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Competition rewards transforming design



By RHODA MIEL |  

In Print

The annual event now known as the Society of the Plastics Industry Inc.'s Alliance of Plastics Processors conference evolved from previous incarnations as the Structural Foam conference and the Structural Plastics conference.

And the parts entered in the competition have evolved right along with the name. The competition once was dominated by computer and electronics components, many featuring structural foam molding. But today, the contest highlights a wide cross section of end products and processes.

The 31 parts competing for awards during the APP New Product Design Competition, April 1-3 in Memphis, covered injection molding, coinjection molding, thermoforming, rotational molding, blow molding and low-pressure structural foam.

“We're seeing more multimaterial parts over here; there's gas-assist and external gas-assist parts,” said Jack Avery, principal of Avery Plastics Consulting of Salt Lake City. “The [original equipment manufacturers] and designers are learning what they can do [with molding] to differentiate their parts. This is part of the design knowledge that has to take place.”

The interest in innovation from customers helps to push through innovations in molding, said Avery, a former longtime GE Plastics official.

The gas evacuation technique used on the thermoset appliance handle molded by Fast Trak Application Development LLC of Addison, Ill., is an example of new technology, and won the Judge's Award during the annual competition.

Bulk Molding Compounds Inc. developed the method of using gas to reduce weight and cure time for its parts, injection molded using its polyester based thermoset resin, helping BMC's product compete against thermoplastic competitors. The firm claims the system can cut up to 50 percent from the cycle time and material use.

Fast Trak makes the handle for GE Appliances of Louisville, Ky. BMC of West Chicago, Ill., designed the part, and Chicago Mold Engineering Co. Inc. of St. Charles, Ill., made the tool.

The dryer door made for Whirlpool Corp.'s Cabrio line of appliances also shows off what new technology can bring to consumer products - and was the contest's big winner. The door won the event's grand prize, the Conference Award, as well as the Industrial Designers Society of America/Plastics News Design Award, and also tied for tops in the conference's appliance category.

Bemis Manufacturing Co. of Sheboygan Falls, Wis., makes the dryer door with a two-shot overmolding process. The first shot turns out a clear copolyester/polycarbonate exterior panel; the second shot has an opaque second layer to give the door its final "wet" look. The finished exterior door gives the company the option to produce multiple colors - by changing the resin color in the second shot - and is less expensive and lighter than using glass for the outer door.

Omega Tool Inc. of Menomonee Falls, Wis., produced the tool for the door and Whirlpool Corp., of St. Joseph, Mich., designed it.

Sharing in the appliance-category award was a piece on another Whirlpool product, the washer door trim ring on a front-loading washer. The ring, molded by All Service Plastic Molding Inc. of Dayton, Ohio, uses in-mold decorating to add a textured ring on the glass-filled nylon ring. The company also applies a special tape in the process, which serves as a protective layer. Minco Tool & Mold Inc. of Dayton, Ohio, is the mold maker on the project.

Other winners were:

PEOPLE'S CHOICE and RETAIL & CONSUMER: Sauder Manufacturing Co. designed its multifunction chair, called the Trey chair, for use in college dormitories. The chair can be used as a standard desk chair, or the user can lift the seat from its base. The curved support frame on the bottom of the chair makes it a rocking chair when it is placed on the floor, while the flat base can be used as a table or stool.

Fort Wayne Plastics Inc. of Fort Wayne, Ind., makes the base and chair structure with a low-pressure structural web process and FGL Precision Works Ltd. of Toronto is the toolmaker.

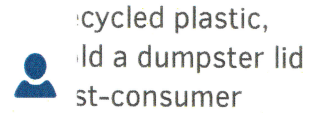
Sauder of Archbold, Ohio, designed the chair with Boston-based design group (Eleven).

AUTOMOTIVE: Composite Products Inc. of Winona, Minn., along with mold maker Delta Mold Inc. of Charlotte, N.C., and designer Algonquin Automotive Inc. of Huntsville, Ontario, came up with a method of molding around a large one-piece chrome tube to create an aftermarket brush grille guard that can be installed on General Motors Corp. trucks.

The old system of creating chrome and plastic grille guards required cutting, bending or welding the chrome onto a steel structure, then adding a plastic cover. The new, one-piece overmolded part used a direct in-line, long-fiber-reinforced polypropylene and transfer compression molding to save up to half the cost of the traditional production.

MEDICAL & SCIENCE: Megadyne Medical Products Inc. of Draper, Utah, turned to low-pressure structural foam and molder FM Corp. to replace an existing medium-density fiberboard cart used to store and transport equipment used in electrosurgery.

Rogers, Ark.-based FM uses polypropylene, since the material stands up well to hospital cleaning products, while the structural foam process provided both the aesthetic and structural properties Megadyne wanted. MSI Mold Builders of Cedar Rapids, Iowa, made the



recycled material and is made with low-pressure structural foam and thermoforming. Technology Plastics is both the molder and mold maker for the project.

TRANSPORTATION: The same two-barrel injection molding press used by Bemis in a two-shot process on its winning dryer door for Whirlpool is used in a coinjection process for the John Deere 7000 Series engine enclosure for Deere & Co. of Moline, Ill.

By changing the software in the operating system for the press, Bemis produces a PC/polybutylene terephthalate outer skin for the engine hood, then injects recycled resin for the core, said Gary Vande Berg, director of engineering for Bemis.

Triangle Tool Corp. of Milwaukee was the mold maker for the project, with design by Henry Dreyfuss Associates.

RECREATION & LEISURE: Molder Innovative Injection Technologies Inc. worked with engineers from Kawasaki Motors Manufacturing Corp. in Japan and the company's office in Lincoln, Neb., for 16 months to come up with a seat base assembly for Kawasaki's personal watercraft that includes a safety grip.

The injection molded part of PP and ABS, produced with gas assist, has to meet a 400-pound pull test for safety requirements. The finished part reduced the total weight by 10 percent while still meeting production and safety goals. Valiant Tool & Mold Inc. of Windsor, Ontario, was the toolmaker on the program.

BUILDING & CONSTRUCTION: Air conditioner maker Trane, a part of American Standard Cos., worked with its in-house Advanced Innovative Design group, molder Mack Molding Co. of Inman, S.C., and mold maker Delta Mold Inc. of Charlotte, N.C., to jointly develop a top cap for a residential air conditioner. The end product is a one-piece unit that replaces a cap that was five separate pieces.

The PC part is made using injection molding with external gas assist to improve the molding cycle and aesthetics of the final part.

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