

BAC-1000AE

Large Battery Adiabatic Calorimeter



Advanced Technology



High Efficiency



Safety



The BAC-1000AE is designed for studying large battery cells and small modules with long sides ranging from 100mm to 1500mm. It can perform tests on battery thermal runaway, gas generation, heat generation during charging and discharging, and specific heat capacity. The instrument precisely measures parameters such as heat generation and specific heat capacity under low-temperature conditions, the onset temperature of thermal runaway, the maximum rate of thermal runaway, adiabatic temperature rise characteristics, gas generation volume, and gas generation rate.

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Product Features

- The instrument features combined adiabatic thermal runaway and gas generation testing, adiabatic thermal runaway, gas collection and pressure testing, auxiliary heating with heating wires, thermal/electrical/mechanical abuse, specific heat capacity testing, charge/discharge heat generation testing, low-temperature testing, multi-point temperature measurement, and video surveillance.
- Features an innovative combined analysis function for adiabatic thermal runaway and gas generation, providing a comprehensive acquisition of battery thermal runaway characteristic parameters.
- Self-exothermic detection sensitivity is significantly better than the standard threshold of 0.02°C/min, with high adiabatic performance and minimal wall-sample temperature difference.
- An innovative auxiliary heating wire solution can increase experimental efficiency by up to 5 times.
- The pressure vessel is equipped with bursting discs, pressure relief valves, and other active and passive safety protections, with a professional alarm system to ensure the safety of personnel and equipment.

Application Value

- **Adiabatic Thermal Runaway**
- **Charge/Discharge Heat Generation Testing**
- **Adiabatic Temperature Rise Characteristics Testing**
- **Combined Adiabatic Thermal Runaway and Gas Generation Testing**
- **Specific Heat Capacity Testing**
- **Online/In-Situ Analysis of Battery Gas Generation**

Test Standards

- GB/T 36276-2023
- UL 9540A
- ASTM E1981-98(2012)
- SN/T 3078.1-2012
- USABC SAND99-0497, July 1999
- SAE J2464-R2009
- Freedom CAR SAND 2005-3123
- UL 1973
- GB 38031-2020

Technical Specifications

Adiabatic Furnace Dimensions	1000 mm (Diameter) × 1200 mm (Depth)
Self-exothermic Detection Sensitivity	0.02–0.05 °C/min
Temperature Difference between Furnace and Sample in Constant Temperature	≤ 1 °C
Temperature Control Range	RT – 300 °C, with a low-temperature module reaching -25 °C
Temperature Tracking Rate	0.02–15 °C/min
Operating Pressure Range	0–2 MPa
Maximum Nail Penetration Stroke	Up to 200 mm (through software settings)
Charge and Discharge Column Overcurrent Capability	-1000–1000 A

