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Special Projects, Inc.

“ WorkNC makes managing challenges easier because it’s all right in front of you, and everything is easier when you know your limits. ”



WorkNC CAM software is the premier automatic CNC software for surface or solid models in mold, die and tooling businesses for 2 to 5-axis CNC programming. WorkNC is a leading solution for the most demanding industries such as Automotive, Aerospace, and Mold & Die.

Prototype Perfection

Special Projects, Inc., manufactures one-of-a-kind prototypes using automation tools in WorkNC

The production of prototypes may look a lot like magic, but smart manufacturing is the only “trick” in the book that can conjure a quality concept from art to part.

Just ask the team at Special Projects, Inc., a global product-development leader based in Plymouth, Mich., that has been creating products for the automotive, aerospace, industrial, marine, and military industries for the past 33 years.

The “big three” U.S. automotive manufacturers are among the company’s clients and, while the lion’s share of projects are related to the automotive industry, the Special Projects CNC Programming Department never knows what will be coming through its door.

“Sometimes we send an entire car out the door,” says CNC programmer and mill operator Shawn Merva, who has been with the company for seven years. “At times, we send it out with full electrical capabilities, and sometimes it’s just a shell. Every job is unique.”

Included among unique jobs is a massive “human hamster wheel” for the Adidas shoe brand, which used the wheel to promote a new footwear product. Another job entailed the creation of components for a massive set piece used in the “Transformers” film series. Moving props for the aerospace and military industries are also all in a day’s work at Special Projects.

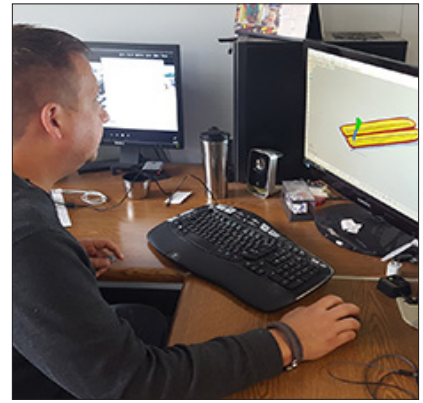
“Anything that needs to be a prototype is what we do,” says Joseph Murray, a CNC programmer and mill operator who has been with the company for under a year. “We’re making projects machinable and functional, to where we can fabricate them, and we always strive to be as close to the design intent as possible.”

To manufacture its range of one-of-a-kind prototypes, Special Projects has used the WorkNC computer-aided-manufacturing (CAM) solution, by Vero Software, since 2006. The company made the switch to WorkNC from its previous CAM software when it found that the solution was better equipped to fulfill its needs — which also reflected the changing needs of its customers.

“We’re in a very unique position and we have to accomplish everything that we do very quickly,” says Andy Misisian, a CNC programmer and mill operator who has been with the company for six years.

The company’s programming team is well versed in working under the gun to meet stringent time constraints. In November of 2016, the team began building a prototype for a vehicle that must be completed by the first week in March of 2017.

“Everything from the doors to the buttons on the dashboard have to be finished on time,” Merva says. “It has to be a completely functional car when it goes out the door.”



About The Company:

Name: Special Projects, Inc.

Business: Award-winning design and fabrication services for the automotive, aerospace, industrial, marine and military industries

Web: specproj.com

Benefits Achieved:

- Easy and accurate CAD import and direct file translation
- Automation achieved by applying machining sequences
- Overall accuracy and efficiency

Comments:

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Shawn Merva
CNC programmer and mill operator



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The manufacturing process at Special Projects begins when the programming team is given a design provided by the customer. Though small tweaks to the design may be necessary to ensure that the part can be manufactured to ensure quality and cost effectiveness, designs remain untouched as much as possible.

Typically, customers provide solid 3D models that are easily imported into WorkNC. With direct translators, the software makes it easy to import native computer-aided-design (CAD) files from other systems, which reduces or eliminates data management challenges between the customer and the shop. Occasionally, the Special Projects team uses a Hexagon laser scanner to scan and ultimately reverse-engineer parts. The scanner generates STL files, which are also seamlessly imported and programmed into WorkNC.

Once models are imported, the team identifies features, applies toolpath, and generates NC code.

Molds at Special Projects are machined in three axes, and are made almost exclusively of foams and aluminum. Once the molds are complete, they are sent to the lamination department, where composite materials are laid within them to create the actual parts. From there, the parts are sent to the fabrication department, where final products are built.

“We actually all came from a fabrication background,” Merva says of the programming team. “We’ve done builds together, so we understand how molds need to be built to make parts that will fit together well.”

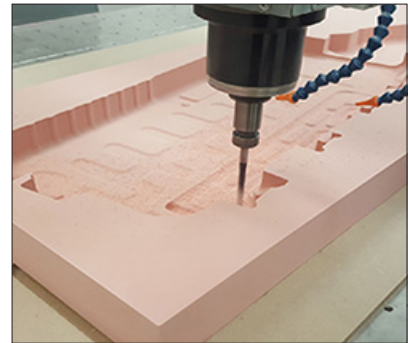
The team at Special Projects also uses machining sequences, which are a tool used to automatically apply collections of predefined toolpath parameters. Those predefined parameters, packaged as sequences, can be applied to new geometry within specified work zones. A programmer may designate sequences for roughing, semi-finishing and finishing, all of which can include speeds, feeds, step downs, stepovers, and tooling information.

Though jobs at Special Projects are truly unique, there is enough repetition of job types to make the WorkNC sequences option a tried-and-true time saver.

“The sequences option allows us to save best practices and apply them over and over,” Merva says.

While many of the team’s jobs deal with parts that are required to have a high finish quality only on the outside of the part, ensuring that everything fits together seamlessly means that the “B” side must also be manufactured with high quality.

“We deal in millimeters, so gaps between surfaces are really critical. Sometimes it looks good from the outside, but there can be issues with the surfaces that you don’t see — and those are critical surfaces because they are needed to make everything come together,” Merva says. “WorkNC makes managing challenges easier because it’s all right in front of you, and everything is easier when you know your limits.”





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Shawn Merva

CNC programmer and mill operator

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