

CARDINAL LASER

Cuts new ground with Mitsubishi

by Rob Colman

When Keith Drinkwater and John Carlsen launched Cardinal Laser in January 2009, they had a clear idea of the type of shop they wished to run – lean, efficient and versatile. They started with one laser and a team in which only one person had less than six years experience. This year, they added to their arsenal a new Mitsubishi laser that is helping them get jobs they couldn't have handled before.

Cardinal Laser was created after Drinkwater sold his former company, Symtec, to Superior Alloy Technologies.

"I was working at Symtec under an employment contract, and this opportunity came up to take over one of (the company's) machines and basically start again," he recalls. Carlsen had recently left laser cutting company Laser Metal Profiles (LMP) in Cambridge, Ont. Their combined experience in operations and sales, and their similar business philosophies, made their partnership a natural fit.

"We have seven people on staff, a tight shop," says Drinkwater, who serves as VP of Operations for the Guelph, Ont.-based company. "One of our goals and one of our advantages is the fact that we have experienced people, and we're trying to keep it lean and mean. Everybody wears multiple hats, everyone's doing numerous jobs, and because there is so much experience under one roof, it's easier to keep everyone going in the right direction."

Competitive advantage is everything in today's tight market, so Drinkwater and Carlsen (VP of Sales) want to ensure they can do as much for their clients as possible.

The company serves a broad selection of industries, from material handling and conveyor systems to agricultural equipment and everything in between. Primarily, the company is doing work for machine shops and fabrication shops that are manufacturing for others.

Cardinal cuts steel, stainless steel and aluminum. "Percentage-wise, we are primarily cutting carbon steel, but we also cut stainless steel up to a half inch, aluminum up to a half inch, and the carbon steel up to an inch thick."



THE MACHINE

Cardinal's new purchase of the Mitsubishi 4kW 3015 laser opened up some of these opportunities. "There were several things that attracted us to the Mitsubishi," says Drinkwater. "Mainly, it was their ability to process thin materials at high speed and also heavy materials up to one inch. Being a job shop, it's important to be able to process a broad range of materials and that just opened a few more doors for us."

Mitsubishi laser systems are built around the company's patented 3-Axis cross-flow resonators, which use a rectangular wave high-peak pulse to deliver a sharper beam and more cutting power. The resonator also consumes up to 90% less laser gas than traditional fast-flow systems.

And it has a fast startup time ready to cut at full power only 45 seconds after power on. The basic stats for the 3015 system are as follows:

- Machine Travels (X x Y x Z (in)):
122 x 61 x 3.54
- Workpiece Dimensions (W x D (in)):
120.1 x 60.0
- Maximum Processing Rate: 1180 in/min
- Available Resonators (model number/
wattage output): 35CFX/3500

The LVPLUS system used by Cardinal is built on a single-piece, ultra-rigid, Dianite casting for stability.

A further factor in Cardinal's purchase was that Mitsubishi would manage the financing – another important consideration in a market where smaller players need support.

"They just made it a complete package," says Drinkwater. "We're a small company,

we're very busy. There just weren't enough hours in the day to do everything and go out hunting the market for financing. It just made (purchasing the machine) so much easier."

THE QUALITY

The bottom line, however, is the quality of the product Cardinal can produce using the equipment, and from the first test run they were impressed with what they could produce with this 4kW machine.

"We found that with the very first piece we put up, we were able to produce quality product," says Drinkwater. "The features built in for the beam control and spot diameter allow a lot of flexibility because you can either go with a fast pierce or a slow pierce. It's all built

table size and a pallet changer.

"On the Mitsubishi we put in a fairly elaborate crane system," notes Drinkwater. "On some of the jobs that we do that have a short sheet processing time, material handling becomes an issue. We now have the ability to put two people on the machine. One can load and one can unload, and it makes processing much more efficient. There is no point in having a high-speed machine if you can't keep up with the material handling."

Some have asked why the company didn't go with automation instead, but Drinkwater points to cost and the variety of materials they work with.

"(The material variety) makes it very difficult to go with automation," he explains. "The

