

NanoSuite™

Smarter Space Testbeds

Overview

The NanoSuite™ from Nanovac AB is a set of innovative software and data tools designed to make spacecraft qualification more efficient, safer, and fully connected. Integrated into our advanced vacuum systems, the NanoSuite™ empowers engineers to save time, reduce mission risk, and gain real-time insights during thermal vacuum, propulsion, and outgassing campaigns.

NanoTune™ - Adaptive Thermal Control

- ▶ Automatically adjusts to the unique thermal mass of each spacecraft or component.
- ▶ Smooth ramps without overshoot □ protects sensitive hardware.
- ▶ Reduces operator intervention and setup time
- ▶ Ensures repeatable, reliable temperature cycling.

NanoTrace™ - Real-Time Contamination Insight

- ▶ Integrated residual gas analysis (RGA) during bake-out and thermal cycles.
- ▶ Instant identification of released molecules: water, organics, propellant by-products.
- ▶ Thruster plume diagnostics for contamination mapping.
- ▶ Actionable qualification data instead of simple pass/fail.

NanoLink™ - Connected Testbeds

- ▶ Open API linking DUT ↔ Chamber ↔ Database.
- ▶ DUT can trigger chamber actions in real time.
- ▶ Unified dataset for full traceability and compliance.
- ▶ Ready for advanced analytics, AI, and machine learning.

Key Benefits

- ▶ Smarter testbeds – adaptive, automated, and efficient.
- ▶ Safer spacecraft – reduced hardware risk, contamination awareness.
- ▶ Fully connected – structured datasets across the test chain.

Technical Highlights

- ▶ Seamless integration into Nanovac thermal vacuum chambers, propulsion rigs, and outgassing systems.

- ▶ Modular design: NanoSuite can be deployed as a full package or as individual tools.
- ▶ Designed for high reliability and low operator workload.
- ▶ Supports international standards for space qualification and contamination control.

Applications

- ▶ Satellite Qualification: from CubeSats to GEO-class platforms.
- ▶ Propulsion Testing: electric and chemical thrusters, plume diagnostics.
- ▶ Material Outgassing: bake-out and contamination studies.
- ▶ Component Screening: sensors, optics, and critical subsystems.

Future Ready

The NanoSuite™ is not just a set of tools — it is a platform. By unifying test control and data, it lays the foundation for autonomous testbeds and AI-assisted spacecraft qualification. This means faster campaigns, better insights, and stronger mission assurance.

About Nanovac AB

Nanovac AB is a worldwide leader in thermal vacuum, propulsion testing, and outgassing solutions. With more than 30 years of vacuum and plasma engineering experience, we provide systems ranging from compact laboratory rigs to multi-meter chambers for advanced spacecraft testing.

