

CubeVAC

A compact and performant Thermal Vacuum Chamber to test complete Cubesats, systems and components. Compact in design, it is available in different configurations and provides a wide range of options with an excellent price/quality ratio.



CubeVAC can accommodate a full-sized 3U satellite and allows testing and formal qualification of nanosatellites and their systems, as well as avionics for larger satellites, payloads and, thanks to the optional window, optical sensors.

Main Characteristics

- Testing volume: 240mm (diameter) 330mm (length)
- Vacuum: ultimate pressure <math><1e-7\text{mbar}</math>
- Wide temperature ranges
 - Minimum temperature: -80°C (chiller), -190°C (LN2), -223°C (cryocooler)
 - Maximum temperature: $+150^{\circ}\text{C}$
- Electrical heating power: 640W (standard), 2kW (high-power)
- Up to 6 full-sized electrical feedthroughs on main body
- 5 free flanges for expansions (4x KF50, 1xISOK 160)
- Mounting: horizontal with rails (standard), vertical (optional), gimbaleed (optional)
- All equipment compatible with 230VAC 50/60Hz
- PID-controlled heating and cooling (LN2, Cryo versions)
- All equipment air-cooled (water cooling optional)
- Automated control and logging system (optional)

Dimensions

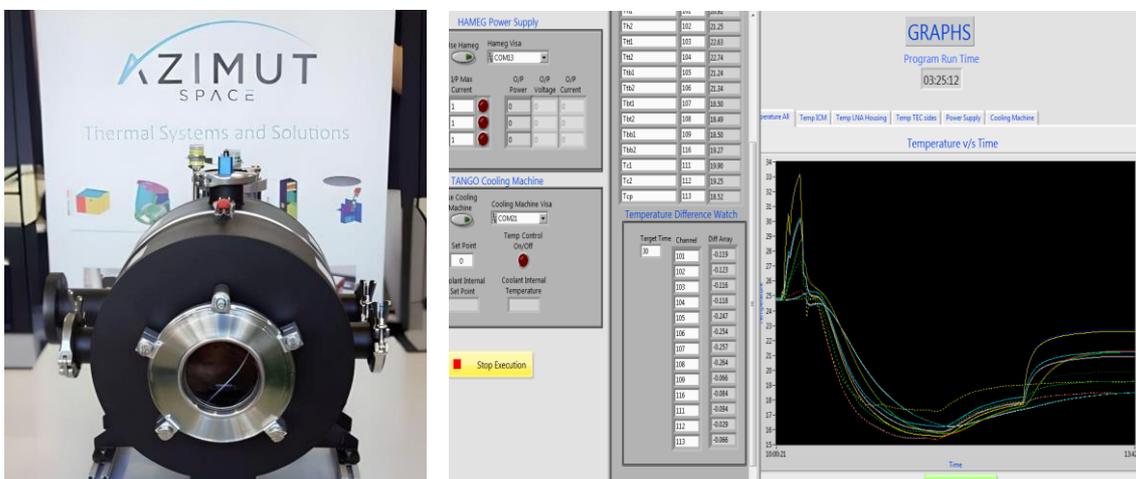
- Mass: <50kg
- Footprint: 50x60cm² (chamber), 60x100cm² (accessories rack)
- Cold plate: up to 200x200mm² fully thermal controlled, on telescopic rails
- Shroud: 250mm diameter, fully thermal controlled (chiller) or passive (LN₂, cryo version)

Performance

- Cooling rates: up to 3 °C/min (chiller), up to 5°C/min (cryocooler), up to 15°C/min (LN₂)
- Heating rates: up to 5°C/min (chiller), up to 6°C/min (electrical heating for cryo and LN₂)
- Time to reach operative vacuum (1e-5 mbar): <1 hour
- Compatible with full-ECSS qualification needs of Space Hardware
- Temperature uniformity: <2°C (shroud, standard), <1°C (cold plate, standard)
- Temperature Stability: <0.5°C/hr

Commercial

- Pricing starting from 69'000 EUR for the basic module (chamber, pumps, pressure measurement, 2x SubD 50 and 1x Power or SMA Feedthroughs, for table mounting)
- Various thermal Packages starting from 29'000 EUR (LN₂) and 39'000 EUR (chiller 1)
- Delivery time: 16-24 weeks



CUSTOMERS AND PARTNERS

ESA, DLR, Thales Alenia Space, AIRBUS D&S, OHB, TNO, Sonaca

ENGINEERING SOFTWARE

ESATAN-TMS, Thermal Desktop, StarCCM+, Thermica, Hyperworks, LabView, Solidworks, Solidedge,

THERMAL TESTING FACILITIES

Thermal Vacuum Chamber (0.54x0.54x0.54m³)
 Thermal life-cycling chamber (0.30x0.39x0.25m³)
 Clean Assembly

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