BELL GROUP

- Guangdong Bell Experiment Equipment Co., Ltd.
- Guangdong Bell Experiment Co., Ltd. (Shanghai)
- Guangdong Bell Experiment Co., Ltd. (Hefei)
- Guangdong Yunhai Junlan Technology Co., Ltd
- Changzhou Yunhai Junlan Technology Co., Ltd
- Guangdong Yunhai Intelligent Technology Co., Ltd
- Jinan Yunhai Intelligent Technology Co., Ltd

DGBELL®



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DGBELL - whatsapp

GUANGDONG BELL EXPERIMENT EQUIPMENT CO., LTD



ABOUT DGBELL

Guangdong Bell Experiment Equipment Co.,Ltd. (Group), established in 2005, is a high-tech enterprise specializing in the research, development, and production of environmental testing instruments and equipment. With a total factory area of approx 50,000 square meters, Bell has an annual production capacity of over 8,000 units of environmental chambers and battery safety testing equipment.

Bell has many internationally advanced CNC shears, bending machines,punching machines,laser welding machines,and other production and processing equipment, as well as a large number of industry-leading design and manufacturing talents with mature experience in designing and manufacturing large-scale non-standard complex testing equipment.Bell has also accumulated international leading technical advantages in the field of lithium battery testing equipment.

5000+
Customer

50000+
Factory Area

8000+
Annual Capacity

65+
Patented Invention

SUBSIDIARY COMPANY

- Guangdong Bell Experiment Co., Ltd. (Shanghai)
- Guangdong Bell Experiment Co., Ltd. (Hefei)
- Guangdong Yunhai Junlan Technology Co., Ltd
- Changzhou Yunhai Junlan Technology Co., Ltd
- Guangdong Yunhai Intelligent Technology Co., Ltd
- Jinan Yunhai Intelligent Technology Co., Ltd



CORPORATE IMAGE













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未定稿禁止私用



FACTORY WORKSHOP











DEVELOPMENT HISTORY

2005

Company established, introduced Taiwan technology R&D and started to produce environment reliability testing equipment.

2007-2008

Introduced Japanese and German technologies; Cooperated with Beijing Standardization Research Institute, jointly develop lithium battery safety testing equipment;
Established Bell Industry (Hong Kong) Co., Ltd. in Hong Kong to expand overseas market.

2009-2010

Obtained 20 utility model patents;
Passed IS09001: 2008 certification;
Obtained the title of "Dongguan Private Technology Enterprise";
Won the tittle of "Top 20 Chinese instrument and equipment enterprises" in 2010 sponsored by CCTV.

2011-2012

Awarded "Chinese Famous Brand";
Obtained 15 utility model patents;
Awarded the title of "Guangdong Province Private Technology Enterprise"

2013-2014

Awarded the title of National High-tech Enterprise;
Joined the power battery standardization technical committee;
Introduced German technology and manufacturing processes, and comprehensively manufactured high-quality environmental test equipment.

2015-2018

The first set of equipment for the whole testing process of power battery pack according to GB/T31467.3 was successfully put into production;

2019-2022

"Dongguan Bell Experiment Equipment Co., Ltd." was upgraded to "Guangdong Bell Experiment Equipment Co., Ltd."
Produce double-deck、triple-deck high and low temperature test chamber, obtain utility model patent
Company had an annual production capacity of more than 2,000 units;
Won the title of "Vice President unit of Dongguan Lithium Battery Industry Association"

2023-2025

Established Bell Group, with subsidiaries Guangdong Yunhai Intelligent Technology Co., Ltd, Guangdong Yunhai Junlan Technology Co., Ltd, Changzhou Yunhai Junlan Technology Co., Ltd .
50,000 m² New plant put into use.
Company had an annual production capacity of more than 8,000 units.

QUALIFICATION CERTIFICATES



Established in 2005, with more than ten years of insisting on originality, excellent quality and leading strategy, the company had won the tittle of "Top 20 Chinese instrument and equipment enterprises" in 2021 sponsored by CCTV network; And with the faith to keep specializing in the test equipment industry to build the leading brand of test equipment, had passed IS09001: 2015 certification. Further more, Bell had been awarded titles such as "Chinese Famous Brand" "Guangdong Province Private Technology Enterprise" "Dongguan City Private Technology Enterprise"; "Vice President unit of Dongguan Lithium Battery Industry Association" and had obtained more than 40 new patents for inventions and utility models.

BELL' s products had been sold very well throughout the country, and had been exported to Southeast Asia, Europe, United States, Africa, Australia and other countries to achieve the synchronous growth of the domestic market and the international market.

























CORPORATE CULTURE

CORPORATE VISION

Building a leading brand
of testing equipment

CORPORATE MISSION

To build a platform for employees
to create happiness and
realize their dreams.
Provide best-in-class solutions for
customer product testing

VALUES

Integrity
Pragmatism
Service
Innovation

QUALITY POLICY

Quality First
Customer Satisfaction
Continuous Improvement
Striving for Excellence

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01

3C BATTERY SAFETY TEST SERIES

PROVIDE PROFESSIONAL BATTERY SAFETY TEST EQUIPMENT SOLUTIONS

COMPUTER TYPE BATTERY CRUSH TESTER

Test Standard

- GB31241-2022
- UL1642
- IEC62133
- UN38.3



Main technical parameters

Model	BE-6045-2T	BE-6045-5T
Force Range	0-20KN	0-50KN
Crush Speed	0.1~900mm/min	
Drive Method	Servo Motor	
Unit Conversion	Kg/N/Lb	
Crush Range	0~300mm	
Crush Accuracy	±0.5%	
Crushing Remaining Time	0~99H 99M 99S	
Control Method	Computer	
Main Voltage	1 Channel	
Test Space	≥ W300xD300xH300mm	
Overall Dimension	W1000xD8500xH1800mm	
Observation Window	390*360mm	
Power	AC 220V 50HZ	
Data collection	Independent remote data acquisition and isolation, multiple voltage and temperature acquisition channels to ensure data accuracy.	
Safety Protection	Automatic explosion-proof pressure relief device, smoke exhaust device, photoelectric sensor switch, safety stop switch	

ALTITUDE SIMULATION TEST CHAMBER

Test Standard

- IEC62133
- UL1642
- UN38.3
- GB 31241-2022



Main technical parameters

Model	BE-8104
Structure	All-in-one structure,Door with explosion-proof lock+explosion-proof chain
Temperature Range	Without temperature (optional with temperature to standard requirements of 25±5℃)
Air Pressure Range	5.0KPa—101.3KPa (adjustable)
Unit	Kpa
Internal Dimension	W600xD600xH600mm
External Dimension	W940xD780xH1620mm
Timing Range	99H59M59S
Observation Window	390 x 360mm
Control Method	PLC+touch screen+remote control
Power	2.0KW
USB Interface	Equipped with a USB interface, it allows for the export of test data.

TEMPERATURE CONTROL BATTERY SHORT CIRCUIT TEST CHAMBER

Test Standard

- IEC62133
- UL1642
- UN38.3
- GB 31241-2022



Main technical parameters

Model	BE-8102
Structure	All-in-one structure,Door with explosion-proof lock+explosion-proof chain
Max Short-circuit Current	400A
Internal Resistance	80±20 mΩ
Remote Control Available Distance	7m without solid barrier
Control Method	PLC+touch screen+remote control
Mechanical Life	300,000 times
Electric Life	Resistive load 50,000 times
Temperature Range	RT+10℃~80℃
Temperature Fluctuation	≤1℃
Temperature Deviation	≤2℃
Internal Dimension	W600xD500xH780mm
External Dimension	W940xD1250xH1620 mm
Observation Window	390 x 360mm
Power	3.0KW
Data collection	Integrated multiple voltage, temperature, and current acquisition channels ensure data accuracy
Safety Protection	Explosion-proof pressure relief device, smoke exhaust device, fire extinguishing system, photoelectric sensor switch, safety stop switch

THERMAL ABUSE TEST CHAMBER

Test Standard

- IEC 62133
- UL1642
- GB 31241-2022



Main technical parameters

Model	BE-8103
Structure	All-in-one structure,Door with explosion-proof lock+explosion-proof chain
Temperature Range	RT+10℃ ~ 160℃(adjustable)
Controlling Accuracy	±0.5℃
Temperature Deviation	⩽±2.0℃(no load)
Heating rate	RT ~ 150℃ (linear 5℃/min)
Control Method	PLC+touch screen+remote control
Internal Dimension	W600xD500xH780mm
External Dimension	W940xD1250xH1620mm
Observation Window	390 x 360mm
Test hole	A 50mm diameter test hole with a cover on left and right sides of the enclosure.
USB interface	Equipped with a USB interface, it allows for the export of test data.
Safety Protection	Explosion-proof pressure relief device, smoke exhaust device, explosion-proof lighting device, electronic door lock system, safety stop switch

TEMPERATURE CYCLING TEST CHAMBER

Test Standard

- IEC62133
- UL1642
- UN38.3
- GB31241-2022



Main technical parameters

Model	BTLK5-150DF	BTLK5-225DF	BTLK5-408DF	BTLK5-800DS	BTLK5-1000DS
Test Space	W500xH600xD500 mm	W500xH750xD600 mm	W600xH850xD800 mm	W1000xH1000xD800 mm	W1000xH1000xD1000 mm
Outer Chamber Dimensions	W750xH1780xD1650mm	W1000xH1750xD1880mm	W800xH1780xD2100mm	W1200xH2200xD2380mm	W1200xH2200xD2430mm
Cooling Method	Air cooling	Air cooling	Air cooling	Water cooling	Water cooling
Power	10KW	15KW	20KW	30KW	32KW
Temperature Range	-70℃~+150℃ (adjustable)				
Temperature Fluctuation	±0.5℃				
Temperature Deviation	⩽±2.0℃				
Temperature Uniformity	⩽2.0℃				
Heating rate	Average 5℃/min(-40℃~85℃, no linear, no load)				
Cooling Rate	Average 5℃/min(85℃~-40℃, no linear, no load)				
Temperature overshoot	⩽2℃				
Inner Chamber Material	1.0mm SUS#304 heat- and cold-resistant stainless steel				
Outer Chamber Material	1.2mm old-rolled steel sheet with double-sided spraying				
Control Method	PLC+Touch Screen Control				
Compressor	Tecumseh (France)-fully air-cooled double-fall cooling compressor. Or Bock (Germany) semi-enclosed air-cooled Compressor				
Safety Protection	Explosion-proof pressure relief devices, explosion-proof chains, network connections, smoke exhaust devices, fire extinguishing devices, etc.				

BATTERY IMPACT TESTER

Test Standard

- UL1642
- UN38.3
- GB31241-2022
- IEC62133



Main technical parameters

Model	BE-8106
Structure	All-in-one structure,Door with explosion-proof lock+explosion-proof chain
Drop Ball Weight	9.1kg±0.1kg
Dropping Height	0~700mm (adjustable)
Control Method	PLC+touch screen+remote control
Crossing Bar Diameter	15.8 mm
Effective Test Space	W300xD300xH300mm
Exhaust Vent	100mm,located on the upper back of the chamber
Observation Window	390 x 360mm
Lifting Method	Electric lifting
Impact Surfaces	Steel plate
External Dimension	W940xD780xH1620 mm
Data Export	Test data can be directly exported as screenshots from a USB drive.
Safety Protection	Explosion-proof pressure relief device, smoke exhaust device, fire extinguishing system, photoelectric sensor switch, safety stop switch

BATTERY DROP TESTER

Test Standard

- IEC62133
- GB31241-2022



Main technical parameters

Model	BE-8108
Drop Height	300~1500mm(adjustable)
Test Method	Free fall
Test Loading	0~5kg
Max Specimen Dimension	W200 x D200 x H200mm
Machine Dimension	W940 x D940 x H1900mm
Control Method	PLC+touch screen+remote control
Drop Method	Pneumatic drop
Lifting Method	Electric lifting
Safety device	Fully enclosed explosion-proof device
Compressor air	> 0.3Mpa
Drop Plate Size	solid steel(Hardwood, cement board optional))
Observation Window	390 x 360mm
Data Export	Test data can be directly exported as screenshots from a USB drive
Safety Protection	Explosion-proof pressure relief device, smoke exhaust device, fire extinguishing system, photoelectric sensor switch, safety stop switch

BATTERY BURNING TESTER

Test Standard

- UL1642
- GB31241-2022



Main technical parameters

Model	BE-8105
Structure	All-in-one structure,Door with explosion-proof lock+explosion-proof chain
Burner	Bunsen burner with inner diameter of 0.375 inch (9.5mm) and length approx. 100mm
Flame Applicaion Time	99H 59M 59S
Flame Height	10～75±2mm (adjustable) Mesh should be placed approx. 38mm above the flame
Test Rod Diameter	Distance between each parallel sides: 24 inches (610mm) Height: 14 inches (305mm) octagon Angle iron: spec. 12.7mm×12.7mm
Test Round Hole Surface Diameter	100±2mm
Ignition Device	Automatic ignition
Control Method	PLC+touch screen+remote control
Observation Window	390 x 360mm
Control Method	Remote control, automatic control through the entire test.
Combustion Gas Requirements	High purity liquefied petroleum gas. (Prepared by user)
Data Export	Test data can be output by USB flash disk directly
Machine Dimension	W940*D780*H1650mm
Safety Protection	Explosion-proof pressure relief device, smoke exhaust device, fire extinguishing system, safety stop switch

BATTERY INTERNAL SHORT CIRCUIT TESTER (INVENTION PATENT NO.: 201010270511.7)

Test Standard

- IEC62133
- JISC 8714:2007



Main technical parameters

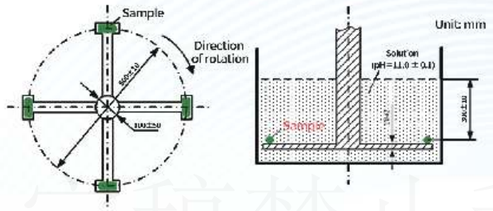
Model	BE-6045W
Temperature Range	-10℃ ~ +80℃ (adjustable)
Heating rate	Ave.3℃/min (-10℃ to 80℃、Nonlinear No-load)
Cooling Rate	Ave.1℃/min (80℃ to 10℃、Nonlinear No-load)
Internal Dimension	W700xH600xD500mm
External Dimension	W1000xH1800xD980mm;
Observation Window	W270mm xH350mm
Max. Loading	200KG
Resolution	1/10000
Force Accuracy	≤0.5%
Control System	Servo motor + Servo control system
Displacement resolution	1/1000
Accuracy of displacement	≤0.5%
Speed Range	0.01 - 5mm/s
Effective Range	0 ~ 200mm
Max. Test Area	300x300mm(Can be customized)
Control Method	PC remote control
Safety Protection	Explosion-proof pressure relief device, smoke exhaust device, fire extinguishing system, electronic door lock system, safety stop switch

BATTERY WASHING TEST CHAMBER

Test Standard

- GB 31241-2022

The schematic diagram of the test device for the battery washing tester is as follows:





Control Method

Programmable, fully automatic testing.Returning to origin – adding water – raising – heating – dropping– soaking – stirring – draining – dewatering – de-cylindering – drying – complete.

