

# Artristy in METAL

## A BC fabricator's slogan "Artristy in Metal" reflects the company's innovative approach to manufacturing

Wesgar Inc., Port Coquitlam, BC, is one of the largest precision sheet metal manufacturers in Western Canada. Perhaps the most telling aspect of this western Canadian company's operational philosophy is its unusual corporate slogan – Artistry in Metal. "Our people add the art of manufacturing to the science of metal work," explains Wesgar president John Thwaites. "The value we can provide our customers is a result of our continuous innovation in manufacturing."

Wesgar backs up this lofty goal with its well-deserved reputation for quality products and excellent customer service earned during its 42 years of operation. Its customers include many major players in the electronics, power supply, telecommunications, medical, environmental control, and radio frequency industries in markets throughout Canada, the US, and Mexico.

In its early days, Wesgar was involved in manufacturing more traditional industrial products. Through the years, the company has evolved into a premiere precision sheet metal fabricator with 200

employees housed in a 75,000 square-foot facility. By 2000, the company's sheet metal fabrication's capacity was concentrated in three stand alone mechanical turret punch presses. Wesgar management decided it was time for a change in both manufacturing philosophy and equipment. A technical team was organized and a thorough search for fabrication equipment that would best meet Wesgar's current and future needs was launched. "We wanted to increase our capacity, efficiency, and quality," explains Thwaites.

Wesgar chose the Finn-Power F6 Express Flexible Manufacturing Unit (FMU) as the automated system that best fit its needs. The F6 Express FMU automatically loads full-sized sheets onto the table of the turret punch press, punches and forms the sheet metal, and then unloads the fabricated sheet. The F6 Express dramatically increased Wesgar's productivity by putting through up to 50 per cent more total volume with less than half the people. Being able to run full-sized sheets also eliminated a great deal of shearing



and material handling.

By mid-2004, Wesgar was ready to replace its two remaining mechanical turret punch presses and once again turned to Finn-Power for equipment. "It was time to add capacity, tighten up tolerances, and consolidate programming software and tooling," says Thwaites. "Running two types of OEM punching technology was not an efficient way to run the plant."

Wesgar management once again put together another technical team, this time not to select the equipment builder, but to review production requirements, the current customer base, and what current and future fabrication processes would be. "We had selected Finn-Power as the equipment OEM of the future," explains Thwaites. "But we had to decide on what type of punching product we needed within the Finn-Power family." By utilizing a single manufacturer, Wesgar was able to simplify its operator training and ensure that all its operators could run all of the turret punch presses.

According to Keith Day, Wesgar's chief operating officer, after months of self-examination, which included lean manufacturing training from an outside consultant, the company found that its current needs were not in the area of high-volume punching. "At that time, we discovered that nearly 2/3 of all the jobs we ran required just one or two blanks," says Day. "We found that we needed a smaller machine that was more flexible for both short runs and the occasional large volume jobs, as well as forming capabilities. While we were pleased with the F6 Express, we were running 80 per cent of our volume on one machine. We wanted to spread this work over three machines with shared tooling and programming." Having the three machines would allow Wesgar to insert customer "rush jobs" without disrupting the production schedule and also provide quick turnaround on customer prototypes.

In mid-2004, Wesgar purchased two Finn-Power C5 hydraulic turret punch presses. This versatile and flexible machine provided a consensus on the various needs of the company. The 20-station, 33-ton C5 hydraulic turret punch press has a maximum sheet capacity of 50 in. x 100 in. (1270 mm x 2500 mm) and is available with either Siemens or Fanuc controls.

According to Thwaites, the two Finn-Power C5 turret punch presses provided Wesgar with incremental capacity and higher quality. However, by 2006 the company's growth and new contracts soon created a need for addition fabrication equipment. "We were growing 15 per cent a year for 8 years," explains Thwaites. "At this time,



A sample of a precision part made on Finn-Power's equipment.



Above: John Thwaites, president, poses with a precision part.

a number of large contracts were coming in and we began discussions about further automating our fabrication process. After another technical team was formed and research completed, Wesgar chose the Finn-Power Shear Genius Flexible Manufacturing Cell, which was installed in October 2006.

