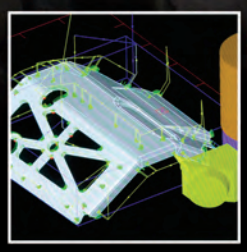
LASER REPORT

Volume 2

3D & 3D with Rotary Applications



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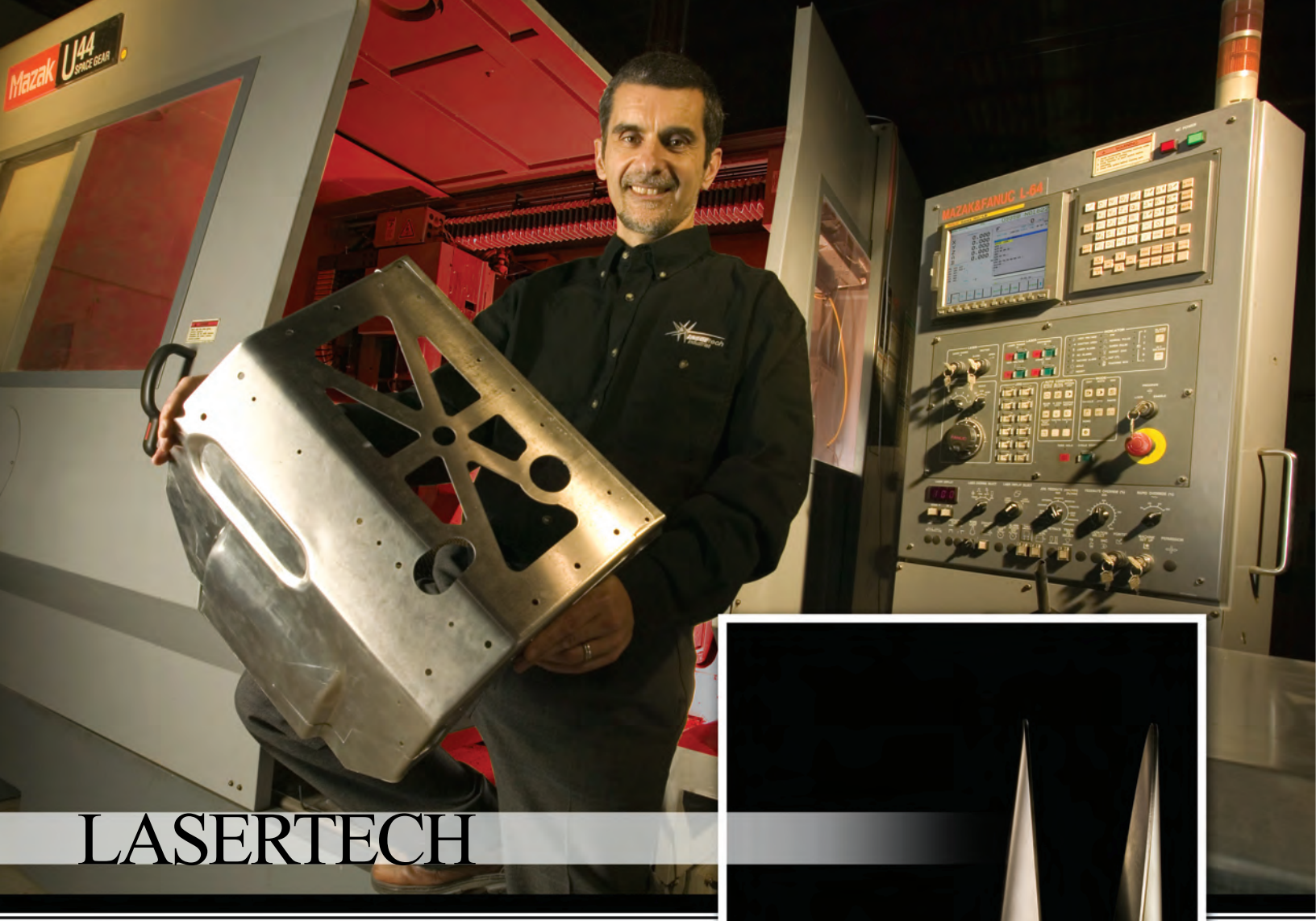
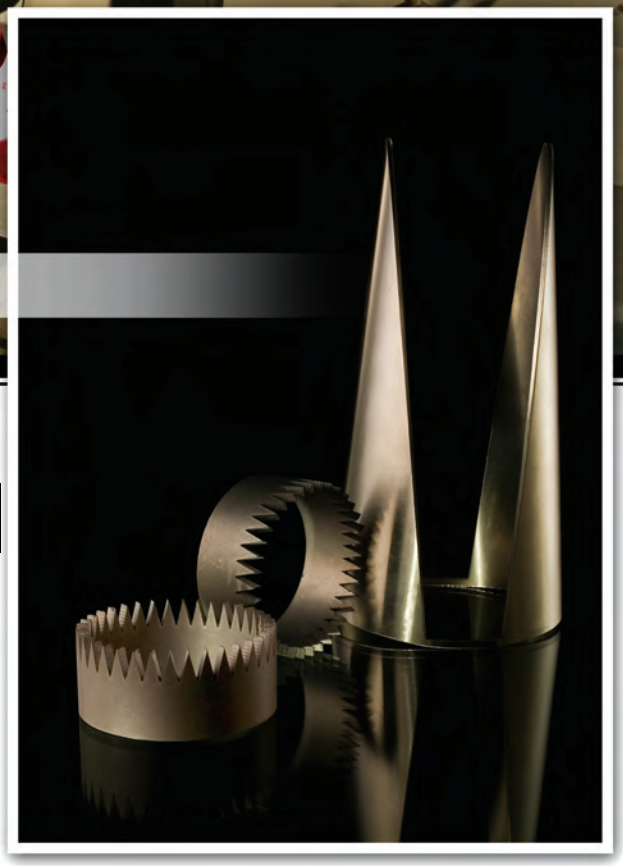


