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Prima Power Publication

POWER Line

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Maximizing Productivity in Your Prima Power Turret Punch Press

By Andrew McCarlie, Applications Engineer

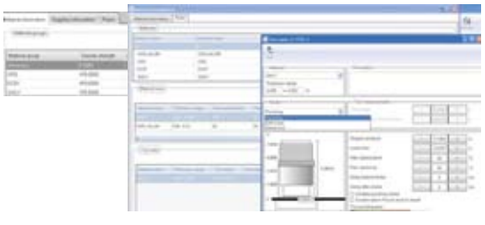
With the arrival of the newest Prima Power servo-electric turret punch presses, punch/laser combination, and punch/shear combination machines, it's a good time to revisit the productivity gains that can be realized by utilizing the technological advantages they provide. These include the following:

Increased Material Utilization

The Prima Power servo-electric turret punch press of today has a fully-guided tool envelope available in the enclosed O-frame that features a 250 rpm, 33-ton upform capable index mechanism that is built into the machine frame. With this, it is possible to standardize the parting tool size to a 3 mm/0.120" width instead of 6 mm/0.250" in a D or 3.5" station.

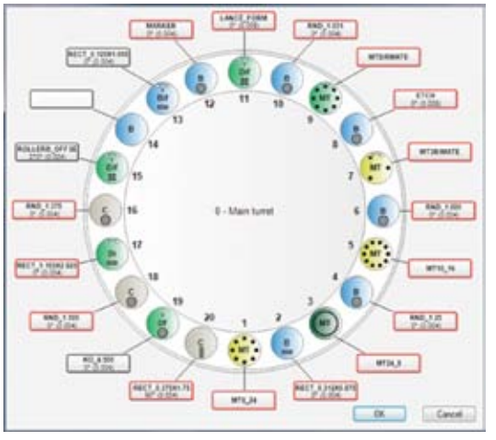
With the fully controllable servo-electric ram, it is possible to consistently punch 3 mm thick material, provided the tool has rooftop shear on it equivalent to the material thickness and the correct die clearance is used. On a 3000 mm/120" sheet this can amount to an extra 3 mm/0.120" of material for each parting line. This can amount to extra parts per sheet, especially with smaller size parts.

Another feature to enhance material utilization common on these new machines is the Material Rules Database built into the control. The material tensile strength is set to enable the machine to stop punching if tonnage limits are exceeded. This Material Rules Database also enables the machine to automatically ramp down its punching speeds and acceleration by individual tool when thicker material such as 3 mm steel is being punched with such a tool, thus avoiding damage to the tool and permitting you to punch material with the tool whose width can be the same as the material thickness.



Minimize Setup & Cycle Time – Increase Productivity

One of the most significant causes of lost productivity is high tool setup time. With this new generation of high-speed, servo-electric equipment comes the ability to do many punching operations in one setup at high speed due to the availability of every station in the turret being either Index Upform or Punching capable at full tonnage. The standard 20 and 30 station turrets still have 10 and 15 available full tonnage index stations.



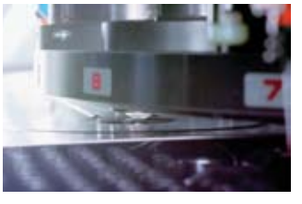
The example servo-electric turret above has a total tool load of 68 tools, 15 of which are full tonnage indexable, three of which are upforming index capable and one fixed 4.4"/114 mm upform capable station. Coupled with this is the ability to have multiple B size (3 tools) or A size (8 tools) in a single D/3.5" Index station all of which can rotate at 250 rpm. This allows you to load many less-fixed small tools into the turret to produce shapes that you could not do in a turret with only two or four index stations.

Added to this high-speed index capability is also the use of large fixed multi-tools in the turret to give even greater small tool capacity to further reduce your setup time along with quick-change die cassettes.

Increase Machine Productivity by Adding Extra Operations into the Turret Load

The new high-speed index allows the ability to have high-form tools in the turret that utilize the secondary, fully-controllable 25-ton lower ram to form from below the die-line and also retract the tool after being used, allowing up to 16 mm/0.620" high forms. The ability to retract the die after forming means that higher sheet speeds are possible as the sheet does not have to traverse over a high die or die in the turret. In addition, if the high form is required at more than one angle you do not have to load an extra high tool at a fixed angle because the station is fully indexable while upforming.

With the new built-in Tulus database, all control settings for the tools are no longer required in the NC code. The tool definition and all its settings are carried in the control, and once being set, do not require programming or operator intervention each time a new job is run.



Wheel technology tools can take advantage of the precise positioning accuracy available with the servo-electric control along with the index upform capability to produce extra features in a part. The tool is retracted after use relieving the operator of the need to remove it from the machine.

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MANAGEMENT CORNER

The Year of Three Birthdays

By Ezio Basso, Prima Industrie Managing Director, Prima Power Division

This year, Prima Power celebrates three important anniversaries, each a major milestone in our corporate history and technology in general. Our first turret punch press saw daylight three decades ago; the first Prima Power 2D laser cutting machine was introduced 20 years ago; and our first servo-electric solution was launched 15 years ago.

While the 30 – 20 – 15 anniversary dates are a coincidence, they reflect an important fact in corporate performance. As our first corporate value, we have defined Technology and Innovation, stating that we find advanced technology fascinating…we are proud of how users can benefit from it and are committed to creating innovations. Here we have perfect proof that the Prima Power values are not only a guideline for the future, but based on a strong tradition.

30 Years of Punching Technology

In 1982 a Finn-Power engineer had been employed to make a feasibility study on a crimping FMS. As a result of the study, the purchase of turret punch press was recommended to economically manufacture existing products as well as future new products. The prices of the turret punch presses on the market at that time were beyond the budget of the small company. However, if there was a lack of money, there was certainly no lack of creative thinking and bold decision making. If they could make them in Japan, Germany, US, etc., why could they not be made in Finland? So, a new product was born.

As a result, the Finn-Power TP 250 was introduced 1983, which began the continuous development process that has resulted in the current Prima Power range of punching solutions.

The TP 250 was an advanced, hydraulic machine, and its successors were a major factor in the paradigm change process which made mechanical punch presses practically obsolete. Technological progress since then has been dramatic, but this short list of Finn-Power features demonstrates that in many respects, the TP was made right the first time: O frame, central locking of clamps, universal tool system, max. tool size 89 mm, adjustable stroke length for each tool, etc.