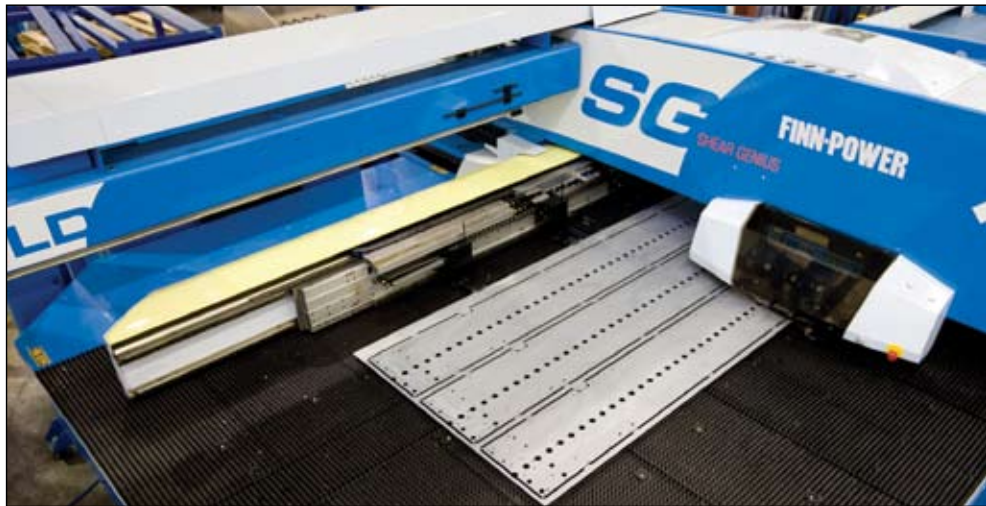
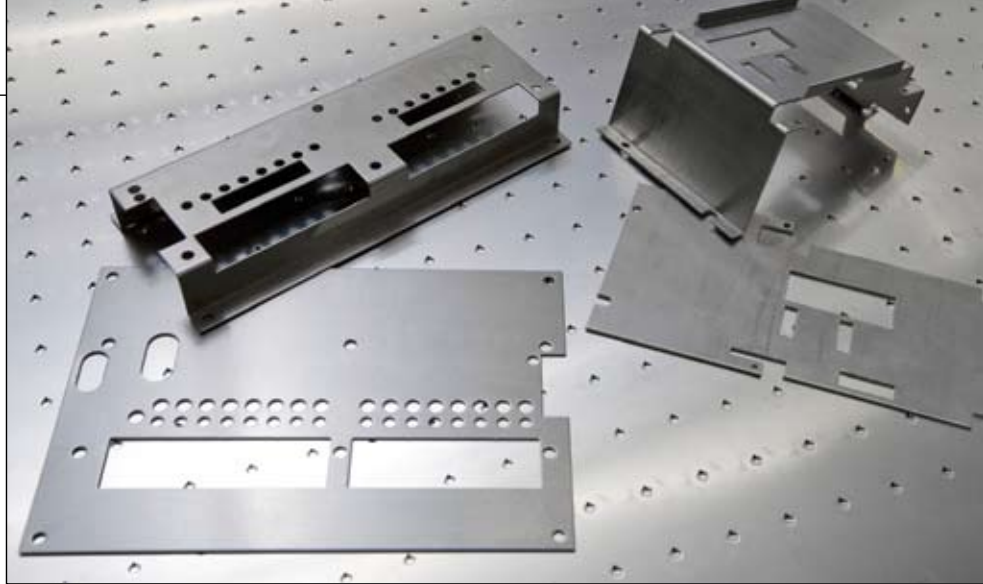
### PUNCH/SHEAR COMBINATION

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 m) of space to fabricate raw material into finished parts on one machine. 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.

“When the Shear Genius was installed we had a significant backlog,” says Thwaites. “We were anxious to get it up and running. Our expectations were that the Shear Genius was a real workhorse with a lot of capacity and capability. Every day counted to get it on line...and Finn-Power really came through. The Finn-Power installers worked around the clock and had it running in four days.”

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 per cent and saves one blank sheet out of every 10.

“I was skeptical about this sheet utilization benefit,” reflects Day. “We did an analysis of parts that we used to do on the other machines that were converted to the Shear Genius, and in all cases we are getting 10-15 per cent more parts per sheet. The claim of increased sheet utilization by Finn-Power is absolutely correct.”

Labor savings was also an important consideration in selecting the Shear Genius. “The difficulty in finding qualified manpower in the Vancouver area was very important factor in choosing the Shear Genius,” explains Thwaites.

“But equally as important was eliminating processes such as shakeout of parts, deburring, etc. Even if manpower wasn’t an issue, to be competitive in today’s market you have to minimize or eliminate non-value-added processes.”

Tooling flexibility is also important to Wesgar. Up to 10 auto-index and Multi-Tool holders may be installed in a Finn-Power turret. Wesgar has four Multi-Tool cassettes in the Shear Genius and both C5 turret punch presses – two 24 stations, one 10 station, and an eight station. Wesgar also has four full tonnage auto-index stations and two indexable upforming stations in each of these turrets. Unique to the C5 turret punch press, full tonnage indexable upforming

allows complex forming operations to be made quickly by using a single forming tool. An index mechanism is used to turn the forming tool into an NC programmed angle.

Finn-Power's upforming feature provides a precise process for knock-outs, louvers, and other forming. Finn-Power resolved the conventional problem of the die height impeding free sheet movement. Finn-Power's design allows forming heights up to 16 mm (0.62 in.) with the forms made by the die moving upwards and then retracting, allowing completely free sheet movement while eliminating scratched or jammed sheets.

With the stringent cosmetic requirements of its customers, Wesgar purchased the vacuum slug remover option along with the fully guided Multi-Tools and their solid one-piece stripper plates, and the brush tables in order to reduce part marking to an absolute minimum.

To be sure, Wesgar is no stranger to technology investment. In 2006 alone, the company spent \$2.25 million for such new equipment as the Shear Genius, two robotic welders, a hardware inserting machines, a press brake, a cold forming machine, a deburring machine, etc., as well as the costs of expanding into a second building on their site.

And has the Shear Genius met Wesgar's expectations? "The Shear Genius gave us so much more extra capacity that we were able to take one of the C5 turret punch presses off line and set up a prototype shop, which is helping us to get parts to customers with a quick turn time," explains Day.

"There have been many changes at Wesgar in the past 18 months," adds Thwaites. "The Shear Genius was a catalyst for a lot of these change...it pushed us and gave us breathing room. Finn-Power has helped us grow because of the quality of their equipment and the local service support we get. Each new Finn-Power machine we've purchased has taken us to a new level of productivity, quality, and profitability." **CM**



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