



KINTEK SOLUTION

Battery Safety Testing Equipment Catalog

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KINTEK SOLUTION

COMPANY PROFILE

>>> About Us

KINTEK Solution is a technology-driven innovator specializing in comprehensive laboratory equipment for battery R&D and advanced materials research. Our portfolio spans the entire cell fabrication workflow—from mixing, coating, and precision pressing (automatic, heated, isostatic) to cell assembly and testing. Also essential in ceramics and powder metallurgy, our systems prioritize precision, safety, and repeatability, empowering researchers and industrial labs to achieve groundbreaking results.



Small Temperature Cycling Test Chamber For Battery Cells Automotive Electronics And Materials

Item Number: DA04



Introduction

Small temperature cycling test chamber for battery cells automotive components electronics and materials with -40°C to +150°C control 5°C per minute transitions and reliable environmental testing performance for demanding high low temperature alternating humidity reliability evaluations in research and applications

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Application	Description	Key Benefit
Battery Cell Reliability Testing	Expose battery cells to controlled low-temperature, high-temperature, and alternating temperature conditions to evaluate environmental response during research and validation.	Supports repeatable thermal stress testing across a broad temperature range.
Automotive Component Validation	Test automotive components under temperature transitions representative of demanding vehicle operating environments.	Helps identify temperature-related performance or durability concerns before production deployment.
Electrical and Electronic Product Testing	Evaluate electrical and electronic products, assemblies, and components during low-temperature and elevated-temperature environmental simulations.	Provides a consistent chamber environment for reliability and quality verification.
Materials Research	Study the response of materials to repeated or sustained temperature exposure across -40°C to +150°C.	Enables controlled comparison of material behavior under defined thermal conditions.
Environmental Reliability Programs	Conduct high-temperature, low-temperature, and high-low temperature alternating environmental tests on products, parts, and materials.	Consolidates multiple thermal test requirements in one laboratory system.
Academic and Industrial R&D	Support research programs that require measured thermal transitions, stabilized temperature conditions, and documented test parameters.	Delivers a practical platform for repeatable experiments and development testing.

Category	Parameter	Specification
Product Identification	Product item number	DA04
Application	Applicable test objects	Battery cells, automotive components, electrical and electronic products, other products, parts, and materials
Test capability	Environmental simulation	High-temperature, low-temperature, and high-low temperature alternating humidity reliability tests
Chamber capacity	Effective volume	150 L
Internal dimensions	Width × height × depth	W 500 mm × H 600 mm × D 500 mm
External dimensions	Width × height × depth	W 750 mm × H 1780 mm × D 1500 mm
Test conditions	Ambient temperature	5°C to 30°C
Test conditions	Ambient humidity	10% to 85% RH
Test conditions	Test specimen weight	None specified

Category	Parameter	Specification
Test conditions	Test specimen heat generation	None specified
Temperature measurement	Analysis resolution	0.01°C
Temperature performance	Temperature range	-40°C to +150°C
Temperature performance	Temperature fluctuation	±0.5°C
Temperature performance	Temperature deviation	≤±2°C after temperature stabilization; at any time, the difference between the highest and lowest temperatures and the nominal temperature
Temperature performance	Temperature gradient	≤±2.0°C after temperature stabilization; the maximum difference between the average temperatures at any two points in the chamber over any time interval. The new standard uses temperature gradient in place of the former temperature uniformity specification.
Thermal transition	Heating rate	Average 5°C per minute from -40°C to +85°C, non-linear, empty load
Thermal transition	Cooling rate	Average 5°C per minute from +85°C to -40°C, non-linear, empty load
Noise	Equipment noise	≤70 dB (A Level)
Physical data	Equipment weight	650 kg
Electrical requirements	Power supply	AC 380 V, 50 Hz, three-phase

Low Pressure Test Chamber High Altitude Test Chamber Battery Explosion Proof Test Chamber

Item Number: DA06



Introduction

Evaluate battery safety under 11.6kPa low pressure conditions with this high altitude explosion proof test chamber featuring PLC touchscreen control automatic vacuum replenishment reinforced viewing protection and clear observation for reliable no fire no smoke and no leakage validation.

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Application	Description	Key Benefit
Battery low-pressure safety testing	Simulates reduced atmospheric pressure by testing battery samples at 11.6kPa (1.68psi) negative pressure.	Helps verify that batteries do not explode, ignite, smoke, leak, or damage their protection valves under low-pressure conditions.
High-altitude battery simulation	Reproduces the low-pressure environment associated with high-altitude operation or transportation.	Provides a controlled method for evaluating battery safety before use in elevated locations or altitude-related scenarios.
Lithium-ion battery development	Supports battery R&D teams assessing cell or battery behavior during abnormal-environment testing.	Generates observable test outcomes through direct viewing, displayed test results, and controlled vacuum conditions.
Battery quality control	Provides a repeatable enclosure for production or incoming inspection teams performing safety-oriented pressure tests.	Helps standardize test conditions and supports consistent review of pressure-related failure behavior.
Battery protection valve verification	Examines whether the battery protection valve remains intact after exposure to the specified negative pressure.	Supports confirmation that critical protective components are not damaged during testing.
Battery failure observation	Allows operators to monitor the test area through 20mm tempered explosion-proof glass, explosion-resistant film, and external LED lighting.	Improves visibility of smoke, leakage, fire, or other abnormal conditions without opening the chamber during testing.
Academic and advanced materials research	Provides a dedicated low-pressure environment for university, research institute, and materials laboratory investigations involving batteries.	Combines programmable touchscreen operation, automatic vacuum replenishment, and an easy-clean chamber for repeatable research workflows.

Parameter	Specification
Product item number	DA06
Primary application	Battery low-pressure and high-altitude simulation testing
Test pressure	11.6kPa negative pressure
Test pressure in psi	1.68psi negative pressure
Test sample requirement	All tested samples are tested under 11.6kPa (1.68psi) negative pressure
Safety test objective	Battery must not explode or catch fire; battery must not produce smoke or leak liquid; battery protection valve must not be damaged
Control system	PLC touchscreen control system
Vacuum input	Touchscreen manual input of vacuum value
Vacuum unit selection	Touchscreen input and selection of vacuum unit
Test display	Actual test result and corresponding test data displayed during testing

Parameter	Specification
Vacuum setting	Automatic vacuum value setting available
Vacuum maintenance	Automatic vacuum replenishment available
Cabinet material	High-quality cold-rolled steel plate
Cabinet surface treatment	Electrostatic powder coating
Cabinet coating characteristics	Hard, firmly bonded coating with strong rust resistance
Working chamber material	High-quality steel plate
Working chamber design	Rounded-corner, smooth, flowing interior surface
Working chamber cleaning	Easy-clean interior design
Door construction	Reinforced front door design
Door glass	20mm thick tempered explosion-proof glass
Door glass protection	Explosion-proof film applied to the viewing window for double protection
Door reinforcement	Reinforcing ribs welded inside the door to increase strength
Door hinge	External hinge on the left side; reinforced equipment-specific standard component
Door lock	High-strength door locking buckle on the right side; reinforced equipment-specific standard component
Hinge and lock serviceability	Standard high-strength components designed for safe, convenient installation and replacement
Door sealing	Rubber sealing ring between the working chamber and glass door
Sealing function	Helps the chamber reach a higher vacuum level
Lighting	LED lighting mounted outside the viewing window
Lighting arrangement	Light reflects into the inner chamber for observation
Lighting purpose	Clear observation of battery condition while supporting lighting component service life and safety
Configuration	Integrated construction with low-pressure chamber below and vacuum pump above
Mobility	Four casters at the bottom
Caster function	Convenient movement and fixing

High Low Temperature Alternating Constant Temperature Test Chamber

Item Number: DA11



Introduction

High low temperature alternating constant temperature test chamber delivers controlled 20C to 100C environmental reliability testing for batteries automotive components and electrical electronic products with 408L capacity stable accuracy and programmable thermal cycling performance for demanding laboratory qualification programs.

