PRESS RELEASE

"SuKcess story" from Germany

All-electric IntElect machines pave the way to zero-defect production

Schwaig, September 27, 2018 – SuK Kunststofftechnik GmbH with headquarters in Kierspe/Germany specialises in the production of industrial parts for the automotive industry and its suppliers. For these customers, zero-defect production is not a nice extra but widely expected. Undeterred by the rising pressure on prices and stiff competition, the German injection moulding specialist is looking forward to a bright future thanks to its extensive moulding expertise and a highly efficient, all-automatic production line. Recently, the company has added a new chapter to its SuKcess story and acquired several all-electric injection moulding machines made by Sumitomo (SHI) Demag. In addition to the impressive performance of these machines, SuK anticipates process-technology related benefits for techniques such as physical foaming.

The story of SuK Kunststofftechnik started in 1973, when a new managing partner joined the company in 2007. The company has been posting record growth figures ever since. Within ten years, the turnover has practically grown by tenfold, and the number of employees has risen to about 120. A total of 55 all-automatic injection moulding machines with clamping forces between 62 and 5,000 kN produce one-, two- and three-component injection moulded parts and physical lightweight foam parts. Booming segments include the production of complex electro-component carriers and lead frames. The company also offers structural component assembly, wiring harnesses and moulding of metal inserts. "We are constantly faced with the question of how to address the challenges that plastic parts in automotive engineering will have to meet and because of this, we have to carefully select our equipment," Managing Director Sven Wieland explains. And this is the logical consequence: the company's production line exclusively consists of top-of-the-range injection moulding machines and downstream equipment.

Special focus on lightweight engineering

Lightweight engineering combined with extra stability, high impact strength and a small CO_2 footprint will remain at the centre of car manufacturing for many years to come. Innovative materials and cost-efficient production methods such as physical foaming are the result of this long-term trend. SuK of Kierspe/Germany operates eleven injection moulding machines in three-shift operation for the production of these resilient, foam-moulded lightweight parts. Following a two-year planning phase, the new Romanian subsidiary SuK Plastics s.r.l. of Timisoara started running this production in June 2018. Ten tried-and-tested machines were transported from Kierspe to the western Romanian automotive cluster. The business grew with the local customers, says the MD. "The fact that we would save all logistics costs was the crucial aspect that brought about our final decision to relocate the complete production. About 140 moulders are situated in this region, but SuK is one of the very few to specialise in MuCell

production," says Wieland. "Naturally, the fact that we have entered this highly interesting growth market with many years of technical and process experience is a major asset."

Automation ensures Germany's attraction as a production location

The team in Kierspe is convinced that cost-efficient production is possible anywhere – with an innovative production and intelligent automation concept. Good relations with mould makers in China and excellent consultancy and care of predominantly European customers are at the heart of this approach. When it comes to injection moulding, customers, and particularly those from the automotive industry, rate premium quality as highly as cost-efficiency. Maximum repeatability and precision are at the top of their agenda. Christopher Prinz, Plant Manager at SuK Kunststofftechnik, explains his company's decision to upgrade the entire machine park over the past few years: "Thanks to our autonomous production units with all-electric injection moulding machines and integrated linear robots we are now within reach of our objective of zero-defect production." Over the past few years the company has integrated sixteen all-electric IntElect machines into the production, ten in 2018 alone. Josef Fleckner, Sales Engineer at Sumitomo (SHI) Demag, adds: "The machines operate in the clamp force range of between 50 and 160 tonnes and the injection units are compatible. In combination with the company's pick & place robots, these machines deliver more versatility, variability and line availability, as the units allow quick changeovers to accommodate a wide variety of parts." All production units are also equipped with an integrated 100 % quality control via Priamus and an interface to the Sumitomo (SHI) Demag NC5 plus control. Thanks to the pick & place robots, parts no longer fall beside the tray, which is an important benefit of automated handling systems.

"Repeatable, reliable, clean," is Prinz's answer when asked to name three benefits of the new, all-electric machines. Along with improving the production quality levels, the upgrade also reduced the average reject quote to below 1 %. Energy efficiency is another invaluable benefit. Despite the fact that the machines run longer, the energy consumption of the entire production has dropped by more than 40%

