Press release
17 October 2012

The fully electric IntElect from Sumitomo (SHI) Demag sets new standards with a vial production unit

Precision injection moulding with the highest production efficiency for medical technology

With the new active technology modules, Sumitomo (SHI) Demag Plastics Machinery GmbH based in Schwaig near Nuremberg is making its fully electric IntElect even more attractive. In particular, the activeLock, activeDynamics and activeFlowBalance modules expand the process window of the injection moulding machine with regard to precision and process consistency.

Without doubt, production efficiency occupies a central position in the customer's priorities: The question of increasing output and quality is an essential component in any work preparation. The new machines in the IntElect series are available with innovative active technology modules, and thus make a significant contribution to production efficiency.

The mode of function of these modules is illustrated by the fully automatic production unit for medical vials, the central element of which is an IntElect 50-45 (500 kN clamping force). In each 11 s cycle, four transparent vials are made from cyclo-olefin-copolymer (COC) by Topas Advanced Polymers, Frankfurt; each part weighs 1.2 g. A laminar flow module from Max Petek Reinraumtechnik, Radolfzell, is installed above the

mould installation space and the automation area, which ensures the required air quality in clean room category ISO 7 is achieved. Automation for this process is implemented by a Motoman six-arm robot from Yaskawa Europe GmbH, Allershausen. The mould is made by Zahoransky Formenbau GmbH, Freiburg. The controller of the production unit runs entirely on the new NC5 plus interface, which is connected to all associated peripheral devices by means of corresponding interfaces.

Achieving maximum process consistency

The activeLock, activeDynamics and activeFlowBalance technology modules make a decisive contribution to process consistency and production efficiency. The activeLock switchable backflow inhibitor eliminates the switching cycle of the backflow inhibitor. This significantly reduces shot weight fluctuations even though the shot weights may have only fluctuated by an extremely small amount in the first place, thus permitting production with the tightest tolerance limits. The activeFlowBalance function has an optimum effect with multi-cavity moulds by balancing out the pressure conditions in the individual cavities. The screw advance movement is actively stopped at the reversing point, meaning that the melt pressure is balanced out in all cavities. This effect noticeably improves the parts properties and product quality and thus minimises scrap.

Since April this year, the activeDynamics function has been part of the standard equipment of all clamping force levels of the IntElect series. activeDynamics is a high-precision injection control function. The system achieves extremely short sampling times of the axis

controllers by perfectly harmonised motors, frequency converters and machine controllers. This concept permits high-speed communication by means of which even complex injection profiles can be controlled precisely with reaction times faster than 100 microseconds. All components from this system come from Sumitomo (SHI) Demag, which means they are from a single source, something that guarantees the drive components are matched with one another and ensures a high level of reproducibility.

activeDynamics has another ace up its sleeve with regard to the vials produced at Fakuma. In thin-walled precision parts, what is important in the operational sequences of the machine is how quickly the screw can be accelerated in order to be able to fill such parts at all. With activeDynamics, it is possible to achieve steep acceleration ramps for a reliable filling behaviour. The same applies to ramping down, i.e. the reduction in the injection pressure during the transition to the squeezing phase. Depressurisation in hydraulic machines takes place by the screw springing back; in electrically driven machines, however, the spindles are turned back actively and with repeat accuracy. The new active technology module means this is successful in each cycle within the shortest possible time. Last but not least, activeDynamics makes applications possible which fully electric machines have not previously been able to accomplish.

With the active technology modules, Sumitomo (SHI) Demag is providing a coherent concept for producing components with the highest levels of precision and quality. Customers benefit from a dynamic and energy-saving overall system with optimum output performance in all respects.

NC 5 plus with additional features

The NC5 plus controller introduced at last year's Fakuma is installed on all newly delivered machines as standard. It assists the processing company by providing a very broad bandwidth of functions. The interface is tailored to simple and extremely intuitive operation and, in practical operation, makes it possible to monitor all the parameters that influence production efficiency. This unique controller is supplemented by some new applications and options. It is therefore only logical that it will set new trends at the trade show.

Sumitomo (SHI) Demag Plastics Machinery GmbH

Sumitomo (SHI) Demag has lastingly shaped the plastics industry from the very beginning. Being a specialist for injection moulding machines for polymer processing, Sumitomo (SHI) Demag and its Japanese parent company are among the leading companies in this sector globally. The Japanese-German company was formed in the spring of 2008 by merging the injection moulding activities of Sumitomo Heavy Industries (SHI) and those of Demag Plastics Group.

The global development and production network of Sumitomo Heavy Industries and Sumitomo (SHI) Demag consists of four plants in Japan, Germany and China with more than 3,000 employees. The product portfolio encompasses all-electric, hydraulic and hybrid injection moulding machines with clamping forces of between 180 and 20,000 kN. With over 100,000 machines installed, Sumitomo (SHI) Demag is present in all important markets throughout the world.

With more than 5,000 machines sold each year, the Plastics Machinery Business of Sumitomo Heavy Industries counts as one of the largest Global manufacturer of injection moulding machines.

The main Sumitomo plant in Chiba produces machines with low and medium clamping forces. Around 95 % of all machines supplied by Japan have an all-electric drive.

The main Demag facility in Schwaig/Germany focuses on the hydraulic Systec and the hybrid high performance, high-speed El-Exis machines. Recognising the increasing importance of electric drive technology for injection moulding machines, Sumitomo (SHI) Demag has expanded the former Demag factory in Wiehe/Germany into an international centre of competence for electric machines. Thanks to the new production capacities, Wiehe now supplies all electric injection moulding machines worldwide with its IntElect series with clamping forces up to 4,500 kN and also the hydraulic Systec series with clamping forces of up to 1,200 kN.

Sumitomo (SHI) Demag continues to operate the former Demag plant in Ningbo/China which has been active since 1998. Since 2007 the subsidiary located there, Demag Plastics Machinery (Ningbo) Co., Ltd, had its own, newly built plant and after reaching full capacity, moved to a larger factory with a production area of 11,000 sqm. Injection moulding machines from the Systec C product line with clamping forces of between 500 and 10,000 kN are produced here for Asian markets.

In addition to injection moulding machines, Sumitomo (SHI) Demag offers customised and standardised systems for the automated handling of moulded parts, technical solutions for special applications in process engineering, tailor-made service concepts and various forms of financing for investments in injection moulding machines.

With its seamless sales and service network of subsidiaries and representations, Sumitomo (SHI) Demag is present in all major industrial markets.

www.sumitomo-shi-demag.eu

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<IntElect_50_45>

The fully electric IntElect 50 will be at the Fakuma 2012. Installed in a fully automatic unit with clean-room equipment, it will provide an impressive demonstration of producing medical components.
Photo: Sumitomo (SHI) Demag

<IntElect50_Vials_Flakons>

The COC vials are produced with reproducible results within the tightest tolerance limits thanks to activeDynamics and activeFlowBalance technology modules.
Photo: Sumitomo (SHI) Demag