

Passion does it right...and on time

Passion is not the first word that typically comes to mind to describe a state-of-the-art manufacturer of precision-machined components. Passion does, however, precisely describe what I witnessed when I visited Dynamac in Wood Dale, Ill. The owner and employees of this unusual job shop exhibit a profound passion for excellence in machining, quality, integrity, and service.

Kent Higgins, Dynamac's Founder and president, describes his company as "Dynamic Machining Services" because of his personal passion for satisfying customers needs, doing the job better, and with quicker response. Kent always understood the importance of meeting a customer's needs, and that understanding would form the seed that would eventually become Dynamac.

request for hyper-short service and was insensitive to the importance of meeting the company's deadline. Kent however realized the importance of getting the job done in time and offered his help, even if he had to machine the parts on his own time.

So he borrowed a milling machine

Asking his foreman for personal use of the tool-room equipment after hours was out of the question, so he asked a friend outside the company if he could use his milling machine that very evening. Kent made the parts in only a few hours and gave them to the engineer the next morning. The grateful but surprised man asked Kent to whom the purchase order was to be made out. Kent was stunned, as he had no intention of charging for the work; he had only wanted to help the

CNC turning centers, and an extensive array of quality assurance equipment enables the Dynamac team to respond quickly to customers' dynamic and changing needs. The "engine" that powers the company's impressive growth is Kent's contagious passion for excellence.

Joe Kuechel, plant manager, joined Dynamac in 1999 after successfully running his own machine shop. He too had a personal passion for excellence in machining. Kent recognized Joe's passion and talent and made him an offer he couldn't refuse to join the team.

In the process of acquiring Joe's talent, Kent bought Joe's business and production equipment which included a Kitamura Mycenter-4 vertical machining center. The acquisition allowed Kent to quickly learn the



Dynamac currently runs 20 CNCs, 10 of them Kitamura Mycenters. The Sparkchangers (left) use rotary pallet changers, the APCs use pallet shuttles

One day in 1989, while working for a large company as a journeyman tool- and diemaker, Kent was approached by one of the company's engineers for help. It seemed that the engineer needed a few parts made within 24 hours to meet the deadline for a critical project. The department foreman of the model shop had turned down the engineer's

The author, in evaluating potential suppliers for his own firm, came across this interesting entrepreneurial success story

engineer and his employer meet a critical goal.

Kenbert Tool was formed shortly thereafter on the premise that Kent could help others and make a living also. Within two years he changed the company's name to Dynamac, which Kent felt more accurately described his personal passion for excellence and service.

Thirteen years later, Dynamac employs 37 people in its modern 10,000-square-ft facility. Twenty CNC vertical machining centers, two

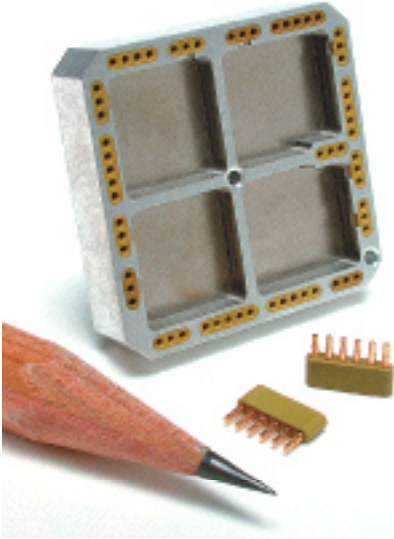
difference in performance between the vertical machining centers that he owned and the Kitamura VMC that had been Joe's.

A bonus in up-time

"I was amazed at the up-time of that original Mycenter-4, and how much more we could do because the Kitamura was so much more rigid." Kent told me. Joe added, "Kent was used to a lot of service reports on the other machines. Often, circuit boards and even the fasteners holding the machine guards would

loosen up and fall out when heavy cuts were taken. He thought it was the norm.

“Today, the horsepower, rigidity, and speed of our Kitamura-2Xi Sparkchangers and Mycenter 1s with pallet changers give us the greatest opportunity for process improvement. I know that we’ll get the job done quicker and with less tool breakage. Our other machines just can’t keep up on heavier cuts because they’re not as rigid and accurate as the Mycenters.” Joe concluded.



