

# AEROSPACE TECHNOLOGY

## ADVANCED SPACE EXPERIMENT PROCESSOR (ADSEP)

### PRODUCT DESCRIPTION

The Redwire Space Advanced Space Experiment Processor (ADSEP) is a fully automated, multi-use single middeck locker processing facility used to conduct a variety of life and physical-science research and small-batch production. The ADSEP facility contains three independent thermal zones, each accommodating one “mini-laboratory” cassette, and an internal computer that controls the processing of all three cassettes. Each cassette housing is designed to provide up to 2-levels of containment for each experiment, which allows for experiments that are an HRL-2. The facility is agnostic to the content of the cassettes. Therefore, completely independent studies can be run in different cassettes simultaneously. The cassettes are “hot swappable”, enabling crews to successfully run disparate experiments back-to-back.



### APPLICATIONS

**+ Fluid Processing**

- C-elegans research.
- Bacteria research.
- Squid research.
- Uniform biopharmaceutical crystallization.

**+ Separations**

- Biphasic separation.
- Microencapsulation.

**+ Cell Dynamics**

- Cell culturing.

### MARKETS SERVED

+ Human Tissue Research.

+ Human Tissue Manufacturing.

+ University studies of microbes.

+ Fundamental Biology Bacterial Studies.

+ On-Orbit Servicing, Assembly & Manufacturing.

## PARAMETERS

- + Three independent processing modules can each be programmed for totally automated operation.
- + Processing temperature (8 – 40° C) can be independently monitored and controlled in each of three modules.
- + Accommodates up to three cassettes, each capable of processing biological samples in space.
- + Biological samples are loaded (preflight) into cassettes that provide appropriate levels of containment, up to HRL-2.
- + Near Realtime download capabilities of facility data.
- + Processing module doors are opened with two thumb screws, allowing cassettes to be installed in, and removed from, each processing module on orbit.
- + Cassette interfaces with the processing module through blind-mating power/data connector on back side of cassette that can be hot swapped to allow for multiple cassettes to be processed per ISS increment.
- + Certified for power launch on Dragon allowing for experiments to be run enroute to the ISS such as the UMAMI experiment.

## OTHER FEATURES

Typical ADSEP workflow:

- + Work with the investigators to define experiment requirements and hardware layout.
- + With the investigators input, create an optimum experiment utilizing existing hardware or building new hardware to fit the experimenter's needs.
- + Provide flight-equivalent hardware to the investigator's laboratory months before launch for ground research and experiment design and finalization.
- + Perform Experiment Verification Tests to prove experimenter's objectives are met in hardware.
- + Work with the investigator(s) at the launch site to assemble the flight hardware and arranging hand over (usually late loading) to launch officials.
- + Direct all on orbit operations with the ISS crew using ground proven crew procedures.
- + Assist in traversing the path of manifesting an experiment on the ISS. We will complete paperwork and meet flight milestones to qualify the experiment for flight technically: meeting safety/containment requirements and attending all reviews.
- + Collect and return the payload during post-landing recovery operations.
- + Provide all on orbit data and environmental parameters
- + Perform ground control experiments utilizing flight hardware

## MISSION HERITAGE

- + Space Shuttle Endeavour STS-77 and Space Shuttle Discovery STS-95.
- + SpaceX Cargo Dragon.
- + Northrop Grumman Cygnus.
- + International Space Station EXPRESS Rack.

The Advanced Space Experiment Processor (ADSEP) is 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.

**FOR MORE INFORMATION ABOUT OUR SPACE CAPABILITIES, CONTACT REDWIRE SPACE SALES AT  
DISCOVER@REDWIRESPACE.COM**



### 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](http://www.redwirespace.com)



**FIND OUT MORE ABOUT REDWIRE SOLUTIONS**

**REDWIRESPACE.COM | @REDWIRESPACE | SALES@REDWIRESPACE.COM**