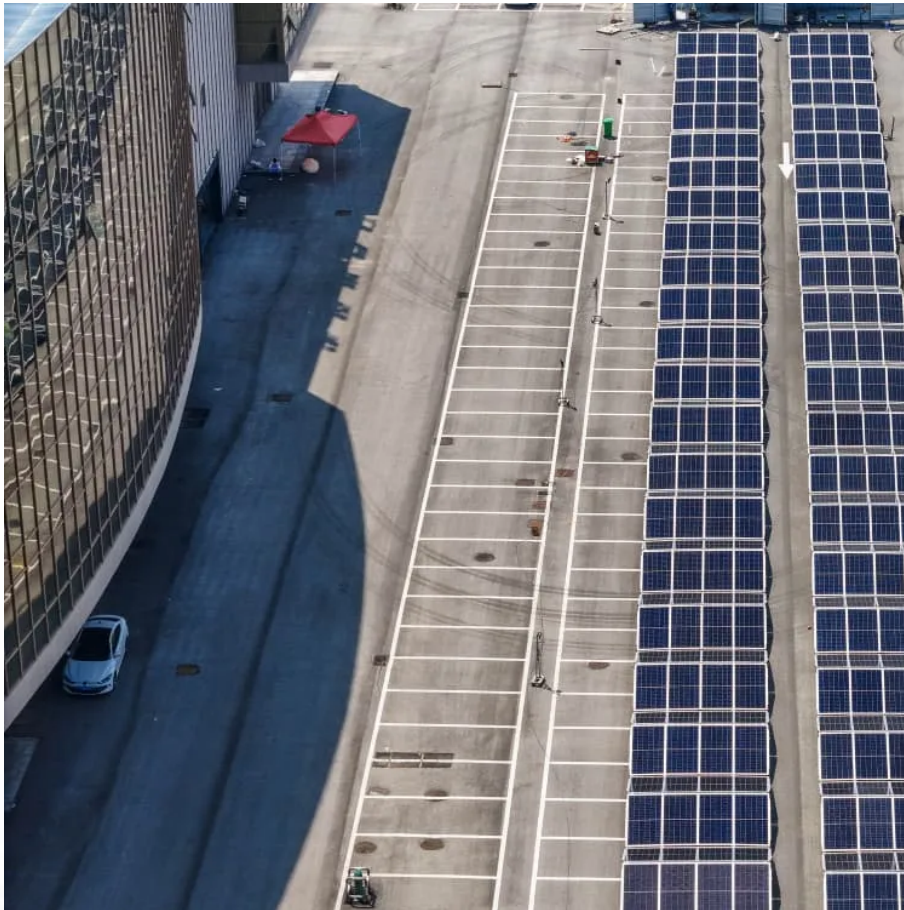


Structural components of energy storage containers





Overview

What is mass-less energy storage (SBC)?

In other words, the SBC can be seen as “mass-less energy storage” when it is applied as a structural component, which can effectively improve the energy-storing capacity of entire system and have the potential to revolutionize the future development of EVs.

How can a freestanding film improve energy storing capacity?

To improve energy storing capacity, a freestanding film with high LiFePO₄ (LFP) loading is firstly designed as the self-supporting cathode of SBC, and the SBC assembled can exhibit a remarkable energy density of $\sim 90 \text{ Wh kg}^{-1}$, which is increased by 157 % over the previous record.

What are the components and structure of SBCs?

The components and structure of the SBCs are shown in Fig. 1. The SBCs designed have a laminated structure, where the active battery materials including self-supporting LFP (SS-LFP) cathode, glass fiber separator and graphite anode are sandwiched between two layer of 0/90° and 90/0°-oriented unidirectional carbon fiber composite sheets.

What is structural battery composite with stiffening beams Assembly?

Structural battery composite with stiffening beams assembly The structural battery composite with stiffening beams (SBC-B) was fabricated by adding the carbon fiber composite beam to the SBC as illustrated in Fig. 1. The width of carbon fiber composite beam is 10 mm, and the area for each battery cell is $20 \times 20 \text{ mm}^2$.



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