Press Release
October 28, 2010

More dynamics and efficiency for the production of packagings and in-mould labelling (IML)

Premiere for the high-speed injection moulding machine El-Exis SP made by Sumitomo (SHI) Demag

With the new El-Exis SP injection moulding machine, Sumitomo (SHI) Demag Plastics Machinery GmbH of Schwaig/Germany, continues its track record in terms of El-Exis high-performance machines. Owing to the further development of all machine components, the new El-Exis SP provides enhanced dynamics for mould movement, injection and ejection, and increased efficiency for the high-speed production of items such as caps, thin-walled plastic packagings or similar containers, among others. Just like its hybrid driven predecessors, the El-Exis SP 300 will have its premiere at the K 2010.

The unique drive philosophy of the El-Exis, which had first been presented at the K 1998, endures to last up to the present day. The fact that this concept has convinced more than one thousand buyers of this high-performance machine throughout the world is taken as confirmation of this hybrid technology concept by Sumitomo (SHI) Demag.

With the El-Exis SP 300, where SP is abbreviated for "Speed Performance", this mechanical engineering company now presents a new series of its high-speed and high-performance machines at the K 2010. This series is intended to be successively expanded to finally cover a range of clamping forces from 1,500 through 7,500 kN using nine frame sizes.

This successful concept conceived in 1998 has been preserved, but practically all components have been basically re-engineered. Here, the focus was on optimizing the whole drive system in terms of final velocity, acceleration and precision, as well as on further enhancing the platen stiffness. The El-Exis SP comes with an electric drive for the dosing movement, an electrohydraulic drive for the mould opening movement, and a hydraulic accumulator for the injection movement. All ancillary movements of the El-Exis SP are hydraulically activated via servo valves.

With the El-Exis SP, an amply dimensioned hydraulic system facilitates best productivity while at the same time providing for smooth and quiet machine operation. Very fast servo valves with an optimized characteristic, new and more dynamic controller systems, reduced weights, higher pressures of up to 2,100 bar in the B cylinder and enhanced acceleration rates for higher dynamics during injection are all guarantors for an increase in productive capacity, product quality, and availability. The El-Exis SP also offers increased dynamics for decelerating the injection process such as to prevent overpacking of the moulded parts by means of a zero-overlap valve. Moreover, Sumitomo (SHI) Demag was successful in clearly increasing the efficiency of the plasticating unit: higher screw circumferential speeds provide for increased plasticating or homogenizing capacities. The user will benefit from enhanced filling dynamics, shorter injection times, improved product quality and, if nothing else, a significant step towards reducing the cycle time.

The electrohydraulic component which drives the five-point double toggle joint of the El-Exis SP is a combination of a servo motor and a hydrostatic gearing mechanism designed to translate the motor rotation into hydraulic linear movement. Improvements made to the control behaviour of the motor and the optimized design of the hydraulic system and valves of the El-Exis SP now facilitate enhanced dynamics of the clamping unit with higher traversing speeds at an improved positioning accuracy. Particularly when it comes to continuous operation in large-scale production, a highly precise mould stop position is required, for example to guarantee smooth transfer of the moulded part to the unloading robot or precise positioning of the label for in-mould labelling (IML). Just like the electric machines of the IntElect series, also the El-Exis SP features the active mould protection system 'activeQ' that is designed to actively stop the clamping movement in the event of an unusually high traversing force. The new models of the El-Exis SP series come with clamping forces starting at 3,000 kN and offer an expanded opening stroke of the clamping unit and a more generous mould mounting space as a standard feature such that buckets or cartridges or similar can be conveniently demoulded from moulds with deep cores, for example.

The new El-Exis SP offers particularly high ejector speeds. To make a forward or backward stroke of 5 mm, the El-Exis SP 250 merely requires 130 milliseconds. In addition, the ejector force can be optionally increased such as to facilitate the forced demoulding of caps from a multi-cavity mould, for example.

The new feature called 'activeAdjust' in the El-Exis SP enables the user to accelerate each machine movement as a function of the process or moulded part, and thus to optimize the cycle time. The mould opening, ejector movement or switching from injection pressure to holding pressure respectively can be accelerated or decelerated respectively through increasing or reducing the speed by means of slide controls in the control system. Overall, this will result in reduced dry running times for the benefit of shorter cycles and enhanced productivity.

Just like the all-electric IntElect machines or the hydraulic Systec machines, the El-Exis SP now comes with the uniform NC5 control. Numerous features in the NC5 specific of high-speed machines will help enhance efficiency and dynamics. To the belief of Sumitomo (SHI) Demag, the new high-speed machine El-Exis SP is an attractive investment with a favourable cost-benefit ratio and excellent potential for amortization.

The El-Exis SP at the K 2010

At the K 2010, an El-Exis SP 300-2500 with a clamping force of 3,000 kN will be on display producing screw caps from HDPE. The 72-cavity hot runner mould for the caps of 28 mm weighing 1.6 grammes and including tamper-proof band for still mineral water has been made by KTW Germany GmbH. This machine is fitted with a high-performance barrier screw with a diameter of 70 mm and an L/D ratio of 25:1. Owing to the hybrid drive technology, the movements of all axes optimized by means of 'activeAdjust' and the NC5 machine control, it achieves cycle times of below 2.5 seconds.

100% quality control of all screw caps and proof of reproducibility are provided via the IMDvista Quality Inspection System by IMD. Through integration of the peripheral components, the whole production system is fully integrated in the NC5 control system. Owing to optimized dynamics, short cycle times and the resulting high output, the El-Exis facilitates low unit costs, high levels of efficiency, and excellent profitability.

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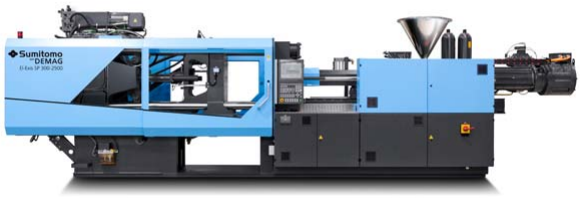
<El-Exis_SP_300>



The new high-speed injection moulding machine El-Exis SP made by Sumitomo (SHI) Demag, featuring a specifically dynamic hybrid drive concept for the production of thin-walled packaging products or screw caps; figure shows the El-Exis SP 300 with a clamping force of 3,000 kN.
Photograph: Sumitomo (SHI) Demag

<caps_EI-Exis_SP_1>

<caps_EI-Exis_SP_2>

Lightweight caps made of HDPE with a tamper-resistant tape, injection moulded in a cycle time of less than 2.5 seconds on a high-speed injection moulding machine EI-Exis SP 300 made by Sumitomo (SHI) Demag in a 72-cavity mould made by KTW.
Photograph: Sumitomo (SHI) Demag

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