

## European Solar and Energy Storage Solutions

# Montserrat skeleton technologies super battery



 **TAX FREE**    

**Product Model**  
HJ-ESS-215A(100KW/215KWh)  
HJ-ESS-115A(50KW 115KWh)

**Dimensions**  
1600\*1280\*2200mm  
1600\*1200\*2000mm

**Rated Battery Capacity**  
215KWH/115KWH

**Battery Cooling Method**  
Air Cooled/Liquid Cooled

**ENERGY STORAGE SYSTEM**



## Overview

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What is skeleton's superbattery?

Skeleton's SuperBattery fills the technology gap between supercapacitors and batteries, offering the ideal combination of energy, power, and safety for <45-minute applications. SuperBattery is bringing us closer to a net-zero future. SuperBattery is an innovative technology combining the characteristics of supercapacitors and batteries.

Is skeleton's superbattery the new EV super-fast charging technology?

Skeleton's Superbattery might not be the killer technology that gives your new EV super-fast charging times and a near-infinite lifespan, but it looks like it'll be a significant step forward in the less-glamorous niche of board net and peak smoothing applications, where it can deliver some impressive advantages.

What is super battery & how does it work?

SuperBattery is an innovative technology combining the characteristics of supercapacitors and batteries. 60 seconds of charging will allow for up to 30 minutes of driving, eliminating long charging breaks. SuperBattery has more than 10 times more charge-discharge cycles compared to Lithium-Ion batteries, providing much longer lifetime.

Is skeleton a good supercapacitor?

Skeleton has for years been known as the global technology leader in supercapacitors, a technology ideally suited for applications where high power is needed for a short amount of time (up to 60 seconds). In applications where power is needed for a longer time, supercapacitors are generally not the right fit due to their low energy content.

What is the difference between a supercapacitor and a battery?

The difference is that a supercapacitor stores energy in an electric field,

whereas a battery uses a chemical reaction. Supercapacitors have many advantages over batteries, such as safety, long lifetime, higher power, and temperature tolerance, but their energy density is lower compared to batteries. Learn more. What are SuperBatteries?

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Who consulted on battery technology?

Thanks to Dr. Sebastian Pohlmann and Arnaud Castagnet at Skeleton, and also to Dr. Cameron Shearer, Research Fellow at the School of Chemical and Physical Sciences at Flinders University, South Australia and an independent expert on battery technologies, who consulted on this story.

## Montserrat skeleton technologies super battery

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### **SuperBattery, la tecnología para cargar tu auto en 15 segundos**

La empresa germano-estonia Skeleton Technologies trabaja en el desarrollo de una nueva tecnología que permitirá cargar la batería de un auto en 15 segundos. Para este proyecto han unido sus fuerzas con el Instituto de Tecnología de Karlsruhe (KIT).

### **SuperBattery**

SuperBattery is the first non-supercapacitor product for Skeleton, and fills the technology gap in the energy storage market, delivering peak power within seconds while excelling in up to 30 minutes applications. SuperBattery is based on Skeleton's patented Curved Graphene material and is an innovative



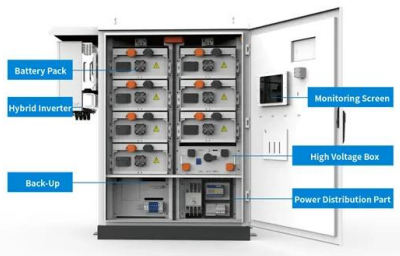
### **High power energy storage solutions , Skeleton**

Skeleton's SuperBattery technology is a fast-charging, high power battery technology, filling the technology gap between supercapacitors and batteries. SuperBatteries offering the ideal combination of energy, power, and safety for <30-minute applications.

### **Skeleton Technologies developing a new Graphene**

## SuperBattery ...

Skeleton Technologies, Estonian-based maker of graphene-based ultracapacitor energy storage, has partnered with the Karlsruhe Institute of Technology, one of the largest research and educational institutions in Germany, to complete the development of the SuperBattery, a groundbreaking graphene battery with a 15-second charging time. Painfully ...



## Estonia's Skeleton Technologies launches SuperBattery, ...

The pilot programme combines Skeleton's new SuperBattery with ultra-fast charging, in-vehicle energy storage, power provisioning, and microgrids. In comparison to conventional Lithium-ion batteries, Skeleton's Curved Graphene material enables 100x quicker charging.

## SuperBattery Lowers Charging Times 80% in EV Mining Trucks

SuperBattery is the first non-supercapacitor product for Skeleton and repurposes the same curved graphene technology to develop a hybrid battery solution that meets the needs of short-range (duration of less than 30 minutes) application segments not optimally served by traditional lithium-ion batteries. In addition to much faster charge and



## SuperBattery S

Based on supercapacitor technology  
 Supercapacitors <1s to 60s SuperBatteries Li-ion  
 batteries Application time 1 - 15 minutes >15  
 minutes Skeleton's products provide high-power

energy storage for applications with up to 15-minute cycle durations Lower cost compared to Li-ion batteries in this application space



## Skeleton Technologies: the battery of the future

Here is the Super-Battery project. From lithium to graphene. Just as we once were Neanderthal and now we are Sapiens Sapiens, you could say batteries were lithium-based and now are, or will soon be, graphene based. German company Skeleton Technologies, which specialised in energy storage patents for automobiles, is working on a new technology.