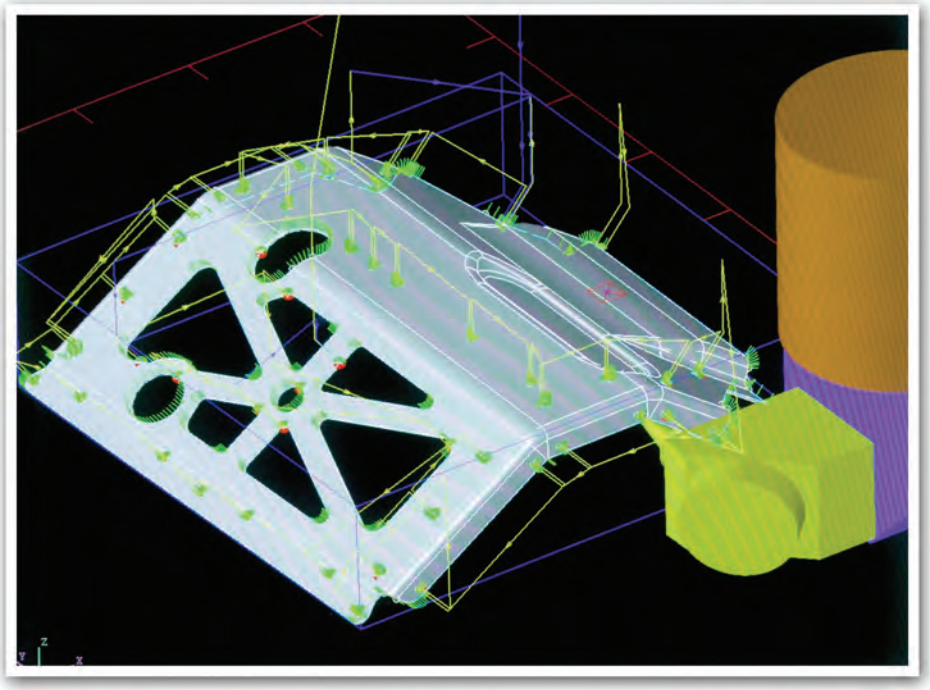
LASERTECH



The Difference *IS* Growth

"If you offer all the same services as your competitors, the only difference is price," said Lasertech founder Denis Dubois. "My SpaceGear-U44 is a tool to differentiate me to the customer, I can provide a service they can't get from someone else. I'm trying to build long term relationships with my customers for the 3D service – there are far too many 2D competitors to do that." With over 25 years experience in sheet metal fabrication, Dubois knew he had to offer his customers more diversified services when he started Lasertech. "You have to offer new products and services to grow. If you don't grow, you're going to die," he said.

Dubois started Lasertech five years ago with one Mazak 2D laser and a press brake in a 5,000 square foot building. Since those humble beginnings, he has upgraded his 2D capability to a Mazak Mark II, sustained an annual growth rate of 40%, built a 15,000 square foot facility in Quebec, Canada, hired 30 employees and bought a Mazak SpaceGear-U44. "We're trying to bring something different to our customers. The services we offer like 2D laser cutting, welding, processing, and engineering assistance are important, but these things aren't any different than what our competitors offer - the SG-



U44 is a complementary process that's opening doors to new customers."

