

Automating Fabricating Adds Business And Employment

Using automation to be the most competitive producer, a fabricator expands from a garage to global competitor.

When Harry Monteith, Jr. created his job shop in Stratford, NJ, with his brother Mike and another partner in a three-car garage in 1967, their hard work sometimes made quite an impact on the neighborhood. "Our shop was located in a residential area. When we would use the arc welder, all the images on the television screens in the entire block would shrink," recalls Monteith with a smile. "I think the neighbors were very glad to see us move."

From this inauspicious beginning, the little job shop evolved into P & M Industries, Inc., a respected ISO 9001:2000 certified contract manufacturer with 70 employees and a 50,000 sq.-ft. facility in Thorofare, NJ, near Philadelphia.

Two years ago, Monteith and his John son, now the company's president, consolidated their operation by adding 25,000 sq.-ft. to their building. In the challenging economy of 2002, the Monteith's also decided to invest in the latest sheet metal fabrication equipment.

"Over the past four years, more than 20 fabricating shops went out of business in the New Jersey area," reflects the elder Monteith. "These days you have to contend with both foreign and domestic competition. With the labor costs advantages of China, for example, automated equipment is the only way to compete." Adds John Monteith: "The name of the game is 'be competitive'...or you're not going to be in business. Our company's strength has always been diversification and our investment in new technology. We believe that in the long term, the surviving players in our industry will



With the Shear Genius system, P & M has the competitive advantage of being able to work full-size sheets directly into finished parts.

be the ones that have the right equipment."

Today P & M serves such industries as electronics, medical, bar scanning, gardening, and gaming. The sheet metal they fabricate includes carbon steel, stainless steel, and aluminum.

Discovering Automation

P & M has used mechanical turret punch presses since the early 1980s. The company discovered automation in the form of a loader in 1988. In October, 2002, after researching all the existing fabrication technology available, P & M chose

the Shear Genius Flexible Manufacturing Cell from Finn-Power. "Although some competitors were offering incredible discounts on their machines during this time, we felt that the Finn-Power Shear Genius technology had more to offer," explains Harry Monteith.

The heart of the new system is an integrated turret punch press/right angle shear. With the Shear Genius concept, the objective is to provide one machine capable of transforming full-sized sheets into finished parts. These parts can be moved to final production stages for immediate integration directly into final product assembly. The system accomplishes all of this in less floor space – approximately 30-ft. of space to fabricate raw material into finished parts on one machine.

The system fabricates with sophisticated simplicity – able to perform the most demanding jobs with minimal set-up times and "lights out" operation. It 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

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material storage, loading, unloading, sorting, and stacking. These features can be added later as budgets allow and production demands increase.

"We really like the modularity capability of the Shear Genius," states Harry Monteith. "For some machine manufacturers, reconfiguring



P & M founder, Harry Monteith, Jr., believes "automated equipment is the only way to compete," especially with off-shore suppliers. By automating his processes for the production of fabrications for markets as diverse as medical and gaming.

an add-on is a major problem. But with Finn-Power, you can build on what you have..."

Reducing Costs

The Shear Genius eliminates the potential of mistakes when manually shearing a large sheet. With the system, the sheet is loaded and squared automatically, and there is no human interference, ensuring very accurate parts. Notably, the same clamps that hold the sheet for punch-

ing also hold it for shearing. In essence, the system 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.

In addition, it eliminates wasteful skeletons and costly secondary operations such as deburring. Nibble edges on the part exteriors were eliminated through the use of the integrated right angle shear.

"One of big issues that we face with customers is when you fabricate multiple shake & break parts resulting in tabs and nibble marks that are present with a conventional turret punch press," explains John Monteith. "We don't get them anymore with the Shear Genius. This fact helped us win a job recently with a customer who specified *no nibble marks*. We've only scratched the surface on the capabilities of this machine."

The system also 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. It also offers the flexible selection of tool holders. Any tooling style from Mate

Precision Tooling or Wilson Tool International can be installed in a Finn-Power turret.

Also, Finn-Power's unique auto-index system precisely rotates the punch and die in their tool holders using a single A.C. servo-motor system.

The system does not need to match separate servo-motors as in some other machines. Rotation in 0.001° 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.

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Finn-Power's Multi-Tool stations increase the number of tools available in a turret, thus reducing set-up and increasing productivity.

The system allows multiple tools to be put in one station, providing 6, 8, 10 or 24 different punch/die combinations in

only one station—a turret within a turret.

An upward forming option provides more accurate forming and greater forming heights up to 16 mm (0.63") and 5" in diameter. Another advantage is that all dies are at the same height and there are more high-forming dies in the turret, thus, reducing risk of material damage and increasing machine uptime.

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, the Finn-Power Shear Genius reduces total manufacturing time by 60% and saves one blank sheet out of every 10.

"In the beginning there was some resistance to the new technology," explains Harry Monteith. "Often people don't like change. They are sometimes afraid that automation will replace them.

"However, every time we have purchased automated equipment, we have hired *more* people. Today, our employees know the features and benefits of the Shear Genius machine and have become very comfortable with it." *Finn-Power International*

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