organisation Website:

<http://www.dnw.aero>

EU Contribution: €802,300

Aircraft Development And Systems Engineering (Adse) B.v.

Address:

SATURNUSSTRAAT 12
2132HB HOOFDORP
Netherlands

Organisation Website:

<http://www.adse.nl>

EU Contribution: €143,288

Altran Deutschland Sas & Co Kg

Address:

FRANKFURTER RING 81
80807 MUNCHEN
Germany

EU Contribution: €422,156

Universiteit Twente

Address:

Drienerlolaan 5
7522 NB Enschede
Netherlands

EU Contribution: €233,426

Technologies:

Aircraft design and manufacturing
Heater layer for tilt rotorcraft

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