

Industrial machinery and heavy equipment

Hauhinco

Water hydraulics specialist implements seamless product development process down to machine level

Products

NX, Teamcenter

Business challenges

Overhaul outdated product development system and migrate legacy data to the new one

Maximize the gains from new DMG machining centers

Reduce run-in times and accelerate project realization

Keys to success

Integrated CAD/CAM using NX for product development with Teamcenter as the manufacturing data and manufacturing backbone

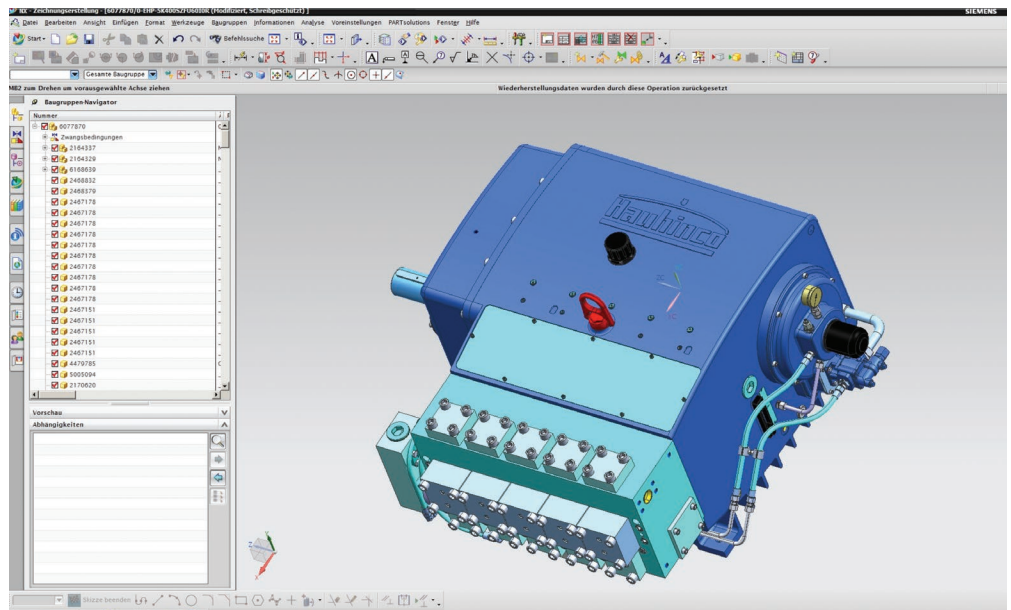
Closed-loop process chain between engineering and production for up-to-date data access

Customized training in parametric modeling

Results

A seamless product development process down to the machine level

Faster CAM programming



Using the parametric capabilities of NX, products and assemblies are customized more efficiently. (Image: Hauhinco)

Customized projects now take less time to deliver

Water hydraulics experts

No other technology is as effective as water-based hydraulics when it comes to boosting power. Unlike oil hydraulics, water-based systems immediately transmit force because water is virtually incompressible. As a hydraulic medium, water is also more environmentally friendly and cost-effective than other liquids, and

ubiquitous, too. "The only downside is that water – due to its corrosive properties – requires higher-quality materials that have to be machined with much finer tolerances," explains Dr.-Ing. Stephan Wittkop, project controller at Hauhinco Maschinenfabrik.

Founded in 1908 as a mining supplier, Hauhinco is a recognized expert in water hydraulic systems. High-pressure water hydraulic systems are used today in mining as well as in various other industrial

Water hydraulic systems are used in industrial facilities, such as this one that controls a 50,000-ton press in Alcoa's aluminum plant. (Images: Hauhinco)



Results (continued)
through the use of templates
Reduced run-in times when using new NC programs
Reliable NC processing thanks to integrated simulation and verification
Faster delivery of customized hydraulic systems

facilities, such as high-pressure hydraulic presses. Mining is still Hauhinco's mainstay, generating two-thirds of its revenue in exports, but business in other industries is growing at a faster rate. Where Hauhinco excels is in its development of customized solutions for its customers.

Overhauling the PLM landscape

As Hauhinco took on more and more projects, the company's outdated information technology (IT) infrastructure became an obstacle to overcome. 3D computer-aided design (CAD) models could not be used directly in computer-aided manufacturing (CAM) programming, and numerical control (NC) programs could not be simulated, leading to extended dry-run times.

Once Hauhinco replaced the old enterprise resource planning (ERP) system with a new ERP solution, the next step was to modernize product lifecycle management (PLM). Considering all the requirements, only one of the three major PLM providers could fulfill their needs. "We didn't want a fragmented software landscape that would require a complex integration, but a seamless solution from a partner with a solid future," says Wittkop.

Hauhinco decided on a solution from Siemens PLM Software using NX™ software as the CAD/CAM system, Manufacturing Resource Library (MRL) as the tool library solution and Teamcenter® software as the central data backbone.

“Such a seamlessly integrated process chain is rarely ever seen, even among mid-sized companies in Germany that place so much value on seamless processes.”

