Press Release
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Sumitomo (SHI) Demag to strengthen its portfolio of IntElect smart, IntElect performance and SE machines

All-electric injection moulding machines now available with larger range of clamping forces

With the establishment of a centre of excellence in Wiehe/Germany, Sumitomo (SHI) Demag Plastics Machinery GmbH of Schwaig/Germany has pooled the development and production of all-electric injection moulding machines at one single location. Basic research into drives and control features as well as the further development of the machine concepts have resulted in many detailed enhancements of the three all-electric series, viz. IntElect performance, SE and IntElect smart. At the K 2010, the German/Japanese company will demonstrate the enhanced efficiency, precision and reproducibility of these machines when it comes to producing precision mouldings for engineering or medical applications by means of four exhibits. At the same time, Sumitomo (SHI) Demag stages a premiere for the IntElect 450, the largest all-electric machine ever, with a clamping force of 4,500 kN.

Owing to considerable investments made by Sumitomo (SHI) Demag, the Wiehe/Germany location, which had been specifically producing smaller machines for many years, was able to even more push the development and production of all-electric machines. Having been turned into a centre of excellence for electric machines, today this facility not only produces the electric IntElect performance from the previous Demag range any more, but also the SE model by Sumitomo, which has been extremely successful in Asia, for the European and American markets. At the Wiehe location, engineers and technicians have been successively studying and optimizing all components of all machine series in terms of dynamics, precision, reliability, and efficiency starting with the merger of Sumitomo (SHI) and Demag Plastics Group. This range is complemented by the IntElect smart model jointly developed by Japanese and German engineers.

Joint Japanese/German concept: Die IntElect smart

The IntElect smart series has been a major success of joint development efforts. This machine pools the competence of Sumitomo (SHI) Demag gained from the production of tens of thousands of electric injection moulding machines. With high levels of efficiency or availability, larger tie bar distances and linear slides for bulky and heavy moulds, the IntElect smart is totally custom-designed for the requirements of the European market. Its excellent reproducibility and outstanding process capability values shed the basis for zero-defect production.

Drives specifically developed for injection moulding contribute to high levels of efficiency and dynamics. The linear slides for the mobile platen and the even more optimized kinematics of the five-point toggle joint provide for smooth running. Through the interaction between the uninterrupted monitoring of the traversing forces during the clamping movement and the fast machine control, the highly sensitive mould protection system 'activeQ' is designed to effectively protect valuable moulds against wear or damage.

With the uniform machine control and the consistent options catalogue, Sumitomo (SHI) Demag offers the user a flexible and economic machine concept from a modular system which dovetails with the portfolio of the electric machine series as a consistent enhancement of proven and tested concepts. The comprehensive preparation of the machine to represent special options provides particular flexibility for custom machinery and equipment. Until now, the IntElect smart was available with four clamping forces from 500 through 1,600 kN. From the K 2010, this range will be supplemented by for more models with clamping forces from 2,200 through 4,500 kN.

Following a one-year field test, the switchable back-flow lock will be available as of now. On screws from dia. 14 mm through dia. 35 mm for now, this lock will seal the melt channel against the plasticizing direction through a brief jerky movement, thus providing a very small remaining cushion upstream of the screw that will remain constant across the cycles. This will provide for high levels of process consistency to enhance the quality of the moulded part, specifically when it comes to precision parts or very small shot weights respectively.

The IntElect smart at the K 2010

At the K 2010, the new frame size of the IntElect 450-2200 with a clamping force of 4,500 kN will produce 34-pole connector housings made of PBT in a 16-cavity hot runner mould made

by Fischer GmbH & Co. KG of Sinsheim. This highly complex production mould is still in its preproduction run stage and is designed to produce connector housings as precision bulk-produced articles in zero-defect production with high quality requirements. Here, highest levels of precision and reproducibility are major quality criteria. An SDR33 linear robot will unload the moulded parts, and a downstream weighing device will demonstrate the achieved high level of weight consistency. With the new frame size of IntElect 450, Sumitomo (SHI) Demag even expands the field of application of its all-electric machines to cover larger clamping forces, heavier moulds or higher shot weights respectively. A second IntElect in a 1,000 kN configuration will be on display with an integrated Yushin robot at the exhibition stand of Yushin Precision Equipment.

