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Sumitomo Expands All-Electric Platform with Four New Machine Series

(NPE 2006, Booth 1885)...Sumitomo Plastics Machinery opened it's NPE 2006 display with the North American introduction of four new all-electric machine series:

- SE7M Direct-Drive Micromolding All-Electric (7.7 US tons)
- Mid-Sized SE-HS High-Speed All-Electric Series with direct-drive technology for injection and clamping (242 to 385 US tons)
- Mid-sized SE-HD High-Duty All-Electric Series (242 to 496 US tons)
- SE-DU Direct-Drive All-Electric Series (20 to 198 US tons)

Going back to NPE 1994, twelve years ago, Sumitomo brought it's second-generation electric machine to the North America market, the SE180A. Today, the Sumitomo All-Electric Platform spans from 8 to 660 US tons, including micro to mid-sized, high-speed, high-duty, vertical, insert, multi-shot and disc molding machine series.

"Whether you're a custom molder competing for business or a captive molder whose products have to compete globally, the bottom line is the ability to manufacture more high-precision parts at less cost," said Jeff Hicks, Vice President, Technical Sales. "Our theme for NPE 2006 is very straightforward. We are asking molders to compare the precision, cycle times, energy savings, reliability and production flexibility factors of Sumitomo All-Electrics and '*Do the Math*.'"

Key to the Sumitomo All-Electric Platform is the advanced motor technology. Sumitomo's unique and extensive experience in designing and manufacturing electric motors ensures that each machine configuration has the absolute best combination of motors to ensure superior performance — torque, speeds, pressures, response, precision and repeatability — while ensuring exceptional energy efficiency and keeping the machines reasonably sized and priced.

"Visitors to our booth are also going to see a wide range of other molding machine advancements beyond the motor technology," said Hicks. "We're introducing several patent pending technologies including a constant feedback clamp force correcting system, a new Double Center Press Platen design, a new low-temperature, low-shear screw and a new twin-cylinder high contact force (nozzle touch) system that provides high force comparable to that of a hydraulic clamp machine."

The pages that follow in this press release provide an overview of the four new all-electric machine series and the associated molding demonstrations.

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Sumitomo's New SE7M Micro Direct-Drive All-Electric (7.7 US tons)

Hi-res photo at: www.sumitomopm.com/npeart/SE7Mphoto.jpg

Sumitomo's new SE7M Micro Direct-Drive All-Electric was developed for micromolding applications requiring the highest levels of precision (extremely tight dimensional tolerances) and exceptional productivity (high yield, multi-cavity, etc.). Features include:

- Sumitomo's advanced direct-drive motor technology for plasticizing, injection, clamping and injection
- The SK-II Control option for the highest levels of injection fill precision (shot weight and density) and peak pressure stability
- New algorithm and software for the servo control that achieves faster response and improved stability
- Injection speeds up to 300 mm/sec and injection and hold pressures up to 28,426 psi
- Synchro-plast control mode, for resins with low viscosity or uneven pellet size, that optimizes. control of screw position and back pressure ensuring plasticizing stability
- Flash speed mode that provides fast response control of velocity and pressure, before and after V/P switchover
- CPP (Center Press Platen) clamp design for improved force distribution, elimination of short-shot and flash problems and improved mold protection
- Multi-toggle clamp force control (high-cycle and gas-release modes)
- Clamp open/close speeds to 1000mm/sec
- High-speed, multi-action ejector operation including ejector operation during mold close
- User friendly N-Series Control with full SPC, QC and machine optimization capabilities

NPE 2006 SE7M Demonstration:

Machine	SE7M (7.7 US tons)
Product	Narrow pitch connectors (FPC)
Material	LCP
Part weight	0.001 oz (0.035g)
Cycle time	3.3 seconds
Mold type	4-cavity hot-runner
Applications	Micro-electrical assemblies for consumer electronics, medical applications, office automation, miniaturized motors

Additional information on the SE7M can be found at:
www.sumitomopm.com/se7mmain.html

Hi-res photo at: www.sumitomopm.com/npeart/SE7Mparts.jpg

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Sumitomo's New Mid-Sized SE-HD *High-Duty* All-Electric Series (242 to 496 US tons)

