

Industrial machinery and heavy equipment

Burkhardt+Weber

Completely integrated development process – from design to shop floor tools

Products

NX, Teamcenter

Business initiatives

New product development
Value chain synchronization
Production efficiency

Business challenges

Worldwide cost pressures
Increasing demand for products
Customer pressure for faster delivery

Keys to success

Integrated platform for digital product development
Teamcenter as central repository for product and production data
Interface between PDM and ERP
NC programming with machine simulation
DNC at the machine tools

NX and Teamcenter provide a seamless process that shortens cycle times while fostering innovation

Specialists in large machining centers

Burkhardt+Weber Fertigungssysteme GmbH, part of Indústrias Romi S.A., has been developing and manufacturing machine tools since 1888. As early as 1958 the company developed its first numerical

control (NC) machine tool using a radio wave controller from the USA. Today, Burkhardt+Weber focuses on large machining centers and special-purpose machines that perform customer-specific tasks with high precision. Its machines can be found in manufacturing applications, including marine, commercial vehicles, tractors, electric motors, gearboxes and last but not least, within the machine tool industry itself.



An example of the large machining centers made by Burkhardt+Weber.

Results

Enhanced innovation

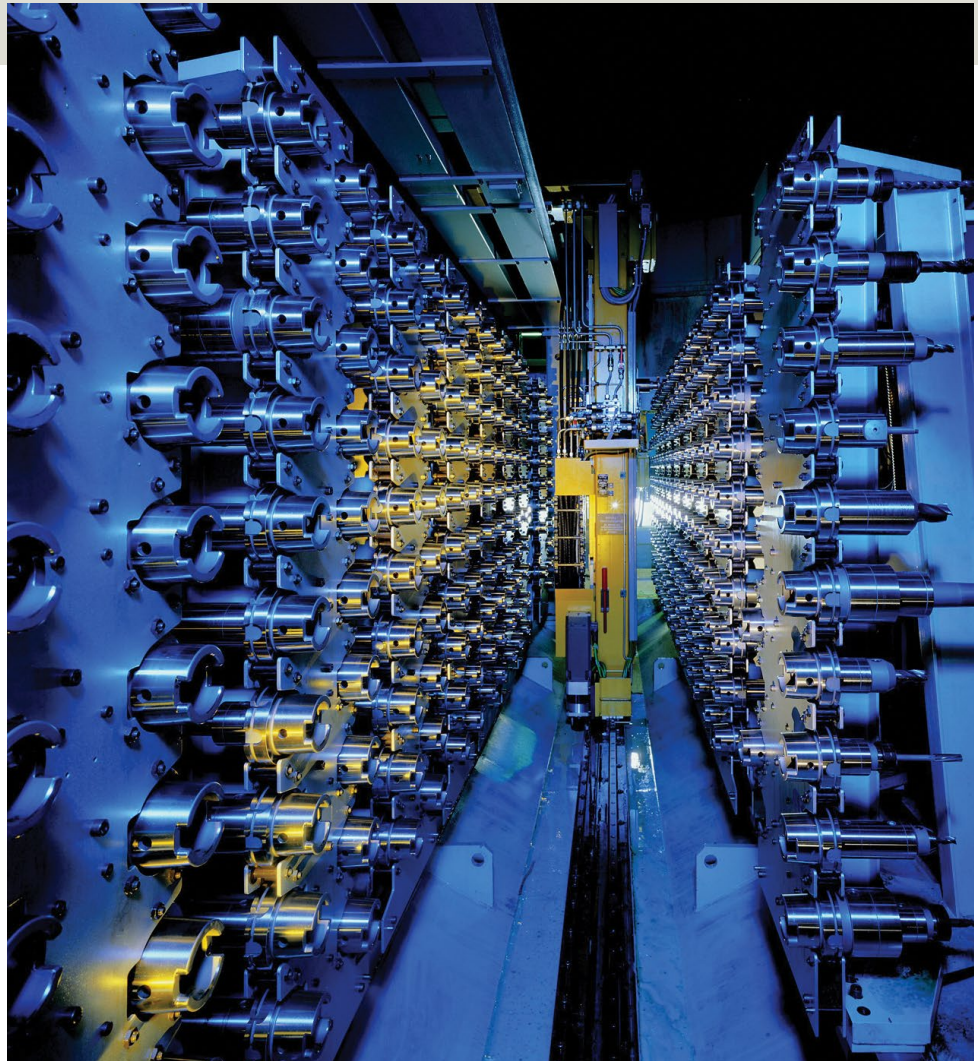
Reduced rework times

Shorter cycle times in engineering, design and manufacturing

Increased demand met without adding staff

Technical core competencies are accessible to others

Next year Burkhardt+Weber will further improve the DNC operation of its machines, which are equipped with the Siemens 840 D control, through a direct integration of the control with Teamcenter.

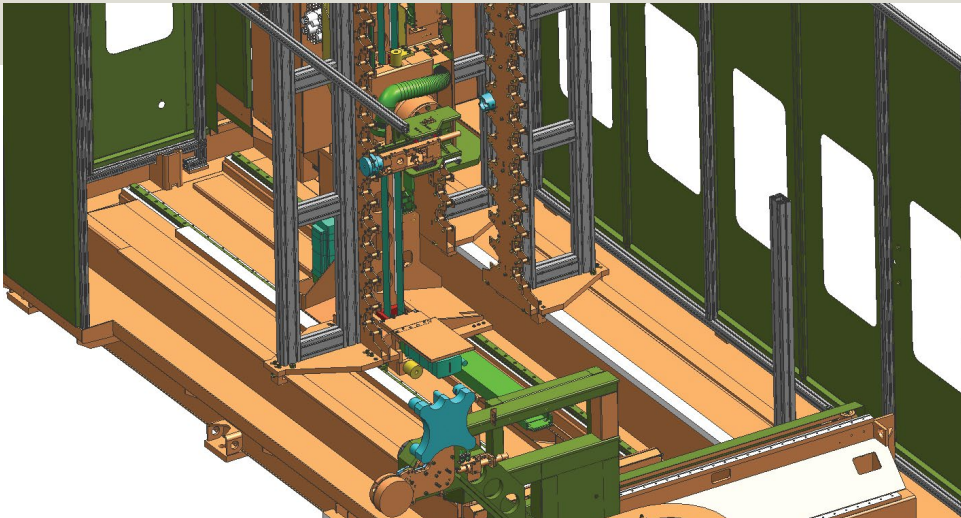


Fully equipped magazine.

