



EURO TRIP

By Joe Thompson, Editor

A recent trip to Europe proved one interesting fact to be true. It doesn't matter if your shop is large or small, established or newly-opened, what matters is how you choose to attack the ever-changing global manufacturing landscape.

At *Canadian Industrial Machinery* we are always striving to bring you the latest in technological advances from the world of manufacturing technology. Thanks to sheet metal equipment manufacturer, Finn-Power, we were able to get an inside look at how these European companies are automating their laser cutting, punching, shearing and bending processes.

Since 1983, Finn-Power has specialized in providing its customers with advanced sheet metal working technology. The company has also focused on taking a leadership role in the production and implementation of material handling and automation solutions.

Also, combination machines, such as the Shear Genius and Shear Brilliance (punch/shear) and the Laser Brilliance and LP series (punch/laser) have become very popular with customers that desire the flexibility and productivity that these multifunction standalone machines can provide.

Where the true power of this equipment lies, however, is in the linking of these multifunction machines to material handling and storage systems. This creates complete manufacturing lines that can be added to at a later time if part volumes increase.

Manufacturing facilities in both Finland and Italy create the wide range of equipment available from Finn-Power, a full list of which can be found at the company's website: www.finnpower.com.

Seems Familiar

Since we are Canadian, we may, in fact, know more about Jari Kurri and Teemu Selanne's career goal scoring stats than we do about the economic and geo-political background of Finland.

By European standards, Finland is a large country with a sparse population that is nestled up against a major regional powerhouse. Sound familiar? The five million residents of Finland live mainly along the country's southwestern coastal plain and its key economic sector is manufacturing. Trade is very important with exports equaling 40 percent of GDP.

So what can Canadian manufacturers learn from their European counterparts?

Here's the theme from a week spent touring shops with high levels of automation: A reduction in human-machine interaction in the manufacturing process can mean better productivity, better part quality and lower costs per part.

Now all you need are the orders.





HALTON OY

Kausala, Finland

Inside the walls of Halton Oy the air runs cool and pure.

It is the mission of this company to create indoor climate systems that provide a safe, healthy, comfortable, productive and energy efficient indoor environment in which people can work and live.

The company creates solutions for commercial buildings such as heating, cooling, ventilation and lighting systems as well as air flow and fire safety systems. Also, other divisions at Halton supply systems for food service and even marine installations.

Sheet metal fabricating is the major component in the manufacturing process at Halton. Previously, sheet metal parts were riveted together to get the complicated end pieces that make up what are quite often custom air supply systems.

Now, thanks to an investment by the company in advanced bending equipment, the sheet metal is simply bent into the correct shape.

Doing the bending is Finn-Power's Express Bender.

The Express Bender is able to create complex, accurate bends without the need for operator involvement. In fact, one particular part that is created by the company has 11 bends. Not only can parts be created in greater numbers, but, thanks to this technology, the same accurate bend is created every time.

"We used to have a lot of assembly time," explained Markus Helineva, Halton's production development manager. "Now we are able make single parts that used to be four or five different parts. This saves a lot of time, but also eliminates the need for rivets, glue and silicone."

Bending generally starts from the outside edge of the sheet and continues towards the inside of the sheet, working one side after another in sequence.

"Quality is definitely up," he said, "as are production numbers."

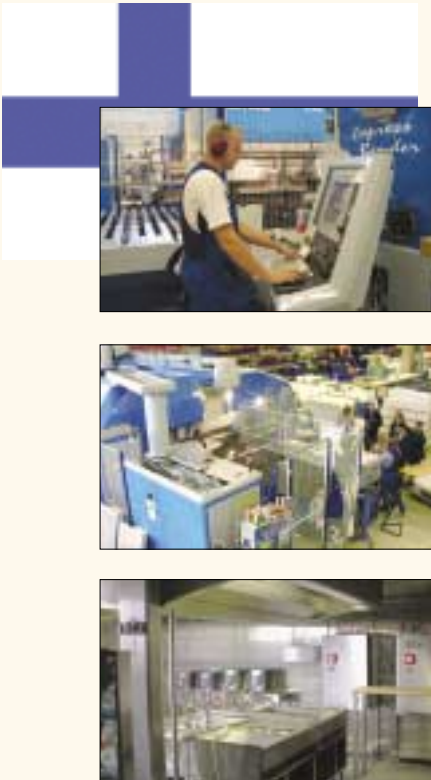
Working with 1mm thick galvanized steel, Halton production runs range from one-offs to parts in the hundreds. Also, due to the custom nature of the parts that are being produced, Halton needed a bender that was also customized.

