

Making Hard Work Look Effortless

The Latest Technology Brings Success to Illinois Company

Handling jobs that are the most difficult is easy for the people at EWT/3DCNC. "We have always specialized in work that other people either don't have the knowledge to do, or simply don't want to do," says Don Busekros, president of EWT/3DCNC.

Acquiring the latest technology to handle state-of-the-art wire EDM services has given the company the competitive edge to work hard the easy way. The key to that competitive edge is that they stay up-to-date with their machines so they may perform those difficult jobs that everyone else rejects.

"We stay current, so our machines have tremendous capabilities," says Busekros. "We are always digging. We shop for anything new that might give us the ability to do what someone else cannot."

EWT's persistence in finding the best technology helps them hold prices. "I think that you shouldn't raise prices if you don't have to, and you shouldn't settle with the equipment you have," says Busekros.

"As your equipment becomes outdated, you end up gradually needing to raise prices to stay profitable. But if you buy new equipment frequently, and utilize the technology, you can get more competitive."

"You have to have the fastest, best thing to get ahead today. That is why we have invested in machines like Makino," adds Busekros. "It's hard to compete with Asian countries on wages. But we can outsmart them with the addition of technology, automation and machinery. EWT is not a big company, but we do spend \$300,000 to 400,000 per year on new capital equipment."

"With new equipment, new technology and new ways of doing things, we have been able to hold our costs and be every bit as profitable as what we were over 30 years ago," he continues. "It's a good return on investment."

Newest Wire EDM

"We have been very busy," says Busekros. "It seems like we buy a machine and think we have a spare on the floor; then a rush job comes in and we end up using the spare, too."

With that continued influx of work, EWT saw the need for a new wire EDM machine to increase capacity. "We had 18 wire machines on our floor, and the last 14 we bought were from a different manufacturer," says Jim Monge, executive vice-president.

"We already had some experience with the Makino die/mold group because of two milling machines we had bought in the past, so this time we considered them."

"While we had looked at Makino wire EDM machines before, we always hesitated to switch manufacturers because our staff would need to learn the new machine and new control."

"One of the biggest concerns that we initially had was that it would take time to learn a new control," says Busekros. "We always hear pros and cons from our people about how long it takes them to get a new machine up and running."

"But the Makino team was willing to make it all happen, and our confidence in them cinched the deal," says Monge. "We ordered a Makino SP64 wire EDM machine."

"When the SP64 arrived, we had enough work that we also bought a Makino SP43 wire EDM machine. We are very pleased with the results we are achieving from both."

And adjusting to the new machine was easy. "Things went really smoothly," says Busekros. "We just needed the initial training and then a little support. Our biggest fear was adjusting our programming habits for this new machine, but we haven't had any problems."



Innovation & Determination

EWT does work for a variety of businesses in the automotive, aerospace, packaging and medical fields. They handle the difficult projects and programming that other EDM shops have rejected — from high precision close tolerance projects demanding a wire diameter down to .001 inches, to cutting pieces up to 18.5 inches thick.

"The effort we've put in since the beginning has been well worth it, because our production jobs continue day after day," says Busekros. "And we continue to pursue the latest and greatest in wire EDM. We had the first wire EDM in town that would machine to .002 inches. Now we're getting into micro-miniature products."

The Rockford, Illinois, company got its start on October 1, 1974, with Busekros as its sole employee. Several investors backed this tool and die maker at a time when wire EDM was just emerging.

"People were interested in wire EDM, but were leery about buying a wire machine. They were afraid that it would drag their business down if things didn't work out," says Busekros. "Several investors from Rockford's four largest tool and die companies set me up with one machine, and sent me work from their customers. By the end of the first year, I had three machines."

"Even back then, I was a trendsetter. I had the third wire EDM machine in the country. While my investors were skeptical about my success in EDM, I was determined. I put in a lot of effort. Thirty-two years and 30 employees later, we're still here. We've diversified, and are as busy as ever."

Return on Investment

EWT's new machine investment didn't take long to pay off. A new customer involved in space exploration came to the company to cut several large 70/50-grade aluminum parts for a fuel valve.

"We decided to program it for the Makino wire machine," says Monge. "We cut a dummy part, just to verify the four-axis program with the round on one end and the oblong on the other end. Right out of the program we had a good part."

"The part is over eight inches thick. With the Makino wire EDMs we were able to achieve a cutting time of 16 hours on each part. Normally that type of job would have taken us 25 hours. We were able to cut machining time by one-third."

"We also received a job with a very short delivery time from a national physics laboratory to machine 14 large stainless steel blocks," says Monge.



“The material was ordered from a supplier in California and arrived one week later than scheduled.”

“But because of the decrease in machining time, we were able to get in two parts a day, and we had originally only planned to get one part per day. This helped us make up for lost time due to the late material, and allowed us to meet the critical delivery.”

“Had we not had the increased production capability provided by the Makino machine, it could have been a disaster,” says Busekros.

BellyWIZARD™ Improvements

Makino’s unique BellyWIZARD technology improves the straightness of the initial cut, reducing the need for skim passes and eliminating the bellying effect. BellyWIZARD also reduces consumable costs and maintenance time.

This was true for EWT. On a recent month-long production job, they saw a 25-30 percent decrease in cost, and improvement in consumables using the Makino wire EDM machines.

