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CUSTOMER PROFILES • NEW TECHNOLOGY • PRODUCTIVITY • FLEXIBILITY



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Tips and Techniques for the New Generation of Punch/Shear Machines

By Andrew McCarlie, Applications Engineer



The latest generation of punch/shear combination machines incorporates 33-US ton servo-electric punching, up to a 120" X-carriage with integrated sheet squaring, along with twin Y and C axes with active synchronized servos to produce much faster table and index speeds.



Here are a few suggestions to improve performance:

Common line shearing gives the best material utilization and the shortest program cycle time. In many cases, with standard punch tooling and programming techniques, this cannot be achieved because the tools extend from one part into the next when common line cutting is attempted. A good example of this is when parts have rounded corners. When using a standard 4-way radius tool, the parts must be spaced the width of the radius tool, wasting material and increasing cycle time. The solution: use a zero clearance or star radius tool in a Multi-Tool station. This allows common line cutting. Use of a star radius tool in a Multi-Tool reduces the tool cost and allows up to 0.5" (13



mm) 4-way radius in an MT8 station. You can then have several different radius tools in one station, saving valuable larger stations for other tools.

This practice should be considered for all the tooling where possible when using the punch/shear machine. Custom tooling for special shape notches shared between parts is another example of this. With the ability of the SG machine to have up to ten 3.5" full-tonnage index upform stations and the Shear Brilliance (SB) 15 or 24 3.5" index stations, including 3-station and 8-station drop-in indexable Multi-Tools. This allows for large complex shapes to be cut out with more than one tool, allowing common line shearing of parts.

A common issue that occurs in the punching process is sheet distortion when punching many holes in a sheet or large special forms. The SG is able to circumvent this problem, unlike standard punching machines that must contain all the parts in a shaker sheet until the end of the punching process. With the SG, you can decide in the programming process to punch a portion of the sheet and then shear those parts free, working your way through the sheet. This means that you are not limited to small sheet sizes to minimize the sheet distortion from many holes or forms.



such as these usually cause the sheet to crash in the machine. Usually the parts are run in two operations with the punched part being flipped with the form down, so the sheet can be run in the up position in the TP or as a secondary operation in another machine.

The SG/SB can take the above process even further in the case of parts that have large forms down on a sheet. These normally will not run due to the damage that would be caused to them when they pass over the turret. Forms

The SG, coupled with the NC Express programming system, offers the ability to punch and shear the largest possible sheet areas with the maximum efficiency and accuracy. The software automatically recognizes the part sizes and punches and shears in the same clamp zone to provide for maximum accuracy. With the latest linear drive SB8 Tulus machine, this can be a maximum size of sheets up to 160" x 60" with no repositions.

Another technique that can be used with the SG is to group smaller parts together so that they make one long multi part which is treated by the SG as a single part. The multi-part is usually punched with a parting tool on two sides, and then it is grouped together as a single shear part. When the multi part is sheared, all the parts are freed from the sheet with one blade stroke. This is much more cost effective than shearing each small part individually. Material utilization is still kept high by common line shearing the multi parts into groups with a minimal scrap width being used between the groups of multi parts.

Using the precision of the SGe servo-electric ram, small parts can be common line nested using an easy-snap type tool and sheared out as multi part, saving both time and material.

Use of the "last part in clamp" technique allows for maximum material utilization. This uses the PCS clamp option on the SG/SB. This technique allows you to use the mill edge of the sheet in the clamps as the part edge, provided the edge is not punched to allow for single clamp movement. Special clamp teeth protectors are available to reduce part marking.

All clamps are automatically programmed with NC Express to be positioned on the last part which is then automatically released from the clamp on to the shear conveyor. The NC Express programming system automatically trims the right hand part edge, (right destruct option) with a punching tool.

The POWER LINE is a publication distributed to Prima Power customers, prospective customers, employees, dealers, suppliers, and friends.

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Prima Industrie and Finn-Power Become Prima Power

By Gianfranco Carbonato, Chairman and CEO



To the many readers of the FINN-ISH LINE from around the world and to our new readers, we welcome all of you to the first issue of the POWER LINE magazine. While this new publication has many of the same features and departments as its predecessor, the POWER LINE reflects the energy of our new Prima Power brand as well as our bold commitment to our customers, vendors, employees, and shareholders.

Last March, Prima Industrie announced a change in corporate branding as two leading specialists in laser and sheet metal fabrication technology – Prima Industrie and Finn-Power – have joined forces through a merger of equals to create the third largest market player in the world called Prima Power.



Since the acquisition of Finn-Power by Prima Industrie in 2008, the group has been extensively reorganized to create an integrated functional entity. During this period, the global sales and service networks have also merged.

Prima Industrie, listed on the Milan exchange, is the parent company of the group. The new brand, Prima Power, unifies the names and colors of Prima Industrie and Finn-Power. During the past three years, we have talked to our customers and explained that we are becoming a single entity. And now the process is complete. The new graphics are a reminder of the past, but the style is new and points to the future. The colors remind us of our history – the orange of Prima Industrie and the blue of Finn-Power.

This new brand identity is the culmination of 30 years of innovation, installation of 10,000 machines and systems in over 60 countries, 1,400 employees, and production facilities in Italy, Finland, the US, and China.

Prima Power is also a proven leader in 3D laser machinery for automotive, aerospace, and energy applications. Prima Power's creation also marks an outstanding commitment for environmental sustainability.

Electronics, CNC and laser sources form an integral part of the Prima Power world.

Prima Electronics has also evolved to become Prima Electro to provide these valuable resources not only for Prima Power, but also for large OEM customers worldwide.



Our Values

It is a natural and common occurrence for two businesses to unite for enhanced performance. These moves have a better chance of success when their industrial cultures and traditions match.



Developed over the years in cooperation with our customers, in our engineering departments, factories etc., the way in which we operate can be described very briefly through some basic values. These values are the reason why trust has been placed in us by thousands of our customers in more than 60 countries.

Our values are...

Technology & Innovation

Advanced technology is fascinating, and we are proud of how users can benefit from it. Solutions advance through innovations, which we are committed to continue creating.

Passion & Dedication

Our customers put their hearts into their work, and so do we in ours. This means working with passion. We are convinced that only with enthusiasm and commitment the best results are achieved.

Dialogue & Solution

We listen and we speak. We analyze requirements and meet them with solutions that benefit our customers most. For this we use our range of products and services, which is the widest in the field.

Social & Environmental Responsibility

We believe in long term, responsible, fair and transparent relations with our employees, customers, partners, shareholders, and the community. This means good business for us. As part of this commitment, we provide solutions combining productivity with sustainability - Green Means for fabrication.

The creation of Prima Power demonstrates our strong commitment to product innovation, service, and sustainability while enhancing Prima Power's customers' productivity, quality, and bottom line profitability.

The articles in this premiere issue and in subsequent issues will contain information on new products, interesting customer profile articles that explain the features and benefits of our extensive product line from the customer's perspective, technical tips on how to maintain and enhance the operation of your Prima Power machines, the latest tooling and software information, and additional feature articles produced to inform, educate, and entertain our customers.

With the creation of Prima Power, there is more Power in the world.

Betting the House on Success



According to Kevin Brannon, his company purchased its first two Prima lasers in 2007 after several customers requested laser cutting services. Prior to the lasers, Brannon Steel was drilling holes to hold tolerances that they couldn't achieve on the plasma cutters. "We knew a laser would eliminate the secondary drilling operations and cut the holes faster," explains Brannon.

When you quit your job, sell your house, and move your family into an apartment in order to start a new business, you better have incredible commitment, steely determination, and a great game plan.

In 1968, these were the circumstances in which Tom Brannon founded T.A. Brannon Steel, at the time a 2,000-square-foot oxy-fuel cutting service shop. And although Tom Brannon passed away in 1988, his family still owns and operates the thriving business. Today, Brannon Steel, Brampton, ON, has evolved into an industry leader supplying quality carbon steel parts to OEMs and custom fabricators throughout Canada and the US and still reflects the strong vision of its founder.

According to Kevin Brannon, vice president, during the past 10 years, the company expanded from having just an oxy-fuel business to extensive plasma cutting capability, with six machines with two torches cutting around the clock. "This really changed our business," explains Brannon. "At that same time, we wanted to focus on the OEM and construction markets."

