LORDERAN

THERMAL SHOCK TEST CHAMBER

PROGRAMMABLE · MIL-STD COMPLIANT

Two-Zone Thermal Shock Test Chamber

-65 °C → **200 °C**

Independent hot and cold zones with a pneumatic specimen transfer in 15 seconds or less.



≤ 15 s	50 · 100 · 200 L	±0.5 °C	3 Years
ZONE TRANSFER	CAPACITIES	TEST-AREA FLUCTUATION	WARRANTY

Models: CJ100 · CJ200 · CJ500

www.lorderan.com

PRODUCT OVERVIEW

Expose latent defects, fast

The LORDERAN Programmable Two-Zone Thermal Shock Chamber subjects products and materials to rapid, repeated temperature changes that simulate harsh real-world conditions. Two independently controlled zones — one hot, one cold — are linked by a specimen carrier that moves the device under test between them with a pneumatic transfer mechanism.

The mismatch in thermal expansion (CTE) between materials creates stress at interfaces and joints. Thermal shock exposes latent defects from design, materials or manufacturing — such as solder-joint cracking, delamination, package cracking, and structural or sealing failures.



Two-zone thermal shock chamber front view

60 ~ 200 °C	-10 ~ -65 °C	≤ 5 min	±0.5 °C
HOT EXPOSURE	COLD EXPOSURE	TEMP. RECOVERY	TEST-AREA FLUCTUATION

How it works

HOT ZONE
Pre-heat chamber · 60 to 200 °C

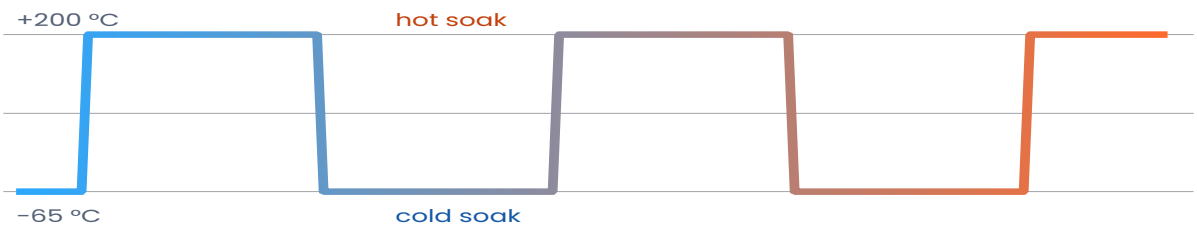
COLD ZONE
Pre-cool chamber · -10 to -65 °C

Specimen carrier
Holds the device under test

Quick transfer
Hot ↔ cold within 15 s

Programmable controller
Limits, soak time, cycle count

Repeated cycling between extremes



Schematic illustration of a thermal-shock profile. Temperatures, soak time and cycle count are programmable.

FEATURES

Precision engineering, hot and cold

Operation & display

LCD touchscreen with parameters, graphical test curve, running time and heater status. PID auto-tuning and interactive program creation — only the temperature setting is needed to start automatic refrigeration operation.



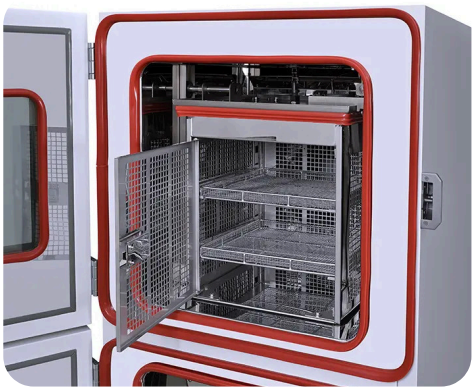
Touchscreen: hot room, cold room and test status

Precision & capacity

Setting accuracy 0.1 °C and 1 second. Program capacity 10 patterns × 99 segments, in programmed (automatic cycling) or constant (steady-state) mode.

Chamber design

Hot and cold rooms are independently controlled, with separate doors, designed to limit heat loss from the hot zone and cold leakage from the cold zone. Each zone can also be used on its own — the hot zone for aging or burn-in, the cold zone for low-temperature storage or functional tests.



Chamber interior with stainless-steel shelving

Refrigeration system

Binary cascade air-cooled system with one set of imported French fully enclosed compressors. Energy-regulation technology adjusts energy use and cooling capacity to reduce operating cost and failure rate. Both the high and low cycles operate on the reverse Carnot cycle.

Safety & connectivity

Automatic fault detection with detailed fault display and alarms; a separate, independent over-temperature protection instrument; RS-485 interface and dedicated software for remote data management; cumulative working-time counter for maintenance tracking.



