





LEADING THE FIELD FOR 45 YEARS

Pultrusion is a portmanteau that combines 'pull' and 'extrusion' as materials are pulled through the process. It refers to a continuous manufacturing method for composite materials. Founded in 1973, Creative Pultrusions, Inc. is the premier provider of custom fiberglass-reinforced polymer pultrusion products for original equipment manufacturer (OEM) companies in the United States.





Written by Ryan Cartner

Creative Pultrusions' engineers have a total of well over one hundred years of combined technical experience in pultrusion and the variety of composite materials involved. The company manufactures specialized fiberglass structural profiles by impregnating the fibers with resins. This is a complex process, but the general idea is that the resins provide the material with certain advantageous properties such as resistance to corrosion, impact, and ultraviolet light. The company uses same process to construct carbon fiber materials as well.

The company is on a seventeen-acre plot containing four facilities in Alum Bank, Pennsylvania. The first building is a pultrusion facility containing eighteen pultrusion machines used to produce composite materials. The second building houses computer numerical control (CNC) machines for further fabrication services. Building three is a warehouse where raw materials are stocked, and building four is a machine shop where advanced pultrusion equipment is manufactured.

Creative Pultrusions' team of experts works closely with customers to understand their specific needs. They will visit customer facilities to gain a firsthand understanding of how a product is being used, and what they learn from that experience will affect what kind of solution they engineer. In some cases they will build a solution from scratch, while in others, they will take a product that was being made in aluminum or some other traditional construction material and create it in a composite alternative better suited to the application. ➤



“Creative Pultrusions can create the custom design, build the specialized tooling necessary to manufacture the product and pultrude the product.”

▶ “We understand that our customers don’t know the ins and outs of composite materials,” says Dustin Troutman, director of marketing with Creative Pultrusions. “We do, and we can eliminate all the pain that a client might have working with an engineering firm and other agencies by being a one-stop-shop.”

Creative Pultrusions can create the custom design, build the specialized tooling necessary to manufacture the product and pultrude the product. Customers come to the company with a concept, and the company brings it to reality through careful engineering, quality fabrication and finishing including drilling, routing and painting with Sherwin Williams paint products.

It began as a tight-knit family operation. In 2008, after more than thirty years of success in business, the company was purchased and now operates as a subsidiary of, Hill and Smith Holdings PLC, a global manufacturer and supplier of products for infrastructure, the construction industry and more.

In 2008, many things changed significantly, but the culture of the company and the family values upon which it was founded did not. Creativity – technical innovation of products, process and systems; accountability – to customers, stockholders, employees, suppliers and the community; work ethic – exemplified in a dedicated, dynamic and flexible workforce; and honesty, trust and integrity – following the Golden Rule – are the core principles that have guided the company throughout its history.

The company has initiated an aggressive growth vision of its newly formed Global Composite Group under Hill & Smith Holdings PLC, acquiring three companies in the past two years: ET Techtonics in January 2016, Kenway Composites in March 2017, and Tower Tech in August 2017. Its focus moving forward includes pultrusion growth opportunities and other composite manufacturing groups to elevate its overall strategic focus and

growth opportunities within the Global Composite Group. The team looks at internal growth within each group company with established products as well as external growth through additional strategic acquisitions. This model allows the company to elevate its overall solution approach associated with the composite products it markets based on a highly engineered systems approach. Through this growth, the company continues to embrace and follow its Core Values.

“Even though we’re owned by a publicly traded conglomerate,” says Troutman, “we’ve maintained a family atmosphere.” Most of the staff have well over twenty years of service with the company, and that tenure has given the company a tremendous capacity for teamwork. The Creative Pultrusions workforce is vastly experienced and closely connected, making for a productive and efficient operation.

As well as manufacturing custom pultrusions for OEM customers, the company is also an OEM in itself, manufacturing its own systems and bringing them to various markets. This aspect of the business has led to Creative Pultrusions developing a valuable understanding of what it takes to cultivate a product or line of products and sell them. This is a distinct advantage for its OEM customers, as the company can apply its first-hand knowledge to their projects.

“We have a lot of tools in our toolbox,” says Troutman, referring to the wide range of composite materials with which Creative Pultrusions works. The first step is determining what material is best suited. “We’ll work with them to make sure it’s a fit for our materials, material properties and processes.”

The performance requirements for a product determine the geometry, the fiber architecture and the types of resins that will be used in it. For example, if the product has an extremely ▶▶



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► high strength requirement, carbon fiber reinforcement might be necessary. That carbon fiber might be combined with an epoxy or polyurethane resin. This would result in a strong, impact-resistant composite material that would typically be used in military projects or sports equipment.

By combining structural components with various resins, a wide variety of material properties can be achieved for a vast array of uses. Being able to run distinctive resin systems to help customers meet their unique needs in terms of performance and price has set Creative Pultrusions apart from its competition.

Given this versatility, the company has found demand for its products in many markets including sports equipment, military, situations that are exceptionally corrosive, wastewater treatment, transportation, mass transit, utilities, chemical processing, infrastructure and many more.

One example of the projects Creative Pultrusions takes on was the development of a transmission cross-arm for a company called Transmission Innovations of Vancouver, Canada. A transmission cross-arm is the horizontal arm of a utility pole and holds high-powered electrical cables suspended in the air. In this case, the cables carried a quarter of a million volts, and so it was critical to ensure that the cross-arm could withstand heavy winds, ice and other severe environmental conditions.