Brannon Steel also became more involved in secondary processing, such as bending, rolling, and drilling. "Our competitors really don't have this area of expertise," says Brannon. "We knew that the OEMs wanted to buy a complete product. We developed a fairly significant kitting package that we deliver to their sites that are ready for their welders to put into production."

"The 3 axis (Platino) and the 5 axis (Domino) precision laser machine centers provide precision cutting with tight tolerances and a quality unsurpassed in the industry."

To accommodate its expanding business, Brannon Steel now has two buildings – one 40,000 square feet and the other 105,000 square feet – located in Brampton, ON. Brannon Steel is registered to the ISO 9001:2008 Quality Standard and the ISO 14001:2004 Environment Standard. The

company supplies profiled, beveled, rolled or formed carbon steel plate and structural products for manufacturers of off-road construction, mining, agricultural, materials handling equipment, railway locomotives and freight cars, and custom fabricators of all sizes. Its customer list includes such companies as Hitachi Truck, John Deere, Volvo Construction Equipment, National Steel Car, etc.

Laser Cutting

Brannon Steel purchased its first two lasers in 2007 after several customers requested laser cutting services. "We were drilling holes to hold tolerances that we could not achieve on the plasma cutters," explains Brannon. "We knew a laser would eliminate the secondary drilling operations and cut the holes faster."

After extensive research, Brannon Steel chose the Platino 2D, 4000W laser system and the Domino 3D, 4000W laser machine center from Prima Power (formerly Prima Finn-Power). A second Platino laser was added in the third quarter of 2010.

The Platino is equipped with lasers developed and produced at Prima Industrie in laser powers ranging from 3000 to 5000W. The laser cuts a broad range of materials and thicknesses with speed and precision without the need for manual adjustments. Platino's laser cutting head gives users a choice of a 10-inch focal length in addition to the standard 5-inch and 7.5-inch lenses. The 10-inch lens enhances the application flexibility by increasing the depth of focus and enlarging the spot diameter for high and uniform cut quality of thick stainless (5/8 in), thick aluminum (1/2 in) and thick mild steel (1 in).

Offering a compact footprint along with a Cartesian Cantilever structure that provides three-sided access, Platino is a cost-effective machine that is easy to operate and quick to program. Its unique stonecast frame reduces vibration and increases stiffness by about 4 times compared to cast iron and about 6 times compared to welded frames. Its low heat conductivity results in much higher thermal stability compared to traditional cast or steel frames.

The Domino is extremely versatile. It is the only 3D machine that has a dedicated axis for the automatic control of the focal position. It also has great flexibility in production without any manual adjustment throughout the entire work area.

“What we liked about the Prima laser was that it was really built for our industry. We’ve always been told that you have to treat lasers with kid gloves, and that they are very sensitive to temperature change and a dusty environment. The more research we did with the Prima lasers, we developed a comfort that they would perform well in our facility.”

“Our company philosophy is that we never buy just one of anything, because we can't afford to have any downtime,” says Brannon. “If we were going into the laser market, we had to have two lasers, even though we didn't have the work load for two lasers at the time. The 3 axis (Platino) and the 5 axis (Domino) precision laser machine centers provide precision cutting with tight tolerances and a quality unsurpassed in the industry.”

Prima Power Lasers

Why did Brannon choose Prima Power lasers? “To be honest, when we first began talking about laser machinery, Prima's name wasn't even in the discussion,” admits Brannon. “However, we read some articles about Prima products and the rigidity of the machine and it piqued our



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interest. We contacted Mike Millette, laser products manager, and he gave us a very interesting presentation. We were impressed with his presentation and dedication to the machine, so we began digging into more information and visited a local Prima customer to talk with the owner and machine operators. When we asked for a quote, the dollars were competitive.”

Challenging Environment

“What we liked about the Prima laser was that it was really built for our industry,” continues Brannon. “In our shop environment, there is steel dust all around. The doors are open and it is cold in the winter and hot in the summer. We've always been told that you have to



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treat lasers with kid gloves, and that they are very sensitive to temperature change and a dusty environment. This made us leery about lasers in our shop. For years, that is what kept us out of the laser game. We have a dirty environment in our shop, and we're not going to isolate any areas for the sake of a piece of machinery. The more research we did with the Prima lasers, we developed a comfort that they would perform well in our facility."

The Prima Power lasers systems are well suited for harsh environments. The stone cast base is far superior at damping the vibrations created from surrounding machines. The stone cast material dampens the vibration before it reaches the cutting head resulting in a smoother edge quality. In addition, the base is also far less sensitive to the large temperature swings found

"We liked the way the Prima lasers are built – they are very strong machines."

in most manufacturing environments due to the net zero growth of the stone cast base material. This means the machine stays in alignment and does not require constant adjustments like a steel cast base or steel weldment. Prima Power also purges its beam paths with clean dry air. This creates a positive pressure in the beam path keeping external dirt and dust from contaminating the optics. All the linear ways are also pressurized and covered with bellows to stop contamination from collecting on the linear bearing surfaces. And all electrical cabinets are sealed and climate controlled to keep dust and heat away from sensitive electrical devices. Keeping the electronics cool and clean will extend the life.



The Domino is extremely versatile. It is the only 3D machine that has a dedicated axis for the automatic control of the focal position. It also has great flexibility in production without any manual adjustment throughout the entire work area.

Other features that attracted Kevin Brannon to the Prima lasers included:

- "We liked the way the Prima lasers are built – they are very strong machines."
- No installation pit was needed. "If we ever have to move them, Prima gave us the best option."
- "The lasers are easy to run. We needed machines with a short learning curve for our inexperienced operators."
- "We like the potential of the Domino with the 5 axis cutting, in the event that a business opportunity presents itself. We got so busy that the Domino was no longer a backup machine. It became a full production machine along with the original Platino."
- Very low maintenance on the lasers. "The Prima lasers run 24/5 and eight hours on Saturdays and Sundays."
- "The lens change is very simple, with three different lens sizes to cut different thicknesses: 10", 7.5", and 5"."

With the two Prima lasers running around the clock, Brannon Steel purchased a second Platino during the

"The service from Prima Power has been fabulous. It was a real easy decision to buy the third Prima laser."



Brannon Steel supplies profiled, beveled, rolled or formed carbon steel plate and structural products for manufacturers of off-road construction, mining, agricultural, materials handling equipment, railway locomotives and freight cars, and custom fabricators of all sizes.

third quarter of 2010. "The service from Prima Power has been fabulous," concludes Brannon. "It was a real easy decision to buy the third Prima laser."



This article appeared in the May, 2011 issue of MP&P

Tooling Solutions Designed to Help You Increase Efficiency

By Jeff Paulson, Marketing Manager, Wilson Tool International

For fabricators looking for new ways to save time and money, Wilson Tool offers a variety of innovative tooling solutions designed to eliminate costly secondary operations and reduce setup times.



De-Burr Parts Quickly and Efficiently

De-burring parts can be a time-consuming step in your fabrication process. Wilson Tool now offers a tooling solution designed to eliminate this costly secondary operation. With the new Wilson De-burring Tool you can quickly and efficiently de-burr parts right on your punch press.

Available for thick turret style punch presses, the Wilson De-burring Tool repositions the burr on the cut edge to accurately and efficiently de-burr straight lines or arcs – including acute angles and very small radii. The de-burring tool can be used on a wide range of sheet materials from .8 mm to 5 mm thick.

Our unique ball assembly design reduces setup and adjustment time by enabling operators to adjust the ball pressure without disassembling the tool. The ball assemblies also extend tool life when working with a wide variety of sheet materials.

Eliminate Secondary Threading Operations

Fabricators can save time and increase productivity by eliminating secondary threading operations with tapping tools from Wilson Tool.

Wilson tapping tools enable fabricators to tap on their punch press, so there is no need for secondary threading operations on another machine. Accurate threads can be produced at any programmed location on the sheet.

Threads formed on a punch press have a higher tensile strength than those cut in conventional machine tapping. Forming threads also eliminates shavings that scratch sheet materials. Additionally, by forming an extrusion first, taps can be performed on thinner materials.

Wilson turret-style tapping tools are the fastest, most reliable tapping tools on the market – allowing fabricators to tap a threaded hole with every machine stroke (up to 150 holes per minute).

Accelerate Press Brake Setups

Minimizing setup time is a great way for press brake fabricators to improve performance. Adding a clamping system to your current press brake equipment helps minimize setup time without the cost of investing in a new press brake.

Wilson Tool offers a number of innovative hydraulic clamping solutions designed to help you significantly reduce the amount of time spent loading and unloading press brake tooling.