20 Years of 2D Laser Cutting

In 1979 Prima Industrie installed the first laser cutting machine for processing large three-dimensional pressed components. A true pioneer in this field - less than 20 years had passed since the invention of the laser by Theodore H. Maiman and industrial applications were just at the beginning, Prima Industrie soon became the worldwide standard for the industry.

During the next 15 years, the company focused on this market segment, launching successful models such as the Optimo and Rapido, and installing hundreds of laser cutting and welding systems across the globe.

Prima Industrie's entry into the market of two dimensional lasers was made 20 years ago, through the acquisition of the Swiss company Laserwork. A few years later, the new Platino machine was first introduced to the market. Today, over 1,500 units of this model are installed worldwide.

The Prima Power 2D product range has been extended to six models, available in different sizes and with different laser sources, both fiber and CO2, to satisfy all needs of flat sheet metal processing.

15 Years of Servo-Electric Punching

By the mid 1990's, hydraulics had become the prevailing technology for actuating the punching stroke among practically all manufacturers. Yet, development continued, and an interesting innovation was launched: a punching stroke made servo-mechanically, without hydraulics.

The concept was worth serious consideration and carefully studied. The merits were obvious: it would be possible to achieve lower energy consumption, lower maintenance cost, lower noise levels and improved accuracy and stroke adjustability. It would be possible to combine economy, ecology, and ergonomics.

A concentrated development project of a servo-electric turret punch press began in May 1996, and two years later the prototype had been thoroughly tested. It had been especially essential to ensure that the punching mechanics could take the punishment. More that 40 million strokes, half of them with momentary peak force of 200 kN, had proven this to be the case. Consequently, the E5 was introduced at the Blech exhibition (now EuroBLECH) in October 1998. What has now clearly become the next paradigm shift started gaining momentum.

Development continued and currently the third generation of servo-electric technology is in place, with a much improved servo-mechanical actuation solution.

Green Means®

In subsequent years, servo-electric solutions have also been developed for bending and integrated right angle shearing, which are important elements in the Prima Power Green Means® approach philosophy. Today, Prima Power offers its customers the industry's widest range of innovative, productive, and sustainable products.

There are numerous articles in this issue of the POWER LINE that give testimony to the Prima Power product line at work today in various industries, increasing quality, productivity, and profits for our customers.

CUSTOMER PROFILE

New Opportunities Created Through Flexible Automation

In August 2010, PTMW moved its entire operation into a nearby facility with 827,000 square feet under one roof on a property that stretches over 152 acres. In 2012, the company added a new Flexible Manufacturing System (FMS) with the latest technology from Prima Power, including: a Shear Genius SGe8, a Laser/Punch LPe8, an Express Bender EBe6, and a Night Train NT8.

Patti Jon Goff
President & Owner

PTMW Inc., Topeka, KS, is a leading manufacturer of signal and communications houses for the railroads. This niche industry has proven to be almost recession proof. "We've pretty much remained steady throughout any highs and lows in the market," explains Patti Jon Goff, President & Owner. "We supply all but one Class I railroad in the US. The railroads have a different outlook. They continue to expand and update."

PTMW was founded by Goff's parents in the mid 1980's as an assembly plant to produce other companies' products for the railroad industry. In 1987, one of her major customers encouraged her to begin building signal houses – those little metal buildings that are located near crossings on the railroad rights-of-way. Recognizing this as an opportunity for expansion, she made the commitment to produce the signal houses.

"It's just so comfortable to work with Prima Power. If we call, we know that there is a sense of urgency…and they react immediately. I don't think that we would have stuck with Prima Power this long without that relationship."

For many years, the company purchased its sheet metal parts from job shops and assembled and shipped the signal houses from its company headquarters in Topeka, KS. But Goff wanted to vertically integrate her company and had a strong commitment to build the company on quality parts, timely deliveries, innovative processes, and strong customer relationships. Now the challenge was deciding on how best to achieve vertical integration.

PTMW is a leading manufacturer of signal and communications houses for the railroads. The company supplies all but one Class I railroad in the US.

"I knew that PTMW had an opportunity to take a giant step into the world of manufacturing," Goff explains. "I didn't want to do it half way. I wanted to have the best automated equipment that was available."

After comparing machines and systems, PTMW selected the Finn-Power (now Prima Power) Night Train® FMS. The Flexible Manufacturing System was installed in March, 2000, and consisted of automated raw sheet storage, sheet loading, integrated punching/shearing, unloading, and in-line automated bending. The company also purchased a Finn-Power press brake. Overnight, PTMW went from being an assembler of component parts to having a world-class sheet metal flexible manufacturing system. "This equipment helped us gain our independence and has set the path for determining our own destiny," says Goff. "The technology in that Night Train® changed the world of manufacturing."

The first building to hold the new automated fabrication line was a 15,000 square-foot building constructed to house the line. Altogether, PTMW had 100,000 square feet of manufacturing space spread through several other buildings.

New Facility & New Automated Line

As the company grew during the past decade, more buildings and fabrication equipment were added. In August 2010, PTMW moved its entire operation into a nearby facility with 827,000 square feet under one roof on a property that stretches over 152 acres. In 2012, the company added a new Flexible Manufacturing System (FMS) with the latest technology from Prima Power, including:

- Shear Genius SGe8
- Laser/Punch LPe8
- Express Bender EBe6
- Night Train NT8

Shear Genius

With the Shear Genius concept, the objective is to provide a machine capable of transforming a full-size sheet into finished parts. These parts can be moved to the final production stages for immediate integration directly into the final product assembly. To date, over 2,000 Shear Genius® machines have been installed throughout the world

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

"This equipment helped us gain our independence and has set the path for determining our own destiny. The technology in that Night Train® changed the world of manufacturing."

Servo Electric

Starting systematic development of servo-electric machine tools in the mid-nineties, Prima Power has widened the range continuously and now extends this technology to the integrated right angle shear. The heart of the new servo-electric Shear Genius® SGe is an updated servo-electric 30-ton punching machine with 1,000 hpm stroke

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speed, 250 rpm index speed and 150 m/min sheet positioning speed. The right angle shear has a servo-electric actuation system, which makes shear movement both fast and fully controlled 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.

The SGe is able to perform the most demanding jobs with minimal set-up times and "lights out" unmanned operations. Shear Genius increases material productivity through efficient and versatile nesting programs. As loading, punching/forming & upforming, unloading, sorting, and stacking become automated, the result is a finished part with a dramatic reduction in scrap and manual labor while increasing productivity.

"The Prima Power equipment has made us much more flexible to produce different kinds of parts."

