

4680 Assemble lithium battery pack





Overview

What chemistry does a Tesla 4680 battery have?

It appears to be an NCM 811 chemistry with very good energy density and total energy estimated at 96-99 Wh. In the second part of the Tesla 4680-type cylindrical battery cell teardown and analysis, The Limiting Factor presents the initial specs and findings.

How does a Tesla 4680 battery pack work?

True to Tesla's disruptive style, the 4680 battery pack uses minimal mechanical fasteners, relying instead on laser welding, adhesives, epoxies, and structural glues. This approach significantly reduces opportunities for leaks, loosening, or misalignment—common failure modes in conventional automotive assemblies.

What is a 4680 battery?

The 4680 battery (46mm in diameter and 80mm in axial length) offers higher energy and power advantages compared to commonly used 18650 or 21700 cylindrical cells. Compared to the 21700 battery, its volume is 5.5 times larger.

How big is a Tesla 4680 battery cell?

Unveiled at Tesla's Battery Day in 2020, the 4680 battery cell promised five key benefits: The 4680 name itself refers to the cell's dimensions: 46mm wide and 80mm tall—significantly larger than previous 2170 or 18650 cells.

How many kWh is a 4680 battery pack?

Good stuff. The added height of the 4680 makes double stacked batteries both harder and unnecessary. The team has also worked hard to keep the truck "low", both in actual height and in the positioning of the people, etc inside. I think we'll see pack sizes of around 120kWh and 175kWh eventually.



What are Tesla's 4680 cells made of?

Inside the pack, Tesla organized the 4680 cells into four distinct modules, separated by barriers that appear to be fiberglass phenolic materials. These barriers likely serve as thermal propagation mitigation, preventing runaway heat from cascading across the entire battery.



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4680 cylindrical module PACK automatic assembly line-Battery PACK

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[Tesla shows off 4680 battery pack assembly in new video](#)

Now that Tesla has started customer deliveries of the all-new Model Y All-Wheel Drive (AWD) equipped with 4680 cells, the automaker has shared a new video on how they put their revolutionary new structural battery pack together.

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(PDF) Lithium-Ion Cells in Automotive Applications: Tesla 4680

Therefore, this study examines the architecture and performance of first-generation Tesla 4680 cells in detail, both by electrical characterization and thermal ...

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[Tesla 4680 Battery Disassembly and Characterization](#)

The disassembly and characterization of the Tesla 4680 cylindrical battery, which combines a new cell format and a jelly-roll-less architecture, controls the actual battery ...

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