North America Battery Testing Equipment Market Forecast 2025-2032

Market Report | 2026-01-02 | 184 pages | Inkwood Research

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Report description:

KEY FINDINGS
The North America battery testing equipment market size is valued at $156.77 million as of 2025 and is expected to reach $215.54 million by 2032, progressing with a CAGR of 4.65% during the forecast years, 2025-2032.
MARKET INSIGHTS
The North America battery testing equipment market experiences robust expansion driven by stringent federal safety regulations and accelerating electric vehicle adoption across the region. Moreover, the implementation of FMVSS No. 305a, effective February 2025, establishes comprehensive performance requirements for electric vehicle propulsion batteries. This regulatory framework mandates rigorous testing protocols for battery retention, electrical isolation, thermal runaway prevention, and post-crash safety compliance.
Consequently, automotive manufacturers and battery suppliers invest heavily in advanced testing infrastructure to meet these enhanced standards. Additionally, renewable energy storage deployments across North America surge as utilities integrate grid-scale battery systems to support intermittent solar and wind generation. The convergence of regulatory pressure, technological innovation, and clean energy transitions positions North America as a critical growth market for battery testing equipment manufacturers.
REGIONAL ANALYSIS
The North America battery testing equipment market growth assessment includes the analysis of the United States and Canada.
The United States dominates the North America battery testing equipment market through its expansive automotive industry, established research infrastructure, and ambitious electrification targets. Federal initiatives, including the Inflation Reduction Act, provide substantial tax incentives for domestic battery manufacturing and electric vehicle production, spurring unprecedented investment in testing capabilities.
According to the U.S. Energy Information Administration, utility-scale battery storage capacity exceeded 26 gigawatts in 2024, with operators planning to add 19.6 gigawatts in 2025 alone. This rapid expansion necessitates comprehensive quality assurance protocols throughout battery lifecycles. Furthermore, automotive OEMs establishing gigafactories in Michigan, Tennessee, and Georgia require inline testing systems to validate cell consistency during high-volume production.
The country's concentration of leading research universities and national laboratories drives demand for cutting-edge characterization equipment supporting solid-state battery development and advanced cathode material studies. Meanwhile, telecommunications companies upgrading backup power systems and data center operators implementing uninterruptible power

supplies represent growing end-user segments for portable testing solutions.
American manufacturers face increasing pressure to demonstrate compliance with the newly finalized FMVSS No. 305a requirements, which extend post-crash safety provisions to heavy vehicles and school buses for the first time. Testing laboratories throughout the country upgrade capabilities to perform one-hour fire observation protocols and thermal runaway simulations mandated under these regulations.
Additionally, the Department of Energy allocates funding through programs like the Battery Materials Processing and Battery Manufacturing grant initiatives, supporting domestic supply chain development. These investments translate into equipment procurement as recipients establish quality control infrastructure meeting international certification standards.
The automotive industry's shift toward 800-volt architectures and silicon carbide power electronics further complicates testing requirements, demanding equipment capable of handling high-voltage pack configurations while maintaining measurement precision. As a result, the United States market growth significantly outpaces other regions through 2032.
Canada emerges as a strategic market for battery testing equipment, driven by its abundant critical mineral resources and government commitments to electric vehicle manufacturing. Provincial initiatives in Ontario and Quebec provide incentives for automotive suppliers establishing battery assembly operations near traditional manufacturing corridors.
The country's cold climate creates unique validation requirements, as batteries must demonstrate reliable performance in sub-zero temperatures prevalent throughout much of the nation. Consequently, Canadian testing facilities emphasize thermal chamber capabilities and cold-weather cycling protocols.
Furthermore, mining companies operating lithium, nickel, and cobalt extraction facilities require analytical equipment to assess raw material quality before shipment to downstream refiners. The Canadian government's zero-emission vehicle mandate targets 100% electric vehicle sales by 2035, creating long-term demand visibility for testing infrastructure supporting this transition.
SEGMENTATION ANALYSIS
The North America battery testing equipment market is segmented into product type, application, and end-user. The product type segment is further categorized into portable battery testing equipment and stationary battery testing equipment.
The stationary battery testing equipment segment is set to capture a significant market share throughout the forecast period due to comprehensive capabilities essential for research laboratories and manufacturing facilities. These systems deliver unmatched precision through climate-controlled environments, multi-channel configurations, and advanced data acquisition capabilities.
Stationary platforms accommodate cell-to-pack testing across voltage ranges from millivolts to 1,500 volts, supporting diverse chemistry validation requirements. Laboratory installations typically feature dozens or hundreds of test channels operating simultaneously, enabling parallel evaluation of battery variants under identical conditions. Furthermore, stationary systems integrate seamlessly with environmental chambers, providing precise temperature control from -40C to +85C, crucial for thermal performance characterization.
Energy recovery features available in regenerative models reduce operational costs by returning discharge energy to facility power grids. These sophisticated capabilities prove indispensable for automotive manufacturers validating battery pack designs against regulatory standards, where test repeatability and measurement accuracy directly impact certification timelines. The segment benefits from increasing gigafactory commissioning across North America, where inline formation systems represent multi-million-dollar capital investments per facility. Consequently, stationary battery testing equipment maintains commanding market dominance throughout the region.
COMPETITIVE INSIGHTS
Some of the top players operating in the North America battery testing equipment market include Arbin Instruments, Chroma Systems Solutions Inc, Midtronics Inc, and Megger Group Limited, etc.
Arbin Instruments represents a dominant force in the North America battery testing equipment market through its comprehensive product portfolio and strategic positioning near automotive manufacturing centers. Headquartered in College Station, Texas, the company operates a 65,000 square-foot manufacturing facility producing high-precision test equipment for energy storage applications.
Arbin specializes in multi-channel potentiostatic/galvanostatic systems serving applications from nano-ampere electrochemistry research to megawatt-scale grid storage validation. The company's Laboratory Battery Tester (LBT) series delivers measurement resolution down to 100 parts per million, addressing rigorous accuracy requirements for materials research and early-stage

product development.
Meanwhile, the Regenerative Battery Tester (RBT) lineup provides high-power solutions for electric vehicle pack testing, offering voltage capabilities up to 1,500 volts and current ranges exceeding 1,000 amperes while recovering discharge energy through bidirectional power conversion. Founded in 1991 by Dr. John Zhang, Arbin maintains global operations with offices across China, Germany, India, Korea, Vietnam, and Taiwan, supporting international customer bases.
COMPANY PROFILES
1. ARBIN INSTRUMENTS
2. CENTURY BATTERIES
3. CHAUVIN ARNOUX
4. CHROMA SYSTEMS SOLUTIONS INC
5. DV POWER
6. EXPONENTIAL POWER
7. EXTECH INSTRUMENTS
8. MEGGER GROUP LIMITED
9. MIDTRONICS INC
10. XIAMEN TMAX BATTERY EQUIPMENTS LIMITED

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