

AEROSPACE TECHNOLOGY

MULTI-USE VARIABLE-GRAVITY PLATFORM

PRODUCT DESCRIPTION

The Redwire Space Multi-use Variable-gravity Platform (MVP) is a technology that enables users to conduct research and small batch manufacturing in space using a wide variety of sample types. Since the first MVP unit launched to the station in 2018, and the second in 2019, they have been used for research with fruit flies, heart cells, bacteria, tissue chips and cement.



A powerful feature of the MVP are two internal 390 mm centrifuges, which can rotate to reproduce the gravity of Earth, the moon, and Mars. A 5% CO₂ capability enables users to conduct a broader range of experiments for customers studying the effects of fractional gravity on living cells and tissues.

Each MVP unit accommodates multiple experiment modules, which provide 2-levels of containment with standardized mechanical and electrical interfaces which may be accessed on orbit or controlled remotely or via a pre-programmed timeline. The MVP offers two independently controlled centrifuges (simultaneously providing 0-2 g each) as well as heating, cooling, humidity control, CO₂ scrub, ethylene scrub and video observation (some experiment modules also include a microscope objective).

PARAMETERS

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| <ul style="list-style-type: none">+ Size
Single Locker+ Rotor Diameter
390 mm+ 0-2g Fractional G-Level Control
Yes, 0.1 – 2G+ Temperature Control
14° C- 40° C+ Humidity Control
50% - 80% | <ul style="list-style-type: none">+ Gas Composition
Monitoring, and control in some applications.+ Data Channels to Each Experiment Module
Power and high-speed USB+ Levels of Containment
2+ Total Number of Experimental Modules
12 (Six Per Carousel) | <ul style="list-style-type: none">+ Specimen Lighting
Visible and IR lighting, programmable circadian cycles in each experiment module.+ Specimen Video
Digital or Still Pictures -12 Video Cameras (Six Per Carousel) <p><i>Multi-use Variable-gravity Platforms are export controlled through an ECCN (Export Control Classification Number) issued by the United States Department of Commerce, ECCN 7A104. Export shipment requires successful application for an export license.</i></p> |
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APPLICATIONS

- + Low Earth Orbit (LEO) Missions.
- + Gateway Missions.

MARKETS SERVED

- + Regenerative medicine.
- + Exploration medicine.
- + Pharmaceutical research.
- + Bacteria research.
- + Plant research.
- + Materials research.

MODULAR DESIGN

- + MVP processing locker remains in space.
- + Mini-laboratory experiment modules are launched as needed for processing in MVP.

OTHER FEATURES

- + Dual 390 mm rotors, simultaneous 0 – 2 g
- + 0-2g fractional G-level control: Yes, 0.1 – 2G
- + Self-balancing to prevent micro-g loading of specimens as fluids or specimens shift.
- + Air and water filtration: Available as an upgrade.
- + Ground based control and data retrieval available: Yes.
- + Gas monitoring and control.
- + Ethelene scrubbing available.

MISSION HERITAGE

- + International Space Station 2018-present.

FOR MORE INFORMATION ABOUT OUR SPACE CAPABILITIES, CONTACT REDWIRE SPACE SALES AT
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HERITAGE

Redwire is a new leader in mission critical space solutions and high reliability components for the next generation space economy. With decades of flight heritage combined with the agile and innovative culture of commercial space platform, Redwire is uniquely positioned to assist its customers in solving the complex challenges of the future space missions. For more information, please visit www.redwirespace.com



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