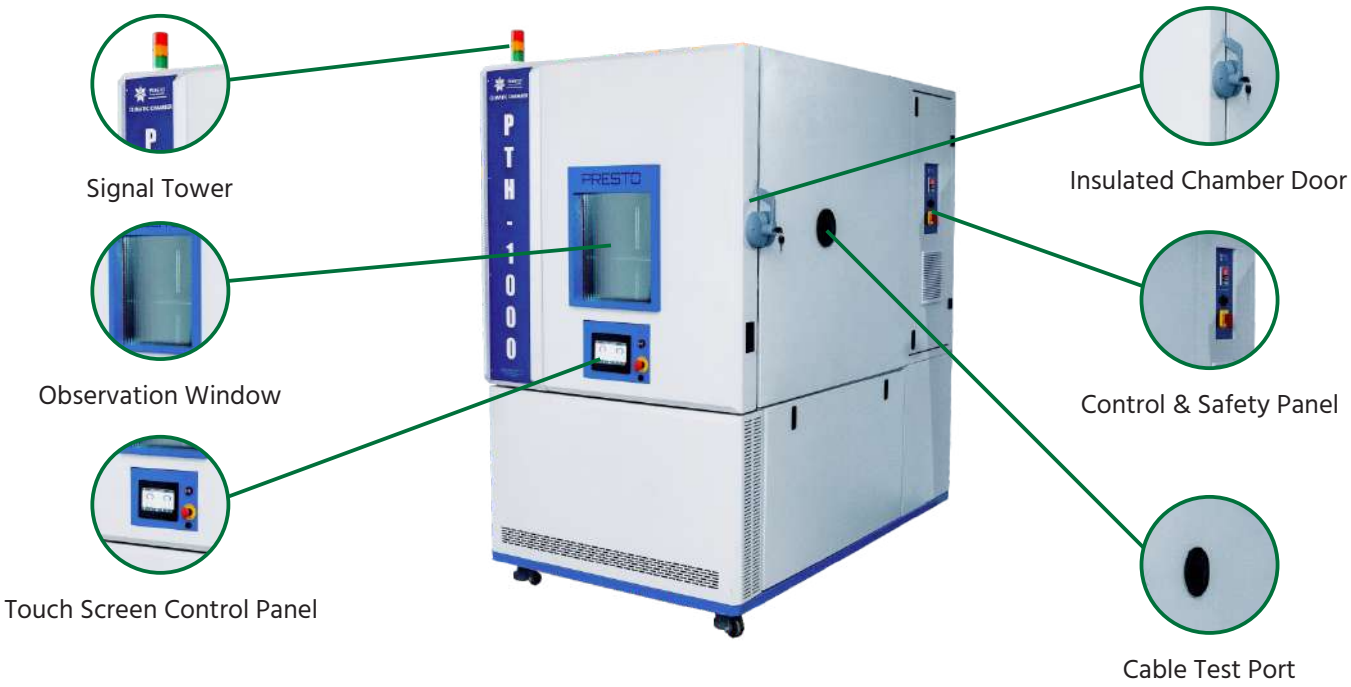
Presto Enviro
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Thermal Cycling Test Chamber



Model : PTH Series

Thermal Cycling Test Chamber is designed to expose materials and components to repeated cycles of high and low tempera tures within a controlled environment. The chamber combines precision heating and cooling systems with rapid temperature transition capabilities to simulate thermal stress conditions.

Thermal cycling chambers are built to evaluate how materials and components respond to repeated thermal stress, replicating the rapid temperature variations encountered in real-world environments. The tester measures parameters such as tempera ture range, ramp rate, and dwell duration, accurately controlled through an advanced programmable system. With this highly programmable equipment, the operator can create multiple temperature profiles and cycles, such as rapid heating and cooling, thermal shock, alternating high-low temperature cycles, and continuous temperature variation testing These programmed tests can operate for long durations without interruption and are used to observe changes in the product's adaptability, stability, and physical properties.

The Thermal Cyclic Test Chamber complies with various international testing standards including IEC, JIS, ASTM, ISO, and DIN. This environmental chamber is also referred to as a Hot and Cold Thermal Cycling Chamber. It helps determine how repeated temperature transitions affect the quality and functionality of a product.

Upon completion of the testing cycle, the results help identify areas where product design or material composition can be enhanced for improved performance and reliability. Therefore, this chamber plays a crucial role in defining the durability and service life of materials and components under fluctuating temperature conditions.

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NABL

Features

- No condensation or frost formation even during extended tests under low-temperature cycles.
- Equipped with an automatic refrigeration control system for seamless operation and enhanced user experience.
- Enables cyclic and programmable test functions with user-friendly controls.
- Includes a digital timer up to 999 hours for automatic test cut-off.
- Integrated safety mechanisms prevent the temperature from exceeding the set limits.
- Touchscreen HMI display for real-time parameter viewing and data logging functionality.
- Compact design with castor wheels for easy movement within laboratories.
- Thick insulated glass door ensures airtight sealing and superior thermal ef ciency.
- Multiple sample trays and stainless-steel racks allow simultaneous testing of several specimens.
- Inner chamber made of corrosion-resistant stainless steel (SS) for long-lasting durability.
- High-speed blower fans guarantee uniform air and temperature distribution.
- Fitted with premium-grade sensors for superior accuracy and precision.
- Japanese insulation technology using high-density polyurethane foam for effective thermal retention.
- Advanced in-built safety and control system to ensure operational reliability.
- LED illumination inside the chamber for clear visibility of samples during testing.