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Application	Description	Key Benefit
Battery reliability evaluation	Expose battery-related products and components to controlled high-temperature, low-temperature, and alternating-temperature conditions during research and reliability assessment.	Helps identify thermal-response issues before broader cell, pack, or component qualification activities.
Automotive component environmental testing	Test vehicle-related parts under programmed thermal conditions, including high and low temperature exposure and repeated temperature changes.	Supports evaluation of component durability for automotive development and quality programs.
Electrical product qualification	Assess electrical products and subassemblies for performance consistency after exposure to controlled temperature environments.	Provides repeatable conditions for investigating temperature-related functional or physical changes.
Electronic component screening	Evaluate electronic products, modules, and related parts under sustained and alternating thermal conditions.	Helps engineering teams compare samples under defined chamber performance limits.
Materials thermal performance research	Study materials, product parts, and assemblies under high-temperature, low-temperature, and temperature-transition environments.	Creates a controlled basis for observing thermal endurance and material response.
Component and part reliability testing	Subject individual parts and product components to environmental simulation during design verification or incoming quality evaluation.	Enables targeted investigation without requiring a full finished-product test setup.
Laboratory environmental simulation	Establish defined temperature conditions for R&D and validation laboratories working with products, parts, and materials.	Combines usable chamber capacity with specified fluctuation, deviation, gradient, and overshoot controls.

Parameter	Specification
Product Item Number	DA11
Applicable Test Types	High-temperature test, low-temperature test, high-low temperature alternating test, and environmental simulation reliability test
Applicable Samples	Batteries, various automotive parts, electrical and electronic products, other products, components, and materials
Effective Volume	408L
Internal Chamber Dimensions	W600mm × H850mm × D800mm
External Dimensions	W800mm × H1800mm × D1620mm
Test Condition: Ambient Temperature	5□ 35℃
Test Condition: Ambient Humidity	≤85%RH

Parameter	Specification
Test Condition: Specimen Weight	None
Test Condition: Specimen Heat Generation	None
Temperature Range	20°C ~ +100°C (full-range controllable)
Temperature Fluctuation	≤±0.5°C (after temperature stabilization, the magnitude of temperature change at any point in the test chamber within the specified time)
Temperature Deviation	≤±2.0°C (after temperature stabilization, the difference between the maximum temperature, minimum temperature, and nominal temperature at any time)
Temperature Gradient	≤±2°C (after temperature stabilization, the maximum difference between the average values of any two points in the chamber at any time interval; the new standard uses temperature gradient in place of the previous temperature uniformity designation)
Heating Rate	Full-range average 1~3°C/min (non-linear, no-load)
Cooling Rate	Full-range average 0.75~1°C/min (non-linear, no-load)
Heating and Cooling Overshoot	≤±2.0°C
Applicable Test Standards	GB/T 2423.1 2008 Test A, High Temperature Test Method; GB/T 2423.2-2008 Test B, Low Temperature Test Method
Noise	≤70dB (A-weighted sound level)
Equipment Weight	540KG
Rated Power	5.0KW
Power Supply	AC 380V, 50Hz, three-phase

Large Temperature Cycling Test Chamber For Environmental Reliability Testing

Item Number: DA13



Introduction

Large temperature cycling test chamber delivers controlled -40°C to +150°C environmental reliability testing for battery cells automotive components electrical and electronic products with 800L capacity 5°C per minute thermal transitions and precise monitoring for demanding laboratory qualification programs.

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Application	Description	Key Benefit
Battery Cell Environmental Reliability Testing	Subjects battery cells to low temperature, high temperature, and temperature cycling conditions within the specified operating range.	Supports evaluation of cell behavior under controlled environmental temperature exposure.
Automotive Component Qualification	Tests automotive parts and assemblies under alternating hot and cold conditions relevant to vehicle operating environments.	Provides an 800L workspace for larger component-level test articles.
Electrical Product Temperature Testing	Evaluates electrical products and components during controlled high- and low-temperature environmental simulations.	Enables defined temperature fluctuation, deviation, and gradient conditions after stabilization.
Electronic Product Reliability Assessment	Applies temperature cycling to electronic products and related parts during development or qualification programs.	The 0.01°C indication resolution supports detailed condition monitoring and documentation.
Materials Thermal Exposure Studies	Exposes materials and material samples to specified temperature extremes and transitions.	Combines -40°C to +150°C coverage with controlled average transition-rate specifications.
Large Assembly Environmental Simulation	Accommodates products, parts, and materials that require a larger chamber envelope for temperature-based reliability evaluation.	Internal dimensions of 1000 × 1000 × 800 mm provide practical test volume.
Comparative Temperature Cycling Programs	Runs repeatable unloaded transitions between -40°C and +85°C for comparative environmental studies.	Specified average 5°C/min heating and cooling rates help establish consistent test schedules.

Parameter	Specification
Item Number	DA13
Applicable Test Scope	High-temperature, low-temperature, high-low temperature alternating, and humidity environmental simulation reliability tests for various battery cells, automotive components, electrical and electronic products, other products, parts, and materials
Effective Volume	800L
Internal Chamber Dimensions	W 1000mm × H 1000mm × D 800mm
External Chamber Dimensions	W 1200mm × H 1913mm × D 2380mm
Ambient Temperature Test Condition	5~ 35°C
Ambient Humidity Test Condition	10%~ 85%RH
Test Specimen Weight	None

Parameter	Specification
Test Specimen Heat Generation	None
Temperature Indication Resolution	0.01°C
Temperature Range	-40°C ~ +150°C
Temperature Fluctuation	±0.5°C
Temperature Deviation	≤±2°C (after temperature stabilization, within any time period, the difference between the highest temperature, lowest temperature, and nominal temperature)
Temperature Gradient	≤±2.0°C (after temperature stabilization, within any time interval, the maximum difference between the average temperatures of any two points inside the chamber; the new standard uses temperature gradient in place of the former temperature uniformity)
Heating Rate	-40°C ~ +85°C full-range average heating rate 5°C/minute (non-linear, unloaded)
Cooling Rate	+85°C ~ -40°C full-range average cooling rate 5°C/minute (non-linear, unloaded)
Equipment Noise	≤70dB (A Level)
Equipment Weight	800KG
Power Supply Voltage	AC 380V, 50HZ three-phase

Temperature Controlled Battery Short Circuit Test Chamber

Item Number: DA15



Introduction

Temperature controlled battery short circuit test chamber delivers 400A DC fault simulation, PLC touchscreen automation, stable thermal control, and protected observation for compliance focused battery safety laboratories and industrial qualification programs requiring repeatable high-current verification under controlled elevated-temperature conditions.

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Application	Description	Key Benefit
Lithium-ion cell short-circuit evaluation	Applies a controlled high-current short circuit to individual rechargeable cells while monitoring voltage, current, and temperature.	Supports repeatable 400A fault-condition assessment with 100ms electrical acquisition.
Battery module safety validation	Evaluates module behavior during remote-actuated short-circuit testing at an adjustable chamber temperature.	Combines electrical fault simulation and RT~80°C chamber control in one test setup.
Battery pack development	Supports development teams assessing pack-level responses where a protected enclosure, reinforced door, and smoke extraction are required.	Improves operator visibility through a protected viewing window and external reflected lighting.
UN38.3-oriented battery qualification	Provides a platform designed with short-circuit test requirements referenced alongside UN38.3 and related battery safety standards.	Gives qualification teams a dedicated, remotely controlled high-current test environment.
IEC, EN, GB, and UL laboratory testing	Enables laboratories to organize battery short-circuit procedures around the GB, IEC, EN, UL, MT/T 1051-2007, and GB/T 2900.11-1988 references cited for the system.	Helps align equipment capability with common safety-test frameworks without relying on a general-purpose chamber.
Thermal fault-response studies	Records two temperature channels during electrically induced fault testing while the enclosure maintains a controlled setpoint.	Supports direct comparison of thermal behavior with measured current and voltage conditions.
Battery manufacturing quality investigations	Helps quality teams reproduce high-current electrical abuse conditions when investigating cell, module, or pack safety performance.	Remote operation at up to 7m with no solid obstruction increases separation between personnel and the test enclosure.

