Press Release
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Sumitomo (SHI) Demag at the 2009 Fakuma Fair:

Fully Electrical IntElect with a Switchable Reverse Current Barrier Features Maximum Precision and Reproducibility at Low Energy Utilisation

Hall B1, Stand 1105

Sumitomo (SHI) Demag Plastics Machinery GmbH is unveiling an IntElect smart 160/520-680 at the Fakuma fair. This machine that is equipped with a switchable reverse current barrier will produce complex plug housings on an eight-fold mould.

The project of Sumitomo (SHI) Demag Plastics Machinery GmbH is Joining Forces to Shape the Future and you can see the benefits when Sumitomo put their heads together with Demag: the fully electrical IntElect series injection moulding machines on the *smart* level. The combination of next-generation Japanese drive technology and solid German mechanical engineering spawned a very precise, dynamic and energy-efficient injection moulding machine. Sumitomo (SHI) Demag's fully electrical machine design is meeting the needs of precision mass article manufacturers. What is particularly interesting to processing companies is the fact that the fully electrical IntElect, together with the hydraulic Systec series and the hybrid El-Exis fast running machine are based on a single machine platform. That means that users have the entire package of options of the Sumitomo-Demag building block at the same time.

IntElect is offered on the two levels of smart and performance where the fully electrical direct drives drive the main axles of the clamping unit and injection unit on both levels. In contrast to indirect electrical drives such as with synchronous motors plus belt drive, direct drives have higher energetic efficiency and greater precision with their higher reaction properties, higher repeatability and beyond this better cycle times.

A major benefit over hydraulic precision machines is the low energy consumption of these direct drives with the direct drives of plasticising, injecting and mould opening. In addition, the braking energy of each main axle is temporarily stored for the energy needs of the other axles. That means that IntElect saves 40% - 85% energy in comparison to conventional hydraulic solutions depending upon the specific case. In addition, since direct drives transform less energy into heat than hydraulic ones, it needs less cooling than with conventional machines.

The IntElect on the smart level is available with clamping forces of 500, 1,000 and 1,600 kN and these machines are equipped with air-cooled direct drives for the main axles and a belt-driven ejector. Its nozzle system is based on a servo-hydraulic system that links the benefits of a hydraulic system with its high level of force density with the improved regulation of an electrical system.

In contrast, the machines on the performance level are equipped with water-cooled direct drives, have a direct-driven nozzle system and direct ejectors while being enhanced for cleanroom environments up to ISO class 7.

The NC5 control system is the series production equipment on all IntElect machines with their intuitive operating strategy. The series production equipment also includes the ActiveQ active tool protection that identifies deviations over the entire opening and clamping path of the clamping unit. That means that ActiveQ allows unimpeded travel speed in the tool safety range and actively stops motion wherever necessary, making it faster than any passive equipment.

Joining Forces to Shape the Future: Switchable Reverse Current Barrier as an Innovation at Intelect

The performance potential of IntElect is demonstrated at the Fakuma fair with the example of a 15-pole plug housing while the mouldings are made of PBT GF-20 (shot weight 41.8 g and part weight 4.8 g) from an eight-fold tool. This is the first time at the Intelect fair that a switchable reverse current barrier (RSP) will be used that is also iconic for Sumitomo and Demag joining forces. The switchable RSP makes it possible to precisely clamp the RSP in a controlled fashion before the injection phase. The benefits of this design are much better reproducibility for the RSP clamping process. At the same time, it improves the mass padding and shot weight constancy.

Conventional reverse current barriers clamp depending upon the forward feed speed, screw withdrawal and back pressure at a clamping pressure that adjusts itself and after a clamping period that adjusts itself. That causes a mass reflow at the beginning of the injection phase.

The actively switchable reverse current barrier now supports the already high level of precision of the fully electrical IntElect in terms of increasing demands made of process stability. The controlled process of clamping the RSP involves the positioning accuracy of the electrical direct drives. Both together are another step towards improving the quality of production from Sumitomo (SHI) Demag.

Sumitomo (SHI) Demag's business partners in this exhibit are Fischer GmbH & Co. KG, Sinsheim, Germany (tool); Kistler Instrumente AG, Winterthur (process monitoring systems); Digicolor Gesellschaft für Kunststoffmaschinentechnik GmbH, Bielefeld, Germany (the drying system) and MAi GmbH & Co. KG, Küps, Germany as a specialist for automation solutions.

Corporate Profile

Sumitomo (SHI) Demag has been the driving force in developments in the plastics sector from the beginning. As a specialist in injection moulding machines for plastics processing, Sumitomo (SHI) Demag, along with its Japanese parent company, is among the global leaders in the sector.

More than 3,000 employees develop, manufacture and sell products ranging from fully electrical, hybrid and hydraulic injection moulding machines in clamping force classes ranging from 180-20,000 kN at locations in Germany, Japan and China. Sumitomo (SHI) Demag has a complete sales and service network to be found in all industrial regions of the world,

Sumitomo (SHI) Demag not only offers its customers injection moulding machines, but also expert solutions for their specific needs all over the world. That ranges from financing, technology and process development including one-stop shopping automation systems right down to customised service strategies.

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