Get the most out of your press brakes with the ExpressRail™ hydraulic clamping system. ExpressRail clamping systems enable your operators to spend more time bending and less time setting up.

Available for both American and WT styles of tooling, ExpressRail

features a unique low-profile design that doesn't eat into the open height required for larger parts – increasing your bending capacity. Plus, the ExpressRail hydraulic power unit is the most dependable on the market.



Ideal for virtually any American style tooling, the PowerExpress hydraulic clamping system offers lightning fast changeouts, easy installation, long-term reliability and increased bending capacity – everything you need to maximize your press brake performance right at your fingertips.



Our unique hydraulic clamping system makes tool changes faster than ever by enabling operators to clamp and seat tooling in a single operation. Modular two-foot sections make installation quick and easy.

To ensure longer clamp life and increased corrosion resistance, Wilson Tool treats every ExpressRail and PowerExpress clamping system with their exclusive Nitrex™ high endurance surface enhancement.

Time Is Money

These are just a few of the innovative products in Wilson Tool's growing line of tooling solutions designed to help you improve efficiency and make the most of your punch press or press brake productivity. For more information, visit HYPERLINK www.wilsontool.com.

Office Furniture Manufacturer Discovers Flexible Manufacturing with Prima Power

For the past 30 years, Artopex Plus, Inc. has earned a well-deserved reputation for building quality office furniture in Quebec, Canada, while building solid business relationships with its customers throughout North America. In 1980, Daniel Pelletier and his two brothers created Artopex with a vision, a minimal investment, and a small facility.

Today, this privately-owned corporation, headquartered in Granby, Quebec, has become a premiere office equipment manufacturer offering a full line of wood veneer furniture, laminate case goods, systems, seating, metal storage products, and specialized furniture. The company has four plants – two in Granby, one in Laval, and one in Sherbrooke – totaling over 500,000 square feet of production capacity, a team of over 400 employees, three Canadian showrooms (Montreal, Toronto, and Calgary) and a North American distribution network. Among its many awards and recognitions, in 2009 Artopex was named Business of the Year in Quebec by the Federation of Chambers of Commerce, and in February 2010, the company was named one of Canada's 50 best Managed Companies for the fourth year in a row.



From left to right: Denis Bergeron, vice president of manufacturing, Eric Lamy, engineering manager, and Richard Provencher, plant technical support manager inspect a part bent on the Prima Power EBe Express Bender.

With its four plants, Artopex has a large production capacity and technological expertise that allows for efficient management of all major projects within the required deadlines. Artopex management remains

competitive by purchasing state-of-the-art manufacturing equipment that ensures high-quality products and short delivery times.

According to Denis Bergeron, vice president

manufacturing, the cyclical office furniture market has had its challenges the past few years. "Currently, the economy is better in Canada than in the US," explains Bergeron. "With the weakening US dollar, the larger US

office furniture manufacturers are now looking to the north to sell their furniture, which has dramatically increased competition. To protect ourselves, we have invested in flexible equipment during the past five years for our wood and laminate production and our sheet metal fabrication."

Sheet metal automation

To automate its sheet metal fabrication capability, Artopex purchased a C5 Compact Express in 2006 from Prima Power (formerly Prima Finn-Power). The C5 Express adds unmanned operation to the C5 turret punch press through highly compact load/unload automation. The unit's loading /unloading solution utilizes the space above and below the machine, requiring only slightly more space than a turret punch press. It is fast, with simultaneous loading and unloading during processing, accurate, and it does not limit easy manual operation.



“The C5 Compact Express helped us enter the contract or custom market to work with designers and architects,” says Bergeron. “It was purchased for the flexibility to allow us to enter this new market...and to save money on production. We used to have a lot of old equipment, and we worked with hard tools. We didn’t want to replace these tools, so we decided to replace those machines with new equipment. The purchase of the C5 was more for flexibility than the need for increased capacity.”

“We like the fact that there are no longer skeletons or tab marks. The parts come out complete.”

“Prior to purchasing the C5 Compact Express, we were a batch manufacturer using two old turret punch presses,” adds Richard Provencher, plant technical support manager. “We wanted to become a Just in Time (JIT) manufacturer with no inventory. We wanted to begin nesting and implementing a MRP system. The C5 Compact Express was our first step into flexible automation.”

Next stage – punch/shear/bend cell

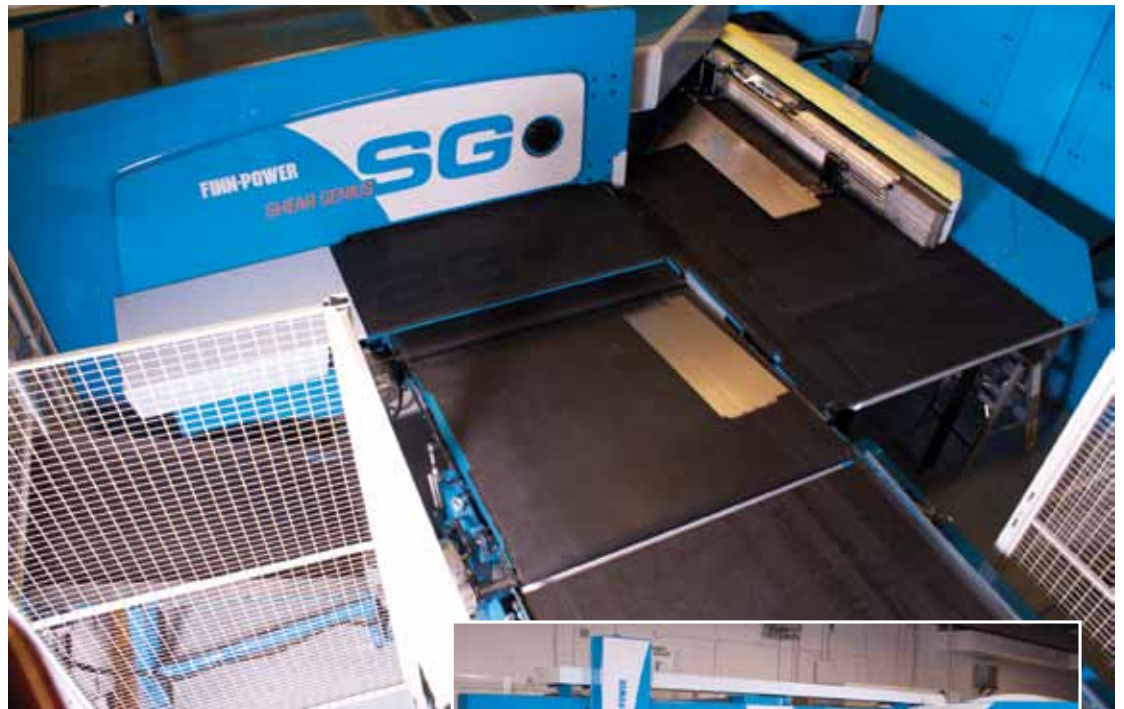
To increase its flexibility and decrease its material handling, Artopex purchased a Prima Power punch/shear/bend cell in 2009. “Our goal was to increase our fabrication cycle by being able to punch and shear parts, then immediately bend the part with the system and eliminate additional material handling,” explains Provencher.

The PSBB cell contains the following equipment:

- Shear Genius punch/shear combination
- Automated storage tower
- Two position loading system
- Sorting System
- Stacking robot with direct connection to the EBe automated bender
- EBe Express bender

Shear Genius flexibility

With the Shear Genius integrated punch/right angle shear combination concept, the objective is to provide one machine capable of transforming a full-sized sheet into punched parts. These parts can be moved to



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secondary operations utilizing the sorting and stacking automation and then 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.

The Shear Genius eliminates wasteful skeletons and costly secondary operations such as deburring. Nibbled edges on the part exteriors are 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. This allows true single-piece flow to be synchronized with a customer’s takt time.

“We like the fact that there are no longer skeletons or tab marks,” explains Eric Lamy. “The parts come out complete.”

EBe 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, quality, and repeatability. The bending operation is fully automated, from the loading of flat punched parts to unloading of the finished product. The EBe bender has a maximum bending length of 100.39” (2550 mm) and a maximum opening height of 8” (200 mm). The new construction features actuations of the bending blade movements (vertical and horizontal) by NC servo axes instead of

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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.

hydraulic cylinders. The upper tool movements are also made by another NC servo axis.

