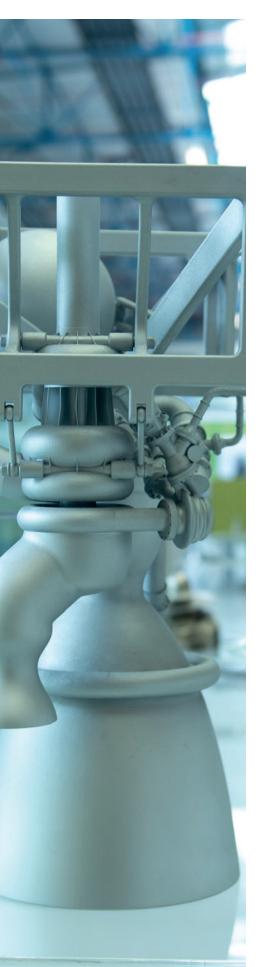




### PROMETHEUS® ENGINE

#### TOWARDS THE ENGINES FOR EUROPE'S LAUNCHERS FROM 2030

- > A PROJECT MANAGED UNDER ESA'S FUTURE LAUNCHERS PREPARATORY PROGRAM (FLPP)
- > AN ENGINE USING LIQUID OXYGEN (LOX) AND METHANE
- **>** A LOW-COST REUSABLE ENGINE DEMONSTRATOR
- **>** MAINLY BUILT USING 3D PRINTING TECHNOLOGIES
- > DEVELOPED FOR FUTURE ARIANE 6 UPGRADES
- > FIRST MODEL READY FOR TESTING AT THE END OF 2020



# PROMETHEUS® ENGINE SPACE PROPULSION

## PROMETHEUS® overview

Prometheus<sup>®</sup> is a European Space Agency (ESA) program in collaboration with the French national space agency (CNES) with the support from the German aerospace agency (DLR). It is a European demonstrator for a very low cost, potentially reusable engine, designed to run on liquid oxygen (LOx) and methane.

Prometheus<sup>®</sup> is the precursor of the future engines of Europe's launchers for the post-2030 time-frame, but could be used on an upgraded version of Ariane 6 as of 2025.

KEY DATES	
Nov. 2015	Program launch
Dec. 2017	Contract with ESA for design, production and testing of two engine modules
Feb. 2019	Design Review finalization
Nov. 2019	Space19+ funding for the 2 <sup>nd</sup> phase of the Prometheus® program
2020	1 <sup>st</sup> engine ready for testing at the DLR (German Aerosapce Centre) test bench in Lampoldshausen

### Main objectives

With Prometheus<sup>®</sup>, ArianeGroup aims to build liquid propellant engines at one tenth the cost of a current Vulcain<sup>®</sup>2 type engine.

The work done on Prometheus<sup>®</sup> aims to boost the competitiveness of future European launchers by bringing on-stream mature, ready-to-use technical solutions for fast development at less cost, effort, and risk.

The Prometheus<sup>®</sup> engine could be used to power the Thémis reusable stage demonstrator.

### **INNOVATION IS KEY**

To be successful, this technological challenge calls for a completely new approach and the use of highly integrated, "connected" innovative design and production resources, particularly the extensive use of additive manufacturing (3D printing).





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