MOSAR

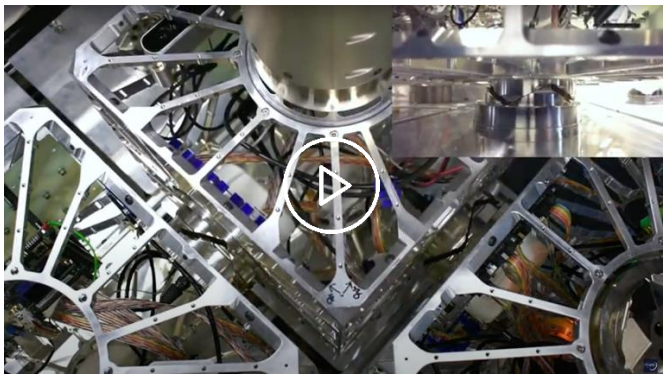
OG9 - Modular Spacecraft Assembly and Reconfiguration

The MOSAR project achieved the development up to TRL4 of the following technologies enabling an in orbit modular assembly and reconfiguration of spacecraft:

- Orbital Replaceable Units (ORUs). Each individual module being dedicated to a specific function such as control, power, thermal management, sensors. Once assembled, they deliver a full functional spacecraft
- A repositionable symmetric walking robotic manipulator (**WM**) allowing to capture, manipulate and position spacecraft modules, while being able to reposition itself on the spacecraft elements or directly on the modules
- Standards robotics interfaces (**HOTDOCK**), providing mechanical, data, power and thermal transfer for interconnection between the modules, spacecraft and walking manipulator
- A functional engineering simulation environment and design tool, offering assistance for modules design, system configuration and operation planning, with the support of multi-physics engine

HOTDOCK and **WM** are technologies fully developed by Space Applications Services.

The demonstration of MOSAR scenario of Spacecraft in orbit assembly and reconfiguration took place in July 2021 and has been recorded in two Youtube videos:



They present the many uses of our Standard Interconnect device **HOTDOCK:**

- two of them integrated as end effector of the Walking Manipulator
- a number of them mounted on the spacecraft bus of the servicer and client spacecrafts and on multiple faces of the ORUs.

More details on the project objective and contributing partners are available at the following URL: https://www.h2020-mosar.eu/

A video presenting the MOSAR concept and mission operations scenarios is available at the following URL: https://youtu.be/cwqKEzwAVn8