

SMC: GOING AGAINST THE PACK

Remember the red pill and blue pill choices in the first Matrix movie? Take the blue pill, and you return to your everyday life. Take the red pill, and you see things in a whole new way.

One RC aircraft pilot compared high-performance cells from Superior Matching Concepts (SMC) to the red pill. Once you fly a plane – or drive a helicopter, boat, or car – with an SMC pack, you'll never go back to normal cells.

SMC got its start when avid RC car racer Danny Sullivan wasn't happy with the performance he was getting from Sub-C NiCd cells over 30 years ago. Power output and cell life were unpredictable, even in power packs from the same company. He found the main problem was that the individual cells used to build a battery were not matched properly according to internal resistance, resulting in unreliable performance.

He bought his own cell-matching gear to build matched power packs for himself and his friends. Early on, he discovered the equipment that measured each cell's internal resistance was inaccurate. He called the test equipment manufacturer and convinced them to change the way the machines measured internal resistance. That allows the battery builders to match cells for better performance.

"That's where the name Superior Matching Concepts came from," Sullivan said. "We found a better way to test cells to get the best cell matching possible."

SMC grew to become the world's largest Sub-C cell matching company for RC racing. Mass-produced batteries get little to no cell matching.

As LiPo cells came on the scene, Sullivan learned as much as possible about testing and matching them to build the best power packs possible. Precision matching is still the thing that differentiates SMC packs from mass-produced offshore assemblies.

Sullivan works directly with cell manufacturers in China who use his test equipment to match cells and ensure consistent performance for each batch of power packs. Every cell is tested before shipping to ensure the packs are defect-free and within the proper specs.

He aims to sell the best possible packs for the best prices, given the quality.

"For example, we sell a pack for \$45 that our competitors sell under their brand name for \$75 to \$100," Sullivan said.



RC racer Tony Ingalls set an RC car world record of 208 mph with a custom SMC power pack. Photo via Tony Ingalls.

Sullivan's goal is not to have the highest sales volumes. His motivation is the challenge to continue to improve performance and quality. Through the years of testing, Sullivan found that the C ratings of Lithium Polymer cells on the market were mostly fiction. The C rating refers to the amount of energy the battery can safely discharge.

The higher the C rating, the more energy the battery delivers with a lower voltage drop under load. Many manufacturers market their cells at a higher C rating than the cells can provide, disappointing customers who were counting on the power.

Based on thorough testing, SMC's ratings are conservative and more accurate than the competition. Some buyers are swayed by higher ratings of other brands, but those in the know value the honest disclosure from SMC.

"The C ratings have been useless for years, but we still play the game because that's what customers are looking for when they buy cells," Sullivan said.

Behind the scenes, SMC devotes countless hours at the track and testing to ensure their battery packs provide optimum performance to outperform its competition while delivering dependable durability in the harshest conditions.

Seemingly minor details, such as the width of the connecting tabs on the cells, can make a difference. SMC continues to innovate with power packs for different aspects of hobbies, such as drag racing and speed runs for RC cars.

"SMC's philosophy has always been to provide everyone from the competitive R/C racer to the backyard novice the highest quality battery money can buy," Sullivan said. HM



HCL-HP cells designed for performance and longer run time.

Racers always look for an edge, so YouTubers like IronCladRC test SMC packs in high-speed boats and cars. Photo via IronCladRC.