The IntElect performance

With the most consistent use of direct drives in the market of injection moulding machines, the high-performance variant of the IntElect offers high levels of dynamics and the lowest noise level of all electric machines, with 61 dB for the 1,000 kN variant. The water cooled drives on the core axes facilitate the use of the IntElect performance in cleanrooms. This machine is available with five levels of clamping forces from 500 through 2,100 kN, and comes with the uniform control.

The IntElect performance at the K 2010

At the K 2010, an IntElect 100-340 with a clamping force of 1,000 kN and a 32-cavity mould made by Tanner AG will be seen producing pipettes made from a polypropylene from Sabic. In the specifically compact machining cell including a cleanroom cell from Max Petek Reinraumtechnik above the mould space, this machine will demonstrate its suitability for cleanrooms of ISO Class 7. With this mould concept, side entry into the mould has proven to be the most productive option of automation. That is why a side-entry quick unloading robot made by Waldorf Technik unloads the moulded parts and feeds them to quality assurance involving a 100% visual inspection. A moulded part tray sorted by cavities facilitates separation of the output of individual cavities.

From Japanese tradition: The SE

Sumitomo (SHI) launched its SE electric injection moulding machines in the mid-1990s, and has since perfected them across several generations. Its extraordinary quality and reliability have earned it an excellent reputation that is the reason for its large market share in Japan. The extraordinary efficiency of this machine is based on a high level of process consistency

and outstanding dynamics through fast, high-torque and air-cooled direct drives for all major movements and the ejector movement respectively. All machines of this series come with the Zero-Moulding technology that practically rules out reject or defects respectively. In Europe, the SE is available with clamping forces in the range from 180 through 4,500 kN.

The SE at the K 2010

At the K 2010, two models of the SE DUZ will be on exhibit at the stand of Sumitomo (SHI) Demag. An SE 50 DUZ with a clamping force of 500 kN will produce coasters from polypropylene in a mould made by Sansyu. This supposedly straightforward moulded part includes a honeycomb structure with an extremely fine-meshed filter network in the production of which this machine will fully demonstrate its precision and dynamics. The larger SE 100 DUZ with a clamping force of 1,000 kN will produce business card boxes with high requirements on reproducibility.

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<IntElect_performance_210>

The all-electric injection moulding machine IntElect performance – figure shows the largest frame size with a clamping force of 2,100 kN – specifically features consistent use of direct drives, high levels of dynamics and the lowest noise level of all electric machines, with 61 dB for the 1,000 kN frame size.
Photograph: Sumitomo (SHI) Demag

<pipettes_IntElect_100>

Pipettes made of polypropylene, produced on an IntElect 100-340 with a clamping force of 1,000 kN in a clean room of ISO class 7 in a 32-cavity mould made by Tanner AG, with a side-entry quick unloading device made by Waldorf Technik and 100% visual quality inspection.
Photograph: Sumitomo (SHI) Demag

<IntElect_smart_100>

Being a joint development of Japanese and German engineers, the electric injection moulding machine IntElect smart – figure shows the frame size with a clamping force of 1,000 kN – had its premiere in 2009. From the K 2010, it will be available with clamping forces up to 4,500 kN.
Photograph: Sumitomo (SHI) Demag

<plug-connector_IntElect_450>

34-pole connector housing, a precision bulk item produced in a zero-defect production process in a 16-cavity mould made by Fischer GmbH & Co KG on an IntElect 450 with a clamping force of 4,500 kN, the largest all-electric injection moulding machine ever made by Sumitomo (SHI) Demag.
Photograph: Sumitomo (SHI) Demag

<SE_75_DUZ>

The SE electric injection moulding machine – figure shows the frame size with a clamping force of 750 kN – features high quality and reliability, high levels of process consistency, and extraordinary dynamics owing to fast, high-torque and air-cooled direct drives on all main movements and the ejector.
Photograph: Sumitomo (SHI) Demag

<coaster_SE50DUZ>

Coasters made of polypropylene with an extremely fine-meshed filter network that requires a high degree of precision and dynamics will be produced on an all-electric SE 50 DUZ with a clamping force of 500 KN made by Sumitomo (SHI) Demag at the K 2010.
Photograph: Sumitomo (SHI) Demag

<business-card-box_SE100DUZ>

Business card boxes with high requirements on reproducibility, produced on an all-electric injection moulding machine SE 100 DUZ with a clamping force of 1,000 kN.
Photograph: Sumitomo (SHI) Demag

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