Main technical parameters

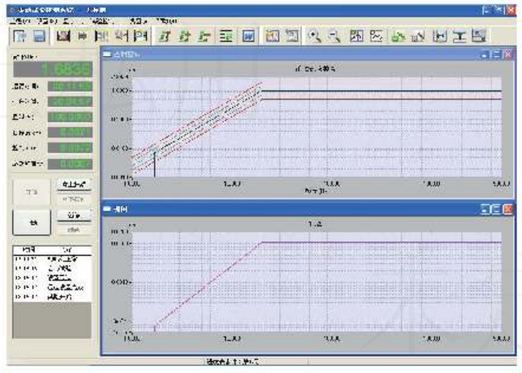
Model	BE-8109
Structure	All-in-one structure,Door with explosion-proof lock+explosion-proof chain
Testing Rotary Plate Diameter	500±10mm
Inner Barrel Diameter	650mm
Inner Barrel Depth	550mm
Plate Rotation Speed Range	1—900rpm/min controllable
Speed Accuracy	1%
Control System	PLC touch control + Remote control
Liquid Temperature Range	RT+10℃ ~ 80℃ (controllable)
Water Temperature Deviation	±2℃
Water Temperature Accuracy	0.1℃
Water Temperature Heating Rate	RT ~ 45℃,Less than 40min
Drying Temperature Range	RT+10℃ ~ 80℃ (controllable)
Wind Temperature Deviation	±2℃
Wind Temperature Display Accuracy	0.1℃
Total Dimension	W1150 x H1780 x D1550mm

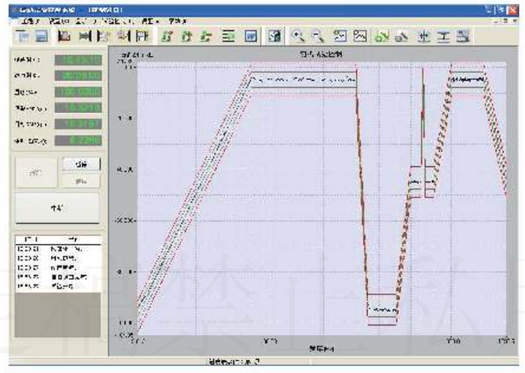
VIBRATION TESTER

Test Standard

- IEC62133
- UL1642
- UN38.3
- GB 31241-2022







Main technical parameters

Model	BT-3-150		
Rated Sine Excitation Force	3000N	Max. Loading	100kg
Rated Random Excitation Force	3000N	Vibration Frequency	3Hz
Shock Excitation Force	6000N	Working Table Diameter	Φ150mm
Frequency Range	5-4000Hz	Moving Parts Equivalent Weight	2kg
Max. Displacement	25mm	Dimension	W750xD560xH670mm
Rated Speed	2m/s	Single Vibration Table Weight	Approx. 480kg
Rated Acceleration	500m/s2	Cooling Method	Forced air cooling
First-order resonant frequency	2900Hz±5%	Vibration mode	Vertical + Horizontal

MECHANICAL SHOCK TESTER

Test Standard

- IEC62133
- UL1642
- UN38.3
- GB 31241-2022



Main technical parameters

Model	BE-IS200
Working platform	200x200mm
Max payload	10kg
Peak acceleration	20 ~ 2000G
Pulse duration	0.2 ~ 18 ms
Shock force range	500 ~ 155000N
Table dimensions	W660xD700xH2380mm
Total equipment mass	820 kg
Power supply	220VAC±10% 50Hz，2kVA
Reliability	Mean cumulative working time between failures (MTBF) ⩾5000H; Continuous shock cycles of half-sine waveform generator ⩾10000 cycles
Calibration standard	Acceleration amplitude, pulse width, uniformity, and transverse motion ratio meet the requirements of JJG541-88

DIAPHRAGM PUNCTURE TESTER

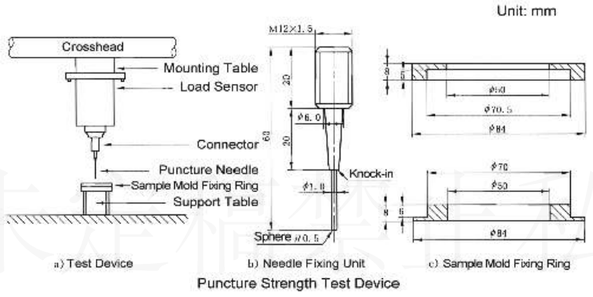
Test Standard

GB/T10004-2008 The experiment requires a professional puncture strength test device.



Test methods

A 100mm diameter test piece is mounted on the sample film fixing ring. Then, a steel needle with a diameter of 1mm and a spherical tip radius of 0.5mm is used to pierce the test piece at a speed of (50±5)mm/min. The maximum load of the steel needle penetrating the test piece is recorded. If more than 5 test pieces are tested, the arithmetic mean is taken.



Puncture Strength Test Device

Main technical parameters

Model	BE-CC-200N		
Control Method	Computer Control	Speed Range	1~500mm/min
Measure Range	0~200N(Unit option: Kgf,g.T,N,KN, Lbf)	Driving method	Servo-electric
Force value display data	5 valid data,Accuracy±0.5%	Max.Displacement	⩾800mm(without fixture)
Displacement measurement accuracy	Within±0.5% of display value,displacement display resolution:0.01mm	Overall Dimension	W550mm × D450mm × H1200mm
		Power Supply	AC 220V 50HZ 1.5KW
Load resolution	1/25000	Weight	Approximately 130KG

BATTERY CRUSH NAIL PENETRATION TEST CHAMBER

Test Standard

- IEC 62133
- UL 1642
- UN 38.3
- GB 31241-2022
- MT/T 1051-2007



Main technical parameters

Model	BE-6047-2T	BE-6047-5T
Pressure Range	0-20KN	0-50KN
Crush Speed	0.1~900mm/min	
Nail penetration test speed	0.1~40mm/s	
Driving Method	Servo Motor Drive	
Unit Conversion	Kg/N/Lb	
Crush Range	0~300mm	
Extrusion Accuracy	±0.5%	
Extrusion Remaining Time	0~99 hours 59 mins 59 secs	
Controlling Mode	Split type, computer control	
Main Voltage	1 channel (control via software interface)	
Test Space	≥ W300xD300xH300mm	
Overall Dimension	W1000xD850xH1800mm	
Observation Window	390*360mm	
Testing Conditions	The main control software can simultaneously collect the force, displacement and voltage changes in the crush process and make corresponding program control according to the test standard requirements.	
Communication	ensure the stability and real-time of remote collection	
Safety Protection Device	Automatic explosion-proof pressure relief device, smoke exhaust device, fire extinguishing device, video monitoring system, electronic door lock system, safety stop switch	



02

SMALL POWER, ELECTRIC TWO-WHEELEDVEHICLE, ENERGY STORAGE SAFETY TESTEQUIPMENT SERIES

PROVIDE PROFESSIONAL BATTERY SAFETY TEST EQUIPMENT SOLUTIONS

EXTERNAL SHORT CIRCUIT TEST DEVICE



Main technical parameters

Model	BE-XL-2000A	BE-XL-3000A	BE-XL-5000A
Max operating current	2000A	3000A	5000A
Max peak current	3000A	4000A	6000A
Temperature range	Ambient		
Device internal resistance	< 1mΩ, < 5mΩ, < 10mΩ, < 20mΩ, < 50mΩ, < 100mΩ(optional)		
Control mode	Local touchscreen control + remote PC control + remote controller control		
Main unit dimensions	W700xD1050xH1830mm		
Explosion-proof box specification	W800xD800xH800mm,W1000xD1000x1000mm,W1200xD1200xH1200mm		
Short-circuit response time	≤20ms		
Data interface	USB, data card, etc.		
Data acquisition module	Independent remote isolated acquisition; multiple voltage/temperature/ current acquisition channels to ensure accurate data		
Short-circuit method	Pneumatic + vacuum arc extinguishing		
Safety alarm devices	Leakage protection, overcurrent protection, abnormal audible/visual alarm, etc		
Test fixtures	Custom-made, depending on the sample's actual use conditions		

HIGH AND LOW TEMPERATURE CHARGE AND DISCHARGE INTEGRATED MACHINE



Main technical parameters

Model	BTL-560CS
Usable volume	560L
Inner chamber size	W1000xD800xH700mm (customizable)
Outer chamber dimensions	W1450xD2138xH2250mm
Temperature range	-40℃ ~ +150℃
Display resolution	0.01℃
Temperature fluctuation	≤±0.5℃
Temperature deviation	≤±1.5℃
Temperature uniformity	≤2.0℃
Heating rate	≥3℃/min (-40℃~+85℃, average, no-load)
Cooling rate	≥1℃/min (+85℃~-40℃, average, no-load)
Airflow mode	Horizontal airflow
Control mode	PLC + touchscreen control
Cooling method	Water-cooled / air-cooled

TEMPERATURE CYCLING TEST CHAMBER

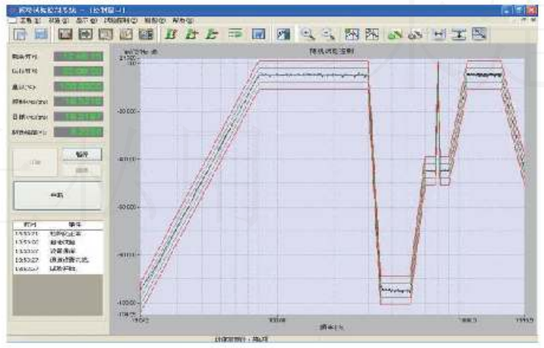


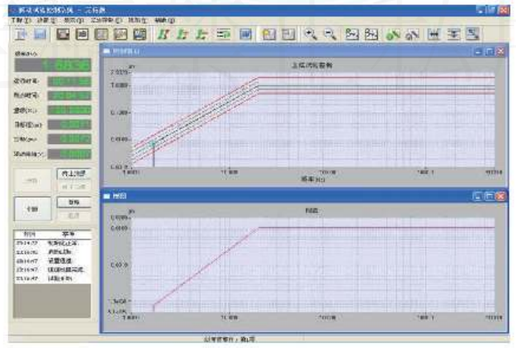
Main technical parameters

Model	BTWH-3CS	BTWH-12CS
Usable volume	3m³	12m³
Inner chamber size	W2000xD1500xH1000mm	W3000xD2000xH2000mm
Outer chamber dimensions	W2500xD3540xH1500mm	W3300xD3600xH2480mm
Temperature range	-40℃ ~ +150℃ (adjustable)	
Humidity range	10%RH-98%RH (10℃ ~ 90℃)	
Temperature fluctuation	≤±0.5℃	
Humidity fluctuation	±2.5%RH	
Temperature deviation	≤±2.0℃	
Humidity deviation	A)>75%RH:≤+2/-3%RH，B)<75%RH:≤±5%RH。	
Temperature uniformity	≤2.0℃	
Heating rate	≥3℃/min, -40℃ to +85℃, non-linear/linear (no-load, no internal heat generation)	
Cooling rate	≥1℃/min, 85℃ to -40℃, non-linear/linear (no-load, no internal heat generation)	
Temperature overshoot (ramp)	≤±2℃	
Noise	≤75dB (A-weighted)	
Control mode	PLC + touchscreen control	
Observation window	270mm × 350mm / 400mm × 500mm (visible area)	
Auxiliary functions	Explosion pressure relief device, explosion-proof chain, mobile phone alarm device, networking, smoke exhaust device, fire extinguishing device, etc.	

