



Fully Customizable High Performance Thermal Test Enclosures

- Temperature ranges of -80°C to +225°C (opt. -100°C to +300°C)
- Double walled aluminium construction with RoHs compliant finish
- High temperature insulation
- Low thermal mass design
- Performance tuned airflow manifold available
- Excellent thermal uniformity
- Interchangeable test cartridges for PCB or module level testing
- Compatible with all Forced Air systems including the MPI ThermalAir



The DVTEST ThermaSAFE is an affordable, high-performance thermal test enclosure designed for your Device Under Test (DUT).

With next-generation devices and systems, precise thermal characterization is essential to optimize performance under temperature constraints. For many modern electronics, the Mean Time Between Failures (MTBF) halves with every 10°C increase in ambient temperature around the DUT.

ThermaSAFE enclosures allow temperature profiling right where it's needed—on the test bench, production floor, or in the lab—eliminating the need to transport parts to a large oven or environmental chamber. Available in multiple designs, including conventional hood, stackable lid, or clamshell, ThermaSAFE enclosures can be customized to meet specific requirements, ideal for rapid temperature cycling without the thermal mass limitations of larger enclosures.

ThermaSAFE provides fast, precise control of airflow and temperature within the enclosure and around your device. Each unit is a lightweight, portable enclosure, perfect for at-temperature design verification, burn-in, HALT & HASS pre-compliance testing, or interfacing with functional testers. ThermaSAFE enclosures are built for a broad temperature range and ensure a moisture- and static-free environment, isolating the DUT from external interference.



Custom Size & Fitting

The ThermoSAFE's biggest advantage is that it can be custom sized, shaped, and fitted allowing DUTs to be placed virtually anywhere inside the enclosure. This means maximum versatility in testing components, sensors, and assemblies all with one single enclosure. Add mounting brackets for various thermal imagers, configurable air inlets and outlets, and the ThermoSAFE provides infinite possibilities.

Safety & Protection Interlocks

Safety to the user and DUT are essential. The ThermoSAFE can be equipped with an integrated locking mechanism preventing opening of the lid prior to completion of the test.

Double Wall Design

All ThermoSAFEs are built using a double wall design with a minimum 1" insulation gap. Soft, lightweight insulation that is a non-hazardous, non-respirable advanced fiber that conforms to irregular shapes and delivers excellent thermal properties ensuring a minimum 3.4:1 thermal ratio.

Performance Tuned Manifold Design

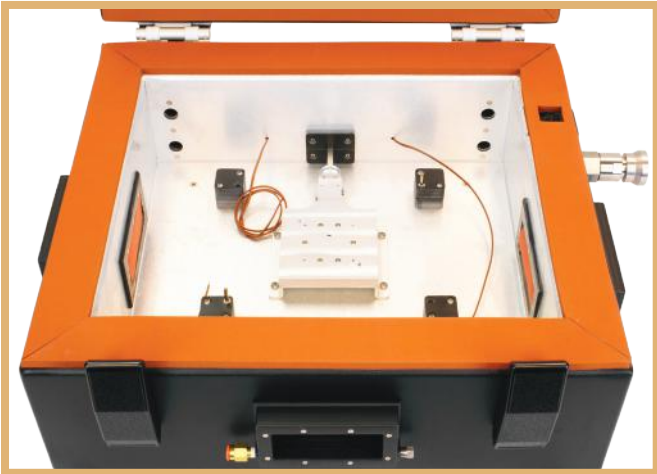
Optional performance tuned manifolds provides maximum thermal transfer efficiency from the air stream source to the DUT. Low thermal mass is key to increasing responsiveness while minimizing transition times. All single or multi-port manifold designs are custom engineered and regulated to deliver calibrated flow and pressure. The result; temperature uniformity and no dead air spots.

Quickly Connect

Enclosures are equipped with Swagelok™ rugged instrumentation grade (316 stainless steel) quick connect style fitting. These high performance connectors are ideal for test systems requiring full flow, frequent connection, minimal air inclusion, and spillage. Quick connect ensures convenient and easy access to setup and teardown.

Interchangeable Test Cartridges

Optional versatile ESD compliant PTFE machined base plate design enables the ThermoSAFE instant compatibility with any load board or internal test fixture. ThermoSAFE enclosures can also be fitted with third party functional tester interfaces. Quickly swap out one test cartridge for another without needing a second test enclosure. Cartridges can also be custom designed and fabricated with integrated performance tuned manifolds to meet any application.



