



Energy Storage Vehicles and Mobile Power Stations

Mobile energy storage solutions built on Winston Battery's high-safety LYP technology

Winston Battery

Global Mobile Energy Storage Market Accelerating Growth

Global demand for mobile energy storage is growing rapidly, with increasing demand for emergency power supply, distributed microgrids, and industrial mobile energy scenarios. Compared to fixed energy storage scenarios, mobile applications have more stringent requirements for safety, capacity, and reliability.

Mobile energy storage vehicles need to maintain stable operation in complex environments, including frequent load switching, harsh climatic conditions, and continuous vibration and shock. These challenges require energy storage systems to meet higher technical standards and possess stronger adaptability.

Market forecasts indicate that the mobile energy storage sector will maintain an annual growth rate of over 25% in the next five years, becoming one of the most dynamic sub-markets in the energy storage industry.





Traditional Mobile Energy Storage Solutions Face Four Core Pain Points



High Parallel Structure Brings High Risks

Traditional small-capacity battery cells require extensive parallel connections, increasing system complexity and failure probability. A single point of failure can trigger a chain reaction, threatening the entire system's safety.



High Power Impact Leads to Voltage Drop

At the moment of high-power load startup, traditional battery systems experience significant voltage drops, affecting normal equipment operation and potentially damaging sensitive devices.



Vibration Environment Accelerates Life Degradation

Continuous vibration and impact during vehicle transportation cause internal structural damage to traditional batteries, drastically shortening their lifespan and significantly increasing maintenance costs.



Extreme Temperature Zones Severely Degrade Performance

In extremely cold or hot environments, traditional battery capacity and power performance decline significantly, failing to meet the demands of all-weather, all-terrain applications.

Revolutionary Breakthrough in 1000Ah Large Capacity System

System-Level Advantages of Winston Large Capacity Cells

Winston Battery's 1000Ah large-capacity single cell fundamentally changes the architectural logic of mobile energy storage systems. Compared to traditional solutions that require hundreds of small-capacity cells in parallel, the Winston solution can reduce the number of parallel connections by 70–90%, greatly simplifying the system structure.

Fewer cells mean fewer connection points, fewer potential failure sources, a simpler thermal management system, and higher energy density. The overall stability and reliability of the vehicle are significantly improved, while reducing the complexity and cost of the BMS.

70%

Reduced Parallel Connections

System structure greatly simplified

90%

Reduced Failure Points

Reliability significantly improved

30%

Increased Energy Density

Higher space utilization



LYP Chemical System: The Ultimate Safety Technology



Aqueous Binder Technology

Utilizing an environmentally friendly aqueous binder system, we eliminate organic solvent risks at the material source, making it inherently safer and more environmentally friendly.



No Thermal Runaway Characteristic

The LYP chemical system does not experience thermal runaway under extreme conditions, maintaining stability even in abusive tests such as nail penetration and overcharging.



Can Be Extinguished with Water

Its unique chemical properties allow it to be directly extinguished with water in case of an issue, a safety advantage traditional lithium batteries cannot offer.



Corrosion-Resistant Plastic Casing Structure

Adopting a special plastic casing design, it boasts excellent corrosion resistance and mechanical strength, adapting to various harsh environments.

Winston LYP cells have passed all extreme safety tests, including overcharging, short circuit, nail penetration, and extrusion. In nail penetration tests, traditional ternary lithium batteries immediately ignite and explode, and lithium iron phosphate batteries produce a large amount of smoke, while LYP cells only show a slight temperature increase with no dangerous reactions. This inherent safety characteristic makes it the best choice for mobile energy storage applications.

Winston Battery



Wide Temperature Range Performance: Adapting from Extreme Cold to Extreme Heat



Extreme Cold Environment

-45°C low-temperature cold start capability, stable operation in extremely cold regions like Northern Europe and Siberia, ensuring reliable emergency power supply.



High Temperature Environment

+85°C stable operation at high temperatures, maintaining excellent performance in extreme hot regions such as the Middle East deserts and the African equator.



High Altitude Regions

Project validated in high-altitude regions like the Qinghai-Tibet Plateau, still operating stably and reliably in low pressure and large temperature difference environments.



Winston Battery has accumulated rich practical application cases in extreme climate zones worldwide. From the cold winters of Northern Europe to the scorching heat of the Middle East, from the Qinghai-Tibet Plateau to the Sahara Desert, Winston LYP cells consistently maintain stable performance output, providing customers with reliable all-weather, all-geographic power assurance.

Voltage Stability Advantage: Bid Farewell to Voltage Drop Concerns

Key Performance Advantages of Winston LYP

In mobile energy storage applications, voltage stability directly determines system reliability and equipment safety. Traditional LFP batteries experience significant voltage drops at the instant of high-power load startup, which can lead to protective shutdowns or damage to equipment in severe cases.

Winston LYP cells, with their unique chemical system and large-capacity single-cell design, achieve industry-leading voltage stability. Even in scenarios involving high-frequency load switching and high-power impacts, voltage fluctuations are kept within an extremely small range, ensuring stable operation for all connected devices.

