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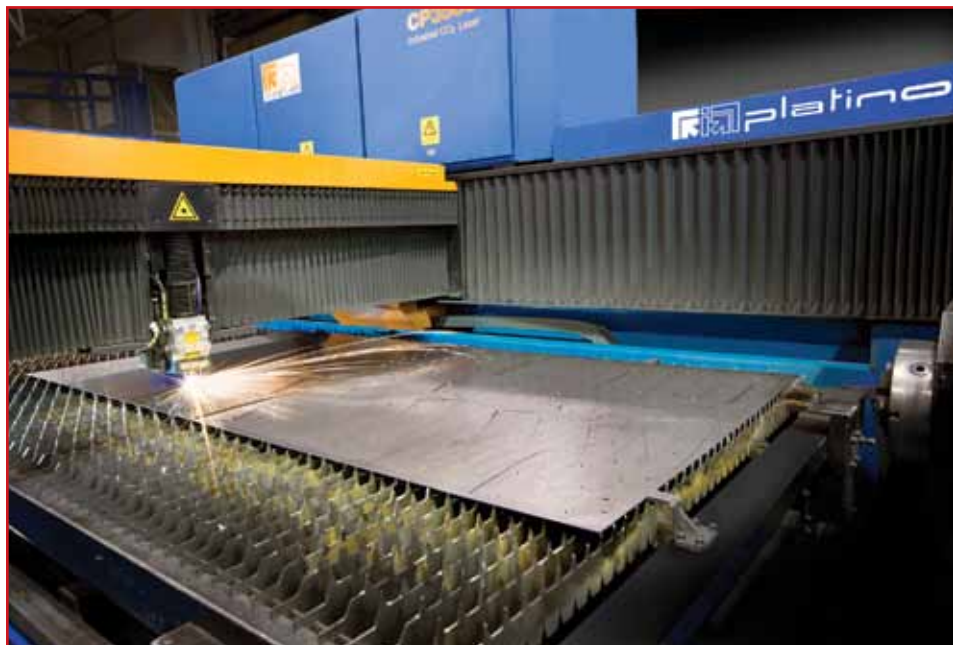


**Niche market manufacturer
thrives with laser,
punch press**

D & R Electronics Co. Ltd., Bolton, ON, was founded in 1976 by Rinaldo Darolfi as a repair shop for stereo equipment. Local police departments soon became customers for repair of their automotive siren amplifiers. Eventually, D & R Electronics was asked to design a light switch package for police vehicles. Darolfi came up with the design that won the contract and the company found itself in the manufacturing business. And that opened up a new world of possibilities for the company.

Today, D & R Electronics designs and manufactures a wide range of light and sound control systems, cabinets, chassis, and other equipment for police, fire, utility, and emergency vehicles. The company supplies both a standard product line and customized versions for particular applications. Customers include police forces throughout Canada, the U.S., Europe, and Australia.

Rinaldo's son Alfredo joined the company in 1992 and began running the sheet metal department. "We just had a couple pieces of equipment and started growing the department from there," explains Alfredo Darolfi, vice president, manufacturing. "At that time we were just building the chassis for the electronics. As we started working with the sheet metal fabrication, we saw more opportunities in the markets, such as speaker brackets, light mounting brackets, gun



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cabinets, etc., and we started building those products."

At that time, D & R Electronics had a mechanical turret punch press and a high-definition plasma cutter. In 2005, the company replaced the plasma cutter with the Prima Platino 2D laser system. The Platino is equipped with lasers developed and produced at Prima Industrie in laser powers ranging from 3000 to 5000W. The laser cuts a broad range of materials

and thicknesses with speed and precision without the need for manual adjustments.

Platino's laser cutting head gives users a choice of a 10-in. focal length in addition to the standard 5-in. and 7.5-in. lenses. The 10-in. lens enhances the application flexibility by increasing the depth of focus and enlarging the spot diameter for high and uniform cut quality of thick stainless (5/8 in), thick aluminum (1/2 in) and thick mild steel (1 in).

"We chose the Prima Platino because after researching the industry, we found that it had just as many, if not more, machine features than the competitors at a better price," says Darolfi. "Bang for the buck, it was the best machine on the market. I liked the construction of the machine because it had the cantilever arm construction with the single frame so the resonator sits on top of the machine."

Offering a compact footprint along with a Cartesian, Cantilever structure that provides three-sided access, Platino is a cost-effective machine that is easy to operate and quick to program. Its unique stonecast frame reduces vibration and increases stiffness by about 4 times compared to cast iron and about 6 times compared to welded frames. Its low heat conductivity results in much higher thermal stability compared to traditional cast or steel frames.



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Designing around shop capabilities

“We design all our products in-house,” explains Darolfi. “I always tell my design team to design around the shop capabilities because if we can’t build it... it’s not a very good design. Once the Platino laser was installed and we saw the capabilities of the machine, we began to devise a game plan on expanding our product line with new products.”

One of the Platino’s features that Darolfi especially liked was the rotary axis option for tube cutting. With zero set-up time, the Platino can change from cutting sheet metal to processing of round, square, and rectangular tubes. “The rotary axis option allowed us to create a sophisticated swivel for a new passenger side laptop mount which utilizes laser cut swivel components. Our competitors can’t match this feature because the laser allows us to take it a step further.”