Parameter	Specification
Site-facing identifier	DA15
Test purpose	Remote-controlled high-current battery short-circuit testing designed around GB/IEC/EN/UN38.3/UL/MT/T 1051-2007 and GB/T 2900.11-1988 requirements
System configuration	Pneumatic contactor, temperature-control chamber, and remote controller
Display and control method	PLC touchscreen control
Maximum short-circuit current	400A
Device internal resistance	80±20mΩ (load current 400A)
Remote-control distance	7m with no solid obstruction
Mechanical life	300,000 cycles

Parameter	Specification
Chamber temperature range	RT~80°C, adjustable
Temperature fluctuation	±0.5°C
Temperature deviation	±2°C
Temperature-control functions	Fully automatic constant temperature; rapid temperature compensation; PID+S.S.R heating
Circulation system	Forced horizontal air-delivery circulation
Motor	High-temperature long-shaft motor
Protection functions	Over-temperature protection; automatic overload power cutoff
Timer function	Power-disconnection alarm indication when temperature reaches the set time
Voltage measurement range	0~10V
Voltage measurement accuracy	±0.2%F.S
Voltage acquisition rate	100ms, 1 channel
Current measurement range	0~400A DC
Current measurement accuracy	±0.5%F.S
Current acquisition rate	100ms, 1 channel
Temperature acquisition range	0°C~500°C
Temperature acquisition accuracy	1.5°C
Temperature acquisition rate	100ms, 2 channels
Test area	1 independent test area
Test inner chamber size stated in application description	W500xD500xH600mm
Inner chamber size stated in technical parameters	W600 X D500 X H600mm
Inner chamber material	SUS304 stainless steel
Outer dimensions	W940 X D1250 X H1510mm (subject to actual final dimensions)
Cabinet material	Painted cold-rolled steel plate
Viewing window size	390 X 360mm, thickness 20mm
Viewing-window protection	Explosion-proof film and protective steel mesh
Front-door construction	Reinforced design; exposed hinge on left side; heavy-duty door locking clasp on right side
Lighting	Light installed at the cabinet viewing window, reflecting into the inner chamber
Exhaust system	Top-mounted blower; rear-extending smoke-exhaust pipe
Exhaust-pipe diameter	100mm
Test ports	One 50mm-diameter test port on each left and right side of the cabinet; may also be used for voltage measurement
Base and mobility	Four universal casters with fixed foot cups
Power supply	AC 220V, 50HZ single phase
Power	3.0KW
Indicator	One three-color light

High Low Temperature Test Chamber For Battery Cells Automotive Components And Electronic Products

Item Number: DA16



Introduction

High low temperature test chamber for battery cells automotive components and electronic products with 225 L capacity precise 40°C to 150°C simulation stable reliable environmental testing performance for research development qualification and materials reliability programs across demanding applications

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Application	Description	Key Benefit
Battery Cell Reliability Testing	Expose individual cells and related battery components to controlled temperatures between -40°C and +150°C to assess thermal response and environmental durability.	Supports repeatable screening and qualification of cell performance under defined temperature conditions.
Automotive Component Validation	Test automotive parts, assemblies, and supporting materials under high-temperature and low-temperature environments representative of demanding service conditions.	Provides controlled thermal evidence for design verification and reliability evaluation.
Electrical and Electronic Product Testing	Evaluate electronic products, electrical components, and assemblies for response to temperature extremes during development or quality programs.	Helps identify temperature-related weaknesses before field deployment or production release.
Materials Reliability Research	Study the behavior of materials and manufactured parts during temperature exposure, stabilization, and controlled thermal transitions.	Creates a consistent test environment for comparative material and component analysis.
Environmental Simulation for Product Development	Integrate high- and low-temperature exposure into engineering test plans for prototypes, subassemblies, and production-intent products.	Consolidates broad thermal test requirements in one chamber with a wide operating range.
Component and Part Qualification	Conduct defined thermal conditioning and reliability tests on parts, components, and other products requiring environmental simulation.	Supports documented qualification workflows with specified stability, deviation, and gradient values.
Academic and Laboratory Research	Use the chamber for controlled thermal experiments involving cells, electronic products, materials, and small components.	Offers measurable temperature control characteristics for repeatable research procedures.

Parameter	Specification
Product Item Number	DA16
Equipment Type	High low temperature test chamber
Effective Volume	225 L
Applicable Test Articles	Various battery cells, automotive components, electrical and electronic products, other products, parts, and materials

Dimension Category	Width	Height	Depth
Internal Chamber Dimensions	500 mm	750 mm	600 mm
External Dimensions	700 mm	1780 mm	1420 mm
External Dimension Note	colspan	colspan	Based on actual equipment configuration

Parameter	Specification
Environmental Temperature	5~35°C
Environmental Humidity	10~85%RH
Specimen Weight	None specified
Specimen Heat Generation	None specified
Temperature Indication Resolution	0.01°C
Temperature Range	-40°C to +150°C
Temperature Fluctuation	±0.5°C
Temperature Deviation	≤±2°C after temperature stabilization; at any time, the difference between the highest or lowest temperature and the nominal temperature
Temperature Gradient	≤±2.0°C after temperature stabilization; maximum difference between the average temperatures at any two points in the chamber over any time interval. The newer standard uses temperature gradient in place of the previous temperature uniformity terminology.
Heating Rate	1~3°C/minute, nonlinear, no-load condition
Cooling Rate	1°C/minute, nonlinear, no-load condition

Parameter	Specification
Equipment Noise	≤70 dB(A level)
Equipment Weight	450 kg
Power Supply	AC 380 V, 50 Hz, three-phase

Battery Overcharge Explosion Proof Test Box For Consumer Cells

Item Number: DA01



Introduction

Battery overcharge explosion proof test box protects personnel during charge discharge testing with steel construction observation windows ventilation lighting mechanical pressure relief and safe access for consumer cells and controlled laboratory workflows

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Application	Description	Key Benefit
Consumer Battery Safety Testing	Evaluate mobile phone batteries, coin cells, power bank batteries, and other consumer battery formats during controlled overcharge or over-discharge procedures.	Creates a dedicated physical barrier between test samples and laboratory personnel.
18650 Cell Evaluation	Conduct individual 18650 cell charging, discharging, abuse, or abnormal-condition tests using the internal chamber and side testing port.	Supports safer integration with external battery cyclers and measurement equipment.
Portable Electronics Battery Development	Use during early-stage safety verification of batteries intended for handheld electronics and compact rechargeable devices.	Enables visual monitoring while reducing the need to open the enclosure during testing.
Battery Quality Control	Provide a separate test enclosure for incoming inspection, production verification, failure analysis, or sample qualification.	Improves consistency in recurring safety test procedures and helps isolate abnormal samples.
University and Academic Research	Support battery science, electrochemistry, materials research, and student laboratory testing involving small consumer cells.	Offers a practical safety enclosure for shared research environments and teaching laboratories.
Battery Failure Analysis	Examine smoke generation, abnormal heating, combustion, or other failure behavior under controlled test conditions.	Combines observation, exhaust ventilation, and pressure relief in one dedicated unit.
General Materials Research	Protect test personnel during experiments involving small energy-storage devices or related materials that may produce smoke or pressure.	Extends the usefulness of the enclosure beyond routine battery qualification work.