Burkhardt+Weber is the market leader in this segment in Europe. To maintain its position and succeed in spite of worldwide cost pressures, the 220-person company must: 1) capture the technological knowledge of its experts and make it available to new staff; 2) work virtually as much as possible, including the use of digital mock-ups in virtual shop floor spaces; 3) use standardized modules for the configuration of variants and 4) achieve the highest precision and reliability in its in-house production of main components in order to balance speed, weight and size on every project.

From 2D CAD to PLM

Given these challenges, Burkhardt+Weber compared its existing, drawing-oriented design process with a Product Lifecycle Management (PLM) solution based on 3D CAD. The company's management wanted to establish a continuous process that led from modeling to the ERP system, SAP R/3. They also wanted a system that could manage standard and purchased parts, which make up approximately 80 percent of a machine tool. It was noted that the manufacturing department should be able to receive 3D models as a basis for programming, with the developed programs made available to the controls via direct numerical control (DNC).



“Product lifecycle management reduces cycle times in development and production, increases in-house efficiency and fosters innovation. PLM helps us gain a better position in the global marketplace.”

Andreas Mittermüller
CEO
Burkhardt+Weber

This revolutionary tool magazine was completely designed in 3D.

“Such a project would not work with five different software providers,” says Peter Schuller, CAD administrator, who was responsible for the selection and implementation of the PLM system. The company chose instead an all-in-one solution from Siemens PLM Software. Siemens was able to offer the broadest solution platform as well as strong support from its partners BCT, Tesis PLM Software and A+B Solutions.

A five-member team implemented 22 workstations of Siemens’ NX™ digital product development system and two NX CAM programming seats, along with Siemens’ Teamcenter® digital lifecycle management solution in order to serve as the central product data management source for product engineering and

design. Teamcenter was configured with PLMeasy templates, roles and processes, which are tailored for the component manufacturer’s manner of operation.