The level of automation can be customized through Prima Power's flexible modular solutions for raw material storage & management, loading, unloading, sorting, and stacking. These features can be added later as budget allows and production demands increase or change.

The SGe ease of operation does not compromise the cell's per minute part production, flexibility, or ability to fabricate complex parts. On average, compared with a stand alone turret punch press, the SGe reduces total manufacturing time by 60% and saves one blank sheet out of every 10.

The SGe 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. Shear Genius also eliminates the potential for mistakes when manually shearing a large sheet. In the Shear Genius, the sheet is loaded and squared automatically, and there is no human interference, ensuring very

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CUSTOMER PROFILE

New Opportunities Created Through Flexible Automation

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accurate parts. 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.

Sean Ryan
VP of Production

"We incorporated the Shear Brilliance punch/shear combination we had purchased for our previous system into this new FMS for added punching capacity," explains Sean Ryan, VP of Production. "The new servo-electric SGe is faster than the older hydraulics models….we don't have to worry about the hydraulics warming up. We have consistency from the time we start the machine until the time we shut down. We punch aluminum, galvanneal, and some stainless steel on the SGe. We also incorporated an ink jet printer on the machine that helps us to identify parts better and tracking back material as well."

Laser Punch

Another integral part of PTMW's flexible manufacturing system is the LPe8 servo-electric punch laser with a 4000 Watt CO2 laser.

The Prima Power LPe laser/punch combination represents proven technology and intelligent integration of punching, forming, tapping, and laser cutting in a single unit for the most varied sheet metal operations. Optimum use of the Prima Power LPe means that a fabricator can use the servo-electric turret punch press where it is easier or faster and the laser where it is the most effective. The LPe allows the user to look at the parts to determine the optimum process for every production.

The heart of the new punch laser combination is the servo-electric turret punch press. The laser used in the system as its most flexible tool is a 4000 Watt CO2 laser that allows the user to manufacture faster, more economically, and more environmentally friendly than any alternative solution on the market.

The Prima Power LPe laser/punch combination represents proven technology and intelligent integration of punching, forming, tapping, and laser cutting in a single unit for the most varied sheet metal operations. Optimum use of the Prima Power LPe means that a fabricator can use the servo-electric turret punch press where it is easier or faster and the laser where it is the most effective.

Other benefits of the LPe include:

- Reduction of piece part costs – faster punching time, reduction in direct labor assigned to setup and punching, and reduction of number of manual operations.
- Ability to utilize full sheets while eliminating the need to shear to size blanks being processed.
- Increased machine utilization – if load/unload system is purchased with the LP, unmanned operation can be achieved from load, punch, upform, laser cut, unload, and sorting of parts in one machine.

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 bender has a maximum bending length of 131" (3550 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 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.

"Monday through Friday, we run three 8-hours shifts," explains Goff. "Because of its productivity and accuracy, we run as much material through the EBe as we can."

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"This opportunity has come about as a result of expansion of our Prima Power equipment. We have increased our capacity. Our Night Train cassettes are longer now so we can store longer material, and our new machines are large enough to handle the longer material."

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

Night Train

The centerpiece of the Prima Power automated sheet processing system is the Night Train Material Management System, which is the inventory and material transporting center. The Night Train FMS provides a total solution for unmanned operation for sheet metal fabricators by automating system control, as well as material flow within the system. This includes supplying raw material as well as removing and storing work in process.

"Our new Night Train is 200 feet long with 180 cassettes," says Ryan. "We can now hold 160" material."

New Market Opportunities

While railroads comprise 70% of PTMW's production, the company has expanded its product line into new industries such as generator houses and data centers. "Because of our capabilities, these new industries are giving us the opportunity to build larger buildings." says Goff. "This opportunity has come about as a result of expansion of our Prima Power equipment. We have increased our capacity. Our Night Train cassettes are longer now so we can store longer material, and our new machines are large enough to handle the longer material."

"The result is a relationship that has grown over the years to where there is a great deal of trust between both sides in terms of what we want to achieve. Prima Power people do an excellent job of helping us in the design of equipment. This partnership has worked very well for 14 years."

"The Prima Power equipment has made us much more flexible to produce different kinds of parts," adds Ed Carpenter, VP External Affairs. "The power industry has many specials…every part in the power industry is unique. Today, we have a great deal more flexibility to determine the manner in which our parts are made and how we nest them."

Meeting Customer Demand

Goff explains that PTMW is in constant communications with its customers to determine their particular needs. "We build Supplier Managed Inventory (SMI), because we know that they will need those products," she says. "We replenish our inventory thought SMI. When they pull inventory, we replenish it. That's why lead times shrink to the time it takes for delivery times in most cases. It allows us to manage our people and our materials and keep the flow as smooth as possible. Anyone with whom we have a long-term agreement that has standard enclosures, we implement our own SMI system with them."

Prima Power Equipment

Ed Carpenter, VP External Affairs

Prima Power has been an integral part of PTMW. "In 2000, when we purchased our first system, we created a very solid strategic alliance with Prima Power," says Carpenter. "We know where we can get the equipment we need to produce our products, that it works, and we get good solid support in terms of repairs and maintenance. It is important because PTMW needs to know that it can rely upon sustainable fabrication. The result is a relationship that has grown over the years to where there is a great deal of trust between both sides in terms of what we want to achieve. Prima Power people do an excellent job of helping us in the design of equipment. This partnership has worked very well for 14 years."

