**Digitalization and automation CAD/CAM with Tebis** **for efficiency and flexibility in production machining**

Exact digital twins of manufacturing resources | Knowledge libraries with rules for automated processes | Relief for skilled workers

# Number of characters and images:

Approx. 4,300 characters

4 images

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**Manufacture more parts faster**

## Martinsried, July 5, 2023– Digitalization and automation are the way to improve efficiency and flexibility in machining. From September 18 to 23, the Tebis team will be presenting solutions for production machining at the EMO at Booth A28 in Hall 9. A live demonstration of the process will use parts, which will also be presented on the machines at Tebis's cooperation partners´ booths.

Trends like the skilled labor shortage, disruptions in supply chains and rising costs for materials and energy are also affecting manufacturing companies involved in machining. The industry is therefore searching for ways to improve efficiency and flexibility in order to manufacture more parts faster. The result is that more machines need to be operated by fewer employees. This solution is reinforced by increasing automation with pallet changers or handling systems. Machining centers have to be capable of unattended operation in order for employees to be able to manage these tasks. This means that the machine needs an NC program that covers all the necessary operations, from the setup of a blank and provision of the required tools to removal of the part. This NC program has to be complete and error-free.

Achieving this goal requires digitalization and automation before the machine: i.e., before machining. If all the tasks are prepared in advance in the virtual world using precise digital twins, there won´t be any surprises during machining. For example, if the programmer has a precise digital model of the planned setup situation and the machine and works with digital twins of the machining tools, including precise geometric data and cutting data tested in practice, the result is an NC program that already fulfills most of the above requirements. A subsequent complete simulation in the CAD/CAM environment provides the final safety element for all traverse movements and limit switches. This is also ensured by output via a postprocessor that´s been certified by the CAD/CAM provider. This delivers complete NC programs with sequences for turning, milling, drilling and even measurement integrated in the process.

**Fast NC programming with automated rules in a knowledge base**

Modern automated machining centers have a high part throughput and therefore require a large volume of NC programs. This means that the NC programming process needs to be automated. This is achieved by compiling the company´s manufacturing knowledge, saving it and making it available in the form of automated rules in a knowledge base. These rules, enable the process from data input, data preparation and preparation of the setup situation, to the finished NC program to be reduced to a small number of steps for the user for entire classes of parts.

**Services for efficient and flexible processes**

A reliable service for establishing and implementing the software, digital twins and knowledge bases is crucial to ensure that manufacturing employees aren´t distracted by having to create and maintain the corresponding processes.

Machining companies in production machining that have established these processes in their manufacturing with digitalization and automation are benefiting from high throughput and high adaptability. This gives them the efficiency and flexibility they need.

This process will be clearly demonstrated in a live presentation at the Tebis AG booth (Hall 9, Booth A28) at the EMO from September 18 to 23, 2023. A wide range of parts will be used in the demonstrations, which will also be presented live at Tebis's cooperation partners´ booths.

**Images**

**Image:1**



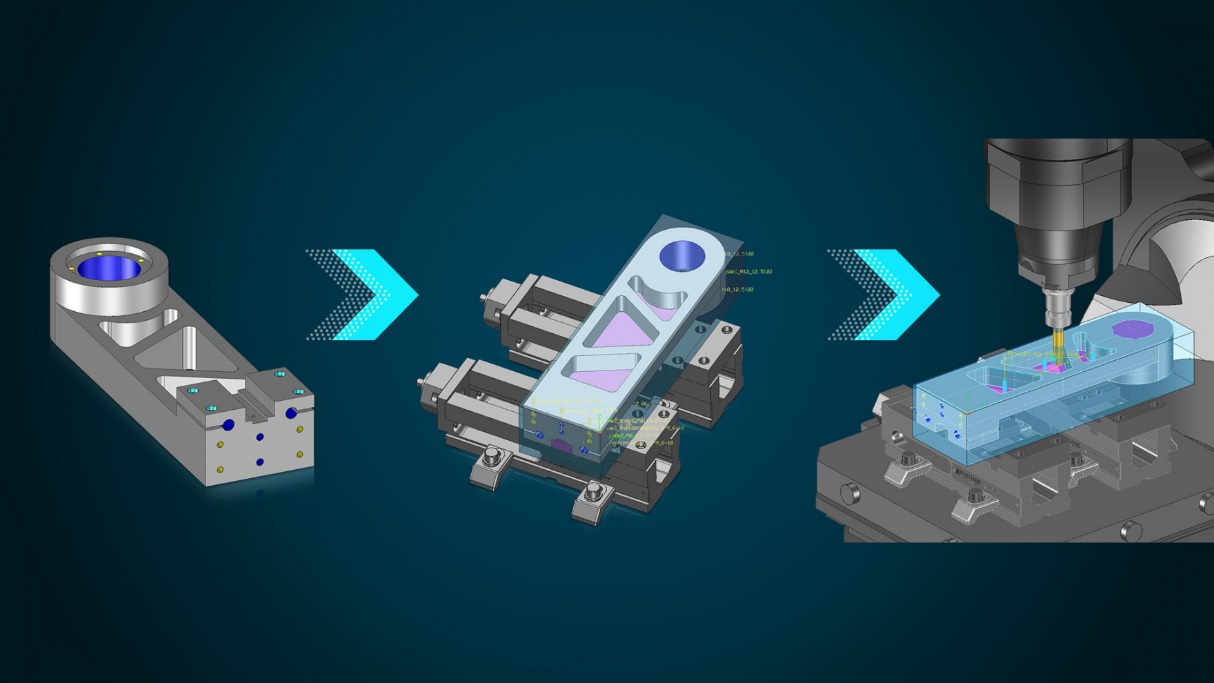
Due to increasing automation, with plate changers or handling systems, fewer employees have to operate more machines. (Image: Tebis AG)

