

THERMAL VACUUM (TVAC) TEST CHAMBER - TORONTVAC™ 1500 SERIES



Thermal Vacuum (TVAC) Test Chamber - ToronTVAC™ 1500 Series

ToronTVAC™ 1500 is designed to simulate space-like conditions while supporting repeatable temperature cycling for larger units and assemblies. The system combines a vacuum chamber, heat sink, and cold plate to create stable thermal interfaces during test profiles. This setup helps identify performance drift, thermal interface issues, and failure modes that only appear under vacuum and temperature extremes.

ToronTVAC™ 1500 is a thermal vacuum (TVAC) test chamber built for reliability and performance evaluation of individual units under simulated space environments. The chamber reaches low pressure while the heat sink and cold plate provide controlled thermal exposure across the test article interface. The configuration supports controlled thermal cycling for qualification, acceptance, and investigation workflows.

The larger chamber volume allows practical fixturing, instrumentation, and cable routing for complex unit setups. Temperature uniformity targets consistent exposure, which supports more comparable results across repeated TVAC runs.

APPLICATIONS

Thermal Vacuum (TVAC) Test Chamber - ToronTVAC™ 1500 Series Applications

ToronTVAC™ 1500 supports TVAC programs where vacuum stability and thermal control must be repeatable for engineering decisions.

- Satellite subsystem and larger component testing under TVAC conditions
- Thermal cycling to screen for latent defects tied to manufacturing or process variation
- Thermal balance studies for heat transfer behavior and interface validation

- Reliability screening for avionics, power electronics, RF modules, and control units
- Failure analysis and verification testing after design or process changes



FEATURES

Thermal Vacuum (TVAC) Test Chamber - ToronTVAC™ 1500 Series Key Features

Corrosion-Resistant Chamber Build

S30408 stainless steel construction supports corrosion resistance and long service life in lab environments. The chamber structure is suited for repeated sealing cycles and routine maintenance exposure.

Stable Thermal Control for TVAC Profiles

A controlled heat sink and cold plate support thermal cycling and thermal stress profiles. Heat sink uniformity helps reduce temperature variation across the thermal interface area.

Vacuum Capability for Environmental Simulation

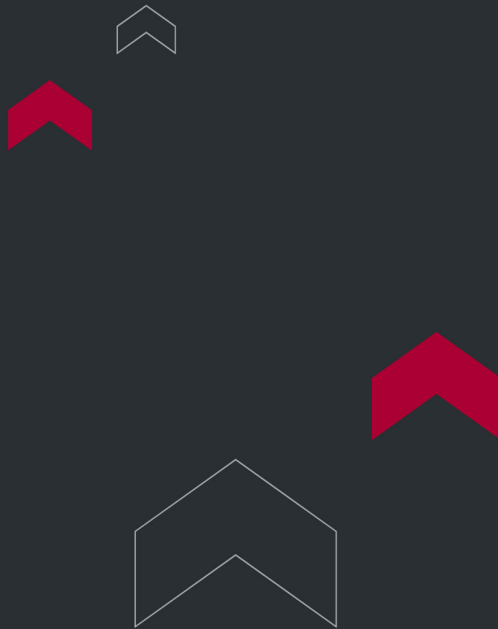
Low operating pressure supports space-simulation style testing conditions. Ultimate pressure capability supports deeper vacuum testing where outgassing and vacuum-driven behaviors matter.

TECHNICAL SPECIFICATIONS

Thermal Vacuum (TVAC) Test Chamber - ToronTVAC™ 1500 Series Technical Specification

Specification	Details		
Models	ToronTVAC™ 1500Q	ToronTVAC™ 1500W	ToronTVAC™ 1500C

Chamber Dimensions	Φ 1500 mm × 2000 mm	Φ 1500 mm × 2300 mm	Φ 1500 mm × 1800 mm
Heat Sink Dimensions	Φ 1300 mm × 2000 mm	Φ 1300 mm × 2300 mm	Φ 1200 mm × 1800 mm
Cold Plate Dimensions	L 1800 mm × W 1000 mm	L 1900 mm × W 850 mm	L 1200 mm × W 800 mm
Operating Pressure	$\leq 6.65 \times 10^{-3}$ Pa	$\leq 1.3 \times 10^{-4}$ Pa	$\leq 1.3 \times 10^{-3}$ Pa
Ultimate Pressure	$\leq 5.0 \times 10^{-4}$ Pa	$\leq 5.0 \times 10^{-5}$ Pa	$\leq 5.0 \times 10^{-4}$ Pa
Heat Sink and Cold Plate Temperature Range	-70°C to +150°C	-70°C to +125°C	-75°C to +120°C
Heat Sink Temperature Uniformity	$\leq \pm 2^{\circ}\text{C}$	$\leq \pm 2^{\circ}\text{C}$	$\leq \pm 3^{\circ}\text{C}$
Rate of Temperature Change	$\geq 1^{\circ}\text{C/min}$	$\geq 2.5^{\circ}\text{C/min}$	$\geq 1^{\circ}\text{C/min}$
Pressure Control Range		0.1 Pa to 100 kPa	



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