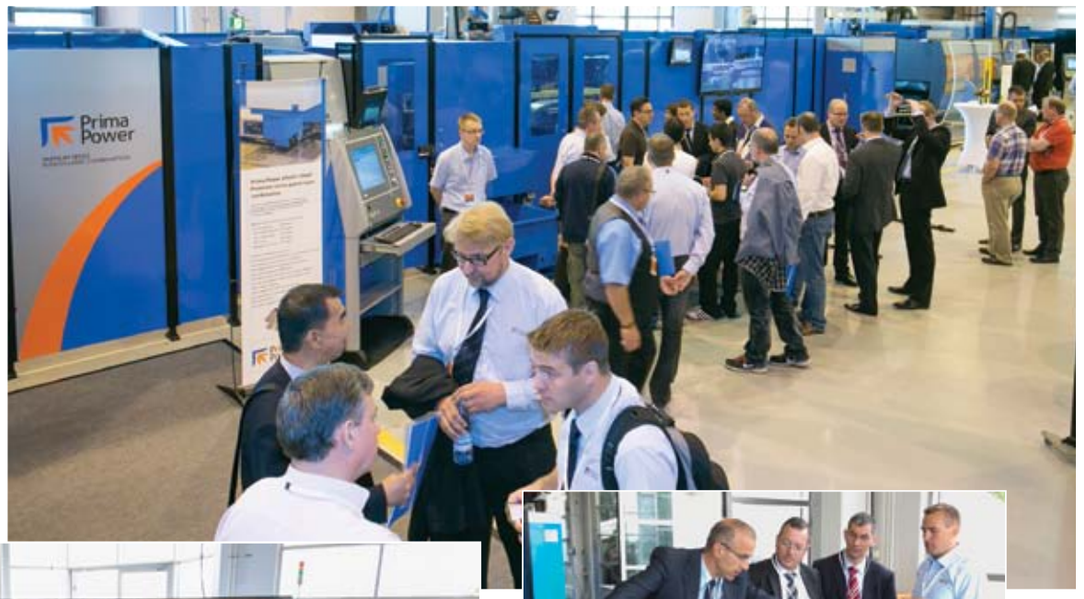
Automation is Creating Jobs

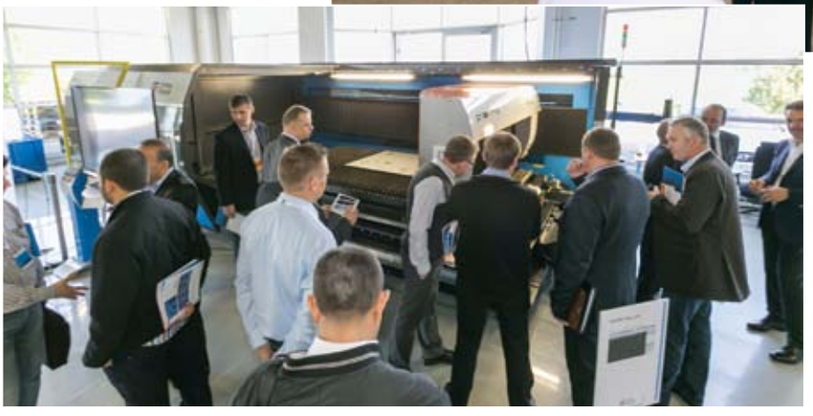
"It's just so comfortable to work with Prima Power," says Goff. "If we call, we know that there is a sense of urgency…and they react immediately. I don't think that we would have stuck with Prima Power this long without that relationship. Today our total number of employees is 230. Before we moved into our new facility, that number was 134. Even though we are automating our manufacturing, the automation isn't killing jobs…it's creating them."

Prima Power Technology Days

More than 300 visitors from 35 countries attended Prima Power Technology Days, held on June 4 – 7 at the Group unit in Kauhava, Finland. The theme of the event was The Year of Three Birthdays, reflecting 2013 as a year to celebrate a three-decade career in punching technology, 20 years of experience in 2D laser cutting machines, and 15 years as a supplier of servo-electric solutions for sheet metal working.

During the four-day event, an impressive array of the wide Prima Power product range was on display, including totally new technology.



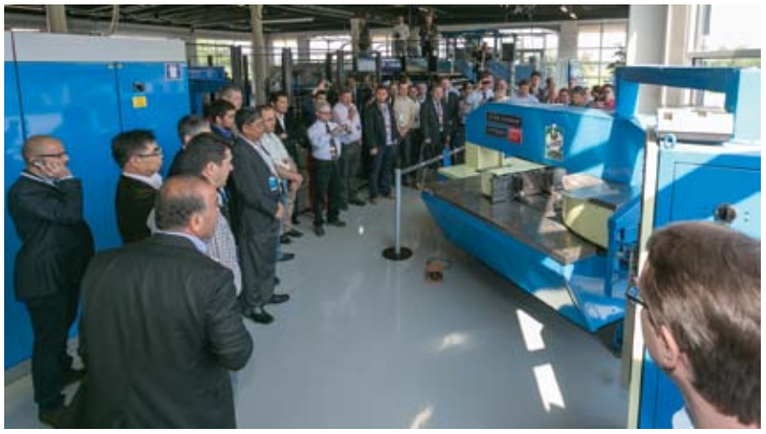


PLATINO® With Part Picking and Stacking

The integration of the Prima Industrie Group is increasingly manifested in the product offering. For the first time, the world-renowned PLATINO® laser cutting machine was introduced with a Finnish-made picking and stacking robot LST. PLATINO® is available with a 2 or 3 kW fiber laser or 2.5 – 5 kW CO2 laser source.

The LST eliminates manual separation of cut parts from the skeleton, and, therefore reduces manual operations, increases part quality, and reaches a higher level of productivity with unmanned operation.

The robot picks the parts directly from the cutting head; this highly reliable solution has so far not been seen in conventional laser automation. The components are accurately stacked to programmed addresses on tables or wagons or sorted into boxes.



New Punch Laser Combination

In The Combi range of integrated manufacturing cells, a new generation of punching – fiber laser cutting was presented. The premium series LPe6f with high-end punching technology and a 2 or 3 kW fiber laser source can run the most complex production orders with outstanding versatility and record-breaking speed.

Sheet positioning speed is 150 m/min. In versatile servo-electric punching, impressive performance values are reached, such as punching speed up to 1,000 hpm / 1 mm, punching force up to 30 tons and simultaneous tooling capacity up to 384 tools with Multi-Tool® technology.

Large tooling capacity, automatic tool length measurement, optimization of stroke length and easy adjustment of the punching stroke ensure superior punching cycle times. These combine with others, adding up to faster set-ups, more ease of operation and higher capacity.

Automation can be arranged flexibly with a wide range of modules.

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Prima Power Technology Days

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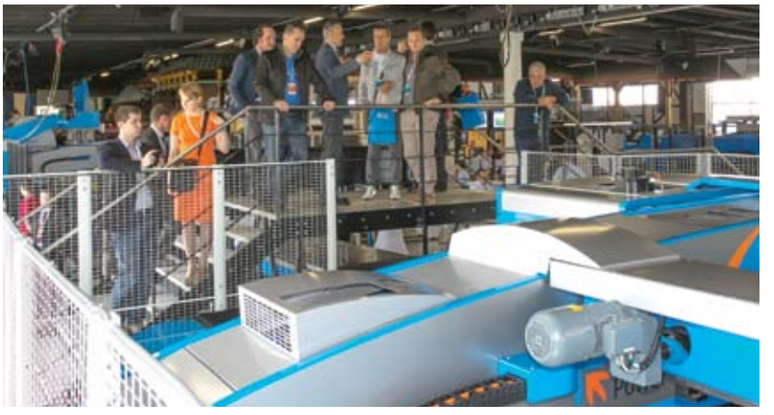


PunchBend – New Fabrication Solution for Pre-cut Material

A new compact and economical fabrication solution for pre-cut materials was on display for the first time. PunchBend processes pre-cut material into ready-bent components. The essential characteristic of the concept is tight integration of everything needed: software, punching and bending technology as well as automation.

