Semi-Solid Battery: Puncture-Proof Safety & 2X Lifespan for Industrial Energy Storage

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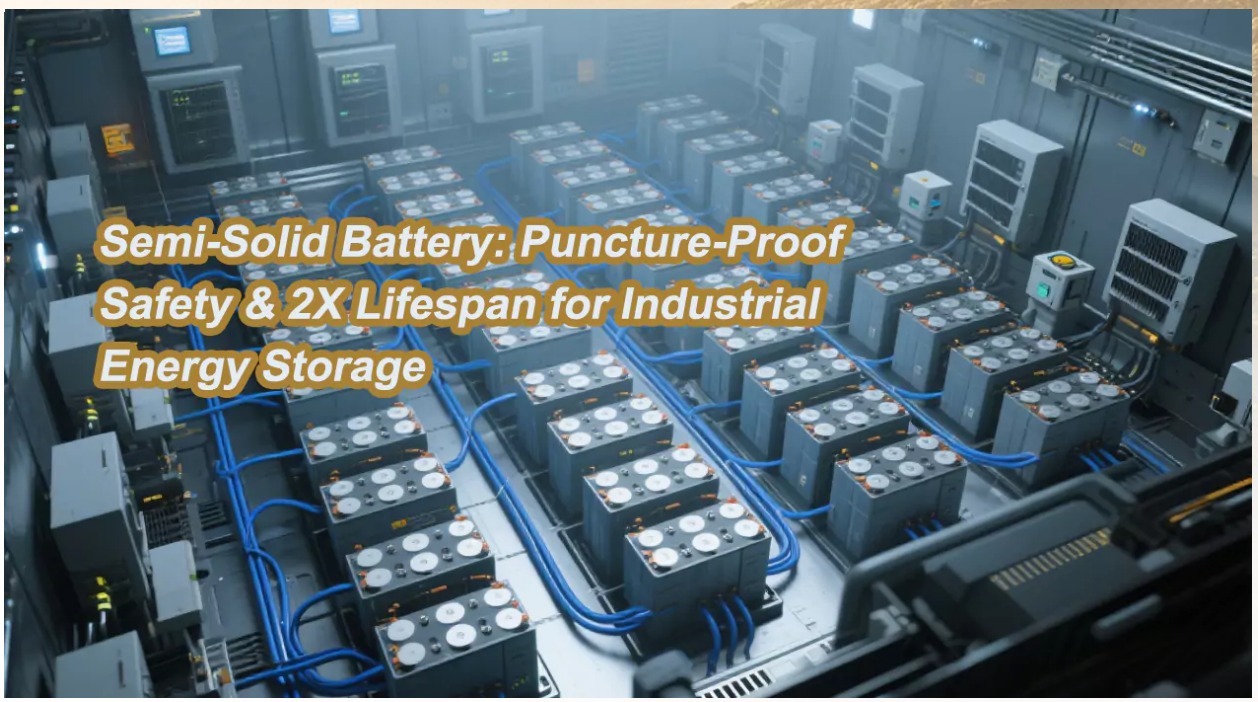

Semi-Solid Battery: Puncture-Proof Safety & 2X Lifespan for Industrial Energy Storage

Industrial and commercial energy storage has been quite popular recently. Factories, shopping malls, and office buildings all want to install a big “power bank” to balance peak and off-peak loads and save on electricity bills. But when it comes to safety? Many people start to wonder: **What are the safety concerns of battery storage facilities?** If this thing is placed in my factory or on the rooftop, “What if it catches fire?” This concern is not unnecessary. For traditional liquid battery energy storage, safety is indeed an issue.

The state also attaches great importance to this issue and thus constantly recommends the research and development of batteries with higher safety factors. The **semi-solid battery,** this “dark horse”, has emerged. The most remarkable thing it has done is to raise the bottom line of “safety” by several levels. Let’s take a detailed look at it today.

I. Is it bragging that a puncture doesn’t catch fire?

Traditional pain point: In traditional liquid lithium batteries, the electrolyte inside is flowing. If there is an internal short circuit or it is punctured by external force (professionally called “puncture”), sparks will fly everywhere, heat will soar instantly, and it is very easy to “thermal runaway”, catch fire, smoke or even explode. Just thinking about it is terrifying. How could factory owners not be worried?

Semi-solid big move: Semi-solid batteries, as the name suggests, the electrolyte inside is no longer a “watery” liquid, but has turned into a “jelly-like” or “wet mud-like” state. The content of the electrolyte has been greatly reduced, even dropping to only about 10%!