The 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, open programmability, and rigid construction that is immune to variation in thermal conditions.

Justification

The stacking robot transfers the parts automatically from the Shear Genius to the bender. "We were looking to purchase either a press brake or an automated system," says Lamy. We evaluated this purchase from a cost

"When we looked at the EBe bender, we liked the fact that everything was linked together, and you could start with a full-sized sheet on one end and it came out a completed part. In the future, this cell will drive the way our products are manufactured."

standpoint, from how we could manufacture our products, and what it would bring us in terms of new ways to design our products. When we looked at the EBe bender, we liked the fact that everything was linked together, and you could start with a full-sized sheet on one end and it came out a completed part. In

the future, this cell will drive the way our products are manufactured."

"When we visited the Prima Power customers that had the bender, we realized that the bender alone was not the complete solution to what we needed," explains Bergeron. "It was better for us to link the bender to the Shear Genius and sell the C5 Compact Express. The reason for this purchase was both capability and new product development possibilities."

Artopex is committed to flexible manufacturing. "We want to produce enough parts on a daily basis without having inventory," continues Bergeron. This means JIT production. This is a consequence of going after specialized markets. You can't stock parts for products that you will sell just a few times a year. It is too expensive. Our factory is also a subcontractor for several other companies we have in the group. And we do approximately 50 bending jobs a day – all small lots."

"We like the fact that there are so few setups. We can also bend many parts on the EBe that we could not do on the press brake."

Higher production, lower labor costs

Artopex runs the Shear Genius and EBe bender with just one operator. "We like the fact that there are so few setups," says Lamy. "We can also bend many parts on the EBe that we could not do on the press brake. For example, last year we did a special production for the University of Montreal that included table legs



bent on the EBe that included a progressive radius which consisted of 60 hits with the EBe. We could not have made this product without the EBe. We won this job with our Prima Power system. The EBe has opened up many possibilities into new product design, while reducing the time to produce our product."



In 2010, Artopex purchased the Prima Power Platino 2D Laser System.

Prima Power laser

In 2010, Artopex purchased the Prima Power Platino 2D Laser System. The Platino is equipped with lasers developed and produced at Prima Industrie in laser powers ranging from 3000 to 5000W. The laser cuts a broad range of materials and thicknesses with speed and precision without the need for manual adjustments.

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Platino's laser cutting head gives users a choice of a 10-inch focal length in addition to the standard 5-inch and 7.5-inch lenses. The 10-inch lens enhances the application flexibility by increasing the depth of focus and enlarging the spot diameter for high and uniform cut quality of thick stainless (5/8 in), thick aluminum (1/2 in) and thick mild steel (1 in).

"We purchased the Platino to perform a specific job," explains Bergeron. "We are bringing all the laser parts that we subcontract back in-house. So we are in the process of filling the machine with parts. We can also use the laser for design and concept prototypes. In addition, we have two laminate lines that are using a lot of tube. We also want to produce these parts in-house. We were attracted to the rotary axis option for tube cutting on the Platino laser."

FABTECH Mexico was held at the Cintermex in Monterrey, Mexico, May 11-13, 2011. Prima Power exhibited an E5x servo-electric turret punch press. Representing Prima Power was Ron Palick, sales for Mexico & Western US, and Lutz Ehrlich, punching/automation product manager. Adrian Nuno and Rafael Cruze, ACAT Mexican S.A. DE C.V., Prima Power's distributor for Mexico, also assisted.

People tend to think of Mexico as a country for cheap labor. Unskilled labor is never cheap...and can often cost you more in manufacturing. We saw a definite increase of interest in automation, innovation, and new technology."

According to Ron Palick, FABTECH Mexico 2011 was one of the best attended shows in several years. "There was more traffic at this show than I have seen in at least four years," says Palick. "In spite of the uncertain economic future, we saw a steady flow of visitors during the show of interested fabricators looking to upgrade equipment, with the possibility of automation.



Eminent guests visit Prima Power North America, Inc.

By Aino Alppinen

The Mayor of Torino, Sergio Chiamparino, the Chancellor of the Politecnico di Torino, Francesco Profumo and the Italian Consul General in Chicago, Alessandro Motta visited the Prima Power facilities in Arlington Heights, IL last December. The group was hosted by Gianfranco Carbonato, President of Employer's Association of Torino and Chairman of Prima Industrie Group.

Chiamparino, Profumo and Carbonato were together in Chicago to represent their city at the "Global Metro Summit", organized on December 7 and 8 by the London School of Economics and Brookings Institute in Washington.

During the international workshop, representatives of Torino, Munich, Barcelona and Seoul explained their projects and the progress made in front of a wide audience of mayors of US cities. Chiamparino gave the "Torino recipe" for overcoming crisis and reinventing itself in the post-industrial economy. Carbonato and Profumo had the task to focus on the changes in the industrial research and educational plans during the past fifteen years.



BlechExpo 2011



Two leading specialists in laser and sheet metal working technology joined forces in February 2008 as Prima Industrie acquired the Finn-Power Group. This past March, the brand Prima Power was adopted for this technology and related services of the Prima Industrie Group. The recent Stuttgart Blechexpo was the first exhibition under the new banner.

Prima Power exhibited the following equipment at Blechexpo 2011:

Servo-electric Shear Genius®

The Shear Genius®, integrated punch/shear combination was introduced in 1987. Since that time, the SG has earned the reputation as the most productive sheet metal innovation since the turret punch press. When it was introduced, the SG had unique features which are still viable today, such as the highest sheet utilization, leading reliability in unmanned production, and its unbeatable low cost-per-part ratio. The sheet metal fabrication market has embraced this product with nearly 2,000 SG machines of subsequent generations installed throughout the world.



Prima Power has recently widened its servo-electric machines with the addition of the servo-electric SGe.

The heart of the new SGe is an updated servo-electric 30-ton turret punch press with 1,000 hpm stroke speed, 250 rpm index speed, and 150 m/min sheet positioning speed. The right angle shear has a servo-electric actuation system of its own, which makes shear movement both fast and fully controlled. This equals optimization for maximum productivity. Material thickness in shearing can be up to 5 mm (Al), 4 mm (mild steel)

and 3 mm (stainless steel). Automatic loading has been integrated, and also part removal and sorting are automatic.

Both the punching and the shearing units have water cooling and a central

lubrication system. The SGe has also optimized tool changes – other auxiliary times have been

minimized for best production output. Well known features, such as programmable blade clearance setting, are included to maintain high part surface quality. The new SGe can achieve a 10-15% higher output compared with the previous hydraulic SG.

The control system features a new PC based NC control with Rexroth servo drives which was developed in-house. The latest version of Tulus® operating system has a new online simulation view for follow-up and restart. The integrated tool library with NC Express and servo electric punch makes tool setup and adjustment easy and fast, which shortens setup times dramatically.

All options in the E6 punching technology, as well as full Shear Genius® automation solutions, are available.



ZAPHIRO® – the right cut

The Prima Power ZAPHIRO® 2D features several important innovations which further increase the flexibility of this high-performance and high-quality 2D laser cutting machine.

ZAPHIRO is a very fast laser with top cutting quality. The linear motors and the rigid structure allow a combined speed of 240 m/min, drastically reducing production times and costs.

A highly innovative and unique feature of the ZAPHIRO is the Perfect Cut system, which provides a zero-defect, zero-waste production. This feature becomes absolutely essential in case of intensive, unmanned production.

According to Johannes Ulrich, 2D laser product manager, efficiency and ecology have always been main guidelines for Prima Power product design and development. "The Perfect Cut system grants a highly efficient use of the machine and the materials," explains Ulrich. "Not only does it avoid scraps and material waste, it also optimizes the use of the machine in unmanned operation. For example, you can be certain that during night shifts your machine will run to produce only effective parts."

Perfect Cut is an intelligent system allowing real time monitoring of cutting quality and automatic correction of parameters in case the quality differs from the desired standards. The operator stores a sample cutting piece for each material and thickness on the machine CNC, which is used by the system as reference to judge the quality during the process. There is no risk of production defects or wastes: in two words, "perfect production".

ZAPHIRO® standard laser head features a high dynamics F axis allowing substantial cycle time reduction and superior cutting quality. A "cartridge design" lens change system is extremely quick and easy-to-use. This head makes it possible to equip the head with the most suitable lens (5", 7.5", 9") according to the specific application.



