**Aeronautic Applications**

www.cleansky.eu | The Clean Sky JTI aims to significantly increase the environmental performances of airplanes and air transport. Within this project ACTE was in charge of designing and manufacturing an air-to-air heat exchanger directly installed in a gas turbine exhaust nozzle. In the final application, the heat exchanger will withdraw the heat from the exhaust gases and it will heat up the “hot loop” of a secondary thermodynamic cycle (bottom cycle).

**OVERVIEW**

Date | 2014
Sector | Aircrafts
Challenge | Combine lightweight compactness and high effectiveness
Solution | Full tailored solution

**Sector and Valorization Review**

In aeronautic, a heat recuperator may be required for several uses. In this case, it was expected to bring the heat to a secondary thermodynamic cycle aimed at increasing the overall environmental performance of an aircraft.

In order to be effective, such an application implies major constraints:

» Resist to major thermal shocks during start up
» Achieve high effectiveness
» Enable optimum integration
» Guarantee low maintenance costs
» Fit with specific requirements of the transport field: compactness, weight...

**Benefits offered by the solution**

The full tailored solution has been designed to perfectly fit with the gas turbine

The prototype design has been thought to be compatible with a high quality mass manufacturing

The strain resistance has been studied to ensure the design would match with the expected lifetime

The lightweight maximizes the fuel consumption decreasing while the compactness allows floor space saving

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