

# TAICO's Full-Stack Self-Developed Solid-State Battery Technology Leads a New Era of Energy Storage Safety

*TAICO has achieved a breakthrough: successfully developing solid-state battery technology and establishing a hybrid inverter production line.*

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## [Revolutionary Solid-State Batteries:](#)

Reshaping the Boundaries of Energy Storage Safety.

Traditional liquid lithium-ion batteries, relying on flammable electrolytes and low-melting-point separators, pose a significant safety hazard due to the risk of thermal runaway at high temperatures or internal short circuits.

TAICO's solid-state batteries, centered on its self-developed high-temperature stable ceramic electrolyte (withstanding temperatures  $\geq 900^{\circ}\text{C}$ ), eliminate the need for separators and liquid electrolytes, achieving a revolutionary breakthrough in safety performance and bringing four core advantages:

**Ultimate Safety:** The ceramic electrolyte is inherently non-flammable, fundamentally eliminating the risk of short-circuit fire. Even when subjected to puncture or extreme high-temperature environments, it ensures no fire or explosion.

**Leap in Energy Density:** Energy density surpasses that of traditional lithium batteries, significantly improving the overall energy efficiency of energy storage systems. **Ultra-Long Cycle Life:** Cycle life exceeds 10,000 cycles, far exceeding the service life of current mainstream battery products.

**Wide temperature range adaptability:** It can operate stably in harsh environments ranging from  $-40^{\circ}\text{C}$  to  $85^{\circ}\text{C}$ , offering high deployment flexibility and wider applicability.

Meanwhile, TAICO solid-state batteries combine excellent environmental friendliness with long-term cost-effectiveness, representing the core development direction of next-generation energy storage technology.

TAICO's end-to-end independent innovation: From battery cells to system integration.

Within its modern, comprehensive 32,000-square-meter facility (integrating R&D, manufacturing, and testing), TAICO has built a highly vertically integrated solid-state battery energy storage industry chain. The factory has the capacity to produce 5GWh of solid-state batteries and 500,000 inverters annually, enabling an efficient response to large-scale global order demands.

**Core Cell Manufacturing:** Within its own cleanroom, fully automated high-speed stacking/winding lines, high-precision coating lines, and precision liquid-filled packaging systems are deployed to ensure the consistency and precision of solid-state cells (50-300Ah).

**Advanced R&D and Testing:** A 2000+ square meter professional laboratory is equipped with cutting-edge equipment such as XRD, SEM, electrochemical workstations, and large environmental chambers (-40℃~100℃), and a top-tier engineering team to support material R&D, cell design, and rigorous testing (10,000+ cycle life).

**High-Efficiency System Integration:** Possesses three modern ESS assembly lines with 98% automation and a GWh-level Pack production line, integrating high-precision BMS testing and calibration with automated Pack assembly, covering the entire process from module stacking, BMS integration, thermal management to complete system testing, with an annual production capacity meeting the needs of tens of thousands of industrial and commercial energy storage systems.

**Strict Quality Control:** A smart MES system is deployed throughout the entire process for traceability, and the system has passed authoritative certifications such as GB/T 36276, UL 1973, and IEC 62619.

Thus, TAICO has achieved a fully independent closed-loop system from solid-state cell R&D and manufacturing to industrial and commercial energy storage system integration. With top-tier performance, high consistency, and inherent safety, TAICO delivers stable, reliable, efficient, and economical green energy storage solutions to global users.

**TAICO's Self-Developed Inverters: Achieving Universal Compatibility**

In addition to solid-state batteries, TAICO has simultaneously developed high-performance energy storage inverters. Addressing the differentiated grid standards and regulations of the

European and North American markets, TAICO has innovatively created a dual-domain adaptive architecture, launching a professional inverter product line compliant with both European and American standards.

This series of products boasts excellent compatibility, flexibly adapting to various mainstream battery brands on the market (including liquid lithium batteries and lead-acid batteries), providing users with greater freedom in system configuration and building a more open and flexible energy storage ecosystem.

Off-grid Inverters (TKF Series): Offers various models compliant with European standards (single-phase/three-phase, 220/230Vac) and American standards (single-phase/three-phase, 120VAC/240VAC), with some supporting parallel operation.

Grid-mixed inverters (TKH series): Offer a wide range of models compliant with European standards, including low-voltage three-phase (220/380Vac, 230/400Vac) and high-voltage three-phase (PV input 1000V, 220/380Vac, 230/400Vac) inverters to meet diverse application scenarios.

TAICO has independently developed solid-state battery technology for home use. Applying its solid-state batteries to home energy storage, it utilizes ceramic electrolytes that can withstand temperatures exceeding 900°C, achieving a breakthrough in safety: no risk of fire or explosion, a cycle life exceeding 10,000 cycles, and suitable for environments ranging from -40°C to 85°C. TAICO has an annual production capacity of 5GWh of batteries and 500,000 inverters, all of which have passed rigorous certification.

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