



*Clinton Plant, EPMP's president/owner (right) and Craig Hickey, vice president operations, hold a complex part fabricated on Finn-Power's Shear Genius and EBe bender.*

**TRUE GRIT & AUTOMATION POSITION  
TEXAS FABRICATOR FOR GLOBAL MARKET**

# STAYING AHEAD OF THE COMPETITION WITH AUTOMATION

When contract manufacturer EPMP, Inc., Seguin, TX, was founded in 1984, the company had a very inauspicious start. After only four years of operation, Ernest Plant sold the slumping company in 1988. This appeared to be just another short story of a failed start-up company. However, in 1992, Clinton Plant convinced his father to reacquire the company. This time, failure was not an option...but the journey was not easy. "We had a lot of obstacles to overcome," reflects Clinton Plant. "We had a small 5,000 square-foot facility with just six employees, old sheet metal fabricating equipment, and a less than shining reputation. We spent the first six months rebuilding equipment so it could produce quality parts." But through hard work, wise business decisions, and some true Texas grit, the company started to take off.

With the growing success came new equipment – turret punch presses, press brakes, shears, welders, etc. – and a new satellite 33,000 square-foot-manufacturing shop in McGregor, TX, to augment the expanded 55,000 square-foot Seguin facility. Plant also identifies the addition of key personnel, such as Craig Hickey, vice president operations, as a reason for his company's success. Other key positions have been filled by managers with backgrounds from world-class OEMs and contractors who are tasked with implementing Lean principles and continuous improvement methodologies with the goal of waste elimination and maximizing customer satisfaction. Today, EPMP's 85 employees provide fabricated sheet metal products to a wide range of customers in such industries as lighting & electrical, HVAC, commercial construction, etc., through its two manufacturing facilities.

## Global Economy & Automation

A few years ago, EPMP realized that it was facing another challenge – competition from sheet metal fabricators off-shore and across the border. "The reality is that we are in



*Finn-Power EBe provides the high bending quality required in demanding applications. This is achieved through precise control of bending axes, fast and smooth bending, open programmability, and construction that is immune to variation in thermal conditions.*

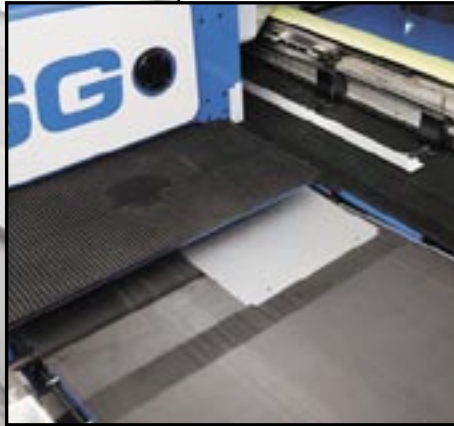
a global economy," observes Plant. "In order to compete on a global basis, you don't have to work harder...you have to work smarter. This means you must automate. We are competing with labor costs, not material costs."



*The EBe bends extremely complicated parts in a fraction of the time it takes on EPMP's manual press brakes. There are parts that used to take three days on three press brakes with three operators to make 100 pieces. Today, the company can produce the same part quantity in about 2-3 hours with one EBe and one operator.*



*Many of the parts that EPMP produces are finish critical, such as pre-painted and stainless. Before Finn-Power, the company had a lot of material issues such as scratches, dents, and pallets being dropped between operations.*



**“The Finn-Power automation did not replace employees. We reassigned employees to more productive areas.”**

The Shear Genius 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. 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 punched part after automated loading, punching, forming, shearing, stacking and unloading – all in one operation thus allowing true single-piece flow able to be synchronized with customer’s takt time.

When EPMP initially chose the Finn-Power automation, an initial goal was to reduce labor costs on bending and sorting. However, other benefits the company has realized include:

- Reduced material costs – cost savings of at least 10%, and in some cases more depending on the part.
- Higher steel utilization – as high as 98% sheet utilization on some parts while programming with Finn-Power’s NC Express software.
- Reduced lead times.

*With the Shear Genius concept, the objective is to provide one machine capable of transforming a full-sized sheet into punched parts.*

*The new Finn-Power system, parts are automatically sent from the Shear Genius straight to the stacker into the Night Train and to the bender. Instead of handling the part 3-4 times, it is now touched just once.*

Another important benefit of the Finn-Power automation is higher consistent quality. “Many of the parts we produce are finish critical, such as pre-painted and stainless,” explains Setzer. “Before Finn-Power, we had a lot of material issues such as scratches, dents, and pallets being dropped between operations. This has all been eliminated because now the parts automatically are sent from the Shear Genius straight to the stacker into the Night Train and to the bender. Instead of handling the part 3-4 times, we now touch the part just once.”

