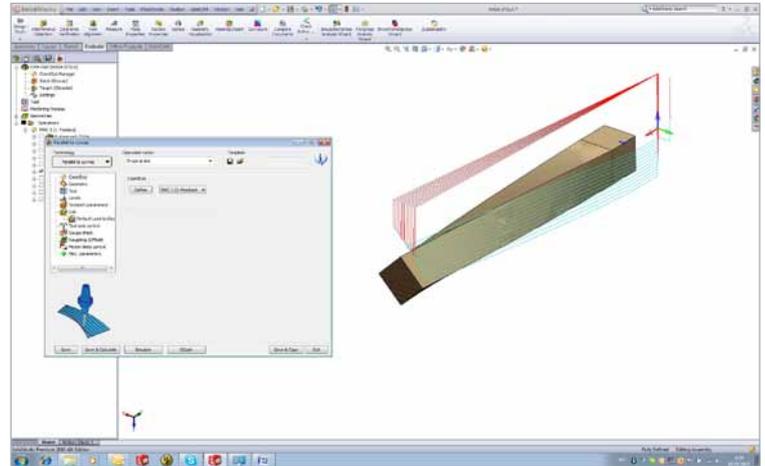


Productive SolidCAM

Building the future with SolidCAM and SolidWorks

The ARTECO Wood Technology Center d.o.o., www.arteco.ba, has been established in January 2009 in Tešanj, a small town in the north of Bosnia and Herzegovina. This country, on the Balkan Peninsula in South-East Europe, suffered heavily from the war in the 1990's. As a result, the Bosnian economy needed to be rebuilt and also reformed due its formerly centrally planned economy. As 46 % of the territory of Bosnia and Herzegovina is covered by forests, there exists in principle a good base for a timber and woodworking industry. However, due to the old-fashioned technology and the lack of qualified personnel of the wood manufacturing industry, the majority of the wood has been exported in the past as raw material.



ARTECO uses SolidCAM to generate the toolpaths for complex furniture parts, for example a Designer table

Fadil Čostović, owner of the company ARTISAN in Tešanj and an entrepreneur in wood manufacturing, developed the concept of a state-of-the-art wood manufacturing center, that can compete on the international market place. He teamed up with the "Excellence in Innovation" (EI) project in Bosnia and Herzegovina, funded by the Norwegian and the U.S. government. The aim of the EI project is to utilize modern technology to generate employment, foster entrepreneurial activity, build a more competitive workforce, attract more foreign investments and promote the expansion and competitiveness of small and medium enterprises (SMEs) in the country. Bottom line, with the financial support of the USAID (United States Agency for International Development) and the Norwegian Ministry of Foreign Affairs (NMFA), Fadil Čostović succeeded to establish ARTECO, the most modern Wood Products Technology Center in Bosnia and Herzegovina.

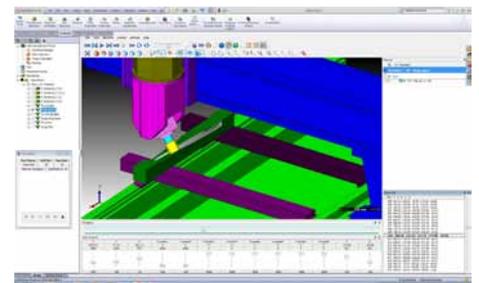
ARTECO invested in a CNC Woodworking center of the German Homag group, one of the worldwide leaders for wood manufacturing technology. The Woodworking center, model BOF211 VENTURE 16L, has full five-axis simultaneous machining capabilities and includes an automated vacuum dry kiln and a controller with Homag's CNC router "WoodWop". For the CAD/CAM software, the company made an intensive market research and finally decided for the combined solution

SolidWorks+SolidCAM. SolidWorks is a user friendly 3D CAD with powerful design capabilities, while SolidCAM is a CAM software that provides single-window integration and full associativity between the SolidWorks model and the CNC toolpath.

