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Automated fabrication comes with its own Texas accent

With Finn-Power as its trusty sidekick, company easily corrals finished parts

Everything seems to be bigger in Texas. And when Special Products & Mfg. Inc. (SPM), located in Rockwall, TX, recently decided to enter the world of fully automated sheet metal fabrication, it did so in a big way.

Not that automation is anything new to the company. From its founding in 1963, SPM has taken pride in its commitment to procuring the latest technology and equipment. Second-generation owners Rob Grand-Lienard, president, and Ed Grand-Lienard, executive vice president, and their partner, James Morris, vice president—technology, point to their equipment list of five turret punch presses with load/unload capability, three punch/shear combination machines with sorting and stacking, robotic press brakes, and laser FMS systems as proof of the company's commitment to new technology.

"We had our first CNC machine in 1969," explains Rob Grand-Lienard. "If you look at all our load/unload capability with all of our robots, we have about 15 different robotics in place... a pretty high number."

Today, the company has 225 employees housed in two plants with a total capacity of 130,000 square feet. However, by the end of the first quarter 2006, SPM's new home will be a modern 139,500-square-foot facility in the Rockwall Technology Park—a workplace custom-built to accommodate the latest material management and fabrication production systems.

Before designing the new building, SPM developed a new strategy to better address the changing sheet metal fabrication marketplace. The need for this strategy became even more apparent in the economic downturn after 9/11.

"To stay competitive globally, we had to reduce our head count in the manufacturing process," notes Ed Grand-Lienard. "That doesn't mean we will replace our talented people. We will just reassign them to another area of



Deep in the heart of metal forming are (from left to right) Ed Grand-Lienard, executive vice president; James Morris, vice president – technology; and Rob Grand-Lienard, president, of Special Products Mfg. Inc.

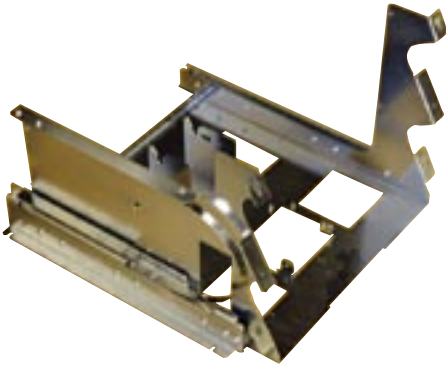
the shop. The truth is that in order to compete, we have to process metal into parts and parts into assemblies without a lot of human intervention."

After months of research and meetings with equipment manufacturers, SPM chose Finn-Power as its supplier and the company's first Shear Genius Flexible Manufacturing Cell was installed in early 2004. "After our technology trip

to Finland and local customer visits, it was obvious that Finn-Power has more of a building-block approach to automation than the other builders," says Rob Grand-Lienard.

Punch/shear combination

With the Shear Genius concept, the objective is to provide one machine capable of transforming a full-sized



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sheet into finished parts. These parts can be moved to final production stages for immediate integration directly into final product assembly. The Shear Genius accomplishes all of this with minimal floor space—approximately 30 feet (nine meters).

Shear Genius functions with sophisticated simplicity, able to perform the most demanding jobs with minimal setup times and lights-out operation. The Shear Genius increases material productivity through efficient and versatile nesting programs. As loading, punching, and shearing of parts become automated, the result is finished parts with a dramatic reduction in scrap and manual labor while increasing profitability. The level of automation can be customized through Finn-Power's flexible modular solutions for raw material storage, loading, unloading, sorting and stacking. These features can be added later as budgets allow and production demands increase.

The Shear Genius ease of operation does not compromise the cell's per-minute part production, flexibility, or ability to fabricate complex parts. On average, Shear Genius reduces total manufacturing time by 60 percent and saves one blank sheet out of every 10. With the Shear Genius, SPM estimates it has reduced material costs by 15 to 20 percent. "We've also eliminated at least half the different blank sizes from our inventory," adds Rob Grand-Lienard.

The Finn-Power Shear Genius FMC breaks the barriers of the average flex-

ible manufacturing cell to create a "smart cell"—one that offers a combination of benefits. Shear Genius is more than just a turret and shear performing linear operations. It is designed and synchronized to achieve high fabrication production and unprecedented speeds.

According to James Morris, vice president—technology, the features that SPM really liked in the Shear Genius include:

- **Integrated right-angle shear** — which improves the quality of the part as well as the speed of production. The Shear Genius eliminates wasteful skeletons and costly secondary operations such as deburring. Nibbled edges on the part exteriors were eliminated through the use of the integrated right angle shear. Shear Genius also eliminates the potential of mistakes when manually shearing a large sheet. In the Shear Genius, the sheet is loaded and squared automatically, and there is no human interference, ensuring very accurate parts. In fact, the same clamps that hold the sheet for punching also hold it for shearing. In essence, the Shear Genius allows the automated process to begin with a full-sized sheet of material and end with a finished part after automated loading, punching, forming, shearing, and unloading—all in one operation.