Parameter	Specification
Product Item Number	DA01
Intended Use	Battery overcharge and over-discharge testing to help prevent injury to personnel caused by battery explosion or combustion
Suitable Battery Types	Consumer batteries, including mobile phone batteries, coin cells, power bank batteries, AA and AAA disposable batteries, and individual 18650 cells
Enclosure Structure	One small enclosure divided into upper and lower sections
Inner Chamber Dimensions	W500 × D500 × H500 mm
Inner Chamber Material	1.5 mm thick 304 stainless steel plate throughout the inner chamber
Outer Cabinet Dimensions	W700 × D700 × H1600 mm, subject to final design dimensions
Outer Cabinet Material	1.2 mm cold-rolled steel plate with high-temperature powder coating
Door Configuration	Single-panel door with one viewing window, flush recessed handle, SUS 304 rear hinge components, strong hinges, and explosion-resistant lock

Parameter	Specification
Explosion-Resistant Chains	Two $\phi 10$ mm explosion-resistant chains installed on each side of the door
Observation Window	Two explosion-resistant glass panels for viewing internal battery test conditions
Internal Lighting	One high-brightness energy-saving LED light installed at the top of the cabinet
Testing Port	One $\phi 50$ mm testing port on the left side of the cabinet, supplied with silicone plug and stainless steel cover
Insulation Method	Marble plate installed across the bottom of the inner test chamber to help prevent external battery short circuits
Exhaust System	High-power exhaust fan installed at the rear of the cabinet for discharging smoke outside the enclosure when smoke is generated
Control Panel	Controls the internal exhaust fan and lighting
Casters	Four sets of adjustable fixed movable casters for equipment movement and positioning
Electrical Supply	AC 220 V, 50 Hz, single phase
Rated Power	0.2 kW
Pressure Relief	Mechanical pressure relief opening installed at the rear

Electrodynamic Vibration Test System Vibration Table

Item Number: DA10



Introduction

Electrodynamic vibration test system vibration table delivers 300 Kg.f excitation, 1 to 4000 Hz control, 100G acceleration, and reliable sine random shock testing for industrial component qualification.

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Application	Description	Key Benefit
Battery cell and module fixture evaluation	Applies controlled sine, random, or shock vibration to battery R&D fixtures, mechanical holders, and associated assemblies within defined payload and acceleration limits.	Supports repeatable mechanical exposure using documented force and motion limits.
Electronics assembly vibration qualification	Evaluates mounted electronic assemblies, housings, connectors, and instrument modules across 1 to 4000 Hz.	Helps identify vibration-sensitive behavior through time-domain and frequency-domain analysis.
Automotive component durability testing	Tests brackets, sensors, enclosures, small assemblies, and subcomponents in vertical or horizontal orientations.	The extension platform and oil-film slip table support orientation-specific fixture arrangements.
Aerospace-related equipment screening	Subjects compact hardware, instrument assemblies, and mounted components to sine, random, and shock excitation profiles.	High specified shock force and broad frequency coverage support structured screening programs.
Materials and structural resonance studies	Investigates dynamic response of materials specimens, bonded structures, and prototype assemblies using sine sweep analysis.	Digital control and acceleration measurement enable clear resonance-focused test setup.
Industrial product transport simulation	Applies broadband random vibration to packaged components, industrial controls, and laboratory-made prototypes.	Random excitation capability supports controlled simulation of variable vibration environments.
Academic mechanical engineering research	Supports teaching and research involving modal behavior, vibration transmission, fixture dynamics, and control analysis.	Software functions for signal display, storage, parameter setting, and analysis support traceable experiments.
Precision instrument and sensor testing	Evaluates mechanical integrity of measuring instruments and sensor assemblies with monitored operating protections.	Low specified stray magnetic field of less than 10 gauss helps define the test environment.

System Item	Specification
Site-facing identifier	DA10
Test system type	Electrodynamic vibration test system vibration table
Electrical power supply	3-phase 380V/50Hz, 15 KVA
Grounding resistance	<=4Ω

Parameter	Specification
Maximum sine excitation force	300Kg.f peak
Maximum random excitation force	300Kg.f r.ms
Maximum shock excitation force	600Kg.f peak
Frequency range	1□ 4000 Hz
Maximum displacement	38mm p-p

Parameter	Specification
Maximum velocity	2m/s
Maximum acceleration	100G(980 m/s ²)
Maximum payload	120 kg
Vibration isolation frequency	2.5 Hz
Moving coil diameter	Φ150 mm
Moving coil mass	3kg
Table screws	13×M8
Stray magnetic field	≤ 10gauss
Shaker body dimensions	750mm×560mm×670mm (vertical table)
Shaker body weight	Approximately 560Kg

Payload-Acceleration Relationship	Payload
F=M.A at 5G(49m/s ²)	57kg
F=M.A at 10G(98m/s ²)	27kg
F=M.A at 20G(196m/s ²)	12kg
F=M.A at 30G(294m/s ²)	7kg

Parameter	Specification
Output power	4KVA
Output voltage	100V
Output current	30A
Dimensions	720mm×545mm×1270mm
Weight	230KG

Parameter	Specification
Protection functions	Temperature, air pressure, over-displacement, over-voltage, over-current, input under-voltage, external fault, control power, logic fault, input phase loss, and related monitored conditions

Parameter	Specification
Controller designation	VCSusb-2
Hardware configuration	2 input channels, 1 output channel
Control modes	Sine, random
Control computer	Brand computer, liquid-crystal display, keyboard, optical mouse
Software language	Chinese/English operation
Software functions	Time-domain and frequency-domain analysis, signal source, sine sweep analysis, automatic Word test-report generation, signal and data display, storage, test-parameter setting, and analysis functions
Operating system	Windows 8

Parameter	Specification
Sensor designation	LAB
Frequency range	0.5—7000Hz

Parameter	Specification
Sensitivity	30.15PC/g
Temperature range	-40 -160℃

Parameter	Specification
Material	Aluminum alloy
Table size	400mm×400mm
Mounting holes	M8 stainless-steel threaded inserts, durable and wear-resistant
Upper use frequency	2000Hz
Weight	15KG

Parameter	Specification
Material	Aluminum alloy
Table size	400 mm×400 mm
Mounting holes	M8 stainless-steel threaded inserts, durable and wear-resistant
Upper use frequency	2000 Hz
Weight	17KG

Parameter	Specification
Fan power	1.1 KW
Flow rate	1404m3/h

Thermal Abuse Test Chamber For Lithium Battery Safety Testing

Item Number: DA05



Introduction

Thermal abuse test chamber for lithium battery safety testing with 150°C operation, precise PID control, forced airflow, smoke exhaust, and reinforced construction for dependable cell evaluation in laboratories and production quality programs supporting repeatable compliance focused safety assessments.

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Application	Description	Key Benefit
3C Single-Cell Safety Testing	Heat individual 3C battery cells below 10 Ah under defined temperature ramp and holding conditions.	Supports repeatable assessment of thermal response, including the required no-fire and no-explosion acceptance criteria.
3C Battery Pack Evaluation	Conduct controlled heating tests on compact 3C battery packs below 10 Ah.	Provides a contained and observable environment for pack-level safety screening.
Lithium Battery Certification Preparation	Reproduce heating conditions associated with UL 1642 and UL 2054 procedures, including heating to 150°C and holding for 10 minutes.	Helps engineering and quality teams prepare samples and verify performance before formal certification work.
Portable Device Battery Testing	Apply the IEC 62133-2012 heating profile to fully charged cells, including a 5°C/min $\pm 2^\circ\text{C}/\text{min}$ rise to 130°C $\pm 2^\circ\text{C}$ and a 10-minute hold.	Delivers controlled temperature exposure for portable-equipment battery safety assessments.
Traction and Industrial Cell Research	Support thermal safety investigations aligned with IEC 62660 and IEC 62619 requirements.	Offers programmable control, data-visible operation, and forced airflow for structured research workflows.
Battery Research and Development	Compare cell designs, materials, protection strategies, and manufacturing changes under consistent elevated-temperature conditions.	Improves test-to-test comparability and helps identify thermal risks earlier in development.
Quality Assurance and Failure Analysis	Examine abnormal samples or production-lot variations using controlled heating and smoke exhaust.	Provides a robust test platform for documenting behavior and supporting corrective-action decisions.

