

# Ariane 5 Launches BepiColombo on its way to Mercury

Kourou, October 20, 2018

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- **On its 5<sup>th</sup> launch of the year, Ariane 5 successfully placed the BepiColombo spacecraft in its Earth escape trajectory with an absolute speed close to 40,000 km / h**
  - **Ariane 5 was specially adapted for this mission**
  - **Launcher performance further enhanced by Vulcain 2 engine improvement**
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Launcher performance further enhanced by Vulcain 2 engine improvement For its 5<sup>th</sup> launch of 2018, Ariane 5 lifted off from the European spaceport in Kourou (French Guyana) to place the BepiColombo spacecraft into its Earth escape trajectory, enabling it to free itself from Earth's gravitational pull and begin its seven-year voyage to the planet Mercury, via Venus. This is the first time that an ECA version of the Ariane 5 launcher has reached this type of orbit; previously, an A5G+ version of Ariane 5 was used for the Rosetta Earth-escape mission in March 2004.

For this particularly complex mission, Ariane 5 freed BepiColombo from Earth's gravitational pull and placed it on a transfer trajectory to Mercury, through the Solar System, by propelling it to an absolute velocity of 10.99 km/s (39,570 km/h) – 1.15 km/s (4,140 km/h) more than for the usual transfer orbit -- to geostationary position. This mission benefits from the first application of the Vulcain 2 power increase (+2.25%), decided in the framework of the Ariane 5 ECA launcher performance improvement program.

*“Ariane 5 usually launches satellites of about 10 metric tons to geostationary transfer orbit, but this time the task was to launch a payload of only four metric tons, while taking the launcher to a velocity greater than that of a standard launch so that the satellite could reach Earth escape orbit. Specific adjustments were therefore necessary for piloting and propulsion, and even though this did not entail any modifications to the launcher's structure, it did mean additional verifications, which required the work of 30 ArianeGroup engineers for two years,”* said Alain Charmeau, CEO of ArianeGroup. *“I would like to thank all the ArianeGroup and Arianespace teams who once again demonstrated the quality of their commitment and pride in serving such amazing ESA missions.”*

The BepiColombo mission is a joint initiative of the European Space Agency (ESA) and the Japan Aerospace Exploration Agency (JAXA). It comprises two scientific orbiters – the Mercury Planetary Orbiter (MPO), which will produce a complete map

## Press release

of Mercury, and the Mercury Magnetospheric Orbiter (MMO, also dubbed MIO by JAXA), which will analyze the planet's magnetic field and magnetosphere – plus a Mercury Transfer Module (MTM).

As the industrial lead contractor for development and operation of the Ariane 5 and Ariane 6 launchers, ArianeGroup coordinates an industrial network of more than 600 companies in 13 European countries, including more than 350 Small and Medium Enterprises (SMEs). ArianeGroup oversees all the industrial activities, from the performance improvements and studies necessary for Ariane 5 up to its production, the provision of data or software specific to each mission, without forgetting marketing activities via Arianespace. This chain includes equipment and structures, engines manufacturing, integration of the various stages and finally launcher integration in French Guiana.

### **The Ariane 245 flight in figures:**

- 101<sup>st</sup> launch of an Ariane 5
- 76<sup>th</sup> consecutive nominal firing of the Vulcain® 2 engine
- 101<sup>st</sup> consecutive nominal firing of the EAP solid propellant boosters
- 141<sup>st</sup> consecutive nominal firing of the HM7B engine

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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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