"ZAPHIRO® now comes with the MONO, the new single-lens head allowing the cutting of all materials and thickness without lens change, and with the automatic tip replacement," continues Ulrich. "With these new features, parts can be produced using the widest variety of materials and thickness also during unmanned operation. Whatever you have to produce, there is no need for manual intervention."

ZAPHIRO® offers another major advantage for the user: every application has top performance and result. Thanks to the Beam Size Control (BSC), the laser beam diameter is adjusted to the material and thickness to be cut. As a result, flexibility, productivity and quality are further improved.

ZAPHIRO® is also equipped with the new, robust sheet metal supporting table, with more efficient fume exhaust, and with the new,



faster pallet changer, featuring a smart system which adjusts the transfer speed according to sheet weight.

The latest generation numerical control P30L, manufactured by Prima Electro, has higher computational power and highly advanced algorithms and is compatible with all previous versions and with all Prima Power 2D machines. Ergonomic and user-friendly, it features a slim console with 17" touch screen and retractable keyboard.

For off-line programming, ZAPHIRO® takes advantage of the easy, fast and smart MAESTRO-Libellula® system. The highly effective and accurate Nesting Module, the Tables-on-Board (TOB), the Integrated Virtual Machine with accurate production costs and times calculation, and detailed and precise reporting are some of the winning features of this system. With the FBS (Fast Beam Switching) function for grid cutting, speed can be boosted in case of parallel profiles.

ZAPHIRO® is equipped with the CV5000 laser, and can cut material up to 25 mm thickness with quality and efficiency. Other features include a magnetic support turbine, a solid state high voltage power unit and servo-controlled gas mixing.

As with all Prima Power flat-bed machines, ZAPHIRO® can be integrated with automation systems, from the simplest sheet metal loading/unloading systems, to the most complex Night Train type FMS® solutions.

Prima Power press brakes – high technology based on a long tradition

Prima Power is a true pioneer in applying servo electronics into sheet metal working technology. The first turret punch press with the green e-technology was introduced in 1998. Today, this technology is offered in a wide range of products including, stand alone turret punch presses, laser combi and Shear Genius® machines, as well as panel benders.

Prima Power's press brake experience goes back to 1987, when Finn-Power bought a Finnish press brake and shear manufacturer. And press

Continued on page 14

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brakes have been an integral part of the wide Prima Power product offering ever since.

Cooperation with Adira

As of last February, an additional 50 years of press brake experience is at Prima Power's disposal. A cooperation agreement with the Portuguese Adira was signed, and consequently, Prima Power sells the entire range of Adira press brakes and shears worldwide. This new portfolio of products offers Prima Power new and wider horizons in any press brake application regardless of market area, machine size, or performance requirement.



Servo hydraulic P-1330 S press brake

At the BlechExpo 2011, Prima Power exhibited an impressive sample of the Adira cooperation products. The high performing P-1330 S press brake is equipped with Prima Electro Open Control. The machine is extremely versatile featuring a 400 mm stroke. High speed back gauge, 200 mm/s approach and return speed, 20 mm/s bending speed and Lazer Safe "Block Laser" guarantee performance second to none.

The P-1330 S at the exhibition features:

- 135 ton bending force and 3,060 mm bending length
- Prima Electro Open Control drives and CNC control
 - 17" touch screen
 - 2D graphical programming with automatic bending sequencing
 - Advanced interactive 3D visualization for AutoPol off-line programs
- Wila Premium hydraulic upper tool clamping
- Wila Premium CNC crowning with hydraulic lower tool clamping
- Lazer-Safe "Block-Laser" safety device
- 400 mm stroke
- 200 mm/s approach and return speed
- 20 mm/s bending speed
- High-speed 5-axis back gauge

Servo-electric eP Press Brake

The long press brake tradition has now been combined with the know-how of servo-electric drive systems. The new eP-Series press brake is a



fast, accurate, non-hydraulic bending solution. The Group's own Prima Electro CNC control and servo-electric drive system feature the advantage of high acceleration, deceleration and fast response times. The pulley-belt system distributes the force over the whole bending length eliminating upper tool deformation.

Programming includes automatic bending sequencing and is done over a 17" touch screen with intuitive 2D graphical interface. In case of off-line programming,

the control is equipped with an interactive 3D visualization graphics. No compromises in productivity are needed to obtain highest operator safety. Lazer Safe's "Block Laser" system provides safe high speed closing down to just 2 mm. Compared with other guarding systems or even unguarded machines, the block laser system can save up to 2 or more seconds per cycle.

Special attention has been given to the frame construction: the rigid O-frame eliminates horizontal deflection and allows back gauge positioning over the whole working length. The linear scales are mounted on independent side frames and guarantee a ram positioning accuracy of ± 0.005 mm.

The features of the new eP-1030 introduced at BlechExpo include:

- Prima Electro Open Control; the same as in P-1330 S
- Belt-pulley force transmission
- Lazer-Safe "Block-Laser" safety device
- Increased approach and return speeds with 310 mm stroke
- O-frame construction with increased rigidity
- 5-axis back gauge with increased rigidity
- Wila tooling system

Green Means® for productive bending

The innovative machine concept combines productivity, accuracy, flexibility and reliability with high respect to ecological aspects – the concept called "Green Means®" by Prima Power.

The concept offers sustainability, manufacturing efficiency and productivity. It means greater versatility, lower power consumption, less maintenance and no oil to purchase or to get rid of. In addition, easy programming and outstanding accuracy eliminate waste production. Better sheet metal components can simply be made at lower cost.

GOT A DEEP PART TO BEND?

Wila Extenders Are Up To The Challenge!

By David Bishop, Business Development Manager, WILA USA

As manufacturers continue to add more open height and stroke length to make their press brakes increasingly versatile, the possibilities for bending deep boxes, sinks, channels, pans, trays, and an entire array of deep two sided and four sided parts is growing exponentially. Open height dimensions of 18-26" (457-660 mm) are becoming common, and taking advantage of this massive amount of forming space not only requires tall punches and dies, but a full range of extenders.

Wila has long offered a full range of standard extenders to support our premium New Standard and American tooling lines. These



include our TSU-030 New Standard Extender, which is 3.937" (100 mm) tall and 5.905" (150 mm) long, making it ideal for forming deep boxes. It comes equipped with our patented Safety-Clicks to make it possible to load and unload vertically, and a clamping bar that seats punches with self-seating grooves as it is tightened.

Also available is our TSU-029 New Standard Extender. This unit is 3.937" (100 mm) tall and is available in lengths of 20.276" (515 mm) and 5.905" (150 mm), giving you the option of extending the height of your New Standard punches over a long length, or using them for forming deep boxes. It comes with safety keys for horizontal loading and unloading, and like the TSU-030 Extender, it includes a clamping

bar that seats punches with self-seating grooves as it is tightened.

Users of American style tooling will find that the same Wila technology is also available to them. Our TSU-803 American Style Extender is 3.937" (100 mm) tall. To make it more in line with imperial dimensions, it is provided in a length of 5.984" (152 mm). It comes equipped with our patented Safety-Clicks to make it possible to load and unload vertically, and a clamping bar that seats punches with self-seating grooves as it is tightened. Like its New Standard cousins, it is ideal for forming deep boxes.

Our TSU-802 American Style Extender is 3.937" (100 mm) tall and is available in lengths of 20.276" (515 mm) and 5.984" (152 mm), giving you the option of extending the length of your American punches over a long length, or using them for forming deep boxes. It comes with safety keys for horizontal loading and unloading, and like the TSU-803 Extender, it includes a clamping bar that seats punches with self-seating grooves as it is tightened. Of course, not all American style punches have self-seating grooves. We realize that you



may have some special punches or older punches that you may want to be able to use with extenders. For these applications we offer our TS-802 American Style Extender. This unit is 3.937" (100 mm) tall and is available in a wide variety of lengths from 4' to 14' (1,190 mm to 4,250 mm). It includes safety pins for



horizontal loading and unloading and standard manual clamps, very much like those that are included with conventional American style press brakes.

While the above extenders are capable of handling a large percentage of the average day to day bending applications, occasionally a unique bending application comes along that requires custom extenders that are much taller in height, or those that must be manufactured to custom lengths. Having been in business for almost eighty years, and being the world's largest independent press brake tooling and accessory manufacturer, Wila has extensive experience in manufacturing custom extenders for a broad range of bending applications in press brakes with very large open height specifications and those that are very long in length.

If you have an application that requires extenders to increase the working height of your punches, let us put Wila quality, productivity, and almost eighty years of experience to work for you.

