Lfp vs nmc battery cost

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Discover the differences between LFP and NMC batteries, revolutionizing industries ...

Electric cars all have big battery packs, of course. That"s what powers the car, and the size of the battery directly affects the range that you can drive in between charges.

However, you may have noticed that some electric cars are now arriving with lithium-iron phosphate - more commonly known as "LFP" - batteries. This is a different sort of battery chemistry to the lithium-ion NMC batteries that are still the most common type of battery in electric cars.

It"s not so much a case of which one"s best, though. It"s more a case that both are great, and have different benefits. Here"s everything you need to know about these two different kinds of electric car batteries:

This is the type of battery that has been used in most electric cars, right the way back to the original Nissan Leaf that arrived in 2011. Often referred to as li-ion, the "NMC" part references the nickel, manganese and cobalt that are the main metals used in the battery chemistry. There are, of course, many different takes on this lithium-ion NMC battery chemistry from different manufacturers. But, ultimately, it"s still the same battery technology, and it"s evolved and improved a lot over the last decade and more.

Just look at the Renault Zoe, which uses lithium-ion NMC batteries. When it arrived in 2012, Renault could only fit in a 22kWh battery pack, which weighed 280kg and provided a real-world range of around 80- to 90 miles. Now, the batteries have become smaller and more efficient, so Renault has managed to squeeze in a 52kWh li-ion battery into the same small car, for a real-world range of 200-220 miles. And because the battery tech has improved so much, it only weighs 30kg more than that original 22kWh pack.

This is the benefit of lithium-ion NMC batteries, which are very energy dense. Basically, they hold a lot of energy and deliver the best possible driving range per kilogram of battery.

However, they"re expensive to produce, rely on a number of metals that are hard to source, which makes them environmentally very damaging, not to mention expensive. It"s also best to keep li-ion NMC batteries functioning between 20- and 80% state of charge on a routine basis, as charging to 100% every day or letting the battery run right down to below 10%, can speed up the battery degradation.

Having said that, the majority of modern electric cars use this lithium-ion battery technology, and it has proven to be very durable. A lithium-ion NMC battery will very likely outlive the car itself, and (in average daily use) will lose around 10- to 15% of its performance every 10 years and 100,000 miles.

This is the other common battery technology that you find in modern electric cars. You may also see them

described as lithium-ferro phosphate, as well as lithium-iron phosphate, but it"s all just different names for much the same "LFP" battery chemistry.

It"s used in the shorter-range versions of the MG4 and Tesla Model 3, as well as in the new Citroen e-C3 and in all BYD models. It"s actually not new technology at all; LFP batteries have been in widespread use in plant machinery and other commercial installations for much longer than lithium-ion NMC batteries have been in electric cars.

The good thing about LFP batteries is that they"re cheaper to produce than lithium-ion NMC, and they use more widely accessible metals. They don"t use cobalt at all, which is one of the rarer and more environmentally damaging metals to source.

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