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QA & Fabrication



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. . . and much, much more!



The Shear Genius cell with loader in front, turret punch press, Night Train Material Management System. Man in front is inspecting tooling.

Automated Fabrication

***A California Manufacturer Fights
Offshore Competition with a Finn-Power
Shear Genius Manufacturing Cell.***

Since John Boyd founded the company in 1975, JB Radiator Specialties, Inc., Sacramento, CA, has earned a solid reputation for designing and manufacturing heat exchangers to meet their customers' needs for a wide range of applications and industries. In its early years, the company outsourced the majority of its sheet metal fabrication. However, the inability of its vendors to keep up with growing demand soon forced the company to bring the fabrication work in-house.

"That's when we first began to purchase sheet metal fabrication equipment," explains Rick Ellstrom, president. "We take great pride in providing excellent customer service. Our industry needed fast delivery and flexible manufacturing. We don't produce "cookie cutter" heat exchangers. The majority of our products are custom designed and engineered for specific applications."

JB Radiator Specialties' customer base includes such industries as construction equipment, generators, agriculture, transportation, custom high-performance automobile, and oil and gas. The company eventually acquired two stand-alone turret punch presses and a punching cell to fabricate its line of jacket water radiators, high-pressure oil coolers, hydraulic coolers, air coolers, AC condensers, dif-

Rick Ellstrom, JB Radiator Specialties president, and Frank Nguyen, engineering manager, inspect a part fabricated on the Shear Genius.

ferent cooling components, heat transfer for industrial equipment, tough off-road applications, and some on-high-way applications.

A New Beginning

Traditionally there were few competitors in these niche markets. However, the new global economy has dramatically changed the playing field. Today there is strong competition emerging from Europe, Turkey, Israel, South Africa, Korea and Singapore.

“We realized that the only way to compete in the global market was to automate,” says Ellstrom.

In late 2006, JB Radiator Specialties introduced a new corporate program—A New Beginning—to initiate its first moves into heavy automation.

“We knew that even though we were successful in the past, in order to stay competitive we had to change our approach to manufacturing,” says Ellstrom. “While our products today may be similar to the past, the way we make them has to be different.”

In early 2007, JB Radiator Specialties introduced robotic welding, CNC machining, and sheet metal fabrication.

Finn-Power Automation Cell

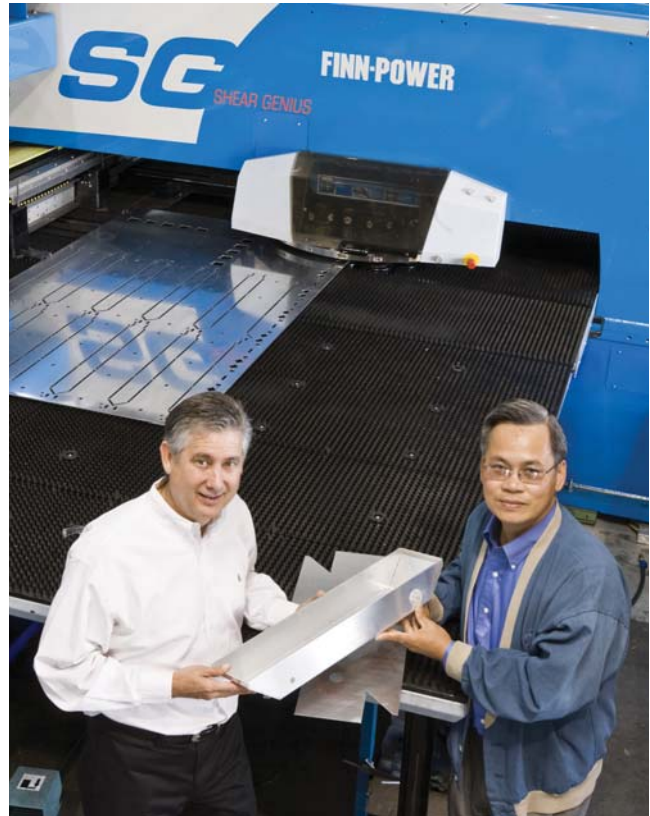
“Two years ago, we realized that we outgrew our aging punching cell,” explains Ellstrom. “When we originally bought the cell, we had two stand alone turret punch presses and moved up to the cell, which was a great advantage for us at the time. We really wanted to get the next increment of advancement, so we visited Fabtech 2005 looking for new technology in two areas: a better way to punch and fabricate parts and robot welding.”

