Dynavac



SPACE SIMULATION SYSTEMS



Creating the environment for mission success

From Dynavac, the most respected name in space simulation systems

www.dynavac.com

ABOUT DYNAVAC

Founded in 1982, Dynavac has built a legacy of excellence in the field of vacuum technology and environmental testing systems. Over the decades, Dynavac has established itself as a trusted partner for aerospace, defense, and industrial sectors, providing innovative solutions that meet the most demanding requirements.

With a commitment to quality and customer satisfaction, Dynavac's systems are designed to deliver reliable performance and precision. Our extensive experience and expertise have enabled us to develop cutting-edge technologies that support critical missions and projects worldwide.

Our legacy is marked by continuous innovation, a dedication to advancing vacuum technology, and a strong focus on after-sale support to ensure the longevity and optimal performance of their systems. Our global service network and responsive customer support team are always ready to assist with maintenance, upgrades, and new test requirements, reinforcing our reputation as a leader in the industry.

Thermal Vacuum Systems

Dynavac's thermal vacuum systems are engineered to support testing across a broad spectrum—from small devices to fully integrated large-scale satellites. Our systems, whether standard or customized, ensure your flight hardware is thoroughly tested to withstand the harshest conditions of spaceflight. Each system offers flexible options for pumping systems, thermal control, and instrumentation to meet your specific testing requirements.

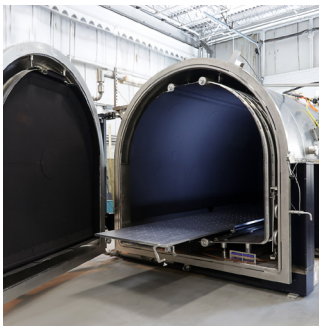
SmallSAT Series
Cube-shaped systems from 1ft to 3ft, ideal for small-scale devices.



Sirius Series
Systems ranging from 3ft to 8ft, available with cylindrical or rectangular chambers.



Rigel Series
Large systems from 8ft to 16ft, available in cylindrical, rectangular, or mailbox-shaped chambers.



Polaris Series
Field-constructed, large-scale test facilities for the most complex spacecraft testing.



Dynavac Thermal Vacuum Systems ensure your flight hardware withstands the harshest space environments with consistent, reliable performance for rigorous spacecraft testing.

High-Performance Pumping Systems

Our high-performance pumping systems maintain pressure levels of 1 x 10^{-6} Torr or better, with options for cryopumps or turbopumps, ensuring precise vacuum conditions for any space environment.

Thermal Control Solutions

Our extensive range of thermal control options simulates conditions from low-Earth orbit to the extreme temperatures of deep space. In combination with our shroud and platen designs, we offer efficient methods for conditioning test articles under extreme temperature variations:

- **Direct Liquid Nitrogen Injection with Surface-Mounted Heaters** -180°C to 150°C
- **Gaseous Nitrogen Control** -180°C to 150°C
- **Mechanical Refrigeration** -70°C to 125°C
- **Flooded Liquid Nitrogen** -190°C







Comprehensive Hardware and Instrumentation Options

Our systems are available with a wide selection of features to enhance the accuracy and efficiency of spacecraft testing, including:

Hardware

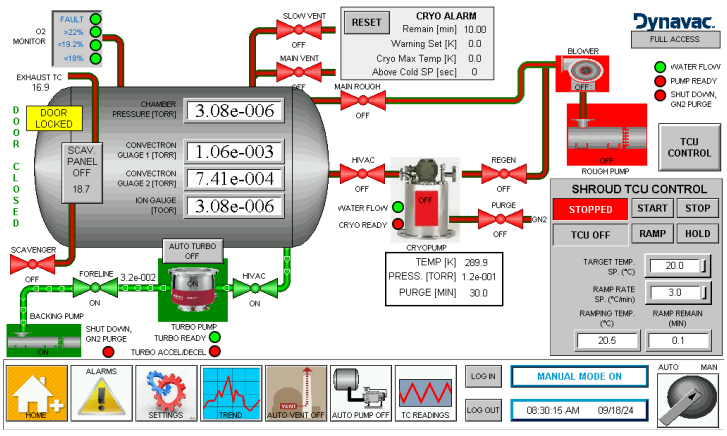
- Extended temperature and vacuum ranges
- Telescopic platen rails
- Chamber interior lighting
- Standard and customized chamber ports
- Cryogenic water-vapor pumping panels

Instrumentation

- Residual Gas Analyzers (RGA)
- Temperature Quartz Crystal Microbalances (TQCM)
- Oxygen Monitors
- Cold Fingers