Semi-solid battery, real puncture test! Take a steel needle (1mm thick!) Pierce the battery cell directly. The result? The semi-solid battery of a certain technology company was punctured, but it didn’t catch fire, didn’t smoke, and the temperature was also controlled. **What are the safety guidelines for battery storage?** This scene is a world apart from the traditional battery’s scene of flames shooting up to the sky.

Why can semi-solid batteries be so powerful? Without that pile of flammable “oil”, and with the solid electrolyte itself being more stable, it is more difficult for the heat to “run wild”. It’s like replacing gasoline with a gel-like substance that is not so easy to ignite. The trigger temperature for thermal runaway suddenly rose from around 120℃ to over 180℃! The occurrence of thermal runaway was also delayed by 40% (for instance, the 314Ah large battery cell on the Zhuhai production line). This delay of just a few dozen seconds might be a life-saving window for the fire protection system! If you were given a few more seconds to react, there would be so many things you could do!

40 kWh Commercial Battery System

430KWh Portable Foldable PV Energy Storage Unit (40ft High Cube)

Sodium ion battery energy storage system

418KWh Liquid-cooled energy storage cabinet

233KWh Outdoor liquid-cooled energy storage cabinet

Liquid-Cooled Commercial Energy Storage System

Air-cooled I&C Distributed Energy Storage System

Solar panels Container

II. Double your lifespan and save real money!

Traditional pain point: In the past, when calculating the costs of industrial and commercial energy storage projects, battery life was a major hurdle. The cycle life of a liquid battery (one charge and discharge count as one cycle) is generally around 6,000 times (maintaining 80% of its capacity), or it can be used for 7 to 10 years. When the time is up and the frequency is up, it's time to change! Another large sum of money. Moreover, it decays rapidly, and the amount of electricity that can be stored and discharged in the later stage is also reduced.

What are the benefits of semi solid state batteries? The semi-solid structure is more stable, has fewer side reactions, and causes less "damage" to electrode materials. This is directly reflected in the sharp increase in lifespan!

For instance, the **semi-solid energy storage system** of Guorui Xiechuang can maintain a capacity of over 80% even after 10,000 cycles (100% deep charge and discharge)! The 587Ah large battery cell of Doublet is even more powerful. After being left unused for two years (calendar life), its capacity has hardly decreased and there is no decline. What does this mean?

Just think about it. Previously, you might have needed to replace a set of battery cells every 7 to 10 years, but now you might not need to do so until 15 years or even longer. The replacement frequency is directly reduced by one or even more! The operation and maintenance costs throughout the entire life cycle have come down in a flash. There are projects that have been accounted for. Just this one item alone can increase the full-cycle return by more than 12%. Saving is earning, after all!

III. Is Security so Important for Industry and Commerce?

Factories and shopping malls are not laboratories! Safety is the bottom line of the bottom line. A single fire may burn away profits that have lasted for several years or even a decade, not to mention casualties and brand reputation. The semi-solid state has solidified the bottom line of "no fire", allowing bosses to sleep more soundly at night.

Electricity is expensive for industrial and commercial use, so be meticulous in accounting! A long lifespan

means that the annual battery cost averaged out is lower, and the electricity savings are all pure profits. The investment payback period is shorter and the project is more attractive. Who wouldn’t like a “power bank” that lasts longer and is more worry-free?

Strong environmental adaptability! Semi-solid states perform much better at low temperatures. For instance, the cabinet exported by Guorui Xiechuang can operate efficiently in an environment of -5℃, and its energy output is equivalent to that of traditional liquid batteries at 5℃. Is it cold in the north in winter? Don’t be afraid! Save on electricity bills as usual.

So, semi-solid batteries are really not making small contributions in the field of industrial and commercial energy storage. With its hard power of “not catching fire when punctured”, it has been steadily raising the threshold of safety. With the long-distance running ability of “doubling the lifespan”, it has been plummeting the operating costs. This “rise and fall” is redefining the rules! **What are the rules for battery storage?**

In the past, when choosing energy storage, one might have to struggle between “safety” and “cost”. Now? Semi-solid tells you: “Safe and can be eaten as food!”

The 195MW large-scale project in Shanwei, Guangdong Province, dares to use semi-solid state on a large scale, and the Wenzhou tunnel project has actually saved over 100,000 yuan in electricity fees. These are all vivid signals. Safety rules are being rewritten by semi-solid batteries. Players in industrial and commercial energy storage, it’s time to take a serious look at the future of this “half solid state”!

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