After much research, comparisons, and seeing the equipment in operation at customers’ shops and on a tour of the factory in Italy, JB Radiator Specialties chose the Finn-Power automation cell, which included: the Shear Genius turret punch press and integrated right angle shear combination flexible manufacturing cell, the Night Train Material Management System, and the E servo-electric press brake.

Automated Fabrication

With the Shear Genius concept, the objective is to provide one machine capable of transforming a full-sized 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 in less floor space—approximately 30 feet (9 meters) of space to fabricate raw material into finished parts on one machine.

“It was the productivity and flexibility of the Finn-Power Shear Genius that swung the deal for us,” says



Ellstrom. “We fabricate many square and rectangular parts, and we don’t believe you can produce them faster than on the Shear Genius.”

Currently, JB Radiator Specialties runs its Shear Genius cell 18 hours per day.

On average, Shear Genius reduces total manufacturing time by 60% and saves one blank sheet out of every 10.

According to Ellstrom, there are also definite labor sav-



Radiator components manufactured on the Finn-Power Shear Genius System.



View of the Finn-Power Night Train Material Management System at JB Radiator Specialties, Inc.

ings. “We had three full-time part shakers and one machine operator that we were able to retrain and assign to more productive duties. In automating our manufacturing processes, we don’t want to lose people; we redeploy them to other areas.”

Labor Saving Features

Tool Holders: Finn-Power incorporates an individual tool holder concept that allows users to design their own turret layouts. Specific tool stations are not machined into the turret. Any tooling style from Mate Precision Tooling or Wilson Tool International can be installed in a Finn-Power turret. Up to 10 auto-index, forming, or Multi-Tool® stations may be installed in a Finn-Power turret.

Auto-Index: Finn-Power’s auto-index system precisely rotates the punch and die in their tool holders. Rotation in .001 degree programmable increments gives the machine the ability to rotate beyond 360 degrees, thus allowing the system to rotate beyond 360 degrees, 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.

JB Radiator Specialties has four full-tonnage auto index stations—two 3-1/2” and two 1-1/4” sizes.

“Our previous machines had very few auto index stations, and that was definitely a limiting factor,” explains

Ellstrom. “Because of the nature of our parts, the angles, the configurations that we do, we definitely like the choice that Finn-Power gives us with multiple auto index stations.”

Multi-Tool®: Finn-Power’s Multi-Tool stations increase the number of tools available in a turret, thus reducing set-up and increasing productivity. The Multi-Tool system allows multiple tools to be put in one station. Finn-Power Multi-Tool offers 6, 8, 10, or 24 different punch/die combinations in only one station—a turret within a turret. JB Radiator Specialties has five Multi-Tool stations.

Night Train: 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 Ellstrom. “We are firm believers in lean manufacturing. The Night Train provides a nice place to store work in process and call it up when you need it. We thought that was key to keeping a clean, organized, and well-run operation.”

E Press Brake

The final piece of Finn-Power equipment that JB Radiator Specialties installed was the E Series servo-electric press brake.

“The E brake is the culmination to growth efficiency and to upgrade some of our older equipment,” Ellstrom says. “It also strengthened our commitment with Finn-Power. We were entering a family relationship, and as we grow our business we wanted to try some new technology. We are especially grateful for the training provided by Finn-Power salesman Mike Robertson for making our inexperienced junior press brake operator very productive within a short period of time.”

Installation & service

According to Ellstrom, the installation of the Finn-Power equipment went very well.

“Finn-Power bent over backwards to work with us, accommodate our production, and make sure we got a good install,” says Ellstrom. “We are in a very demanding industry, and as we come up with challenges, Finn-Power’s people are always there to make sure we get products to our customers.”

Both the Shear Genius and the Night Train are set up for 24/7 operation. “Today, 95% of all parts are fabricated on the Shear Genius,” explains Ellstrom. “The Shear Genius replaced two stand alones and one cell.” ■