ENGEL at Chinaplas 2015

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With four innovative applications for the automotive, teletronics, medical and packaging industries, ENGEL will again be giving an impressive demonstration of its great industry and system solution expertise at Chinaplas 2015 from 20th to 23rd May in Guangzhou, China. On board: The entire ENGEL robot product range; underlining the fact that automation is becoming increasingly important in Asia. The new ENGEL e-pic pick-and-place robot is celebrating its first outing in Asia at Chinaplas 2015.

"Quality requirements in China are continuing to rise," as Gero Willmeroth, Sales and Service President at ENGEL Machinery (Shanghai) says in the run-up to Chinaplas. "The biggest challenge is reconciling increasing quality requirements with maximum efficiency and minimum unit cost." The key to this is tailored machine concepts, process integration and automation. In project business, in particular, it is important to not just be familiar with the requirements of the country markets, but also to understand the individual target industries. With its five business units, Automotive, Teletronics, Technical Moulding, Medical and Packaging, ENGEL is perfectly geared for this. Industry experts at ENGEL’s headquarters in Schwertberg, Austria, cooperate closely with the subsidiaries, bundling know-how from global projects and defining important research and development focuses with their experience.

ENGEL e-motion TL – making precision economical

The latest machine innovation, the all-electric and tie-bar-less ENGEL e-motion TL, was designed specifically for manufacturing small precision parts, and premium optical components in the electronics industry. The objective here is to combine the highest levels of precision and productivity with maximum energy efficiency and an extremely compact machine design. In this market segment, all-electric machines are the standard. To offer highly compact manufacturing cells here, ENGEL combines all-electric drive technology with a tie-bar-less clamping unit in its ENGEL e-motion TL small-size machine. The machine’s most important performance characteristics are an injection speed of 800 mm/s and acceleration of more than 40 m/s².
ENGEL will be using an ENGEL e-motion 50/30 TL injection moulding machine with 300 kN clamping force at its trade fair stand to produce mobile lens holders in a 4-cavity mould.

**Tie-bar-less ENGEL victory boosts productivity-to-floor-space ratio**

Tie-bar-less injection moulding machines allow for extremely compact production cells, facilitate mould changing and support efficient automation. In its medical exhibition area, ENGEL will be demonstrating how these benefits can also be achieved in production in other industries featuring a hydraulic ENGEL victory tech tie-bar-less machine.

As mould mounting platens on a tie-bar-less clamping unit can be used fully, right up to the edge of the platen, large and bulky moulds fit on relatively small machines. This means that in many cases a smaller machine can be used for the same mould size than compared to a machine with tie bars. The efficiency potential is particularly large in manufacturing complex components, the use of multi-cavity moulds as well as multi-component processes. What these applications have in common is that, although the moulds are large, the required clamping force is low, due to fairly small, projected part surfaces. All over the world, tie-bar-less injection moulding machines represent one of ENGEL’s biggest revenue sources. The tie-bar-less ENGEL victory is the top-selling ENGEL machine in China.

Other machines on exhibit at Chinaplas 2015 include an ENGEL duo 2550/600 large-size machine with an integrated ENGEL viper 20 linear robot in the Automotive exhibition area, and an all-electric ENGEL e-cap 440/100 injection moulding machine, which will be producing caps for drinks bottles with a 24-cavity mould at the stand of ENGEL partner HTW Formen- und Fertigungstechnik (Ludesch, Austria) in Hall 9.2 (B61).

**New ENGEL e-pic combines linear motion with a swivel arm**

Robots are increasingly becoming fixed components of any injection moulding machine in China. "The production of premium parts depends on reproducible cycle times, which can only be achieved through automation," says Gero Willmeroth, citing one of several factors that have caused the percentage of system solutions to continually grow in the order books of ENGEL Machinery (Shanghai). Another factor is that automation, as an integrated part of the process, supports new processes, component functions and product qualities, thus substantially improving the plastics processor’s competitiveness.
Chinaplas 2015 takes this trend into account with a special event. ENGEL is involved in the event with a second stand of its own in the "Robot Parade" in Hall 4.2, directly one floor above the ENGEL main stand. One highlight there is the new ENGEL e-pic small-size robot which will be presented for the first time in Asia. The objective in its product development was to be able to offer a powerful but economical solution for easy part removal, sprue separation and controlled depositing, grid depositing and stacking of small components. The totally new kinematics makes a decisive contribution towards achieving this by combining linear and swivelling movements. The swivel arm moves in the direction of the x-axis, which thus completely disappears or merges with the y-axis to form a single unit. This means that the ENGEL e-pic needs far less space than a linear robot in the direction of both the injection and clamping sides. It can be integrated within the injection moulding machine’s safety perimeter, thus keeping the entire production cell compact. Another efficiency factor is the use of weight-optimised parts which keep the accelerated masses low. In this way, the servomotor-driven robot can thus achieve the shortest possible part removal cycles, and it only has low energy requirements. In comparison with linear robots of the same size, the ENGEL e-pic only needs half the amount of energy or even less.

Equipped with its own control unit, the ENGEL e-pic robot is not exclusively designed for deployment on ENGEL injection moulding machines, but also for third-party machines without needing any machine-specific customisation. In combination with an ENGEL injection moulding machine, the robot can be integrated with the CC300 machine control unit. The robot and machine then access a shared database, thus enhancing process reliability and operator convenience, while achieving efficiency optimisations in production sequences. The control unit converts the rotary motion of the swivel arm into a linear movement. Users who are used to working with a linear robot do not need to learn new skills.

In addition to the ENGEL e-pic, an ENGEL viper linear robot and an ENGEL easix multi-axis robot will also be taking part in the Robot Parade. With its three robot designs, ENGEL offers an efficient solution for a wide variety of handling tasks. On top of this, ENGEL’s automation range includes peripheral components such as conveyor belts and tailored automation solutions.

To be able to develop tailored automation solutions in China, too, ENGEL has established a team of automation specialists locally in the past few years. "We will again be increasing staff levels at our Automation Center in Shanghai this year," says Willmeroth.
ENGEL has developed and built its own robots since 1980, and is the world's leading supplier of injection moulding process automation today.

**Best-in-class on-site service throughout the product lifecycle**

As technology advances, this has also led to increased demand for maintenance services in China. This explains why ENGEL is currently expanding both its local service network and training offerings. "We see a growing need for information and training in China, particularly in the area of processing technologies." says Gero Willmeroth. "It is important to us to support our customers in the best possible way throughout the entire service life of the injection moulding machine, robot and system solution. This is the added value that ENGEL offers its customers worldwide."

**ENGEL at Chinaplas 2015: Hall 4.1, Stand J41 and Halle 4.2, Stand K21 (Robot Parade)**

The all-electric and tie-bar-less ENGEL e-motion 30 TL will be put through its paces at Chinaplas 2015 with an application from the electronics industry. The machine will be producing mobile lens holders to exacting precision standards.
Thanks to barrier-free access to the mould mounting space, tie-bar-less injection moulding machines allow for extremely compact production cells, efficient automation, and easy mould changes.

ENGEL's automation range includes ENGEL viper linear robots and ENGEL easix multi-axis robots among other products. ENGEL will be presenting the entire spectrum at Chinaplas.

The ENGEL e-pic robot will be celebrating its premier in Asia at Chinaplas 2015. The totally new kinematics combines linear movements with a swivel arm, and thus needs very little space. The robot can be integrated within the safety perimeter of the injection moulding machine.

Pictures: ENGEL
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 the 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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