The company has finite element analysis experts on staff to test the structural integrity its products. Finite element analysis can show how a structure will respond to physical stress and where it will bend or twist. Using this process, the company designed a composite material system perfectly suited to the transmission cross-arm. Ultimately, the solution consisted of glass fiber, stitched fabrics, roving and continuous filament mats, but the

key ingredient that allowed the material to meet the requirements of the customers was a high-strength polyurethane resin. Polyurethane resins provide impact resistance and are quite good at distributing physical stress. These cross-arms are expected to last at least seventy-five years.

The company's ability to build these materials is a consequence of its refined expertise gained over decades of experience working in the industry. Creative Pultrusions is ISO approved for manufacturing, demonstrating consistency in the quality of the products it produces. The company is also ISO approved for design, a rare certification.

It is committed to identifying customer issues and eliminating them by working with the client to understand the problem and then applying their industry knowledge to find a solution. "We'll learn from our customers exactly how they want the profile or system to perform," says Troutman, "and we'll engineer a solution that enables them to be competitive."

Having so much knowledge under one roof has led to Creative Pultrusions being an active promoter of the pultrusions industry as a whole. The company spends a great deal of time writing codes and standards related to composite materials and their use. It is a leading voice in the industry and is taking an active role in moving it into the future.

Finding the right solution to a pultrusion problem is more than delivering a product. Since 1973, Creative Pultrusions has been listening carefully to a customer's exact needs, working closely with them and finding a solution that suits the customer needs for performance and price. It is expert in custom design and is the premier choice to solve challenging pultrusion problems. ■



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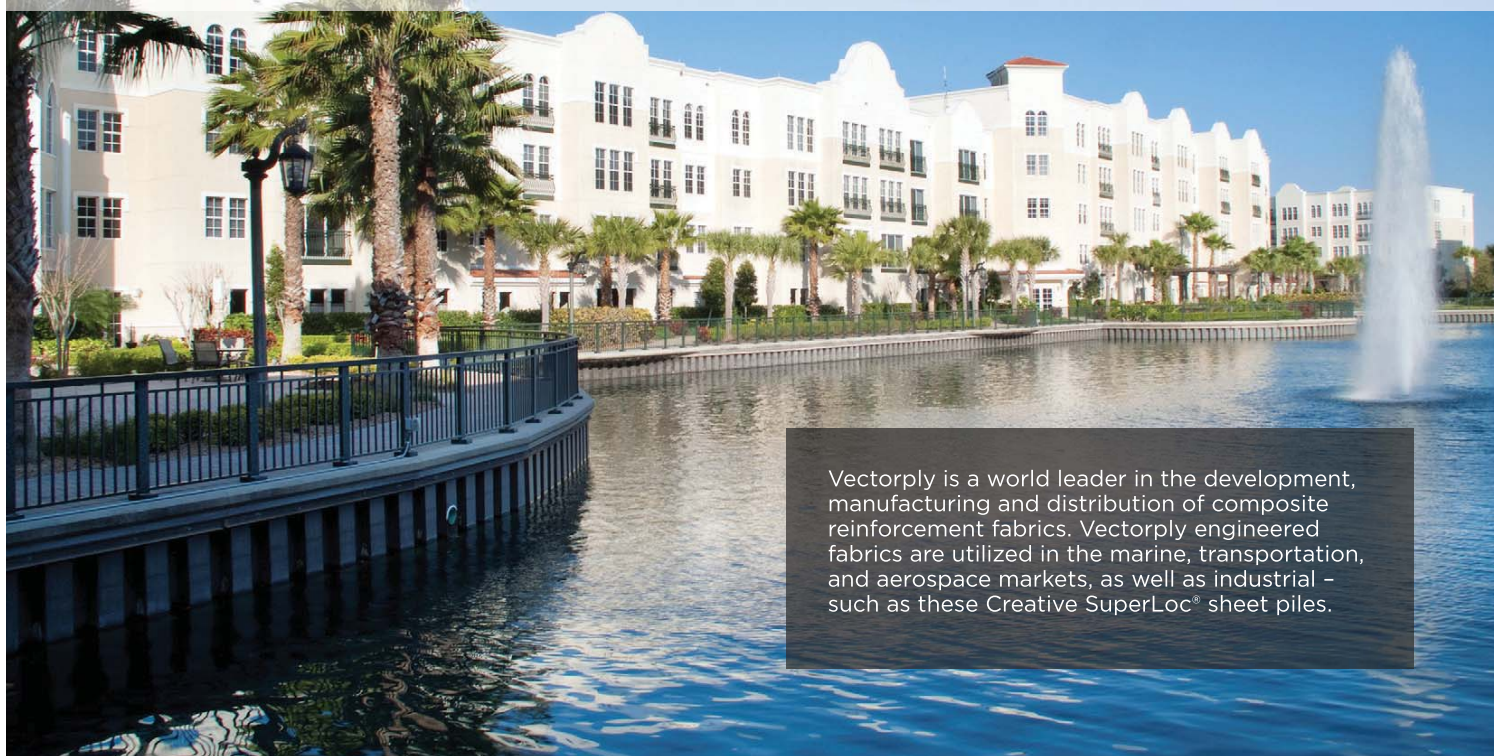
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