VIBRATION TESTER







Main technical parameters

Model	BT-3-150		
Rated sine force	3000N	Max payload	100kg
Rated random force (RMS)	3000N	Isolation frequency	3Hz
Shock force (Peak)	6000N	Table diameter	Φ150mm
Frequency range	5-4000Hz	Equivalent moving mass	2kg
Max displacement (P-P)	25mm	Dimensions (L×W×H)	W750xD560xH670mm (vertical table)
Rated velocity	2m/s	Table mass	approx. 480kg
Rated acceleration	500m/s2	Cooling method	Forced air cooling
1st resonance frequency	2900Hz±5%	Vibration mode	Vertical + horizontal

MECHANICAL SHOCK TESTER



Main technical parameters

Model	BE-IS200
Working platform	200x200mm
Max payload	10kg
Peak acceleration	20 ~ 2000G
Pulse duration:	0.2 ~ 18 ms
Shock force range	500 ~ 155000N
Table dimensions	W660xD700xH2380mm
Total equipment mass	approx. 820kg
Power supply	220VAC±10% 50Hz，2kVA
Reliability	Mean cumulative working time between failures (MTBF) ⩾5000H; Continuous shock cycles of half-sine waveform generator ⩾10000 cycles
Calibration standard	Acceleration amplitude, pulse width, uniformity, and transverse motion ratio meet the requirements of JJG541-88

HORIZONTAL CRUSH TEST MACHINE



Main technical parameters

Model	BE-6045C-20T	BE-6045C-30T
Force (T)	20	30
Structure	Horizontal	Horizontal
Compression method	Lateral	Lateral
Enclosure	Main unit and control section separated	Main unit and control section separated
Test space	W800xD800xH800mm	W1000xD1000xH1000mm
Overall dimensions	W3650xD1050xH2100 mm	W3860xD1230xH2300mm
Compression speed:	1~400mm/min (adjustable)	
Test conditions	Force, displacement (deformation), voltage; any one or any combination	
Control mode	Remote PC control; pressure, stroke, total voltage or cell voltage can be used individually or in combination as control variables; the test stops when any condition reaches the set value	
Drive mode	Electric servo	
Main voltage acquisition channel	1 channel	
Compression accuracy	< ±0.5%	
Compression deformation	0-100% multi-stage profile setting; supports continuous multi-layer compression deformation loading	
Compression fixture	Arc compression plate (radius 75mm); different fixtures can be selected per different standards	
Communication interface	Ethernet cable / serial port	
Data acquisition module	Independent remote isolated acquisition; multiple voltage and temperature acquisition channels to ensure accurate data	
Safety alarm devices	Leakage, overtemperature, overvoltage, overload, overcurrent protection; abnormal audible/visual alarm; smoke alarm beacon, etc	
Safety devices	Video monitoring system, safety explosion-proof system, smoke exhaust system, smoke alarm device, explosion-proof lighting device, etc	
Standard configuration	Compression main unit, computer cabinet, control software, voltage/current/temperature acquisition system, compression fixtures, camera monitoring system, fire extinguishing system, computer, etc., 1 set each	

ADIABATIC TEMPERATURE RISE TESTER

Test Standard

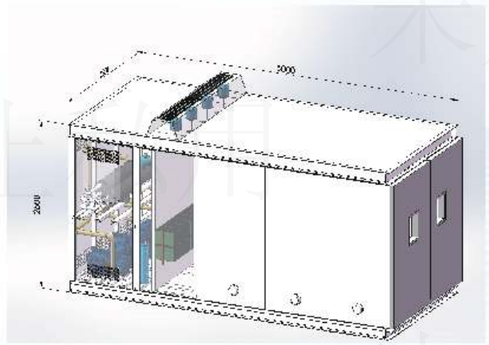
- GB 38031-2020
- GB/T 36276-2023



Main technical parameters

Model	BE-8401-450A
Furnace size	450x520mm
Temperature control range	RT~300℃
Heating power	10KW
Temperature stability	±0.01℃
Tracking rate	0.02~15℃/min
Detection sensitivity	0.02~0.05℃/min
Overall dimensions	approx. 900 × 900 × 1850mm
	Approx. 300kg

RAPID RATE TEMPERATURE HUMIDITY TEST CHAMBER





Main technical parameters

Model	BTWHK5-12DS
Inner chamber size	W3000xD2000xH2000mm
Overall dimensions	W3300xD4600xH2480mm
Temperature range	-50℃ ~ +150℃ (adjustable)
	20%RH-98%RH (limited temperature range; see zone diagram)
Humidity range	
Temperature fluctuation	≤0.5℃
Humidity fluctuation	≤±2.5%RH
Temperature deviation	≤2.0℃
Humidity deviation	A) >75%RH: ≤+2/-3%RH; B) <75%RH: ≤±5%RH
Heating rate	≥5℃/min (-40℃ to +85℃, non-linear, no-load)
Cooling rate	≥5℃/min (+85℃ to -40℃, non-linear, no-load)
Controller	PLC + touchscreen control
Cooling method	Water-cooled
Optional	Smoke exhaust system
	Automatic water replenishment system
	Fire extinguishing device, sprinkler device, smoke alarm device, etc

COMPLEX SALT SPRAY TEST CHAMBER



Main technical parameters

Model	BE-FH-1440L
Usable volume	1440L
Inner chamber size	W1200xD1200xH1000mm
Outer chamber dimensions	W2600xD1700xH1700 mm
Temperature range	Laboratory temperature range: RT to 50℃ Air saturator barrel temperature range: RT to 63℃
Humidity range	20%RH to 98%RH (fully controllable over the whole range; adjustable control accuracy ±0.1RH%)Humidity resolution: 0.1%RH
Temperature fluctuation	≤±0.5℃
Humidity fluctuation	≤±2.5%RH
Temperature deviation	≤±2.0℃
Humidity deviation	A)>75%RH:≤+2/-3%RH，B)<75%RH:≤±5%RH。
Temperature uniformity	≤2.0℃
Temperature overshoot	< 2℃
Max load	100KGbattery
Spray volume	1–2mL/80cm²·1hr (collect at least 16 hours; take the average)
Spray pressure	1.00±0.01kgf/cm²
PH value	Neutral 6.5–7.2; Acidic 3.0–3.3
Control mode	Touchscreen programmable PLC control; with USB interface; with RJ485 interface; can be connected to PC control; dedicated network control software for convenient remote monitoring and data acquisition

ALTITUDE SIMULATION TEST CHAMBER



Main technical parameters

Model	BE-8104-1000L
Inner chamber size	W1000xD1000xH1000 mm
Overall dimensions	W1340xD1410xH2040mm
Total equipment weight	approx. 2 tons
Pressure range	10.0KPa—101.3KPa (adjustable)
Pressure accuracy	0.1 KPa
Pressure down time	<30min
Pressure up time	<30min
Pressure holding	≥10h
Observation window	390x360mm
Control mode	PLC + touchscreen control
Other requirements	Charge/discharge under vacuum
	Signal cable interface inside the chamber
	Lighting and video monitoring system

SEAWATER IMMERSION TEST DEVICE



Main technical parameters

Model	BE-8308
Water tank size	W1000xD1000xH1000mm
Max battery pack size under test	W600xD600xH600mm
Outer chamber size	W1200xD1200xH1200mm
Control mode	PLC + touchscreen control
Water filling method	Manual filling after concentration is adjusted
Drainage method	Acid/alkali-resistant water pump for forced drainage

BATTERY DROP TESTER



Main technical parameters

Model	BF-F-315ST
Drop height	300~1500mm (adjustable)
Display mode	Digital display, adjustable
Max allowable specimen weight	0–70KG (customizable to 100KG, 200KG, etc.)
Test modes	Face, edge, and corner drop in all directions
Control mode	Main unit and control separated; remote control
Drop and lifting method	Electric drop and lifting
Allowable specimen size	W800xD600xH800mm (customizable)
Overall dimensions	W1200xD1700xH2400mm
Impact surface medium	Standard steel plate (optional: cement slab, marble slab, wooden slab)
Power supply	AC 380V 50HZ 0.75KW
Total machine weight	approx. 750KG
Safety alarm devices	Leakage, overtemperature, overvoltage, overload, overcurrent protection; abnormal audible/visual alarm; smoke alarm beacon, etc
Safety protection	Explosion-proof fence installed around the machine

THERMAL ABUSE TEST CHAMBER



Main technical parameters

型号	BE-101-1m³	BE-101-3m³
Temperature range	RT+10 ~ 200℃(Controllable)	
Control accuracy	±0.5℃	
Temperature deviation	⩽±2.0℃(no-load)	
Heating rate	RT ~ 150℃ (5℃/min,linear load)	
Temperature overshoot	⩽2℃	
Control/display mode	PLC color touchscreen + remote control; supports networking; mobile APP alarm device; with USB interface; with R485 interface; can be connected to PC control	
Working chamber size	W1000xD1000xH1000mm	W2000xD1000xH1500mm
Outer chamber size	W1400xD1801xH1667mm	W2200xD1700xH1850mm
Bottom	Equipped with casters	
Viewing window	390 × 360mm (20mm thick tempered explosion-proof glass)	
Safety protection device	Provides overvoltage, overtemperature, overcurrent protection functions and protection against tester misoperation-caused short-circuit, battery electrode reverse connection, etc	
Safety devices	Smoke exhaust system, explosion relief port, tri-color alarm light	

THERMAL RUNAWAY TEST MACHINE



Main technical parameters

Model	BE-8401
Trigger mode	Two modes optional—overcharge and heating
Heating-mode channels	2 channels (one commonly used, the other standby)
Max heating power	3KW, single channel
Power adjustment method	Replace heater tubes with different power + adjust input current
Max overcharge voltage	10V
Voltage acquisition channels	10 channels, 20 channels, 40 channels (optional)
Temperature acquisition channels	10 channels, 20 channels, 40 channels (optional)
Control mode	PLC + PC control
Control main unit dimensions	W700xD650xH1360mm
Explosion-proof box	W2000xD3000xH2000mm (optional)
Total equipment weight	1000kg
Power supply	AC 380V 7KW

EXPLOSION-PROOF TEST MACHINE



Main technical parameters

Model	BE-001-1000L	BE-001-3m³
Inner chamber size	W1000xD1000xH1000mm	W1500xD1500xH1500mm
Outer chamber size	W1200xD1200xH1600mm	W1700xD1700xH2200mm
Exhaust system	Independently controlled; when the test sample generates smoke, the equipment can automatically detect and exhaust the smoke through ducting	
Automatic explosion-proof pressure relief system	With explosion-proof pressure relief; when impacted by strong airflow, the pressure relief door opens automatically to reduce explosion impact force	
Cable feedthrough holes	Two square holes on the right side of the explosion-proof box, L200 × H100mm; convenient for battery charge/discharge cables to pass through	
Test device	The height of the test section can be adjusted to meet different battery heights	

BATTERY SHALLOW NAIL PENETRATION TEST MACHINE (SIMULATED INTERNAL SHORT CIRCUIT)

It precisely simulates scenarios involving microscopic internal short circuits in batteries caused by foreign object intrusion under extreme conditions, comprehensively assessing the thermal runaway risks of energy storage batteries.



Main technical parameters

Model	BE-9002
Drive mode	Electric servo drive
Control mode	PC control
Nail penetration stroke	0–300mm (adjustable; customizable)
Nail penetration direction	Vertical + horizontal nail penetration
Displacement accuracy	±0.1mm/s
Speed	0.1mm/s~40mm/s (adjustable)
Speed accuracy	±0.1mm/s
Speed resolution	0.001mm/s
Test space	W300*D300*H300mm
Steel needles	Φ3, Φ5, Φ8 tungsten steel needles, length 100mm



ELECTRIC VEHICLE LITHIUM BATTERY SAFETY TEST EQUIPMENT SERIES

PROVIDE PROFESSIONAL BATTERY SAFETY TEST EQUIPMENT SOLUTIONS

SINGLE CELL BATTERY SAFETY TEST EQUIPMENT

External Short Circuit Test Device

Relevant Standard Test Requirements

Single cell battery safety test

8.1.4.1 Short circuit

a) Charge the single cell battery according to method 7.1.1

b) Short-circuit the positive and negative terminals of the single cell battery through an external short circuit for 10min; the external circuit resistance shall be less than 5mΩ

c) Observe for 1H

Battery module safety test



Main Technical Parameters

Model	BE-XL-2000A	BE-XL-3000A	BE-XL-5000A
Max operating current	2000A	3000A	5000A
Max peak current	3000A	4000A	6000A
Temperature range	Ambient		
Device internal resistance	<1mΩ, <5mΩ, <10mΩ, <20mΩ, <50mΩ, <100mΩ (optional)		
Control mode	Local touchscreen control + remote PC control + remote controller control		
Main unit dimensions	W1040xD920xH1680mm		
Explosion-proof box specification	W800xD800xH800mm,W1000xD1000xH1000mm		
Data interface	USB, data card, etc.		
Data acquisition module	Independent remote isolated acquisition; multiple voltage/ temperature/current acquisition channels to ensure accurate data		
Short-circuit method	Pneumatic + vacuum arc extinguishing		
Safety alarm devices	Leakage, over current protection, abnormal audible/visual alarm, smoke alarm beacon, etc.		
Test fixtures	Custom-made, depending on the sample's actual use conditions		

Thermal Abuse Test Chamber

Relevant standard test requirements

Single cell battery safety test

Heating test shall be conducted as follows

a) Charge the single cell battery according to method 7.1.1

b) Place the single cell battery into the temperature chamber

-- For lithium-ion batteries, heat from room temperature to 130℃ ±2℃ at a rate of 5℃/min, hold for 30min, then stop heating;

-- For metal cyanide nickel batteries, heat from room temperature to 85℃ ±2℃ at a rate of 5℃/min, hold for 2h, then stop heating

c) Observe for 1h



Main Technical Parameters

Model	BE-101-1000L	BE-101-3m³
Inner chamber size	W1000xD1000xH1000mm	W1500xD1500xH1500mm
Outer chamber size	W1400xD1400xH1920mm	W1800*H2000*2450mm
Temperature range	RT+10 ~ 200℃(Controllable)	
Control accuracy	±0.5℃	
Temperature deviation	⩽±2.0℃ (no-load)	
Heating rate	RT to 150℃ (5℃/min, linear load)	
Temperature overshoot	⩽2℃	
Control mode	PLC + touchscreen control	
Bottom	Equipped with casters	
Viewing window	390x360mm	
Heating power	12KW	
Safety protection device	Provides over voltage, over temperature, over current protection functions and protection against short-circuit caused by tester misoperation, battery electrode reverse connection, etc	
Safety devices	Smoke exhaust system, explosion pressure relief port, tri-color alarm light	