The PunchBend process is fully automatic:

- Automatic loading of pre-cut material to punching unit, automatic clamp setting
- Material is processed (punching and forming) with punching unit
- Processed part is transferred to bending unit and prepared for bending process, new material is loaded to punching unit
- Part is processed by bending unit; the next sheet is punched simultaneously
- Removal of ready-bent component

Both punching and bending technology are servo-electric, thus making the new product part of the company's Green Means® offering. The same high-end Prima Power punching technology as in the punch laser cell is included. As the punching stroke is NC-controlled, in addition to high-performance punching, outstandingly accurate forming capacity is available. High repeatability facilitates forming, roll forming, marking etc. and shortens set-up times.

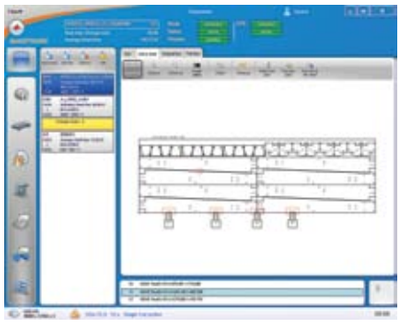
Prima Power's automatic servo-electric bending technology offers major benefits through excellent bending quality and accuracy as required by design products and a low overall operation cost due to low energy consumption, low maintenance cost and very fast operation.

Press Brake Range Extended

The wide range of Prima Power press brakes has been extended with a new model eP1-0212. Working length is 1,200 mm and bending force 25 tons.

The Prima Power eP1 series press brake is a compact size, fast, accurate, non-hydraulic bending solution. The ram is driven by a combination of heavy duty servo motor and a high performance ball screw. This innovative machine concept combines productivity, accuracy, flexibility and reliability.

Further machine features include side frames which are outside the maximum bending length, Lazer Safe 005 "Block Laser" safety system and 2D graphical NC control.

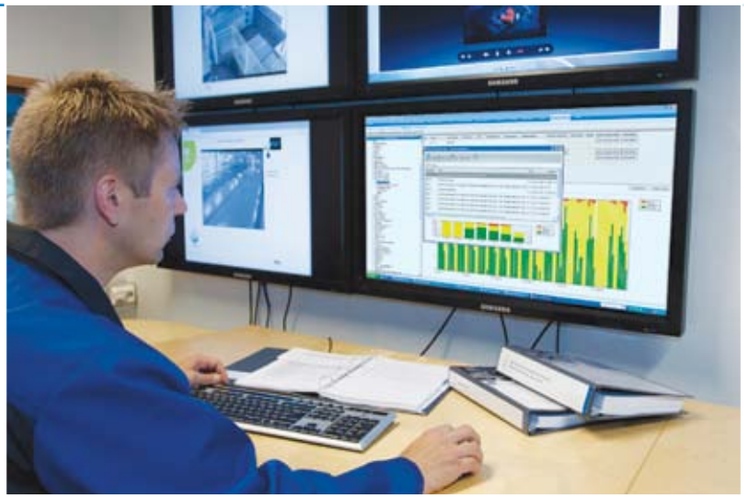


New Tulus® Software Product

The Tulus® software family is an efficient solution for flexible production management from order handling to finished parts and reporting.

The latest addition to the family is Tulus® Power Processing for programming, tooling, automatic nesting, and management of part routing and process steps. Power Processing communicates directly with the enterprise resource planning system and operates as manufacturing execution system.

Tulus® Office provides tools for comprehensive production planning with machine calendar and active task list editing possibilities, as well as production and performance reporting options. With these reports bottlenecks can be spotted and production improved.



The Operator – New Generation of Remote Services

The Operator is an advanced system for continuous cooperation between the customer and Prima Power to achieve maximum availability through condition monitoring and support. The Operator consists of three modules.

OPView gives a monthly report on machine condition based on information from machine control. The report can be used for monitoring machine condition by comparing it with earlier reports and, when needed, with information about other similar machines.

With **OPSupport** fault diagnostics can be made with web cameras. A recorded video can also be seen afterwards. With the combination of cameras and 24/7 Prima Power service, support is available all around the world.

OPEfficiency makes efficiency reports on machine condition and performance. Performance reports record machine running time and the reason for eventual downtime. Reports are analyzed by Prima Power personnel.

For more information please contact:

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CUSTOMER PROFILE

Riding the Night Train to Higher Productivity

By Alessandra Fraschini

A typical Italian history, the Anapoli company has bet on the domestic market by investing substantial capital to renew and expand its production equipment by relying on a prepared and reliable technological partner: Prima Power. Let's look at the ingredients of this success…

The Anapoli Franco Officine was founded in 1969 in Montecchio Precalcino (VI). Its expertise is in the engineering contract manufacturing sector, in particular in sheet metal fabrication for fume extraction systems, air treatment, and furnishings. The company performs light carpentry work, laser cutting, punching, bending, painting and other surface treatments on finished parts.

A new automatic Material Management System, the Prima Power Night Train (NT) FMS 5 Series, distributes and coordinates the work load to all the connected machines. The central unit of the NT, in fact, feeds both the cutting systems and the paneling machine.

Founder Franco Anapoli and his son Antonio have creatively led their company to greater growth through investments in machinery and facility.

Anapoli meets the global needs of the market through customer service and meeting the production demands of its customers through the skillful use of innovative technology and software.

The equipment and the machinery used is state-of-the-art in automated sheet metal fabrication, laser cutting, combined punching/shearing, and bending systems. Anapoli chose this equipment to obtain optimal part quality, accuracy, and cost efficiency. Each product request is examined in detail and all the possible issues are taken into account in order to offer proper advice to optimize the final result.

When Franco's son, Antonio, joined the company in 2000, he led the business to experience greater growth through investments in new machinery and a new plant in Thiene (VI), covering approximately 5,000 covered square meters. Since late 2001, there has been a turnaround point in the company. The volume of production capacity was remarkably enlarged to meet the increasing demands of both the market and customers. The production layout and flow was redesigned by the addition of a central storage system capable of communicating with all production machines, with future expansion capabilities.

