

ENGEL at PLASTIMAGEN 2016

Schwertberg, Austria – January 2016

Set out to reach new horizons in quality and efficiency – that's ENGEL's focus at Plastimagen 2016 from March 8th to 11th in Mexico City. The injection moulding machine manufacturer and system expert with headquarters in Schwertberg, Austria, and a subsidiary in Querétaro, Mexico, presents this theme from two perspectives: both innovative processing technologies and Industry 4.0 open up new possibilities for injection moulding processors to boost their productivity, quality and flexibility in their fabrication and thus consistently reduce unit costs.

inject 4.0 – take advantage of the full potential

"Industry 4.0, the fourth industrial revolution that we are currently experiencing, is both a challenge and a chance," emphasizes Walter Jungwirth, Managing Director of ENGEL de Mexico in Querétaro. "Our goal is to master the challenges together with our customers in order to gain the maximum benefit from the new chances that are arising. We view ourselves as a partner helping our customers to optimize their production processes." ENGEL can draw on rich experience in this area, because in their own business, Industry 4.0 is already long-established practice. inject 4.0 – under this name, ENGEL bundles all its products, systems and services that make both individual injection moulding machines and the entire production network smarter in the sense of Industry 4.0.

In order to continue to boost productivity, efficiency, quality and flexibility in production, you need to do more than simply use the best injection moulding equipment; its potential must be leveraged to the max. This is where inject 4.0 comes to play with the smart factory concept. With the help of the networking and integration of production systems, the systematic exploitation of process and production data and the use of adaptive production systems, the manufacturing processes in a smart factory continuously optimise themselves. The smart factory is based upon three pillars:

- smart machines that boost process capability and quality with self-adapting, decentralised systems,
- smart production to ensure high levels of productivity thanks to horizontal and vertical data integration, and
- smart services that improve machine availability quickly and efficiently thanks to close proximity and the use of remote maintenance tools.

ENGEL is bringing solutions for all these areas to Plastimagen, for example the iQ weight control und iQ clamp control software products that continuously monitor and automatically readjust quality-relevant parameters (smart machines), the ENGEL e-factory MES that is specifically tailored for the requirements of the plastics processor and therefore achieves an extremely high level of vertical data integration all the way down to the level of individual cavities (smart production), and ENGEL e-connect.24 for fast online support and remote maintenance.

"The modular concept allows our customers to start with a specific solution adapted to their own requirements at any time and then gradually develop it further," as Jungwirth emphasises. "Industry 4.0 will be different for each business and it doesn't always have to be a comprehensive solution. Optimising manufacturing processes starts with the individual machines and can reach all the way up to a global production network."

Technology integration opens new vistas of quality

ENGEL is presenting two process technology highlights in Mexico with sophisticated applications for the automotive and packaging industries.

In the automobile industry, the trend towards a greater degree of process integration is advancing particularly quickly. The object is no longer simply to integrate process steps upstream or downstream of injection moulding, but also to combine different process technologies with one another. In the production of centre console components out of PC-ABS at its trade show stand, ENGEL will be using an ENGEL duo 2550/600 injection moulding machine with integrated ENGEL viper 20 robot to combine two technologies: ENGEL foammelt, the MuCell foam injection moulding process developed by Trexel of Wilmington in the USA, and ENGEL variomelt, a variothermal injection moulding process. "Combining the two processing

technologies makes it possible to produce thin-walled parts with very high surface quality and at the same time excellent fine structure reproduction using just a single injection moulding step," says Walter Jungwirth.

To demonstrate the versatility of this combination of technologies, the sample part will have varying wall thicknesses and surface structures. The mould for the variothermal process demonstration will be supplied by ENGEL's partner Roctool (Le Bourget du Lac, France). Thanks to ENGEL foammelt, the cavity including the undercuts is completely filled and the component has no sink marks after cooling; additionally, the variothermal temperature control provides a high gloss finish. Apart from applications aimed at car interiors, integrating ENGEL foammelt and variomelt opens up new vistas of efficiency and quality for white goods and household products.

The controls of the ENGEL viper robot are entirely integrated into the CC300 control unit of the ENGEL duo injection moulding machine so that machine operators no longer need to familiarise themselves with separate control logic concepts. The additional movement instructions for the robot integrate seamlessly with the graphical user interface of the machine control unit, which considerably simplifies above all the programming and operation of complex process workflows and makes an additional PLC unnecessary. To allow for fast parameterisation despite the complexity of the overall system, the CC300 control unit provides the user with different ways of visualising the process sequence, from the simple choice of pre-programmed standard sequences to the object-oriented graphical creation of complex process sequences.