Temperature Cycling Test Chamber

a) The test object is a lithium-ion battery

b) Charge the test object according to method 7.1.1

c) Put it into the temperature chamber;adjust chamber temperature according to Table 1 and Figure 1; number of cycles: 5; after the test, observe for 1h at the test temperature

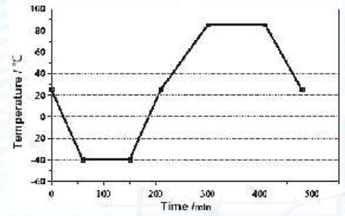


Table 1 Temperature and time for one cycle of temperature cycling test

Temperature℃	Time increment min	Cumulative time min	Temperature change rate℃/min
25	0	0	0
-40	60	60	13/12
-40	90	150	0
25	60	210	13/12
85	90	300	2/3
85	110	410	0
25	70	480	6/7

Figure 1 Schematic diagram of temperature cycling test



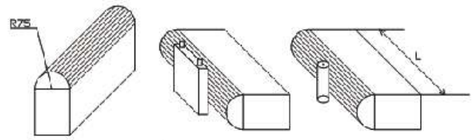
Main Technical Parameters

Model	BTL-1000CS	BTWH-3CS
Usable volume	1000L	3m³
Inner chamber size	W1000xD1000xH1000mm(customizable)	W2000 × D1000 × H1500mm (customizable)
Outer chamber dimensions	W1200xD1820xH1950mm	W2200xD2150xH1850mm
Temperature range	-40℃ ~ +150℃(customizable for different products)	
Humidity range	20%RH-98%RH (limited temperature range; see zone diagram)	
Temperature fluctuation	⩽±0.5℃	
Humidity fluctuation	⩽±2.5%RH	
Temperature deviation	⩽±2.0℃	
Humidity deviation	A)>75%RH:⩽+2/-3%RH, B)<75%RH:⩽±5%RH。	
Temperature uniformity	⩽2.0℃	
Heating rate	⩾3℃/min (from -40℃ to +80℃, non-linear, no-load)	
Cooling rate	⩾1℃/min (from +80℃ to -40℃, non-linear, no-load)	
Noise	⩽75dB (A-weighted)	
Control mode	PLC + touch screen control	
Observation window	W270mm x H320mm	
Auxiliary functions	Explosion pressure relief device, explosion-proof chain, mobile phone alarm device, networking, smoke exhaust device, fire extinguishing device, etc	

Vertical Crush Test Machine

Relevant Standard Test Requirements

1.1 The test object is a lithium-ion battery.
1.2 Charge the test object according to method 7.1.1;
1.2 Conduct the test under the following conditions:
-- Crush direction: Apply force perpendicular to the electrode plate direction of the cell, or the direction most likely to be compressed in the vehicle layout;
-- Crush plate form: A semi-cylinder with radius 75mm; the length (L) of the semi-cylinder is greater than the size of the compressed cell (as shown below);
-- Crush speed: Not greater than 2mm/s;
-- Crush degree: Stop crush when voltage reaches 0V, or deformation reaches 15%, or crush force reaches 100kN, or 1000 times the weight of the test object;
-- Hold for 10min.
1.3 After the test, observe for 1h at the test temperature





Main Technical Parameters

Model	BE-6045-10T	BE-6045-20T
Force (T)	10	20
Structure	Vertical	Vertical
Crush method	Vertical	Vertical
Enclosure	Main tester and control unit separated	Main tester and control unit separated
Test space	W600xD600xH400mm	
Overall dimensions	W1300xD1000xH2100mm	
Crush speed	1~400mm/min (adjustable)	
Test conditions	Force, displacement (deformation), voltage; any one or any combination	
Control mode	Remote computer control	
Drive mode	Electric servo	
Crush accuracy	< ±0.5%FS	
Crush deformation	0–100% multi-stage profile setting; supports continuous multi-layer compression deformation loading	
Main voltage acquisition channel	1 channel	
Crush fixture	Arc crush plate (radius 75mm); different fixtures can be selected per different standards	
Data acquisition module	Independent remote isolated acquisition; multiple voltage and temperature acquisition channels to ensure accurate data	
Safety alarm devices	Leakage, over temperature, over voltage, overload, over current protection; abnormal audible/visual alarm; smoke alarm beacon, etc	
Safety devices	Video monitoring system, safety explosion-proof system, smoke exhaust system, smoke alarm device, explosion-proof lighting device, etc.	
Standard configuration	Crush main unit, computer cabinet, control software, voltage/current/temperature acquisition system, crush fixtures, camera monitoring system, fire extinguishing system, computer, etc., 1 set each	

Horizontal Crush Test Machine



Main Technical Parameters

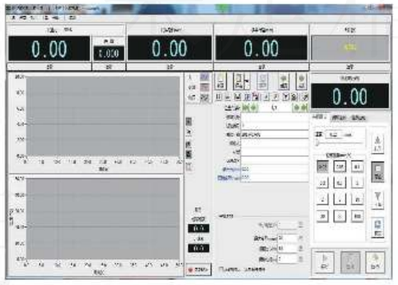
Model	BE-6045C-20T	BE-6045C-30T
Force (T)	20	30
Structure	Horizontal	Horizontal
Crush method	Horizontal	Horizontal
Enclosure	Main tester and control unit separated	Main tester and control unit separated
Test space	W800xD800xH800mm	W1000xD1000xH1000mm
Overall dimensions	W3650xD1050xH2100 mm	W3860xD1230xH2300mm
Power supply voltage	AC 380V 50HZ	
Crush speed	1~400mm/min (adjustable)	
Test conditions	Force, displacement (deformation), voltage; any one or any combination	
Control mode	Remote PC control; pressure, stroke, total voltage or cell voltage can be used individually or in combination as control variables; the test stops when any condition reaches the set value.	
Drive mode	Electric servo	
Main voltage acquisition channel	1 channel	
Crush accuracy	<±0.5%FS	
Crush deformation	0–100% multi-stage profile setting; supports continuous multi-layer crush deformation loading	
Crush fixture	Arc crush plate (radius 75mm); different fixtures can be selected per different standards	
Communication interface	Ethernet cable / serial port	
Data acquisition module	Independent remote isolated acquisition; multiple voltage and temperature acquisition channels to ensure accurate data	
Safety alarm devices	Leakage, over temperature, over voltage, overload, over current protection; abnormal audible/visual alarm; smoke alarm beacon, etc	
Safety devices	Video monitoring system, safety explosion-proof system, smoke exhaust system, smoke alarm device, explosion-proof lighting device, etc.	
Standard configuration	Crush main unit, computer cabinet, control software, voltage/current/temperature acquisition system, crush fixtures, camera monitoring system, fire extinguishing system, computer, etc., 1 set each	

Horizontal Crush Nail Penetration Test Machine

Relevant Standard Test Requirements

1.1The test object is a battery pack or system
1.2 Apply pressure under the following conditions:
-- Crush plate form: A semi-cylinder with radius 75mm; the length of the semi-cylinder is greater than the height of the test object, but not more than 1m.
-- Crush direction: X and Y directions (vehicle driving direction is X axis; the other horizontal direction perpendicular to driving direction is Y axis). To protect test operation safety, tests may be performed separately on two test objects.
-- Crush degree: Stop crush when crush force reaches 100kN or crush deformation reaches 30% of the overall dimension in the crush direction.
-- Hold for 10min.
1.3 After the test, observe for 1h at the test temperature





Main Technical Parameters

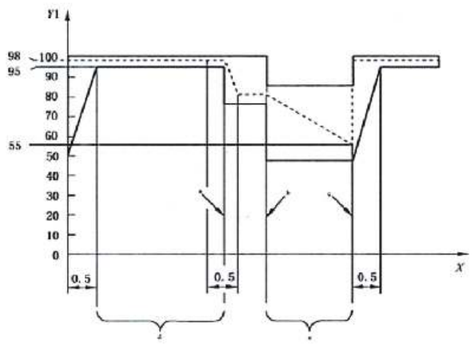
Model	BE-6047AP-20T	BE-6047AP-50T	BE-6047AP-100T
Force (T)	20	50	100
Structure:	Horizontal	Horizontal	Horizontal
Crush method	Horizontal	Horizontal	Horizontal
Drive mode	electric servo motor	electric servo motor	electric servo motor
Enclosure	Main tester and control unit separated		
Test space	W2500 × D2000 × H1000mm (customizable)		
Overall dimensions	W8500xD2500xH2400mm		
Power supply voltage	AC 380V 50HZ		
Crush speed	1~400mm/min (adjustable)		
Nail penetration speed	1~40mm/s (adjustable)		

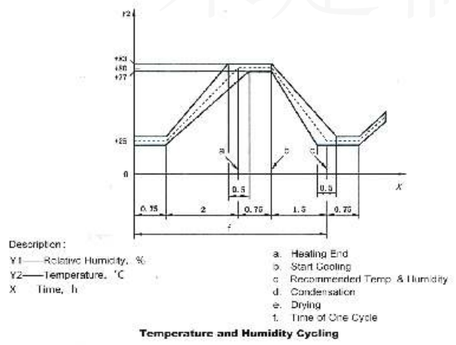
型号	BE-6047AP-20T	BE-6047AP-50T	BE-6047AP-100T
Test conditions	Force, displacement, speed, time, total voltage, auxiliary voltage, auxiliary temperature, etc. can all be used as control variables for nail penetration and crush tests		
Control mode	PC control		
Operation mode	Program mode / fixed-value mode optional		
Crush accuracy	≤0.5% (FSR)		
Nail penetration accuracy	≤0.5% (FSR)		
Crush deformation	0–100% multi-stage profile setting; supports continuous multi-layer compression deformation loading		
Crush fixture	Arc crush plate (radius 75mm); different fixtures can be selected per different standards		
Data acquisition module	Independent remote isolated acquisition; multiple voltage and temperature acquisition channels to ensure accurate data		
Safety alarm devices	Over temperature, over voltage, overload, over current protection; abnormal audible/visual alarm; smoke alarm beacon, etc.		
Safety protection	**1. Fire-resistant and explosion-proof design of the test area** All components in the test area are high-temperature resistant and flame-retardant (no plastic tubing, wiring, rubber gaskets, sealing rings, lubricating oil, engine oil, etc.), preventing damage to equipment due to battery burning and explosion. **2. Anti-rust and corrosion-resistant design of the test area** Steel frame surface of the test area is coated; guide rods are hard-chrome plated; with high strength, waterproof, anti-rust, and corrosion-resistant design, thereby avoiding adverse results to the equipment when firefighting water is used during battery test burning/explosion. **3. Emergency stop switch** Emergency stop switch can stop all tests immediately and cut off the power supply to avoid short-circuit hazards. **4. Compression limit protection device** Both the main cylinder and auxiliary cylinder are equipped with upper and lower limit protection devices **5. Overpressure protection of the equipment itself** The hydraulic power system is equipped with a system pressure protection module; when pressure exceeds the set value, the hydraulic circuit automatically relieves pressure to protect the hydraulic circuit and the main unit. Also equipped with motor overcurrent protection, maximum compression force protection, system overload protection, phase sequence protection, etc. **6. Safety design in other aspects** The equipment meets national standard electrical safety requirements and can effectively prevent electric shock hazards to operators and maintenance personnel. Under normal operation, except for the circuit parts, the housing and metal parts inside the test chamber will not be energized. In case of accidents such as fire, leakage, short circuit, etc., the equipment can automatically cut off the external input power so that no part inside the equipment is energized. **7. Waterproofing of the test area** The test area has return channels and drainage channels to ensure firefighting water can flow to the debris tray at the bottom in time, preventing water accumulation and rust. All pipelines have waterproof connectors to ensure safety of the equipment's electrical and hydraulic circuits.		
Standard configuration	Crush & nail penetration main unit, computer cabinet, control software, voltage and temperature acquisition system, crush fixtures, camera monitoring system, computer, etc., 1 set each		

Rapid Rate Temperature Humidity Test Chamber

Relevant Standard Test Requirements

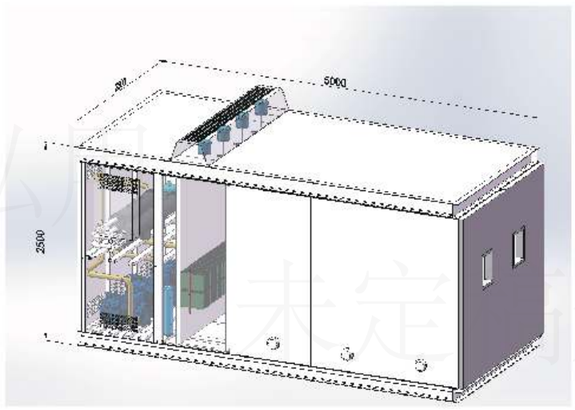
1. Temperature shock
1.1 The test object is a battery pack or system
1.2 Place the lithium-ion battery pack or system in an alternating temperature environment of (-40±2)℃ to (85±2)℃; the conversion time between the two extreme temperatures is within 30min. The test object stays at each extreme temperature for 8h; cycle 5 times
1.3 After the test, observe for 2h at room temperature
2. Damp heat cycle
2.1 The test object is a battery pack or system
2.2 Refer to GB/T2423.4 to perform test Dd; variables are shown in Figure 4. The maximum temperature is +80℃; cycles: 5. Observe for 2h at room temperature

