

CATHARINA DAUM

"In Chicago, we demonstrate the future of sheet metal processing."

Heinz-Jürgen Prokop took over responsibility for the TRUMPF Machine Tools division on July 1, 2017. In this interview, he reveals the objectives for sheet-metal processing that TRUMPF is pursuing at its new Smart Factory in Chicago.

At this year's Blechexpo, TRUMPF has placed the spotlight on Industry 4.0 and the digitalization of sheet-metal processing. Mr. Prokop, what does Industry 4.0 mean?

"Industry 4.0 means interconnecting value-creation processes to enable more productive and flexible manufacturing. It also means the guarantee of stable processes at all times. To achieve all this, there is a need for new, digital solutions. Many current solutions focus on the production process per se, i.e. activities that directly involve the machines. Here at TRUMPF, we also consider indirect processes, which include the preparation of quotations, accompanying documents and dispatch handling. These are precisely the areas where connected digital solutions offer the greatest leverage in terms of designing more efficient processes."

Why is Industry 4.0 a topic of interest for the sheet-metal processing sector?

"Companies in this sector, like those in other manufacturing industries, are often faced with increasingly tailored demands from customers. In the past, large production batches were the norm. But they are increasingly becoming an exception. At the same time, customers are demanding faster response times and better quality.
Customers want to be able to order parts anywhere and anytime, as well as check the status of their order and the expected delivery date – the same as everyday online shopping. This raises challenges that companies cannot meet without the help of digital solutions."

TRUMPF groups its Industry 4.0 solutions together under the name TruConnect. What does this name represent?

"We use TruConnect to designate our range of products for smart factories. This portfolio comprises hardware, software and services.
Hardware products include our automation solutions and our machines, for example. The latter can be equipped with

compatible interfaces that allow information to be exported and subsequently used to control production processes.
TRUMPF has many software offerings. We supply customers with all-in-one solutions for controlling every production process while ensuring end-to-end transparency – one example is TruTops Fab. But our portfolio also includes apps that grant remote access to production information. In addition, we offer various assistance systems for machine operations. These sensor-based systems ensure that processes run smoothly, even in automated mode. For instance, they can detect broken punches in punching machines, or verify that metal sheets have been aligned properly for processing. Another aspect of growing importance is parts traceability. In addition to Dot Matrix Codes used by laser machines, we also offer solutions for punching machines and punch laser machines based on LabelMaster and ink marking tools, which turn parts into information carriers."

And what about services?

"The TruConnect portfolio contains a remarkable range of consulting services to help customers design their own connected-manufacturing solutions.
We also offer digital solutions for other types of service. Just one example, which we will unveil at Blechexpo, is Easy Order: a cluster of different procedures for ordering wear parts. The press of a button is literally all it takes. Users can install a button on their machine that represents a specific wear part. When somebody presses this button, an order is placed for the part. Easy Order is also available as an app that allows users to order many wear parts in just a few clicks."

TRUMPF will be presenting TruConnect as a live showcase at the trade show. Visitors can follow the entire process, from the iPad input of an order for a customized metal box to completion and shipping of the order – not only in real life but also as a digital simulation, including idle and buffer times. In addition to this Industry 4.0 production line, visitors to the booth will find a whole lot of information about the Smart Factory in Chicago. What is there to see at TRUMPF in the Windy City?

"Our customers in Chicago can witness a connected fleet of machines capable of processing orders automatically. The heart of the Smart Factory is a series of interconnected machines, many of which are linked to a STOPA high-bay warehouse. The entire production process is controlled by digital solutions that also always ensure transparency, e.g. with respect to order status or stocks of materials. In short, our Chicago facility provides customers with a live demonstration of the advantages of digitally connected manufacturing solutions, not to mention the future of sheet-metal processing."



Chicago was consciously chosen as the location for the Smart Factory of TRUMPF. The directly adjacent states contain around 40 percent of the country's entire sheet metal working industry. (Foto: Steve Hall © Hall+Merrick)



In a production hall measuring 55 meters in length, there is a connected sheet metal production with a central storage system as the centerpiece, which supplies the machine tools with material. (Foto: Steve Hall © Hall+Merrick)



The "Control Center" - a command center with large display areas – makes various process parameters available to visitors in real time. (Foto: Steve Hall © Hall+Merrick)

What makes Chicago different from traditional demonstration centers?

"Traditional demonstration centers predominantly feature standalone machines. In Chicago, the emphasis lies on automating the flow of parts and information through an entire manufacturing plant."

Who is responsible for order scheduling in Chicago, and how is it done?

"Customers can schedule orders directly on site. Alternatively, they can use the online AXOOM store to place orders – from anywhere in the world."

How is the production process controlled?

"The process begins when a quotation is formulated automatically based on a drawing and an order placed in the AXOOM online store. This information is then automatically forwarded to the software system, which then reserves the necessary production capacity.
The parts themselves can also direct the production process, for example by means of Dot Matrix Codes. The information assigned to each part in this way is carried through the process chain, and can be used, for example, to select the machining program for the next stage in the process."

Which tools provide transparency?

"The first is certainly TruTops Fab, which enables operators to keep track of order processing and production status. TruTops Fab also ensures accurate stock keeping of materials in the high-bay warehouse. And we are testing additional products in Chicago. One of them is a sensor-based solution we can use to locate parts at every stage of their journey through the factory. We are also trying out solutions for managing material flows. In addition to the connected manufacturing environment, there are also some standalone machines in Chicago. To ensure the automated flow of materials to these machines, we are testing STOPA VARIOCARTS, which move autonomously between machines without guide rails or trailing cables."

What new solutions are being applied to support maintenance and services?

"The laser machines are equipped with a Condition Guide function that continuously provides information on the condition of components that might affect the cutting quality of a machine's laser. We are also testing smart glasses in Chicago, which save time and money during service tasks. Images projected onto the lenses simplify the field technician's work, as both hands are free to complete repairs."



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