"Prima Power has a presence in over 70 countries, with a total of over 10,000 machines and systems installed worldwide."

The latest purchase was laser/punch combination machine purchased in 2012, which has completed a remarkable investment plan made in a few years. The company, while maintaining its family values and identity, has experienced growth of plants and equipment. At the same time, labor costs have been contained, which has in turn created a profound professional growth, becoming another company strength. The reference market of the company is Italy, satisfying the demands of leading customers in the global market.

Technological Partnership

The technological partner, who over the years has followed the evolution of Anapoli, is Prima Power, Machinery Division of Prima Industrie Group. Prima Power was the result of a union of two of the most important brands in the field of laser and sheet metal machinery, Prima Industrie and Finn-Power. Prima Industrie Group is listed on the Milan Stock Exchange (MTA-Star segment). Prima Power derives its strength and expertise from the 35 years of experience in laser and sheet metal machinery of these two companies. "Our range of products is one of the widest," says Riccardo Pellegrini from Prima Power Italia. "ThePunch, TheLaser, TheCombi, TheBend, theSystem, theSoftware are the names of the product lines for punching, cutting, welding, 2D and 3D laser drilling, punching/shearing and punching/laser cutting integrated, bending, automation and software".

"Prima Power's technological evolution allows us to meet or exceed our customers' expectations. Our customers now benefit from these multiple solutions and combinations we offer. We have the right machine, cell, or system for any production requirement or production demand."

Given the wide range of products offered by the group, the many markets for Prima Power's products include: automotive, aerospace, metal furniture, hospital furniture, kitchen appliances, racks, electric generators, furniture accessories, lighting systems, elevators, air treatment, agricultural machines, and even more.

"Prima Power's technological evolution allows us to meet or exceed our customers' expectations. Our customers now benefit from these multiple solutions and combinations we offer. We have the right machine, cell, or system for any production requirement or production demand," stresses Pellegrini.

The paneling machine can recall the semi-finished product from a linked unit, retrieve the various components, always in compliance with the programming set, and bend the various pieces.

A central Night Train shuttle, by following the instructions of the programming work queues, ensures continuity by allowing both the supply of the raw metal sheet and the return of the semi-finished products to the storage unit.

The Most Up to Date Machinery Fleet

Anapoli boasts a machinery fleet whose innovative features are difficult to match in the current market. A new automatic Material Management System, the Prima Power Night Train (NT) FMS 5 Series, distributes and coordinates the work load to all the connected machines. The central unit of the NT, in fact, feeds both the cutting systems and the panelling machine. A central shuttle, by following the instructions of the programming work queues, ensures continuity by allowing both the supply of the raw metal sheet and the return of the semi-finished products to the storage unit. Various Prima Power machines are connected to the central storage unit: a 4kW power 2D cutting laser, L6 model; an SG6 punching/shearing machine, an LPe6 – a servo-electric punching machine combined with a 2 kW fiber laser, and an EBe4 servo-electric panelling machine.

"The modern machinery fleet was our trump card. It enabled us to be very competitive in our marketplace, differentiating our offer from that of our competitors in terms of both quality and price."

Each machine is programmed according to the specific needs of the processing involved. As a result, each utility is connected to the relevant raw material using boxes gathered in the storage unit housing the various raw materials intended for cutting. The maximum load capacity of each raw material box is 3,000 kg and currently, in the Anapoli plant, more than 100 are installed. The range of materials

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processed by the system is continually monitored and updated according to the different settings that the various production batches require. "The modern machinery fleet was our trump card. It enabled us to be very competitive in our marketplace, differentiating our offer from that of our competitors in terms of both quality and price," explains Antonio Anapoli. "The plant works up to 24 hours a day, 7 days a week, even unattended."

"The company began working with a single processing cell, then integrated, according to the growth and the diversification of market demands, with other cells in a single management system"

The connected machines are capable of processing sheets of various material and thickness, depending on the characteristics of each plant.

Shear Genius with high performance punching and integrated right angle shearing provides more capacity, quality, and cost efficiency for flexible sheet metal working than any comparable system.

The equipment and the machinery used is state-of-the-art in automated sheet metal fabrication, laser cutting, combined punching/shearing, and bending systems. Anapoli chose this equipment to obtain optimal part quality, accuracy, and cost efficiency. Each product request is examined in detail and all the possible issues are taken into account in order to offer proper advice to optimize the final result.

Material Management

It actually constitutes a central communicating system, that, after loading the raw material, manages the production phases carried out by the different satellite machines. The machines are able to receive the raw material, always in compliance with the programming set, process it, and return the semi-finished product placing it into the central storage system as directed.

The paneling machine can "recall" the semi-finished product from a linked unit, retrieve the various components, always in compliance with the programming set, and bend the various pieces. The process up to the bending is then completed independently. From here on, all the subsequent manual procedures are carried out. Each machine works independently, but all have in common the storage unit. Such a procedure made it possible to eliminate the manual handling of sheet metal. With the storage status updated in real time and traceable, the company can better manage strategic stocks, while optimizing purchases. "Being contractors, we do not need to stock up inventory in the company, but rather reduce the possible stock of semi-finished products," says Anapoli.

"The case of the Anapoli company proves the wide range of the offer made available by Prima Power," concludes Pellegrini. "The company began working with a single processing cell, then integrated, according to the growth and the diversification of market demands, with other cells in a single management system".

This article was translated, edited, and reprinted from the October 2012 issue of RMO magazine.

Tooling Solutions for Heavy Metal Fabrication

By Jeff Paulson, Marketing Manager, Wilson Tool International

Increasingly, sheet metal fabricators are being asked by customers to process thicker materials for use in a variety of applications. Job shops and OEMs, once accustomed to working primarily with sheet metal, find themselves processing more plate than ever before.

Punching and bending these thick, high-tensile-strength materials presents unique challenges to fabricators using standard tooling. Choosing tooling designed specifically for working with thicker plate can minimize issues, such as tool breakage, increased stripping, distortion and damage to parts being produced.

Wilson Tool now offers a variety of tooling solutions for the punch press and press brake designed to handle the rigors of processing thick plate metal.

Punching Thick Material

Many fabrication shops today include an ironworker machine amidst the equipment on the shop floor. These machines are ideal for cutting, punching and notching heavier gauge materials.

Wilson Tool offers a full range of tooling for ironworker machines that's built to withstand the rigors of plate steel fabrication. If they don't carry standard products for a particular machine, they will manufacture custom tooling.

