

Unique Techniques at Diaphorm



By Jennifer Sikorski,
CF Assistant Editor

CF: How many employees do you have?

BM: Diaphorm division has eight employees, but we rely on our parent company Solectria for the overhead functions. Solectria as a whole has 55 employees.

CF: What is the nature of your business?

BM: Diaphorm's intention is to be a contract molder of thermoplastic parts as well as a supplier of advanced manufacturing technologies for continuously reinforced, short-run composites structures.

CF: What is your company's background?

BM: Solectria was born to create all-electric cars. Diaphorm was created to collect the composites technology that existed in Solectria, to bring it under one collective roof, and bring it to market as a separate company. We anticipate that Diaphorm will exist in the not-too-distant future as a separate entity, but currently we're 100 percent owned as a division of Solectria.

The conclusion was that the electric vehicle industry is a hybrid industry, and that the automakers are not interested in the full-composite structure of vehicles. The advancement that we have in manufacturing techniques allow continuously reinforced composites to be used at a much lower cost for part runs—from 1,000 to 50,000 parts per year.

Out of that came a significant amount of experience in continuously reinforced composites that we've now taken to a variety of manufacturing methods that dramatically lower the manufacturing costs by using what we call "soft molding" for both structural and non-structural parts

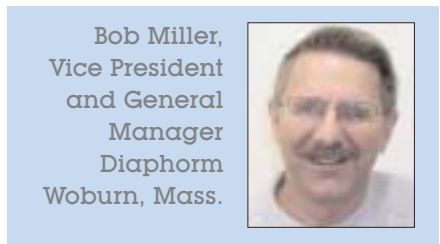
CF: How did you get started in the industry?

BM: My background was in the energy and industrial sector in a variety of business functions. I'm really a general manager, and was brought on board to create a business out

of the technologies that exist here. I joined the firm in June of last year to develop and put together the business plan to bring these technologies to the market place.

CF: What is your company's niche?

BM: Our niche is in the application of these continuously reinforced composite structures, most particularly in the thermoplastic area, in terms of using our soft molding technique to make structural and nonstructural parts in short-to-medium runs. Our niche in this application is between thermoforming and



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compression molding, where these materials have not been available to the designer before. It had not been an economical manufacturing or molding method for these materials in that part quantity. The main thing here is they can make continuously reinforced thermoplastic parts at 20 to 70 percent less than compression molding. We're seeing a lot of excitement and discovery by the product design people that they can use these new materials because our prototyping costs are very low.

CF: Did you face any problems getting started in the industry?

BM: I think we came from a unique perspective—our early composite work was from the design of all-composite structure vehicle, and our expertise comes from a variety of individuals with design experience. Our projects were funded by DARPA and NIST, which are government agencies, to support that all-composite structure.

Of course, the challenge for us was when the main customer in the vehicle sector decided not to go that way. How do we take these technologies and manufacturing techniques and shift them into other market-places? The real challenge that we're working

on is how to communicate to product designers the availability of this manufacturing technique, combining it with the advanced reinforced composite materials.

CF: Do you face any obstacles today in the regulatory or technical arena?

BM: The good news is that working on the thermoplastics side, we don't have the same emission issues associated with the thermoset industry, so that helps. The biggest challenge to growth is always in capitalization and getting the right manpower. It's traditional questions about how you grow a business and get the right structure in place to support it; how to stand on your own.

CF: What are your marketing efforts?

BM: Our marketing efforts include working with our material suppliers as channels to the market as their larger or broader sales forces are out there looking at applications for the materials. Since our molding technique is unique for applications that are too small for compression molding, they often help bring those leads to us.

In addition, we've done some interesting direct mail efforts where we've actually molded some parts and direct mailed them to major potential customers that have generated substantial leads. And we've identified where the application of these films can be used with certain cosmetic parts in the sports industry, we've been very targeted in our efforts to contact those customers.

CF: What developments or research would you like to see to improve the industry?

BM: I think the development that we're working on is the development of our techniques—the soft molding process—to make them more cost-effective for our customers. And we're working very closely with the vendors in terms of identifying what we call paint films that work with thermoplastics. The vendors, or strategic partners, have been very supportive of that process.

("Pulling Strings" continues on p. 134)