Reliable insert moulding

The quality of parts that contain metal parts, which are insert moulded with thermoplastic material, is heavily dependent on highly reliable production processes. The automotive industry's tolerance specifications are demanding, because these parts must be resistant to moisture in order to avoid later customer complaints or even product recalls. Among the most important machine-related criteria that impact the parts' quality are cavity pressure and temperature fluctuations and uneven cavity filling levels during injection. Managing Director Wieland uses a two-component control lever produced on an IntElect with a clamping force of 1,000 kN to illustrate the machine concept. "As far as we are concerned, there is

no way around all-electric machines if you want to keep the number of good parts as high as possible. In order to improve repeatability even more, we also equipped our IntElect machines with the activeLock and activeFlowBalance options. Enhanced process control of the injection moulding machine is again ensured by Priamus. Sensors record the cavity pressure, which is then adjusted via interface by the machine control system.“

Insert moulding of the control levers is completed within a total cycle time of only 22 seconds. The metal inserts are positioned by means of two vibratory feeders and a mechanical construction. A pneumatic robot places the metal inserts into a special 16-way pre-positioning tray. Then, a five-axis robot picks up the metal inserts and traverses the injection mould. With one single movement, it places the inserts into the mould while at the same time removing the finished parts including the sprue. After disposing of the sprue, it places the finished parts over a pipe system that separates the parts into sixteen small part carriers by cavity. If required, the robot can service a reject, good-part and QA gate.

Technological edge thanks to proprietary direct drives

“The activeLock technology module, which allows active closure of the non-return valve, SuK achieves much higher precision and more reliable processes, as fluctuation in the melt cushion have become virtually impossible,“ Sales Engineer Marc Fischer explains. The activeFlowBalance option is also considered an important factor for reject minimisation. It automatically balances out different cavity filling levels and ensures that identical cavity pressure levels throughout the entire mould. “A veritable USP that delivers measurable product quality benefits for our customers,“ Fleckner concludes. “After almost ten years of IntElect machines and more than 60,000 delivered all-electric machines, the team at Sumitomo (SHI) Demag has received only positive feedback. With our experience in this segment, we are way ahead of the competition and thanks to our proprietary direct drives we also have the technological edge. As our drives act directly on the axle and do not use transmission gears, they are vastly more efficient. Customer feedback tells us that IntElect machines are 20 % more efficient than comparable all-electric injection moulding machines. In addition to this, the fact that we develop the drives and motors in-house means that we can remedy any problems faster and more effectively.“

But the injection moulding machinery manufacturer does not rest on its laurels. Thanks to the open and cooperative partnership with customers such as SuK Kunststofftechnik, the specialist processes new ideas and suggestions for innovations and developments on a daily basis.

Illustrations

< SuK_Gruppenbild.jpg>

From left to right: Plant Manager Christoph Prinz (SuK), Sales Engineer Josef Fleckner (Sumitomo (SHI) Demag), Managing Director Sven Wieland (SuK), Sales Engineer Marc Fischer (Sumitomo (SHI) Demag)

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View of the all-electric machines in operation at SuK Kunststofftechnik

< SuK_Schalthebel_Getriebe.jpg>

Two-component part: insert moulded control lever

Photos by Sumitomo (SHI) Demag

Sumitomo (SHI) Demag Plastics Machinery GmbH

Sumitomo (SHI) Demag has shaped the development of the plastics industry from its very beginning. As a specialist for injection moulding machines for plastics processing, Sumitomo (SHI) Demag and its Japanese parent company are leading the industry.

The global development and production network of Sumitomo Heavy Industries and Sumitomo (SHI) Demag is comprised of four facilities in Japan, Germany and China with more than 3,000 employees. The product portfolio includes all-electric, hydraulic and hybrid injection moulding machines with clamping forces of between 180 and 15.000 kN. With more than 125,000 installed machines, Sumitomo (SHI) Demag is present in important global markets and ranks among the largest manufacturers of injection moulding machines in the world.

At Sumitomo's headquarters in Chiba, Japan, the company manufactures machines with clamping forces in the small to medium range. Nearly 95 % of all delivered machines are equipped with an all-electric drive concept. Sumitomo (SHI) Demag's German facilities in Schwaig and Wiehe produce the Systec Servo range with hybrid drive as well as the El-Exis SP and Systec SP range of high-speed, high-performance machines. The all-electric IntElect range for international customers is also being produced in Germany.

As early as 1998, Sumitomo (SHI) Demag set up its first production site in Ningbo/China. In 2015, the Chinese subsidiary Demag Plastics Machinery (Ningbo) Co., Ltd. installed a new facility with a 13,000 m² floor space. It is earmarked for the production of the Systec C range with clamping forces of between 500 and 10,000 kN for the Asian market.

In addition to injection moulding machines, Sumitomo (SHI) Demag offers customised and standardised systems for the part handling automation, technical and process solutions for special applications, tailored services and service concepts as well as a range of financial options to support investment in injection moulding machines.

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

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