Dr. Jens Standke
Project Manager
Siemens PLM Software



Hauhinco supplies mining companies across the globe with high-pressure pump and water spray stations. (Images: Hauhinco/Wendenburg)

No other supplier could offer the same level of end-to-end coverage right down to the machine level. Siemens PLM Software's partner A+B Solutions took care of the integration of the systems into the production chain using the ShopFloorConnect® asset utilization software add-on, which gives users direct access to all relevant production data saved in Teamcenter, such as NC programs, tool lists, production documentation and 3D models.

Solution includes tool presetting

The process chain goes much further than just the machine. It also includes a new presetting device from Zoller. When an NC program is sent to a specific machine, the Shop Floor Integrate – Resource Management software from Siemens PLM Software compares the tool list of the NC program with the machine's tool magazine and creates a tool difference list, which is then sent directly to the presetting device. On the return path, the actual data of the gauged tools is relayed to the machine controller so that the NC tool paths can be adjusted to the real tool geometry. "Such a seamlessly integrated process chain is rarely ever seen, even among mid-sized companies in Germany that place so much value on seamless processes," remarks Dr. Jens Standke, project manager for Siemens PLM Software.

The integrated CAD/CAM solution, NX, is the core of the process chain. Both the CTX 1250, a linear turning and milling center with a turning length of up to 1,300 mm, and the new DMC 55 from DMG Mori, were coupled to the CAM module with postprocessors to create the NC code in a way the workers were used to. Although the CAM environment was completely new territory to the programmers, they hit the ground running and never looked back. They are most impressed by how they can now create reusable templates for recurring sequences of operations on similar parts.

One major advantage of NX CAM is its ability not only to visualize the tool paths, but also to emulate the SINUMERIK 840D controller and simulate the machine's behavior based on the postprocessed NC code. To do this, Siemens PLM Software has implemented the kinematics into the DMG machine models and integrated them in NX CAM. Through these new and powerful simulation capabilities, Hauhinco hopes to significantly improve the reliability of its NC programming while also reducing lead times. Says Wittkop, "We want to be able to create new programs independent of the actual production order and to deliver them to the machine without long lead times."

"We're already almost just as fast with the new system as we were with the old one, even though we don't yet benefit from the full potential of the new parametric system. We've only just begun to standardize certain assemblies."

Alexander Seboldt
Design Engineer
Hauhinco

“We didn’t want a fragmented software landscape that would require a complex integration, but a seamless solution from a partner with a solid future.”

Dr.-Ing. Stephan Wittkop
Project Controller
Hauhinco

An integrated CAD/CAM system with advanced simulation functionality helps maximize the capabilities of the new DMG machining centers (Images: Wendenburg)



“We want to be able to create new programs independently of the actual production order and to deliver it on the machine without long run-in times.”

Dr.-Ing. Stephan Wittkop
Project Controller
Hauhinco

Savings potential at planning stage

All NC programs, including archives, have been successfully stored in Teamcenter – a feat that is actually more impressive than it might sound since the disk of the old system had crashed shortly after beginning the project. In cooperation with its partner, Siemens PLM Software was able to recover most of the NC data and, thanks to the open system landscape, import 27,000 drawings and 3D models of more than 7,000 parts and more than 2,000

assemblies from the old CAD system into Teamcenter.

Once the data migration was complete, NX was rolled out in the mechanical design department. “We’re already almost just as fast with the new system as we were with the old one,” says Alexander Seboldt, a key user of NX. Seboldt points out that his team is looking to exploit the full potential of the new parametric system.

Solutions/Services

NX CAD

NX CAM

www.siemens.com/nx

Manufacturing Resource Library

Teamcenter

www.siemens.com/teamcenter

Shop Floor Integrate –
Resource Management

ShopFloorConnect – DNC

SINUMERIK 840D

Customer's primary business

Hauhinco Maschinenfabrik develops and manufactures water hydraulic systems for the mining industry and other industrial facilities.

www.hauhinco.de

Customer location

Sprockhövel

Germany

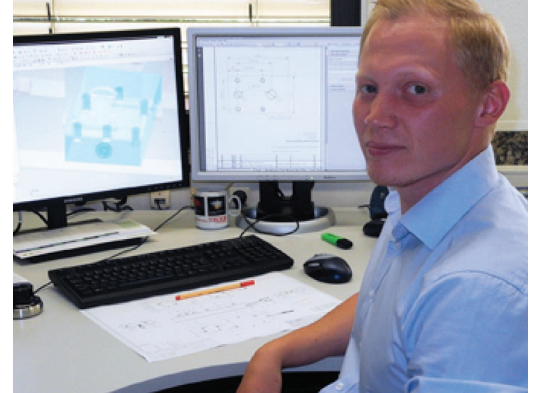
Partner

A+B Solutions

Solutions/Services

www.apusb-solutions.com

Hauhinco expects considerable time savings with the use of the routing module of NX. The digital design of control schematics will not only greatly facilitate project planning, but will also create a synergistic effect since the data can be readily accessed and used during other stages of product development, accelerating the entire process. To realize the module's full potential, the attributes from the ERP classification need to be imported into the PLM solution. Hauhinco's next project will be to implement a bidirectional PLM-ERP interface.



*A Hauhinco design engineer uses the parametric modeling functionality of NX to standardize and accelerate the creation of assemblies.
(Image: Wendenburg)*

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