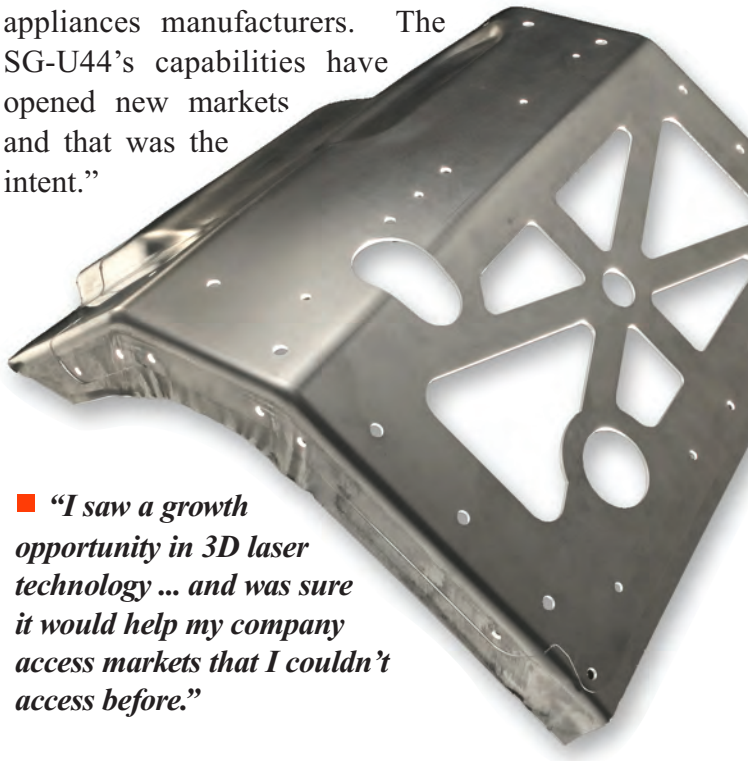
Prior to purchasing the SG-U44, a triple mode laser having 2D, 3D, 3D-Tube and Pipe with rotary capability, Dubois went through a bench marking process, attended trade shows, toured show rooms and spoke with business colleagues. He said they had been considering upgrading to 3D cutting capabilities for years, "Every 3-5 years the equipment improves significantly, if you don't update, you are going to fall behind and lose." Through his evaluation process, Dubois determined that Mazak was Number 1 in 3D laser customer support and that every Mazak owner he talked to was satisfied.

"I saw a growth opportunity in 3D laser technology when I first saw the SG-U44 at IMTS and was sure it would help my company access markets that I couldn't access before," said Dubois. Although he had no 3D work, Dubois was confident in his decision to pursue new markets. "It really wasn't that big of a risk for me, because I had already started a business from scratch and proved that I could be profitable in two years. It was always part of my long term strategic plan to grow by offering 3D laser cutting."

Lasertech's existing customers, however, were less than confident of the new technology, "They didn't see an immediate need, or thought it was too complex for what they were doing. 3D laser work is so different than work on a 2D laser. With 2D cutting, you can install the machine and have it booked solid in 2 months if you are willing to compete on price alone. It takes time to educate customers on the capabilities of the SG-U44," Dubois also admitted. "There was also a learning curve on our part, as Mazak said there would be, and it took us some time to master it."

And master it they have, as the pictured part demonstrates, "It is a 3D aluminum prototype for a small sport vehicle …" Dubois explained, "a formed part with special geometry, deeply drawn, with a lot of spring back. We had to do a lot of advanced programming using the Mazak SPACE CAM software to get the part right, but we produced 50 prototypes in just 48 hours. The customer was very happy!"

Because Lasertech didn't have the luxury of transferring many existing customer parts to SG-U44, all the work being run on it comes in as new business, "We are doing things that we couldn't do before and that's why we bought it," said Dubois. "We have reached out to design engineers across the Eastern US and Ontario to get parts from aircraft manufacturers, the automotive industry and appliances manufacturers. The SG-U44's capabilities have opened new markets and that was the intent."



■ ***"I saw a growth opportunity in 3D laser technology ... and was sure it would help my company access markets that I couldn't access before."***

LASERCRAFT TECHNOLOGIES Inc.

"We can get a premium rate for the 3D work verses 2D work and we can eliminate headaches."

Lasercraft Grows in All Dimensions with Mazak *Lasers*

In late 1996, Lasercraft founder Rodney Greene rented 3,000 square feet in the back of his father's fabricating shop and took delivery of his first laser, a Mazak 4x8, 1000 watt Champ. "I was a one-man-band when I started out as a laser cutter, but after four months I had my first employee," said Greene, "after two years, I had moved into a 30,000 square foot facility in Gainsville, GA, expanding into welding and fabricating, with another 2D Mazak laser on the floor and 40 employees." His brother Jody, initially an investor in Lasercraft, came on full time in 1999 to handle the "business side of the business" freeing Rodney up to concentrate on the production, sales and service. While Lasercraft continued to grow, so did their competition as Atlanta saw a dramatic increase in the number of job shops entering into the laser cutting market.

With the ever expanding regional competition forcing margins lower, Greene knew he had to develop new markets in order to remain profitable. "When we started, I could count the competitors doing 2D laser cutting on one hand," Greene said. "Now there may be as many as 30 shops in the Metro Atlanta area. We had upgraded to another higher wattage Mazak Laser because we do a lot stainless and aluminum and needed more cutting speed. You need the speed to compete, but we still have the Champ and we'll never sell it, we call it 'Our Little Cash Register'." It was with an eye on the competition and the desire to stay one step ahead that lead them to a Mazak Optonics open house in the spring of 2004.

