Success Story

Vermont Violins

Crafting harmony and quality with Solid Edge and CNC machining

Vermont Violins
The Burlington Violin Shop

Vermont Violins was established in 1994 when the husband-and-wife team of Oren Kronick and Kathy Reilly merged their passions as musicians and entrepreneurs to establish a violin shop in Central Vermont. Today, they are a vital part of the local and vibrant music community.

Instruments are Vermont Violins' one and only business; they focus on crafting, repairing and recommending the best products for their customers. The outstanding luthiers who staff the workshop bring extensive knowledge and professional training, both in building and repairing instruments and as performers and music teachers, to the business.

Vermont Violins created their V. Richelieu line of fractional violas to meet the needs of a unique and niche market. These violas are designed to give aspiring young musicians beautiful, performance-quality instruments in the right size for their small hands, without sacrificing sound, tone and projection. Fractional violas aren't simply modified violins; they are true violas, with a string length in proportion to that of a 16" viola.

Most viola students start playing at about age seven, though some start as young as three. Having the right instrument for their size and ability encourages them to practice and allows them to develop the correct technique from the beginning. Very often, because there are so few options for small-size quality violas, young students start by playing small violins, and their progress suffers for it.

Success at a Glance

- **Reduced production time by 66%**
- **Significant reduction in labor-intensive processes**
- **Smooth transition to digital solutions and CNC machining**

Challenge

Accelerando!

Vermont Violins contacted Maya HTT* to learn how technology might help them speed up their production of fractional violas. Making a viola is a highly manual process that begins with removing wood to create the instrument's basic form. A single viola may require up to 150 hours of labour to complete.

Vermont Violins wanted to make their processes less labor-intensive to be able to devote more resources to the handwork that goes into their quality instruments.

* This project was completed by LMGI, prior to being acquired by Maya HTT in October 2019.

Solution

Harmony of software & expertise

Vermont Violins was referred to Maya HTT by friends and colleagues who knew of Maya HTT's reputation for delivering better technology solutions, even for clients without a background in modeling, computer-aided design, and manufacturing. Maya HTT introduced Vermont Violins to the Siemens Solid Edge software and helped them select a CNC machine to more quickly perform the first step of removing wood.

Solid Edge and CNC machining made it possible for Vermont Violins to take their viola production to the next level. By leveraging a consistent, mathematical model the company freed up time for the team to focus on craftsmanship, quality and sound, instead of on manually removing wood.

Vermont Violins relied on Maya HTT's expertise and support to select and implement the the best technology for the job, and then train staff on how to use it.

Observation of Vermont Violins' production methods revealed a critical need for greater control over how the wood was cut. Maya HTT proposed Solid Edge and Solid Edge CAM Pro as the best solutions for ease-of-use and seamless integration.

Working with high-end wood requires advanced control. Programming the tool flow made it possible to protect the integrity of the wood, and by extension, the sound of each viola.

Results

Vermont Violins achieved a dramatic reduction in the time it took to produce one fractional viola – from 150 hours down to 50 hours. This valuable time-savings represents an incredible potential to boost productivity or reassign resources to high-value activities. For a company focused on handcrafted products in a traditionally low-tech industry, the leap into software and machining has been transformative. "We didn't know what we didn't know," stated Reilly. "As the violin world doesn't fit into the typical CNC world, it was a challenge. But with Maya HTT as our partner, we are ready to move to 5-axis machining and perhaps a larger CNC machine."

Leveraging 5-axis machining requires a comprehensive and scalable software solution. Solid Edge CAM Pro maximizes the value of complex CNC machine

tools; its highly flexible programming functions and automated elements are perfectly suited to the precision of 5-axis machining.

Bringing 5-axis technology into the violin shop made it possible to access the parts in many different directions without having to stop for multiple setups. For Vermont Violins, the result has been an increase in productivity and consistent quality.

In-concert Expertise: Installation, Training & Support

With the software and hardware solutions selected, Maya HTT accompanied Vermont Violins every step of the way through the transition process. From installation and customized on-site training, Maya HTT delivered the attentive and personalized on-going support Vermont Violins needed to smoothly adopt the new technology for their unique application.

At the 2019 Amercian Viola Society Festival, the V. Richelieu fractional viola had a chance to shine. Played on stage by an adult, it proved to have as beautiful a tone and sound as its bigger cousins. Vermont Violins' exhibit garnered much attention as students, parents and teachers alike stopped by to try the instruments for themselves.

> ***"We didn't know what we didn't know. Maya HTT helped us move into the world of digital manufacturing technology. We are now ready for 5-axis machining and perhaps a larger CNC machine."***
>
> Kathy Reilly
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> Co-owner, Vermont Violins

About Maya HTT

- Industry-leading software developer and provider of engineering services in computer aided engineering (CAE), computer aided design (CAD), computer aided manufacturing (CAM), product lifecycle management (PLM), and datacenter infrastructure management (DCIM)
- Extensive experience in design, analysis, systems integration and deployment
- Specializing in mechatronics, thermal, fluid and structural analysis, and composites
- Technological partner, software editor, and provider of Siemens CAE/CAD/CAM/PLM solutions for more than 30 years
- Worldwide customer technical specialist support

Solution Partner
Smart Expert
Digital Industries Software

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