

19th IAA SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE EXPLORATION AND
DEVELOPMENT (D3)

Interactive Presentations - 19th IAA SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE
EXPLORATION AND DEVELOPMENT (IP)

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UNIVERSAL BERTHING MECHANISM

Abstract

With the growing demand for orbital stations on the horizon, standardization of common elements will assist in lowering cost and increasing access to more industries. Few components require standardisation more than the berthing port. Many of current berthing port designs are hidden behind proprietary designs and information, limiting access to valuable information to allow for compatibility across various systems.

The authors define the Uniform Berthing Mechanism (UBM) standard, that could be manufactured by any player in this arena. The UBM standard will allow commonality between any orbital infrastructure with this standard while lowering cost with an open source design and guidelines. The paper aims to outline guidelines to manufacturing process ideas and limitations of use. It also describes typology architecture for flexible combinations of different elements: multifunctional pressurised volumes for people, docking systems, solar panels, radiation panels, ECLSS, storage and manufacture add-ons.

The paper will also attempt to envision future expansions to space stations and look at how the UBM could assist in expandability.