"We went up there to see what's new, not intending to buy, maybe to replace our older 2,500 watt laser. Then we took a look at the SpaceGear and thought it could open up a niche in 3D work for us, while doubling our 2D capacity." Greene continued, "My brother and I went back to our hotel and really worked over the numbers. One way to go would have been to automate the 2D lasers with load / unload capability, but the SpaceGear gave us the ability to do something that no other shop in our area could. The beauty of the SpaceGear is that we have plenty of 2D work to move through it while we learn

how to make money on 3D work." Although he had no 3D work scheduled for the SpaceGear, Greene did not panic. "I was confident because I knew we could run the machine day and night with flat work."

To sell their new 3D capability, Lasercraft employed an innovative marketing concept, "We would set up a 'show job' when an existing customer was coming in to look at another part," Greene chuckled, "they would see these 'jobs' running and would get excited, then we would get an opportunity to quote on work that we weren't being asked about before."

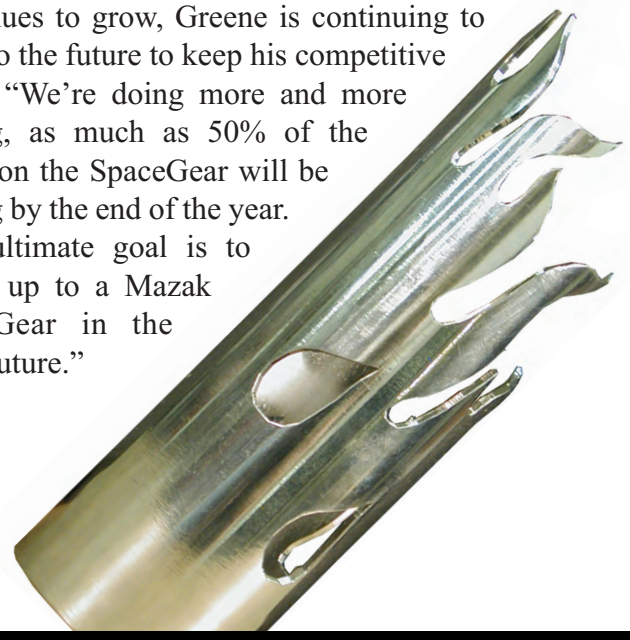
Initially, most 3D work came in the form of converted traditional jobs, "We make a partition for the poultry business out of stainless steel schedule 40 pipe, cut to varying lengths, but all with the same copes. We were sawing the pipe, then coping it on a mill. It would take 3-4 days to complete each partition. Now we're putting it on the SpaceGear and completing it in one shift. We've eliminated a step and reduced the coping time from 30 seconds per end to just 10. We were always behind on the order, now we're on time." Another converted job was previously made at a CNC machine shop. "Used by power utilities, it's a 4" O.D. aluminum tube with several holes, a profile notch on one end and a straight cut on the other. We were able to make it with a cost advantage vs. machining it. We just finished on our third production run."

With experience and success on their side, Lasercraft began to target new customers and cultivate new relationships with existing customers. "We've been able to break into new customers and into the engineering departments of current customers. Instead of quoting from a print, we are helping to design the part around the SpaceGear's capabilities. It has strengthened our relationships with our customers. OEMs are trying to cut down the number of suppliers – the SpaceGear takes us out of the vendor category and makes us a strategic partner." Whether the project is in the concept stage or delivered in a solid model format, Greene has found that his customer's are enjoying designing their parts around the SpaceGear. "They like putting things together like a puzzle, and when they design it for my machine, I can't lose the work without them having to reengineer it."

"We're able to make it faster for less money."

An example of this new level of involvement is a very large frame which was made from 12 pieces of 3" x 3" tubing. Lasercraft was able to reengineer it down to 2 pieces of 3" x 6" tubing by making cutouts on the SpaceGear that were not possible with the previous design. This also eliminated 30 minutes of welding time. "The engineers were ecstatic! The frame looked better with fewer welds, and we were able to make it faster for less money," said Greene.

Since making the step into the 3D laser cutting arena, Lasercraft has been able to break out of the cut-throat pricing structure that has taken over the 2D market in the Atlanta area. "We can get a premium rate for the 3D work verses 2D work and we can eliminate headaches and bottle necks in production by getting parts to the welders faster, which cuts lead times and makes us more profitable." As their 3D volume continues to grow, Greene is continuing to look to the future to keep his competitive edge, "We're doing more and more tubing, as much as 50% of the work on the SpaceGear will be tubing by the end of the year. The ultimate goal is to move up to a Mazak FabriGear in the near future."



