

IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Small Launchers: Concepts and Operations (7)

Author: Mr. Pablo Gallego Sanmiguel
PLD Space, United States, pablo.gallego@pldspace.com

MIURA NEXT ON THE PAD

Abstract

PLD Space is a European company with the goal of becoming the European Microlauncher Company, a reference within the sector with reusable rockets dedicated to the launch of small satellites. For this, PLD Space is developing two reusable launch vehicles named MIURA 1 and MIURA 5.

MIURA 1 was conceived as a one-stage suborbital sounding rocket which uses a liquid propulsion system fully designed and built by PLD Space, while MIURA 5 is a two-stages launch vehicle for small satellites with also fully in-house propulsion, structures, and avionics development. The company has also developed its own engine, TEPREL-B, which last 2021 became the first KeroLOX rocket engine developed in Europe qualified for space flight.

MIURA 1 is in the PLD Space base at Teruel Airport to carry out combined qualification testing at stage level, including full-mission duration hot test of the complete stage. After these tests, the stage will be shipped to the launch base to perform a combined test campaign with all the ground segment and ground infrastructure before launch. MIURA 1 is propelled by a single regeneratively cooled TEPREL-B liquid engine powered by liquid oxygen and kerosene.

MIURA 1 launch is expected for the second half of 2022, which will be the first launch mission of a European rocket in history, designed to reach a maximum altitude of 150 km and with the capacity to carry a payload of up to 100 kg. This maiden flight is set to take place from the historical Spanish launch site “El Arenosillo” (Huelva) in the south-west of Spain.

With MIURA 1 launch vehicle, PLD Space will serve the suborbital market by providing frequent flight access and serves as a technology demonstrator for MIURA 5. In fact, the company is already working on its first MIURA 5 reusable orbital rocket, which is expected to be ready to carry out its first mission in July 2024, and which will mark the start of the firm’s commercial satellite launches. MIURA 5 maiden flight will have a capacity of 450 kg of payload mass to LEO orbit from Guiana Space Center, CSG, Europes Spaceport in French Guiana.

First launch vehicle to fly will be MIURA 5 block 1.0, a fully expendable version that will make the first 2 launches. After those flights, the company will introduce a reusable version for the subsequent flights, paving the way for a commercial reusable booster in Europe. This stage will implement all lessons learnt from ESAs Future Launchers Preparatory Programme (FLPP) contracts, called Liquid Propulsion Stage Recovery (LPSR) 1 and LPSR2.

The firm is based in Elche (Alicante, Spain) and has technical facilities in Teruel, Huelva and French Guiana. The headquarters also houses the rocket factory, where MIURA 1 and MIURA 5 are being manufactured. More than 80 people are currently working on the ambitious mission of providing access to space.