“On this particular production job the filter hours were way up compared to what we were doing with our other machines,” says Busekros. “The filter life is set at 450 hours on the maintenance screen, and 400 hours on the resin.”

“The wire consumption was way down compared to what we had done with competitors’ machines. We also got much better hours out of the carbide pickup contacts than we did on the other machines.”

“The actual results that we got on that project, product-wise, were fantastic,” Busekros continues. “On the blocks we made, we had fought with our other machines in the past on achieving the straightness we needed.”

“But on the Makino machine the straightness was amazing. We ran punches that were eight inches tall with fairly sharp corners on them. And from top to bottom you can’t even see a tenth variation.”

“At first we were a bit skeptical as to what the Makino’s real capabilities were,” says Monge. “But even on those jobs of eight plus inches tall, there is no taper to them. There is no belly. There is no hour-glass.”

Running Unattended & Improved Cycle Times

The Makino wire machines are allowing EWT to run unattended, which is also increasing their capacity.

Busekros explained that the new Makino machines have a bigger table on them. “On one of our production jobs, normally we load the tables for a 20- to 24-hour run. And the next morning, we would load and reload again. With the new machine speeds, now we are able to get another stack or two of parts in that same 20-hour period, which we couldn’t do on the other machines.”

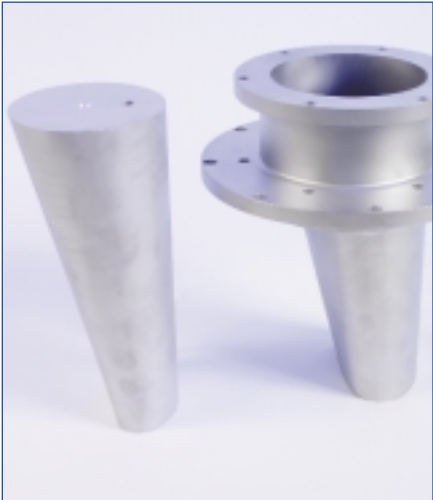
“With the wire spool sizes on these machines, compared to our other ones, we can load machines on a Saturday morning and run them through Saturday and Sunday, and come in on Monday and reload again. This now gives us unattended operation on weekends — something we haven’t been able to do unless someone physically came back to reload the parts.”

“It’s just another step toward our being more competitive,” says Busekros.

EWT has also seen improvements in cycle times with their new machines. “On the job that we can now run unattended, we used to machine one part per day. Now by running this project 24/7, we can produce two parts a day. We have doubled our production and cycle time,” says Busekros.

“We have also had several repeat jobs where we consistently see a 30 to 40 percent reduction in wire burn times on the Makino machines,” adds Monge.

The company is impressed by the fine finishes they achieve at these speeds; so are their customers.



Wire EDMing Carbide

Recently, a company in California approached EWT upon recommendation from an existing customer. This company was into government development projects — in a nano technology field — and they were making carbide tool bits.

“At first they doubted that we could achieve what they were looking for, because no one else had,” says Busekros. “I was confident we could, even though we had not run carbide on the machine at all before. We hadn’t bought the SP64 to do really small pieces; we had bought it for bigger, longer loads.”

“But on this machine we were 50 percent faster, block for block, part for part, than on any other of our machines. What really amazed me was the surface finish. The straightness of the test piece — size-wise and from top to bottom, square to square — was in the millionths. It is unbelievable how accurate the Makino part was — an RMS4 finish. We ended up with a new customer.”

“To get such fine finishes in carbide, you usually have to isolate the tooling and hook up some additional ground wires and make some changes in the machine before attempting the cut,” says Monge. “But on our Makino wire machine, we were able to just throw it on the table, like we were cutting anything else. That saved us 50 percent in production, and then another 50 percent in setup.”

Eliminate Grinding

A long time customer needed some real precision on a connecting rod to be machined for oil field pumps. They needed to finish machine a six-inch diameter by eight-inch high rod end.

“It is a steel forging and there is an eight micro inch finish requirement,” says Monge. “We know everybody else quoted grinding on it, and we were told we were the only ones who quoted EDMing on it.”

“The straightness on the part was very important regarding the diameter. They called out for .002-inch straightness and parallelism. This was a piece of cake on the Makino wire machine.”

“The Makino wires have really helped increase our profits, and helped secure another long-term contract,” Monge continues.

Easy Maintenance

A simple, straightforward design makes Makino wire threaders reliable and very easy to service. Only five minutes per week for routine maintenance keeps the threader in top running order.

Unlike other systems that require removal of the wire guides for cleaning, Makino’s unique “V” guides can be cleaned and serviced without removal, saving time and money. Because of their unique design, Makino warrants the guides for 12,000 hour — more than any manufacturer.

“The machine is a lot easier to keep clean because it’s all stainless steel,” says Busekros. “We didn’t have a machine out there with a stainless steel tank until we got these. And they are a lot easier to keep clean. We use a cotton swab and some alcohol to clean the wire guides.”

EWT continues to make the hard stuff look easy with their newest machines.

“We are in an industry that some say is declining. But in the last three years, we have doubled our business. 2005 was a record year for us,” says Monge. “And we just closed March with yet another record month — one that was 15 percent better than our previous record month.”

“We really value our relationship. We are in it for the long run, and we look forward to more growth with partners like Makino.”

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