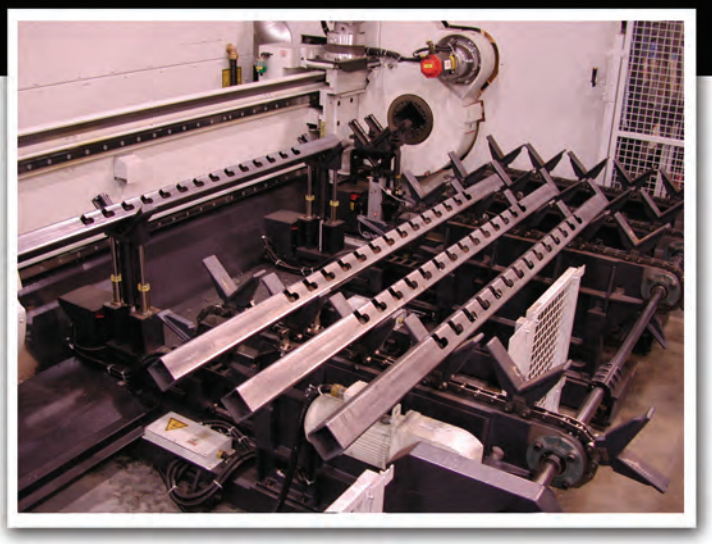
PAUL B. ZIMMERMAN, INC.

Don't Fence Me In

Ask Paul B. Zimmerman, Inc.'s co-owner Mark Zimmerman why he wanted a Mazak FabriGear 150 to make cattle control fencing and he'll simply answer "To remain competitive, you've got to automate." Mark traveled to Japan, across Europe and North America to evaluate the 3D laser offerings of the major players in the market, before choosing the Mazak FabriGear 150. "I went with the FabriGear because of its reputation for dependability and its flexibility to handle larger pieces, which are key issues for us," he continued, "One day we might be running fence posts in the morning and switch over to bodybuilding equipment on the second shift. We're averaging 18-20 hours per day on the FabriGear."

Although their FabriGear 150 was originally purchased to streamline their barn equipment manufacturing division located in Lititz, PA, Zimmerman was very realistic about the investment they made. With five business partners who also happen to be brothers, Zimmerman admitted to being a bit nervous, but confident in his decision to purchase the FabriGear 150. "I knew we couldn't justify the expense of the FabriGear 150 with just our barn equipment, so the plan was to take on job shop work." Little did he know, the job shop potential was so great in the Northeast, that he would be buying a second 3D laser, this time the larger FabriGear 300, in a few short years. "We've got the area ready for the installation and a customer waiting

"We've gone from barnyards to weight rooms to rock concerts to the subway and now out to sea on luxury yachts with our FabriGear 150."

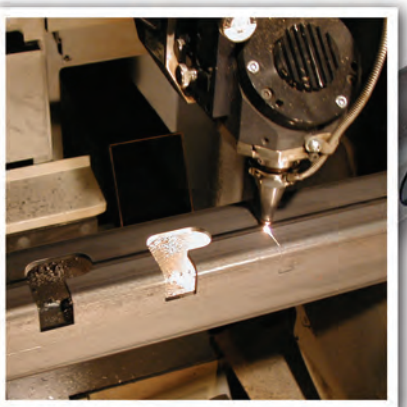


for the first part run on the new 300!" exclaimed Zimmerman.

One of the first outside projects Zimmerman landed was for a manufacturer of weight training equipment, who has grown to become a major customer, utilizing services from several Paul B. Zimmerman, Inc. divisions. "They were having trouble getting the geometry they wanted cut from a square tube, they sent us a sample and the rest is history. Now we're cutting all their tube, fabricating and welding the fitness equipment, warehousing components, custom powder coating and delivering the knocked down units for final assembly at their client's facilities," said Zimmerman. Essential to the success has been the Zimmerman's ability to eliminate production steps, reduce labor and improve accuracy with the FabriGear 150. "We've minimized the handling and cut labor costs by as much as 50% on some of the parts, but more importantly, we've improved accuracy so when the parts go to the robotic welder we're getting better welds faster."

Zimmerman points to the FabriGear's ability to directly import solid modeled part files with the Mazak FG-CAD/CAM software package and cut them without error as an exciting feature that gives him an edge over the competition. "We're working on a project with a large number of tube components for a video screen tower and frame for a major rock band's world tour staging. We're cutting 2" and 3" OD round chrome-molly tubing with compound angles exactly to the design; it's a very expensive material, so you can't afford a single mistake. We took the work away from a job shop that had a competitive brand of tube laser, but couldn't import the files." From the exotic to the mundane, Zimmerman has seen the FabriGear 150 impact his business "Little things like being able to put a slot in a tube where we used to drill a hole. It makes the end product's assembly easier while eliminating the set-up time on the drill press. It all adds up to greater profits."

New projects for Paul B. Zimmerman, Inc. include stainless steel hand railings for luxury yachts and New York City's Mass Transit system. "We've gone from barnyards to weight rooms to rock concerts to the subway and now out to sea on luxury yachts with our FabriGear 150 – I'm happy to have the ability to be diversified!" With sustained growth capable of justifying a second, larger FabriGear, Zimmerman has clearly hit one over the fence!



