Aerospace

All our **AEROSPACE offer**
cetim-engineering.com

CleanSky Palace

Towards new Pumps for the aerospace sector

As part of a project under the European CleanSky programme, Cetim supported a French SME in the development of a new generation of pumps.

© Serv

OUR CUSTOMER

Project partners
Thales Avionics Electrical Systems (topic Manager), Cetim and Serv.

Financing
The Palace project was selected by the CleanSky programme and is funded by the European innovation and research programme Horizon 2020 (Grant Agreement 785293).

Increased power density, this is the ambition behind the development of future aircraft generators and particularly for Thales Avionics Electrical Systems (TAES), a manufacturer of generators. However, this requires more cooling, compactness and lightness which means that the architecture of the equipment and the pump used must be revised. The Palace project (Pump Architecture Linked to Aircraft Cooling Expectations), selected by the European CleanSky programme, is intended to provide a solution to this issue by developing a pump that is "*smaller, lighter, has a longer life and operates at very high speeds*", explains Laurent Jeannerod, CEO of Serv. This amazing feat was achieved by TAES (Topic Manager), Cetim and the French SME Serv, to design and produce several TRL5 qualified prototypes of this new equipment.

Support at all stages

The first step defined the technical specifications of the pump. It must therefore achieve a nominal flow rate of 23 l/min and a rotation speed of 12,000 to 30,000 rpm, compared with 8,000 rpm for current models, an operating temperature range of -40 to +120°C and withstand altitude variations between 0 and 55,000 feet! The second step involved validating its design and the technological choices. To this end, the SME received support from Cetim, during the definition of the concepts, with the application of the Cetinnov method, the design and manufacturing of the prototype, including by drawing on Cetim's expertise in the dimensioning of volume pumps, shaft line dynamics, materials and tribology as well as the performance of the tests. A specific bench was designed and built by Serv to test this pump in conditions as close as possible to service conditions. "*The first prototypes built and tested by Serv have yielded promising results. The unprecedented architecture has proven to be satisfactory. The first tests made it possible to largely achieve the expected performance and we are already working on avenues for improving the pump, for a qualification of the prototypes in 2021*", announced Gaëtan Fagot, project manager at Cetim.

Cetim's asset

Leveraging on its multidisciplinary expertise, Cetim assists companies, particularly SMEs, in putting together and managing European scale projects.

Contact
Question & Answer Service
Tel. : +33 / 970 821 680
sqr@cetim.fr
cetim.fr

2102-007