According to Plant, the Finn-Power equipment has allowed EPMP to increase production while maintaining two shifts without having to go to a third shift at this point.

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EPMP began its search for sheet metal fabricating automation in early 2005. The company looked at the automation of an equipment manufacturer that was their supplier for many years and also at Finn-Power's line. "We were looking to fully automate," explains Plant. "We had been looking for parts sorting automation for several years. With our traditional turret punch press supplier, you had to pull the parts out of the skeleton. At one point just the labor for the sorting operation was costing us over \$200,000/year due to double and triple handling of the parts from punching to bending."

"After looking closely at the automation lines of both companies, the only equipment manufacturer that offered full automation integration was Finn-Power."

"We needed to remove the non-value added steps of production from our process," adds Craig Hickey. "We had to find a way to reduce that cost and automate bending processes. We specialize in big parts...and it often takes two people to bend the large parts."

"After looking closely at the automation lines of both companies," continues Plant, "the only equipment manufacturer that offered full automation integration was Finn-Power." Integrating machinery to work together seamlessly from part to part and operation to operation has been resolved by Finn-Power's Night Train Material Management Flexible Manufacturing System. In addition to punching, shearing, and/or laser cutting, the Night Train allows the addition of robotic press brakes and an in-line panel bender to automate the bending process. This system allows fabricators to bend only the parts that are needed for today's production while allowing the parts to be bent in different sequences than they were punched to match their assembly needs. This not only significantly reduces the labor content, but also better utilizes floor space by reducing work in process and the need to store and handle parts that are not needed immediately.

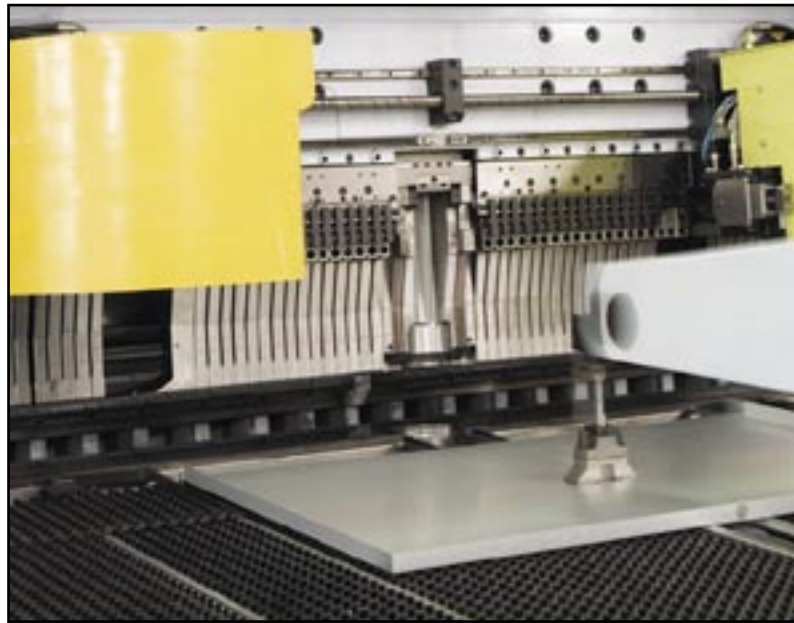
While automated bending was EPMP's biggest need, during the process the company acquired additional work that necessitated additional punching capacity. In all, EPMP procured the following FMS components from Finn-Power:

- EBe servo electric Express Bender, with loading/unloading systems
- Two hydraulic press brakes with robots
- Two Shear Genius integrated punch/right angle shear combinations with loading, sorting, and double wagon stacking system
- Night Train Material Management System for holding

blank sheets and for punched and fabricated parts to be automatically stacked on pallets and transferred to the Material Management System via the Night Train Wagon and sent directly to the EBe bender or robotic press brakes.

### **EBe Servo Electric Express Bender**

The EBe servo electric Express Bender is a bending solution that is designed specifically for each fabricator's production requirements to achieve maximum productivity and product quality, and repeatability. It offers complete automation of the bending process. The bending operation cycle is fully automated from the loading of flat parts to unloading of the components.



