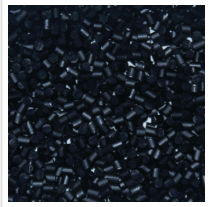


## Nawastitch Promises to Make Carbon Composites Even Lighter and Stronger



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France's Nawa Technologies is setting up operations in the United States, and bringing its fast, affordable vertically aligned carbon nanotube (VACNT) manufacturing process into a new application: making carbon fiber composites much stronger.

We've been covering [Nawa](#) for some time now in the company's original field of ultracapacitor manufacturing as well as its recent push into the lithium battery space, in which Nawa has claimed its VACNT structures will be the world's fastest electrodes, allowing 3X the energy density, 10X the power density, much faster charging and battery lifespans five times as long.

Nawa's advantages come from its secret sauce: a super-quick, single-step nanotube growing process, which CEO Pascal Boulanger has told us "is the same process that's used for coating glasses with anti-reflective coatings, and for photovoltaics. It's already very cheap." Extremely strong and highly conductive, these nanotubes offer clear advantages in the electronics field, but Nawa is now looking at using them to advance materials as well.



NawaStitch will use vertically aligned carbon nanotubes to reinforce the weakest part of carbon composites - the glue between the layers - to make parts even lighter and stronger.

Nawa has acquired the assets of N12 Technologies, a Massachusetts-based company that, according to [Crunchbase](#), raised nearly US\$33 million since it was founded in 2012 towards the goal of using VACNT technologies to make carbon composite structures lighter, stronger and more conductive. N12 was growing its nanotubes using a two-step process

licensed from MIT, and Nawa will continue that relationship, describing the two manufacturing styles as "complementary."

Here's how the process – once called NanoStitch, now called NawaStitch – works. Typically when you're making things in carbon composite, you buy sheets of carbon fiber-reinforced resin and lay them one on top of the other, gluing them together with epoxy and alternating the direction of the carbon fibers with each layer to tune the final piece for the loads it'll need to take.

According to N12 and now Nawa, the glue between the layers can be a weak point, deteriorating as the part bends. This can cause delamination, or simply undermine the strength of the part. Nawastitch reinforces the epoxy layers with super-strong VACNT arrays, and as a result, Nawa says shear strength is increased by a factor of 100, shock resistance is improved by a factor of 10, delamination simply doesn't happen and high-speed impacts result in 50 percent less interior damage. Composite parts can be reinforced like this with no substantial change to the regular manufacturing process.

Nawa says it's also been working on its own multi-function composite material called NawaShell, which both enhances the mechanical strength of carbon composites, and allows the embedded carbon nanotubes to store electrical energy, making it possible to build, for example, a solar roof panel that stores energy right in the roof itself.

It's unclear how much success N12 had getting its high-strength composite treatments out into the market, but anything that can make carbon fiber parts lighter and stronger will have its chance if the price is right. Heck, in certain applications, the price doesn't even have to be that right at all, and Nawa is clearly very excited to open up a new US base, which will be located in Dayton, Ohio. The company has set up a research collaboration and licensing agreement with the [University of Dayton](#) Research Institute.

"The creation of NAWA America is a very exciting and natural strategic step," said Nawa Founder, Chairman and CTO Pascal Boulanger. "We have been aware of N12 Technologies' exceptional work for many years; I am delighted the opportunity has arisen to acquire its activities, develop the technology further and bring it within our portfolio.

This move further cements NAWA Technologies as THE leading specialist in VACNT – and the

largest manufacturer of continuous industrial scaled VACNT. Not only do we possess the rights and know-how for the two most efficient and complementary patented VACNT growth processes, strong academic support from both sides of the Atlantic, but also the expertise to bring two major applications of VACNT to a global market: ultra-strong composites and energy storage."

Nawa is commencing prototyping immediately and expects to begin volume manufacturing in 2021. Check out a video below.

Read the [original article](#) on New Atlas.