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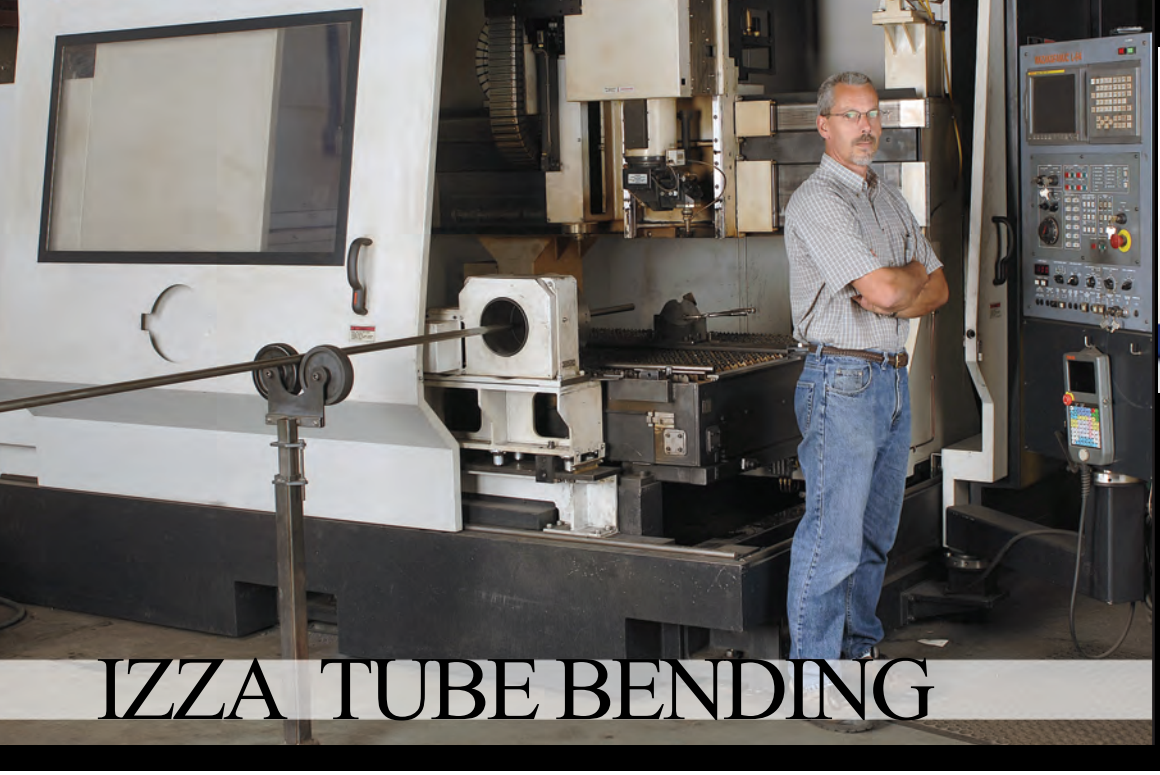


IZZA TUBE BENDING

"If the customer is coping their own tubes, and we do it for them one time, they will never want to do it in-house again."

Izza Tube Bending Makes Sharp Upturn Thanks to *3D Laser*

When Izza Tube Bending, located in Buffalo, MN, opened their doors a little over 4 years ago, they only wanted to make custom paint racks for their sister company Ekon Powdercoating. Customers began to find out that Izza Tube Bending was able to do some basic tube and wire work and began to ask questions about what else they may be able to do. Two things were in their favor: first was the tremendous potential for tube work. The second was their Mazak SpaceGear-U44 laser. They faced some serious challenges, including: customer fears and perceptions, the need to educate clients on the true capabilities of the 3D laser and absolutely no 3D work on the books. With 40% growth in the last six months alone, it's safe to say that Izza Tube Bending has overcome those obstacles!

Izza Tube Bending was started as a sister company of Ekon Powdercoating to provide value-added production and fabricating services for Ekon Powdercoating. The founder, Scott Ladgraf, saw the volume of tube work coming through his coating business, and heard of the difficulties his customers were having in their machining and fabricating operations. "Ekon didn't do much tube work," said Mike Pennock, General Manager at Izza Tube Bending. "Powder coating customers would ask for some additional services like sawing, but it wasn't our focus." Ladgraf knew there were considerable opportunities to expand his business with 3D laser capabilities, but faced the concern that existing customers might perceive Izza Tube Bending as a competitor rather than a value-added service provider.

Their purchase of a Mazak SG-U44 laser and a CNC tube bender made some waves in the suburban town outside Minneapolis. "It was a huge leap of faith, and some customers initially thought we might become a competitor, now they see us as a key asset, offering capabilities that they don't have in-house," said Pennock. "It took some time to educate them, to show our customers how the 3D laser can deliver superior parts, in less time, and for less money."

For the first six months, Izza Tube Bending mostly cut parts for existing customers on an as needed basis. "People would say 'Can you do this?' then, as they began to see the light – the repeatability, the

consistency and the quality that the 3D laser produces, the business just took off," said Pennock. "We'd get these guys working on a tube with a 6" diameter and a 1/4" wall that needed multiple holes of various sizes drilled on different planes and the ends coped. If you've ever tried to do that with traditional machining, you know it's a pistol. There may be three or four setups with a lot of downtime in between the operations. I can do it all in one setup with the laser cutter, without a lot of secondary operations like grinding burrs. The SG-U44 makes it simple and less costly."

