

THERMAL VACUUM TEST SYSTEM (TVAC)- TORONTVAC™ 1200 SERIES



Thermal Vacuum Test System (TVAC)-ToronTVAC™ 1200 Series

TVAC testing helps verify how satellite components perform in a high-vacuum, extreme-temperature environment. ToronTVAC™ 1200 is designed for satellite-level single units (components) that need stable thermal control and reliable vacuum performance.

The system combines a vacuum chamber, heat sink, and cold plate to support repeatable thermal cycling and performance checks. Its build focuses on clean vacuum operation, controlled heat transfer, and consistent temperature results.

ToronTVAC™ 1200 is a thermal vacuum (TVAC) test system built for component-level space simulation. It creates a controlled low-pressure environment while cycling temperature across a wide range to evaluate functionality, thermal behavior, and durability. A dedicated heat sink and cold plate support heat extraction and thermal balance during test profiles.

The chamber size supports practical fixture setups for satellite subsystems and instrument modules. This configuration suits qualification, acceptance, and investigation testing in aerospace and advanced electronics labs.

APPLICATIONS

Thermal Vacuum Test System (TVAC)-ToronTVAC™ 1200 Series

Applications

ToronTVAC™ 1200 supports TVAC testing for satellite-level single units (components) where performance must be verified under vacuum and thermal extremes. It fits R&D labs, qualification programs, and production screening workflows.

- Satellite component qualification and acceptance testing
 - Validate functional stability during thermal cycling under vacuum.

- Thermal balance and thermal cycling studies
 - Evaluate heat transfer behavior, thermal interfaces, and temperature gradients.
- Space-grade electronics and avionics modules
 - Test control boards, power units, converters, and communication electronics in TVAC conditions.
- Sensors and payload subassemblies
 - Screen sensors, optical heads, instrument modules, and subsystem assemblies for temperature-related drift.
- Reliability and failure analysis
 - Recreate vacuum-temperature conditions to confirm root causes and verify corrective actions.
- Outgassing and contamination-sensitive evaluations
 - Support clean vacuum testing approaches where material behavior in vacuum matters for space hardware.



FEATURES

Thermal Vacuum Test System (TVAC)-ToronTVAC™ 1200 Series Key Features

Built for Vacuum and Corrosion Resistance

- S30408 stainless steel construction supports corrosion resistance and long service life in humid lab conditions and demanding maintenance cycles.
- Stable chamber structure supports repeatable sealing and reliable vacuum operation over time.

Thermal Performance for TVAC Work

- Wide temperature capability for heat sink and cold plate to support thermal cycling and thermal balance testing.
- Heat sink uniformity control helps reduce temperature variation across the thermal interface area.
- High temperature control accuracy supports consistent test conditions across runs.

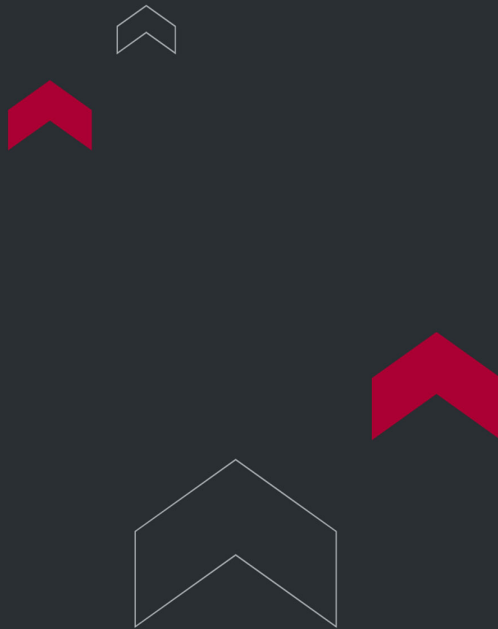
Vacuum Capability for Space-Simulation Conditions

- Low operating pressure and deeper ultimate pressure support TVAC environments used for satellite component verification.

TECHNICAL SPECIFICATIONS

Thermal Vacuum Test System (TVAC)-ToronTVAC™ 1200 Series Technical Specifications

Specification	Details		
Model	ToronTVAC™ 1200 A	ToronTVAC™ 1200 B	ToronTVAC™ 1200 C
Chamber Dimensions	φ 1200 mm × 1500 mm	φ 1200 mm × 1500 mm	Φ 1200 mm × 1500 mm
Heat Sink Dimensions	φ 1000 mm × 1500 mm	φ 1000 mm × 1500 mm	Φ 1000 mm × 1500 mm
Cold Plate Dimensions	L 900 mm × W 500 mm	L 1200 mm × W 600 mm	L 1100 mm × W 700 mm
Operating Pressure	$\leq 5.0 \times 10^{-3}$ Pa	$\leq 1.3 \times 10^{-3}$ Pa	$\leq 5.0 \times 10^{-4}$ Pa
Ultimate Pressure	$\leq 5.0 \times 10^{-5}$ Pa	$\leq 5.0 \times 10^{-5}$ Pa	$\leq 5.0 \times 10^{-5}$ Pa
Heat Sink and Cold Plate Temperature Range	-150°C to +150°C	≤ 100 K (LN2)	-70°C to +150°C
Heat Sink Temperature Uniformity	$\leq \pm 5^{\circ}\text{C}$	$\leq \pm 5$ K	$\leq \pm 3^{\circ}\text{C}$
Temperature Control Accuracy	$\leq 0.5^{\circ}\text{C}$		



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