

PROJECT

BISANCE

Biphasic Heat Transport integration for efficient heat exchange within Composite materials Nacelle

Funding: European (Horizon 2020)

Duration: Oct 2019 - Mar 2022

Status: Ongoing

Total project cost: €843,303

EU contribution: €843,303



Call for proposal: H2020-CS2-CFP09-2018-02

[CORDIS RCN : 225334](#)

Objectives:

BISANCE intends at defining a biphasic system integrated into a full composite nacelle and engine air intake. The biphasic system aims at decreasing significantly the weight, the environmental footprint as well as the space allocated by the current active systems for the cooling of the engine oil and for the energy supply of the ice protection systems.

These both active systems (needing external power) will be replaced by a biphasic passive system (autonomous with no need of external power) which will extract the energy from the engine oil and transfer it to the ice protected surfaces.

The objective of the project is thus to decrease the weight by 25kg for the two nacelles of a turboprop A/C, to decrease the CO2 emissions by almost 900 000 kg per AC life and to save 200 000\$ of operating costs per AC life.

The project will be divided into 5 work packages along 30 months. The first step intends at defining the specifications and the requirements of the product. Based on the requirements, several concepts of system integration into the structure will be proposed and manufactured for selecting the most promising one. Qualification tests are expected for characterizing the structural resistance and stiffness of the concept, for verifying the resistance to heat cycles and to impacts. Finally, a full scale demonstrator will be manufactured for testing it in icing Wind tunnel.

The project will be coordinated by Sonaca, also in charge of the structural developments, in association with Calyos, in charge of the system developments and with RTA in charge of performing the icing wind tunnel testing.

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-CFP09-AIR-02-69 - Biphasic Heat Transport Integration for Efficient Heat Exchange within Composite materials Nacelle

Lead Organisation:

Societe Nationale De Construction Aerospatiale Sonaca Sa

Address:

Route Nationale Cinq
6041 Gosselies
Belgium

Organisation Website:

<http://www.sonaca.com>

EU Contribution: €459,996

Partner Organisations:**Rta Rail Tec Arsenal Fahrzeugversuchsanlage Gmbh****Address:**

PAUKERWERKSTRASSE 3
1210 WIEN
Austria

Organisation Website:

<http://www.rta.eu>

EU Contribution: €140,000

Calyos**Address:**

RUE DE L'INDUSTRIE 24
1400 NIVELLES
Belgium

EU Contribution: €243,306

Technologies:

Aircraft design and manufacturing
Morphing engine nacelle

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