Before purchasing the Platino, D & R Electronics cut everything manually on the saw, and holes were drilled manually. “We had issues with fit and finish,” continues Darolfi. “Now with the Platino laser, there are seldom any rejected parts. Everything fits together perfectly. It makes the welder’s life easier as well. Products like our laptop mount, which is one of our best selling products, could not have been produced without the laser. I didn’t buy the Platino with the intention of cutting tube. I bought a laser to cut flat sheet, but when I saw the radius axis option, I knew immediately that we could use it. It is a very important feature for our company, and has cut our cost of tube processing by 50%.”

Automated turret punch press

Another important piece of equipment, the Finn-Power C5 Compact Express, was installed in late 2008, and replaced the older mechanical turret punch press.

The C5 Express adds unmanned operation to the C5 turret punch press through highly compact load/unload automation. The unit’s loading /unloading solution utilizes the space above and below the machine, requiring only slightly more space than a turret punch press. It is fast, with simultaneous loading and unloading during processing, accurate, and it does not limit easy manual operation. The 20-station, 33-ton C5 hydraulic turret



D & R Electronics has used the Finn-Power C5 Compact Express turret punch shown here as a stepping stone into automation.

punch press has a maximum sheet capacity of 50” x 100” and is available with either Siemens or Fanuc controls.

Tooling flexibility is important to D & R Electronics. Up to 10 auto-index and Multi-Tool® holders may be installed in a Finn-Power turret. D & R Electronics has seven auto-index stations, one upforming station, and three Multi-Tool stations in the C5. Unique to the C5 turret punch press, full tonnage, indexable upforming allows complex forming operations to be made quickly by using a single forming tool.

Finn-Power incorporates an individual tool holder concept that allows customers to design their own turret layouts. Unlike other designs, specific tool stations are not machined into the turret. Finn-Power offers the only flexible selection of tool holders in the industry. Any tooling style from Mate Precision Tooling or Wilson Tool International can be installed in a Finn-Power turret. “We were able to save thousands of dollars by being able to use our existing tooling from our previous turret punch press,” says Darolfi.

D & R Electronics has its peaks and valleys in terms of production and demand during the year. During the high-volume months, the company would add a second shift to run the punch press. “The downside is that after the peak production period, I had to lay people off,” says Darolfi. “The C5 Compact Express with its automated load/unload complemented our needs perfectly. During the busy season, we

can run into the night unmanned. It is a stepping stone into automation. At this point, I don’t need full automation, but having the load/unload automation is perfect for our company’s needs today.”

According to Darolfi, the Platino laser and C5 Compact Express complement each other. “Both the Platino laser and the C5 Compact Express have increased my productivity. With the Platino, I can make fast prototypes and custom products, such as individualized storage cabinets for tactical vehicles. I can ask what sizes my customers want, rather than limit my product range to a few standard sizes. Prototyping and custom manufacturing have dramatically cut production time by 70%.”

D & R Electronics does its production work on the C5 Compact Express. “It not only eliminated the need for a second shift, but we also had an employee loading sheets all day,” says Darolfi. “Now with the large table size, I load a full 4 x 8 sheet with the C5 Compact Express. When we first got the machine, everyone in the shop was worried, and would ask me, ‘why are we so slow?’ I told them that we weren’t slow...but the C5 Compact Express did in three hours what the old turret punch press did in eight hours. It has tripled our productivity.”

Darolfi is very pleased with the service from Prima Finn-Power. “The Platino laser has been a fantastic addition,” he says. “All machines have service issues occasionally, and Prima’s first line of defense is phone support. You call them and explain the problem, and 9 times out of 10 their techs can walk you through a problem and get you up and running within an hour of the phone call. And the punch press side is also great to work with. They are so accommodating. If we want to try something different on the C5 and we’re not quite sure how to do it, my programmer drops the local Finn-Power service or applications coordinators an e-mail and they always respond immediately and advise us. It goes head and shoulders beyond the service we received from the other machine tool builders with whom we have worked.”

This article was supplied by Prima Finn-Power North America, Inc., Arlington Heights, IL (finnpower.com).

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TheLASER



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resonator sits on top of the machine. And it was also one of the only lasers that offered the rotary axis option for tube cutting."

Alfredo Darolfi
VP Manufacturing
D & R Electronics Co. LTD
Bolton, ON

Prima Finn-Power is a leading supplier of 2D and 3D laser sheet metal processing systems. A single-source provider, Prima Finn-Power manufactures the laser source, machine tool, control, software, and material handling. For more than 40 years, the Prima laser manufacturing division in the U.S. has produced high-quality industrial CO₂ laser resonators, providing DC excited, fast axial flow 3000, 4000, and 5000-watt resonators.



- Compact design saves floor space, facilitating efficient material flow, and requires no special foundation.
- Efficient resonator design reduces power consumption by as much as 33%...and uses fewer optics, further reducing operating expense and maintenance costs.
- Cantilever design provides tremendous flexibility in terms of operator access and material handling options.



FINN-POWER

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