

PRESS RELEASE

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Water Bottle Caps Will “Fly Right By” in NPE Booth W623

- **EI-Exis SP ultra-high-speed hybrid injection molding machine will mold over 180,000 high-precision 1.3-gram caps per hour**

[Strongsville, OH – January 15, 2015]... Sumitomo (SHI) Demag announced today that it will team up with several key partners at NPE 2015 to “meet or beat” the world-record the company set for water bottle cap production in 2014.

Exhibiting in [NPE Booth W623](#), Sumitomo Demag will run an EI-Exis SP 420 molding a 29/25 water bottle cap with tamper-evident band molded by mechanical slides.

The high-precision, 96-cavity hot-runner mold is being supplied by Plasticsud (NPE Booth W7550). The lightweight 1.3-gram HDPE caps are designed for still (non-carbonated) water. The mold was specially designed and built by Plasticsud, France, to achieve consistent high-precision parts at an ultra-high-speed cycle while still using the conventional, proven method of part ejection utilizing clamp and ejector stroke.

For the demonstration: the water-cooled chiller will be supplied by Frigel North America, Inc. (NPE Booth W7991); the hot-runner temperature control will be supplied by SISE Plastics Control Systems, Inc. (NPE Booth W4053); and the

[MORE]



The molded caps will literally fly by on the IMDvista vision inspection system.



Repeatability is essential in maintaining the functionality of the 1.3-gram caps.

Water Bottle Caps Will “Fly Right By”...continued

mold dehumidification system will be supplied by Eisbär Trockentechnik GmbH (NPE Booth S24138).



A new generation of high-speed molds combines advanced cooling design with Plastisud hot-runner technology specially engineered for high throughput.

To verify the process stability and repeatability of the EI-Exis SP, and to permit a 100%-check of all screw caps, the production unit will also be equipped with an IMDvista[®] optical inspection system from IMD (North America) Inc.



An EI-Exis SP 420/820-3000 with 80mm barrier screw will be featured in the NPE demonstration.

“There are a variety of challenges to molding this type of part with

[MORE]

Water Bottle Caps Will “Fly Right By”...continued

precision and repeatability at such a high speed,” said Mike Uhrain, Technical Sales Manager – Packaging. “At cycles this fast, it is difficult to consistently maintain the caps’ essential physical properties related to sealing function, opening/closing torque, tightness after drop test or temperature variation and prevention of over winding. For example, managing shear heat within the melt stream and fast decompression of the hot runner can both be difficult, plus a very fast ejector is required to ensure the caps fall properly from the mold. While the EI-Exis SP is uniquely designed and equipped to handle all of these challenges, this speed can only be achieved if there is a perfect match between the mold and the machine. Mold engineering, as well as machine performance and precision, is key.”

Available in model sizes from 165 to 825 U.S. tons, the EI-Exis SP is a “true hybrid,” combining: ultra-high-speed injection via hydraulic accumulator and servo-valve; an energy-efficient electric screw drive for maximum plasticizing capacity and parallel recovery; and a clamping unit with AC servo drive and hydrostatic transmission for fast, energy-efficient mold open/close.

“The original EI-Exis machine was introduced 15 years ago, and the EI-Exis *SP* of today is the result of continuing technological development and the ongoing exchange of ideas with leading global packaging companies over that time period,” Uhrain said. “This machine series continues to prove its standard-setting combination of speed, energy efficiency, precision and long-term reliability for closures and thin-wall packaging applications that require ultra-high-speed processing.”

Specific design features that achieve these benchmark capabilities include:

Speed

- Extremely fast all-in-one toggle clamping motion
- Accumulator-assisted injection with increased flow from the accumulators to the injection cylinder

[MORE]

Water Bottle Caps Will “Fly Right By”...continued

Energy Efficiency

- Clamp consumes no energy during cooling phase and is driven by hydrostatic system rather than accumulator
- Highly energy-efficient servo motor used for screw drive (direct-drive for injection unit sizes below 4200)

Precision

- Moog servo valve for fast, accurate injection performance from injection to hold
- High-precision hydrostatic clamp drive with activeQ high-sensitivity mold protection

Reliability

- Robust toggle mechanism specifically designed for long-term ultra-high-speed operation
- Field-proven servo motor technology for overlapping functions

Sumitomo (SHI) Demag's worldwide group of companies is dedicated to helping plastics processors compete more effectively in the global market. The company manufactures a wide range of high-precision IM machines for diverse applications. Its all-electric platform (SE and CL series) spans from 8 to 935 U.S. tons, including micro to mid-sized, high-speed, packaging, high-duty, vertical, insert and high-speed multi-shot machine series. Ultra-high-speed hybrid machines (EI-Exis SP and Systec SP series) are offered in models from 165 to 825 U.S. tons for packaging and other thin-wall applications. Configurable, high-performance hydraulic and toggle machines (Systec Series), including multi-component models, are also provided for applications from 39 to 2248 U.S. tons. Equally important, Sumitomo (SHI) Demag has an extensive worldwide network, ensuring customers of sales, parts, training, service and processing support when and where it is needed.

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Water Bottle Caps Will “Fly Right By”...continued

Information on the North American operations of Sumitomo (SHI)

Demag can be found at: www.sumitomo-shi-demag.us.

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