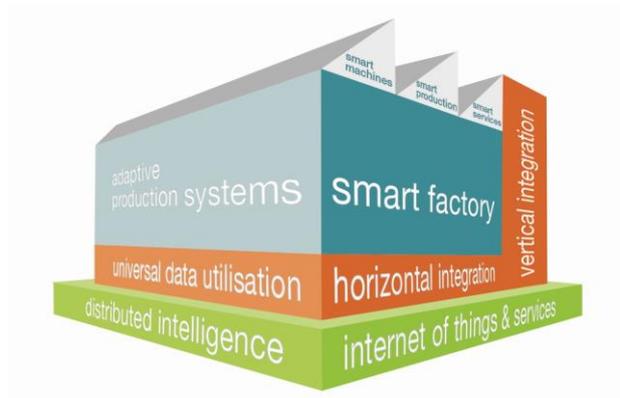
IML with maximum flexibility

Flexibility is the focus of ENGEL's Packaging exhibition area at Plastimagen 2016. An ENGEL e-motion 440/160 will be producing 155 ml round containers with an integrated tamper-proof seal using a 4-cavity mould from Otto Hofstetter (Uznach, Switzerland). Thanks to in-mould labelling, the production cell will be outputting ready-to-fill packaging. In this application, Beck Automation (Oberengstringen, Switzerland) is presenting its new BECK-FLEX system with which IML-packaging can also be produced in small batch sizes with high economic efficiency. BECK-FLEX supports flexible use with various moulds – for both containers

and caps –, labels and injection moulding machines with a clamping force of up to 420 tonnes.

As cycle times, in addition to flexibility, are decisive for a packing manufacturer's ability to compete, ENGEL has designed its all-electric ENGEL e-motion injection moulding machine for high-performance operation throughout. Cycle times of well below 3 seconds and injection speeds of more than 500 mm per second are achieved. ENGEL e-motion machines combine best-in-class performance with maximum energy efficiency and hygiene. The closed system for toggle levers and spindles guarantees optimal, clean lubrication of all moving machine components at all times, thus complying with the strict cleanliness requirements of the food industry.

ENGEL at Plastimagen 2016: Austrian Pavilion, stand 405



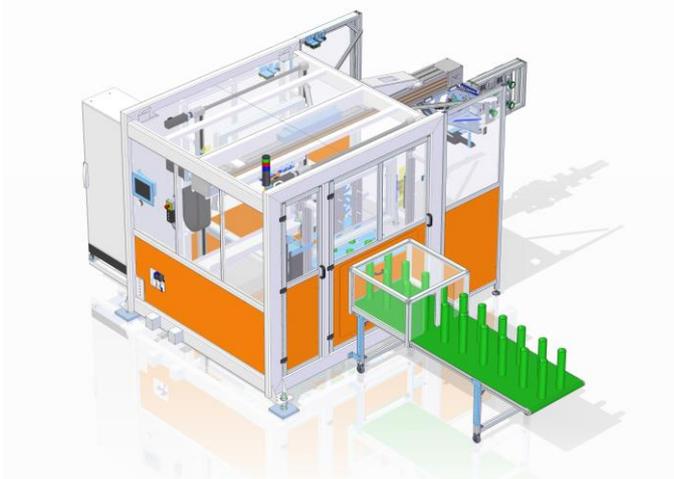
The goal of inject 4.0 is to achieve a smart factory: machines are networked with each other. Self-adapting, decentralised systems boost process capability and quality. (Image: ENGEL)



For the presentation in Mexico, ENGEL has combined two process technologies on an ENGEL duo machine: ENGEL foammelt and ENGEL variomelt. This results in very high quality surfaces and excellent reproduction of fine structures. (Images: ENGEL)



ENGEL has designed its all-electric ENGEL e-motion injection moulding machine for high-performance operation throughout. (Image: ENGEL)



The new BECK-FLEX system von ENGEL's partner Beck Automation provides great flexibility for in-mould labelling. (Image: Beck Automation)

ENGEL AUSTRIA GmbH

ENGEL is one of the global leaders in the manufacture of plastics processing machines. Today, the ENGEL Group offers a full range of technology modules for plastics processing as a single source supplier: injection moulding machines for thermoplastics and elastomers, and automation, with the assurance that individual components are also competitive and successful in world markets. With nine production plants in Europe, North America and Asia (China and Korea), and subsidiaries and representatives in more than 85 countries, ENGEL offers its customers the excellent global support they need to compete and succeed with new technologies and leading-edge production systems.

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