Parameter	Specification
Product Item Number	DA05
Primary Use	Furnace thermal testing and heating tests for battery safety performance evaluation
Applicable Samples	3C single cells or 3C battery packs below 10 Ah
Applicable Standards	UL 1642; UL 2054; IEC 62133-2012; IEC 62660; IEC 62619
Internal Chamber Dimensions	W600 mm $\times$ D500 mm $\times$ H780 mm
External Dimensions	W940 $\times$ D1250 $\times$ H1620 mm; final design dimensions apply
Test Area	One independent test area
Controller Position	Located above the machine
Controller Interface	PLC touchscreen control system
Inner Chamber Material	SUS304 mirror-finish stainless steel
Inner Chamber Construction	Clean, smooth, corrosion-resistant interior; low-pollution internal materials; seamless argon-arc welding

Parameter	Specification
Outer Cabinet Material	SECC steel sheet with fine powder coating
Base Structure	Welded 45# channel steel, 6 mm thickness
Door Construction	Reinforced front door with external left hinge and strong right-side locking mechanism
Door Lock Reinforcement	5 mm steel plate reinforcement; one-way load capacity ≥ 20 kN
Door Seal	Double-layer silicone rubber seal; high-temperature resistant and aging resistant; service life ≥ 10 years
Insulation Layer	100 mm thickness throughout the chamber body
Insulation Material	Fire-resistant, high-strength PU foamed insulation material
Insulation Coefficient	< 0.0212 kcal/m·hr
Circulation System	Forced horizontal air circulation
Circulation Motor	Stainless-steel extended-shaft motor with special moisture-resistant and heat-dissipation design
Fan Blade	High- and low-temperature-resistant aluminum multi-wing fan blade
Airflow Direction	Horizontal airflow
Temperature Range	RT+10 to +150°C, freely adjustable
Temperature Accuracy	$\pm 0.5^{\circ}\text{C}$
Temperature Deviation	$\pm 2.0^{\circ}\text{C}$, empty chamber
Heating Rate	$5^{\circ}\text{C} \pm 2^{\circ}\text{C}/\text{min}$ from RT+10 to 150°C; linear setting available
Temperature Control	PID microcomputer automatic calculation; PV/SV displayed simultaneously; PID parameters adjustable; automatic system calculation available
Heating System	PID + S.S.R
Current Controller	SSR contactless relay for high current stability
Heating Element	Stainless-steel finned nickel-chromium alloy electric heating tube
Temperature Sensor	High-precision T-type temperature sensor
Timer Setting	99H59M59S maximum setting
Timer Function	Power disconnect and alarm indication when the set temperature hold time is reached
Cooling Method	Natural cooling
Over-Temperature Protection	Automatic over-temperature protection
Overload Protection	Automatic power interruption under overload conditions
Observation Window	Internal observation window for viewing test samples during operation
Smoke Exhaust System	Top-mounted blower for exhausting smoke from the test area
Exhaust Pipe	Rear outlet, $\phi 100$ mm diameter
Casters	Four bottom casters for movement and fixation
Power Supply	AC 220 V, 50 Hz, single phase
Rated Power	5.0 kW
Approximate Weight	Approximately 250 kg

Remote Centralized Control System For Laboratory Test Observation

Item Number: DA12



Introduction

Remote centralized control system with 2 megapixel viewport camera I5 computer 8G memory 1T storage centralized control-room button set and AC 220V 3KW power for documented test observation in testing environments requiring visual sample-state observation from a centralized control room

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Application	Description	Key Benefit
Battery cell research testing	Observe visible sample status through an equipment viewing window during battery-related laboratory tests.	Supports recorded visual observation without requiring continuous direct viewing at the equipment location.
Advanced materials evaluation	Monitor samples undergoing laboratory evaluation where visible condition is relevant to the test process.	Provides a defined camera-based observation point at the viewing window.
Thermal processing observation	Record the visible state of specimens in equipment fitted with a viewing window during thermal or process testing.	Brings test-sample observation into a centralized monitoring arrangement.
Ceramic materials research	Observe ceramic test pieces during research procedures that require visual condition checks.	Supports documented viewing of sample status from the control-room setup.
Powder metallurgy development	Monitor specimens during laboratory development trials where window-based sample observation is required.	Links the sample viewing location with a dedicated monitoring control computer.
Academic laboratory experiments	Support supervised observation and recording of test-sample conditions in university or institutional research environments.	Provides a specified, centralized arrangement for operators and research teams.
Materials science test facilities	Use the camera system to observe and record visible sample behavior during controlled testing workflows.	Consolidates camera observation and button control within an organized installation.

Parameter	Specification
Item Number	DA12
Product Function	Camera system for observing and recording the status of test samples
Camera	2 megapixel, installed in front of the equipment viewing window
Monitoring Control Computer	Brand computer, I5, memory 8G + storage 1T
Power Supply	AC 220V 3KW
Centralized Control	Equipped with 1 set of buttons, consolidated in the control room
Cabinet Color	RAL7035 orange-texture surface

Impact Testing Machine For Electronic Aerospace Battery And Automotive Components

Item Number: DA14



Introduction

Impact testing machine for electronic aerospace battery and automotive components delivers selectable half sine post peak sawtooth and square pulse testing with 20 to 2000 G acceleration and 10 kg capacity.

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Application	Description	Key Benefit
Electronic product shock evaluation	Test electronic products for response to selected half-sine, post-peak sawtooth, or square-wave impacts.	Waveform selection helps align the applied shock event with the product test plan.
Aerospace equipment testing	Evaluate aerospace equipment and associated components under controlled mechanical impact conditions.	Peak acceleration from 20 to 2000 G provides a defined shock-test range for laboratory assessment.
Marine and shipboard component assessment	Perform impact testing of products intended for ship-related applications.	The specified force range of 500 to 155000 N supports clear test-condition planning.
Military product impact verification	Apply selectable shock waveforms to military products requiring resistance-to-impact evaluation.	Measurement parameters meet JG541-88 requirements for acceleration amplitude, pulse width, uniformity, and transverse motion ratio.
Battery product testing	Assess batteries and battery-related assemblies for their response to controlled mechanical shock.	A 10 kg maximum load and compact working platform support defined specimen handling limits.
Automotive component shock testing	Test automotive parts exposed to impact events during product development or verification.	The 0.2 to 18 ms pulse-duration range supports adjustment to specified pulse widths.
Transportation equipment component testing	Evaluate components used in transportation applications for resistance to mechanical impact.	Repeat-impact endurance of the half-sine waveform generator supports ongoing test schedules.

Parameter	Specification
Product Item Number	DA14
Product Type	Impact testing machine
Working Platform	200x250 mm
Maximum Load	10 kg
Peak Acceleration	20---2000 G
Pulse Duration	0.2---18 ms
Impact Force Range	500~155000 N
Available Impact Waveforms	Half-sine wave, post-peak sawtooth wave, square wave
Unit Dimensions (LxWxH)	660x700x2380 mm
Total Equipment Mass	Approximately 820 kg
Power Supply	220VAC +/-10% 50Hz, 2kVA

Parameter	Specification
Environmental Temperature	0~40 degrees C
Environmental Humidity (25 degrees C)	0~90RH%
Reliability	Cumulative mean trouble-free operating time $\geq 5000\text{H}$
Half-Sine Waveform Generator Endurance	Continuous impact count not less than 10000 times
Verification Standard	Acceleration amplitude, pulse width, uniformity, and transverse motion ratio meet the requirements of JJG541-88

High Low Temperature Test Chamber Constant Temperature Humidity Chamber

Item Number: DA02



Introduction

High low temperature test chamber for battery cells automotive components and electronic products provides controlled testing from minus 40 to plus 150 degrees C with precise stability robust protection and dependable environmental reliability evaluation in laboratory and industrial programs.

