

PLASTICS IN MEDICAL DEVICES/HURON, OHIO

Micromolding presents macro challenges

By Dan Hockensmith
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HURON, OHIO — Just because molding plastic medical parts as wide as the face of a dime and as thick as a human hair is possible, it isn't easy.

"Just because you have a 40-ton machine, a 90-ton machine ... you can't just arbitrarily say, 'It's 10 percent utilized — I'm going to start micromolding.' That's where a lot of people fail," said Brian Matachun, technical sales manager at MTD Micro Molding in Charlton, Mass.

In presentations April 12 at the Plastics In Medical Devices 2011 conference in Huron, Matachun and others said molding and clean room issues are a great challenge to any company seeking to enter or expand medical molding. The smaller the parts, the more tightly the operations have to be run, he said.



Neff

"Very important is the fact that we try to integrate as much as possible," said Martin Neff of Arburg + Co. KG. "That is because you need to document that your process is under control." Neff is manager of Midwest sales and engineering for the Lossberg, Germany-based injection molding machine maker. He described the processes of documentation, validation and process control critical to molding medical-grade parts.

All of the speakers agreed that all-electric or electric-hydraulic hybrid, small-tonnage presses are the way to go for high-temperature, high-flow materials most commonly favored in medical parts, including polyetheretherketone resin, polyester, polypropylene and nylon 6/6.

Matachun said micromolding is especially unforgiving of those who rush in without taking time to understand the intricacies of it.

"Bad news travels fast in the industry, especially in micro, because there are probably three [companies] that are truly doing micromolding globally," he said.

Just as important as machinery in medical molding is maintaining a clean room environment, with a constant temperature and recalculating air to prevent the entry of outside particles.

"We want to have reduced air movements in the clean room," said Marcel Christen, head of product management for injection machines at Näfels, Switzerland-based Netstal-Maschinen AG. "Air ... is a kind of poison for the clean room."

He recommended a clean room design that places injection units outside the clean room, leaving the clamping unit and parts-retrieval systems inside to minimize contamination and heat.

In his presentation, Drew Jelgerhuis, life sciences business development manager at Extol Inc. in Zeeland, Mich., emphasized the role that secondary parts joining devices — such as the infrared-staking machinery and infrared-, hot-plate and spin welders manufactured by his company — could have on increasing clean room efficiency.

"There are so many things about clean rooms that are cost related. In any case, all of this is going to reduce all sorts of adhesives or fasteners, which is going to reduce your costs," he said.

Several presenters placed emphasis on the small amounts of resin needed to micromold medical components — in many cases test runs of parts can be made with half-a-pound or a pound of material.

The Plastics in Medical Devices conference, held April 11-13, was hosted by Plastics News Global Group.



MTD Micro Molding's Brian Matachun

Plastics News photos by Darren Sinnott