Contour Engineering president Michael Sherwood started out as a 21 year old machinist in Southern California. He quickly discovered he had a knack for reading a blueprint and seeing it in his mind in 3D. When graphics came to the forefront he hit the ground running. His early career was spent as a contract programmer for the local area. He worked out of Wichita Manufacturing for a few years before heading out on his own. His goal was to program something once, give the customer the data, they run it, he gets paid. “It was a simple strategy of doing something right the first time,” explains Sherwood. “My reputation and this company are built on that premise.” As his business grew via word of mouth he landed a programming job doing the entire fuselage of an airship. “After that job I was able to purchase my first machine tool in November, of 2000,” tells Sherwood. “I picked up at auction a Cincinnati Milacron 40v 5 axis that came out of the McDonnell Douglas plant. I rented a 2300 sq.ft. building in Cerritos and bought a second C-Frame 5 axis machine soon after.”

Contour Engineering continued to add machines and capabilities as part of Sherwood’s business model. In 2005 the company moved to their current location in Long Beach, Ca and expanded to 10,000 sq.ft. “Part of my strategy was to acquire machine tools at auction, take them apart and completely rebuild them to like new,” explains Sherwood. “We have Main Tech Enterprises do all our rebuilds, they are working on two more 5 axis C-Frames right now. They start out requiring a bit of TLC and turn them back into precision machining centers.” Contour expanded again in 2009, taking over the unit next door. With 20,000 sq.ft. and a staff of nine the machining is split between hard metals and high speed, each having their own half of the building’s shop area.

Contour Engineering is an AS9100C certified aerospace manufacturer. Working with customers who specialize in both defense and commercial, they produce a variety of items ranging from rocket parts to bulkheads and became the first dock-to-stock supplier for SpaceX. Last September Contour added...
a SNK HPS 120v 5 axis knucklehead high speed machine tool to their already impressive quiver of machines. “The HPS is a perfect fit for us,” describes Sherwood. “It runs at 16,000 RPM, and cuts at 300” per minute. With dual tilt up pallet tables and the ability to run parts as large as 4’ x 10’, servicing our current contracts has never been better for us and for our customers.”

Recently, Contour purchased a full version of VERICUT’s machine simulation software to begin simulation on the new SNK. “I’ve been a user of the VERICUT software since my independent contractor days,” tells Sherwood. “I first met Jim Huddy of CGTech when I was working at Wichita Manufacturing and he walked in with a floppy disk.” All their machining centers are on track to get full simulation in the near future, but right now it is only fully operational on the newest machine. It takes time to build out systems for all the machines instead of just buying it, but Sherwood feels the experience is useful for his people to do it in-house. When there is a lull in programming they get busy building the systems. “When I was young I used to think simulation software like VERICUT was expensive. Now I consider it to be an investment and not a cost. Just like a machine on the shop floor VERICUT is an investment that allows us to be very fluid and quick at supporting our causes.” Contour Engineering has the mentality of always being in production mode. They hit the ground running on every part they make and don’t waste time, effort or materials investing in a part that is not usable. They run parts in a production position right away and not in a nail-biting situation of uncertainty. Thanks to VERICUT simulation there is 100% confidence in the programmers doing their job in the best and quickest way. Sherwood is so confident in the programming that he only requires the operator to attentively monitor the first article position. After that it frees them up to run other parts on other machines. “With VERICUT we know we won’t have a disaster out on the shop floor that could damage a customer’s part, our machine tool or decrease our production ratio.”

Sherwood describes a situation with a buyer who came to see the first part being made. “It was a complex wing assembly part made out of 13-8 modified stainless steel. The material alone took over a year to procure and the buyer had me shut off the machine when he realized that I was cutting into his material. He didn’t understand why I wasn’t making a sample part out of another material for testing purposes. I explained to him that we use VERICUT to support these processes and it is true to form. He felt better once we brought him in and showed him the simulation on screen. We have a large screen display in the programming room to allow for such viewing by customers. We use it to monitor in real time what we have going on the machines.” Contour Engineering has an open door policy between the shop and programming. The operator can come in and see the part run in simulation to help better visualize how it will run on the machine.
Contour Engineering just celebrated their 20th anniversary and is two years into Sherwood’s five-year expansion plan. A new larger manufacturing facility is in the mix along with more machine tools. “I will buy another high speed machine in the next year, tells Sherwood. “I need the redundancy, and it adds to my customer’s comfort level knowing we have it.” Sherwood’s strategies might differ from other companies, but his track record speaks for itself. He treats expansion as an attraction and not as a promotion. It’s like a machining field of dreams; if you buy it, the work will come. “We operate very lean with the highest technology and capabilities. The industry knows that, and we hang our hat on having that reputation.”

Two of the 9 employees at Contour Engineering are programmers. They utilize the latest version of VERICUT and recently purchased the full version of machine simulation software to begin simulating all the equipment. The simulation software has enhanced the confidence level of the entire shop. They are 100% confident that when a part starts its run that there will be no collision possibility. The monitor on the wall allows for easy viewing, in real time for customers to see how their part will run.

The new SNK runs at 16,000 RPM, and cuts at 300” per minute and was a welcomed addition to the high speed side of the shop. With dual tilt up pallet tables and the ability to run parts as large as 4’ x 10’ Sherwood already has plans to add a second machine within the next year.