

by Monica Cardenas

Revolutionary Fiberforge Looks to Expand Markets

CM: What is the nature of your business?

MS: Fiberforge is a technology company that is enabling our customers to use our patented technology to allow the rapid manufacturing of structural thermoplastic composite parts in high volumes. The Fiberforge™ process is covered under patents in the United States and other countries worldwide. The process uses several steps to produce a finished part. Step 1 is to manufacture a “Tailored Blank” from a pre-impregnated, unidirectional fiber, thermoplastic resin tape. Step 2 is to consolidate the Tailored Blank. Step 3 is to heat and form the consolidated blank into a near net shape finished part. Step 4 is any post forming trim and finishing work. Cycle times can be very short, as little as one to two minutes for some parts. The process is ideal for medium to high volume production because of the low processing cost, low scrap rates, and fast throughput.

CM: How many employees do you have?

MS: We have approximately ten employees and are looking for new engineering and technical people.

CM: What is your company’s background?

MS: Fiberforge was called Hypercar until about 3 years ago. The original Hypercar company was formed as the result of a project undertaken, starting in about 1994, by the Rocky Mountain Institute (RMI) in Snowmass, Colorado. RMI is a “Think Tank” focused on energy and efficiency issues started and run by Amory Lovins, a well know expert in resource policy. The Hypercar project was a “clean sheet” design of an energy efficient automobile. The Hypercar incorporated many innovative and technically advanced concepts to minimize energy use. The company decided to focus its efforts on the most promising of the advanced concepts in the Hypercar, which was the process for composite part fabrication that is now called the Fiberforge process.

CM: How has it evolved from its beginnings?

MS: Originally the focus was on the total car design. Now we are focused wholly on commercializing the Fiberforge process via composite part development and manufacturing.

CM: How did you get started in the industry?

MS: I started in 1973 working at a company called Advanced Composites in Salt Lake City, Utah. I worked as a technician, filament winding a launch tube for an anti-tank weapon called a TOW Missile. Advanced Composites is still in business doing filament winding and composites manufacturing. I went on to work at Engineering Technology, Inc. (Entec) first as an engineer and then in management. I started my own business, Composites Machines Company in 1992, to manufacture machinery to process composites, primarily filament



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winding and pultrusion machinery. I sold my business to Zoltek, Inc. in 1999. They also bought Entec at that time and combined the companies. I then served as General Manager of the new Zoltek subsidiary for about 3 years. Since leaving Zoltek I have worked as a consultant in the composite industry and have been working

with Fiberforge since 2003.

CM: What obstacles does your company face today in the regulatory or technical arenas?

MS: Since we are using only thermoplastic resins, which do not give off any VOC’s or other byproducts, we do not face any specific environmental regulatory requirements.

CM: What are your marketing efforts?

MS: We have been attending several trade shows that cater to our target customers. We are looking for medium to high volume applications, so we look to the automotive industry, secondary aircraft structures, recreational market, and some military applications as our potential customers. We also get a lot of interest in our technology based on its roots in fuel-efficient automobile design, especially now that gasoline prices have risen and oil security is making headlines. We also have a good web site and do some limited advertising.

CM: What development or research would you like to see happen to improve the industry?

MS: The price and limited availability of carbon fiber is our biggest problem right now. Many of our applications use carbon fiber and it is difficult to get a consistent supply. We would like to see a more stable and larger base of carbon fiber manufacturers and, of course, a lower cost for carbon fiber.

CM: Where do you see your business in five years?

MS: The Fiberforge process is a revolutionary method of composite part fabrication that has broad applicability to many different markets. We fully expect to grow considerably as we license the technology into diverse markets and application worldwide.

CM: How are you staying on the cutting edge?

MS: We are constantly engaged in developing our process. We are working on many different aspects of utilizing the process in different products. We have ongoing research efforts in the bonding and sizing of fiber in a thermoplastic matrix, joining and bonding of Fiberforged parts, software development for modeling the Fiberforge process, surface quality, and increasing our machine capacity. **CM**

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