**Image 2**:



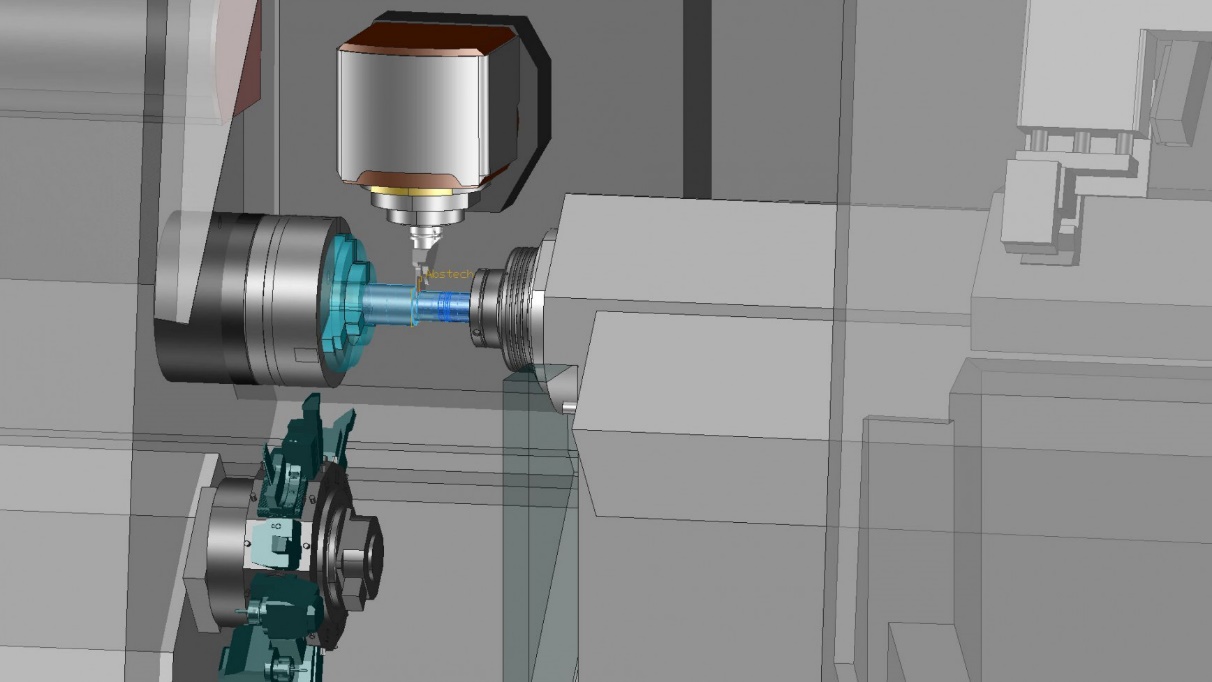
Exact digital twins of all manufacturing resources (tools, clamping devices, machines, etc.) in the CAD/CAM system result in complete and error-free NC programs. (Image: Tebis AG)

**Image 3:**



With knowledge libraries that provide manufacturing knowledge as an automated rule, the process from data input to work preparation to the finished NC program can be reduced to a few actions. (Image: Tebis AG)

**Image 4:**



A CAD/CAM process with digitization and automation helps to program complex machine tools with multiple spindles, tool carriers or units in a relaxed manner: here, parting off the workpiece and transferring it to the second spindle. (Image: Tebis AG)

**About Tebis**

Tebis is a global market and technology leader in the CAD/CAM and MES sector. With Tebis, companies design, plan and manufacture models, molds and components efficiently, reliably and in the highest quality. Consulting and implementation specialists from Tebis develop strategies for efficient and reliable CAD/CAM- and MES processes and implement these at customer facilities, ensuring a viable technology and competitive advantage.

Tebis software has an intuitive user interface that ensures a high level of quality and reliability in manufacturing, even for highly complex parts. Thanks to the Tebis service offerings, customers can easily introduce new technologies and fully harness the power of Tebis process solutions.

Tebis is headquartered in Martinsried/Planegg, Germany, and has nine subsidiary offices around the world as well as distributors in eight additional countries. 350 employees worldwide support the customers, most of whom are from the automotive, aerospace and mechanical engineering sectors.

For over 30 years, automation has been a key factor in Tebis' formula for success. Tebis views itself as an innovator for its customers in terms of Industry 4.0.

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