Touch Screen Interface - TechMaster

- The Touch Screen TechMaster Interface features an auto-tuning function integrated into a microprocessor-based controller to deliver precise and reliable test results.
- Offers real-time graphical representation of run time versus temperature variation.
- Built-in data recording system for continuous monitoring and temperature data tracking.
- Supports USB and Pen Drive connectivity for external data storage and report backup.
- Adjustable Process Value (PV) and Set Value (SV) settings available as an optional feature.
- Integrated Knox Security System ensures complete data protection and integrity.
- Admin-level lock settings prevent unauthorized access and allow password-protected configuration.
- Users can manage and adjust PID parameters through the advanced control menu.
- Equipped with an in-built alarm system for instant fault and condition alerts.
- Multilingual interface supports both Hindi and English for easy operation.
- System-generated reports include detailed Pass/Fail analysis based on user-defined criteria.
- Access to Fault History and Previous Reports directly from the interface for better traceability.
- Email notification alerts for user convenience and quick updates on test progress.
- Remote monitoring capability for easy observation and control from any connected device.
- LED lighting control system integrated within the chamber for improved internal visibility.
- Optional PV and SV customization settings to fine-tune testing parameters.

Safety- The Guadian

- The Thermal Cyclic Test Chamber is equipped with multiple advanced safety and protection mechanisms to ensure user and equipment safety during operation:
- Seven-point alarm protection system that provides live fault notifications and real-time alerts for any operational abnormalities.
- Temperature Overshoot Alarm activates automatically if the chamber exceeds defined limits.
- Cycle Completion Alert notifies the user when the programmed thermal cycle concludes.
- Low Coolant/Water Level Indication ensures proper functioning of the cooling system.
- Remote Monitoring Alert System keeps users updated about any fluctuations in set parameters for immediate corrective action.
- Emergency Shutdown Mechanism available in both manual and automatic modes for instant power-off during abnormal conditions.
- High-grade insulation materials and coatings are used to prevent electrical leakage and ensure user safety against potential electric shocks.
- Integrated SSR (Solid State Relay) for efficient, safe, and reliable switching during thermal cycling operations.

Technical Specificaations

Model	PTH-150	PTH-300	PTH-600	PTH-1000	PTH-1500
Temperature Range	A: -40°C~180°C B: -70°C ~ +180°C	A: -40°C~180°C B: -70°C ~ +180°C	A: -40°C~180°C B: -70°C ~ +180°C	A: -40°C~180°C B: -70°C ~ +180°C	A: -40°C~180°C B: -70°C ~ +180°C
Temperature Fluctuation	±0.5°C	±0.5°C	±0.5°C	±1°C	±1.5°C
Ramp Rate	+180°C to -40°C: 5.0°C/min	+180°C to -40°C: 5.0°C/min	+180°C to -40°C: 5.0°C/min	+180°C to -40°C: 5.0°C/min	+180°C to -40°C: 5.0°C/min
Temperature Uniformity	±1.0°C (-40°C ~ +100°C)	±1.5°C (-40°C ~ +100°C)	±2.0°C (-40°C ~ +100°C)	±2.0°C (-40°C ~ +100°C)	±2.0°C (-40°C ~ +100°C)
Temperature Gradient	±2.0°C (+100°C ~ +180° C / -40°C ~ -70°C)	±2.5°C (+100°C ~ +180°C / -40°C ~ -70°C)	±3°C (+100°C ~ +180°C / -40°C ~ -70°C)	±3.0°C (+100°C ~ +180° C / -40°C ~ -70°C)	±3.0°C (+100°C ~ +180°C / -40°C ~ -70°C)
Chamber Volume (L)	150L	300 L	600 L	1000 L	1500 L
Material (Inner Chamber)	Stainless Steel (SUS 304)	Stainless Steel (SUS 304)	Stainless Steel (SUS 304)	Stainless Steel (SUS 304)	Stainless Steel (SUS 304)
Material (Outer Body)	Powder-Coated Steel	Powder-Coated Steel	Powder-Coated Steel	Powder-Coated Steel	Powder-Coated Steel
Insulation	High-Density Polyurethane Foam (Japanese Technology)	Same	Same	Same	Same
Cooling System	Air/Water Cooled (Optional)	Air/Water Cooled	Air/Water Cooled	Air/Water Cooled	Air/Water Cooled
Compressor Type	Hermetic/Scroll Type	Hermetic/Scroll Type	Hermetic/Scroll Type	Hermetic/Scroll Type	Hermetic/Scroll Type
Controller Type	Touch Screen HMI – TechMaster	Same	Same	Same	Same
Safety System	Multi-level Test Guardian Protection	Same	Same	Same	Same
Power Supply	3 Phase, AC 380V ±10%, 50/60Hz	Same	Same	Same	Same