Inch-square connector assembly consists of 97 separate pieces precision machined on Dynamac’s Kitamuras. Connector body is aluminum, inserts are Torlon engineering plastic, pins are gold plated copper

Marty Keane, sales manager, also joined the Dynamac team in 1999 after meeting Kent Higgins at a job shop trade show where the two became friends. “Kent brings out the best in people. He challenges us all to do our best to help our customers and our fellow team members.” Marty shared. Marty is Dynamac’s primary “ambassador” to customers with his ability to listen carefully, analyze customers’ needs, and clearly communicate those needs to the rest of the Dynamac team. Marty explained what a pleasure it is to represent Dynamac to customers, “We have a lot of depth to our management team. Everyone understands the importance of responding to customers’ needs. We’ve worked Saturdays and Sundays to meet extraordinary customer needs, even on new jobs that had to be tooled up from scratch.

“Listening carefully to our customers has also helped tell us when we’ve needed to update our equipment. We added four Kitamura Mycenter-2Xis with quick rotary pallet changers just to meet one customer’s requirement for quality, delivery and cost.”



Because conventional clamping distorted the part, Dynamac developed special vacuum fixtures to hold this printed circuit board carrier plate flat during machining. Fixture also avoids interference between clamps and cutters

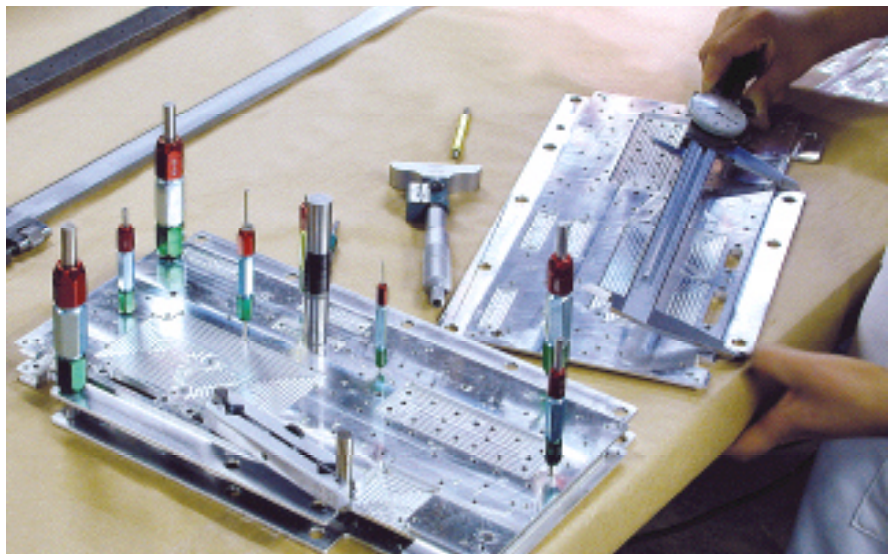
A tour through the facility revealed some challenging components and innovative ways of getting the jobs done. One of the jobs was being run on those four identical Mycenter 2xis. The part, an intricate and closely tolerated carrier plate was being machined out of a specially produced, high-silicon aluminum alloy that is supplied by Dynamac’s customer.

The high silicon content of the material required rigidity in fixturing and machine tool

construction to have any chance of maintaining size and avoiding tool breakage. Complicating matters was the fact that the part could not be top clamped without causing it to buckle out of plane.

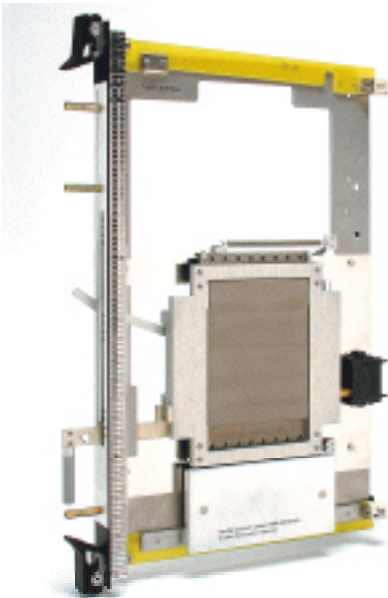
Then they built a vacuum fixture

Kent, Joe, operations manager Keith Stirrat, and shop foreman Art Sanchez put their heads together to determine how best to meet the challenge. The answer came in



Operator uses gages in final inspection on machined PC board carrier plate

the form of a proprietary design vacuum fixture that held the part with incredible rigidity, but still allowed for quick loading and unloading on the empty pallet. "It took us more than one try to get it right but we did it." Art told me. "I was amazed at how much longer tools could last when everything was more rigid. It makes a huge difference in throughput and tooling expense when you have so many machines committed to one job," he concluded.