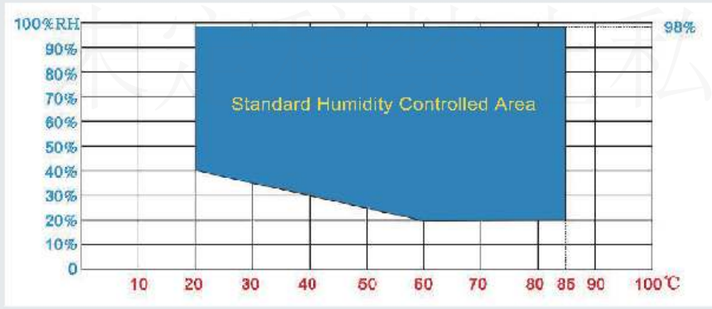




Temperature and Humidity Cycling





Model	BTWHK5-12DS
Inner chamber size	W3000xD2000xH2000mm
Overall dimensions	W3300xD4600xH2480mm
Temperature range	-50℃ ~ +150℃ (adjustable)
Humidity range	 20%RH-98%RH (limited temperature range; see zone diagram)
Temperature fluctuation	≤±0.5℃
Humidity fluctuation	≤±2.5%RH
Temperature deviation	≤±2.0℃
Humidity deviation	A) >75%RH: ≤+2, -3%RH; B) <75%RH: ≤±5%RH
Heating rate	≥5℃/min (-40℃ to +85℃, non-linear; load 800KG; no heat generation)
Cooling rate:	≥5℃/min (+85℃ to -40℃, non-linear; load 800KG; no heat generation)
Controller	PLC + touchscreen control
Cooling method	Water-cooled
Other requirements	Explosion-proof lighting system
	Explosion pressure relief system
	Smoke exhaust system
	Automatic water replenishment system
	Fire extinguishing device, sprinkler device, smoke alarm device, etc

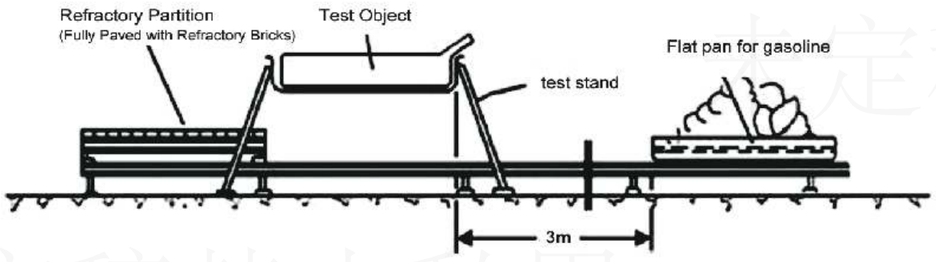
External Fire Exposure Test Machine

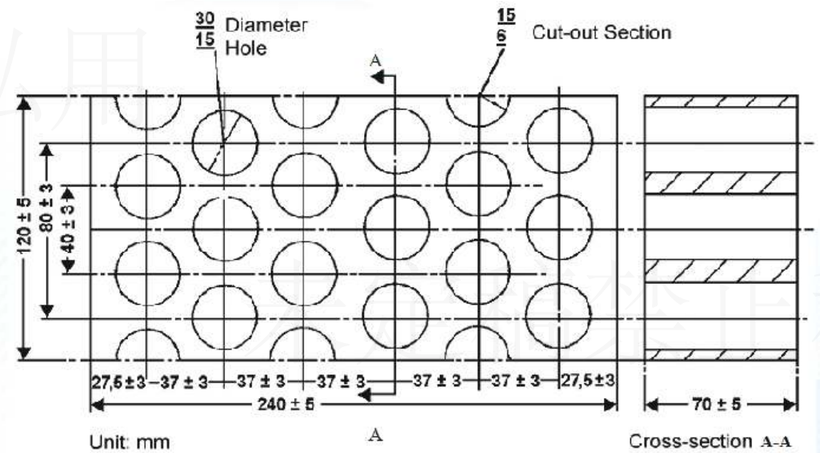
Relevant Standard Test Requirements

1.1 The test object is a battery pack or system.
1.2 The test environment temperature is above 0℃; wind speed is not greater than 2.5km/h; battery pack SOC is required to be above 50%.
1.3 During the test, the flat pan holding gasoline shall exceed the horizontal size of the test object by 20cm and not exceed 50cm. The pan height shall not be higher than the gasoline surface by 8cm. The test object shall be placed centrally. The distance from the gasoline liquid surface to the bottom of the test object is set to 50cm. Water is injected into the bottom layer of the pan. The external fire exposure schematic is shown in the figure



1.4 Stage 1: Preheating. Ignite gasoline at least 3m away from the test object. After 60 seconds of preheating, place the oil pan under the device under test. If the oil pan is too large to move, the test object and support can be moved instead.
1.5 Stage 2: Direct burning. The test object is directly exposed to flame for 70 seconds
1.6 Stage 3: Indirect burning. Cover the oil pan with a refractory partition. Test the test object in this state for 60 seconds. Or by mutual agreement, continue direct exposure to flame for 60s. The refractory partition is assembled from standard refractory bricks; the specific sieve-hole dimensions are shown below; it may also be made of refractory material by referencing these dimensions.





1.7 Stage 4: Leave the fire source. Move the oil pan or the test object away; observe for 2h or until the surface temperature of the test object drops below 45℃

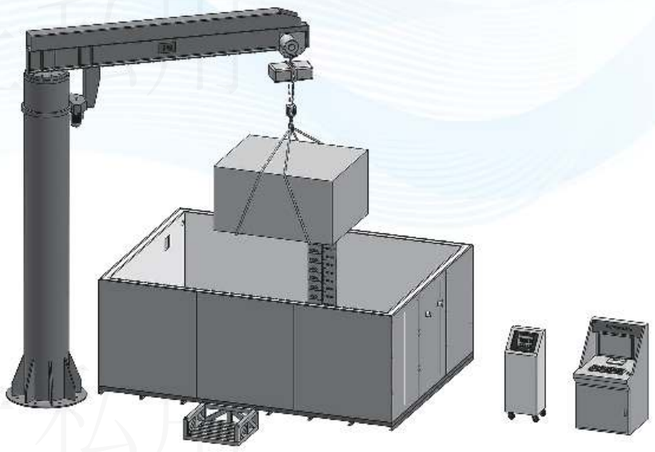
Main Technical Parameters

Model	BE-8202-2500	BE-8202-3000
Test space	W1500xD2500xH800mm	W2000xD3000xH1000mm
Main unit size	W7500xD3700xH960mm	W8500xD4200xH960mm
Moving frame size	W1700xD2700mm	W2200xD3200mm
Load capacity	1000KG (customizable 2000KG, 3000KG)	
Test cart moving speed	6000mm/min (speed adjustable)	
Cover plate moving speed	6000mm/min (speed adjustable)	
Control system	Combination of PLC + touchscreen local adjustment and remote PC control	
Ignition method	Automatic high-voltage ignition (remote control)	
Distance from burning table to fuel surface	The distance from gasoline liquid surface to the test object is adjustable within 450mm–550mm; default value is 500mm; water is injected into the bottom layer of the oil pan	
Refractory brick size	Meets ECER100 refractory brick size 240mm × 120mm × 70mm	
Oil pan size	There are 3 oil pans; different sizes of pans can be replaced according to battery size; easy operation. Pan height shall not be higher than gasoline surface by 8cm	
Other requirements	The burning area of the oil pan can be adjusted as required	
	Automatic gasoline filling	
	Long-distance remote control; ignition separately according to test requirements	
	Video monitoring system, lighting system	

Seawater Immersion Test System

Relevant Standard Test Requirements

1.1The test object is a battery pack or system
1.2 Connect wiring harnesses, connectors and other components according to vehicle connection method; at room temperature, choose one of the following two methods for the test
Method 1: Place the test object in a 3.5% NaCl solution (mass fraction) for 2h in the actual vehicle assembly orientation; water depth shall be sufficient to submerge the test object
Method 2: Conduct the test according to the method and procedure described in 14.2.7 of GB/T 4208-2017
1.3 Take the battery pack out of the water surface and leave it to stand for observation for 2h



Main Technical Parameters

Model	BE-HS-10000L
Pool size	W3500xD2500xH1200mm
Footprint(occupied area)size	W6000xD5000xH5000mm
Jib crane	Cantilever hoisting; cantilever can rotate; multi-dimensional lifting is more convenient
Overhead crane	Can lift up/down and move forward/backward; with rotatable cantilever, can conveniently install the test battery
Lifting straps	Used during battery pack lifting to provide fixation
Pool material	PP sheet (insulating and corrosion-resistant)
Max load	1000KG (customizable as required)
Total equipment weight	approx. 3.5 tons
Other requirements	Automatic water fill and drain
	Saltwater stirring system
	Online monitoring of saltwater concentration
	PLC + touchscreen control + remote PC control system
	Video monitoring system, lighting system

BATTERY PACK / SYSTEM SAFETY TEST EQUIPMENT

Complex Salt Spray Test Chamber



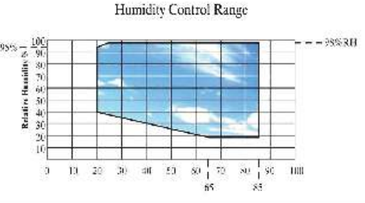
Relevant Standard Test Requirements

1.1The test object is a battery pack or system.
1.2 Refer to the test method in 5.5.2 of GB/T 28046.4; conduct the test according to the test conditions of GB/T 2423.17.
1.3 The salt solution is prepared with sodium chloride (chemically pure, analytical grade) and distilled water or deionized water; concentration is (5±1)% (mass fraction). Measured at (35±2)℃, the pH value is between 6.5 and 7.2.
1.4 Put the test object into the salt spray chamber and cycle as shown in Figure 10; one cycle lasts 24h. Spray the test object for 8h at (35±2)℃, then leave it to stand for 16h. Between the 4th and 5th hour of one cycle, according to GB/T 28046.1-2011 requirements, the working mode is 3.2.
1.5 Perform 6 cycles in total
1.6 For test objects installed in the passenger compartment, luggage compartment, or cargo compartment, salt spray testing may be omitted

Main Technical Parameters

Model	BE-8209-12m³	BE-8209-15m³
Inner chamber size	W2000xD3000xH2000mm	W2500xD3000xH2000mm
Overall dimensions	W2300xD5000xH3000mm	W2800xD5000xH3000mm
Test load	1000KG battery pack	
Temperature range	0℃ ~ +85℃	
Temperature fluctuation	≤0.5℃	
Temperature deviation	≤2℃	
Salt spray deposition	1-2mL/80cm²·1hr (collect 16 hours; take the average)	
Spray pressure	1.00±0.01kgf/cm²	
Resolution	Temperature 0.01℃; Humidity 0.1% R.H.	
Humidity range	30%--98%R.H.	
Humidity fluctuation	≤±3%R.H.	
Solution pH value	Neutral 6.0-7.0; Acidic 3.0-3.1	
Spray solution pH value	Neutral 6.5-7.2; Acidic 3.1-3.3	
Time range	1S-9999H settable arbitrarily	
Control mode	Touchscreen programmable PLC control; networking; mobile APP alarm device; with USB interface; with RJ485 interface; can be connected to PC control; dedicated network control software for convenient remote monitoring and data acquisition.	
Inner chamber material	Acid/alkali-resistant SUS316# stainless steel	
Outer chamber material	Cold/heat-resistant coated steel plate	
Cooling method	Air-cooled / water-cooled	
Total equipment weight	approx. 3.5 tons	approx. 4 tons
Total power supply	AC 380V 55KW	AC 380V 75KW
Other auxiliary functions	Mother-child trolley for convenient product in/out of chamber	
	Explosion-proof, pressure relief, smoke exhaust, fire extinguishing, video monitoring	

Humidity Control Range



Low Pressure Test Chamber

Relevant Standard Test Requirements



1.1 1.1The test object is a battery pack or system
1.2 Test environment: altitude 4000m or equivalent pressure condition; temperature is room temperature
1.3 Leave for 5h under the test environment in 1.2
1.4 Discharge the test object at 1I1 or the maximum constant-current discharge current provided by the manufacturer until cutoff condition
1.5 After the test, observe for 2h at the test temperature

Main Technical Parameters

Model	BE-8203-5m³	BE-8203-12m³
Inner chamber size	W1600xD2400xH1300mm	W2000xD3000xH2000mm
Overall dimensions	W2050xD2700xH2200mm	W2450xD3300xH2900mm
Total equipment weight	approx. 8 tons	approx. 11 tons
Pressure range	10.0KPa—101.3KPa (adjustable)	
Pressure accuracy	0.1 KPa	
Pressure down time	<30min	
Pressure up time	<30min	
Pressure holding	⩾10 hours	
High-voltage terminals	4 pcs, rated 500A, 1000V DC	
Low-voltage terminals	4 pcs, rated 500A, 1000V DC	
Data cable interface	2 sets, DB9 cable	
Observation window	W400xH600mm	
Automatic door opening/closing	Hydraulic automatic opening design	
Other requirements	PLC + touchscreen control + remote PC control	
	Charge/discharge under vacuum	
	Signal cable interface inside the chamber	
	Lighting and video monitoring system	
	Rails installed inside the equipment; products can automatically enter/exit	

High Current Short Circuit Test Device



Main Technical Parameters

Model	BE-XL-10000A	BE-XL-15000A
Max operating current	10000A	15000A
Max peak current	12000A	16000A
Temperature range	Ambient	
Device internal resistance	<1mΩ, <5mΩ, <10mΩ, <20mΩ, <50mΩ, <100mΩ (optional)	
Control mode	Local touchscreen control + remote PC control + remote controller control)	
Main unit dimensions	W1020xD940xH1830mm	W1020xD940xH1830mm
Explosion-proof box specification	W2000 × D3000 × H2000mm (optional)	
Short-circuit response time	⩽20ms	
Data interface	USB, data card, etc	
Data acquisition module	Independent remote isolated acquisition; multiple voltage/ temperature/current acquisition channels to ensure accurate data	
Short-circuit method	Pneumatic + vacuum arc extinguishing	
Safety alarm devices	Leakage, overcurrent protection, abnormal audible/visual alarm, dual protection system, etc.	
Test fixtures	Custom-made, depending on the sample's actual use conditions	

Thermal Runaway Test Machine

Relevant Standard Test Requirements

1.1 The test object is a complete vehicle or a complete on-board lithium-ion battery system, or a subsystem of an on-board lithium-ion battery system including lithium-ion batteries and electrical connections
1.2 Test conditions
The test shall be conducted under the following conditions:
A) This test shall be conducted in an environment with temperature above 0℃, relative humidity 15%–90%, and atmospheric pressure 86–106kPa.
B) Before the test, the SOC of the test object shall be adjusted to greater than [90% or 95%] of the normal SOC operating range specified by the manufacturer.
C) Before the test, all test devices must be operating normally.
D) The test shall modify the test sample as little as possible; the manufacturer shall submit a list of modifications made.
E) The test shall be conducted indoors or in an environment with wind speed not greater than 2.5km/h
1.3 Thermal runaway trigger object
Heating and nail penetration are recommended as candidate methods for thermal propagation tests of lithium-ion battery systems; the manufacturer may choose one method
1.4 Heating-triggered thermal runaway:
Use a flat or rod-shaped heating device, and its surface shall be covered with ceramic, metal, or an insulating layer. For a block heating device with the same size as a lithium-ion battery, the heating device may replace one lithium-ion battery and be in direct contact with the surface of the trigger object; for a film heating device, it shall always be attached to the surface of the trigger object; in any possible case, the heating area of the heating device shall not be larger than the surface area of the lithium-ion battery; place the heating surface of the heating device in direct contact with the battery surface, and the position of the heating device shall correspond to the position of the temperature sensor specified in 1.6; after installation, start the heating device immediately and heat the trigger object at the maximum power of the heating device; the power requirements of the heating device are shown in Table A.1, but are not mandatory; stop triggering when thermal runaway occurs or when the temperature at the monitoring point defined in 1.6 reaches 300℃.

