Productive SolidCAM

SolidCAM+SolidWorks increase efficiency in Woodmanufacturing

Norwegian company Grodås Mønsterteknologi succeeds with an innovative manufacturing solution

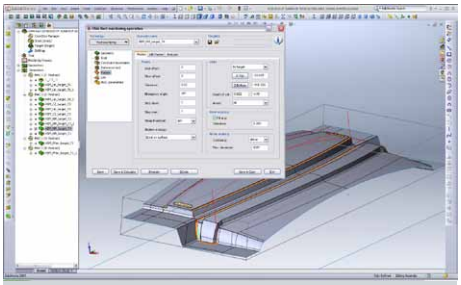
Grodås Mønsterteknologi, the specialists in woodmanufacturing, have been founded by Oddvin and Anne-Lise Haugen in the year 1983 in Hornindal, Norway. Hornindal is located at the east end of the Hornindalsvatn (Hornindal Water), the deepest lake (514 m) in Europe, and is part of the wonderful Nordfjord area. The company started in the basement of the Haugen family with the production of carved dining room furniture in birch wood. Two years later, Grodås built its first factory at the outer aera of Hornindal and simultaneously invested in new woodmanufacturing equipment. At this point, the company also became a subcontractor for the Norwegian furniture industry, with production of chairs and woodwork for sofa side walls.

5-axis machining center Bacci in action

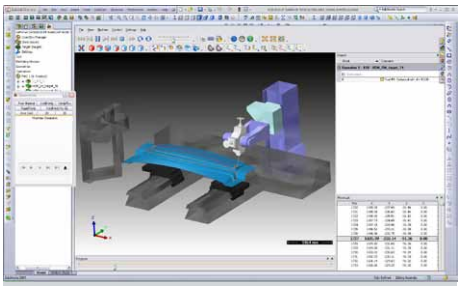
Although the success of the company is mainly based on experience and handicraft skills, the new business opportunities induced Grodås to invest heavily in automation tools for their production. In the year 2000, the company invested in new, intelligent woodworking machines and in CAD/CAM software. The machines were supplied by the Italian manufacturer Paolino Bacci, and for the CAD software, the company decided for the 3D design system SolidWorks. Håvard Haugen, the son of the founder and the current Manager of the company: “SolidWorks is easy-to-use, has superior 3D design capabilities and comes with more than 14 CAD interfaces, that enable us to import the geometrical data from the variety of our customers.”

At that time, Grodås also decided to install a CAM system, that is well-known in the furniture industry. This software is not integrated in SolidWorks, but can import most 3D file formats to generate toolpaths from 2,5-axis to 5-axis Milling. With increased competence and experience in the automation of the furniture production, the company began also to explore other manufacturing opportunities and industries. They ranged from wooden stocks for biathlon rifles to complex molds for plastics injection or polyurethane foaming. As a consequence, Grodås had to design more sophisticated 3D models in SolidWorks. Here, the company realized an important bottleneck of its CAD/CAM process - the missing seamless integration between CAD and CAM. The SolidWorks files had to be exported to the CAM system in order to generate the toolpaths, a time-consuming and error-prone process. Also, when the customers change the design model, the toolpaths had to be generated again, as there was no associatity between 3D model and CNC toolpath. In addition, the functionality of the CAM system was limited, so that creative solutions for milling were often time-consuming to program.

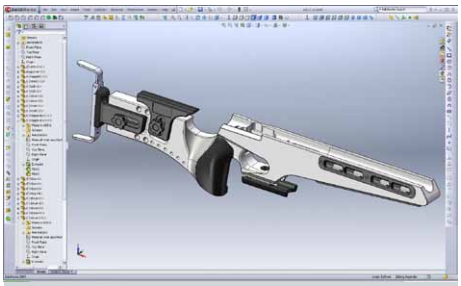
Therefore Grodås defined a new concept for the design and manufacturing of complex molds and fixtures. It was imperative that due to the complexity of the machined parts, the reduction of the CAM programming time was very important for the future success. Therefore Grodås looked for a new CAM solution, that is seamlessly integrated in SolidWorks, and finally decided to test SolidCAM. With the single-window integration of SolidCAM in SolidWorks, all machining operations are defined, calculated and verified without leaving the SolidWorks environment. All 2D and 3D geometries used for machining are fully associative to the SolidWorks design model. In a single CAM-part, several SolidWorks configurations can be used to represent different manufacturing steps of the workpiece. When the geometry used to define a machining operation is changed in the SolidWorks design, SolidCAM enables the user to automatically synchronize all machining operations



CAM Programming of the Twin table Bacci machine with SolidCAM



Simulation of the Twin table Bacci machine with SolidCAM



3D CAD model of a Biathlon rifle stock

Finished Biathlon rifle

with the updated geometry. The full associativity to the SolidWorks design model reduces errors when the model changes and facilitates the process where updates are received for models already machined.

