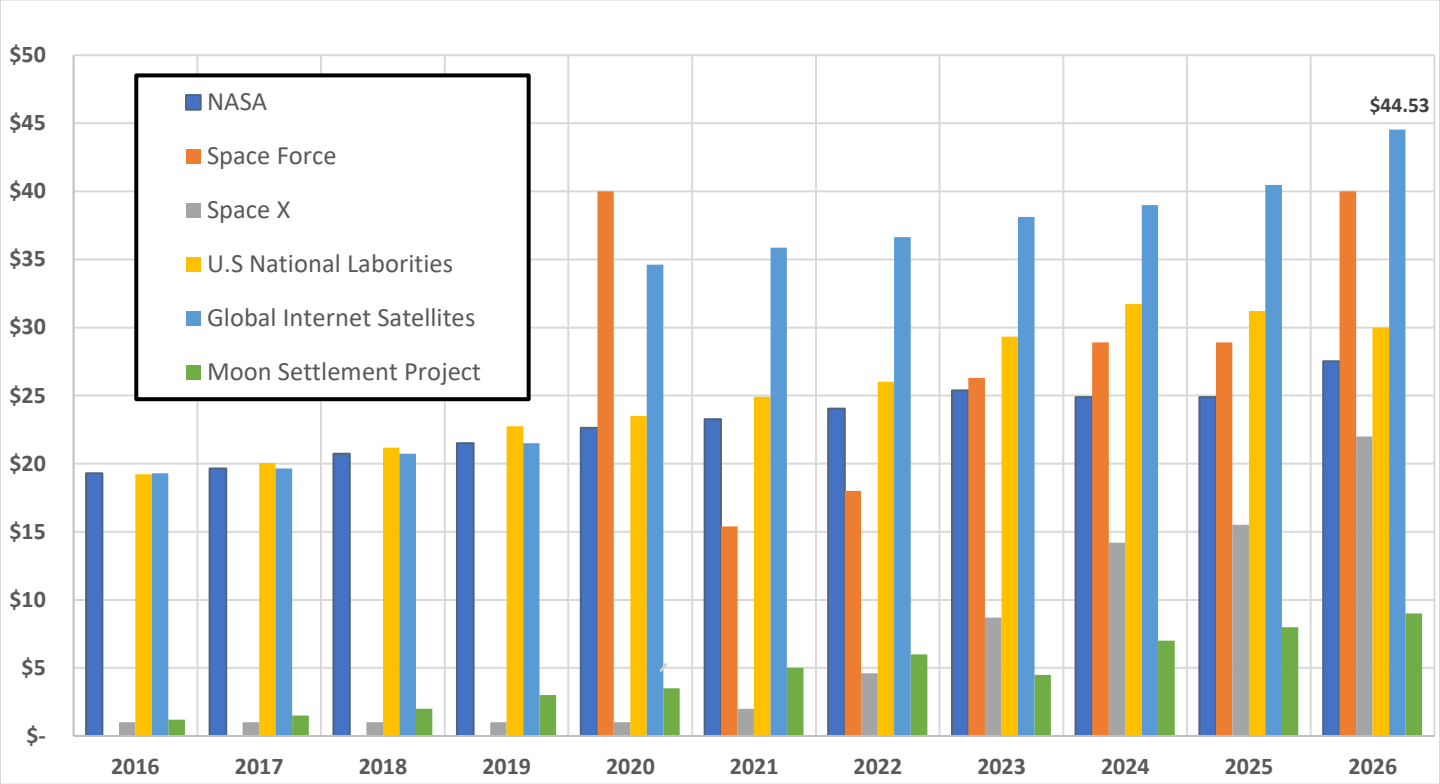
Space Demand Rising: Powering Up with Next-Gen TVAC Testing

Space research and development are expanding at an exponential rate in recent years due in part to increasing demand for deep space exploration, global networking and security. The U.S. Space Force budget will increase potentially by 40% in 2026. The companies that are growing with the space markets will need to increase their testing capabilities.

United States Space Economy 2016 – 2026 in Billions of Dollars



Link for Source Details

The United States and our global partners require compact, efficient apparatus capable of performing high altitude and space simulation testing for small modules and components. A primary design framework for high altitude and space environment simulation, ensuring subsystem readiness before final qualification and acceptance testing.

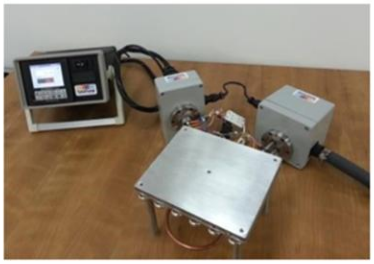
Qualifying components must be fast and efficient to keep up with the increased demand & reliability. Small components intended for high-altitude use must undergo functional testing prior to integration into sub-assemblies. This enhances overall product fidelity and enables early detection of component level defects.

VmSD144ME1-N
- Stainless Steel Enclosure
- 16" W × 16" D × 14" H
- 1 x 10-6 Torr

VmSD144ME2-N
- Stainless Steel Enclosure
- 18" Internal Diameter
- 12" or 18" Height
- Optional Viewing Window
- 1 x 10-6 Torr

VmSD144-N
- Pyrex bell jar
- 18" Internal Diameter
- 12" or 18" Height
- 1 x 10-6 Torr

VmSD49-N
- Pyrex bell jar
- 12" Internal Diameter
- 12" or 18" Height
- 1 x 10-6 Torr



Custom Thermal Plate
- Built into existing Chamber
- Multiple Sizes available

Benefits of TotalTemp Technologies Thermal Vacuum Chambers

In the realm of space-bound components, ensuring that each part meets rigorous standards is essential. The final thermal vacuum test (TVAC) is notoriously expensive; thus, prior testing at component level is not just wise, it is critical.