Zero Voltage Drop

No voltage drop risk during high-power startup

Stable with High-Frequency Switching

Maintains stable voltage under frequent load changes

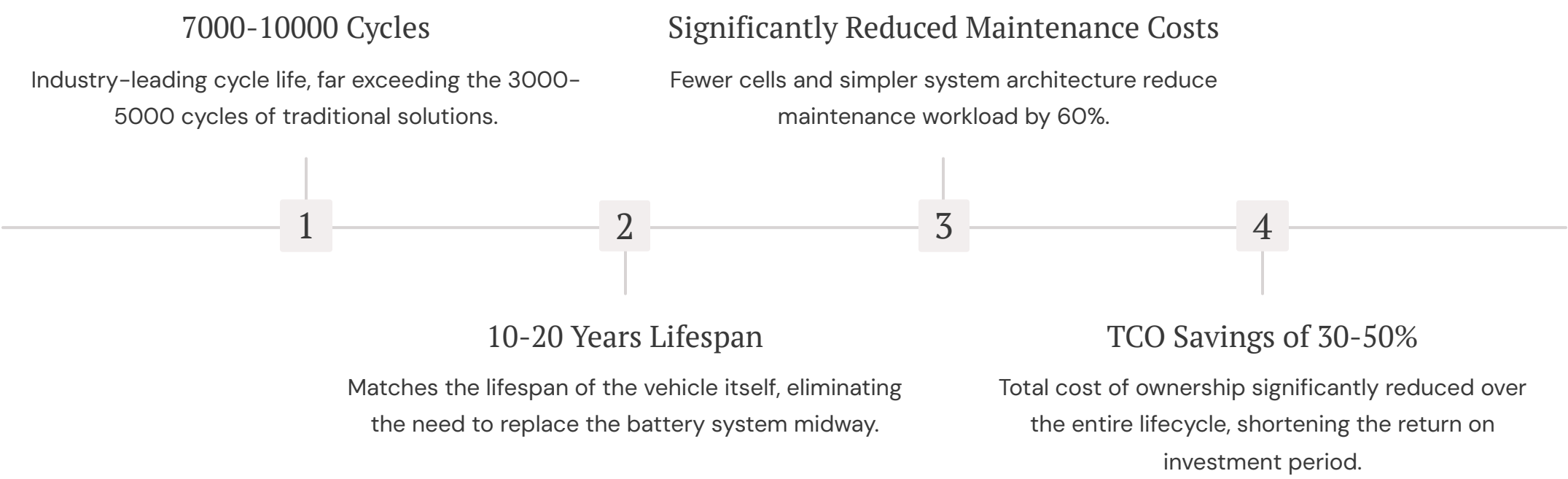
Sensitive Equipment Friendly

Protects sensitive instruments and electronic equipment



Actual test data shows: Winston LYP cells exhibit voltage fluctuations of less than 50mV during 3C discharge, while traditional LFP batteries can experience voltage fluctuations of 200–300mV. This significant advantage makes Winston the preferred solution for mobile energy storage applications with stringent voltage stability requirements.

Ultra-Long Lifespan and TCO (Total Cost of Ownership) Advantages



Economic Analysis

While the initial procurement cost of Winston LYP cells is slightly higher than traditional solutions, its economic advantages are extremely significant when analyzed from a total lifecycle perspective. The ultra-long lifespan means no need to replace batteries midway, avoiding high downtime costs and secondary procurement costs.

A simpler system architecture reduces labor and spare parts costs for daily maintenance. Comprehensive calculations show that Winston's solution can save 30-50% in TCO, creating tangible economic value for customers.



Global Project Cases: Proven Reliability

European Mobile Energy Storage Vehicle

Providing flexible energy storage peak shaving services for German renewable energy projects, operating for over 5 years with no fault records.

Middle East Oil and Gas Field Mobile Microgrid

Providing independent power supply in Saudi Arabian oil field areas, stably operating for over 8000 hours in 50°C high temperatures.

African Remote Area Power Supply Vehicle

Providing clean electricity to remote villages in Kenya, improving electricity access for 5000 local residents.

Asian Exhibition Power Supply Vehicle

Serving large exhibitions in Singapore, Hong Kong, and other regions, providing stable and reliable temporary power guarantees for exhibitors.

Winston Battery's mobile energy storage solutions have been successfully applied in over 70 countries and regions worldwide, with cumulative operating time exceeding 10 million hours. From polar research stations to equatorial rainforests, from high-altitude mining areas to island resorts, Winston has earned the trust of global customers with its excellent performance and reliability.



Why Winston Battery

The Most Reliable Energy Partner for Mobile Power Systems

Global Leading Manufacturer of Large Capacity Battery Cells

Focusing on R&D and production of large capacity energy storage cells for over 20 years, with deep technical expertise and excellent product performance.

Industry-Leading Safety Standards

The inherent safety features of the LYP chemical system, passing the world's most stringent safety certification tests.

Ultra-Long Lifespan and Wide Temperature Adaptability

7000-10000 cycle life, stable operation in full temperature range from -45°C to $+85^{\circ}\text{C}$.

Stable Performance in Extreme Environments

Proven in the world's harshest climates and geographical environments, always maintaining excellent performance.

Stable Operation in 70+ Countries Globally

Successful cases across six continents, with accumulated operating time exceeding 10 million hours without major failures.

[Get a Quote](#)

[Become a Partner](#)



Unlocking a New Era of Mobile Energy Storage

Winston Battery is dedicated to providing the safest, most reliable, and most economical solutions for the global mobile energy storage market. We deeply understand the unique characteristics and challenges of mobile applications, therefore prioritizing safety and reliability in our product design.

Our technical team boasts over 20 years of experience in large-capacity energy storage cell research and development, and our products have been thoroughly validated in the world's most demanding environments. Choose Winston for peace of mind, reliability, and long-term value.

 **Act Now:** Contact our technical experts to get customized solutions for your specific application scenarios. We will provide full technical support from system design and product selection to installation and commissioning.

Winston Battery – Providing stable energy for a mobile world



winston@winston-battery.com



+86 596 8316 202



www.winston-battery.com