

# A Good Marriage

**Laser punch combination increases productivity and flexibility at Québec contract manufacturer**

In 1978, Clément Bussières founded Recouvrements Métalliques Bussières (RMB), St. Henri de Lévis, QC, to supply the construction industry with metal siding. When the business first began, Bussières had only a mechanical press brake and shear to fabricate his moulding products. Soon the company grew and a sister company, Produits Métalliques Bussières Inc. (PMB) was formed in the early 1990s to service the growing job shop market in Quebec. In the early days, PMB manufactured various metal supplies mainly for the construction industry.

As the company evolved, many other industries were added to PMB's list of clients, including outdoor recreation, heating, transportation, agricultural controls, and electrical panels. Bussières's son Steve joined the company in 2000 with some new ideas and a strong commitment to grow the job shop side of the business.

"We bought our first turret punch press, and a few years later purchased TIG, MIG, and spot welding equipment to open up the subcontractor market," explains Steve Bussières. "Through hard work, new equipment and software procurement and retaining our workforce, the job shop business has grown to 80 per cent of total sales, compared to 20 per cent back in 2000." Today, the company has a 24,000-sq-ft facility and 30 employees.

"A few years ago, tolerances were not as important as they are today," adds Dominic Fournier, production manager. "In the past, the tolerances were not tight with our low-technology machines. But today our customers demand more accurate parts with tighter tolerances and zero defects. We



Steve Bussières, right, and Dominic Fournier display parts fabricated on the laser punch combo.

grew with our customers and this has led to our search for quality fabrication equipment.”

According to Bussières, by 2005 PMB’s old turret punch press was overloaded and the company began looking at ways to increase its productivity. “We also wanted to add laser capacity,” says Bussières. “We were subcontracting all of our laser work.”

After an intensive search of the latest automated technology on the market, PMB executives chose the Finn-Power LP6 laser/punch combination with the LSR load and stacking robot. “After seeing the laser punch in action during a Finn-Power Technology Trip to Finland and Italy, we knew it was the machine that filled all our needs,” explains Bussières. “We wanted to commit to automation, so the LP6 with the LSR was a logical choice to allow us to eliminate micro joints and add lights out operation.”

The Finn-Power LP laser/punch combination represents proven technology and intelligent integration of punching, forming, tapping, and laser cutting in a single unit for the most varied sheet metal operations. Optimum use of the Finn-Power LP6 means that a fabricator can use the turret punch press where it is easier or faster and the laser where it is the most effective. The LP allows the user to look at the parts to determine the optimum process for every production.

Other benefits of the LP6 include:

- Reduction of piece part costs—faster punching time,

Finn-Power’s LP6, seen below in an aerial shot and inset, allows PMB to use the turret punch press where it is easier or faster and the laser where it is the most effective.

reduction in direct labour assigned to set up and punching, and reduction of number of manual operations.

- Ability to utilize full sheets while eliminating the need to shear to size blanks being processed.
- Increased machine utilization—if load/unload system is purchased with the LP, unmanned operation can be achieved from load, punch, upform, laser cut, unload, and sorting of parts in one machine.

“The automated LP6 combination machine has more capacity than two manual machines,” notes Fournier. “And the LP has dramatically reduced our labour costs. Instead of four operators over two shifts, we now have just two operators...and finding qualified labour is getting more difficult each year.”

The Finn-Power LP combines the C-Series 20-station turret punch press with the latest generation of CO2 lasers. The punching part of the LP consists of a 30 ton (33 US ton) turret punch press that has excellent forming capabilities—.630 in. high (16 mm) with no die interference; auto-index, Multi-Tool, programmable clamp settings, and brush tables. It features a Rofin Sinar 2,500 W



diffusion-cooled CO<sub>2</sub> SLAB laser that is integrated into the LP6. The focal length lens can be changed in seconds using a cartridge technique, and no tools are required. The cartridges are available in 5 and 7.5 in.

