

## **ENGEL at Chinaplas 2023**

# **Maximise output – and still cut costs**

Schwertberg, Austria – March 2023

**As the demands on productivity and energy efficiency continue to rise, integrated system solutions to support cost-effective injection moulding are rapidly gaining in importance. At Chinaplas 2023, which takes place from 17 to 20 April in the Chinese city of Shenzhen, ENGEL, the injection moulding machine manufacturer and system solution provider, will set up challenging applications to demonstrate how combining the ideal machine with smart digitalisation can maximise overall efficiency. Also at the Chinaplas event, the new iQ hold control assistance system will be making its Asian première.**

“All of us are very much looking forward finally to re-establishing personal contact with our customers, partners and the sector as a whole in Asia,” says Gero Willmeroth, President Asia and Oceania at ENGEL in the run-up to Chinaplas. The event opens its doors in Shenzhen on 17 April following the Covid-enforced break. “Now that travel restrictions have eased, we are expecting more visitors from across Asia to attend the trade show. We are now in the post-Covid era and perceive a spirit of optimism that will also blow through Chinaplas.” ENGEL will welcome visits to its stand of the usual dimensions in hall 11, with four machine exhibits alongside Expert Corners devoted to trending themes.

### **Coining with high precision moulding**

The production of mirrors for head-up displays of polycarbonate using a servohydraulic duo 2460/500 injection moulding machine calls for the highest precision moulding. Projecting a sharp display image on the vehicle windscreen depends on a perfect injection moulding outcome. The coinmelt coining process and the ingenious design of the dual-platen clamping unit both contribute to this. Platen parallelism is controlled by four individual pressure pads

as the clamping force builds up. This ensures the precise parallelism of the mould halves throughout the injection moulding process when using coining. In this way, the coining process can produce asymmetrical components with maximum precision moulding. With low holding pressure, the melt is evenly distributed over the projected component surface. The material is protected, which is why coining is mainly used for optical parts made of transparent plastics. The convex head-up mirrors underline the high potential in this area. Here, the injection point is away from the centre of the component.

ENGEL will be presenting an automated production cell. An ENGEL viper robot will remove the parts from the mould and place them on the conveyor belt. Where ENGEL supplies the injection moulding machine and robot as part of an integrated system solution, these access a shared database and coordinate their movement sequences precisely. This results in a shorter cycle time in many cases because the robot can start moving in during the mould opening movement.

For this exhibit, ENGEL teamed up with a local mould producing partner: Skymold, based in Ningbo City, China. Working with local partners ensures a high degree of cost efficiency even in the case of sophisticated and innovative technologies while shortening delivery times for the system as a whole. The ENGEL duo machines are also produced locally for the Asian markets. The large-scale machine plant is located in Shanghai.

### **Compact and extremely energy efficient**

In Shenzhen, ENGEL will present two applications on all-electric ENGEL e-mac injection moulding machines to demonstrate how productivity gains can be achieved in a highly cost-effective manner. In both examples, the space and energy requirements of the production cell remain low as the mould cavities are scaled up.

An e-mac 465/180 with a 128-cavity mould will be used to produce the kind of connector seals needed in automotive electronics. The series mould, manufactured by Austrian firm Nexus Elastomer Systems, is used by the automotive supplier Waexim based in Xiamen, China. The special design of e-mac machines, which feature enlarged tie-bar spacing, makes it possible to install this large mould on the relatively small 1800 kN machine. Moreover, the new generation of e-mac machines are extremely short. This means that processing

firms benefit from space savings in their production facilities as well as additional energy savings resulting from the deployment of a relatively small machine. Regardless of the mould used, e-mac machines from ENGEL are among the most energy efficient all-electric machines on the market.

While liquid silicone rubber (LSR) continues to gain significance as a material for complex injection moulded parts, its specific properties mean that highly precise injection moulding machines are required. This is another point in which ENGEL's all-electric e-mac performs strongly. Complex functional components of liquid silicone rubber can only achieve competitive unit costs where production is rework-free and waste-free.