In SolidCAM all machining operations are defined, calculated and verified without leaving the SolidWorks environment. In a single CAM-part, several SolidWorks configurations can be used to represent different manufacturing steps of the workpiece. When the geometry is changed in the 3D model, SolidCAM enables the user to automatically synchronize all machining operations 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. SolidCAM provides also a dedicated post processor for the WoodWop software, for driving the 5-axis HOMAG CNC center. The fact that ARTECO's engineers and technicians help designers and architects to manufacture live prototypes and produce furniture parts of outstanding quality and precision, provides an excellent showcase for SolidWorks+SolidCAM.

ARTECO's 5-axis CNC processing center and the SolidWorks+SolidCAM solution are fully operational since autumn 2009. The company can

now offer design and manufacturing services for complex wooden parts, as it continues ongoing efforts to expand its competence and skills. With the new technology, ARTECO can also offer prototype development services that were lacking in the local wood manufac-



With SolidCAM's machine simulation, collisions between stock, tool and the HOMAG machine can be checked precisely



The furniture parts produced on the HOMAG machine are inspected by Arteco's quality assurance



The finished Designer table

turing industry in the past. Collaborating companies are encouraged to use ARTECO's state-of-the-art wood manufacturing automation capabilities.

ARTECO provides the following services along the process of wood manufacturing:

- After the first contact with the customer, the company develops 3D visualization of the desired product in SolidWorks.
- The customer can view the 3D visualized model with his specifications for mass, volume, specific density, as well as the material assigned to it.
- In close consultation with the customer, ARTECO identifies and removes all potential errors in design, shape, size, material, etc. When all parameters are approved by the customer, ARTECO finalizes the 3D product design.

About Strojotehnika

Strojotehnika d.o.o. is a private Croatian company located close to the capital city Zagreb. Strojotehnika is a Value Added Reseller for Solidworks and Solidcam software in the territory of Croatia and Bosnia & Herzegovina. In addition, Strojotehnika is selling CNC machines, cutting tools and measuring and clamping equipment. Its target is to provide provide a complete solution, from CAD/CAM system, machines, tools, equipment and service to the manufacturing industry in Croatia and Bosnia & Herzegovina. Today Strojotehnika is supporting about 500 customers in its territory.

www.strojotehnika.hr



- Using SolidWorks features, ARTECO quickly prepares the technical documentation necessary for the production process of even extremely complex models as well as the production and material cost of the product, which determine its final pricing.
- Using SolidCAM the operations needed to manufacture the 3D model are defined by the user. The G-code for machining the wooden part on the HOMAG CNC center is then automatically generated.

Apart from the easier and faster generation of the NC programs, one of the main benefits of SolidCAM is the ability to visualize the NC toolpaths on the screen and detect collisions much easier. SolidCAM offers powerful simulation features for high-quality tool paths and short machining times.

By using SolidCAM's machine simulation, ARTECO can observe the precise tool movement on the stock, while being warned of any possible collisions between tool and stock as well as between tool and machine parts. Consequently, the NC programs are reliable, speeding up the tryout process on the 5-axis CNC Woodworking center.

Kristijan Mihoci, Support Manager of SolidCAM's partner Strojotehnika, accompanied the implementation of the new technology from start to finish: „It has been very important to do first some test cuts at the HOMAG headquarters in Germany. Thus we could test the whole system „Machine/Tools/CAD-CAM software“ and in addition fine-tune the post-processor for HOMAG's WoodWop controller.“

Elvedin Mandžukić, Director of Arteco, summarizes: „The integration with SolidWorks meant that our learning curve for SolidCAM became very short. After one week training, our people were off and running, and already doing the first parts. This is not only due to the intuitive user interface of the combined solution SolidWorks+SolidCAM, but also to the excellent support of SolidCAM and its partner Strojotehnika. Already after some months in operation we can see the benefits of the new wood manufacturing technology. We are much faster and more precise in manufacturing complex wooden parts, and we can continuously increase our business and services with collaborating partners in our country.“

For more information about ARTECO visit the company website at www.arteco.ba



Elvedin Mandžukić, Director of Arteco (left), and Kristijan Mihoci, Support Manager of Strojotehnika (right), after the first SolidCAM test cut at the HOMAG headquarters in Germany.

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 14,500 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

