CATHARINA DAUM

How to Create… Punching Tools

How is a punching tool actually made? The journey starts in the punching tool factory in Gerlingen, Germany.

Nowadays, orders can be placed from anywhere in the world, and are compiled automatically from stocks in numerous warehouses. Online ordering is standard procedure these days. The customer doesn't care whether the books, electronic goods or clothes they order are sent from one warehouse or several different ones. It's much the same for TRUMPF: when customers order spare parts or consumables for their machines, the most important thing is that they are delivered on time. It's irrelevant where they come from or who delivers them – what counts is that the truck turns up at the factory on schedule. But before the driver gets there, he has to pick up the consignment, and that demands a well-organized logistics process – in keeping with the principles of Industry 4.0.

From order placement to packing

The punching tools start their journey in the punching tool factory in Gerlingen, Germany (48° 48' N, 9°4' E). By clicking on the order button, the customer gives the go-ahead for end-to-end, automated processing of this specific order. In the first step, the order is passed from the E-Shop to specially programmed I4.0 software. The software prioritizes the incoming orders, fully autonomously, generates the machining programs, and forwards them to the first machine in the production process. Here the correct die blank and punch are selected for the tools the customer ordered.

Since 2015, every blank is labeled with what is called a data matrix code. This code, which is non-specific to start with, is linked to the order when processing begins and filled with the customer's data. Each blank is thus uniquely identifiable through its data matrix code, and the information it contains ensures real-time transparency during production – and minimizes errors.

The use of data matrix codes helps standardize processes. This important aspect of Industry 4.0 saves time, money and capacity that can be put to better use elsewhere. For the employees in Gerlingen, this new method of working makes their days calmer, more organized, and easier to plan – stress and hurry are things of the past.

Through measures like this, the punching tool factory has already achieved several of the goals of digitalization: sharing

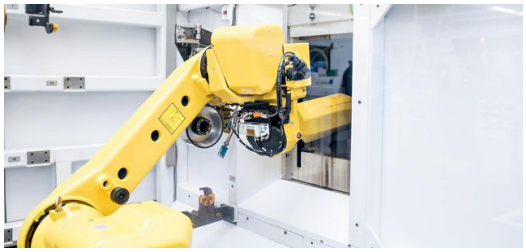
information, avoiding errors, making processes standardized and efficient. This has made the site profitable and fit for the future. But there is still a need for people, because there are some things that machines cannot do. Creativity is one of them – for example when designing special-purpose tools. Nor can they replace the human element: customer management.

“The customers start the machines themselves when they order – it couldn’t be more direct or digital.”

The 85 employees in Gerlingen handle orders for a total of 800 to 1000 individual items each day. These include the punching tools ordered by Haimerl, which are now ready to move on to the laser labeling station. The data matrix code is scanned automatically to read out the necessary information. This means that, in the future, this entire step can be automated using a flexible robot cell.

The labeling helps with the final step, namely order picking and dispatch. Here too, most of the tasks are carried out by automated functions. The person in charge of packaging is notified as soon as an order is complete, i.e. all ordered items are ready for dispatch. Thanks to smart digital networking, orders for standard tools placed before 2 p.m. can be dispatched the same day. An on-time delivery rate of 98 percent confirms the reliability of this process. Once the freight forwarder’s truck has collected the consignment of punching tools, it is delivered directly to the customer.

Order placement: Online ordering is standard procedure these days. Picture: Claus Morgenstern

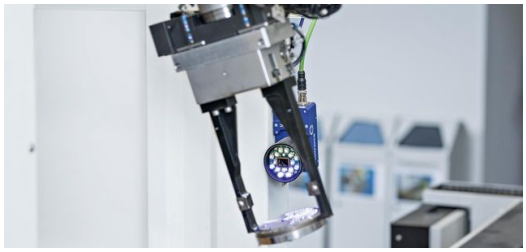


Start of production: The punching tools start their journey in the punching tool factory in Gerlingen, Germany. Picture: Claus Morgenstern

Since 2015, every blank is labeled with what is called a data matrix code. Picture: Claus Morgenstern

Customization: Each blank is uniquely identifiable through its data matrix code. Picture: Claus Morgenstern

The use of data matrix codes helps standardize processes. Picture: Claus Morgenstern



Laser labeling: The labeling helps with the final step, namely order picking and dispatch. Picture: Claus Morgenstern

Packing: The person in charge of packaging is notified as soon as an order is complete. Picture: Claus Morgenstern

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