LORDERAN thermal shock chambers in a production environment

SPECIFICATIONS

Technical specifications

Parameter	50 L CJ100	100 L CJ200	200 L CJ500
MODEL & SIZE			
Test space volume	**50 L**	**100 L**	**200 L**
SKU	CJ100	CJ200	CJ500
Inner size (W × D × H)	**450 × 450 × 500 mm**	**600 × 600 × 600 mm**	**800 × 800 × 800 mm**
External size (W × D × H)	**900 × 2050 × 2000 mm**	**1100 × 2220 × 2100 mm**	**1120 × 2400 × 2200 mm**
Test area size	**370 × 360 × 380 mm**	**430 × 490 × 500 mm**	**650 × 650 × 500 mm**
Load capacity of test area	**40 kg**	**40 kg**	**60 kg**
TEMPERATURE PERFORMANCE			
Temperature range	-65 ~ 200 °C	-65 ~ 200 °C	-65 ~ 200 °C
Temperature fluctuation	±2 °C	±2 °C	±2 °C
Test-area temperature fluctuation	±0.5 °C	±0.5 °C	±0.5 °C
Hot exposure range	60 ~ 200 °C	60 ~ 200 °C	60 ~ 200 °C
Heat-up time	Within 30 min ambient to +200 °C	Within 30 min ambient to +200 °C	Within 30 min ambient to +200 °C
Cold exposure range	-10 ~ -65 °C	-10 ~ -65 °C	-10 ~ -65 °C
Pull-down time	Within 80 min ambient to -65 °C	Within 80 min ambient to -65 °C	Within 80 min ambient to -65 °C
Temperature recovery time	Within 5 min	Within 5 min	Within 5 min
Transfer time (hot ↔ cold chamber)	Within 15 s	Within 15 s	Within 15 s
POWER & ELECTRICAL			
Power supply	220 V / 380 V / 480 V 50 / 60 Hz, 3-phase	220 V / 380 V / 480 V 50 / 60 Hz, 3-phase	220 V / 380 V / 480 V 50 / 60 Hz, 3-phase
Installed power	**15 kW**	**21 kW**	**28 kW**
Rated current (3-phase)	**49 A (208 V)** **43 A (240 V)** **22 A (480 V)**	**69 A (208 V)** **59 A (240 V)** **30 A (480 V)**	**92 A (208 V)** **80 A (240 V)** **40 A (480 V)**
SYSTEM			
Cooling method	Air-cooled or water-cooled (8–10 HP chiller required)	Water-cooled (10–12 HP chiller required)	Water-cooled (12–15 HP chiller required)
Refrigeration system	Binary cascade, air-cooled	Binary cascade, air-cooled	Binary cascade, air-cooled
Refrigerant	R404, R23	R404, R23	R404, R23
Noise level	Max 65 dB	Max 65 dB	Max 65 dB

Dimensions are in millimetres. Models are labelled by test-space volume (50 L / 100 L / 200 L); the SKUs are CJ100 / CJ200 / CJ500.

AT A GLANCE

Dimensions, power & installation

CJ100

50 L

Inner size	**450 × 450 × 500 mm**
External size	**900 × 2050 × 2000 mm**
Test area	**370 × 360 × 380 mm**
Load	**40 kg**
Installed power	**15 kW**
Current 208 V	**49 A**
Current 240 V	**43 A**
Current 480 V	**22 A**

CJ200

100 L

Inner size	**600 × 600 × 600 mm**
External size	**1100 × 2220 × 2100 mm**
Test area	**430 × 490 × 500 mm**
Load	**40 kg**
Installed power	**21 kW**
Current 208 V	**69 A**
Current 240 V	**59 A**
Current 480 V	**30 A**

CJ500

200 L

Inner size	**800 × 800 × 800 mm**
External size	**1120 × 2400 × 2200 mm**
Test area	**650 × 650 × 500 mm**
Load	**60 kg**
Installed power	**28 kW**
Current 208 V	**92 A**
Current 240 V	**80 A**
Current 480 V	**40 A**

Installation requirements

- Power: 220 V / 380 V / 480 V, 50 / 60 Hz, 3-phase
- 50 L: air-cooled or water-cooled — 8–10 HP chiller required
- 100 L: water-cooled — 10–12 HP chiller required
- 200 L: water-cooled — 12–15 HP chiller required



Applications

Electronics & semiconductors
Solder-joint and encapsulation resistance to thermal fatigue.

Automotive components
Temperature cycling, such as engine running versus shutdown in freezing or hot weather.

Aerospace
Rapid transitions such as ground heat at take-off and extreme cold at altitude.

General manufacturing
Checking tolerances and material pairings for repeated thermal cycling.

Reference standards

- RTCA DO-160 · SAE J1211
- IEC 60068-2-14 · ISO 14971 · ISO 16750 · IEC 60917
- Also stated to comply with IEC 61587-1, IEC 60601-1, IEC 60335-1 and IEC 60721

Warranty & service

- **Three-year** warranty
- Refund or replacement for major non-repairable defects
- 30-day money-back guarantee on most new, unopened items
- Free door-to-door shipping; DDP terms available

Request a quotation

Contact LORDERAN for pricing, configuration and shipping details.

www.lorderan.com