Vericut

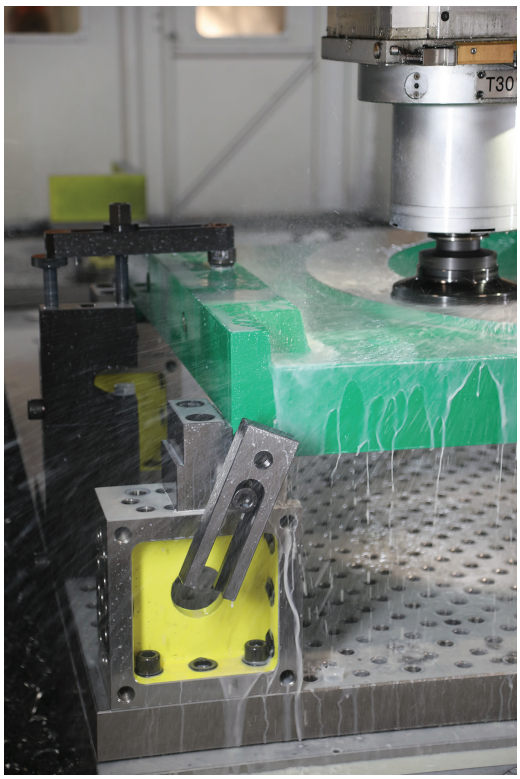
Bluco

Midwest modular tooling provider Bluco turns to VERICUT for increased productivity

User Story

Those who manufacture precision workholding systems have the same goals and challenges as the machinists who use them. Both groups of people strive to reduce setup times and optimise cutting cycles. Secure, consistent, and accurate gripping are paramount. An increasing number of them are moving to lightly attended and even lights-out manufacturing, so need a way to make machining both safe and predictable. And above all, they want to avoid crashing their machine tools.

Matt Grube is one of these. A programmer for Bluco Corporation, Naperville, Ill., he and the shop's machinists are responsible for all of the above and more at this 30-year old manufacturer of high-quality welding tables and positioners, modular fixturing, and other time-saving workholding systems and accessories. One of the tools they use to accomplish these goals? VERICUT toolpath simulation and optimisation software from Irvine, Calif.-based CGTech Inc.



Tables and more

"We make hundreds of standard components for our welding line of products as well as our machining line, and also some specialty tooling," Grube said. "Everything's modular, making it quite easy for shops to fixture most anything that comes their way, but there are scenarios where the part doesn't lend itself to standard tooling and a custom fixture is needed. In these cases, we'll design something that will attach to one of our systems but also hold the customer's part securely. It was partly the custom work that helped drive the expansion to our new facility."

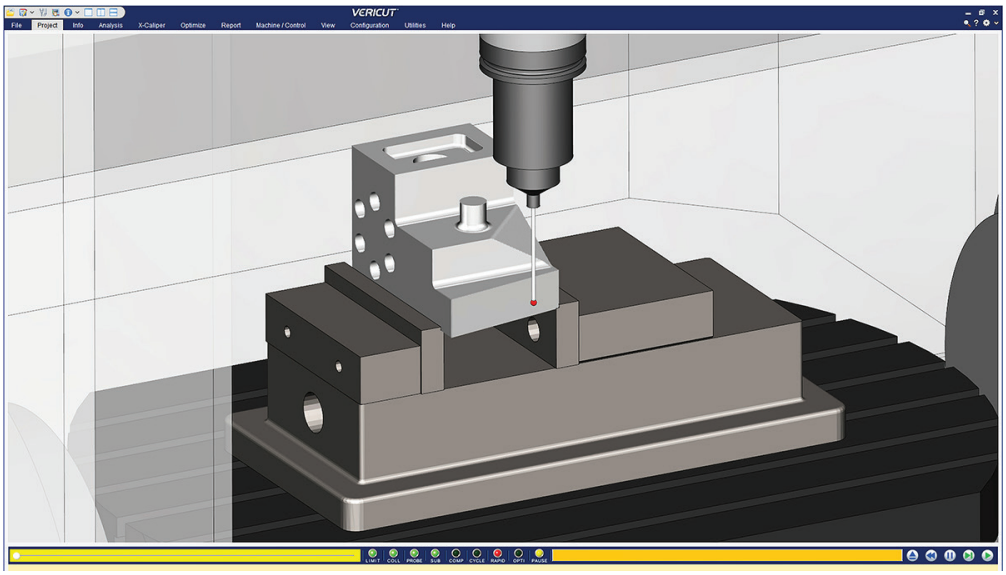
Grube's talking about Bluco's late 2017 move into a 120,000 sq. ft. corporate office, two-thirds of it devoted to manufacturing space. In it, you'll find an assortment of CNC machine tools, chief among them a massive double-column mill, a dual-spindle lathe, and the flagship of the production floor, a pallet-changing horizontal machining center.

