

CNC Technology in Guitar Manufacturing



To offer its customers customized guitars, the guitar manufacturer, Die Klangwerkstatt, relies on the CAM solution VisualMILL of MecSoft. In addition to customized guitars, replications and reproductions can be built of existing guitars and components.

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Modern technologies do not stop at long-established handcraft like instrument making. *Die Klangwerkstatt* is a long-established manufacturer from Linz in Austria that is specialized in repairing and maintenance of all sorts of guitars, also customized e-guitars. In the past, a major part of the work was done manually. "Of course it is possible to build an e-guitar purely manual, suited to individual needs", explains Clemens Wagner, founder and owner of *Die Klangwerkstatt*. "But to rebuild a broken guitar neck that should precisely look like the original one is very complicated", says Wagner.



In order to meet these requirements even more effectively in the future, Wagner searched for opportunities to produce or reproduce the guitar body and neck in consistently high quality.

The solution is to start creating 3D CAD models of the guitar body and/or neck. These CAD models are translated into CNC programs using CAM solutions and are finally realized by milling machines. The final finish is perfectly applied by hand.

Integration of Existing Equipment

The existing portal milling machine that was used for engraving work on guitars and production of plates so far should be integrated in the new process.

They selected the CAM solution VisualMILL of MecSoft, represented by CADSHOP GmbH in Vienna / Austria, a long-standing partner of Mecsoft-Europe GmbH in Germany.

The software is available in different configuration levels, from simple 2,5D milling to 5-axis simultaneous machining; it covers the whole range of services for modern CNC milling. Even for turning operations a solution named VisualTURN is available.



The software has various machining strategies for contour and free-form machining already integrated, so the solution covers all required needs of *Die Klangwerkstatt* with the implemented 3-axis-version.

Especially the 200 integrated post processors in the basic version for various common control systems should be mentioned, also a post processor generator for making any adjustments to the post processor.

The system is available as a stand-alone version to read various file formats as well as plug-ins for Rhino and SolidWorks files.

Fast to the Solution

"For us it was very important to get to a good milling result with relatively little effort", says Wagner about their essential requirement. "With VisualMILL and the integrated Mach3 post processor we have been able to start directly. The implementation time was very short, after a few test runs we milled our first body", explains the guitar specialist in more detail.

Well Presented

The overall concept with customized guitars was presented at the exhibition "MUSIC AUSTRIA 14. Int. Music Exhibition" from October 2 - 5, 2014 in Ried / Austria. At the community stand of the Austrian Federal Economic Chamber, components of customized guitars were shown and parts have been milled there live. The offer was highly appreciated by the visitors of the booth.

Wagner himself is a passionate guitarist and very happy about various firm inquiries for customized guitars.

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