

DESIGN

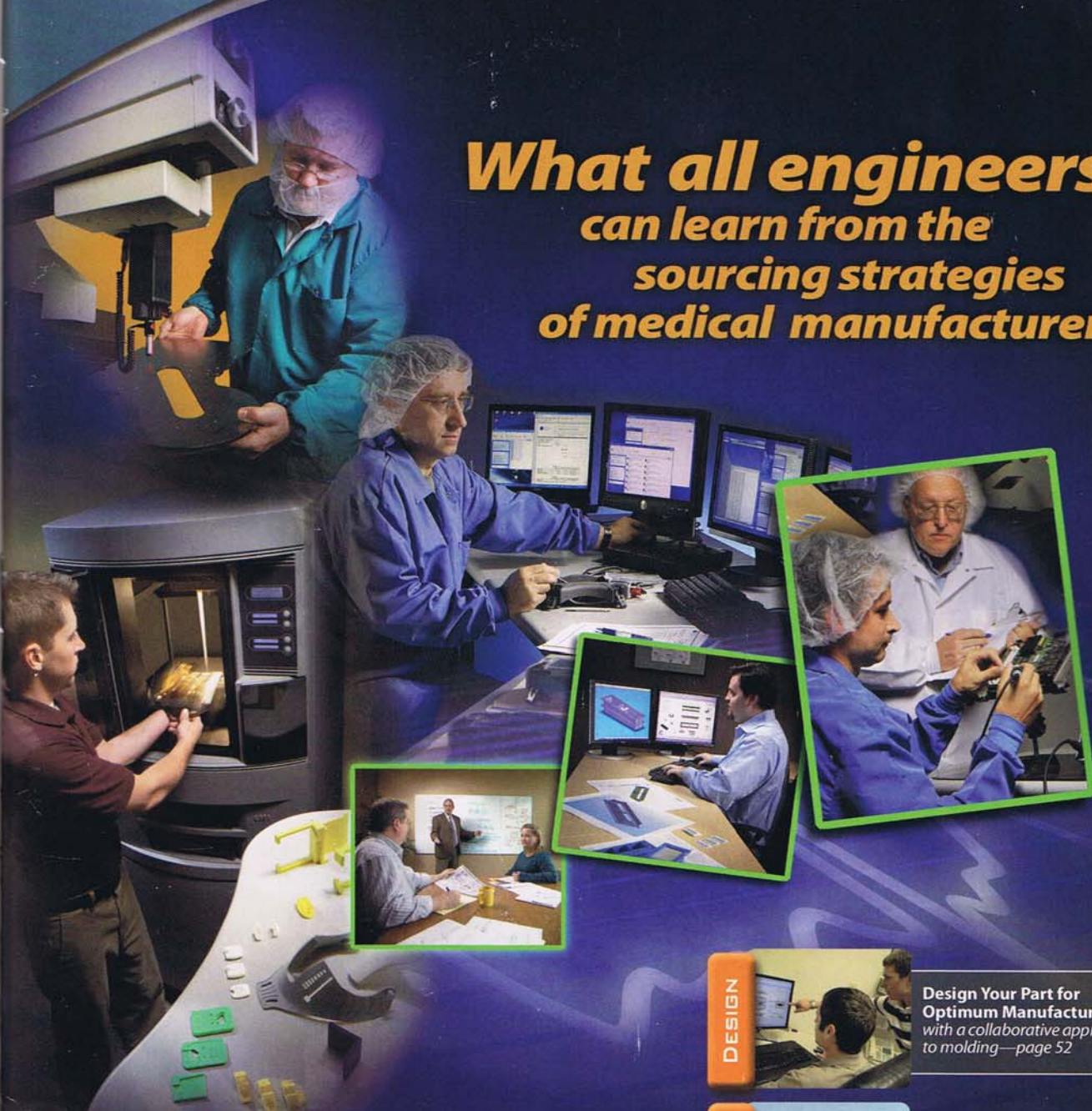
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Eastern Edition - October 2010