The second ENGEL e-mac in Shenzhen will showcase a medical application: in the medical sector too, there is a distinct trend towards raising productivity through higher cavity numbers. An e-mac 1340/280 injection moulding machine will be used to produce blood collection tubes of PET from a 64-cavity mould supplied by NCM of Suzhou, China. The machine footprint is a relevant cost factor, especially in clean rooms.

### **Ample flexibility for insertion processes**

The issue of surface area productivity will also set the tone for the teletronics exhibit on the ENGEL stand. Demanding parts will be produced on an insert 500V/100 rotary vertical machine. For this purpose, the insert machine will be fitted with a large rotary table and a compact integrated ENGEL easix articulated robot. The ENGEL vertical machine offers ample flexibility in connection with insert processes. A clamping unit that is freely accessible from three sides makes process automation simplicity itself while the low construction height is highly ergonomic in the case of manual insertion processes.

### **Determining ideal holding pressure times automatically**

To underline the strong potential of digitalisation in terms of enhanced product quality and production efficiency, the injection moulding machines on the ENGEL stand will operate with smart assistance. In similar fashion to the driving assistants used in cars, ENGEL's iQ systems serve to ensure stable injection moulding processes. Among other things, they auto-

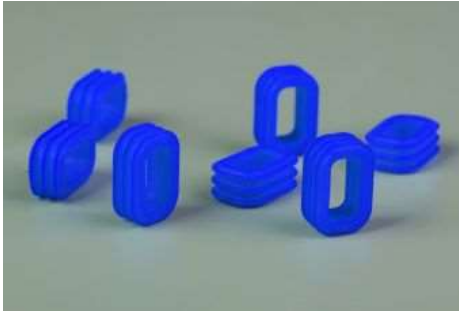
matically detect fluctuations in raw materials, ambient conditions and mould temperature control and compensate for such fluctuations in the same cycle; iQ systems can also determine the ideal set values for specific applications.

iQ hold control, which belongs to the group of smart assistants for nominal values, will be celebrating its Asian première at Chinaplas 2023. By automatically determining optimum holding pressure times, the smart assistant for nominal values accelerates mould setup times while enhancing component quality. The holding pressure time is determined objectively, meaning that even relatively inexperienced process technicians can adjust the process parameters at the push of a button in case of a product change. Further efficiency gains result where the automatically determined optimum holding pressure time is lower than the time set by the machine operator. In such cases, cycle times are reduced and the amount of energy needed also decreases.

### **ENGEL at Chinaplas 2023: Hall 11, stand J41**



At Chinaplas 2023, ENGEL will use a servohydraulic duo 2460/500 injection moulding machine to produce mirrors for head-up displays in a high-precision coining process.



The 128-cavity mould for the production of connector seals will be installed on a highly compact e-mac injection moulding machine with clamping force of 1800 kN.



The trend is moving towards moulds with higher cavity numbers. Blood collection tubes will be produced from a 64-cavity mould on an all-electric ENGEL e-mac injection moulding machine.



The ENGEL insert vertical machine offers ample flexibility for insertion processes.



The new iQ hold control assistance system determines optimum holding pressure times, thereby enhancing efficiency in both setup and production operations.

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 together with automation, with individual components also being competitive and successful in the market. 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.

### Contact for journalists:

Susanne Zinckgraf, Manager Public Relations, ENGEL AUSTRIA GmbH,  
Ludwig-Engel-Strasse 1, A-4311 Schwertberg, Austria  
PR Office: Theodor-Heuss-Strasse 85, D-67435 Neustadt, Germany,  
Tel.: +49 (0)6327 976 9902, fax: -03, email: [susanne.zinckgraf@engel.at](mailto:susanne.zinckgraf@engel.at)

### Contact for readers:

ENGEL AUSTRIA GmbH, Ludwig-Engel-Strasse 1, A-4311 Schwertberg, Austria,  
Tel.: +43 (0)50 6200, fax: -3009, e-mail: [sales@engel.at](mailto:sales@engel.at)

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