



TORONTECH



THERMAL SHOCK CHAMBER

Thermal Shock Chamber: Ensuring Reliability in Extreme Conditions

A thermal shock chamber is a specialized testing system designed to evaluate the ability of materials, components, and products to withstand sudden and extreme temperature changes. These chambers rapidly alternate between hot and cold environments, simulating real-world conditions that products might encounter during transportation, operation, or storage. Thermal shock testing is critical for ensuring the durability, reliability, and safety of products across a wide range of industries.

Torontech's Thermal Shock Chambers

Torontech offers advanced thermal shock chambers, including both 2-zone and 3-zone configurations, to cater to diverse testing requirements:

1. **2-Zone Thermal Shock Chambers:** Designed with separate hot and cold zones, samples are transferred between these zones to simulate rapid thermal cycling.
2. **3-Zone Thermal Shock Chambers:** Featuring hot, cold, and ambient zones, these chambers enable more complex thermal cycling patterns for advanced testing needs.

Our thermal shock chambers deliver exceptional performance with precise temperature control, robust construction, and energy-efficient operation, ensuring reliable results every time.

Applications of Thermal Shock Chambers

Torontech's thermal shock chambers are widely used in various industries, including:

1. **Electronics and Semiconductors:** To test the reliability of PCBs, semiconductors, and sensors under extreme temperature variations.
2. **Automotive:** To validate the performance of engine components, plastic parts, and safety systems under thermal stress.

3. Aerospace and Defense: To evaluate the durability of critical components used in aircraft, satellites, and military equipment.
4. Energy and Batteries: To ensure the safety and performance of lithium-ion batteries and energy storage systems under rapid temperature changes.
5. Medical Devices: To test medical instruments and equipment for reliability in fluctuating environmental conditions.

Standards for Thermal Shock Testing

Torontech's thermal shock chambers are built to meet internationally recognized standards, ensuring accurate and consistent testing:

1. ASTM D5276: Focuses on evaluating the resistance of materials and packaging to thermal shock.
2. IEC 60068-2-14: Covers temperature change testing for electronic and mechanical components to simulate real-world environmental conditions.
3. MIL-STD-810: Used for testing the durability of equipment under harsh conditions in aerospace and defense applications.
4. JEDEC JESD22-A104: Widely used in the semiconductor industry for thermal cycling reliability testing of electronic components.

Why Choose Torontech's Thermal Shock Chambers?

1. Precision Engineering: Rapid temperature transitions with precise control for reliable results.
2. Versatile Configurations: Choose between 2-zone and 3-zone chambers to suit your testing needs.
3. Global Compliance: Fully certified to meet CSA, UL, and other regulatory requirements.
4. Custom Solutions: We provide modifications and certifications to meet the specific requirements of different industries and government bodies.

With Torontech's thermal shock chambers, you can confidently test and enhance the durability and reliability of your products, ensuring compliance with industry standards and customer expectations.

Explore our range of high-performance thermal shock chambers and discover the perfect solution for your testing requirements today.



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