Applications

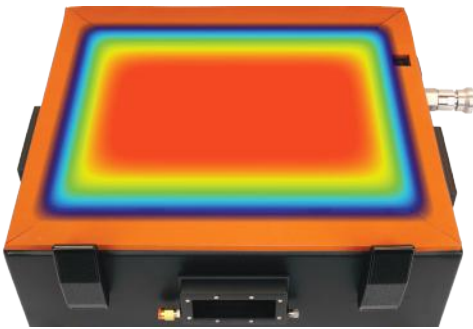
The performance of today’s semiconductors, sensors, mobile devices, and other components relies on their ability to functionally perform through a wider range of temperatures. Increased densities and higher speeds means DUT operating temperatures in devices such as CPUs can reach core temperatures in excess of 85°C. Understanding the impacts of temperature is more important than ever – ThermaSAFE enclosures provide thermal isolation excellence. They can be used for temperatures testing between -80°C and up to +225°C (opt. -100°C to +300°C). Combined with a “modular and customizable options” concept, the ThermaSAFE is indispensable for any thermal test application.

Markets

- | | | | |
|------------------|------------------|-----------------|-------------------------|
| • Aerospace | • Military | • Sensors | • Materials research |
| • Communications | • Transportation | • Fiber optics | • Nanotechnology |
| • Medical | • Wireless | • Semiconductor | • Electronic assemblies |

Why the ThermaSAFE?

- The ThermaSAFE comes in three standard footprints to satisfy any application. Full dimensional customization is available
- Optional interchangeable test cartridge design enables you to efficiently convert from one product to another in minutes reusing the same enclosure
- Spacious interior allows you to test multiple devices on the same cartridge resulting in higher throughput and lower cost of test
- All units are validated and supplied with a certificate of conformance for traceability
- Excellent thermal uniformity ensures constant temperature across the enclosure
- Single point design, manufacturing, and support services



General Specifications

Standard Features: • Double walled aluminum construction • Minimum 1” high temperature insulation • Swaglok™ quick connect fitting • Configurable Air inlets • Integrated cable pass throughs • 4” carrying handles • (2) Thermocouple or RTDs for DUT sensing • Temperature range -80°C to +225°C • Full flow design optimization for rates up to 18 cfm	Options & Accessories: • Internal ESD compliant PTFE base plate • Infrared Thermography compatibility kit • Safety & protection interlocks • ITAR compliant intrusion locking system • Bulkhead connectors (eg: SMA, N, QMA, USB, RJ45) • Performance tuned single port manifold • Interchangeable test cartridge • Internal fixturing for bed of nails, load boards • Performance tuned multiport manifold • Extended Temperature range -100°C to +300°C • Flexible mating hose assembly (0.5m, 1m, 2m, custom length)
--	--

More DVTEST Thermal Test Enclosures

With the growing demand for RF isolated test with thermal capabilities, DVTEST Thermal Shielded Enclosures are addressing the shortcomings of conventional separate test setups. By empowering our customers to evaluate the effects of temperature on crucial RF properties, DVTEST offers a comprehensive range of testing solutions to precisely address the requirements of RF isolated-thermal testing.

dbSAFE TSE 2.0

The dbSAFE TSE 2.0 utilizes proven double wall dbSAFE architecture to provide one of the best RF environments on the market. New and improved waveguide Air Inlets and Exhausts eliminate thermal response on the exterior of the unit and a larger inner to outer wall dimensions allows for more insulation opening up even more extreme temperature possibilities. dbSAFE TSE 2.0 units include an internal polymethacrylimide (PMI) based structural foam inner wall, covering a 0.5" broadband lossy foam RF absorber lining – no longer do you have to accept internal reflections for temperature testing!



dbSAFE TEC

The dbSAFE TEC utilizes an Air-to-Air thermoelectric cooler assembly that uses impingement flow to transfer heat. It offers dependable compact performance by cooling objects via convection. Heat is absorbed and dissipated through high density heat exchangers equipped with air ducted shrouds and brand name fans. The heat pumping action occurs from custom designed thermoelectric modules that achieve a high coefficient of performance (COP) to minimize power consumption. Advantages include: environmentally friendly, solid state operation, silent operation, compact design, precise temperature control, energy efficiency and no vibration.



dbSAFE DUO & Mechanical Devices

Mechanical Devices thermal control units allow for temperature forcing across a range of device sizes and types, low to high power dissipation, in socket or soldered to board. They stimulate the DUT to temperature precisely and consistently, by direct contact with a powerful thermal head offering temperature stability of $<0.5^{\circ}\text{C}$, fast time to temperature and are fully programmable for automation. When paired with our dbSAFE DUO enclosure with our patented "Flex Sleeve" technology, the thermal head is contained within an RF isolated environment but maintains its flexibility and be repositioned and connected to the DUT. The system is capable of RF shielded testing at extreme temperatures of -75°C to $+200^{\circ}\text{C}$.



Head Office:
2-1795 Ironstone Manor
Pickering, ON
L1W 3W9

US Sales Office:
4552 Sunbelt Dr.
Addison, TX
75001-5131

Phone: [1\(647\) 726-0058](tel:16477260058)
Email: info@dvtest.com
www.dvtest.com

© 2024 DVTEST Inc. All Rights Reserved



Please contact factory for custom sizing, additional options, and unique design application ideas.

Specifications are subject to change without notice.