Of course, for many applications it is more efficient to punch heavier gauge materials on the punch press. Choosing heavy-duty tooling solutions that are specifically designed to work with thicker materials will improve punching results.

Punching thicker materials requires additional tonnage. Wilson Tool offers heavy-duty tooling for Thick, Fab and Trumpf style machines that is designed to withstand higher tonnage with a larger shoulder and extra back taper.

Using a coating on punch press tooling can reduce stripping and increase the life of tooling, particularly in applications where the hole is nearing the size of the material's thickness.

Some fabricators use Whitney punch presses, which are built to withstand the rigors of steel plate fabrication. Wilson Tool manufactures punches and dies for Whitney 28XX and 36TC™ punch press machines. Punches are available up to 5 inches in diameter and all shaped punches have a single pin location that allows for 0- and 90-degree positioning.

When punching thick materials, consider:

- Adding strength to the punch tip by increasing the standard straight before radius (SBR) and increasing the tool blend radius.
- Upgrading to an insert design to gain more available tool steel options.
- Increasing the punch body size to add mass and increase strength.
- Using a larger station to allow more surface and holding force as well as a longer tool stroke.

Bending Thick Material

Exacta Adjustable V dies are an ideal solution for bending thick, heavy materials on the press brake when flexibility is needed to adjust the width of the V-opening. Rather than purchasing multiple dies with different V-openings, fabricators are able to purchase one die that can be adjusted from one to 18 inches by one-inch increments.

These dies are also induction hardened, making them capable of withstanding a tonnage of up to 200 tons per foot, making it easy to bend thick materials. Plus, hard chrome rollers help reduce the tonnage required to perform a bend by up to 20 percent.

Working with heavy or abrasive materials such as stainless, hardened steel or parts that are not completely de-burred can wear out the shoulders of a die long before the entire die is worn out. Wilson Tool offers insertable shoulder dies designed to eliminate the need to replace the entire die every time a shoulder wears out.

Exacta conventional press brake tooling is a rugged solution ideal for bending applications requiring longer tooling. Wilson Tool can manufacture Exacta standard or special forming tools in one-piece lengths up to 20 feet, or tooling can be sectionalized to any length required.

This tooling is also available with induction-hardening treatments on punch tips and die shoulders when additional surface hardness is necessary for working with abrasive or hard material.

When bending thick materials, consider:

- Increasing the opening of the die, choosing a thicker bodied punch and be sure to calculate tonnage whenever the material thickness is outside your normal practice.
- Choosing heat treat options, such as Wilson Tool's Nitrex® surface enhancement, to minimize tool wear.
- Increasing the punch radius to disburse the load across a larger area – reducing isolated tonnage on the punch tip.
- Increasing the die shoulder radius to further disburse the load and increase die life.

From conventional press brake tooling to ironworker punches, Wilson Tool offers a variety of punch press and press brake tooling solutions for your most challenging thick plate applications.

For more information or to download our Thick Material Solutions brochure, visit www.wilsontool.com.

CUSTOMER PROFILE

Building a Better Box

New bending technology increases productivity at Five Seasons Comfort

Bernard Pinheiro, plant manager, and David Li, design engineer, hold an example of Five Seasons Comfort's newly bent filter box.

Five Seasons Comfort Limited, along with its sister company, Electro-Air Canada, have been manufacturing high efficiency air cleaning equipment for residential, commercial, and industrial applications since 1962. Located in Concord, Ontario, every facet of the specialized manufacturing process takes place on-site, from in-house design, to production of high-voltage power supplies and air proving switches, to complete metal fabrication.

The company's success has been achieved with a visionary outlook that emphasizes helping those with allergies, asthma and respiratory diseases, including auto-immune diseases triggered by environmental pollutants. In fact, the company's founder, Howard David, first became interested in electronic air cleaners due to the fact that his daughters had allergies. Striving for continuous product development, the company focuses on improving design, workmanship, fabrication technology, production efficiency and quality control.

Over the years, the companies have not only marketed their products under their own brand names, but exclusive brand labels for many of the world's largest HVAC OEM's and retail chains. Five Seasons manufactures a complete line of residential, commercial and industrial air cleaning systems, from electronic, to high efficiency media, to HEPA filtration, including ultra violet light and photo catalytic filtration technologies.

Five Seasons continues to grow and diversify, and within the last two years has been manufacturing a full line of filter housings and filter platforms for gas and electric furnaces and air handlers for both residential and commercial applications. The Five Seasons engineering team is continuously improving production to produce economies of scale with the use of automation.

Fabrication & Bending

Five Seasons manufactures hundreds of different products using galvanized steel and cold rolled steel in various thicknesses from 14 - 22 gauge. The company utilizes stamping presses, punch presses, and press brakes to fabricate its products. However, several years ago, Five Seasons entered the filter box business and was faced with a major challenge. According to David Li, Design Engineer, Five Seasons had to be more competitive in the filter box business. "We tried to make a one-piece construction to compete with our competitors," explains Li. "We tried very hard at the beginning to bend these parts on the regular press brake. There are eight bends and we had to flip the part over four times for the negative bends. But the setup times took more than an hour.

We have about 115 different skus. The customer orders a very small quantity but in a variety of sizes. So think about it…the set up time takes one hour, and we had a variety of sizes. This was dramatically increasing our costs."

Adds Bob Crowe, Technical Product manager: "The filter box is the product that drove us to search for an alternative bending system to the press brake."

The FAST BEND Solution

The Five Season management chose the Fast Bend from Prima Power to cut their rising bending costs.

The Fast Bend is the newest member of the Prima Power servo-electric bender family. While technically part of the bender product line, the Fast Bend fulfills many of the needs of today's fabricators regarding the press brake operation.

"The Fast Bend literally works the operator through the bend sequences. You no longer need a highly-skilled operator to run the machine, and we can now make the part much faster with a higher degree of accuracy and quality."

The Fast Bend provides a solution to the labor-intensive tool setup, programming, and part handling involved in forming metal in a traditional press brake. It reduces or eliminates non-value added costs associated with the traditional press brake operation. The Fast Bend also provides additional flexibility with the capability to form different angles, hems, multiple corner radii, "z" offsets, and closed tubular profiles with the standard set of tooling. The Automatic Tool Change (ATC) option, automatic feed table, and automatic inversion of positive and negative bending blades allow for more bends per side in an automatic sequence without manual intervention. The Fast Bend operator is simply required to load, rotate, and unload the part.