Innovation from the start

The first project done in 3D clearly indicated the advantages the new technology could deliver, particularly in the area of innovation. The company designed an automatic magazine for 570 tools that delivers a new level of flexibility in the largest size range. Now tools can weigh up to 75 kilograms (165 pounds) and can have a length of up to 1,000 millimeters (3.2 feet), such as boring bars for cylinder heads. The high execution speeds of up to 200 meters/minute (656 feet/minute) can be reduced to guarantee perfect process security. Loading and unloading via a

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Solutions/Services

NX

www.siemens.com/nx

Teamcenter with PLMeasy

www.siemens.com/teamcenter

BCT's 3D-Pool

A+B Solutions' FIT4TC

TESIS PLM Software's T4S

Siemens 840 D

Customer's primary business

Burkhardt+Weber

Fertigungssysteme GmbH

develops and manufactures machining centers and special-purpose machines for large parts.

www.burkhardt-weber.de

Customer location

Reutlingen

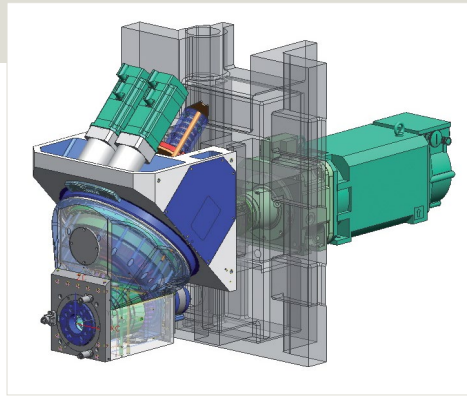
Germany

"An essential effect of the PLM implementation is higher process stability. All components fit perfectly during assembly and rework is significantly reduced."

Peter Schuller

CAD Administrator and Project Manager

Burkhardt+Weber



3D simulation of a freely programmable swivel head indicates it is collision-free.

turning station and automatic process surveillance make this a world-class innovation. This and other new products, such as automatic length measurement, and tool cone cleaning that includes flushing and brushing during the machining process, allow Burkhardt+Weber to offer a new level of unattended machining.

During design, the 3D approach proves its worth, allowing the creation of assemblies containing manufactured components, purchased standard parts, commercial bar profiles and welded subassemblies. Drawing generation, the change management process and bill of material creation now run smoothly. A Tesis-built interface from Teamcenter to SAP/R3 makes sure that after drawing information is released it is automatically available company-wide in TIFF format. During the release process, BCT's 3D-Pool program writes standard parts data to SAP. "In the past, valuable time was lost in these areas," says Schuller. "By automating these processes in Teamcenter, we gain time for genuine development tasks."

Integrated in-house production

All core parts of Burkhardt+Weber's machines, particularly the big, complex

components, are produced in-house using its own machining centers. With Teamcenter, models can be used as a basis for NC programs, even when the assembly is not yet released. Associative links ensure that the data will be permanently updated.

NX CAM's ability to simulate machining sequences is an important step in the new development process. "Through the simulation of each operation in every setting, we make sure that the subsequent machining runs smoothly," Schuller notes. The direct integration of all NC programs, tools and setup sheets, drawings and JT™ visualizations is made possible by FIT4TC, the factory integration tool for Teamcenter from A+B Solutions. This tool is responsible for the DNC transmission of actual and target data, NC programs and machine-optimized programs to Teamcenter. The program is in direct contact with the controls of the machining centers and a Zoller tool-initializing device.

Integration of Siemens 840 D

Burkhardt+Weber plans to further improve the DNC operation of its machines, which are equipped with the Siemens 840 D control, through a direct integration of the control with Teamcenter. That will make it possible not only to transfer NC programs to and from Teamcenter at the DNC terminal, but also to collect remaining tool lifetime information in the machining centers. Every required cutting tool for new work pieces will be quickly identified by its ID numbers and its remaining running lifetime. This will allow the tool magazine for the next manufacturing task to be prepared including tool lifetime and necessary new tools.

Siemens PLM Software

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www.siemens.com/plm

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