## 30-Second Rechargeable 'Super Battery' Manufacturer Skeleton ...

108 million euros invested in Skeleton, which produces a 'super battery' that can be charged in 30 seconds! Skeleton Technologies is preparing to produce 'super batteries' that can be charged in 30 seconds with the 'curved graphene' it has developed. The company has raised 108 million euros in the latest investment round by Siemens.

## Économie : Skeleton Technologies choisit l'Occitanie pour ...

Skeleton Technologies, une entreprise

estonienne et leader européen du stockage d'énergie à haute puissance pour les réseaux électriques, les transports, l'automobile et les applications industrielles, a choisi la France et la région Occitanie pour développer ses activités. Le groupe prévoit d'investir 600 millions d'euros en 5 ans. Et 300 emplois en perspective.



## **Skeleton Technologies: Fertigung für „SuperBattery“ soll in ...**

Skeleton Technologies hat Frankreich und die Region Okzitanien als Standorte für die Erweiterung seiner Aktivitäten ausgewählt. Die Gruppe plant, innerhalb von fünf Jahren 600 Mio. EUR zu investieren. Als erste Phase der Expansion werde Skeleton in Toulouse mit Forschungs- und Entwicklungstätigkeiten beginnen, um eine Batterietechnologie

## **Skeleton baut SuperBattery- Produktionsstätte in Frankreich**

Skeleton Technologies, ein Entwickler und Hersteller von Energiespeichern, hat auf einem Wirtschaftsgipfel des französischen Präsidenten Emmanuel Macron in Paris seine Expansion nach Frankreich angekündigt. Über einen Zeitraum von fünf Jahren plant das Unternehmen 600 Mio. EUR in Forschung und Entwicklung und die Produktion von ...



## **Skeleton launches its SuperBattery and unveils Shell as partner**



Berlin, Germany - 12th October 2022: Skeleton Technologies, the global technology leader in fast charging for transportation, grid, automotive, and industrial applications, is today delighted to officially launch its SuperBattery, and to unveil Shell as partner. Skeleton is joining a Shell-led consortium to offer electrification solutions for mining sites.

## Occitanie : 'Skeleton technologies' choisit la région

...

Taavi Madiberk, PDG et cofondateur de Skeleton Technologies Haute puissance et charge rapide . Skeleton Technologies se focalise sur le segment des technologies de stockage d'énergie à haute puissance et à charge rapide. Ses ...

### Lithium battery parameters

Product capacity: 100Ah

Product size: 135\*197\*35mm

Product weight: 1.82kg

Product voltage: 3.2V

internal resistance: within 0.5



## Skeleton Expands SuperBattery in France

Skeleton Technologies has chosen France and the Occitanie region to expand its SuperBattery hybrid supercapacitor-battery energy storage components. The group plans to invest 600 M EUR within 5 years. As the first ...

## SuperBattery

SuperBatteries combine the characteristics of supercapacitors and batteries, resulting in a technology offering the best of both worlds: Charged in 60 seconds and capable of powering up to 30 minutes of use for example for heavy mining trucks



## 30-Second Rechargeable 'Super Battery' Manufacturer Skeleton ...

Skeleton Technologies is preparing to produce 'super batteries' that can be charged in 30 seconds with the 'curved graphene' it has developed. The company has raised 108 million euros in the latest investment round by Siemens.



## Companies partner up to develop 'SuperBattery' battery technology

Since 2009, Skeleton Technologies has been developing its "curved graphene"-based "SkelCap" ultracapacitors, which have become well renowned in the energy storage industry for their energy-saving potential.. Now, the ultracapacitor manufacturer has announced that it has partnered up with the Karlsruhe Institute of Technology (KIT), known for ...



## Estonia's Skeleton Technologies launches SuperBattery, ...

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energy storage, power provisioning, and microgrids. In comparison to conventional Lithium-ion batteries, Skeleton's Curved ...



## Estonian DeepTech startup Skeleton launches SuperBattery and ...

Tesla-rival Skeleton Technologies, the most successful Estonian DeepTech startup, launched a new product - SuperBattery and enters the huge 95 billion euros market of super batteries. Skeleton's first partner for the new product is Shell, and their first joint project is electrifying off-road mining vehicles.



## Supercharging Battery Innovation: Insights from Skeleton Technologies

But for Skeleton Technologies and even battery manufacturers more broadly, there are good reasons for doing so. When looking at the manufacturing cost of super capacitors - one of Skeleton's products - only five to six percent of the manufacturing costs stem from labor costs. super batteries can bridge the current gap, pun intended

## Estonia's Skeleton Technologies launches ...

Skeleton Technologies is a manufacturer and

developer of high-energy and power-density ultracapacitors based on a patented curved graphene material. In comparison to conventional Lithium-ion batteries, Skeleton's Curved ...



## **Skeleton Expands SuperBattery in France**

Skeleton Technologies has chosen France and the Occitanie region to expand its SuperBattery hybrid supercapacitor-battery energy storage components. The group plans to invest 600 M EUR within 5 years. As the first phase of its expansion, Skeleton will start R& D activities in Toulouse to develop next-generation battery technology.

## **Estonian DeepTech startup Skeleton launches ...**

Tesla-rival Skeleton Technologies, the most successful Estonian DeepTech startup, launched a new product - SuperBattery and enters the huge 95 billion euros market of super batteries. Skeleton's first partner for the new product is ...



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