150 kWh lithium-ion battery

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Nio has demonstrated the real-life range of its new 150-kilowatt-hour Ultra Long ...

A Nio owner tested out the startup automaker"s new 150-kilowatt-hour "semi ...

Days after Chinese automaker NIO showcased the massive range potential of its incoming 150 kWh solid-state batteries, their manufacturer, WeLion, shared some insight on when consumers can expect to see the technology roll out in mass quantities. This could herald a new era of EV mobility with safer cars that charge faster and drive farther.

Solid-state batteries remain the holy grail for OEMs as their non-volatile, lightweight, and energy-dense properties offer the performance spec consumers have long sought in their decision to ditch gas-powered vehicles once and for all.

While solid-state technology already exists and continues to evolve amongst several battery developers, the ability to scale and reach cost parity with traditional lithium-ion cells remains a massive hurdle.

Chinese OEMs are paving the way by introducing the first passenger EV models to feature the tech. For example, some vehicles with semi-solid-state cells are already for sale overseas, but we have yet to see the full potential of solid electrolyte batteries on the consumer market.

NIO ($NIO) hopes to change that with its EVs, particularly its ET7 sedan. When the flagship EV was first introduced in early 2021, NIO also unveiled a 150 kWh pack equipped with solid-state batteries from Beijing WeLion New Energy Technology, better known as WeLion.

However, the public saw few updates on the progress of the potentially revolutionary battery technology until this past May, when a filing with China"s Ministry of Industry and Information Technology revealed that two NIO SUVs and one sedan would receive battery upgrades using cells from WeLion. By the end of June, WeLion held a ceremony with NIO to commemorate the progress of the potentially revolutionary battery technology.

Earlier this week, NIO founder, chairman, and CEO William Li took an ET7 equipped with WeLion"s solid-state batteries out for a range test and successfully drove 1,044 km (650 miles) with 3% battery remaining.

Now that we"ve seen the range potential of the solid-state packs in real-world driving situations, WeLion has shared that it expects to begin mass production of the packs next year.

This is a semi-solid battery, with a gel electrolyte similar to LiPo (WeLion also sells LiPo for drones).

The higher energy density seems to comes from a high-nickel cathode and some silicon added to the anode. I guess they solved the cycling issues with NCM-811, their gel probably deals with Si expansion/contraction, and they figured out how to avoid issues typical of LiPo (gas generation, delamination, etc).

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