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Turning & Screw Machines



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...and much, much more!

Manufacturing Case Study—



Operator Jose Luis Peredo, Alpha Omega Swiss CNC setup programmer, prepares the company's Ganesh Cyclone-25 multitasking CNC lathe to run titanium orthodontic parts. In the background is a lineup of Citizen machines.

Cyclone Works Up a Storm

***A Successful Machining
Job Shop Harnesses the Power
of a Ganesh Multiaxis Cyclone
CNC Lathe to Cut Costs.***

*Story and photos
by C. H. Bush, editor*

Professionals often make tough jobs look easy, at least to an amateur. One reason is the pro's experience. He knows what to do and how to do it. But an often overlooked reason is that the pro normally has the right tool in his toolbox for the job at hand. And, if on occasion he doesn't, as soon as he finds the right one, he buys it.

Such was the case at 26-year-old Alpha Omega Swiss (AOS), Inc., a Yorba Linda, CA job shop specializing in short-lead-time precision machining with a heavy emphasis on turning and swiss screw machining.

"At AOS we fabricate components and screw machine products for nearly 400 customers in the aerospace, automotive, dental/medical, defense, computer and electronics, petrochemical, and other industries," says company co-founder-vp Randy Jones. "We emphasize quick turnaround so much that our web site promises quotes in one business day, if a customer will fill out our online quote form and either fax or email us a drawing. Since my partner Dale La Rock and I started the company in 1980, we've been very successful because of our dual emphasis on quick delivery and quality precision parts. But once in a while this emphasis comes up and bites us where it hurts."

As seen in CNC-West, June/July 2006 Issue

Jose Perez, CNC lathe foreman, (left) and vp Randy Jones discuss the best way to set up a new part. AOS was founded in 1980 by partners Jones and La Rock.

One such case happened about a year and a half ago when AOS undertook to produce small, complex titanium components for one of its customers manufacturing devices for use in orthodontics.

Dental Problems

The tiny part looks a lot like a trailer-hitch ball, except that it is not so simple, according to Jones.

“Even with a shop full of advanced CNC machines, we had no efficient way to produce this little part,” he says. “If you can imagine a miniature trailer-hitch ball that you mount at the back of your molar, and then mount another hitch up front and connect a device to pull in your front teeth, you’ll have some idea of what it was for. Our problem was that the part was very complex and took too many operations to produce, which made holding quality tough and almost impossible to make any money on it.”

AOS tried not to take on the job, but the customer was adamant. It wanted the parts and needed them fast.

“We tried every way we could think of to get out of running the part,” Jones says, “but one of our main selling points is servicing our customers, so to keep the customer happy we had to do it.”

According to Jones, the problem was simple. With the equipment AOS had at the time, the little parts required 2 people running 2 machines to meet customer demands.

“And even then we were having trouble keeping up with the customer’s demands,” Jones recalls. “It was just slow. It was one person loading one part at a time to do one operation. Just one of those things we had to do.”

To make the part, a number of operations were required, including roughing, turning, milling, slotting, drilling, threading and finishing.

“The part was occupying two of our Swiss machines full



time, which impacted our productivity, of course,” Jones says. “That part was expensive to make, but the main cost was the time it took on our Citizens. We definitely needed a better solution.”

The Right Tool for the Job

About a year ago the solution to Jones’ dental part ache walked unbidden in the door.

“Mike Colby, the local Ganesh sales rep, came into our lobby,” Jones remembers. “It was basically a cold call, but he showed me a part that was similar to ours, so I asked a few questions. Would I be able to do this operation? That operation? And then I showed him our part, and he said he could make it complete in one drop-off operation. I was skeptical at first, but it turned out he knew what he was talking about.”

The machine Colby had in mind was a Ganesh Cyclone-25, a Swiss-style sliding-headstock machine.

“The machine has no guide bushing,” Jones says, “which facilitates faster setups, higher workpiece concentricity, and greater cutting rigidity. I visited a company in Corona, California that had one, and came away impressed enough to buy one.”

The Cyclone-25, one of a family of Cyclone machines, is a small footprint (83” x 52”) machine that weighs in at a hefty 4850 pounds.

“Our operators say the machine is very rugged,” Jones says. “It has four cross-driven tool stations and three axial-driven tool stations, plus, it has six external turning tool stations, which gave us all the capacity we needed to solve our dental part problem. The machine has the capacity to turn up to one-inch diameter, but at present it’s dedicated to our dental part. Tolerances on the part are plus or minus two-thousandths, but the machine can deliver much tighter precision than that, if we need it.”



Typical small parts produced by AOS, include these titanium mounts for overbite headgear, made from 1/4” bar stock



Overview of the Alpha Omega shop floor where the company runs 16 Citizen screw machines, 9 Nakamura lathes, 1 Ganesh Cyclone-25 (upper right-hand corner) and a variety of other machines. The company has 32 employees working in a 16,000 sq ft facility. It's customer list numbers nearly 400 companies.

AOS took delivery of the Cyclone-25 in August 2005.

"It took us about three weeks to get our part setup the way we wanted it to run on the Cyclone, including our learning curve," Jones says. "But once we had everything set, we turned it on and it hasn't stopped running since."

From Pain to Profit

So far, after more than eleven months in operation running a full shift daily, Jones' original doubts about the machine are gone.

"We're very happy with the Cyclone," he says. "Doing it the old way with two men running two machines, we were getting 100 parts a day, if we were lucky, and we were always behind in delivery. We just couldn't meet our customer's demands. Now with the Cyclone, we're producing 240 finished parts a day with one machine and one part-time guy. What really pays off is that this one machine freed up two others to do other things, so it's really hard to calculate what the real payoff is, but we know it's sizeable. It's made a believer out of me."

Jones says the secret to the little machine's productivity is it's 7 live tools, and it's multitasking capability. But AOS also found other benefits.

"One thing was reduction of downtime," Jones explains. "With single point threading we were down a lot because the little tool. There was a lot of load for the small threading tool. On the single point operation 8 hours was tops. On the Cyclone, however, the thread mill has lasted several months."

Competitive Advantage

Jones believes the Ganesh Cyclone now gives AOS a competitive advantage when he bids new jobs.

"It's pretty obvious," he says. "Any time you can limit setup to one, you've got an edge. Just to give you an idea of what I mean. We were always behind with our deliveries of this part. Now we're ahead in deliveries and our customer wants us to slow down. We like that."

What about Jones' original doubts?

"What made us doubt in the beginning," Jones says, "was that most of the machines we saw with comparable capabilities were more than double, sometimes three times the price. But the Cyclone was priced right, so we felt it was worth taking a chance. So far it's been a winner. We're planning to buy more." ■

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