

PRESS RELEASE

SENER Aeroespacial completes Hard Capture System (HCS) for the International Berthing and Docking Mechanism

Madrid (Spain), 24 de marzo de 2022 - [SENER Aeroespacial](#) has developed the Hard Capture System (HCS) for the IBDM (International Berthing and Docking Mechanism), which is the European androgynous low impact docking system that allows both large and small spacecraft to berth and dock.

SENER Aeroespacial takes part in the IBDM as part as the European consortium, developing the HCS. It is an extremely precise and complex system which has the purpose of providing a rigid connection between structures in order to allow for a pressurized passageway between two spacecraft. It also includes connections for the transfer of electrical power, data and fluids such as fuel.

The IBDM has been designed to be compatible with the International Docking System Standard (IDSS) and hence compatible with the ISS International Docking Adapters (IDA) on the US side of the International Space Station (ISS). The possibility of modifying the system to accommodate new docking standards has been taken into account during the project phase, so it has the required flexibility to allow the integration of the IBDM into different vehicles. In fact, thanks to its versatility, this system may become a standard for manned space missions in the future.

One of its potential applications is in the successor of the International Space Station, the Gateway station, whose construction, with SENER Aeroespacial participation with [five different contracts](#), is planned for 2025. Ultimately, Gateway will be embedded in space around the Moon and will serve as a strategic point for distant space expeditions, such as a manned flight to Mars. Part of it will be the I-HAB, a habitat for astronauts arriving from Earth, developed by ESA member companies. I-HAB is expected to be equipped with the HCS system developed by SENER Aeroespacial.

The main components of the HCS developed by SENER Aeroespacial (in charge of design, implementation, integration and testing) are:

- HCS Tunnel Assembly, which provides the structural integrity and accommodates seals, alignment pins and sensors.
- HCS Hooks, with 12 independently driven hook units to achieve the structural mating, seal compressions and interface preload. It also accommodates the Contingency Release Devices, based on pyrobolts.
- Separation System (three separators), which generates the required axial thrust to push off the hoisting vehicle from the ISS once the hooks are opened.
- Two Resource Transfer Umbilical, with connectors to transfer power and data.
- MMOD Cover, a Micro Meteorite and Orbital Debris Cover.
- Thermal Control, active and passive (Multi-layer Insulation over the MMOD)

About SENER Aeroespacial

SENER Aeroespacial has been a leading supplier of high-performance aerospace systems for Space, Defense and Science for more than 50 years, with high added value technological developments.

In Space, it supplies electromechanical components and systems, navigation systems (GNC/AOCS), communications, astronomy and optics systems, and it is currently participating in the main programs of ESA and NASA (including Euclid, Meteosat Third Generation, Solar Orbiter, JUICE, Proba-3, Hubble, Galileo, Rosetta, Gaia, Herschel and Planck, IXV, BepiColombo and Mars 2020)

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and the European Southern Observatory; in the Space commercial market, is a leading supplier of telemetry and telecommand antennas and a regular supplier of all types of antennas, passive equipment and radio frequency assets for the leading international manufacturers of communications satellites, even in programs for the so called New Space.

SENER Aerospace is part of the SENER engineering and technology group, founded in 1956, with 2,350 professionals in offices in four continents.

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