As is so often the case, investment in a key piece of equipment spurs additional investment. Early in 2018, Bluco purchased Productivity+, a software extension for Mastercam users that simplifies and expands their ability to utilise Renishaw measuring probes on CNC machinery. With it, Grube can more easily verify part locations, measure features, update work offsets, and more, and do so without human

intervention. Not only does this streamline the setup procedure, but it also opens the door to lights-out manufacturing.

Probing for success

“There are several excellent reasons for machine probing,” he said. “It saves time during setups because you can use it automatically input workpiece offsets and orientation. But you can also check how much material is left after roughing and adjust the finishing program accordingly, or verify critical dimensions, or call up different tools or programs based on different criteria. And if something goes wrong, you can have it send an alert if operator intervention is needed. It’s still fairly new to us, but the goal is to load up a pallet full of material and come back to finished parts the next morning.”



Despite all these high-tech capabilities, more was needed to assure that Grube and the Bluco machining team could meet these goals. They also needed a way to verify that the G-code and probing routines generated by Mastercam and Productivity+ were accurate. For this, they turned to VERICUT. “We have an optional module that’s quite popular for anyone doing touch probing,” said VERICUT product manager Gene Granata. “It’s called CNC Machine Probing, and just like VERICUT simulation, it enables users to check the posted G-code for errors and verify that there won't be any collisions. But it also checks to make sure that the machine tool is going to respond as expected during probing routines.”

Granata agrees with Grube, in that machine probing is a great way for shops to shorten their setup times and support unattended machining. It's for these and other reasons that CNC Machine Probing helps to maximise their investment. Yet Granata pointed out one more use for the probing module—it allows programmers to troubleshoot their homemade macro routines, the special machine cycles that drive probes through the various functions described earlier.

“For anyone who needs to go beyond the capabilities of Productivity+ and write their own probing cycles, CNC Machine Probing lets them verify

that their code logic is sound," he said. "When probing for location on a block of material, for instance, they can move the part's digital twin out of the correct position in VERICUT and basically trick the macro, causing it to fail. It lets a programmer check all kinds of these scenarios in a virtual environment to make sure everything will work in the physical world."

Onwards!

Though Bluco has seven years of probing experience and two years with Productivity+, they have not yet needed to explore advanced capabilities like these. In fact, the horizontal machining center mentioned earlier is the first machine tool on which they've used VERICUT, although that's about to change—they're currently rolling out toolpath verification and optimisation for the shop's double-column mill, the machine used to make many of the company's line of modular fixturing components.

Like Mastercam itself, Productivity+ has simulation capabilities. Yet Granata noted that, since VERICUT reads the same code that the machine control reads, it provides greater visibility than either system. It catches crashes, obviously, but also prevents axis over-travels, gouges and uncut stock, and any parts or part features the programmer might have missed. And for those who've invested in the CNC Machine Probing module, it alerts users to any probe errors.

"We've been quite happy with VERICUT on the toolpath simulation side as well as machine probing," Grube said. "If it touches the part too soon, or the part is missing, it lets you know there's a problem. That's why we run everything through VERICUT, whether it's a new program or even a small change. It provides us with the assurance that there won't be any surprises, something that's very important to us given our increasing production levels. So, yeah, it's been very helpful."

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