A leading fiber optics manufacturer has given Dynamac total responsibility in production of intricate fiberoptic cleaner assembly — raw stock procurement, machining, assembly, and quality assurance

Another success story came in the form of a small machined "donut" that required a double "D" shape in the bore and an interrupted milling cut on one face. The challenge here was to produce an accurate part — free of burrs without relying on vibratory finishing to radius the outside corners. The customer required edges that were sharp but without any burrs that might interfere with proper part function. "We tried running the part in our CNC lathe with a blind ID broach." Joe said. "We could hold the size perfectly but we

just could not efficiently deburr the corners. Kent's confidence in our ability got the job done."

Joe and Art did solve the problem — by using an unorthodox approach. They turned the blank on the CNC, same as before, but now milled the flat and broached the ID on one of the Kitamuras. "A lot of people said it couldn't be done, but with the right fixturing, cutting tools, and one heck of a rigid machine, it's become routine," said operations manager Keith Stirrat. "We even figured out a way to precisely deburr the part on the machining center using specially designed cutting tools and a high speed spindle," he concluded.

Like solving puzzles

Kent and his team's passion for excellence does not stop with machining either. They often turn their attention to solving their customers' more complex problems, like assembly of intricate, extensively machined components. A great example is a complex connector assembly that has 97 separate pieces yet is only slightly larger than a quarter. The customer had successfully designed and tested the assembly but had little idea how to accurately get the pieces together.

Kent told me "They gave us the assembly drawing and said, "This is what we need. Have fun!" The aluminum housing required intricate high-speed machining with an endmill only 0.045 in. in diameter, holding tolerances within ± 0.001 in. Originally tooled for one of Dynamac's original machining centers, productivity was improved by more than 50% by re-tooling for manufacture on the Kitamuras.

Another unique challenge was the production of the individual Torlon insulators. Complicating the challenge of just machining this unusual engineering grade plastic was the requirement of holding true position to 0.001 in. total and holding ± 0.0005 -in. tolerance on step counter-bores as small as 0.019 in. on each of the 64 individual holes in each final assembly.

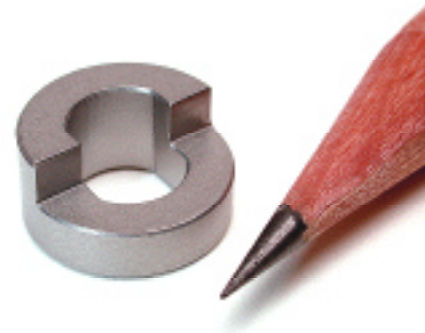
Perhaps the best example I saw was a complex assembly that cleans the end of fiber optic connectors used in high-speed digital communication lines. Dynamac had quoted the customer on the components only and had produced a few small orders. Following up with the customer to make certain they were satisfied with Dynamac's quality and service, Kent and Marty were asked to supply the complete mechanical assembly.

After producing the assembly for a short while, Kent offered to review the design and

asked for the opportunity to improve the product. Using his personal experience as a model maker along with the additional talents of his staff, Kent submitted an improved complete product to his customer. After thorough testing, the customer agreed to the changes. Today, Dynamac supplies the improved assembly and has full responsibility for procuring every component used.

Kent's passion for excellence has helped Dynamac's customers save money, too. Recently, improved manufacturing processes put into place by the team significantly reduced the manufacturing cost of a complex component. Rather than pocket the savings, Kent contacted the customer and offered a price reduction even though the customer had not requested one.

Marty told me, "The customer was shocked that a vendor wanted to share cost savings. Needless to say, that customer knows that we are not just another vendor. We are a machining partner." he concluded.



Innovative Dynamac machinists used a Kitamura-1Xi to mill the flat, broach the ID and deburr this tiny (3/8-in. OD) medical instrument component made of 17-4 stainless. The unorthodox approach to machining demanded high rigidity in the machine

Kent has tremendous confidence and puts total trust in his team. Summing it up, Kent said, "I believe that each of us can create value in ourselves by being committed to learning, by helping others, and by always giving every job our best effort. I believe that it's as true today as when I became a journeyman 26 years ago." ●

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