For more information, please contact:

WILA USA

9135 Guilford Road
Columbia, MD 21046 USA
Tel: 888-696-9452 Fax: 301-490-3991
Website: www.wilausa.com

The Long and Short of Laser Cutting



The Prima Power Maximo has all the advantages of a small, accurate, and fast machine in an unlimited work area. The Maximo is a large cutting system based on the field tested Platino 2D laser machine. Hundreds of Platino lasers are in use throughout the world. Maximo can provide all the advantages of that well known, accurate, and fast machine combined with a very large work area. This result is obtained with a simple but highly effective solution: a complete Platino machine – with its mechanical structure, laser generator, CNC, moving carriages, optical chain and focusing head – traveling on rails over a fixed working table, processing sheets of any length with the only limitation of the space available in the workshop.



HW Metal Products Inc., Tualatin, OR, has gone through many transitions since opening its doors in 1979. According to Jack Suter, president, from 1979 to 1995, HW Metal Products was just a forming shop. “When we first started all we did was bend steel...because that’s all we could do,” Suter reminisces with a smile. “Our primary customer base was initially truck trailer manufacturers. They needed the long press capacity for frames. We were renting 12,000 square feet of space and a press brake. Steel service centers would process the material for us cut to size... and we would just bend the steel.”

However, beginning in 1995, HW Metal Products made a number of equipment and operational changes that had a dramatic impact on the company’s growth. “In 1995, we did an analysis of the cost savings from buying directly from the mills rather than the steel service centers,” explains Suter. “We discovered that these savings would pay for plasma tables that we needed in order to buy from the mills because now we had to process the steel ourselves.”

“Our purchasing decision was based primarily on the fact that the Maximo could do 60’ products and also do small parts.”

In the late 1990’s, HW Metal Products purchased a 10’ x 80’ high definition plasma table and two 12’ x 90’ plasma tables. In 2000, the company purchased a 60’ press brake (two 30’ 2500 ton press brakes), and added more welding and fabrication capacity.

Prima Power Maximo

By 2007, the management of HW Metals recognized that there was a demand to provide finished product cut quality to their customers that was not available on the plasma cutting equipment. “We needed to add laser technology to our shop,” explains Suter. In 2008, the company purchased the Prima Maximo 10’ x 60’, 4000 watt laser from Prima Power, formerly Prima Finn-Power.

“The traveling power source allows the cut quality and speed to be the same at foot 60 as it is at foot one. All the competitors’ machines we saw had stationery power units.”

“We went with Prima because we wanted to buy a large laser with the ability to process our large parts,” continues Suter. “When we made the trip to Italy to sign off on the machine, we were still somewhat reluctant and worried about introducing a laser into our environment. We really didn’t know that much about lasers. We thought that there would be electrical, vibration, and contamination issues. However, we visited facilities similar to ours in Italy that had the Prima Maximo and that answered our questions about the issues we thought we might have with the laser.”



In 2008, Howard Wolfe, chairman & ceo, (left) and Jack Suter, president purchased the Prima Power Maximo 10' x 60', 4000 watt laser. The key selling feature of the Maximo was its traveling power system, which allowed HW Metal Products to do a quality part the full 60 feet of length.

The Prima Power Maximo has all the advantages of a small, accurate, and fast machine in an unlimited work area. The Maximo is a large cutting system based on the field tested Platino 2D laser machine. Hundreds of Platino lasers are in use throughout the world.

Maximo can provide all the advantages of that well known, accurate, and fast machine combined with a very large work area. This result is obtained with a simple but highly effective solution: a complete Platino machine, with its mechanical structure, laser generator, CNC, moving carriages, optical chain and focusing head – traveling on rails over a fixed working table, processing sheets of any length with the only limitation being the space available in the workshop.

In addition to the movement axes of the Platino machine (the Z-axis for the vertical movement, the X- and Y1-axis for the longitudinal and transversal one), Maximo features a further Y2-axis, which allows the machine to move beyond its Y1-axis stroke, as far as the sheet metal to be processed requires.

The Maximo can be equipped with one or more piece supporting tables (length on customer's demand) and the relevant devices for fumes extraction and scraps collection. The piece remains fixed during the work process. It is the machine that moves to

reach the area to be machined.

This design gives the system a great flexibility, as it allows suiting the work area to the sheet metal to be processed:

- "local" work area: for sheets with moderate size (up to 3000 x 1250 mm) it is possible to use the high dynamic local X- and Y1-axis
- "long distance" work area: for long and very long sheets the X and Y2-axis are used, adding the Y1-axis when required for local cutting operations at high speed (e.g. holes and slots)
- "split" work area: the Y2-axis stroke can be also divided into two or more work areas; in one area, the sheets are loaded and unloaded while the machine is at work in one of the other areas. This eliminates idle times for sheets feeding and avoids the need of additional complex and costly devices (such as pallet exchange systems).

"The Maximo's quality has been very good. It has allowed us to be involved in specific industries and parts that previously were unavailable to us because they required a laser-cut quality."

The Maximo can be quickly and easily installed. There is no need for a complete foundation. Thanks to a peculiar patented solution for the main carriage guidance and isostatic support, only two plinths of the same length of the Y2-axis stroke are needed.

The system is equipped with a platform for the operator, which moves together with the machine. From this position, the operator can have full control of the cutting process, both watching the work area and



The system is equipped with a platform for the operator, which moves together with the machine. From this position, the operator can have full control of the cutting process, both watching the work area and checking all work parameters on the CNC screen.

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checking all work parameters on the CNC screen.

Maximo takes advantage of all Platino's features, which make the machine highly reliable and easy to use even for the less experienced operator:

- the focal axis for the automatic and programmable adjustment of the focal position independently of the stand off, which allows cutting a variety of materials and thicknesses without manual interventions and keeps the process accurate in the entire work area
- the rapid lens changing system (from 5" to 7.5")
- the off-line 2D CAD/CAM and the "nesting" software package for quick, easy and cost-effective programming
- the fast-piercing unit for ferrous material of higher thicknesses

Traveling Power System

According to Suter, the key selling feature of the Maximo was its traveling power system, which allowed HW Metal Products to do a

"It was work we would not have had if we didn't have the laser. Specifically, the Maximo laser helped us expand our business by 10%. Certain customers would not accept plasma cut holes, and the Maximo solves that problem."

quality part the full 60 feet of length. "Our purchasing decision was based primarily on the fact that the Maximo could do 60' products and also do small parts. The Maximo reads the table in a grid system, and then operates in a small grid," says Suter. "We



HW Metal's customer base has expanded by producing component parts for transportation equipment manufacturers and general fabrication, such as rail cars, truck bodies, trailers, barges, mobile cranes, light poles, transmission & cell towers, etc.



wanted to buy one laser for both small and large parts. The Maximo fit the bill, and was the best of both worlds. We can cut both small and long parts on the Maximo. The traveling power source allows the cut quality and speed to be the same at foot 60 as it is at foot one. All the competitors' machines we saw had stationery power units."

New markets

Although mainly a carbon steel shop, HW Metal Products uses the Maximo to cut aluminum (up to 3/8"), stainless (up to 1/2"), and carbon steel (up to 3/4"). "We didn't cut aluminum and stainless on our plasma tables," says Suter. "The Maximo's quality has been very good. It has allowed us to be involved in specific industries and parts that previously were unavailable to us because they required a laser-cut quality. During the course of the recession, there were a couple of months when the Maximo was our most used piece of equipment. It was work we would not have had if we didn't have the laser. Specifically, the Maximo laser helped us expand our business by 10%. Certain customers would not accept plasma cut holes, and the Maximo solves that problem. It also allows us to laser cut a part that previously had to be drilled or punched. The laser was required to keep up with the times."

Expansion

Today, HW Metal Products has expanded to 130,000 square feet, with 85 employees that work two shifts, seven days/week. While primarily a West coast business, specific customer products are shipped throughout the country. The company is one of the few job shops that can cut with standard plasma, high definition plasma, laser cut, and form a 60' piece without the part leaving its building. Its customer base has expanded to producing component parts for transportation equipment manufacturers and general fabrication, such as rail cars, truck bodies, trailers, barges, mobile cranes, light poles, transmission & cell towers, etc.

