Lifepo car battery

Lifepo car battery

From iPhones to Teslas, lithium-ion battery technology is ubiquitous in today"s world. It"s the chemistry of choice for a wide range of applications due to its high charge density relative to its mass, which in turn yields things like high-end laptops that can run for more than 10 hours on a single charge while weighing less than four pounds.

But what about that lead-acid lump hanging out in your car"s engine bay? The origins of that battery date back to the mid-19th century, and yet even today you"ll still find this archaic tech serving up electrons in the vast majority of vehicles on the road--including EVs.

In recent years, some automakers have started to make lithium-ion starter batteries available in their vehicles, but the batteries have largely been limited to expensive optional offerings in high-end sports cars from companies like Porsche and McLaren. Antigravity wants to change that.

The two soon set to work creating a lithium motorcycle battery of their own. "Initially, we just made the batteries for ourselves and our friends who were doing track-day events," Schafer says. "And over time, just being at the track and talking to people about it, we started getting more and more orders for these batteries."

The team quickly outgrew Schafer"s garage-based operations center and moved to increasingly larger facilities as word of his new product spread throughout enthusiast circles. "That"s when we made a molded plastic case and started making them look like real batteries," he quips. "And at that point, it really became a legitimate product."

Fast-forward a decade, and Antigravity is now one of the leading suppliers of lithium iron phosphate batteries not only for powersports applications, but 12V automotive battery replacements as well. "There were other companies that got started around the same time that we did, but they were unable or unwilling to evolve as new technologies became available," Schafer tells us.

"The real hurdle we needed to overcome was developing an internal management system that makes these batteries safe and durable in these types of applications. We knew the product needed to meet a certain standard, and that"s why we developed our battery management system--it protects the lithium from getting into situations where thermal runaway could be an issue due to overcharging or other problems. And the type of lithium chemistry we"re using is iron phosphate, or LiFePO4. In general, this is considered to be the safest lithium technology available today."

Antigravity offers automotive batteries that will fit nearly any passenger vehicle on the market today, so we decided to put its latest and greatest to the test with a late-model Dodge Challenger, which uses an H7-size battery. Beyond the charge density benefits and sheer novelty of the concept, Antigravity"s batteries offer

several important benefits over a lead-acid battery that matter in real-world use.

"The battery has an emergency jump-start feature built into it," Schafer points out. "So if you accidentally leave your lights on or the battery fully discharges for some other reason, the battery puts itself to sleep and maintains a reserve capacity that can provide four or five more engine starts so you can get the car running again." While the feature can be accessed by a button on the battery itself, Antigravity provides a key fob that allows the function to be triggered remotely as well.

The company also offers a remote battery monitor, which attaches to the battery terminal posts and reports back the charge state of the battery to a mobile device via Bluetooth. The app is free to download on the Apple App Store and Google Play, and it can send out push notification alerts if the battery"s charge level drops below a user-defined threshold. The app can also be used to monitor cranking voltage and check for charging-system issues.

"We initially aimed for the performance market, but there are a number of other factors that make lithium better for mainstream applications, too," Schafer notes. "For instance, it has a much higher cranking amp than a lead-acid battery--probably two to three times more. That translates to easier engine starts and less strain on the starter, whether it"s very cold outside or very hot."

But the main reason that Schafer originally targeted the performance market is because lithium batteries weigh significantly less than their lead-acid counterparts. After removing the factory battery from our Challenger, we set each one on a bathroom scale. Our factory lead-acid battery weighed in at 45 lbs (20kg) even. The Antigravity battery? Just less than 16 lbs (7kg), or roughly one-third of the weight. Doing an A/B comparison of picking one up after the other, the difference is genuinely stunning.