

OH B team awarded ESA study for resource utilization on the Moon

Bremen / Milano, 5th March 2018. OH B Italia, a subsidiary of the Bremen-based aerospace and technology group OH B SE, has been awarded a contract by the European Space Agency (ESA) for the definition of the payload for the Lunar ISRU Demonstration Mission (ISRU DM), expected to be flown in 2025.

The mission is part of ESA's European Exploration Envelope Programme (E3P). The purpose of the mission is to demonstrate the ISRU technologies (In-Situ Resource Utilization) required for exploiting the lunar soil in order to produce breathable oxygen and drinkable water. These technologies are key for the sustainable provision of the consumables needed for future human operations on lunar surface.

Mineralogically bound oxygen can be extracted from the Moon's soil by chemical processes; similarly, volatiles are expected to be present in the polar regions of the Moon and can be directly extracted by physical processing. Whereas various organizations have studied ISRU methods and systems in the past, no single demonstration experiment has ever flown on a space mission.

OH B leading the demonstrator payload definition

For the ISRU DM mission, ESA will pursue a fast-track approach involving innovative commercial partnerships. A team led by OH B Italia SpA as prime and with subcontractors OH B System AG, Germany, Politecnico di Milano and the OH B spin-off BlueHorizon, Luxembourg, is in charge of the definition of the technology demonstrator payload.

The technology demonstrator payload shall be composed of a plant mounted on the lander and a robotic arm that will be used to collect samples of the lunar soil (the 'regolith') and feed the plant. The soil will be chemically processed at temperatures in the range of 900°C in presence of proper reactants to extract the oxygen; the final product is water or oxygen. It will be the first time ever some chemical substances are produced outside the Earth and using non-Earth materials.

"OH B Italia has been working in space research for several years and has a recognized heritage on the required ISRU technologies. We are therefore delighted to contribute to the success of the study with our experience", says Roberto Aceti, Managing Director of OH B Italia.

The OH B team will be closely working with a landing service provider (PartTime Scientists) and a communications service provider (SSTL with Goonhilly Earth Station in the UK), with overall coordination of the study by ESA. This way, a concept of the ISRU demonstration mission based on ISRU process know-how previously developed by OH B Italia (then Carlo Gavazzi Space) and Politecnico di Milano will be developed to conform to ESA technical and programmatic requirements.

OH B's further engagement

Related ITT's (invitation to tender) by ESA are being issued to support the mission preparation with demonstration and prototype models of the ISRU facility. The OH B group intends to play a considerable role here, too.

About OH B Italia:

OH B Italia SpA is a leading company in Italy in the field of space systems design, development and integration. The company is part of the listed space and technology group OH B SE that currently employs approx. 2,400 people in two business units: "Space Systems" and "Aerospace and Industrial products". Founded in 1981 OH B Italia has its headquarters in Milan.

About OH B System:

OH B System AG is one of the three leading space companies in Europe. It belongs to listed high-tech group OH B SE (ISIN: DE0005936124, Prime Standard), where around 2,400 specialists and system engineers work on key European space programs. With two strong sites in Bremen and Oberpfaffenhofen near Munich and more than 35 years of experience, OH B System AG specializes in high-tech solutions for space. These include small and mid-sized satellites for Earth observation, navigation, telecommunication, science and space exploration as well as systems for human space flight, aerial reconnaissance and process control systems.