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Application	Description	Key Benefit
Battery Cell Reliability Testing	Exposes battery cells to programmed high-temperature, low-temperature, and alternating-temperature conditions during R&D and qualification work.	Helps evaluate thermal environmental resilience before cell design release or process scale-up.
Automotive Component Validation	Tests sensors, connectors, housings, switches, modules, and other vehicle components under simulated thermal extremes.	Supports environmental reliability evidence for automotive component development and supplier quality review.
Electrical and Electronic Product Testing	Conditions electrical and electronic products, assemblies, and parts at controlled temperatures to assess functional stability.	Identifies temperature-related performance risk before field deployment.
Materials Thermal Evaluation	Evaluates materials and individual parts for response to high temperature, low temperature, and temperature change.	Provides a controlled basis for comparing material behavior across repeatable conditions.
Incoming Quality Inspection	Applies thermal exposure tests to purchased components and materials as part of supplier verification procedures.	Helps procurement and quality teams screen for inconsistent environmental performance.
Product Design Verification	Supports engineering teams performing environmental simulation tests during prototype iteration and design verification.	Brings thermal-stress testing into the development cycle before costly downstream changes.
Academic and Research Laboratory Studies	Provides a defined thermal environment for research involving advanced materials, electrical products, automotive parts, and battery-related samples.	Delivers a compact 80 L test volume with controlled performance for recurring experimental work.

Parameter	Specification
Product Item Number	DA02
Applicable Test Scope	Battery cells, various automotive components, electrical and electronic products, other products, parts, and materials; high-temperature, low-temperature, and high-low temperature alternating environmental simulation reliability tests
Effective Volume	80L
Inner Chamber Dimensions	W400mmH500mmD400mm
Outer Chamber Dimensions	W650mmH1700mmD1270mm
Test Ambient Temperature	5℃~30℃
Test Ambient Humidity	≤85%RH
Sample Weight	None
Sample Heat Generation	None
Temperature Range	-40℃~+150℃(full-range controllable)
Temperature Fluctuation	±0.5℃ (after temperature stabilization, the temperature variation at any point in the chamber within the specified time)

Parameter	Specification
Temperature Deviation	$\leq \pm 2.0^{\circ}\text{C}$ (after temperature stabilization, the difference between the maximum/minimum temperature and nominal temperature at any time)
Temperature Gradient	$\leq \pm 2^{\circ}\text{C}$ (after temperature stabilization, the maximum difference between average values of any two points in the chamber over any time interval)
Heating Rate	Full-range average $1 \sim 3^{\circ}\text{C}/\text{minute}$ (non-linear, no-load)
Cooling Rate	Full-range average $0.75 \sim 1^{\circ}\text{C}/\text{minute}$ (non-linear, no-load)
Heating/Cooling Overshoot	$\leq \pm 2.0^{\circ}\text{C}$
Conforming Test Standard	GB/T 2423.1 2008 Test A High Temperature Test Method
Conforming Test Standard	GB/T 2423.2-2008 Test B Low Temperature Test Method
Noise Level	$\leq 70\text{dB}$ (A sound level)
Equipment Weight	450KG
Equipment Power	3.85KW
Power Supply	AC 220V, 50Hz
Support Structure	Steel frame structure
Outer Enclosure	Cold-rolled steel plate with high-temperature spray coating
Inner Enclosure	1.0MM SUS#304 heat- and cold-resistant stainless steel, sealed welding
Insulation Layer	100MM fire-resistant, high-strength PU polyurethane foam insulation; insulation coefficient less than $0.0212\text{kcal}/\text{m}\cdot\text{hr}$
Door	Single-opening door
Observation Window	W220 mm*H350mm multilayer vacuum viewing window with automatically regulated electric anti-frost and anti-condensation device
Test Ports	2 $\times$ $\varnothing 50\text{mm}$, with silicone plugs and stainless-steel covers
Door Seal	Imported silicone sealing strip at the interface of the door frame and insulated door
Test Racks	2 layers of insulated shelving; load capacity $\geq 20\text{KG}/\text{layer}$
Pressure Balance Port	Mechanical, non-powered, maintenance-free; opening pressure adjustable according to actual requirements; automatically opens rapidly at operating pressure to balance internal and external pressure difference
Chamber Lighting	1 group of high-brightness energy-saving lights inside the observation window
Casters	4 groups of adjustable fixed movable wheels with locking function for positioning and leveling
Explosion Protection	1 smoke exhaust port; 2 explosion-proof chains on each side of the door; 1 three-color audible and visual alarm light
Heating Method	Electric heating tubes; stainless-steel finned nickel-chromium alloy electric heat-radiating tubes
Heating Control	Controller output signal uses SSR solid-state relay for high-precision contactless switching control
Air Supply Method	High-uniformity upper static-pressure air supply with lower circulating return air
Circulation Motor	Circulates chamber airflow to improve temperature uniformity
Circulation Fan	Multi-blade centrifugal circulation fan with high- and low-temperature-resistant aluminum-alloy blades
Airflow Control	Controller output signal regulates fan speed through variable-frequency control for stable control of chamber temperature fluctuation and uniformity
Temperature Sensor	PT100 dry-bulb temperature sensor
Refrigeration Method	Compressor refrigeration system
Compressor	Specified compressor or equivalent grade
Refrigerant	R404A
Condenser	Air-cooled high-efficiency shell-and-tube condenser
Heat Exchanger	High-efficiency ST plate heat exchanger
Evaporator	High-efficiency multi-stage hydrophilic-film fin evaporator with thickened fins
Other Refrigeration Components	Oil separator and related components
Sample Over-Temperature Protection	Independent adjustable temperature protector
Electrical Protection	No-fuse protection switch and system overcurrent protection device

Parameter	Specification
Heater Protection	Heater over-temperature protection switch
Compressor Protection	Compressor overload and overheat protection; compressor high- and low-pressure protection
Controller Protection	Fault self-diagnosis and display function
Power Protection	Phase-sequence protection function

Battery Combustion Test Machine For Constant Temperature Battery Burning Tests

Item Number: DA07



Introduction

Battery combustion test machine for controlled battery flame-resistance evaluation, featuring PLC touch control, remote automatic ignition, adjustable flame settings, protected observation, and smoke-triggered exhaust. Supports standards-based battery safety testing with robust stainless-steel chamber construction for laboratory qualification and research workflows.

[Learn More](#)

Application	Description	Key Benefit
Lithium battery cell qualification	Conduct flame-resistance testing on battery cells using a controlled Bunsen flame, adjustable flame height, and configurable flame-application time.	Supports a structured approach to battery safety evaluation against relevant test methods.
Battery pack development	Observe the response of battery assemblies during combustion-related development tests through the protected visible window.	Enables direct visual monitoring while the operator uses remote control outside the immediate test enclosure.
Battery-material research	Evaluate battery-related samples and material configurations where flame exposure is part of the research procedure.	Provides defined burner, cage, mesh, rod, and timing parameters for repeatable laboratory setup.
Quality-control laboratories	Perform routine incoming, development, or qualification checks for battery products requiring flame-resistance test evidence.	Fully automatic process control helps standardize repeated test execution.
Third-party safety inspection	Configure battery combustion testing for laboratories performing testing against UL2054, GB31241, or related internal procedures.	Adjustable flame duration from 0 to 9999 H, M, S accommodates procedure-specific exposure settings.
Battery manufacturing R&D	Investigate battery behavior under controlled flame application during product design, process validation, and failure analysis.	Smoke-triggered exhaust, failed-ignition gas cutoff, and chamber protection support controlled test operations.
Academic electrochemical research	Use the system in university and institutional laboratories studying battery safety, abuse response, and flame-resistance behavior.	Touch-screen control and remote operation provide a practical platform for supervised research workflows.

