Journeyman mold maker, Ed Espino prepares High Desert's Kitamura Bridgecenter 8 to run a 50" X 35" mold for molding concrete back panels for walls. The Kitamura has a 35.4" x 98.4" table size, 80.0" x 42.7" x 28.0" travel, 40-taper, 20,000 rpm spindle and 80-tool ATC.

Size Counts

When It Comes to Molds, This Successful Entrepreneur Says Big is Better.

story and photos by C. H. Bush, editor

When mold maker Jeremy Sheldon got laid off from his job at a Carson City, NV plastic company, he knew he had to change directions, but he wasn't certain which way to turn.

"That was about 1999, and I was in my early twenties," he says. "I had just spent the past six years going through a five-year mold making apprenticeship, working in machine shops, and finally building and repairing molds for a plastic company in the Carson Valley. When I got laid off from that last job, I sat down and took a hard look at things."

Sheldon's grandfather, who had been a mechanic for the Flying Tigers after WWII, had been in the machine shop business for as long as he could remember, which is where he learned to love the business himself.

"I started sweeping the floors for my grandfather when I was about eight years old," Sheldon recalls. "Then our whole family moved from California to Carson City, and when my grandfather retired, he set up a small hobby shop next to his house. He had a couple of manual Bridgeports, an ID and OD grinder and some support stuff. When he died, my grandmother kept the shop exactly the way he left it, so I got the idea to go into business for myself. I went to my grandmother and told her what I was thinking. We struck a deal to let

Marco McEntire, apprentice mold maker, (l) and company president Jeremy Sheldon discuss the best way to ship a 5500 lb carbon fiber compression mold.

me rent the shop and buy the equipment. I stuck my name on the door, High Desert Tool & Mold, Inc. and suddenly I was in business. I wasn't married at the time, so it was a perfect situation for me."

Mold Repair Work

With nothing but manual equipment, Sheldon knew he couldn't get into doing production work.

"I turned to what I knew best," he says, "which was mold repair. I knew a lot of people from my previous jobs, so I contacted them. My first paying job was for $300. Then one day I got a call from a man I had served most of my apprenticeship under, an Englishman named Al Brewster. He was looking for a job with flexible hours. Al was a master mold designer and mold maker. So he came to work for me, but only when there was something to do. We worked together for about two years, and during that time I really learned a lot."

Sheldon says, "If you really want to understand mold making, there's no better way to learn than by repairing them, because you get a chance to see what can go wrong."

With his old teacher at his side, Sheldon mastered mold design and repair using SolidWorks and CAMWorks software.

"We used to sit together for hours and hours at the computer doing tool design," he says. "When I started the business I probably knew only 5% of what there was to know, but Al quickly filled in the gaps for me. When he retired and moved to Oregon, I really missed him. He was an instrumental part of building my business."

Soon after Brewster joined him, Sheldon bought a small CNC EDM sinker.

"I paid $20,000 for it, and financed it at $175 per month," he says. "Scared the heck out of me, but it worked out fine, because right after we put that machine into service we got an order for our first complete mold, and that really changed the nature of the business."

Bigger is Better

Over the next few years, Sheldon's business expanded little by little until he was forced to move to larger facilities.

"I bought my first CNC mill, a Daewoo DMV 4020 and moved into a 3000 square-foot facility," he says. "Then in August of 2007 we moved again, this time to our current address, which has 6500 square feet. In the meantime we accumulated a lot more equipment. When we moved, we had a 3" G&L boring mill, a Daewoo CNC milling machine, two ID OD grinders and 4 EDM sinkers."

Although the business was going along fairly smoothly, Sheldon wasn't happy.

"When I tried to go out of Carson Valley to sell, I kept hearing, 'Why should I send our work all the way to Nevada to you? There are ten shops down the street that can do the same job.' Then about five years ago, I remembered something my grandfather always said. If you're going to be successful in business, you have to find a niche where you're not competing against every Joe Blow on the block. If I wanted to succeed, I needed a niche, a place where my business could shine."

