Press release

Prometheus: Demonstrator of Future Engine passed its Definition Review

Paris, 4 February 2019

- **ArianeGroup has just finalized the Definition Review of the, of the Prometheus engine demonstrator, on 1 February 2019 with the support of European Space Agency, CNES and DLR**
- **It demonstrates the pertinence of the design and the technological choices made and confirms the program's ambitious cost objectives**
- **Prometheus is a European demonstrator for a very low cost and potentially reusable engine**
- **The bench tests of the first two examples of the engine are scheduled for as early as 2020**

Prometheus is an ESA program, initiated with the French space agency CNES (Centre National d'Etudes Spatiales). The contract awarded to ArianeGroup by ESA in December 2017 covers the design, construction and testing of the first two examples of the very low cost engine demonstrator, which uses liquid oxygen and methane technology and is potentially reusable.

Prometheus is a precursor of the future engines intended for use by Europe's launchers by 2030. The innovative technologies and industrial processes developed for this demonstrator program will also be used for the propulsion upgrades of Ariane 6.

The Definition Review of the program was held from 30 November to 1 February on the ArianeGroup sites in Vernon (France) and Ottobrunn (Germany). It was carried out by ArianeGroup and ESA teams supported by experts from the French and German space agencies, CNES and DLR.

"This successful milestone of Prometheus program shows that the teams at ArianeGroup and their partners were able to create an innovative design in an extremely short period of time, barely one year after contract signature with ESA. This success demonstrates the pertinence of our technological choices and confirms the ambitious cost objectives we set for ourselves. It perfectly illustrates the efficiency of the new working methods we implemented with our European partners", stated André-Hubert Roussel, CEO of ArianeGroup. *"This step is extremely important, less than one year before Space19+, the ESA Ministerial Conference. It encouraged us to be ever more daring in terms of technological developments, organization and working methods, so that we could make the European launchers always more competitive to fulfill the missions for our institutional and commercial customers. Thank you to all the teams for this crucial success, which encourages space Europe to go still further."*

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The goal of the Prometheus demonstrator is to be able to build future liquid propellant engines in the 100 tons thrust class, for a cost ten times less than that involved in building an existing engine such as the Vulcain®2.

The success of a technological challenge of this nature depends on a completely new design: over and above the change in the traditional Ariane propellant (switching from the liquid oxygen and hydrogen combination to liquid oxygen and methane), the demonstrator will entail major changes, including digitization of engine control and diagnostics. It also depends on the use of innovative design and production methods and tools, including construction using 3D printing in a connected factory environment.

The next major milestone of the program is the Manufacturing Readiness Review (MRR) to start the production of two demonstrators in the first half of 2019 Testing of those two examples is scheduled on the P5 test stand at the DLR in Lampoldshausen (Germany) in 2020.

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About ArianeGroup
ArianeGroup develops and supplies innovative and competitive solutions for civil and military space launchers, with expertise in all aspects of state-of-the-art propulsion technologies. ArianeGroup is lead contractor for Europe's Ariane 5 and Ariane 6 launcher families, responsible for both design and the entire production chain, up to and including marketing by its Arianespace subsidiary, as well as for the missiles of the French oceanic deterrent force. ArianeGroup and its subsidiaries enjoy a global reputation as specialists in the field of equipment and propulsion for space applications, while their expertise also benefits other industrial sectors. The group is a joint venture equally owned by Airbus and Safran, and employs approximately 9,000 highly qualified staff in France and Germany. Its 2017 revenues amounted to 3.4 billion euros.
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