

BUILDING CUSTOM GUITARS WITH CAMWORKS

BUILDING CUSTOM GUITARS COST EFFECTIVELY FROM SUSTAINABLE MATERIALS

Designing and building unique, custom guitars was the goal for Jonathan “Jay” Miller when he founded Born Custom Guitars. The Hygiene, Colorado based electric guitar company builds guitars to fit the preferences of each individual player. Miller’s passion for music and for building beautiful, eminently playable stringed instruments prompted him to leave a career in finance to establish the company in 2010.



Born Custom Guitars uses high-quality, sustainably-sourced wood for every guitar in a shop that automates the production of guitar bodies and necks. A guitarist himself, Miller strongly believes that playing a guitar tailored to an individual can make a tremendous difference in that musician’s playing ability, musical output, and development. His belief in designing and crafting a specialized guitar for each player—instead of one-model-fits-all guitars—and his desire to produce guitars in a sustainable, environmentally conscious manner were the inspirations that led him to found his guitar and accessories company. Miller began to research the best production solutions to allow for high levels of customization and quality.

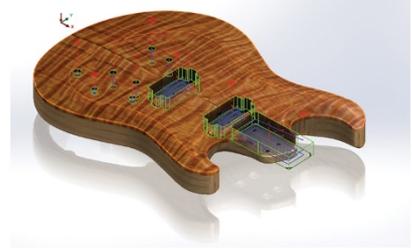
“Our primary focus is sustainability and quality.” says Miller, “Those two goals take priority over everything else, but we still need to be efficient and control costs to succeed as a business. That’s where CAMWorks milling software comes in. I really liked the idea of how SOLIDWORKS design software and CAMWorks machining software are integrated and work in unison,” Miller explained.

“CAMWorks Milling Professional software was easy to learn and is the best solution for running my machine—three-axis milling on a 4 × 8’ [1.22 × 2.44-m] CNC router table—to make flowing curves and modify the geometry on every guitar. I also value the knowledge-based machining database, which learns and replicates common tooling operations.”



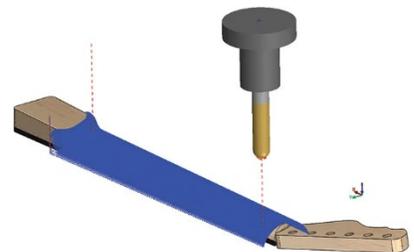
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With no engineering background, Miller worked with Buchli once a week and studied SOLIDWORKS and CAMWorks at night after work. “Within three months I was able to machine high-quality guitar parts, and I’ve continued to improve our process. Our operational feedback loop allows us to increase efficiencies and improve quality in real time,” Miller explained. “I’m always learning and refining, which is a fundamental part of my process. My abilities have improved incrementally since the beginning, and new CAMWorks machining methods have improved our toolpaths, reducing cut times and increasing tool life.”



Knowledge-based machining and automation technology in CAMWorks allows Born Custom Guitars to increase its production and accelerate the fulfillment of customer orders. “With the efficiencies that we’ve been able to realize using CAMWorks, the software has paid for itself many times over and is helping us recoup other capital costs as well,” Miller said. “CAMWorks is definitely among the leaders in CAM technology. I’m not just saying that because I was able to learn how to use the software to drive my business. I also see the value in their knowledge-based approach to machining. We currently have a database stretching back seven years that documents how we like to cut things. That’s a big deal, especially when we want to make a design change.”

“CAMWorks virtual toolpaths allow me to evaluate my machining files before they are used in the shop. With the level of automation we’ve realized with CAMWorks software, we are saving a bunch of time—a 90 percent reduction in labor time and an 80 percent reduction in time overall—and money, which allows me to focus on the design features that make each guitar unique, such as custom inlays, custom finishes, and customer-centric modifications.”



“In essence, CAMWorks and milling technology help me to be more artful because they automate the heavy labor of shaping and sanding bodies and necks, as well as the attention to detail required for completing those tasks by hand. This allows me to spend the extra time needed to add the artistic touches that make a guitar special, such as finishing the neck by hand for feel or finalizing our deluxe fretwork. Many of my customers say that their Born Guitar is the best instrument that they’ve ever owned. That means we’re doing our job, and CAMWorks is helping to make it possible.”