Hi-res photo at: www.sumitomopm.com/npeart/SEHDphoto.jpg

The new mid-sized SE-HD High-Duty All-Electric Series was specifically designed high-precision molding of thick parts and parts with cycle times in excess of 15 seconds. To meet the needs of these types of high-duty applications, the injection motor provides the ability to consistently maintain very high hold pressure for an extended period of time — an important factor for avoiding sink marks and improving dimensional stability on thick-wall parts. The high-duty screw drive motor enables plasticizing at a lower temperature, preventing problems such as material burning and black spot, and improving cycle time through decreased cooling time. Other features include:

- New, *patent pending* Double Center Press Platen (DCPP) that ensures superior surface pressure balance even in the center surface area of the mold and can reduce the clamping force required by up to 20% [Hi-res diagram at: www.sumitomopm.com/npeart/DCPP.jpg]
- New, *patent pending* constant feedback clamp force correcting system that uses a sensor on the tie bar (strain gauge) that measures actual clamp tonnage
- High hold pressures, up to 31,718 psi, that exactly match the injection pressures
- High injection capacities, up to 75% greater than a typical machine (This feature, combined with the wide platens and DCCP design, often allows molds to be run on smaller machines.)
- New twin-cylinder high contact force (nozzle touch) system provides high force comparable to that of a hydraulic clamp machine and exceptionally fast pressurization/ depressurization of 0.3 seconds for faster cycle times. (Typical times range from 0.6 to 1.0 seconds and thus this feature can reduce cycle time by up to 1.4 seconds.)
- Multi-toggle clamp force control (includes high-cycle and gas-release modes)
- User friendly N-8 Control with full SPC, QC and machine optimization capabilities
- *242 to 385 ton models are US manufactured in Jefferson, GA*

NPE 2006 SE-HD Demonstration:

Machine	SE220HD (242 US tons)
Product	Automotive tail light covers
Material	PMMA
Part weight	9.67 oz (274.2 g)
Cycle time	35.0 seconds
Mold type	2-cavity (right + left)
Applications	High-duty applications with cycle times in excess of 15 seconds including thick-wall parts

Additional information on the SE-HD Series can be found at: www.sumitomopm.com/sehdmain.html

Hi-res photo at: www.sumitomopm.com/npeart/SEHDparts.jpg

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Sumitomo's New Mid-Sized SE-HS *High-Speed* All-Electric Series (242 to 385 US tons)

Hi-res photo at: www.sumitomopm.com/npeart/SEHSphoto.jpg

Equipped with Sumitomo's advanced **direct-drive motor technology for both injection and clamping**, the new mid-sized SE-HS High-Speed All-Electric Series is ideally suited for parts with a cycle time less than 15 seconds, thin-wall parts, packaging and other applications requiring high-speed, high-precision injection. Features include:

- New, *patent pending* SM Screw with low shear plasticizing, thorough mixing at low temperatures and improved cycle times due to reduced cooling times
- New, *patent pending* Double Center Press Platen that ensures superior surface pressure balance even in the center surface area of the mold and can reduce the clamping force required by up to 20% [Hi-res diagram at: www.sumitomopm.com/npeart/DCPP.jpg]
- New, *patent pending* constant feedback clamp force correcting system that uses a sensor on the tie bar (strain gauge) that measures actual clamp tonnage
- Injection speeds of 300mm/sec (11.81 in./sec) and velocity response of 25 milliseconds
- 10 modes or ramps of filling speed and hold pressure response
- Fast, mold open/close speeds of 1300mm/sec (51.18 in./sec)
- New twin-cylinder high contact force (nozzle touch) system provides high force comparable to that of a hydraulic clamp machine and exceptionally fast pressurization/ depressurization of 0.3 seconds for faster cycle times. (Typical times range from 0.6 to 1.0 seconds and thus this feature can reduce cycle time by up to 1.4 seconds.)
- 5-stage mold open/close speed control and ramping that enables optimization of mold open/close profiles for fast cycles with shock-free movement
- Multi-toggle clamp force control which includes a high-cycle mode in which filling can begin during clamping for improved cycle time
- User friendly N-8 Control with full SPC, QC and machine optimization capabilities