Eventually, the fears of competition evaporated as the new capabilities actually strengthened Izza Tube Bending's relationships with their customers. "If the customer is coping their own tubes, and we do it for them one time, they will never want to do it in-house again – the difference is in the quality. We do a lot of stainless steel tube which is almost impossible to machine – when we're done it's a welder's dream, the Mazak laser is that good!"

The store fixture is a prime example of the SG-U44's capabilities. The square tubing was cut into half lap joints which when assembled, interlocked without welding or fasteners. Izza Tube Bending's assistance to the designers also reduced the part content from four pieces to just two. "You find a lot of creativity in store fixtures," said Pennock. "They are into the visual quality, and less is better. The 3D laser gives us the efficiency and flexibility to create these profitable one-time pieces."

As their reputation grew around the Twin Cities, the doors at several major OEMs started to open. "To be truly successful, you need the OEMs – that's your weekly paycheck," said Pennock. "The specialty work may be more profitable, but the stability of the OEM accounts is how you grow." Izza Tube Bending's ability to cut costs throughout the manufacturing process with the 3D laser has been essential to winning the OEM accounts. He continued, "Eliminating setup operations is just a part of the program. The repeatability, consistency and speed are keys, plus the operators need very little in the way of training to run the machine and it can run almost unattended, which creates huge savings in labor costs."

"The SG U44 makes it simple."

As Izza Tube Bending began to gain the confidence of their OEM accounts, they were able to outgrow the vendor image, and became a true partner in the design process. "At first, the relationship was pretty standard, we would get the print and the OEM engineers would ask if we could make it, then there would be changes sent back and forth. Now that we're working with them in the engineering stage, we can design the part around the laser's capabilities. We're eliminating re-engineering time, and making the part right the first time and that's what's really cutting costs," said Pennock. News of Izza Tube Bending's capabilities has spread within the corporate structures of many customers, resulting in opportunities with different divisions across the country. "We're still a regional company in our infancy, but we are making contacts nationally. We've got a nice book now, in five years we'll be well known – especially if we can maintain 30 to 40% growth."

With only 4 -6 true competitors in the area, Pennock is forecasting continued growth for Izza Tube Bending, "We are the new kid on the block, but our competitors definitely see us as somebody to reckon with. We're taking work away from traditional machining operations every day because of the efficiency of the SG-U44. We know we can beat our competitors every time because our per-part price is lower." Izza Tube Bending's SG-U44 is booked solid for a month, running two shifts, five days a week, with a 3 - 4 week turn around on most jobs. "The growth potential is so big, when you consider the thousands of shops out there drilling holes. We're consistently competing and winning on price and quality."

PORT CITY METAL SERVICES

Port of Call

"Provide whatever the customer needs. That's how I grow the business," stated Port City Metal Services owner David Carter. "I'm an entrepreneur, I'm not out on the golf course, I'm here every day, so when I see a customer's need that's a viable business opportunity, I go look at it." Unburdened by middle management committees and corporate boardroom politics, Carter has the flexibility to react to market and business trends to gain an advantage. "We're smaller than the major service centers so we can be more responsive and we're better financed than the small shops so we can act on our decisions," he said.

"It was obvious to me, after talking to my customers, that there was a demand for structural tube work. After researching a number of competitive machines, I chose a FabriGear 300 and dedicated 20,000 square feet of floor space for 3D tubing operations, which represents no small investment." Carter cites the number of customers doing angle and tube work either manually or on machining centers as a key factor in the decision making process to buy the FabriGear 300. He also noted favorable tax depreciation schedules in Oklahoma and on the Federal level as additional factors influencing the decision, "I was ready to purchase. The tax incentives made it that much easier."

Even though he had no 3D work on the books, Carter bought one FabriGear 300 and had the floor space pre-configured for a second machine, as he planned ahead for expansion, "We are currently selling into our regional market, but we do have national companies

looking at Port City, which is why we planned for two FabriGear 300's from the start." After six months of growth in 3D orders, Port City Metal Services is now running its FabriGear 300 10 - 12 hours per day, five days a week, plus a half shift on Saturday mornings while training personnel for a full-time second shift.

"It was obvious to me, after talking to my customers, that there was a demand for structural tube work."

Port City Metal Services occupies over 600,000 square feet of manufacturing and warehouse space in Tulsa, OK, offering customers: raw material inventory, plasma cutting, flat laser cutting, press brake bending, rolling, CNC machining and 3D laser cutting. "We do a lot of kitting. A prime example is a tractor bucket where we cut, drill, tap, roll, and bend plate steel and now we cut tube and pipe to exact tolerances, put it all on a pallet and ship it out to the assembler," he continued, "We're also working on components of a pump trailer. It has over 50 parts cut from 2" and 3" schedule 40 pipe. We cut, cope and scribe each part on the FabriGear, then palletize the kit and ship in one week. We knock it out perfectly; it fits together like Legos or Lincoln Logs."

