Catl energy storage 500 kWh

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On April 19, CATL launched condensed battery, a cutting-edge battery technology at Auto Shanghai. With an energy density of up to 500 Wh/kg, it can achieve high energy density and high level of safety at the same time in a creative manner, opening up a brand-new electrification scenario of passenger aircrafts. CATL can achieve mass production of condensed battery in a short period of time.

To address the changes of the super high energy density materials resulting from electrochemical reactions, CATL's condensed battery leverages highly conductive biomimetic condensed state electrolytes to construct a micron-level self-adaptive net structure that can adjust the interactive forces among the chains, thus improving the conductive performance of the cells and in turn the efficiency of lithium ion transporting while boosting stability of the microstructure.

What is more, condensed battery integrates a range of innovative technologies, including the ultra-high energy density cathode materials, innovative anode materials, separators, and manufacturing processes, offering excellent charge and discharge performance as well as good safety performance.

The launch of this cutting-edge technology breaks the limits that have long restricted the development of the battery sector and will open up a new scenario of electrification centering on high level of safety and light weight. At present, CATL is cooperating with partners in the development of electric passenger aircrafts and practicing aviation-level standards and testing in accordance with aviation-grade safety and quality requirements. In addition, we will also launch the automotive-grade version of condensed batteries, which are expected to be put into mass production within this year.

"Meeting customers' requirements is the core driving force that drives technological innovation for CATL," said Wu Kai, chief scientist of CATL. Currently CATL has the world's most extensive technology roadmap for batteries, and has developed the capability to turn fundamental research to industrial application, and then to large-scale commercial applications. For example, in 2021, CATL rolled out the first generation of sodium-ion battery with an energy density of 160 Wh/kg, which has been launched on Chery Automobile during this exhibition. In 2022, CATL unveiled Qilin battery with the highest integration efficiency in the world, and it has started mass production this March. They have been used on multiple high-end BEVs such as ZEEKR, AITO and Li Auto.

As electrification extends from the land to the sky, aircrafts will become cleaner and smarter. The launch of condensed batteries will usher in an era of universal electrification of sea, land and air transportation, open up more possibilities of the development of the industry, and promote the achieving of the global carbon neutrality goals at an earlier date.

Adatv?delem ?s inform?ci?biztons?g

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Lithium batteries started an avalanche of innovation when they became widely available, largely because they could hold significantly more energy by weight than other contemporary chemistries. Touchscreen smartphones, drones, all-day laptops, long-range electric cars and the first generation of battery-powered aircraft were some of the results.

But more energy storage is always better - you can either make things last longer, or weigh less - and manufacturers have been racing to raise the bar with next-gen battery technologies. One key metric in the aviation world is specific energy - the amount of energy stored per kilogram of battery, and CATL says it"s ready to set a new benchmark.

The lithium-based condensed battery was launched Wednesday at the Auto Shanghai expo, with CATL claiming blockbuster energy density figures "up to 500 Wh/kg." The highest density cells we"ve seen previously would be from Amprius, which was shipping batteries at 450 Wh/kg more than a year ago. Meanwhile, the 4680 battery cells in Tesla"s Model Y are being measured at around 244 Wh/kg.

CATL says the new batteries feature innovations in "ultra-high energy density cathode materials, innovative anode materials, separators, and manufacturing processes," and use "highly conductive biomimetic condensed state electrolytes to construct a micron-level self-adaptive net structure that can adjust the interactive forces among the chains," improving performance, efficiency and stability.

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