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ARION 2: THE EUROPEAN AND REUSABLE ROCKET LAUNCHER FOR SMALL SATELLITES

Abstract

PLD Space, a rocket launchers company founded in 2011 and based in Spain, aims to serve the space accessibility needs of the growing small satellites market. After some years of uncertain predictions, it seems clearer than ever that the small satellites market boom is about to happen.

Every year there are more and more companies developing small satellites (from 1kg to 150 kg) that offer a very wide range of services and applications. Usually, small satellites are launched as secondary-payloads or piggy backs, being always at the mercy of the main customer, and making slightly more difficult the different operations associated to the launch.

ARION 2, a reusable microlauncher class rocket that is being developed by PLD Space has been conceived with the philosophy of serving the launching needs of these satellites as well as to simplify all these associated operations. Furthermore, ARION 2 has been designed to be a responsive space launcher, leading to a more flexible launch service as well as more affordable.

After having tested successfully the first reusable rocket engine in their test facilities at the airport of Teruel, PLD Space is concentrating its efforts in finalising ARION 1, the suborbital demonstrator and predecessor of ARION 2. ARION 1, a sounding rocket class, will have its maiden flight during Q2 2019.

ARION 2, the first-ever reusable orbital rocket in Europe dedicated to the small satellites market, will be able to inject 150 kg of payload mass into a 400 km Low Earth Orbit in a nominal mission. ARION 2, a three-stage liquid-propelled rocket will count with all the required technologies to be partially re-used a number of times.

With this paper, PLD Space wants to introduce the ARION 2 microlauncher, its capabilities as well as the advantages with respect to traditional launch systems which are not fully-dedicated to small satellites.

ARION 2 aims to be the orbital rocket reference in Europe for small satellites, providing affordable, flexible and simple access to space to industry, space agencies, research centres and academia.