YOUNG INSTRUMENTS

ECB-2002AE

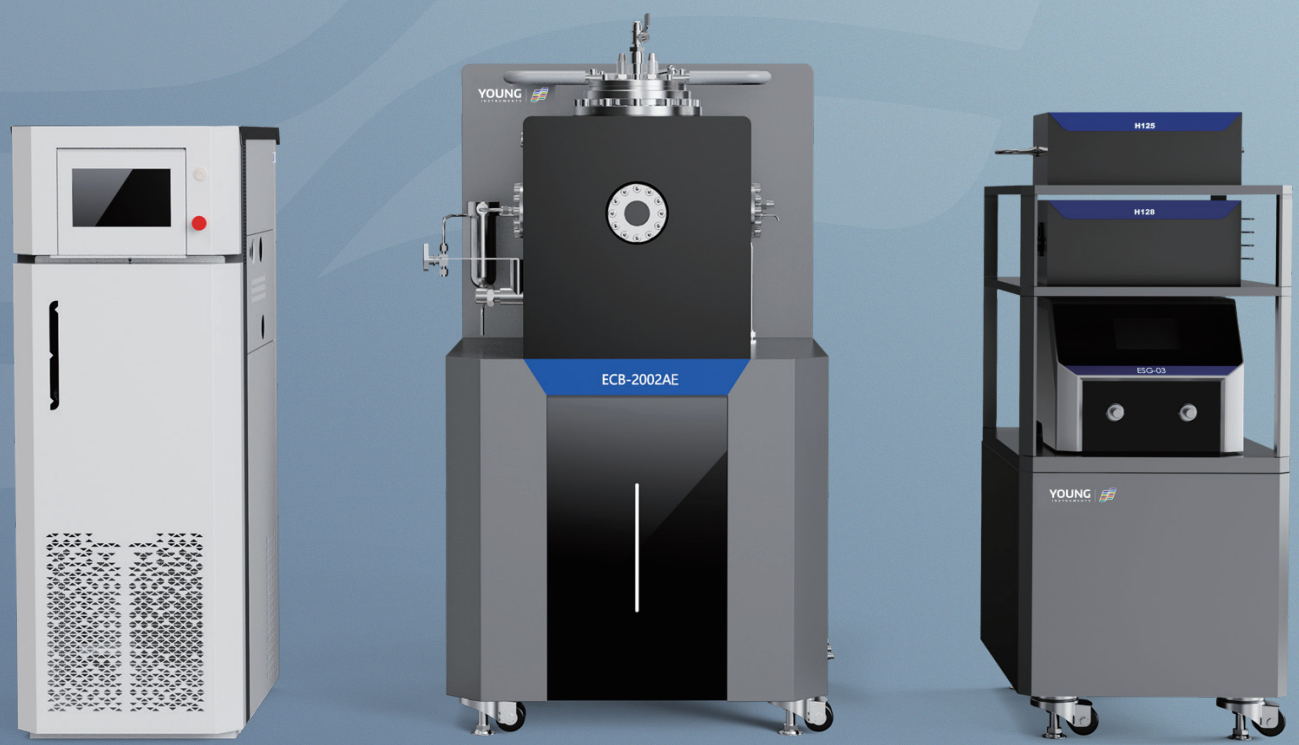
Multiphase High-Temperature High-Pressure Explosion Limit Tester

Multiphase Measurement

Accurate

Safety

Modular Design



The ECB-2002AE enables simultaneous determination of combustion-explosion parameters, including lower/upper explosion limits (LEL/UEL), limiting oxygen concentration (LOC), maximum explosion pressure (P_{max}), and pressure rise rate (dP/dt). Designed for in-situ analysis of multi-phase ejecta explosiveness during lithium battery thermal runaway in energy storage systems, it complies with UL9540A:2023 for gas explosion testing during battery failure events. Additionally, it assesses organic vapor explosiveness in fine chemical synthesis processes.

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Product Features

- Modular design concept, flexible to meet various testing requiremen.
- Tailored to different testing needs, with freely editable experimental processes.
- Test chamber made of 316L stainless steel, corrosion-resistant.
- Jacketed temperature control for high efficiency.
- Constant temperature conditions are flexibly set, balancing efficiency and accuracy.
- Equipped with a high-efficiency vacuum pump, cleaning parameters are adjustable to thoroughly eliminate residual effects.
- Precision measurement and control system with compensation gas mixing algorithm for accurate gas concentration control.
- Stirring function to ensure the uniformity of the gas mixture.
- Uses specialized explosion-proof pressure sensors with high working temperatures and dynamic performance.
- Automatic control of gas samples, including vacuuming, gas mixing, and stirring.
- Equipped with safety interlock features to enhance security.
- Safety valves, rupture discs, and multiple safety protections to ensure the safety of laboratory personnel.

Test Standards

ASTM E918 ASTM E2079
EN 1839 EN 15967 UL9540A

Technical Specifications

Operating Environment	0–45 °C, <95% RH
Test Container Temperature Control Range	RT – 200 °C
Configurable Maximum Gas Pressure	1 bar
Test Container Design Pressure	≥ 2.0 MPa
Explosion Pressure Sensor	≥ 5.0 MPa, linearity of ±1.0% FS
Explosion Pressure Sensor Sampling Rate	≥ 5 kHz
Explosion Pressure Sensor Sampling Depth	≥ 1 Sec
Gas Input Channels	3 channels
Maximum Stirrer Speed	400 rpm, adjustable