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PRESS RELEASE

The experience of 35 years of mold making at the highest stage and a profound understanding for the pharmaceutical market creates a basis for the trust of our clients to Braunform GmbH. Therefore started the development project TELC in close cooperation with the company Gerresheimer Bünde GmbH. The abbreviation TELC stands for „Tamper Evident Luer Lock Closure“, a tamper-evident closure system for prefillable syringes. The innovative closure is injected within a two-component injection molding process and sets just as high standards for the design and material selection as for the mold making and clean room production conditions.

A technical innovation of the series mold is the nozzle side, low particle unscrewing of the Luerlock adapter as well as low-particle shearing off of the sprue after the injection process. Very skinny, freestanding cores go into action due to the filigree contour for the originality tabs, which display the first-time opening of the closure. There's also implemented a special needle seal hot runner system for the cap, which is operated by an inclined ramp. Other technical challenges are the cap's thick walls, which must be openable with a defined torque as well as the clean contour separation of the two components.

The 16+16 cavity 2-component injection mold with rotary table was preceded by a close-to-production pilot mold for risk minimizing. The special material combination of the pharmaceutical primary packaging results in a large temperature gradient in the mold: At one extreme the Luerlock adapter is formed from a high-temperature-resistant and tough polycarbonate (PC) at a mold temperature of about 100°C, at the other extreme the cap with originality tabs from a thermoplastic elastomer (TPE) at 40°C.

Besides the temperature difference and the high pressure, the challenge lies in processing in the hard/soft combination, which does not chemically bond to itself and furthermore is

sterilizable. To avoid burning and black spots in the PC components, the manufacturer's instructions must be strictly followed.

Due to the critical material selection, the TELC is injected in an own production cell under Class 5 clean room conditions according to ISO 14644-1 and each cavity is intercepted individually by a patented handling system. Afterwards the customer-specific rubber seals are inserted in the assembly process.

Image overview:



The closure system for prefillable syringes – TELC.
(© Gerresheimer Bünde GmbH)



Every cavity is individually intercepted by a Braunform patented handling.
(© Braunform GmbH)

Founded in 1977, the Braunform Group is considered to be one of the most innovative service providers of tool and die manufacturing in the plastics processing industry today. The company is distinguished by its profound understanding of technology and customer requirements, its high sense of awareness for quality, and the courage it has for continuous change.

The enterprise stands for Full Service Engineering in tool and die manufacturing, with a technical center and clean-room production facilities. The fully air-conditioned mold designer and constructor belongs to the worldwide leading companies in this area. Braunform is characterised as an ideal partner for new product ideas with thermoplastics, TPE, silicon and ceramics, by its high technological competencies in the sector of multi-component technology and MED-molds®.

The company is specialized in the manufacturing of **multi-component molds, multi-component tools, high precision molds, molds for the medical industry (MED-molds®), stack molds, as well as fast rotary tables (up to 1,400 mm diameter).**

As an acknowledged systems supplier, Braunform offers **integrated, custom-designed systems solutions with long life cycles in tool and die technology:** from the first steps in development up to sophisticated manufacturing.

There are machines available for injection molding in the **clean room, in accordance with ISO 7 and 8**, with clamping forces ranging from 650 to 2,000 kN with **Laminar Flow Facilities**, as well as automated assembly and stamping systems. In the **Technical Center**, customers may use injection molding machines with clamping forces ranging from 250 to 2,750 kN, available with both 2 component (with **silicon injection**) and 3 component applications for pre-series manufacturing.

The industries Braunform services include:

- **Personal Care**
- **Pharmaceutical + Medical**
- **Consumer Goods**
- **Automobile**
- **Electronics**
- **Sealing and Packaging**
- **Sanitary and Health.**

High quality requirements, manufacturing methods and an organisation with its **own patent team** illustrate the company's future-oriented and dynamic way of thinking which all serve to **improve the profitability of customers.**

The high demands in quality, the level of experience and the references of Braunform all stand for process-assured and cost effective solutions, the performance of which is proven in daily manufacturing and all of which are oriented to reduce price per part. The main focus is always on **process assurance, shorter cycle times, increasing output quantities and all at the highest of quality – Made in Germany.**

Braunform is a long-term oriented, family-owned company with actually over 300 employees. This is illustrated through a high reinvestment quotient and in a trainee percentage of 15% of the regular workforce.

Braunform – Innovation. Quality. Reliability.