

BUILDING BARRIERS

Multilayer PET preform molding a focus at K

By Mikell Knights

TWO MACHINERY suppliers exhibiting at the K show in Germany demonstrated upgrades that improve the production of PET preforms containing a barrier layer.

Milacron LLC, Batavia, Ohio, is offering a new co-injection molding machine to produce preforms containing a barrier layer.

Milacron, which re-entered the market as a supplier of PET preform-making systems in 2015 with the introduction of its M-PET 300 machine, now offers the M-PET 300 in a version designed to make multilayer co-injected preforms.

The new machine incorporates technologies and equipment from several business units of Milacron, CTO Bruce Catoen said.

The clamp of Milacron's M-PET 300 co-injection machine delivers 396 tons of force. It is based on the Ferromatik servo-hydraulic series. The

primary injection unit plasticizes and injects the material using a Milacron PET Star 140mm-diameter screw rated for shot sizes up to 107 ounces.

Milacron's Kortec division designed the co-injection hot runner and co-injection nozzles, which allow for the injection unit to inject two materials simultaneously into the same mold. Kortec also supplied the secondary injection unit, which features a 60mm-diameter screw and delivers a maximum shot size of 28 ounces. Milacron designed and produced the PET mold and integrated its TempMaster iM2 temperature controller into the machine at the K show. Milacron also developed the post-mold cooling system used with the molding cell exhibited at the show.

There, Milacron produced a 37-gram co-injected preform made with a PET skin and oxygen barrier core layer in a 72-cavity mold in a cycle time of 14.5 seconds. The entire manufacturing cell was controlled by Milacron's Mosaic + PC-based

control. Milacron said the high-speed molding of the co-injected preforms resulted in production cycle times similar to those seen with monolayer PET preforms. The M-PET machine works with Milacron's preform tooling as well as legacy molds from other mold makers.

Husky Injection Molding Systems Ltd., Bolton, Ontario, demonstrated further developments for its new Multi-Layer Barrier module designed for PET preforms. Its Multi-Layer Barrier module, first introduced in 2015 at NPE, is designed to precisely dose and distribute barrier material into the PET preform. The module can introduce a range of different barrier materials into the PET preform — such as nylon or EVOH, expanding the range of applications for the product.

"This technology will create new opportunities for our customers by allowing them to explore PET as a packaging material for products requiring the safety of enhanced barrier properties that were traditionally packaged in glass, carton and aluminum," said Dave Morton, VP of the Barrier Solutions division. Applications include dairy goods, juices, sauces, teas and carbonated soft drinks.

The Multi-Layer Barrier module runs on Husky's HyPET HPP5 injection molding machine and is compatible with tooling designed for mono- or multilayer molding. The module lets the molder produce a preform where the barrier comprises only 1 percent or 2.5 percent of the structure, saving barrier material costs.

At the show, Husky highlighted new components of the Multi-Layer Barrier module. This included a Multi-Layer Barrier co-injection hot-runner system, which employs an advanced melt delivery system to distribute the barrier material. The company also displayed a new inspection system that measures the amount of barrier material in a PET preform and its location, regardless of its color or translucence. The LayerWatcher system, designed by Intravis GmbH, Aachen, Germany, and sold exclusively through Husky, uses a light-based technology to obtain thousands of points of data from the preform and generate a 3-D image of the PET. The molder can view the layers of the preform or the cross section or thickness at any part of the preform.

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