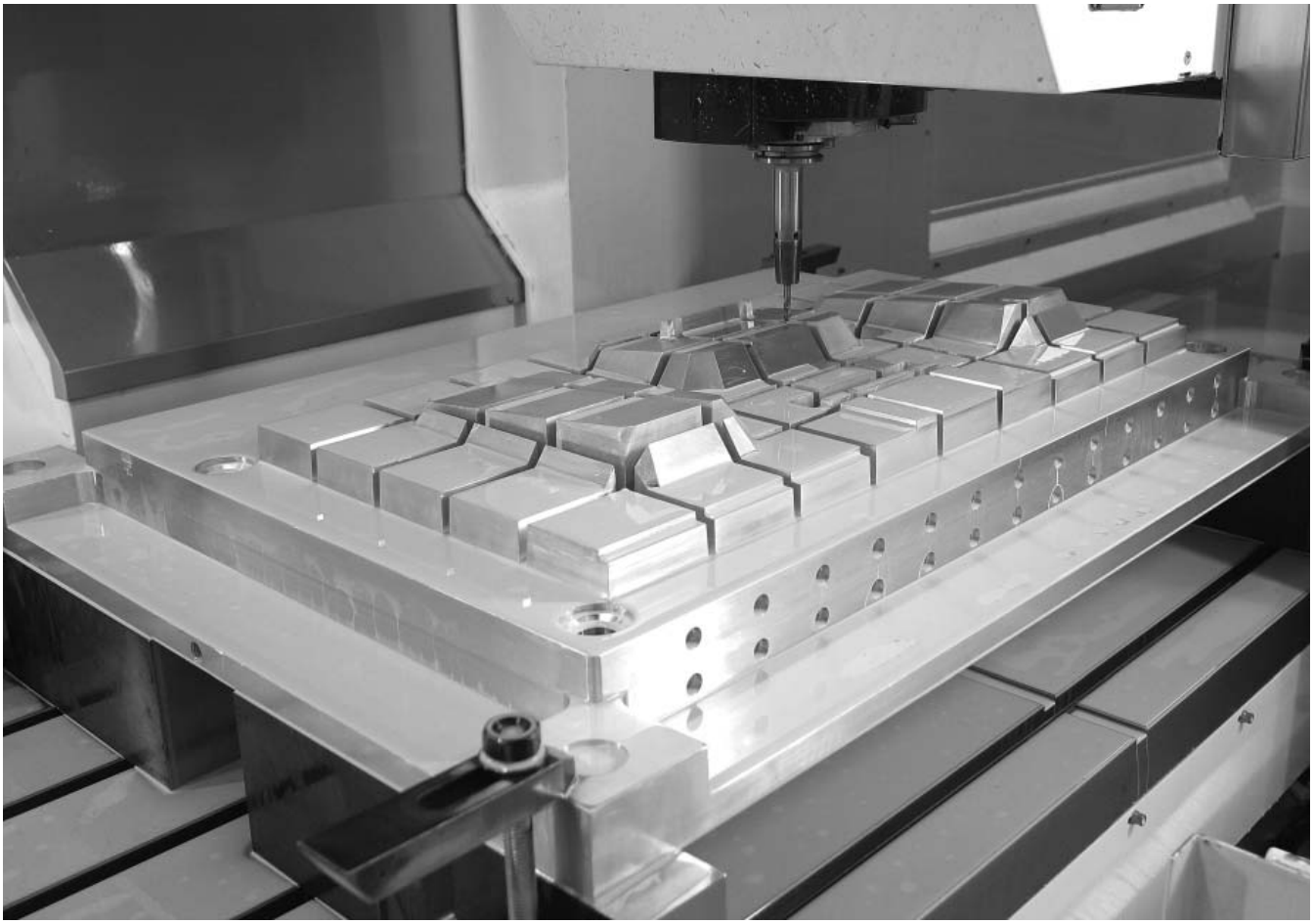
Sheldon took a good look at the markets available to him.

"I looked at medical tooling," he says. "I looked at going into cheap, throwaway molds, but then I'd be competing with all those other shops out there. Finally I decided that if I was going to stave off the Chinese and other foreign competition, and the other guys down the street, I needed to get into larger and larger work."

Once Sheldon made that decision, everything improved.

"For one thing, selling bigger work expanded the radius of my markets," he says. "Now for us to bring in work from 800 miles away is nothing. In fact, the majority of our sales now comes from outside Nevada. We don't have a monopoly, but we certainly don't have a lot of competition

That mold is 50" long by 25" wide. And assembled is probably 5500 lbs.



Close up in the Bridgecenter 8 of the prep side of 50" X 35" 7075 aluminum tooling for molding concrete back panels for walls.

west of Denver, either."

Nowadays Sheldon jokes about his shift in emphasis.

"I'm not a guy who likes small parts," he says. "If I don't have to move a part with a fork lift, it's too small for me. As far as I'm concerned, the bigger the mold, the better."

Bigger Means Bigger Everything

With the Daewoo, Sheldon says his maximum capacity on new tooling was 5,000 pounds assembled. So, to get into bigger molds, he needed bigger equipment.

"My dad, who handles finances for me, and I traveled to Taiwan and Japan and visited IMTS looking for the right piece of equipment," he says. "In September of 2007 I finally decided to buy a Kitamura 3-axis Bridgecenter 8 from Gail Hogue. The Kitamura has a 35.4" x 98.4" table size, 80.0" x 42.7" x 28.0" travel. It has a 40-taper, 20,000 rpm spindle, an 80-tool tool changer and a full 3-axis touch probe system. With thermal compensation we can match surfaces to within one and two tenths from one cutter to the next all day long. It's very fast, too, like 900" ipm rapids and really fast lookahead. We're extremely pleased with it."

The newer, bigger machine has changed things significantly for Sheldon.

"Where we were limited to 5,000-pound assembled molds, we can build them up to 25,000 pounds now," he says. "It took six months to have the Bridgecenter delivered after we ordered it, but it was worth the wait. I had my first really big mold job come in two weeks before the machine arrived, which was perfect. The Kitamura has opened a lot of doors for us."

Sheldon, who has 4 employees, says there was little or no learning curve on the machine. "It works pretty much like the Daewoo, so we had no transition problems,"

Rapid Pay Off

Sheldon, who was frightened by his first EDM payment, went into this purchase his eyes wide open.

"I figured this machine would cost me money the first year," he says. "The truth is, it hasn't cost me a penny. I estimate that close to 70% of my sales this year will be attributable to having that machine. It turns out that few people have equipment this size or the support equipment for that matter. There's a lot of support infrastructure needed to produce big tools, and we have what it takes. We have a 30,000-pound flatbed truck we use to transport our work."

So where to from here?

"Bigger!" Sheldon says. "Bigger. We're looking at a Kitamura Bridgecenter 10 next, which will get us up to tools in the 35,000 to 40,000-pound range. Like I said, the bigger, the better. With us, size adds up to profit." ■