Featured Article:

Harbor Designs & Manufacturing

DESIGN



Design Your Part for Optimum Manufacturability with a collaborative approach to molding—page 52

ACHIEVE



Achieve High Heat Resistance with custom molded bantam jack spacers—page 102

SOLVE



Solve Friction from Stacked Tolerances with cost-effective dry lubricants—page 62

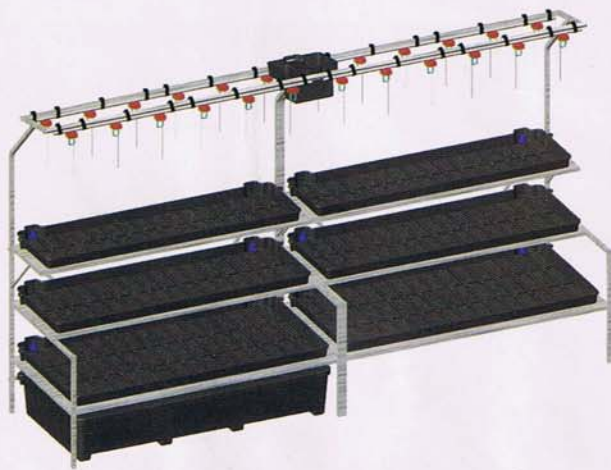
Maryland Firm Helps Clients Bring Innovative Ideas to Production

BALTIMORE, Md.—Helping clients realize the full potential of their innovative ideas or core technology is what drives Harbor Designs & Manufacturing, LLC (www.harbordesigns.net), a Baltimore-based product design and manufacturing company. According to Joshua Barnes, the company's vice president, Harbor Designs & Manufacturing combines in-house capabilities with vast vendor partnerships, serving as a one-stop shop for inventors and large corporations intent on bringing new products to market.

"We offer full-service product design and contract product manufacturing, and have brought to market countless diverse products," Barnes wrote in an email to *D2P*. "Our greatest strength is our innovative spirit, underlying industry knowledge and experience, and our significant diverse experience in all aspects of diverse product manufacturing."

That diverse experience has reinforced the value of listening to customers and "guiding design pathways for innovation and efficient manufacturing," according to the company. "By taking the time to understand the product's goals and requirements, we are able to design, or review our client's design, to ensure it's compatible with the most cost-effective manufacturing pathway," says Barnes. "Also, by offering manufacturing coordination and inventory and shipping service, we decrease our clients' overhead requirements and ensure they are literally 'paying just for what they need' and not 'paying for what they need to maintain for when they need it.' This allows our clients to stay focused on sales and marketing of their product, as well as respond to industry feedback determining what the next product should be."

Harbor works with domestic vendor partners and off-shore manufacturing partners to offer the best fit for its clients' product requirements, and oversees all aspects of its clients' production. "We work with our offshore manufacturing partners as a last resort to keep our clients' products competitive, but typically find,



Designed for use in retail garden centers, the Flourish System is a self-contained, solar powered, automated plant watering system that eliminates the need for daily manual watering. Its solar panel powers a timer and pumps, which require no outside electricity. The system, made of recycled materials, conserves and reuses water and prevents run-off of pesticides and fertilizers into local ecosystems. Images courtesy of Harbor Designs & Manufacturing.



The Flourish System, a solar powered automated plant watering system for use in garden centers, waters plants from the roots up and recycles water.

because of the volume of business we bring our domestic partner companies, our pricing is highly competitive and on point with client expectations," says Barnes.

Harbor Designs and Manufacturing has worked with its clients' core concepts and unique technologies to bring to market a number of innovative products, including an electrophoresis system for the biomedical industry; a NASCAR HD-TV antenna; a hollow fiber bioreactor for the biomedical industry; and a noise-immune stethoscope for defense/medical applications. The stethoscope uses sonar to enable medics to hear and diagnose fallen soldiers in environments that are too noisy for traditional stethoscopes.