Advanced Control Systems for Precision Testing

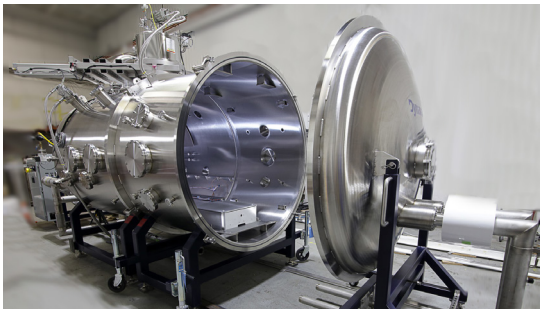
Dynavac leads the way with its advanced control system architecture, ensuring seamless operation, real-time data logging, and comprehensive system diagnostics. Systems provide full control over critical parameters such as temperature, pressure, and vacuum levels. With intuitive interfaces and robust monitoring capabilities, Dynavac's control systems enable efficient and reliable spacecraft testing, ensuring your hardware is flight-ready.





Vacuum Bakeout Systems

Dynavac's Vacuum Bakeout Systems are designed to eliminate molecular outgassing and contamination of sensitive hardware prior to testing and flight. Systems can achieve temperatures up to 150°C and vacuum levels better than 10^{-6} torr. System options include external chamber heaters or internal thermal shrouds, water-vapor pumping panels, and contamination monitoring with data acquisition capabilities.



Electric Propulsion Testing

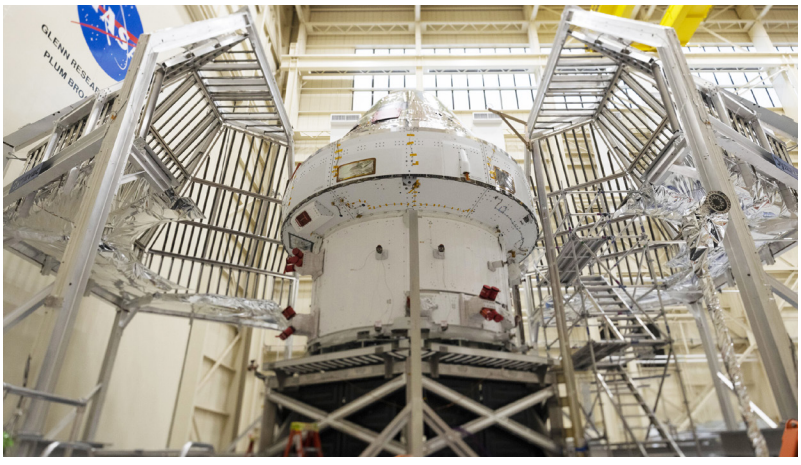
Dynavac provides turnkey systems for testing electric propulsion thrusters under realistic space conditions. Systems are available with a variety of pumping system options for pumping condensabale gasses such as Xenon, Krypton, and Iodine. Both standard and customized solutions are available including the ability to incorporate thermal vacuum testing capability.

Thermal Control Hardware

Dynavac has earned a reputation for its manufacturing excellence in producing thermal control hardware to provide localized cooling and heating to spacecraft during testing.

Our cold and heat plates can be custom-manufactured to your specifications or designed by our team to meet your specific thermal control requirements. Plates are available with a variety of coatings, such as solar-absorbing paint or chromate, to enhance thermal performance.

Dynavac's heat flux enclosures provide precise temperature management for spacecraft during testing, ensuring accurate simulation of space conditions. Flexible options, including direct panel heating or infrared heating, allowing for targeted thermal control of the test area.









Thermal Data Acquisition Systems

The Thermal Data Acquisition System (TDAS) from Dynavac provides real-time temperature display, alarming, and process data recording. It supports various testing parameters and can collect telemetry data from up to 1,000 input signals, ensuring comprehensive monitoring and analysis during tests.



Auxiliary Thermal Control Systems

Dynavac's Auxiliary Thermal Control Systems (ATCS) deliver independently controlled channels of power to test articles and equipment inside a chamber. These systems are customizable to match specific testing criteria, providing auxiliary heating and power during test periods.



Our services guarantee that customers receive essential support through a responsive global service network. We are dedicated to customer satisfaction from design and production to after-sales support. Our service department provides comprehensive technical assistance via our worldwide network of highly skilled, factory-trained technicians. Strategically located around the globe, our experts deliver prompt and efficient service.

After-Sale System Support

Dynavac is dedicated to providing comprehensive after-sale support to guarantee longevity and peak performance. This includes a wide range of services such as:

- Technical Support
- Replacement Parts
- System Upgrades and Retrofits
- Maintenance Plans
- Field Service





Why Choose Dynavac?

With over 40 years of experience and a reputation for excellence, Dynavac thermal vacuum systems are trusted by aerospace organizations worldwide. Our commitment to innovation and quality ensures that you receive the best testing solutions for your spacecraft.

Dynavac

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