Parameter	Specification
Site-facing identifier	DA07
Intended use	Battery flame-resistance test; manufactured according to test standards such as UL2054 and GB31241
Burner type	Bunsen burner
Burner nozzle internal diameter	0.375 inch (9.5 mm)
Burner tube length	Approximately 100 mm
Flame application time	0-9999 H, M, S, settable
Flame height	10-75 +/-2 mm, adjustable
Test rod diameter	1/4 inch (6.35 mm) x 14 inch (355.6 mm)
Test rod height	305 mm +/-1 mm

Parameter	Specification
Test cover width	Distance between two parallel sides: 24 inches (610 mm)
Test cover height	14 inches (355.6 mm), octagonal
Octagonal cage upper and lower edge dimensions	12.7 x 12.7 mm (+/-0.5 mm)
Test aluminium mesh diameter	0.010 inch (0.25 mm), 16 mesh x 16 mesh
Octagonal cage stainless-steel mesh cover	Distance between each pair of opposite faces: 2 feet (610 mm); octagonal mesh cover height: 1 foot (305 mm)
Test circular-hole surface diameter	102 mm
Ignition device	Automatic ignition; remote-control operation effective within 10 m
Display method	PLC touch type plus remote control
Control method	Fully automatic control of the test process
Combustion gas requirement	High-purity liquefied petroleum gas, supplied by customer
Bottom configuration	Four universal casters for free movement
Viewing window size	390 x 360 mm; 20 mm thick tempered explosion-proof glass
Observation-window protection	Explosion-proof glass with added steel mesh; double-layer protection
Timer	Four-digit display, 0-9999; hours, minutes, and seconds switchable
Internal chamber material	SUS304 stainless steel
External chamber material	Cold-rolled steel with high-temperature spray coating
Exhaust outlet	Diameter 150 mm; exhaust fan installed at rear of enclosure
Exhaust operation	Exhaust opens automatically on smoke alarm; closes after a delay when smoke is absent
Lighting	Integrated lighting using external reflection
Ignition-failure response	Alarm and simultaneous cutoff of gas source
Machine dimensions	W940 x D780 x H1620 mm; subject to actual equipment
Power supply	AC 220 V, 50 Hz; single phase
Power	2.0 KW
Alarm indicator	One three-color alarm light

Two Chamber High Temperature Test Chamber

Item Number: DA03



Introduction

Two chamber high temperature test chamber for battery constant temperature and high temperature performance testing, with independent control, 216 L capacity, pressure relief protection, and compliance support for lithium battery safety evaluation in demanding laboratory environments reliably.

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Application	Description	Key Benefit
Electric vehicle traction battery safety testing	Conduct constant-temperature and high-temperature tests for traction batteries in work associated with GB/T 31485-2015.	Two independently controlled chambers can support separate battery test conditions within one installation.
Portable electronic lithium-ion battery evaluation	Evaluate lithium-ion batteries and battery packs for portable electronic products in work associated with GB 31241-2014.	The adjustable RT+10°C to +150°C range provides defined elevated-temperature conditions for battery safety evaluation.
Battery high-temperature performance testing	Perform high-temperature performance checks on battery samples using controlled chamber conditions after stabilization.	Specified fluctuation, deviation, and gradient limits provide measurable thermal performance criteria.
Battery constant-temperature testing	Maintain selected elevated setpoints for battery constant-temperature testing in either chamber.	±0.1°C adjustable control precision supports closely managed temperature settings.
Parallel battery sample comparison	Run separate test programs in the two chambers to compare battery samples, test stages, or temperature conditions.	Independent operation prevents one chamber's program from dictating the other chamber's controller settings.
Safety-focused battery thermal testing	Conduct battery testing where pressure-relief provision and door restraint measures are required considerations.	Side pressure relief and 10 mm explosion-proof chains provide defined equipment safety provisions.

Item Number	Parameter	Specification
DA03	Intended use	Primarily used for battery constant-temperature testing and high-temperature performance testing
DA03	Applicable standard	GB/T 31485-2015 Electric vehicle traction battery safety requirements and test methods
DA03	Applicable standard	GB 31241-2014 Safety requirements for lithium-ion batteries and battery packs for portable electronic products
DA03	Effective volume	216 L
DA03	Number of chambers	2
DA03	Internal chamber dimensions	W600 mm × H600 mm × D600 mm (width × height × depth) × 2
DA03	External dimensions	W1340 mm × H1765 mm × D1085 mm (width × height × depth; subject to actual design dimensions)
DA03	Operating system	Each chamber can operate independently; independent controller
DA03	Pressure-relief device	Pressure-relief device installed on the side of the equipment
DA03	Explosion-proof chains	Two chains installed at the left, right, upper, and lower positions of the door arrangement
DA03	Explosion-proof chain diameter	10 mm
DA03	Test ambient temperature	5-35°C

Item Number	Parameter	Specification
DA03	Test ambient humidity	10%~85%RH
DA03	Test specimen weight	None
DA03	Test specimen heat generation	None
DA03	Temperature range	RT+10°C~+150°C (adjustable control precision $\pm 0.1^{\circ}\text{C}$)
DA03	Temperature fluctuation	$\leq \pm 0.5^{\circ}\text{C}$ (after temperature stabilization, the temperature change at any point in the test chamber within the specified time)
DA03	Temperature deviation	$\leq \pm 2.0^{\circ}\text{C}$ (after temperature stabilization, the difference between the highest or lowest temperature and the nominal temperature at any time)
DA03	Temperature gradient	$\leq \pm 2^{\circ}\text{C}$ (after temperature stabilization, the maximum difference between the average temperatures of any two points in the chamber over any time interval; the new standard uses temperature gradient instead of the former temperature uniformity term)
DA03	Heating time	RT+10-100°C, approximately 10 minutes
DA03	Equipment weight	500 KG
DA03	Power supply	380 V, 50 Hz, 9.0 KW
DA03	Noise	≤ 75 db measured at 2 m from the equipment

Computer Servo Compression Nail Penetration Test Machine

Item Number: DA08



Introduction

Computer controlled servo compression and nail penetration tester simulates lithium battery abuse conditions with adjustable 1 to 20 kN force programmable displacement voltage monitoring safety containment remote data acquisition and automated protective response for demanding cell safety laboratory research programs.

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Application	Description	Key Benefit
Power lithium battery cell development	Compresses development cells between two plates or performs controlled tungsten carbide needle penetration while monitoring voltage and temperature.	Helps R&D teams observe potential cell behavior under defined mechanical abuse conditions.
EV traction battery safety evaluation	Simulates compression scenarios associated with battery use and applies selectable force, voltage-drop, or deformation-based conditions.	Supports repeatable safety evaluation using programmable load and return logic.
Battery quality assurance laboratories	Verifies samples against internal compression or penetration procedures with computer-based acquisition and Excel document output.	Creates traceable data records for comparison, reporting, and printout.
Failure analysis and abuse-test research	Uses staged displacement, dwell periods, controlled speed, and voltage monitoring to examine changes during progressive mechanical loading.	Allows researchers to isolate loading sequence and hold-time variables in a single procedure.
Cell manufacturing process validation	Tests representative cells after production or design changes under controlled compression force and travel settings.	Supports consistent evaluation conditions when comparing sample groups.
Battery safety test facilities	Conducts high-consequence mechanical tests inside a chamber with explosion-protected viewing, smoke exhaust, pressure relief, and fire-control provisions.	Improves operational control and observation during tests that may generate smoke or strong airflow.
Academic electrochemical and materials research	Provides a controlled platform for studying battery response to mechanical deformation or puncture alongside voltage and temperature acquisition.	Combines mechanical test execution with measurement data for laboratory investigations.