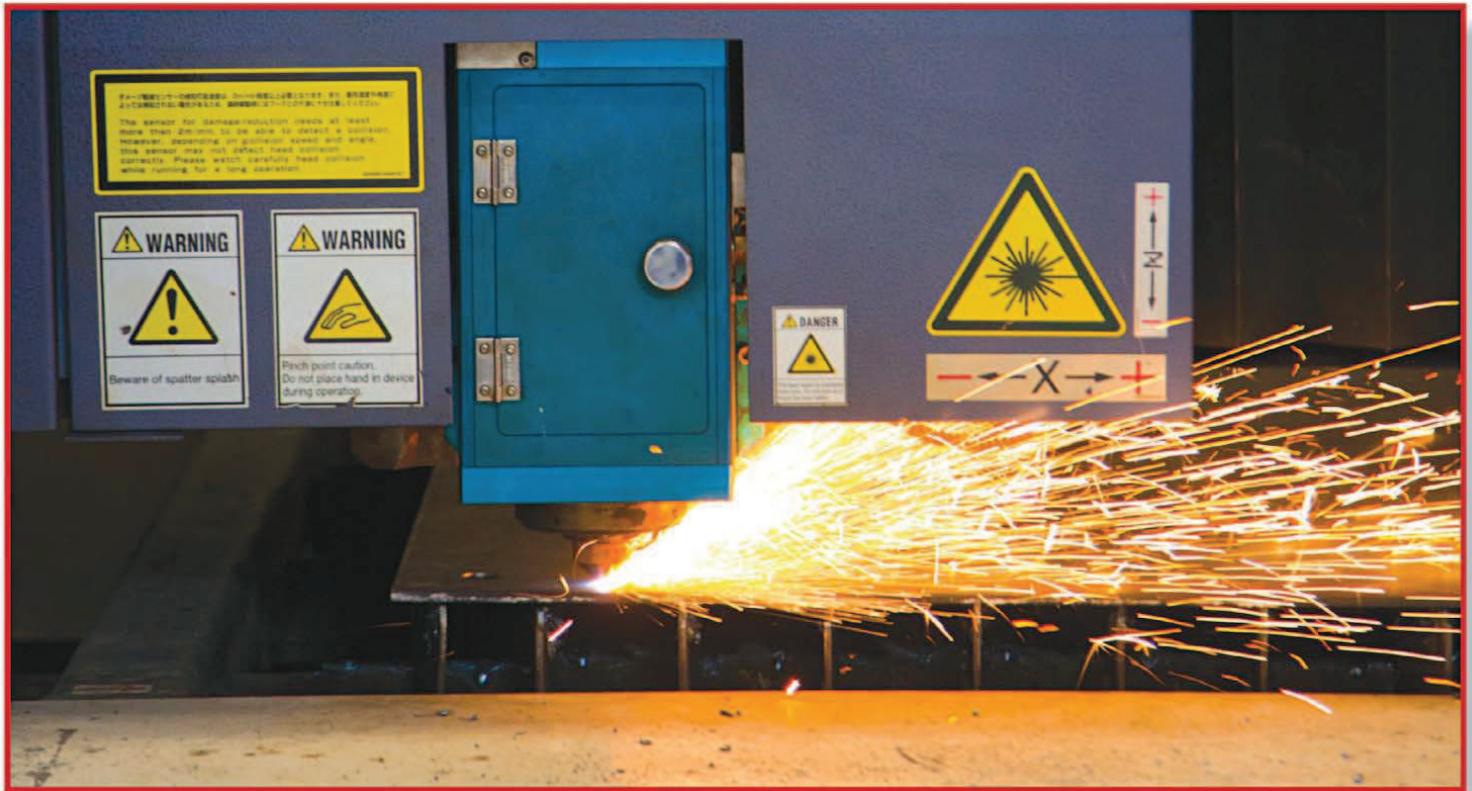
The serviceability has also been excellent. Drinkwater says maintenance time and costs are about 10-25% less than any other machine he has used.

THE COMPETITIVE IMPORTANCE

Although the market continues to be slower than Drinkwater and Carlsen would like, companies are starting to ramp up.

"While two years ago we may have quoted on 1,000 pieces for a company, the orders are maybe 50 right now," Drinkwater explains. "You've got to be able to process those small orders in an efficient manner to still be able to make some profit on it. That's where having a knowledgeable staff pays off."

The flexibility has also meant that Cardinal



With the new Mitsubishi, Cardinal Laser is processing thin materials at high speed and heavy materials up to one inch.

right into the machine. The pecking on the corners allows for very sharp finishes. We've actually been awarded some jobs based on the samples we've used because of our ability to produce very sharp, acute angles, which would be very difficult to do on other equipment."

Drinkwater also notes a particular project that involved cutting a 0.400-inch diameter hole in three-quarter inch steel with a fairly tight tolerance. "Initially we felt it would be difficult to do, but within 10-15 minutes of setting the job up, we were running production. We ended up with a zero reject rate on a 1,000-piece order."

The 3015 includes a five foot by 10 foot

setup that we have is so flexible that we can go from 26 gauge aluminum to 1 inch plate. Automation for material loading and unloading is fine if you're running all the same material but for a job shop situation, it's not the best.

"In the course of a shift, we may go through 10-12 material (changes) in a day. Other days, a job will run 30-40 hours straight. It's good to have the flexibility to react to those changes."

Programming the system required nothing more than a post processor, and Drinkwater says the initial learning curve has been phenomenal. As far as challenges with the machine, "(Mitsubishi) has been at the end of the phone with support whenever we've needed it," he notes.

can pick up where other shops don't have the capability.

"We were recently doing work for another shop because we can do three-quarter inch and one inch (carbon steel)," notes John Carlsen. "That has worked out well."

Now, the team at Cardinal Laser is working to improve their processes to get the most value possible out of the Mitsubishi 3015. For instance, on a job they started in mid-June, they were able to improve their processing time by about 25-30%.

"Every process improvement we make makes us more competitive," says Drinkwater.