Table A.1: Heating device power selection

Test object energy E (Wh)	Maximum power of heating device (W)
E<100	30 ~ 300
100≤E<400	300 ~ 1000
400≤E<800	300 ~ 2000
E≥800	>600

1.5 The manufacturer determines whether thermal runaway occurs based on one or more of the following conditions, and shall state the criteria in the technical documentation
a) The test object shows a voltage drop;
b) The temperature at the monitoring point reaches the maximum operating temperature specified by the manufacturer;
c) The temperature rise rate at the monitoring point;
d) Other state parameters defined by the manufacturer.
1.6 Voltage and temperature monitoring
Monitor the voltage and temperature of the trigger object to determine whether thermal runaway occurs. When monitoring voltage, the original circuit shall not be modified.
Monitoring temperature is defined as temperature A (the highest surface temperature of the trigger object during the test). The sampling interval of temperature data shall be less than 1s; accuracy requirement is ±2℃; the tip diameter of the temperature sensor shall be less than 1mm.

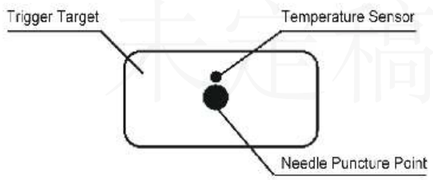


Figure A.1 Schematic diagram of temperature sensor placement when nail penetration triggers

When nail penetration triggers, the temperature sensor position shall be as close as possible to the short-circuit point.
When heating triggers, arrange the temperature sensor on the side away from heat conduction, i.e., install on the opposite side of the heating device (as shown in Figure A.2)
If it is difficult to directly install the temperature sensor, arrange it at a position where continuous temperature rise of the trigger object can be detected

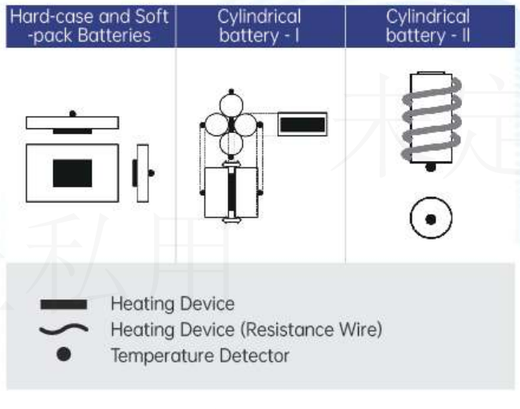


Figure A.2 Schematic diagram of temperature sensor placement when heating triggers



Main Technical Parameters

Model	BE-8401
Trigger mode	Two modes optional—overcharge and heating
Heating-mode channels	2 channels (one commonly used, the other standby)
Max heating power	3KW, single channel
Power adjustment method	Replace heater tubes with different power + adjust input current
Max overcharge voltage	10V (optional 100V)
Voltage acquisition channels	10 channels, 20 channels, 40 channels (optional)
Temperature acquisition channels	10 channels, 20 channels, 40 channels (optional)
Control mode	PLC + PC control
Control main unit dimensions	W700xD650xH1360mm
Explosion-proof box	W2000 × D3000 × H2000mm (optional)
Total equipment weight	100kg
Power supply	AC 380V 7KW



04

UAV POWER BATTERY SAFETY TEST SERIES

PROVIDE PROFESSIONAL BATTERY SAFETY TEST EQUIPMENT SOLUTIONS



Main Technical Parameters

Model	BE-XL-2000A	BE-XL-3000A	BE-XL-5000A
Max.operating current	2000A	3000A	5000A
Max.instantaneous current	3000A	4000A	6000A
Temp.range	Ambient Temp.		
Device internal resistance	<1mΩ, <5mΩ, <10mΩ, <20mΩ, <50mΩ, <100mΩare optional		
Control method	Close-range touchscreen control+ remote computer control+remote control mode		
External Dimension	W700xD1050xH1830mm		
Explosion-proof chamber specifications	W800xD800xH800mm,W1000xD1000xH1000mm		
Short circuit response time	≤20ms		
Data interface	USB, data card, etc.		
Data Acquisition Module	Independent remote acquisition and quarantine, multi-voltage/temperature/ current acquisition channels ensure data accuracy.		
Short circuit mode	Pneumatic+vacuum arc extinguishing		
Safety Alarm device	Electric leakage,over-current protection, abnormal sound-light alarm,smoke alarm, dual protection system,etc.		
Testing Fixture	Customize according to actual testing condition		

THERMAL ABUSE TEST CHAMBER



Main Technical Parameters

Model	BE-101-1000B
Temp.range	RT+10 ~ 200℃(Controllable)
Control Precision	⩽±0.5℃
Temp.deviation	⩽±2.0℃ (⩽150℃) ⩽±3.0℃ (150℃~200℃)
Heating rate	RT ~ 150℃ (5℃/min,liner,no load)
Temp. overshoot	⩽2℃
Control Method	PLC+Touch Screen Control
Testing room dimension	W1000xD1000xH1000mm
External Dimension	W1400xD1400xH1920mm
Basement	With universal wheel
Observation Window	390x360mm
Safety Protection Device	over-voltage, over-temperature, over-current protection.
	protection for short circuits caused by incorrect operation of the operator and battery electrode, battery positive and negative connection, etc.
Safety Device	Smoke exhaust system, explosion-proof pressure relief port,tri-color light alarm.

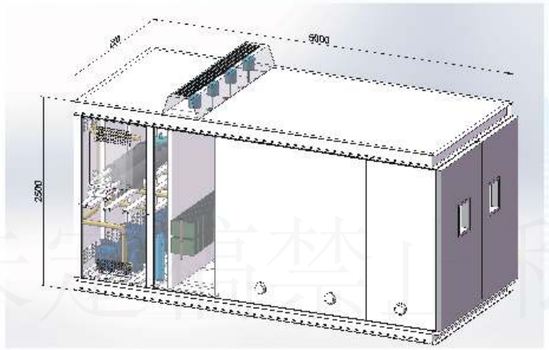
TWO-ZONE THERMAL SHOCK TEST CHAMBER



Main Technical Parameters

Model	BTS2-330BS/CS/DS
Internal Dimension	W700xD600xH800mm
External Dimension	W1700xD1900xH2300mm
Pre-cooling Zone Temp.	-10℃ ~ -75℃(Adjustable)
Pre-cooling Zone Cooling Rate	-10 ~ -75℃⩽60min
Pre-heating Zone Temp.	+50℃ ~ +200℃(Adjustable)
Pre-heating Zone Heating Rate	+50℃ ~ +200 ℃⩽30min
Temp. exposure time	⩾120min
Temp. Recovery Time	⩽5min (Temperature at the center of the basket)
Testing Zone Temp.	B Type:-40 ~ 150℃ C Type:-55 ~ 150℃ D Type:-65 ~ 150℃
Temp. conversion time	< 5s
Basket movement method	Move up and down
Basket drive mode	Cylinder drive
Control Method	PLC+Touch Screen Control
Noise	⩽75dB(Measured 1 meter from the front door and 1 meter from the ground)

RAPID RATE TEMPERATURE HUMIDITY TEST CHAMBER

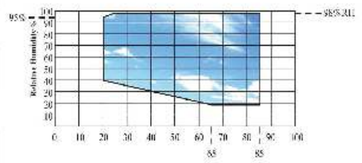




Main Technical Parameters

Model	BTWHK5-12DS
Internal Dimension	W3000xD2000xH2000mm
External Dimension	W3300xD4600xH2480mm
Temp.range	-50℃ ~ +150℃(Adjustable)
Humidity range	20%RH-98%RH(Defined temperature range)
Temp.fluctuation	⩽0.5℃
Humidity fluctuation	⩽±2.5%RH
Temp.deviation	⩽2.0℃
Humidity deviation	A) > 75%RH: ⩽+2, -3%RH; B) < 75%RH: ⩽±5%RH
Heating rate	⩾5℃/min(-40℃ ~ +85℃,No linear, 800KG load, no heat generation)
Cooling Rate	⩾5℃/min(+85℃ ~ -40℃,No linear, 800KG load, no heat generation)
Cooling Method	water cooling
Options	Explosion-proof lighting system
	Explosion-proof pressure relief system
	Smoke exhaust system
	Automatic water replenishment system
	Fire extinguishing equipment, sprinkler systems, smoke alarm systems, etc.

Humidity Control Range



BATTERY DROP TESTER



Main Technical Parameters

Model	BE-8108
Drop Height	300 ~ 1500mm(adjustable)
Testing Method	Free fall
Test Loading	0 ~ 5kg
Max Specimen Dimension	W200 x D200 x H200mm
Machine Dimension	W940 x D940 x H2000mm
Control Method	PLC+Touch Screen Control
Drop Method	Pneumatic drop
Lifting Method	Electric lifting
Safety device	Fully enclosed explosion-proof device
Compressor air	> 0.3Mpa
Drop Plate Size	Standard solid steel(Hardwood,cement board optional)
Observation Window	390 x 360mm
Data Output	Test data can be output by USB flash disk directly.
Safety Protection	Explosion-proof pressure relief device, smoke exhaust device, fire extinguishing system, electronic door lock system, safety stop switch.

TEMPERATURE CYCLING TEST CHAMBER



Main Technical Parameters

Model	BTL-1000CS
Testing Space	1000L
Internal size	W1000xD1000xH1000mm(can be customized)
External size	W1200xD1820xH1950mm
Temp.range	-40℃ ~ +150℃(can be customized according to different products)
Humidity range	20%RH-98%RH
Temp.fluctuation	≤±0.5℃
Humidity fluctuation	≤±2.5%RH
Temp.deviation	≤±2.0℃
Humidity deviation	A)>75%RH:≤+2/-3%RH，B)<75%RH:≤±5%RH
Temp.uniformity	≤2.0℃
Heating rate	≥3℃/min(from-40℃to+80℃, non-linear, no load)
Cooling time	≥1℃/min(from+80℃ to-40℃ non-linear, no load)
Noise	≤75dB (A-weighted sound level)
Control Method	PLC+Touch Screen Control
Observation Window	W270mm x H320mm
Safety Protection	Explosion-proof pressure relief device, explosion-proof chain, mobile phone alarm device, networking, smoke exhaust device, fire extinguishing device, etc.

BATTERY CRUSH NAIL PENETRATION TEST CHAMBER



Main Technical Parameters

Model	BE-6047-2T	BE-6047-5T
Pressure Range	0-20KN	0-50KN
Crush Speed	0.1~900mm/min	
Nail penetration test speed	0.1~40mm/s	
Driving Method	Servo Motor⊠Drive	
Unit Conversion	Kg/N/Lb	
Crush Range	0~300mm	
Extrusion Accuracy	±0.5%	
Extrusion Remaining Time	0~99 hours 59 mins 59 secs	
Controlling Mode	Split type, computer control	
Main Voltage	1 channel (control via software interface)	
Test Space	≥ W300xD300xH300mm	
Overall Dimension	W1000xD850xH1800mm	
Observation Window	390*360mm	
Testing Conditions	The main control software can simultaneously collect the force, displacement and voltage changes in the crush process and make corresponding program control according to the test standard requirements.	
Communication	ensure the stability and real-time of remote collection	
Safety Protection Device	Automatic explosion-proof pressure relief device, smoke exhaust device, fire extinguishing device, video monitoring system, electronic door lock system, safety stop switch	

ALTITUDE SIMULATION TEST CHAMBER



Main Technical Parameters

Model	BE-8104
Structure	All-in-one structure,door with explosion-proof lock and explosion-proof chain
Temp.range	Without temperature (optional with temperature to standard requirements of 25±5℃)
Pressure range	5KPa~101.3KPa
Unit	KPa
Internal Dimension	W600xD600xH600mm
External Dimension	W940xD780xH1620mm
Timing Range	99H59M59S
Observation Window	390 x 360mm
Air pressure	Normal pressures~5Kpa(Adjustable)
Display Mode	PLC touch screen + remote control
USB interface	Equipped with a USB interface, it allows for the export of test data.