"There are two things that I think we offer that are significant," says Suter. "We have evolved into a combination of a steel processor and job shop. Our forte is that our equipment is larger and longer than others, so we can produce longer parts, which saves people labor. If you can do something in one piece rather than two, you are forming and cutting a single piece rather than two. Hence, you don't have to weld them together so there is a cost component, a static component, and a quality component. We can not only make parts in larger sections, but we produce them in high-strength, lighter-weight steel that is the calling card for transportation equipment. This reduces the weight of our customer's products."

Customer Service

HW Metal Products' philosophy is identify work that their customers are currently processing in-house, and find ways to eliminate the need for their customers to do second or third step operations, while using their labor resources on more productive functions. "The Maximo laser helps us in this area," concludes Suter. "Its full potential has yet to be realized by our company."

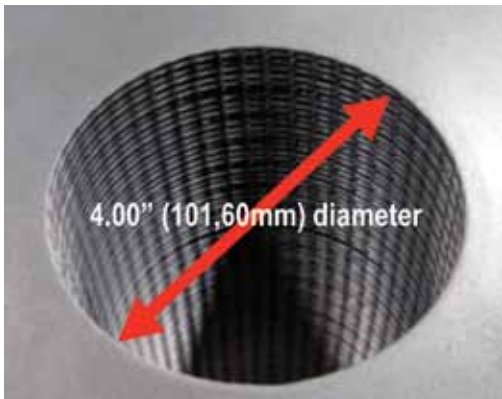
Creative Solutions For Fabricating Challenges

By John Galich, Marketing Manager, Mate Precision Tooling

Fabricators always run into challenging situations. To solve these issues, fabricators rely on time-tested methods. Though they work, these methods may not always be the most efficient or produce the highest quality piece parts. By thinking creatively about their turret press' capabilities and combining it with the wide variety of available special applications, fabricators could gain tremendous advantages. Let's take a look at a few examples.

Improving Efficiency

Fabricators are always looking for ways to improve manufacturing efficiency. One of the most inefficient fabrication techniques that's frequently overlooked is nibbling large holes with a small punch. To illustrate, the parts shown at right were nibbled using a smaller diameter round punch. While nibbling works, this type of processing has a host of problems,



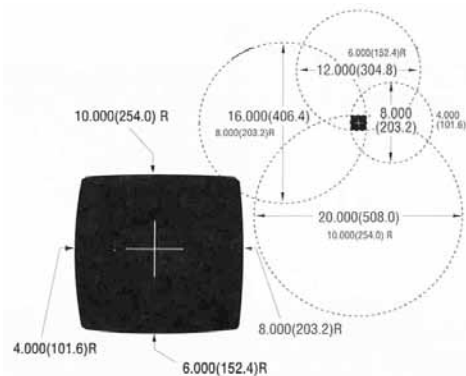
Nibbled with 0.25" (6.35 mm) punch, took 178 hits each. Using a Quad Radius with a tool radius 2.00" (50, 80 mm) and programmable radius of 1.5086" (38, 32 mm) would take just 16 hits.

including scalloped edges; punching debris that scores and burrs turret bores; increased production time for parts; and increased machine wear.

Mate knows there is a better, more efficient way. Most Prima Power turret presses include an **auto-index station** that rotates a punch and die to any designated angle dictated by the machine program. Mate offers a wide range of special shapes that can be used in the auto index station to improve manufacturing efficiency and product quality. Two such high value shapes are the **Quad Radius** and **Inside/Outside Radius**.

Quad Radius:

Using a punch and die with an arc for a much larger circle, your auto index station can create a smooth edged, round hole limited only by your sheet size. The **Quad Radius tool** produces large holes with smoother edges and **far fewer hits** than using a round nibbling punch. In effect, the Quad Radius tool puts an 8, 12, 16 and 20-inch punch into a single 2-inch station.

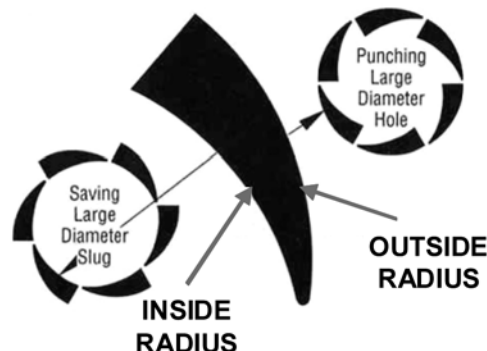


Inside/Outside Radius

This **Inside/Outside Radius tool** is also for use in auto index stations. The inside radius must be larger than outside radius. This tool can be programmed to punch holes with slugs or parts retained in the sheet, yet can be separated easily off the press.

The tool's large radii result in slugs with smoother edges, produced with far fewer hits than using an ordinary radius punch for nibbling holes. This one tool punches slugs of any size practical for its configuration. The smoothest edges occur when the radius punched and tool radius coincide.

I/O Radius Tool cuts both inside and outside radii



Eliminating A Secondary Operation

In many industries, there's a need to join two pieces of material using a threaded machine screw. If the thread pitch is greater than the material thickness, then a conventional threadform tool is a great solution. But what if the screw thread to join the two pieces requires a material thickness greater than the pitch of the screw?

Mate can solve this problem with the **Hybrid Threadform forming tool**. Unlike a conventional threadform, the hybrid threadform tool is designed to thin the material in the center of the form, and create the threadform helix in just one operation. The Hybrid Threadform forming tool eliminates secondary and tapping operations, and reduces component cost by eliminating any special fasteners



Photo shows the completed form, with a 10-24 machine screw.

Combine the Hybrid Threadform forming tool with other Mate applications such as EasyBend™ for forming corners, EasySnap™ to break apart pieces from the sheet, or an emboss tool to make it flush with the sheet metal.

These are just a few of the ways fabricators can use their turret presses creatively and more efficiently to solve challenging situations. To learn more about these and other creative solutions, visit mate.com.

World-Class Fabricating

Ingenuity, opportunity and the ability to see beyond manufacturing restrictions has made Ray Turner and his Edmonton, AB, company, Lenmak Exterior Innovations Inc., a success story.

Turner is a humble visionary who used his knowledge of equipment and his keen sense of research to turn his small shop into a world-class facility. In fact, he invested in a flexible manufacturing system (FMS) made by Prima Power (formerly Prima Finn-Power) and applied it to making exterior building components.

"I don't think anyone else anywhere is doing what I'm doing," says Turner. "I'm using precision equipment and using it in a non-precision environment."

The installation of Prima Power's Punch, Shear and Bend Flexible Manufacturing Cell has given the company a competitive edge with the potential to double earnings over the last three years.

Of course, getting to this point didn't happen overnight. Thirteen years ago, Turner was a salesman for a residential exterior wholesale distributor; when he recognized an opportunity that turned into a full-fledged business. "We were selling maintenance-free vinyl windows but there was no way to dress up or add character to the windows without adding maintenance to them," he says. "I gave it some thought and came up with a prefinished aluminum window batten that added colour and character without compromising its maintenance-free quality."



The Shear Genius (SG) integrated punch shear combination transforms a full-sized sheet into punched parts.

He opened a small shop and started to produce decorative accessories for residential exteriors including linear channels, aluminum shutters and octagon louvers. He had already built a good client base from his former competitors in the residential exterior building business and had a successful start.



Prima Power's flexible manufacturing system (FMS) has given Lenmak a strong competitive edge. The system includes an automated bender (Express Bender EBe5), seen here.

Soon after he started his business he attended a metalworking show in Atlanta and began to research equipment. When he returned, he went to his wife Lori (the other part of this successful venture), and asked her if they could remortgage the house to buy a 10 ft folder and a 10 ft shear. She agreed. "Everything took off after that," he says. "We added more equipment and the business expanded to other markets. I was bending pre-finished steel trims for flat roofers, agriculture and standing seam buildings."

"Turner says part quality, along with increased production and flexibility is due to Prima Power SG and EBe technology."

In 2004, Lenmak progressed to vertical integration and moved to master coils giving the small but evolving company a lot more flexibility. It also implemented Lean Manufacturing which led to greater company structure. "We learned the power of reducing non-value added activity and how to pull production rather than push."

Prima Power

The company continued to grow. It was producing a very good and substantial product line, but Turner had an idea that kept floating around in his mind. "I always wanted to take the FMS concept and see if I could adapt it to manufacture multiple side exterior panels."

Over the years, he had contact with Prima Power's sales rep who shared information about their products with Turner. He also continued his research; talked to people in the business, and travelled to metalworking shows around the world. When the opportunity came his way, he visited other manufacturing facilities where the equipment was being used. "I talked to people from all over the world who were using the Prima Power equipment and even hung around Prima

Power's booth for days at one conference. I did whatever I could to educate myself about the equipment."

