

## High-efficiency closure cap production at drinktec 2025: **ENGEL presents energy-saving e-cap production cell with innovative features**

*Schwertberg, July 2025*

When the international beverage and liquid food industry meets at drinktec in Munich from 15 to 19 September, ENGEL will showcase the automated production of closure caps. At the heart of the fully automated production cell is the all-electric e-cap 380 injection moulding machine with a clamping force of 3,800 kN. The application combines maximum energy efficiency with outstanding process consistency and demonstrates how ENGEL increases cost-effectiveness in closure cap production through perfectly coordinated complete systems.



*Image 1: **All-electric performance with maximum precision and outstanding energy efficiency:** the ENGEL e-cap was consistently developed to meet the requirements of closure production.*

The closures produced for United Caps comply with a widely used standard in the beverage industry. The notch of the tamper-evident band – also called the guarantee ring – is formed in the mould and then folded inwards on the underside in a subsequent step. When opened for the first time, the ring separates from the cap body, providing a clear indication of whether the product has already been opened.



*Image 2: **Reliably and efficiently produced slit-and-folded closures:** they combine functionality with cost-effectiveness for modern filling processes.*

Production takes place in a 48-cavity mould with a cycle time of four seconds. In the fully automated production cell, which is integrated into the ENGEL CC300 control unit, the 38 mm caps are conveyed via a cooling conveyor with waterfall sorting to the folding station, where the lower edge of the band is bent inwards – ensuring a secure fit on the bottle neck.

### **All-electric and efficient**

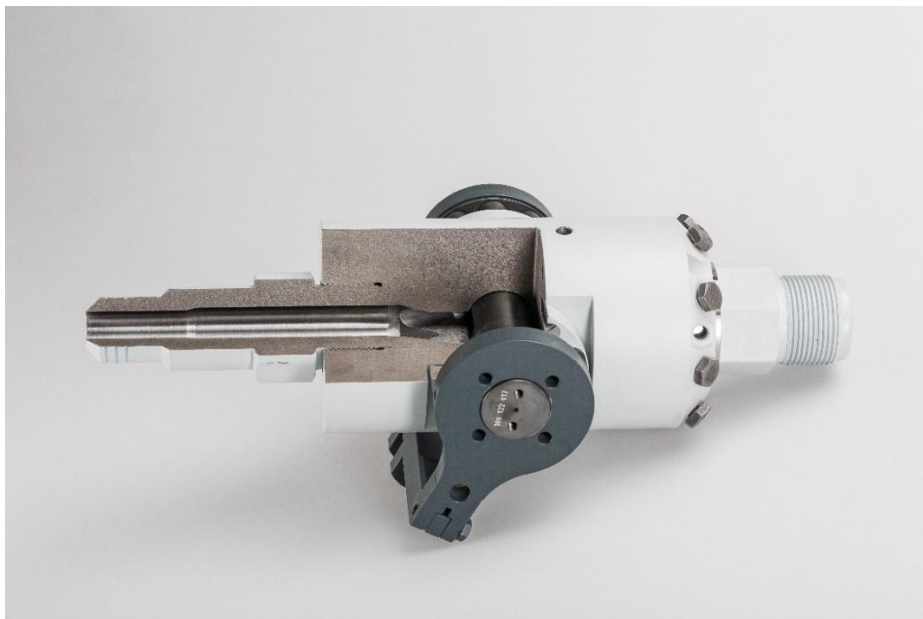
The e-cap machine series was specially designed for the production of beverage caps. It impresses with short cycle times, high reproducibility, and low energy consumption. The all-electric drive technology enables dynamic and precise motion sequences, while the rigid toggle lever ensures reliable force transmission. With various clamping force sizes and a compact design, e-cap machines are flexibly deployable and designed for continuous operation under the highest demands.

As standard, the e-cap is equipped with the ENGEL Packaging package, which significantly increases the machine's performance. This includes a HIGH clamping unit optimised for extremely short cycle times, a reinforced, elevated moving platen, high-performance machine feet for stable and smooth operation, and powerful high-performance injection units. The iQ motion control digital assistance system automatically optimises mould movements, thereby reducing cycle times.

### Robust plasticising for demanding processes

The exhibit already features the new 2465 injection unit in its premium version, which was specially designed for demanding high-performance applications in thin-wall injection moulding. It offers an almost 67% increase in injection speed. A dosing drive with a screw circumferential speed of up to 1 m/s is used. This is of particular interest in the packaging sector, as it enables cycle times to be reduced. Special emphasis was also placed on ease of maintenance. Easily accessible service modules and maintenance points minimise downtime in the event of servicing and increase overall equipment effectiveness (OEE).

In combination with the new rotary slide shut-off nozzle, the injection unit demonstrates exceptional performance for applications requiring precise control of highly viscous materials at high injection pressure and with short cycle times. Thanks to its robust and precise design, the nozzle is particularly suitable for products such as caps, where short switching times and high flow rates are essential.



*Image 3: **Robust, precise, and fast:** ENGEL's new rotary slide shut-off nozzle enables short switching times at high flow rates – ideal for demanding applications such as cap production.*

### Digital support for process consistency

The iQ weight control digital assistance system analyses the injection process in real time and automatically adjusts the switchover point and holding pressure within a few hundredths of a

second. This compensates for fluctuations in shot weight without manual intervention. The result: consistently high part quality and minimal scrap – even with tight tolerance specifications.

Additional process reliability is provided by a dry air hood over the mould and clamping unit. It prevents the formation of condensation by continuously supplying dry air – a clear advantage in air-conditioned production environments.

### **Consistent cooling, less scrap with the new ENGEL e-flomo one**

In this production cell, ENGEL is presenting the new e-flomo one cooling water distribution system for the first time, developed specifically for applications with high cooling water demand. The new control system regulates flow rate and temperature difference directly at the main connection of the mould cooling and is fully integrated into the machine control unit. This allows cooling processes to be not only precisely adjusted but also continuously monitored. e-flomo one makes a significant contribution to reducing scrap by ensuring stable cooling conditions. It enables targeted optimisation of the cooling water volume, automatically compensates for seasonal temperature fluctuations and thus reduces water consumption. In combination with the eco-flomo XL, individual circuit monitoring is also possible – ensuring maximum process reliability with minimal operator effort.

### **Decades of experience in closure production**

ENGEL is one of the world's leading manufacturers of injection moulding machines for closure production. With a broad machine portfolio, extensive automation expertise and many years of industry experience, ENGEL delivers customised solutions for both standard closures and demanding special applications such as slit-and-folded caps.

**Visit us at drinktec: Hall C6 / Stand 140**

Images: ENGEL

**ENGEL AUSTRIA GmbH**

ENGEL is one of the world's leading manufacturers of plastics processing machinery. 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, but also individual components which are competitive and successful in the market. With ten production plants in Europe, North America and Asia (China and Korea) as well as subsidiaries and representatives in more than 85 countries, ENGEL offers its customers worldwide the optimum support which they need to compete and succeed with new technologies and leading-edge production systems.

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