

Successful engine test boosts Vega-C toward return-to-flight

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The Zefiro-40 solid rocket motor on its test stand, built by Vega-C prime contractor Avio at its Salto di Quirra test facility in Sardinia, Italy. The motor features an improved engine nozzle design, required to prepare for a Vega-C return-to-flight by the end of 2024. The Zefiro-40 is a 7.6 m tall rocket motor, loaded with over 36 tonnes of solid propellant. For a test on 28 May 2024 the motor was installed on its horizontal test bench. Zefiro-40 is developed and manufactured by Avio in their Colleferro factory near Rome, Italy. Vega-C is a 35-m-tall launcher with a mass at liftoff of 210 000 kg. It can place about 2300 kg into a polar orbit. Vega-C can accommodate a mix of cargo shapes and sizes, ranging from CubeSats as small as one kilogram up to a single large payload. Credit: Avio

The Zefiro-40 solid rocket motor, the second stage of the Vega-C rocket, was tested today by Vega-C prime contractor Avio at its Salto di Quirra test facility in Sardinia, Italy. The motor features an improved engine nozzle design, required to prepare for a Vega-C return-to-flight by the end of 2024.

The initial post-test review indicates that the new nozzle assembly performed as expected throughout the scheduled 94 seconds burning time of the test, simulating a nominal in-flight performance.

The Zefiro-40 is a 7.6 m tall rocket motor, loaded with more than 36 tons of solid propellant. For this test, the motor was installed on its horizontal test bench. Zefiro-40 is developed and manufactured by Avio in their Colleferro factory near Rome, Italy.

A second firing-test will be conducted after the summer to confirm the data collected today. Avio engineers will review the data from the first test to prepare for a second [test](#) in October that will then qualify the second stage Zefiro-40 [solid rocket motor](#) for a return-to-flight by the end of 2024 from Europe's Spaceport in French Guiana.

From Vega to Vega-C

Vega-C is the larger evolution of the Vega family of rockets. The original Vega was launched in 2012 and has flown 21 times. The last Vega flight is scheduled this summer, after which the model will be retired and Vega-C will take over. The smaller Vega variant does not use the Zefiro-40 stage.

ESA is responsible for the Vega-C launch system qualification and also purchases launch services for European institutional missions. The Vega-

C development program was carried out with participation of thirteen ESA Member States, Austria, Belgium, the Czech Republic, France, Germany, Ireland, Italy, The Netherlands, Norway, Romania, Spain, Sweden, Switzerland. The Agency is the contracting authority for the development of Vega-C, supports both the development and exploitation, while also providing technical supervision based on its 30 years of experience.

Avio is the prime contractor and design authority of the Vega-C launchers. Arianespace is the launch service provider.

Provided by European Space Agency

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