SEA WATER IMMERSION TEST DEVICE



Main Technical Parameters

Model	BE-8308
Water Tank Internal Dimension	W1000xD1000xH1000mm
Max.Specimen size	W600xD600xH600mm
External Dimension	W1200xD1200xH1200mm
Control Method	PLC+Touch Screen Control
Water Adding Method	Manual filling after adjusted concentration
Drainage Method	Acid and alkali resistant water pump with strong drainage



05

NON-STANDARD CUSTOMIZED EQUIPMENT SERIES

PROVIDE PROFESSIONAL BATTERY SAFETY TEST EQUIPMENT SOLUTIONS

BATTERY PACK BOTTOM BALL IMPACT TEST BENCH

Application

Mainly used for the bottom ball hitting test of power battery pack or system to assess the safety of battery products in the bottom ball hitting test environment.



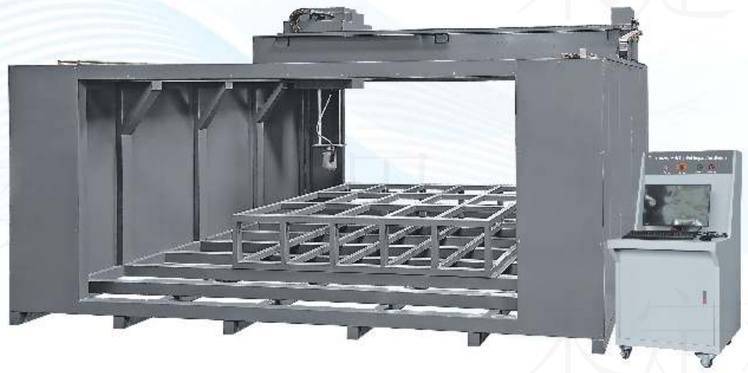
Main Technical Parameters

Model	BE-8403D
Maximum battery size tested	W3000xD2000xH1300mm
Ball hitting head tooling X axis motion stroke	⩾3000mm
Ball hitting head tooling Y axis motion stroke	⩾2000mm
Ball hitting head tooling X axis and Y axis displacement accuracy	< 0.5% F.S.
X-and Y-axis velocities	1-10mm/s Arbitrary setting
Range of hitting power	⩾0-80kN,Can be adjusted within the range
Ball impact accuracy	Relative error<0.5%
Ball impact accuracy	0.1mm/s-10mm/s(adjustable)
Accuracy of hitting speed	Relative error<0.5%
Stroke displacement	0-300mm
Energy Impact	60~2000J (adjustable)
Energy Impact Precision	±2.5%
Impact head	30mm in diameter, 10kg in weight

BATTERY PACK TOP BALL IMPACT TEST BENCH

Application

Mainly used for the Top ball hitting test of power battery pack or system to assess the safety of battery products in the Top ball hitting test environment.



Main Technical Parameters

Model	BE-8403C
Maximum power	10KN
impact accuracy	±0.5%F.S.
Speed accuracy	±0.1%FS.
Ball hitting head displacement accuracy	±0.15MM
Stroke displacement	0-500MM
Ball hitting head tooling X axis motion stroke	0-3000MM
Ball hitting head tooling Y axis motion stroke	0-2000MM
Ball hitting head tooling X axis and Y axis displacement accuracy	±5mm
External Dimension	W5000 X D3400 X H3500 MM
Maximum test space	W2000 X L3000 X H1000 MM
Horizontal movement drive mode	Servo motor drive
Control Method	PC control

SINGLE CELL THERMAL RUNAWAY TEST MACHINE

Relevant Standard Test Requirements

- UL 9540A-2019

Application

Different triggering methods were used to induce thermal runaway in individual battery cells, thereby collecting the gases generated by the thermal runaway of lithium batteries and analyzing the composition of the gases.



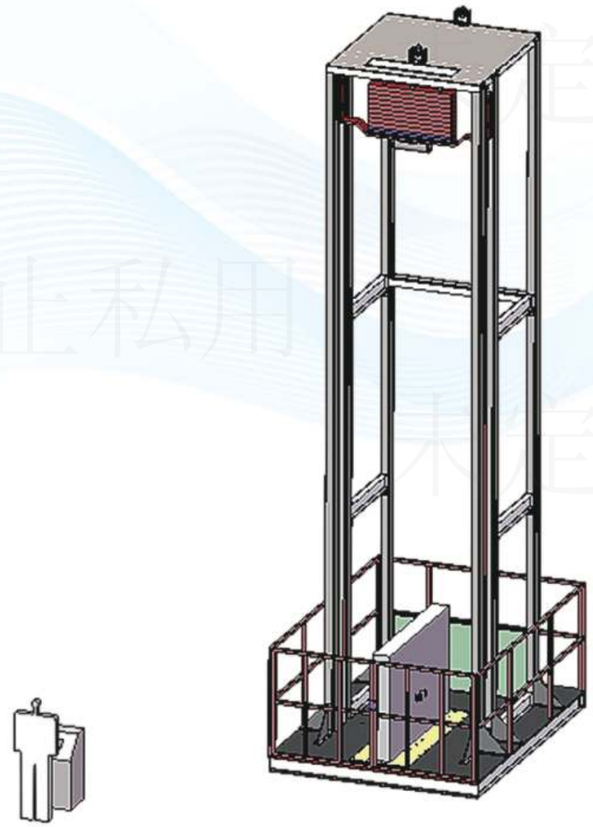
Main Technical Parameters

Model	BE-8403
Trigger mode	Electric heating,overcharge,acupuncture three modes are available
Number of heating mode channels	2 channel
Heating power	0~3KW, Single channel
Power regulation method	Replace heating elements with different power ratings and adjust the input current.
Overcharge voltage	10V(100V optional)
Acquisition Channel	10-channel, 20-channel, and 40-channel options are available.
Control Method	PC remote control
Working air pressure	Vacuum degree: Atmospheric pressure ~ 3MPa
Safety relief valve	3MPa
Sealing performance	Pressure holding at 250 kPa for ⩾1h, leakage <0.5 kPa
Oxygen detection	1 unit, 0~25% oxygen concentration, 0.1% accuracy of measurement (for use only during odor and inert gas filling stages; protection is required during thermal runaway testing).
Temp.range	20℃~85℃
Temp.uniformity	⩽2.0℃
Temp.fluctuation	⩽±0.5℃
Temp.deviation	⩽±2.0℃
Vacuum function	Equipped with a vacuum pump to evacuate pressure vessels, it has both manual and automatic modes.
Inert gas filling function	manual and automatic modes

DYNAMIC IMPACT TEST MACHINE

Application

Mainly used for impact extrusion test of lithium-ion battery modules and battery packs.



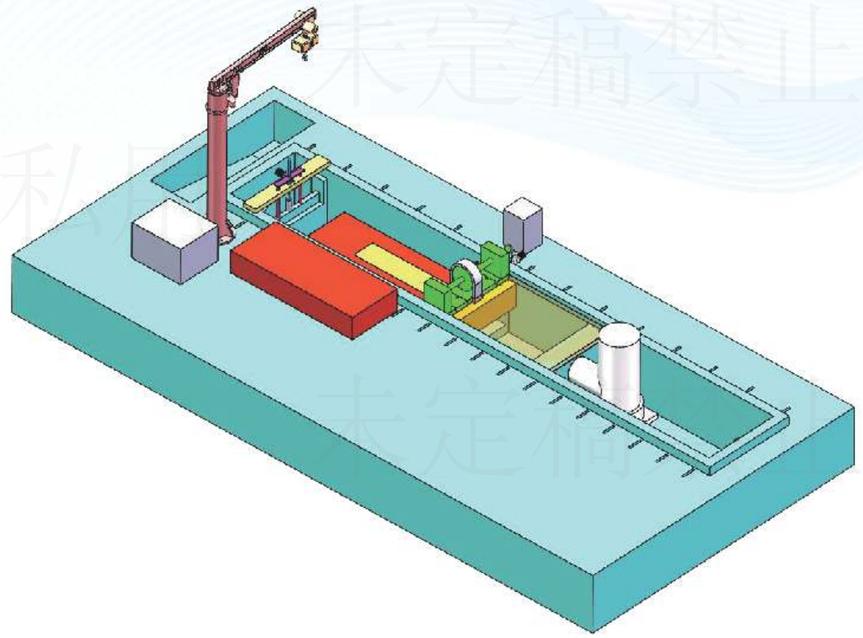
Main Technical Parameters

Model	BE-8303-A
Test space	W2000xD3000xH2000mm
Impact height	0-7000mm(control accuracy±10mm)
Impact velocity	0-10m/s
Impact weight	100KG-1100KG(adjustable)
Impact block quality adjustment resolution	10KG
Impact block size	Round:φ150mmxL500mm;Square:L223xW113xH20mm;L227xW223xH20mm;L223xW176xH20mm
Impact floor size	W3000xD4000mm

EV BATTERY PACK WADING TEST DEVICE

Structural description

The whole project includes water circulation system,mechanism lifting,loading and unloading cantilever hoist,adjusting parts,etc



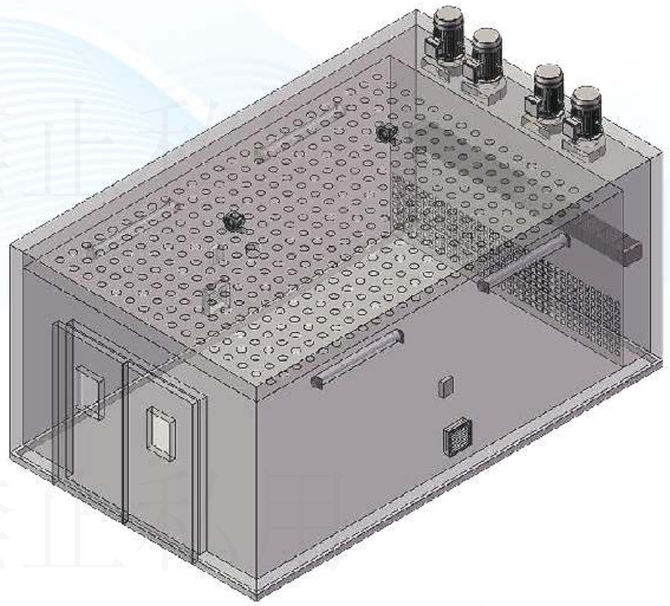
Main Technical Parameters

The size of the whole wire	W14300xD7000xH3600mm
Water flow	6000m³/hour
Water velocity	8.3m/s(calculated from the reverse speed of 30km/H)
Test time	3min/time
Test time	PLC control, touch screen operation

TANK PERMEABILITY TEST CHAMBER

Relevant standard test requirements

- GB18296-2019



Main Technical Parameters

Model	BTW-45AFT
Effective test space	45m³
Internal Dimension	W3500xD5500xH2300mm(Can be customized)
Inner chamber material	SUS304 stainless steel plate
Temp.range	+5℃ ~ +65℃
Temp.fluctuation	⩽±0.5℃
Temp.deviation	⩽±2℃
Heating rate	1℃/min,no-linear no-load
Cooling Rate	1℃/ min,no-linear no-load
Cooling Method	Compresses the cooling water, and the water controls the internal temperature of the chamber
Control Method	PLC+touch screen+remote control

HIGH SPEED NAIL PENETRATION TESTER

Principle

The battery cell is placed in the test plate. The double-cylinder structure of the motor screw attaches a support plate for fixing the steel needle to the crossbeam of the cylinder, allowing it to descend freely. The speed is controlled by the cylinder, with mechanical positioning throughout the entire stroke. Double magnets engage and cut off (non-elastic collision), ensuring no deceleration throughout the stroke. The needle reaches a designated position on the battery cell (to avoid secondary puncture), achieving a certain penetration depth, or penetrating and remaining there for a certain time before being withdrawn, or the needle is immediately pulled out. Temperature and voltage sensors installed on the battery cell collect data, which is then transmitted to a computer to determine its performance.



Main Technical Parameters

Model	BE-6047Q
Internal Dimension	W850xH1200xD750mm;
External Dimension	W1400xH2900xD1280mm;
Pressure range	3KN-20KN;
Force value resolution	1/10000;
Pressure accuracy	±0.5%RDG
Journey	800mm precise mechanical positioning
Displacement accuracy	⩽±0.1mm;
Needling speed range	50mm/s-550mm/s;
Driving method	Servo motor drive
Control Method	Dedicated control software + PC control
Steel needle	30 needles, φ3mm steel needles, L100mm
Data collection	Integrated displacement, force, velocity, 4-channel temperature, 1-channel voltage, and time curve display; output data format: EXCEL/CSV.
Safety devices	Pressure relief system, smoke exhaust system

RESISTANCE CABINET

Design Overview

The high-current short-circuit resistor cabinet circuit design must be able to withstand the impact of high current while ensuring the stability of the resistance value: the contact copper plate and wires must be made of pure copper with low internal resistance; the resistors are made of constantan, which is stable, does not change with temperature, and has excellent linearity. The resistor accuracy can be adjusted to 0.1 mΩ.



Main Technical Parameters

Model	BE-XL-5000ADZ	BE-XL-10000ADZ
Maximum load short circuit current	5000A	10000A
Resistance	(Optional stepless adjustment resistance or split adjustment) Example: 1mΩ(maximum passing current 5000A); 5mΩ (maximum passing current 5000A) ; 10mΩ (maximum passing current 2000A) ; 20mΩ (maximum passing current 1000A) ; 80mΩ (maximum passing current 500A) ; 100mΩ (maximum passing current 500A) ;	1~100mΩ(adjustable) (Optional stepless adjustment resistance or split adjustment) Example: 1mΩ (maximum passing current 10000A) ; 5mΩ (maximum passing current 10000A) ; 10mΩ (maximum passing current 10000A) ; 20mΩ (maximum passing current 5000A) ; 80mΩ (maximum passing current 1000A) ; 100mΩ (maximum passing current 500A) ;
Heat dissipation control system	Two axial fans are installed on the top,with intelligent temperature control system.	