The integration of the laser and the punch is accomplished with the part piece flowing from the turret punch press to the laser without the release of the clamps. The flow of material is from the load side to the unload side, eliminating the time-consuming method of loading and unloading from the same side. The O-frame of the turret punch press is separate from the laser, assuring that no vibration will be transferred to the laser, providing added reliability and uptime of the system.

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. Up to 10 auto-index, forming, or Multi-Tool stations may be installed in the turret. Finn-Power's auto-index system rotates the punch and die in their toolholders. Rotation in .001° programmable increments gives the machine the ability to rotate beyond 360°, thus allowing the system to automatically select the shortest path to rotate to a programmed angle input into the NC part program with simplicity, speed, and reliability. PMB has six full-tonnage auto index stations.

The Multi-Tool stations increase the number of tools available in a turret, reducing set-up and increasing productivity. The Multi-Tool offers 6, 8, 10, or 24 different punch/die combinations in only one station—a turret within a turret. PMB has four Multi-Tool stations. Finn-Power's upward forming option provides more accurate forming and greater forming heights up to 16 mm (.63 in.) and 5 in. in diameter. Another





advantage is that all dies are at the same height and there are more high forming dies in the turret, reducing risk of material damage and increasing machine uptime.

“Not only have we been able to bring all the laser work in-house from the subcontractors,” says Bussières, “but the quality is much better with the LP6. In addition, we have the flexibility to use either the laser or the turret punch press.”

#### **LOADING AND STACKING ROBOT**

The Finn-Power loading/unloading and stacking robot (LSR) is a material and part handling robot that can be integrated into the LP6 laser punch. The LSR loads sheets to the laser punch and stacks finished work pieces onto stacking pallets.

The LSR gripper has 24 suction areas, each of which can be controlled separately. In the programming system, vacuum areas are selected, and vacuum area values are automatically generated to the LP6 laser punch and the LSR robot.

According to Bussières, the LP6 is 40 per cent faster—and in some cases 60 per cent faster—than the company’s earlier machine. “We now have the automation to run overnight,” explains Bussières. “This automation has dramatically increased our productivity. The Finn-Power LP6 / LSR has tripled our productivity capability compared to our earlier fabrication equipment.

“Prior to having the Finn-Power automation, we set up teams to train and create a new mindset for our employees,” says Fournier. “We also changed our production philosophy with the new equipment. We used to batch manufacture our parts. With the Finn-Power equipment, we nest everything...and this has made us

more efficient. We no longer have to shear blanks. With the automation, we can utilize the economies of nesting full-sized sheets.”

Another area of satisfaction for PMB is the Finn-Power operating software. The NC Express CNC programming system is a user friendly, integrated, and automated tool for managing Finn-Power equipment in the most efficient manner. NC Express is a tooling, nesting, and optimizing software package designed to easily integrate into an existing manufacturing environment, taking full advantage of the CAM features and the Finn-Power machine tool product line.

“With the Finn-Power NC Express, it is easy to nest parts with the laser and turret punch press capacities,” explains Fournier.

**NEW MARKETS**

The Finn-Power automation has opened up new markets to PMB. “When the subcontractors were doing our laser cutting we faced many quality control problems,” says Bussières. “But now we control every step of the process, from the loading of the sheet through unloading of the part. The automation gives us the capacity to cut



stainless and polished material without scratching the part.”

While sales have continued to grow 15-20 per cent per year at PMB with the addition of the new equipment, Bussières estimates his company still has untapped capacity in the LP6.

“Our target was to have this machine handle production for the next two to three years by itself...and it is almost two years since it was installed,” says Bussières. “We can continue the same rate of growth for another two years with the LP6.”

With the difficulty in finding qualified labor, PMB is concentrating on automation for future growth. “We are looking at robotic press brakes,” explains Bussières. “All of our future thinking will be around automation, including maybe the Night Train Material Management System and another LP6. We see additional benefits every day. While we are a small business, even our competitors are impressed by our Finn-Power equipment. When our customers see the LP6, we gain in credibility and it gives us increased visibility.” **CM**

**REFERENCES:** [www.finn-power.com](http://www.finn-power.com) • [www.rmp-pmb.com](http://www.rmp-pmb.com)