Because of this, Finn-Power delivered a customized bending system that was 250mm high, rather than the standard 200mm.

The Bending Process

The sheet metal is loaded automatically onto the table where a manipulator pushes it against the positioning pins and a bending tool holds the required portion of the sheet in position during the actual bending process.

Two blades bend the metal between the counter blade and the upper tool (upward or downward, depending on the nature of the bend) to the correct angle. The process is repeated until all bends are created and the finished part leaves the work zone and another blank is bent.





ILINOX

Parma, Italy

Old world craftsmanship in the cabinet-making industry is nothing new to the manufacturers of Parma. When you combine this dedication to quality with new technology what you get is the laser cut, punched and bent parts that Ilinox turns into today's cabinetry.

According to productivity director, Claudio Allodi, the company manufactures stainless steel cabinets primarily for the electrical and medical markets and also tanks for the pharmaceutical and food processing industries.

Wide Range of Parts, Lot Sizes

In 2003 the company went looking for new technology that would give them the flexibility and part quality they needed to create their final products more cost efficiently and in a wider range of lot sizes.

They were looking to produce large parts with several bends and also smaller, thicker parts with fewer bends.

"In this company, because they are not producing standard products, the most important factor was the flexibility," explained Roberto DeRossi, bending automation product manager for Finn-Power Italy. "They wanted the ability to produce many different parts in many different lot sizes."

Once again material handling and storage were also a major concern that was solved by the installation of a Night Train system. In addition, doing the sheet metal processing that is fed by the Night Train are a LP (laser/punch) and an Express Bender.

The LP can laser cut material up to 6mm thick and punch material that is 8mm thick and the addition of the bending machines allows the company to run in a more 'just-in-time' environment.

The 2,500 watt laser is able to cut virtually burr-free, something that is not possible by shearing. The system was also able to replace several standalone punching centers and press brakes, said Allodi.

The laser/punch combination machine has given the company all the benefits of laser cutting plus the speed and holemaking and forming ability of the punch.

The Express Bender is able to create accurate repeatable bends that were not possible before the installation.

"Companies think that in order to bend metal you need a press brake," said DeRossi. "But, with the right part and right circumstance, the Express Bender can do some amazing things."





COSTAN

Belluno, Italy

Eliminating work-in-process is difficult given the best of circumstances. If you are a company that uses 80 different sizes of material and produces more than 7,000 different parts, it becomes even more complicated.

This is the case at Costan Refrigeration where a majority of their sheet metal work is done in plastic-coated steel, which makes laser cutting impossible.

While the company does many standard products, each installation has its own challenges and therefore unique solutions are needed. This means that each end product can be different from its predecessor.

Following a positive Finn-Power installation project in 1999 that saw the addition of two Shear Genius (punch/shear) machines as well as a Night Train material management system, Costan decided to add two Shear Brilliance (punch/shear) machines, an Express Bender and a second Night Train system.

This new production line creates 40 percent of the company's punching production.

"This system also feeds our standalone machines as well, but its real strength is in the fact that it runs 24/7," explained production engineer, Ivano Metti.

During the day shift, two operators man these systems, at night it is a one man operation and during the weekends, it runs unattended. The operators are also responsible for programming the machine and setting up the queue.

"We were searching for a set-up that would solve our problem of moving the parts," said Metti. "The old system had too many moves between each process. The company was losing many hours to the material simply being moved around."

While 'flexible manufacturing system' may mean different things to different people, the gist is basically a system that controls the flow of production from raw material, through work-in-process.

The Night Train systems are the heart of Costan's operation because of the flexibility and storage they provide. The new storage system has 250 cassettes, which can be dedicated to raw material, work-in-process and even scrap. The previous installation featured a Night Train with 200 cassettes.

Bending Power

"Some parts used to be done on manual press brakes with special tooling," he added.

Thanks to the addition of the EB, the bending process is much faster and part quality is better. Also, flexibility has been added to this part of manufacturing for the first time and safety is much better because the system handles the majority of the material handling.

"The radii that are produced can be different now, which is not possible on a press brake without changing tools," he said.

