



For Immediate Release  
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## **Sumitomo Introduces SE-HY Hybrid Electric Machines**

**(Booth #1491, NPE 2003, Chicago, IL)** ... Sumitomo Plastics-Machinery introduced its new SE-HY Series hybrid electric machines to the North American injection molding market today. The accumulator-assisted hybrid electrics are designed for packaging and other ultra-high-speed, high-productivity applications, and currently are offered in two model sizes: the SE350HY (385 US tons) and the SE450HY (495 US tons).

The SE-HY uses three, Sumitomo-built, AC servo motors with digital-to-digital, full closed-loop control for plasticizing, clamping and ejection. Accumulator-assisted hydraulics, with a digital servo valve and full closed-loop control, are employed for injection unit displacement, injection, hold pressure, back pressure and screw pull back.

“Ultra-high-speed molding is not new to Sumitomo—nor is all-electric technology. This hybrid electric series brings together high-performance, field-proven technology from two of our major product lines—the SES Series all-electrics and the SGM Series accumulator-assisted, ultra-high-speed toggles,” said Jerry Boggs, Executive Vice President, Sumitomo Plastics-Machinery. “The result is a highly-energy efficient, exceptionally precise and powerful, high-productivity machine that will withstand years of 24/7 high-speed operation.”

The SE-HY’s accumulator-assisted hydraulics are similar in design to the hydraulics employed on Sumitomo’s widely field-proven SGM Series ultra-high-speed toggle machines. On the SE-HY, two accumulators work together with a digital servo valve with highly sophisticated measuring and feedback devices for fast-response, precision injection control. The direct interaction between the velocity transducer and this servo valve provides faster response for injection control. The large-capacity, bladder-type accumulators ensure stable pressure control, eliminate the need for special nitrogen tanks and reduce variation due to ambient temperature changes. The oil and nitrogen pressure sensor circuit provides consistent pressure control and smooth transition. PID control of oil temperature delivers uniform response for accurate, repeatable profiling.

**(MORE)**

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**(Sumitomo Introduces SE-HY...continued)**



*Sumitomo SE-HY Series hybrid electric*

<http://www.sumitomopm.com/hi-resolution-images/Sumitomo%20SE350HY.jpg>

Injection rates for the SE-HY range from 3141 to 4021 cm<sup>3</sup>/sec (191.7 to 245.4 in<sup>3</sup>/sec) dependent on model and screw diameter selected. Results for shot weight accuracy and repeatability yield a typical deviation-to-mean ratio of less than 0.02%.

Unerring injection velocity control from low to high speeds, and exceptional velocity response, are provided by the use of direct digital control with digital sensors that do not require conversion to analog.

The motor used for plasticizing on the SE350HY is a direct-drive, beltless motor. To keep the machine reasonably sized, the SE450HY uses a belted motor.

Other SE-HY injection unit features include:

- Selectable plasticizing ramps—soft, standard and sharp—for plasticizing acceleration and deceleration response
- Ramping of the velocity by selectable soft, standard and sharp ramping modes
- The PID temperature control system with 2-second sampling and 0.1°C settable barrel zones
- Programmable switchover from velocity to hold—selectable by position, time or pressure
- Hold pressure, with the ability for ramping, is settable and accurate to within 1kgf/cm<sup>2</sup> from 0 to 2800 depending on machine size

For clamping, the SE-HY provides the high-performance combination of Sumitomo's all-electric technology with the company's field-proven, double-toggle clamp design. The clamp unit's rigidity and durability are verified using finite element analysis methods, and precision clamping is assured by full, closed-loop control of mold open/close velocity and position.

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## **(Sumitomo Introduces SE-HY...continued)**

A high-power motor for clamping delivers mold open/close speeds up to 1260 mm/sec (49.6 in/sec) on the SE350HY and 1140 mm/sec (44.9 in/sec) for the SE450HY. Compared with competitors' hydromechanical-clamp hybrid machines, the SE-HY achieves these fast speeds with significantly less power consumption.

Other clamp features include:

- Three-stage mold open/close speed control
- Selectable ramping modes (soft, standard or sharp) to optimize clamp open and close profiles for fast cycles with shock-free movement
- Mold open stop position accuracy of less than 20 microns
- Low-pressure mold protection settable to 0.3 mm and digital setting of mold open/close positions to 0.1 mm
- Optional multi-toggle clamp force control that offers a high-cycle mode in which filling can begin during clamping, and a gas-release mode in which filling can begin during low-pressure clamping

For optimum life of the ball screws, toggle pins and tie bar bushings, the SE-HY is equipped with a highly reliable, automatic grease supply through a valve-type progressive distribution system. This system uses an externally mounted pump unit with easy-to-load grease cartridges.

All SE-HY Series machines are equipped with the full-color N-VII control offering everything from easy, prompted setup to full QC/SPC capabilities. Additionally, SE-HY machines carry Sumitomo's comprehensive 24/48 Warranty that covers everything except brake pads, filters, fuses and bulbs.

Sumitomo Plastics-Machinery provides a complete line of injection molding machines, from 20 to 716 US tons, including all-electric horizontal and vertical models, hybrid electrics, hydraulic and hydromechanical clamp models, ultra high-speed toggles and disc molding systems.

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