

# 'Brite' idea takes root

*Unmanned Finn-Power FMS operation reduces scrap, increases profitability*



**Day-Brite had a series of parts that required two operators to form a complete part. With the robotic press brake from Finn-Power, the company reports a labor savings of 40 percent of each part bent.**

**N**ot long ago, Day-Brite Lighting of Tupelo, MS, found itself at a crossroads. The company, founded in 1923, realized its business had gradually moved away from just commodity products to a more architectural grade product. It needed more productive fabrication equipment, and it needed to curb the growing amount of contract work the company turned over to local job shops and bring it back in-house.

Today, the company has evolved into a major force in the lighting industry with a facility that includes 350,000 square feet of manufacturing space,

a 150,000-square-foot warehouse, and 500 hourly employees.

"Day-Brite's challenge was to find a way to go from product design, to fabricating the part, and have it ready to assemble within one day," explains Scott Bratton, fabrication manager. "Our task was to find the best equipment to accomplish this goal."

### The search for a solution

"Basically, we shopped around the world looking for new equipment," adds Charles Phillips, director, manufacturing and industrial engineering. "We wanted to change the direction of

how we manufactured our high-volume products at the Tupelo plant.

"We had to modernize. We had two aging turret punch presses and 11 large stamping presses with progressive dies for high-volume runs. The dies can cost up to \$1 million and take up to six months to produce. We had a new product line we wanted to introduce — a high-bay fluorescent — before our competitors did. The manufacturer who brings its products to market first has the advantage. So we had to go quickly to market."

Several Day-Brite technical teams criss-crossed the globe searching for the fabrication equipment. Bratton and Bob Dexter, plant superintendent, visited Finn-Power's facilities in Finland.

"We saw many facilities where multiple machines were running with just one operator," says Bratton. "We decided that Finn-Power would fit the needs at Day-Brite."

Day-Brite phased in the Finn-Power flexible manufacturing system (FMS). The system included the Shear Genius punch/shear combination, a hydraulic press brake with robot, and six bays of the Night Train material management system to tie it all together.

### Shear Genius flexibility

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 the Night Train material management system and on to 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 simplicity, able to perform demanding jobs with minimal setup times and "lights out" operation. The Shear Genius increases material productivity through



**Scott Bratton, fabrication manager, reports that Day-Brite's challenge was to find a way to go from product design, to fabricating the part, and have it ready to assemble within one day. The Finn-Power integrated system allowed the company to introduce the new product to the market for a total of \$4-million in new product sales in 2005 alone.**

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.

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.

The Shear Genius eliminates 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 finished part after automated loading,

punching, forming, shearing, and unloading — all in one operation.

According to Bratton, the benefits of the Shear Genius included reduced labor costs, shorter lead times, higher part quality, and repeatability of that quality.

"On our older turret punch presses, the consistency of quality was left in the hands of our operators," says Bratton. "They would have to shear the blank to a certain size and then load it into the turret punch press. With the Shear Genius, we've eliminated blanking since we are able to fabricate full-sized sheets and nest the parts, ensuring part consistency and squareness from one run to the next."

## Night Train system chugs right along

The centerpiece of the Finn-Power automated sheet processing system is the Night Train Material Management System, which is the inventory and material transporting center.

The Night Train FMS provides a total solution for unmanned operation for sheet metal fabricators by automating system control, as well as material flow within the system. This includes supplying raw material as well as removing and storing work in process.

"The integration of the Night Train with its management system was a big feature for us," says Dexter. "We run a great deal of 24/7, including 'lights out' over the weekend on some of our larger volume product to get a jump on production."

## Robotic hydraulic press brakes

According to Bratton, the primary focus of the robotic hydraulic press brake was to eliminate two-man operations on the press brake.

"We didn't care about keeping the robotic press brake running 100 percent of the time," Bratton says. "Rather, we had a series of parts that required two

operators to form a complete part. With the robot, every time we form and make that product, we save about 40 percent ... and that's just labor. And I get a better part. We run about 500 of the 2 x 4 size a month. Our total savings is about 50 percent per part."

Other benefits of the robotic press brake include:

- Unmanned bending at maximum speed
- Consistent parts
- Integration into Finn-Power's Flexible Manufacturing System.

Day-Brite began production with a first shift. Three months later, the company added the second shift, and two months later it added the third shift.

"We average approximately 18 hours of machine uptime," Dexter says.

"Finn-Power's introduction at Day-Brite was a huge success," says Bratton. "The Finn-Power integrated system allowed us to introduce the new product to the market for a total of \$4 million in new product sales in the first year.

"While we hoped that the Shear Genius would allow us to bring the contract work back inside, we weren't able to accomplish this at the time because the Finn-Power system was running at full capacity within six months."

The second phase began 18 months later with the addition of another Shear Genius cell, a Night Train extension of an additional four bays, and two servo-electric E press brakes.

The new Shear Genius was the SG8 with a maximum sheet size of 1,500mm x 4,300mm. With this addition, Day-Brite brought back 75 percent of the fabrication that had been contracted to local job shops. The remaining job shop contracts mainly include laser cut parts.

"Our new Shear Genius runs nothing but pre-painted metal, galvanized, and mirror aluminum," explains Bratton. "From a customer standpoint it has helped us get products to our customers faster. It has helped our design engineers with product development.

"We dedicate our machines and no longer have to contract outside parts. We program the part, form the part, and get it to them so we can now take the product to market quickly. This has given us a competitive edge.

"The E Series press brake is a phenomenal piece of equipment," says Bratton.

"Many of our products have mul-

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multiple forming operations. With the Finn-Power E Series press brake, we have seen increases in our productivity, quality repeatability, and reduced setup and programming times. We estimate savings of 35-40 percent bending with

the new press brakes over the older models.”

“We have not had any significant downtime on the Finn-Power equipment,” says Dexter. “The installation of the equipment went very well. It was

always on time — and when we turned it on ...it ran. Finn-Power did a very professional job getting the equipment up and running as well as servicing and maintaining it.” **Finn-Power, [www.rsleads.com/805tp-161](http://www.rsleads.com/805tp-161)**