

# Growing Pains Eased with Automation



Grant Metal Products custom manufactures precision sheet metal products for the commercial glass, roofing, sign supply, and other industries in Western Canada. Through the years, the company has evolved to become the supplier of choice for a growing list of customers who require high quality, precision-made sheet metal components.

Three main rules for success in the real estate market are said to be: *location, location, location*. And that same maxim could also apply to the dramatic success of Grant Metal Products Ltd., Rocky View, Alberta, a custom manufacturer of sheet metal products for the construction, glazing, and signage industries, which found itself in the middle of the construction boom in Calgary, Alberta – the fastest growing city in Canada. But geography alone only begins to tell part of the story of the company's success.

Grant Metal Products was founded by Bill Grant and his wife Jean in 1980. Through the years, the company has evolved to become the supplier of choice for a growing list of customers who require high-quality, precision-made sheet metal components in British Columbia, Alberta, Saskatchewan, Manitoba, and customers who supply products around the world. During this time, the company has grown from three to 34 employees and today is housed in a facility that provides 55,000 square feet for production, operations, storage, project management, and shipping. Grant Metal Products fabricates mainly light gauge material for its customers – everything from 26 gauge to 1/4" steel, aluminum, copper, brass, and stainless steel.

The company attributes its continued growth to its ability to respond to new business opportunities and the willingness to try new things. "We have continually diversified our services," explains general manager John

Reitmeier: "At one time all we produced was metal building flashing. Then we began servicing the glazing industry and then the sign industry. We also supply sheet metal parts to a company that builds theater sets that have been used in performances such as *Phantom of the Opera*, *Showboat*, and others." Today, Grant Metals has expanded its services to provide contract manufacturing to other OEMs in the area.



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

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While slow, steady growth has been the foundation of Grant Metal Products' success, the realities of today's market are evident in the company's changing philosophy. "The entire building industry is a big part of our business," states Reitmeier. "With the explosive growth of the construction market in Western Canada, we've never been so busy." This dramatic increase in demand for higher productivity and quality, coupled with the increasingly difficult task of finding labor in Alberta, drove a search for automation in new equipment procurement.



John Reitmeier, general manager, purchased the company's first Prima Power Shear Genius flexible manufacturing cell in 2005. It was installed and operational in January, 2006. Since that time, he has purchased a second Shear Genius cell, a Night Train Material Management System, and an EBe automated bender.

labor intensive, punching was not a big part of our business," explains Reitmeier. "However, by 2005, the amount of punching increased so much that we had to find a more productive punching method."

After attending several trade shows in Canada and the U.S., the company looked at three types of machines, including a water jet, a laser, and punch centers. After much comparison and evaluation, Grant Metal Products purchased the Prima Power Shear Genius flexible manufacturing cell. It was installed and operational the last week of January, 2006. "We decided not to buy used or an entry level punch center," says Reitmeier. "We wanted to purchase the best equipment available."

## 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. 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 Prima 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 Shear Genius ease of operation does not compromise the cell's per minute part production, flexibility, or ability to fabricate complex parts.

## More Punch for the Buck

A good example of this new emphasis on automation was the company's rapidly increasing need for faster and more cost-efficient punching. For many years, Grant Metal Products had used a strip punching system to handle its punching needs. "While this system was very slow and



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On average, Shear Genius reduces total manufacturing time by 60%.

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 finished part after automated loading, punching, forming, shearing, and unloading – all in one operation.

***"We've used the SG in a lights out application where we've loaded it and gone home, and it is ready for us the next morning. We are now using it for repeat orders. We just pull the file and run the job. The Shear Genius has improved our production at least 20%."***

According to Reitmeier, the benefits of the Shear Genius to Grant Metal Products include:

- increased speed
- increased accuracy
- increased product lines to more elaborate products
- possibility of new markets, such as small part brackets, heavier material products

"There is a definite labor savings as well, since we are no longer having to pre-shear or go through all the previous manual steps," says Reitmeier. "We've used the SG in a lights out application where we've loaded it and gone home, and it is ready for us the next morning. We are now using it for repeat orders. We just pull the file and run the job. The Shear Genius has improved our production at least 20%."

## Additional Automation

In 2009, Grant Metal Products replaced the earlier Shear Genius with a later model, the SG8. The company also added the Night Train Material Management System to its arsenal of fabricating products. And in January of 2014, the EBe automated bender was purchased.

## Night Train

The Night Train Material Management System which allows connection and operation of multiple Flexible Manufacturing Units (FMU) to a factory Flexible Manufacturing System (FMS). It 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 and removing and storing work in process.



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"The Night Train is a remarkable piece of equipment with 130 bays," explains Reitmeier. "The more we use it, the more we understand everything that this system can do for us. The Night Train allows us to better control our inventory. It allows us to buy in bulk and store material because we have a wide variety of small jobs. For example, we might make one or two products for one company and 300 for another. So we stock a lot of that material in there. We use it for Work in Process (WIP) with the new bender. It allows us to store the SG parts for the automated bender with minimum space requirement. We used to store these parts on skids and racks and pulled them up as needed. The Night Train does the work of three employees and provides better control of our inventory and our entire process."

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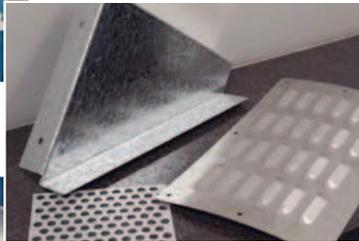
## Automated Bender

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

***"The EBe is an excellent machine. The accuracy is amazing. Some of our parts have up to 16 hits, and they come out perfectly aligned every time."***

The EBe bender's 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. Prima Power EBe provides the high bending quality required in demanding applications. The quality is achieved through precise control of bending axes, fast and smooth bending motion, programmability, and rigid construction that is immune to variation in thermal conditions.

"We purchased the EBe because we couldn't keep up with just our four press brakes," explains Reitmeier. The EBe is an excellent machine. The accuracy is amazing. Some of our parts have up to 16 hits, and



they come out perfectly aligned every time. The savings the EBe has provided us have been huge. A number of our parts that were formed on the press brake required two men and took 6 minutes for each man to make the part. The EBe does it in 60 – 90 seconds...and it is more accurate."

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## New Markets...Improved Attitudes

"This is the busiest that we have ever been," concludes Reitmeier. "The Prima Power equipment has allowed us to seek out new customers and seek out different markets. The equipment also has improved our accuracy, delivery times, the volume of our work throughput...and some attitudes too. Our guys are now working on better equipment. And they are happier to work with reduced manual labor and a different skill set that requires them to be computer savvy. Prima Power is a good company to work with."