Rapid preliminary testing, in many cases, with tailored specifications can be highly beneficial to avoid future costly design modifications and schedule impact. Why is this such a crucial task? NASA, and national laboratories both here and abroad are extremely high-demand research facilities, wait times are typically determined by project priority and available funding. Access to these facilities can be very challenging, especially for non-government entities.

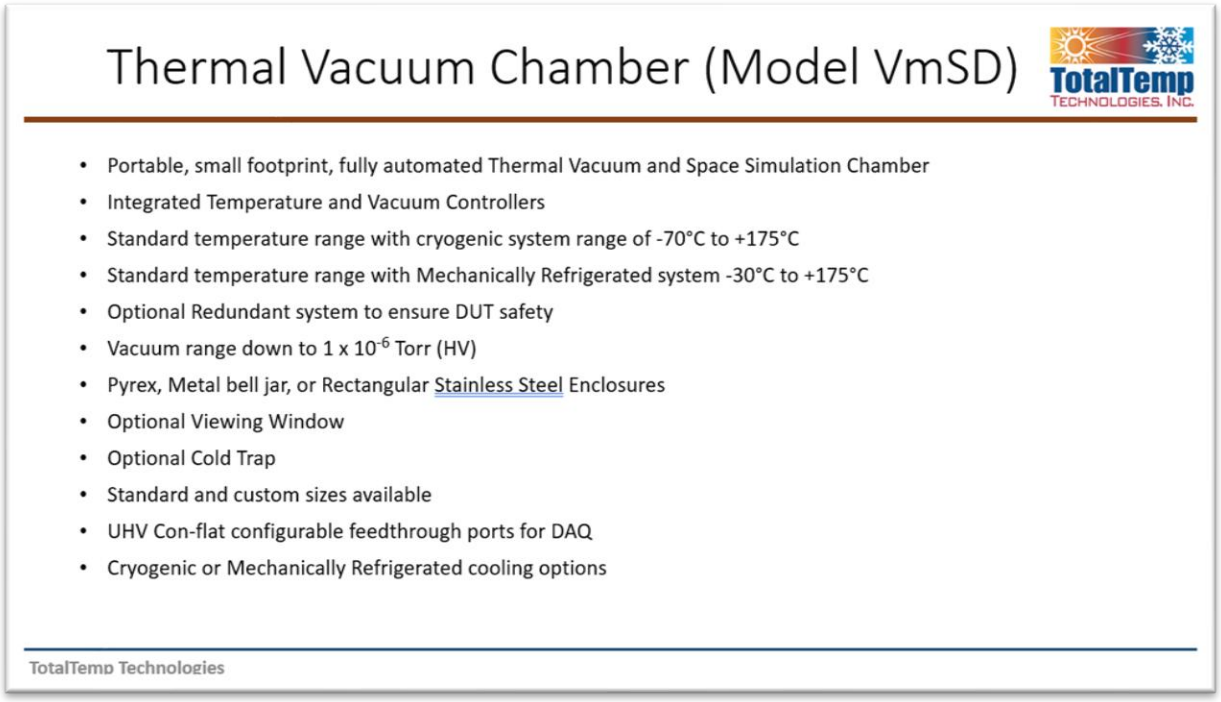
By 2026, over 1,800 partnership agreements were in place, and more than 10% of participating companies lost access after missing required technical milestones. Many might have succeeded with more preparation, which is why being fully ready for final qualification testing is critical. Owning a TVAC system geared for small parts helps ensure your team can meet those expectations.

Working with our partners on sensitive space bound component research and development, we have developed two new TVAC Chambers (Integrated Thermal Platform Vacuum Chamber). These enclosures are rated to achieve maximum

safety and accessibility. Our new stainless-steel enclosures with front door opening enables high throughput testing and provide easy access to the DUT (Device Under Test). We continue to offer both the Pyrex and metal bell-jar configurations as alternatives, as several global partners and universities have successfully completed their research and development using these economical thermal vacuum chambers.

A portable, small footprint Space Simulation Chamber with conductive heat transfer allows for fast and efficient testing for High Altitude or Space Simulation.

Please visit VmSD144 Data Sheet & VmSD49 Data Sheet for detail technical information.



TotalTemp primarily utilizes expendable cryogenic liquids, metered into the Thermal Platform, to achieve the desired temperature. Mechanically refrigerated version is also available. Ramp rates can be precisely controlled using our Synergy Nano PID controller, which features built-in support for all major communication protocols and can be configured for GPIB compatibility as needed. The Synergy Nano controller offers extensive capabilities, and its Product Data Sheet is available on the TotalTemp Technologies website.

Thank you for your interest

We look forward to supporting your thermal testing needs and contributing to the advancement of technology.

Please don't hesitate to contact our support team at support@totaltemptech.com if you have any questions or need further information. We're happy to help.

TotalTemp brings the vacuum of the cosmos to the precision of your lab.

TotalTemp Technologies, Inc.
PH: 888.712.2228
3630 Hancock St. Ste A.

TotalTemp
TECHNOLOGIES. INC.

FAX: 888.572.7881
San Diego, CA 92110
www.TotalTempTech.com