

**Jacobs
Associates**

Fast Design Work Plus Prototyping Equals Success

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— **Fred Krol**
Co-owner
Newington, CT

Designing products and producing prototypes are demanding tasks driven by the clock. Software or equipment that speeds this work up, are essential to make a company's success. Using this mix, Jacobs Associates has found the key to success.

Started in 1995, Jacobs Associates in Newington, CT specializes in product design, prototyping, and CAD training for companies that don't have the resources for this work in-house. Their ten employees offer quality engineering services to a diverse spectrum of industries. These experts, most of whom are mechanical engineers with two manufacturing engineers on staff, will take a project from concept to drawings and solid models, and then on to production parts. If physical models are required, they will prototype a design to meet their customer's form, fit, and function requirements.

To keep speed on their side, Jacobs uses the latest software and equipment such as: fused deposition modeling (FDM), stereolithography, vacuum casting, CNC machining, and injection molding along with prototype assembly.

As with all design and prototype work, part volumes are low, often only one or two being produced. But even though these parts are produced in small quantities usually for testing, they are still critical in form, function, and tolerances. Jacobs does everything from plastic injection molded parts, used as prototypes, to CNC-machined ones. They even build their own injection molds in house. For their CAM work, the company uses Mastercam to quickly program their machine tools for general machining and intricate surfacing work.



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As Co-owner Fred Krol explains, "We utilize Mastercam to turn around our prototype and low-production parts quickly on three-axis vertical machining centers. We machine many of the parts to tight tolerances and offer quick turnaround. The big draw for us to use Mastercam is to easily program our machines for these low-volume complex parts."

He added, "A lot of work we do is surface related, or there's a lot of surface machining going on. To try and write G-code is nearly impossible. So Mastercam handles these complex surfaces extremely well. That's where we save a lot of time, because of Mastercam's capabilities."

Krol added that just about every project they do requires some intricate surfacing. When producing consumer cosmetic parts he said, "We have cases and lipstick tubes that go from squares into circles and the blend of the surfaces are complex, but Mastercam pretty much simplifies it."

Building plastic injection molds in house is also very demanding work for Jacobs. They tend to do quick-turnaround injection molds and use Mastercam for all the mold programming. Krol remarked that for their consumer product molds, they are getting into extremely fine surface work. "Everybody wants all these neat looking contoured surfaces. Nothing is really geometric, it's all organic. Mastercam handles them really well," he added.

Because Jacobs has such diverse product programming needs, sometimes they run into a challenge, but Krol remarked that Mastercam solves every problem. "We tend to take on the tough parts. That's really the key that Mastercam gives us, allowing us to not be afraid to take on any part. It's very important for us to be able to program these parts quickly to get any profit out of the job. You only have two pieces. So you're not going to make millions of them and earn a lot of money. We've got to take that piece, program it really fast, and get it out quick. This is the key to our prototyping."

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