After downloading a SolidCAM demo version and reading the SolidCAM tutorial, Håvard Haugen already started to generate his first CNC programs. Due to SolidCAM's easy, descriptive and intuitive user interface, he could, to his great surprise, generate the G-Code for previously difficult jobs without any knowledge other then experience with the old CAM software. He also found out, that many of the toolpath strategies he missed in the old CAM system are already implemented in SolidCAM. After Grodås tested SolidCAM over a weekend, the company contacted ProNor, the SolidWorks and SolidCAM reseller in Norway, and purchased the SolidCAM software.

With the support of SolidCAM Scandinavia, the post processors for the 5-axis simultaneous Bacci machines have then been developed and tested onsite. Håvard Haugen states: "The SolidCAM support specialists came over to our marvelous Hornindal lake to finish the post processors and provide us with initial training. Meanwhile, we have used the combined solution SolidWorks+SolidCAM in production for more than a year and we see the benefits all the time. The integration with SolidWorks meant that our learning curve for the new CAM was very short. Within one or two weeks we were up and running, and doing very complex parts. The associativity between SolidWorks and SolidCAM is pretty significant in terms of increasing the speed of production. When you have to make a change to a design, you don't have to reprogram the CAM."

Grodås is meanwhile using SolidCAM for the CAM Programming of three 5-axis Bacci machines in twin table setup as well as in gantry setup. Thus the workforce of three machine operators/CNC programmers and five production workers can now efficiently perform a whole range of different jobs. Some are for product development and prototyping, but most of the jobs are for the machining of surfaces in wood, MDF, plastics, polyurethane and epoxy. The company utilizes all the SolidCAM milling modules, including 3 axis and 4 axis, 5 axis indexial to 5 axis simultaneous machining. Most of the parts are now machined with strategies that have been missing in the former CAM system. Håvard Haugen summarizes. "We have found the combined solution SolidWorks+SolidCAM excellent for our use, and the transition to this combination has given us confidence that we are technologically at the tip of the spearhead. With SolidCAM and our new machinery equipment we are armed to the teeth for both ordinary and complex tasks in the future".

http://www.grodas.com

Håvard Haugen, Owner of Grodås: "Today we are heavily armed with both experience and high technology".

ProNor

ProNor AS, located close to Oslo airport, is one of Scandinavia´s largest resellers of integrated CAD/CAM systems. ProNor sells and supports the whole SolidWorks' software suite, including 3D modeling, FEM analysis and document management. Through a continuous process, ProNor has expanded the main product range to include SolidCAM for intuitive and efficient CNC programming. In Norway, ProNor serves more than 400 industrial customers and a lot of educational institutes.

www.pronor.com

SolidCAM

Founded in 1984 by its Managing Director Dr. Emil Somekh, SolidCAM provides manufacturing customers with a full powerful suite of CAM software modules for 2.5D Milling, 3D Milling, High-Speed Machining, Multi-sided Indexial 4/5 axes Milling, Simultaneous 5 axes Milling, Turning, Turn-Mill up to 5-axes and Wire-EDM. SolidCAM is the leader in integrated CAM and provides the highest level of CAD integration, with seamless, single-window integration and full associativity to the CAD model. The integration ensures the automatic update of tool paths for CAD revisions. SolidCAM has today more than 14,000 seats installed. The company has been on a very rapid growth path since it implemented its CAD integration strategy. SolidCAM is sold by a worldwide reseller network in 46 countries.

www.solidcam.com

SolidWorks Certified Gold Product

SolidWorks Certified CAM Product

SolidCAM The Leaders in Integrated CAM

© 2010 SolidCAM Ltd.. All rights reserved.
All brand and trade names are property of their respective owners.