

## Press Release

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Liquid colour metering system from Sumitomo (SHI) Demag boosts machine availability

### **Faster colour changes save time and money**

**Many areas of application involve the production of identical plastic parts with different colours. Colour changes during active injection moulding processes often produce a high number of defective parts, and it takes a relatively long time until the changeover is complete and the process is running smoothly again. Sumitomo (SHI) Demag Plastics Machinery GmbH of Schwaig near Nuremberg developed the activeColourChange solution as a response to these production conditions. The system provides a quick, clean and economic solution to the challenge of frequent colour changes.**

Customers want colour changes to take place quickly and with as few defective parts as possible. The parts produced after the changeover are expected to have a uniform colour. At present, the most widely used colour additives are masterbatches or liquid colours, which are added to the machine via the material feeder. When the polymer material is plasticized in the plasticizing unit, the colour is homogeneously dispersed in the melt.

The conventional approach of direct colour addition has one major drawback: as the added colour contaminates the entire plasticising unit, colour changes often take a long time. The machine must be cleaned and purged with the newly coloured material. Moreover, the metering system must be loaded with the next colour. As these processes cannot be automated, they always require the attention of operating personnel.

#### **Late colour addition brings major benefits**

The activeColourChange solution from Sumitomo (SHI) Demag is a liquid colour metering system for injection moulding processes that adds colour to the melt as late as possible in order to speed up the changeover process and minimise the defect rate. The system adds liquid colour directly to the melt-filled metering section of the plasticising unit. This way, upstream screw sections (feed section and compression section) remain uncontaminated, which means that the screw area that needs to be purged during colour changes is significantly shorter. The screw is equipped with a special mixing section to ensure the

production of uniform colours. This approach achieves a high opacity even when the pigment content is low. Another benefit of the late addition of colour is the fact that it promotes gentle processing of liquid colour. This way, even pigments that are sensitive to heat or shearing can be processed without problems. As this approach does not leave any residue on the screw, it prevents the occurrence of black spots on the product. The activeColourChange solution allows very precise metering even of liquid colours and high amounts of colour, as the late addition prevents clogging of the screw.

### **Higher machine availability cuts costs**

The reject rate is an important cost factor, and it becomes crucial when small batches are produced with frequent colour changes. On the one hand, the rejects produced during the changeover must be removed and disposed of, on the other hand, the time used up by purging the injection unit is lost for value-added production. Faster colour changes save time and, above all, they cut costs. The activeColourChange system from Sumitomo (SHI) Demag increases machine availability for a higher added value.

One major benefit of this system is its automatic operation. The on/off function for the colour addition is integrated into the NC5 plus machine control. Prior to the production start, the operator simply determines the lot size and the colour sequence for one production run. The activeColourChange system will then run automatically, and colour changes no longer require the attendance of qualified personnel.

The liquid colour metering system from Sumitomo (SHI) Demag is designed for up to five different colours. These are added to the melt with the help of highly precise metering pumps. The system is closed to ensure clean production conditions and the geometry of the pumps allows metering of a constant volume even for processes with high counter-pressure levels and low amounts of colour. The activeColourChange solution also allows processors to actively improve the product quality by adapting the process parameters and the amount of added colour.

### **Sumitomo (SHI) Demag Plastics Machinery GmbH**

Sumitomo (SHI) Demag has consistently shaped the plastics industry from its inception. As 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 EI-Exis SP machines. Recognising the increasing importance of electric drive technology for injection moulding machines, Sumitomo (SHI) Demag has expanded the 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](http://www.sumitomo-shi-demag.eu)

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*Many applications involve colour changes during the active injection moulding process. The faster the changes, the lower the costs.*

<activeColourChange>



*Five precise metering pumps add liquid colour to the melt in the metering section of the plasticising unit. Later addition of colour significantly improves the production's overall efficiency*

*Photos by Sumitomo (SHI) Demag*