It seems that the FabriGear 300 is a perfect fit for Carter's philosophy of being more than a vendor, "we want to take as much burden as we can off our customers, to be a one stop shop – they use our inventory, our floor space, our equipment, our labor and our capital so they can concentrate on engineering and assembly. Really, the FabriGear represents such a huge shift towards using new 3D technology to manufacture, as a lot of this type of work is being done by hand by iron workers with plasma cutters, the labor costs are such a concern for everyone these days."

"We knock it out perfectly; it fits together like Legos or Lincoln Logs."

The capabilities of the FabriGear 300 have been paying dividends for both new and existing customers according to Carter. "The flat plate customers see 3D jobs running, and we start getting inquires for tube work that they're doing, then the tubing customers come in for their job and see our flat plate capabilities and they're interested in that side of our business." Once again Carter points to the added efficiencies of having multiple processes performed under one roof, "We can do the work of three or four smaller shops, ensure perfect fits on assemblies, reduce lead times and transportation costs while improving quality and streamlining production. It's such a unique piece of equipment. Our customers have been very impressed. We've gained the upper hand in quality and ability with the FabriGear 300 and that's given us the cost advantage compared to the traditional shops. We've already set shipping records for the year."

East End Up

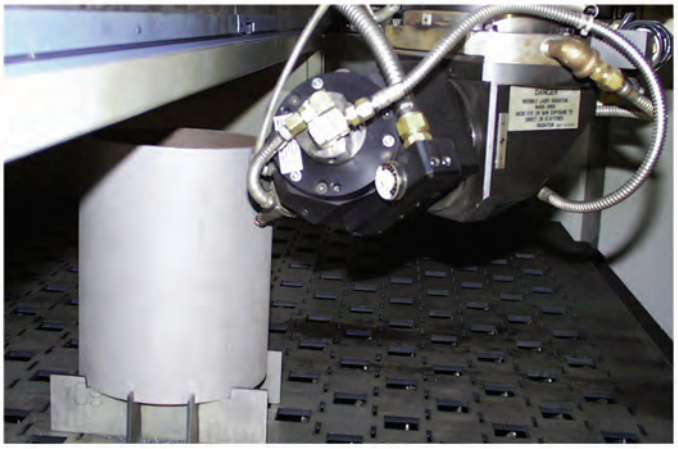
"Right now, we're running our Mazak SpaceGear nearly 24 hours a day, with a 2 -3 week backlog," said East End Welding Vice President Dave Dockery, "although we usually maintain 60 to 80 hours per week on it." Not bad for a company that bought their SpaceGear in the middle of a recession without a single 3D job to run on it. "We had seen a lot of auction flyers cross our desks by mid 2003," he said "when John Susong, owner of East End Welding, and I started talking about what preparations we needed to make for when the economy turned positive. There were plenty of 1,500 and 2,000 watt 2D competitors in our area. We knew we had to offer something to set us apart, which is why we went with the SpaceGear 5 x 10, 4,000 watt laser."

You would have to search to find an application that East End Welding's 70,000 square foot 'job shop' facility isn't capable of, "We offer oxy, plasma, hi-definition plasma, water jet, 2D laser, sawing, shearing, press breaks, rolling, sandblasting, stress relieving, and painting in house. We sell hours, and we've found that we can sell a lot of hours on the SpaceGear." Dockery continued, "We wanted to come out of the slowdown strong, so we put another weapon in our arsenal."

With over 500 active customers, Dockery had the opportunity to show East End's new acquisition to a large captive audience, "We walked a lot of people through early on and they would go away thinking of ways to use the SpaceGear. At the start, all the orders were from current customers, but for new parts. We were getting to quote on parts from our client base that we never would have been considered for. On that 3D work, we're hitting on 95% to 100%." The SpaceGear's ability to eliminate process steps and downtime between has dovetailed nicely into East End Welding's philosophy of passing the savings along to the customer to earn more of their business. "Obviously, to have such a high success rate, you must be very capable and very fair to the customer. The Space Gear is an expensive piece of equipment and we know we can't make it all back on one job, you've got to have their repeat business."

Dockery also noted the role that word-of-mouth advertising has helped to build the 3D business for East End Welding, "The industry is smaller than people think," he said. "Once the word got out that we had the 3D capability, we started getting inquiries. We've also received referrals directly from our Mazak representatives, where someone will call them and ask for the name of a company like ours with a SpaceGear on the floor." Other jobs are coming in from machine shops for projects that could be considered direct competitors, "We'll have a company sending us work that they won the bid on, but in the end couldn't complete. We're problem solvers for those clients."

Most of the jobs East End Welding is running on the Space Gear were converted from traditional manufacturing operations. "It's the old way of cutting, drilling and beveling on three machines verses doing it all on the Space Gear, with a better fit, at a reduced price with a shorter lead time," said Dockery. "We've been very clever with the technology and it has saved us on parts that we used to struggle on."



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