Parameter	DA08 Specification
Application	Simulates compression conditions that various power lithium battery cells may encounter during use and presents possible battery conditions during compression.
Operating principle	A battery is placed between two compression plates. A motor applies pressure through a screw mechanism; the platen returns after a set pressure is reached, after voltage falls to a selected value, or after the battery is compressed to a specified deformation and held before further programmed compression and return.
Pressure range	1~20KN (adjustable)
System structure	Vertical downward compression structure
Input voltage	220V, 50 Hz single-phase power
Force error	<= +/-1% full scale
Force unit conversion	n, kn,
Compression speed	1~900mm/min (speed can be adjusted arbitrarily)
Compression speed accuracy	<= +/-1% full scale
Compression travel	300mm

Parameter	DA08 Specification
Compression travel accuracy	$\leq \pm 1\%$ full scale
Testable battery size	W400 X D400 X H300mm
Voltage-drop control	When voltage drops to a selected voltage-drop value, the platen automatically returns or maintains pressure for a specified time before returning.
Pressure control	When pressure reaches the set force value, the platen returns immediately or maintains the set pressure for a specified time before returning.
Displacement control	The platen descends to a set position, pauses for a specified time, then continues to a second displacement and pauses. This cycle continues; after the final descending displacement, the platen holds for a specified time and then returns.
Safety stop switch	Equipped with an emergency stop button
Voltage resolution	1mv
Test conditions	Force, displacement (deformation), or voltage; one of the three
Compression hold time	0~99 hours 99 minutes 99 seconds; time status can be freely set and adjusted, with automatic termination according to deformation arrangement.
Communication and data handling	Computer control supports stable, real-time remote acquisition; includes explosion-proof function; all data are saved and printed as Excel documents through the computer.
Drive method	Servo motor drive
Nail penetration speed	1~40mm/s
Tungsten carbide needles	Phi3; Phi4; Phi6X100MM, 6 pieces each, 18 pieces total
Acquisition system	Temperature/voltage acquisition system
Chamber arrangement	Vertical structure with chamber and control section separated by up to 5 m for operator safety; includes an independent controller and supports local and remote control.
Inner chamber material	Flame-resistant material, SUS#304 stainless steel
Outer chamber material	Powder-coated cold-rolled steel
Camera monitoring system	High-definition camera monitoring system installed in the test area; remotely controllable to help ensure accurate data.
Viewing window	400 X400mm explosion-proof glass with explosion-proof film and built-in steel-mesh structure to prevent explosive objects from striking the window.
Lighting	High-brightness energy-saving explosion-proof lamp installed inside the test chamber to illuminate the full test space.
Exhaust system	Independently controlled; automatically detects smoke produced by the sample and exhausts smoke through ducting. Diameter: 150mm; installed at the top of the equipment.
Ergonomic design	Bottom of test chamber is approximately 800MM above the ground for observation and operation during testing.
Equipment base	Fitted with 4 universal wheels and 4 fixed feet for movement and stable positioning.
Automatic explosion-proof pressure-relief system	Provides exhaust for large quantities of waste gas generated during testing and discharges it outdoors. Rear protective enclosure has a magnetic pressure-relief door, 300*300mm, which opens automatically under strong airflow to reduce explosion impact.
Fire protection device	Carbon dioxide fire-extinguishing device; remotely controllable.
Automatic fire-extinguishing device	Fire-extinguishing device can be controlled remotely by remote control.
Overall dimensions	Approximately 1020W X 600D X 1900H mm; subject to actual equipment.
Computer control cabinet dimensions	Approximately 700W X 600D X 1300H mm; subject to actual equipment.
Machine weight	Approximately 1000KG
Power supply	220V, 50Hz, single-phase power, British-standard plug
Power	2.2KW
Test port	One Phi50mm test port on the left side of the chamber, with silicone compression sealing and a stainless-steel cover.

Heavy Weight Impact Test Machine For Battery Safety Testing

Item Number: DA09



Introduction

Heavy weight impact test machine evaluates battery resistance to controlled drop impact, helping laboratories verify no-fire and no-explosion safety performance with PLC control, reinforced protection, adjustable height, and precision positioning.

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Application	Description	Key Benefit
Lithium-ion cell safety validation	Tests individual battery samples under a controlled falling-weight event using the specified cross-bar interface.	Supports evaluation of the required no-fire and no-explosion outcome after impact.
Prismatic battery mechanical-abuse testing	Positions the cross bar across the center of a prismatic battery, parallel to its bottom surface, before the impact weight is released.	Creates a defined, repeatable loading arrangement for prismatic-cell assessment.
Battery research and development	Allows R&D teams to examine how prototype cells respond to impact at the 610 mm prescribed setting or other selected heights within the available range.	Helps compare sample behavior under controlled mechanical conditions.
Cell manufacturing quality evaluation	Provides a dedicated enclosed station for testing separate production or evaluation samples one at a time.	Supports consistent sample-by-sample impact test handling.
Battery safety laboratory testing	Combines PLC parameter display, protected observation, lighting, reinforced access hardware, and pressure-relief functionality in one test enclosure.	Gives laboratory staff a purpose-built environment for impact test procedures.
Materials and component investigation	Enables teams investigating battery construction, internal structures, or protective designs to apply a known mass through a defined bar contact condition.	Provides controlled impact inputs for comparative development work.
Compliance-oriented battery test preparation	Delivers the standard 9.1 kg weight, 15.8 mm diameter bar, and adjustable height configuration described for the impact method.	Helps laboratories set up the specified test geometry and drop condition.

Parameter	Specification
Product item number	DA09
Test purpose	Tests battery safety performance by dropping different weights from different heights with different force-bearing areas; under the prescribed test, the battery shall not catch fire or explode.
Impact test method	Place the battery sample on a flat surface. Position a 15.8 mm diameter bar crosswise at the center of the sample. Drop a 9.1 kg weight from 610 mm onto the sample. Each sample battery receives one impact only; use a different sample for each test.
Standard impact weight	9.1 kg +/- 0.1 kg
Standard impact bar	Diameter 15.8 mm; length >=60 mm
Drop height	0-700 mm adjustable; the weight can be raised to a specified height and released to ensure vertical free fall without inclination or sway
Intelligent controlled height	610 mm
Height display method	Encoder display
Display precision	0.1 mm
Height error	+/- 5 mm
Display and control system	PLC touch screen displays test parameters; PLC touch-screen control system

Parameter	Specification
Lifting method	Electric lifting
Drop structure	Dual-column design; reduces friction between the falling weight and the four enclosure walls and supports free fall
Cross-bar diameter	15.8 mm +/- 0.1 mm
Cross-bar placement	Placed vertically across the middle of the battery; the falling weight strikes the steel bar; the bar remains parallel to the bottom surface of a prismatic battery
Test area	One independent test area
Inner-box material	SUS 304# stainless steel; 1.0 mm thickness with reinforcement; total thickness with outer box is 80 mm
Outer-box material	Cold-rolled plate with baked finish; 1.2 mm thickness
Upper and lower impact surfaces	Steel plate
Enclosure front door	Single door with observation window, cold-drawn handle door lock, exposed reinforced hinges on the left, and strong door locking clasp on the right
Viewing window	390 x 360 mm; 20 mm thick tempered explosion-proof glass
Viewing-window protection	Explosion-proof film plus protective steel mesh
Lighting	Mounted outside the viewing window and reflected into the inner chamber
Pressure relief	Pressure-relief device installed at the upper rear of the enclosure bottom; pressure door opens automatically when pressure reaches the pressure-switch setting
Exhaust port	Diameter 100 mm; exhaust fan installed at the rear of the enclosure
Mobility	Four casters on the base for movement and fixing
Enclosure dimensions	W940 x D780 x H1660 mm (subject to final design dimensions)
Power supply	AC 220V, 50HZ, single phase
Power	2.0KW
Machine weight	Approx. 250KG



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