Then, in January 2009, just when the recession hit, the opportunity presented itself. Even though the company's sales dropped by 35 per cent and the Canadian dollar started to creep up, Turner kept his eyes on the prize. "Sales for machines world wide were declining because of the recession. There was an opportunity there and I took it," says Turner. He went to Lori for guidance. She agreed to buy the equipment but with one stipulation. "She wanted to stay in the same location, and I knew that would be difficult considering the space restrictions we had." Prima Power had a solution to his space problem. They told him about a 90° line they created for a company in Italy for making pizza ovens that might work in his facility. It did.

"The line has certainly changed the manufacturing process. We do it from start to finish; from cutting the sheets to bending the final pieces. A job that used to take 20 minutes, now takes a fraction of the time."



The Sorting and Stacking Robot, seen here, automatically unloads parts from the Shear Genius (SG) and loads them to the Express Bender (model EBe5) automated bender.

Today the company is using Prima Power's Punch, Shear and Bend Flexible Manufacturing Cell, which includes the Shear Genius (SG) punch/shear combination (model SG6: 3,074 mm x 1,565 mm (120 in. x 60 in.) and the EBe automated bender.

Shear Genius Flexibility

The SG integrated punch shear combination machine transforms a full-sized sheet into punched parts. These parts can be moved to secondary operations using sorting and stacking automation and then on to bending operations without being touched by human hands. Mike Stock, vice president and bending products manager for Prima Power North America Inc., says the combination delivers finished parts with a dramatic reduction in scrap and manual labour along with increased profitability.



Ray and Lori Turner are big believers in investing in leading edge technologies: "Invest in as much automation as you can. You will compete and win," says Ray.

The SG also eliminates wasteful skeletons and costly secondary operations such as deburring. It 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. "This allows true single-piece flow to be synchronized with a customer's takt time," says Stock.

The Sorting and Stacking Robot automatically unloads the parts from the SG and loads the parts to the Express Bender (model EBe5) automated bender. "The EBe is designed specifically for each fabricator's production requirements to achieve maximum productivity, quality, and repeatability," says Stock.

The bending operation is fully automated, from the loading of flat punched parts to unloading of the finished product. It has a maximum bending length of 2550 mm (100.39 in.) and a maximum opening height of 200 mm (8 in.). 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.

"There's been elimination of labour costs due to automation and improved operator safety due to the structural integrity of the line, which removes the operator from the process area."

A Manufacturing Marriage

The automated system married well with Lenmak's previous business, and Turner was able to continue working with master coils without

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losing on his investment. "We cut all of our sheet, which the new system required!"



The Prima Power flexible manufacturing system includes the Express Bender (EBe5) automated bender, seen in top image, and the Shear Genius (SG) punch/shear combination machine, seen below in the background, with transfer table in forefront.



"There is also a tremendous value to the customer with delivery times drastically cut. What used to take six to eight weeks to deliver now takes one to two."

Lenmak is making a distinct product with the Prima Power manufacturing cell: decorative exterior panels (up to 42 x 96 in./1066 x 2438 mm). "I created my own market for the panels just by looking at my existing equipment and seeing if it could make something I hadn't thought it could."

The line has certainly changed the manufacturing process. "We do it from start to finish; from cutting the sheets to bending the final pieces," he says. "A job that used to take 20 minutes, now takes a fraction of the time."

But the benefits don't stop there. Turner says part quality, along with increased production and flexibility is due to Prima Power SG and EBe technology. There's been elimination of labour costs due to automation and improved operator safety due to the structural integrity of the line, which removes the operator from the process area.

There is also a tremendous value to the customer with delivery times drastically cut. "What used to take six to eight weeks to deliver now takes one to two," Turner says.

Leading The Way

Turner also saw the advantages of Lenmak earning Leadership in Energy and Environmental Design (LEED) credits from his new line... something Turner sees as a marketable advantage. (LEED sets new parameters to develop sustainable and environment friendly buildings.) "This is becoming a significant issue in the building materials business," Turner says. "Buildings provide 48 per cent of the carbon worldwide and the construction industry is under pressure to produce sustainable buildings."

The challenge is to produce structures with the least amount of carbon footprint during and after construction. "The more commodity items or items that are bulky or awkward that are made in a facility of where a building is being built, bring in more LEED credits. We should be looking at this as a marketable edge."

Competing With China

Turner believes that if Canadian manufacturers tool up and offer world-class manufacturing capabilities and equipment, they can compete, and they can look after their own needs. "We can potentially make better products and move them to other parts of the world."

He believes efficiency equals pricing and manufacturers should buy good equipment and be efficient and let the price look after itself. "Prima Power is an excellent example of the quality equipment I'm referring to."

Future Friendly

Turner sees a bright future for Lenmak. "I will survive. I'm out in front and will always buy top-of-the-line. I see a new custom building in our future with more capacity and we will gain more LEED credits as we move forward."

Turner's advice to Canadian manufacturers is simply this. "All you have to do to compete is buy quality equipment and believe in yourself," he says. "Labour will become less of an issue when more automation is used. To keep just-in-time delivery, invest in as much automation as you can and you will compete and win."



This article appeared in June, 2011 issue of Canadian Metalworking

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“We chose the Prima Platino because after researching the industry, we found that it had just as many, if not more, machine features than the competitors at a better price. **Bang for the buck**, it was the best machine on the market. I liked the construction of the machine because it had the cantilever arm construction with the single frame so the resonator sits on top of the



machine. And it was also one of the only lasers that offered the rotary axis option for tube cutting.”

Alfredo Darolfi
VP Manufacturing
D & R Electronics Co. LTD
Bolton, ON

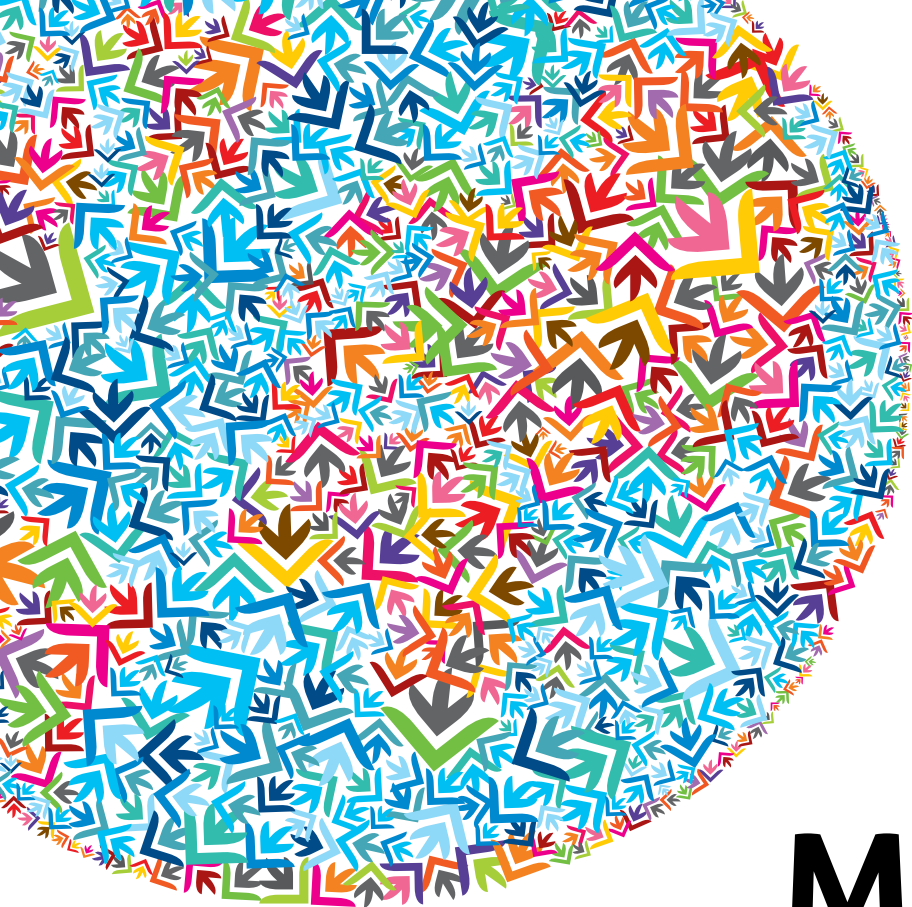
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