Equipment Features

Constantan resistor

Low Temperature Coefficient of Resistance:
The resistance changes minimally with temperature variations, typically within ±20×10⁻⁶/℃.It maintains resistance stability over a wide temperature range (-55℃ to 125℃), making it suitable for precision circuits.

Excellent Long-Term Stability:
The alloy structure is stable, resulting in minimal resistance drift during long-term use and a low annual drift rate.Strong resistance to oxidation and corrosion, enabling long-term operation in harsh environments.

Good Machining and Welding Performance:
Resistive elements of various shapes can be manufactured through processes such as rolling and wire drawing.Good welding compatibility, compatible with common electronic component welding processes.

HIGH TEMPERATURE NAIL PENETRATION MACHINE

Application

Mainly used for impact extrusion test of lithium-ion battery modules and battery packs.



Main Technical Parameters

Model	BE-9002-5TW	BE-9002C-5TW
Structure	Vertical	Horizontal
Extrusion method	Vertical	Horizontal
Pressure range	500N-50000N	
Internal Dimension	W800xD800xH800mm（512L）；W1000xD1000xH800mm（800L）；	
Force value resolution	1/10000	
Pressure accuracy	±0.5%RDG	
Displacement stroke	0-500mm	
Displacement accuracy	⩽±0.1mm	
Speed range	A:0.01mm/s-100mm/s; B:0.01mm/s-150 mm/s; C:0.01mm/s-200mm/s	
Speed accuracy	＜±0.3mm/s	
Data acquisition module	Independent remote data acquisition and isolation, multiple voltage and temperature acquisition channels to ensure data accuracy.	
Pressure sensor	500N-50000N,with a reading accuracy of 0.03%FS, it can be used for extrusion pressure cutoff and extrusion initial position positioning.	
Driving method	Servo motor drives ball screw, dual electric cylinder structure	
Control Method	Special control software+PC control	
Steel needle	50 needles，L100mm	20 needles，L200mm
Temp.range	RT～+100℃;	
Temp.deviation	⩽±2℃;	
Temp.uniformity	⩽±1℃;	
Heating rate	Average 5℃/min, no-linear no-load;	
Safety devices	Pressure relief system, smoke exhaust system, explosion-proof chain, explosion-proof lock, fire extinguishing system, etc.	

HIGH TEMPERATURE CRUSH TEST MACHINE

Application

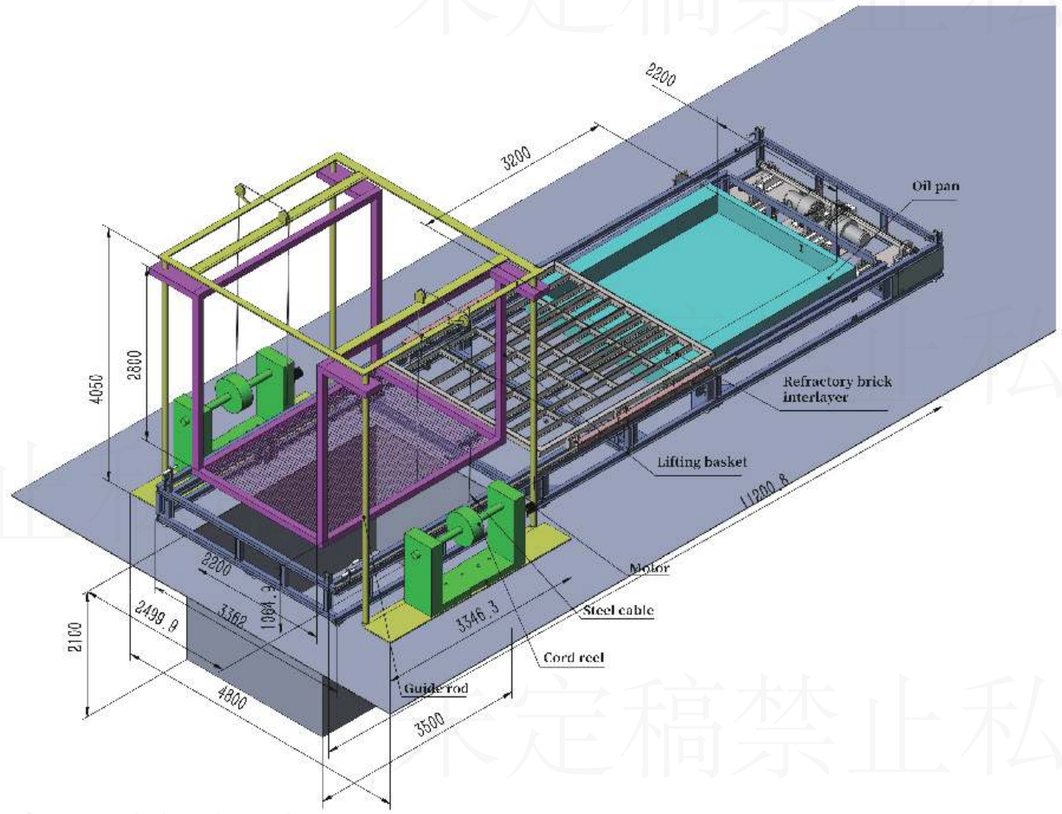
Simulation of battery extruded under high temperature environment.



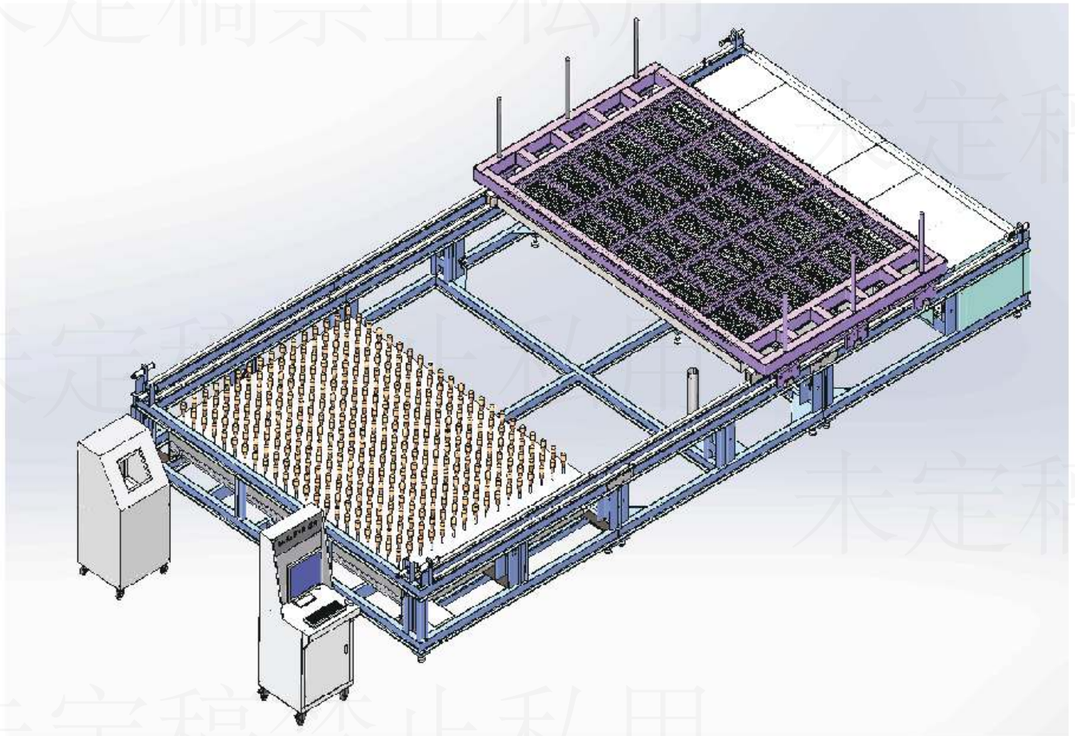
Main Technical Parameters

Model	BE-6045-10TW	BE-6045-20TW	BE-6045-30TW	BE-6045C-10TW	BE-6045C-20TW	BE-6045C-30TW
Pressure range	10KN~100KN	20KN~200KN	30KN~300KN	10KN~100KN	20KN~200KN	30KN~300KN
Structure	Vertical	Vertical	Vertical	Horizontal	Horizontal	Horizontal
Extrusion method	Vertical	Vertical	Vertical	Horizontal	Horizontal	Horizontal
Force value resolution	1/10000;					
Force value accuracy	≤0.5%;					
Displacement resolution	1/1000;					
Displacement accuracy	≤0.5%;					
Speed range	1~500mm/min (customizable)					
Internal Dimension	W1000xD1000xH800mm (customizable)					
Effective stroke	500mm (customizable) ;					
Test plane	800x700mm (customizable) ;					
Temp.range	RT+10℃~ +100℃ (customizable) ;					
Analytical accuracy	±0.01℃;					
Temp.fluctuation	±0.5℃;					
Temp.deviation	≤±2℃;					
Temp.uniformity	≤2℃;					
Test conditions extrusion	Crush,voltage drop 5mV or 50%depth,can be set					
Driving method	Electric servo drive					
Safety devices	Pressure relief system, smoke exhaust system, explosion-proof chain, explosion-proof lock, fire extinguishing system, etc.					

WHOLE VEHICLE EXTERNAL FIRE EXPOSURE TEST MACHINE



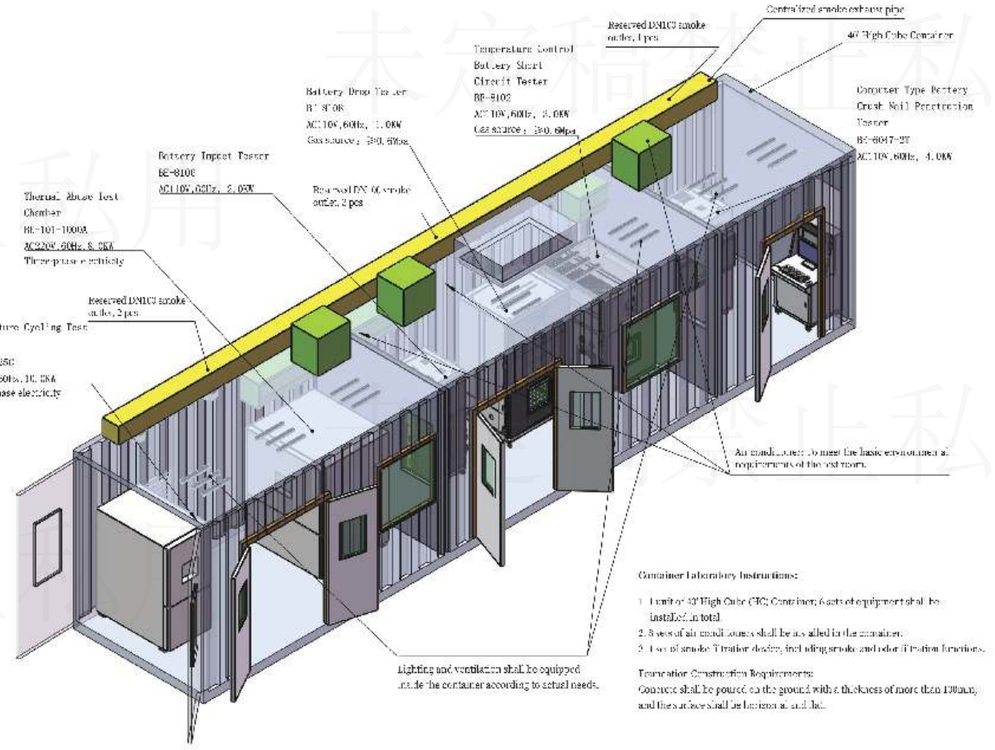
NATURAL GAS TYPE EXTERNAL FIRE EXPOSURE TEST MACHINE



CONTAINER LABORATORY

1. The integrated control solution for power battery container laboratory meets the following standards: GB 31241, GB/T 31485, GB 38031, UN38.3, UL1642, IEC62133, GB/T 36276, etc.

2. Test Items
2.1 Impact Test
2.2 Low Pressure Test
2.3 Drop Test
2.4 Extrusion and Needle Puncture Test
2.5 Battery Heavy Object Impact Test
2.6 Thermal Shock Test
2.7 Vibration Test
2.8 Forced Internal Short Circuit Test
2.9 Temperature Cycling Test
2.10 Short Circuit (Normal Temperature, High Temperature) Test
2.11 Thermal Runaway Test
2.12 Combustion Jet Test
2.13 Washing Test
Note: Equipment and container design are based on customer requirements, and a smoke filtration system is included.



BATTERY PERFORMANCE LABORATORY



Introduction

This laboratory is equipped with EV walk-in high and low temperature humidity test chamber, PHVE high and low temperature humidity test chamber, cell AB box type high and low temperature humidity test chamber, cell double layer high and low temperature humidity test chamber, two-compartment thermal shock chamber, electronic load, chiller, etc., which can meet the integrated testing of various types of batteries.

Features

01 Adaptable to various battery testing needs

02 Precise and stable environmental control

03 Powerful data acquisition capabilities

04 Reliable safety protection functions

05 Customizable layout to meet specific requirements

PHYSICAL DIAGRAM OF THE BATTERY PERFORMANCE LABORATORY









COOPERATION PARTNERS

New Energy Battery Company

ATL · CATL · EVE ENERGY VERY ENDURE · FARASIS · SUNWODA 欣旺达
Gotion · LG Energy Solution · SAMSUNG · AVIC 中航锂电 · LISHEN 力神电池

Electronic Product Company

HUAWEI · Hisense · Panasonic · vivo
DESAY 德赛 · mi · SONY · oppo

New Energy Vehicle Company

BYD · CHERY · Great Wall · SAIC 上汽集团 SAIC MOTOR
NIO · 吉利汽车 GEELY AUTO · VW · YUTONG

Third-party Detection Insititution

TÜVRheinland · BUREAU VERITAS · NRC·CNRC Canada · SMVIC · UL · 中国汽研 CAERI · NAST

PROJECT CASES