The company has also developed and produced vertical wind turbines for renewable energy companies, and has brought to market a solar-powered automated watering system called the Flourish System. Designed for use in retail garden centers, the Flourish System is a self-contained, solar powered, automated plant watering system that eliminates the need for daily manual watering. Operating off the grid, the system uses a solar panel that powers a timer and pumps. It collects, conserves, and reuses rain water and prevents run-off of pesticides and fertilizers into local ecosystems. The system is made of recycled and recyclable materials.

"With strong personal interest in renewable power generation, our associates have a strong understanding of renewable power generation, including solar, wind, biomass, geothermal, hydropower, and fuel cells," says Barnes. "We love this stuff and we jump at any opportunity to help in bringing an innovative product to market."

Their cumulative experience in working to develop new products has enabled Harbor Designs' engineers to gain valuable knowledge of diverse industries, markets, and technologies. Barnes has found that much of what is learned can later be applied to the development of seemingly unrelated products.

"Whether we're making trash can lids or the latest generation of wind-powered vertical windmill turbines, we pull from our technical knowledge and engineering experience to design cost-effective and innovative solutions for our clients," says Barnes. "It's amazing how often lessons learned on projects are applicable to other projects which seem completely unrelated. For example, we designed a unique latching mechanism for an electrical enclosure for a telecom device and later used a similar design to clamp glass

plates in a biomedical device, successfully securing our client a patent for its unique application.”

Custom Molder Uses COC Material to Manufacture Single-Use Syringes

A thermoplastic material—cyclic olefin copolymer—replaces glass in pre-filled syringes

FLORENCE, Ky.—Single-dose syringes for pre-filled pharmaceutical applications have traditionally been made of glass. But Plas-Tech Engineering Inc., a custom

molder of medical devices based in Lake Geneva, Wis., is offering an alternative. The company earlier this year became the first North American custom molder to manufacture the single-dose syringes using a thermoplastic alternative: cyclic olefin copolymer (COC) resin. Plas-Tech used TOPAS 6013 COC resin, from TOPAS Advanced Polymers, Inc. (www.topas.com), as a replacement for glass in the single-dose syringes for cosmetic facial drug treatments.

The commercial introduction is the culmination of nearly five years of re-



Single-dose syringes, manufactured by Plas-Tech Engineering for pre-filled pharmaceutical applications, offer molded-in design features that are said to provide greater parts consolidation than more costly multi-piece glass assemblies. Plas-Tech sells the syringes in 0.5-ml to 5.0-ml sizes to pharmaceutical companies in the U.S. Photo courtesy of Plas-Tech Engineering.

search and development work, according to the company. “Through our extensive work, we defined the process parameters, determined the limits and capabilities of COC, and achieved high quality and consistency,” said Scott Smith, vice president of sales and marketing for Plas-Tech Engineering, in a statement. “This also involved new considerations for mold design and new techniques for gating and venting.”

Plas-Tech says that the syringes offer unique molded-in design features, thus providing greater part consolidation than more costly multi-piece glass assemblies. For the syringe body, TOPAS COC is said to deliver a significant performance advantage over glass and is less costly from a systems approach. It offers high transparency and shatter resistance in comparison to glass, as well as an excellent moisture barrier that keeps moisture away from the contents and maintains the concentration of prepared solutions. The moisture barrier reportedly helps extend the shelf life of some pharmaceutical solutions over three years, an achievement that isn’t possible when using thermoplastics like polycarbonate or polypropylene.

TOPAS 6013 COC resin has high purity and excellent biocompatibility, and meets the requirements of U.S. Pharmacopoeia Class VI and ISO 10993. In addition to exhibiting low protein adsorption and lower adsorption of most drug preservatives than other materials, TOPAS 6013 eliminates breakage problems during filling, in shipping, and at point of care. Molded COC syringes also give pharmaceutical companies shorter lead times

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