- **Auto-Index & Multi-Tool** — Up to 10 Auto-Index or Multi-Tool stations can be installed in a Finn-Power turret punch press. Finn-Power's Multi-Tool stations increase the number of tools available in a turret, thus reducing setup and increasing productivity. The Multi-Tool system allows multiple tools to be put in one station. Finn-Power Multi-Tool offers six, eight, 10, or 24 different punch/die combinations in only one station—a turret within a turret. Using the 40-station alpha/numeric Multi-Tool part identifi-

cation programs is fast and easily done.

- **Modularity** — "With Finn-Power, you don't have to initially buy an entire system," explains Morris. "You can put pieces of the building blocks toward automation. You can purchase the Shear Genius, later install sorting and stacking, and then add the Night Train Material Management System—a modular approach. In addition, a shop's main concern is having equipment that is flexible enough to move from industry to industry and job to job. We are not an OEM. We are not building the same thing every day. So to have a piece of equipment that can be easily set up in automation or to have a piece of equipment that can change itself in automation allows you to justify the automation. Finn-Power has that equipment."

Markets and materials

SPM serves customers in an eight-state region as well as Mexico. Customers' industries include: electronics/semiconductor; telecommunications; cash delivery; medical; postal and bank sorting; retail petroleum dispensing; electro-mechanical subcontracting; and lighting. "Our diversity really helped us during the recession," notes Rob Grand-Lienard. "The Shear Genius made a lot of sense for us...and it still does. "We have a sector of our business that demands many rectangles, little punching, and a lot of trimming out parts."

Materials fabricated by SPM include steel—cold rolled, electro-galvanized, galvanealed, hot-rolled, pickled and oil – in sizes from 24 gage to 3/8"; aluminum—0.010 to 0.250; stainless steel—0.010 to 0.250; and some brass, copper, spring steel, and plastics.

Trains and 'ships

Soon after the installation of the first Shear Genius cell, SPM purchased two



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metal forming

used SG cells. One is in operation and the other is in storage awaiting opening of the new plant. When the new plant comes on stream in early 2006, SPM hopes to reorganize its manufacturing with a linear manufacturing flow; reduce the number of redundancies such as shipping, receiving, material handlers, etc., and reap the benefits of the Finn-Power Material Management System. "We will have the three Shear Ge-

nius cells running down one side of the Night Train and the secondary process, such as press brakes, down the other," explains Rob Grand-Lienard.

"The idea is to use the automation to eliminate the material handling, the paperwork, the lost parts. The benefits we see from the Finn-Power Night Train include: all the raw material handling and inventory; work in process (WIP) handling and inventory; output stations

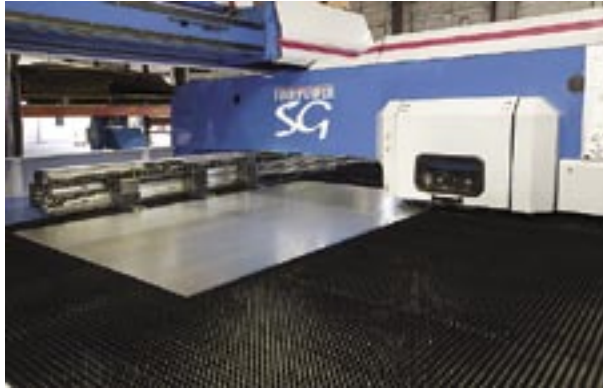
to secondary operations; part sorting and stacking; reduction / redeployment of resources; almost infinite add-on capacity; and a reduction of labor from 24 to four persons."

Almost as important to SPM as the equipment is the relationships it has with its suppliers. Integrity, trust, and respect are key ingredients to SPM's idea of partnership. According to Morris, no matter how good the equipment is, customer service is extremely important in keeping things going well.

"Finn-Power is the most responsive machine tool company we have ever worked with," says Morris. "When we work with Finn-Power, we get the feeling they really care whether our machines are running or not...and we rely on this support system." Adds Rob Grand-Lienard: "We were looking to automate and Finn-Power showed us how. As long as Finn-Power continues to lead in technology and automation, we will continue to progress with them."

Finn-Power

Special Products Mfg. Inc. provides precision metal fabrication and mechanical assemblies to such industries as electronics/ semiconductor, telecommunications, cash delivery, medical, postal and bank sorting, retail petroleum dispensing, electro-mechanical subcontracting, and lighting.



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