*The EBe servo electric Express Bender is a bending solution that is designed specifically for each fabricator's production requirements to achieve maximum productivity and product quality, and repeatability.*

The EBe bending cell has a maximum bending length of 84.65" (2150mm) and a maximum opening height of 8" (200mm). The new construction features actuations of the bending blade movements (vertical and horizontal) by NC servo axes instead of hydraulic cylinders. The upper tool movements are also made by another NC servo axis.

Finn-Power EBe provides the high bending quality required in demanding applications. This is achieved through precise control of bending axes, fast and smooth bending, open programmability, and construction that is immune to variation in thermal conditions.

A fundamental characteristic of the EBe bending technology is the movement of the blades. For optimum product quality, a new bending principle has been applied for the

EBe. With this new principle, when the “rolling mode” is used there is a wider contact surface between the blade and the sheet but no relative friction. As a result, part making and tool wear is minimized.

### Robotic Hydraulic Press Brakes

Two high-precision robotic press brakes provide solutions for parts that are too large or thick for the EBe. Other features include:

- Provides unmanned bending at maximum speed
- Produces exceptionally consistent parts
- Eliminates 2-man operations for heavy components
- Can be integrated into Finn-Power’s Flexible Manufacturing System

“We have light box parts that would take us 8 hours to make 100 pieces. On the EBe, the 100 parts are produced in 1 hour and 20 minutes.”

“Planning production is very important,” explains Plant. “We didn’t want to run simple, single-setup parts on the Shear Genius and EBe that could be produced just as fast on the older turrets and press brakes. “Our game plan was to take the large parts and the parts with multiple set-ups and put them on the EBe and robotic press brakes. We have light box parts that would take us 8 hours to make 100 pieces. On the EBe, the 100 parts are produced in 1 hour and 20 minutes. There are many parts that used to take 5 minutes to run, and, depending upon the part, now take less than 30 seconds on the EBe and robotic press brakes. It would take four press brakes and six people on two shifts to replace what the EBe can do in one shift.”



“The EBe bends extremely complicated parts in a fraction of the time it takes on our manual press brakes,” adds Barry Setzer, Night Train supervisor & programmer. “The fastest part we have on the EBe takes 29 seconds and the longest part is about 52 seconds. There are parts that used to take three days on three press brakes with three operators to make 100 pieces. Now we do the same part quantity in about 2-3 hours with one EBe and one operator.”

“It is also very flexible with short runs,” Plant continues. “The EBe is the most amazing machine that I ever seen. There’s nothing like it, particularly with full automation. As a stand alone machine, it is impressive...but with full automation there is not one person who has seen it that hasn’t been blown away.”

Currently, EPMP processes more than 100 different part numbers on the EBe, with more parts added each week. The single piece flow capability allows maximum efficiency in support of kanban management and eliminates traditional “batching” of jobs.

### Shear Genius & Night Train

When EPMP had to add punching capacity, the company chose the Shear Genius integrated turret punch/right angle shear combination from Finn-Power. With the Shear Genius concept, the objective is to provide one machine capable of transforming a full-sized sheet into punched parts. These parts can be moved to secondary operations utilizing the sorting and stacking automation into Night Train system and onto bending operations without being touched by human hands. 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.

Shear Genius functions with sophisticated simplicity, able to perform the most demanding jobs with minimal set-up times and “lights out” operation. The Shear Genius increases material productivity through efficient and versatile nesting programs. 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 EBe bends extremely complicated parts in a fraction of the time it takes on our manual press brakes.”

*Two high-precision robotic press brakes provide solutions for parts that are too large or thick for the EBe.*

“When we decided to automate, we raised the bar for the rest of the industry in our area. We changed the landscape.”

“In our business, the schedule can change every time the phone rings,” explains Plant. “We need tremendous flexibility. This equipment has saved us on numerous occasions when material shipments were late or other production delays came into play. With the automation from Finn-Power, we don’t have to chase the truck out the door anymore with the last of the order. The parts are there waiting for the truck.”

EPMP management is also very clear on why they chose to automate: “The Finn-Power automation did not replace employees,” states Hickey. “We reassigned employees to more productive areas. We can double our capacity without doubling our head count – in fact we could probably do it with six people and the Finn Power Cell.”

“In order to stay ahead of the competition, you have to automate,” concludes Plant. “You have to take some additional risks that perhaps the rest of the industry may not be willing to take. When we decided to automate, we raised the bar for the rest of the industry in our area. We changed the landscape. It’s a tremendous risk to make that kind of investment under that kind of scenario of a global economy when everybody is packing up and moving to Mexico or China. You have to go with your gut. My gut said that if we automate that we would be able to compete. And we have proven that. We can now compete on fabricated parts from across the border...and we are.”

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