NPE 2006 SE-HS Demonstration:

Machine	SE220HS (242 US tons)
Product	Specimen containers
Material	PP Total Petrochemicals M6823MZ
Part weight	0.852 oz.(24.164 g)
Cycle time	11.8 seconds
Mold type	Samco Scientific Corp. 4-cavity hot-runner
Applications	Medical, packaging and other applications requiring high-speed injection comparable to high-performance hydraulic and hybrid machines

Additional information on the SE-HS Series can be found at: www.sumitomopm.com/sehsmain.html

Hi-res photo at: www.sumitomopm.com/npeart/SEHSparts.jpg

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Sumitomo's New SE-DU Direct-Drive All-Electric Series (20 to 198 US tons)

Hi-res photo at: www.sumitomopm.com/npeart/SEDUphoto.jpg

Sumitomo Plastics Machinery's new SE-DU Series direct-drive all-electric injection molding machines deliver unmatched precision, performance and overall productivity. Like the predecessor SED Series, the SE-DU features four direct-drive, Sumitomo AC servo motors with full closed-loop control and digital sensors for plasticizing, injection, clamping and ejection. All four motors are beltless, providing superior mechanical efficiency, repeatability and durability, and avoiding the problems associated with belt adjustment and dust. Unique to Sumitomo's advanced motor technology is a lighter, compact, low inertia design that:

- Provides the speeds, pressures and torque for the most demanding applications
- Draws power only as it is needed and is easier and faster to stop and start
- Provides exceptional precision and repeatability

Features new to the SE-DU Series include:

- New algorithm and software for the servo control that achieves faster response and improved stability
- New, *patent pending* constant feedback clamp force correcting system that uses a sensor on the tie bar (strain gauge) that measures actual clamp tonnage
- Wider distance between tie bars
- Synchro-plast and multi-toggle clamp force control, as well as many other features, added as standard
- New PC-based N-9 Control with full SPC, QC and machine optimization capabilities plus USB port, serial port, parallel port and multiple machine status signals available for output

SE-DU 55 to 198 ton models are US manufactured in Jefferson, GA.

NPE 2006 SE-DU Demonstrations:

Machine	SE18DU (20 US tons)
Product	Bobbins used in miniature electrical devices
Material	POM
Part weight	0.00001 oz (0.0003 g)
Cycle time	4.8 seconds
Mold type	2-cavity, Sansyu Precision cassette mold
Applications	Micro-electrical assemblies for consumer electronics, medical applications, office automation, miniaturized motors

Additional information on the SE-DU Series can be found at: www.sumitomopm.com/sedumain.html

Hi-res photo at: www.sumitomopm.com/npeart/SE18DUparts.jpg

Molding demonstration and photo courtesy of Makuta Technics, Inc.

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NPE 2006 SE-DU Demonstrations continued:

Machine	SE75DU (83 US tons)
Product	Thin-wall medical syringes
Material	PP Total Petrochemicals M6823MZ
Part weight	0.038 oz (1.076 g)
Cycle time	11.0 seconds
Mold type	Cavaform International 16-cavity, hot runner for 1/2 cc syringe
Applications	High-volume molding of thin- and semi-thin-wall high-precision parts

Hi-res photo at: www.sumitomopm.com/npeart/SE75DUparts.jpg

Machine	SE130DU (143 US tons)
Product	Thin-wall pipettes
Material	PP Total Petrochemicals M6823MZ
Part weight	0.013 oz. (0.359g)
Cycle time	11.5 seconds
Mold type	Cavaform International 64-cavity hot-runner
Applications	High-volume molding of thin- and semi-thin-wall high-precision parts

Hi-res photo at: www.sumitomopm.com/npeart/SE130DUparts.jpg

Sumitomo (SHI) Plastics Machinery (America), LLC, is headquartered in Norcross, GA. Additional information on the company and its equipment can be found on the company's website at: www.sumitomopm.com

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