Part setups as low as 10 seconds can be achieved when using ATC in conjunction with the optional bar code reader and operator

instruction display screen. The Fast Bend operator can initiate a part program by simply scanning the bar code on the part. The instruction screen will notify the operator when the tool setup is complete, and graphically display how the part blank is to be loaded. The result is quality, speed, and elimination of mistakes.

The Fast Bend excels in high-mix, low-volume production flow where the emphasis is on zero setup and elimination of WIP. Additionally, with its servo-electric drive, the average energy consumption is reduced and environmental disposal of oil and filters associated with alternative hydraulic drives is eliminated. The Fast Bend is Green Technology.

Labor Savings

"With the press brake, the operator functions at a high level at the beginning of the day, but after a few hours of extending his arms to load, bend, unload, and stack parts, he becomes fatigued and production drops," explains Bernard Pinheiro, Plant Manager. "By contrast, the Fast Bend is much more ergonomic and all the operator has to do is turn the sheet. With the Fast Bend, there is one continuous speed during the entire shift."

"Another important point is the skill necessary to operate the Fast Bend," Pinheiro continues. "In a press brake, you constantly need skilled operators who can think through operations in order to do the bending in the machine. In the Fast Bend, that is not the case. You can take anybody with basic skills and within five minutes anyone can learn to operate the machine and make precision parts because the parts are preprogrammed. The Fast Bend literally works the operator through the bend sequences. You no longer need a highly-skilled operator to run the machine, and we can now make the part much faster with a higher degree of accuracy and quality."

Prior to acquiring the Fast Bend, it took eight bends and the part needed to be flipped over four times to create the negative bends. The setup times alone were taking more than an hour. The previous setup time of one hour has been reduced with the Fast Bend with new part setups taking as little as 10 seconds when the ATC is used in conjunction with the optional bar code reader and operator instruction display screen.

Higher Productivity & Quality

A new CNC panel bender was tasked with reducing the labor-intensive tool setup, programming time, and part handling involved in forming the filter box.

The Fast Bend allows Five Seasons to achieve one-piece construction on their new filter box products. "With the Fast Bend, we can now do one-piece job construction," says Pinheiro. "Previously, we needed four separate parts to manufacture the part on the press brakes. The labor and material costs of assembly is very minor with the one-piece construction when compared to the box made from four different parts. The quality is also much higher."

"We want to bring as many parts as possible to the panel bender because setup time is so much shorter. And there are no tolerance stack-up issues with multiple bends as there are on the press brakes."

Five Seasons Comfort Ltd., along with its sister company, Electro-Air Canada, has been manufacturing high-efficiency air cleaning equipment for residential, commercial, and industrial applications since 1962.

"We initially used the Fast Bend on the filter box products, and today we are increasingly bending more and more parts on the Fast Bend," explains David Li. "We want to bring as many parts as possible to the panel bender because setup time is so much shorter. And there are no tolerance stack-up issues with multiple bends as there are on the press brakes."

Disappearing Bottlenecks

"One of things that we've experienced as a result of the speed of the Fast Bend is the traditional bottlenecks in the bending area have disappeared," says Crowe. "Even though we had five press brakes, bending was always the place that got bogged down. Also, prior to having the Fast Bend, the customer may have needed 100 parts, but we would build 500 because we didn't want to spend the 90 minutes on a complicated setup. The Fast Bend is perfect for our small runs and high-mix production. In addition, both the service and software support from Prima Power have been very good."

Portions of this article appeared in the May 2013 issue of Canadian Industrial Machinery (CIM)

BLECH India 2013 Exhibition

Prima Power India participated in the BLECH India 2013 Exhibition held in Mumbai, India on April 17 – 20. With an impressive exhibit, Prima Power India delivered a clear message to this fast growing world market.

BLECH India, the Technology Exhibition for Sheet Metal Working, was held for the third time. Building on the success of the last exhibition, the event offered a unique platform to showcase Prima Power products in this booming market.

India's economy is continuing to grow beyond the world average. The country's continuous economic development with its forecasted 6.5% GDP is fuelled by a rapidly growing middle class with an unprecedented spending power. McKinsey forecasts a growth of the middle class from 50 million to 550 million people by 2025. Today, India has the highest number of qualified engineers in the world and the rise of qualified professionals with an increasing spending potential guarantees a continuous domestic growth.

In the four days of the exhibition, hundreds of enthusiastic visitors learned about the Prima Power line of flexible and "green" machines, cells, and systems that increase our customers' quality, productivity, and profits.

This increasing consumer demand, in particular in the automotive industry and its suppliers, the construction, home electronics and white goods industries, as well as the steel production industry, offers outstanding opportunities for international suppliers of sheet metal machines, tools and systems.

FOCUS ON TOOLING

Reduce Cost, Eliminate Secondary Operations with Mate's Hybrid Threadform Tool

By John Galich, Marketing Manager, Mate Precision Tooling

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. Challenges arise, however, when the screw thread to join the two pieces requires a material thickness greater than the pitch of the screw. In these situations, fabricators use other fastening methods, such a self-clinching fastener, a tapping extrusion or self tapping screw, but these methods add expensive secondary operations or special hardware. In highly-competitive industries, more costs quickly erode already thin margins.

Mate developed a cost-effective way to solve this problem with its **Hybrid Threadform forming tool.** Unlike a conventional threadform tool, 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. At the heart of the tool is an upper and lower insert that is machined with a profile that precisely matches the thread helix of the screw thread. The geometry of this part is modeled electronically by a Mate Applications Specialist using our advanced CAD software, creating a three-dimensional solid model for your specific requirements. **Hybrid Threadform** provides the following benefits:

- Eliminates secondary operations
- Eliminates tapping operations
- Reduces debris in the machine caused by tapping
- Reduces component cost by eliminating any special fasteners

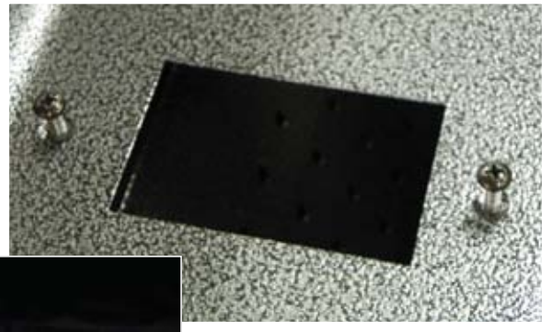
Joint Prima Power/Mate customer, Midland Metal Products, provides a great example of the savings generated by the hybrid threadform tool. Midland Metal Products is a leading designer and manufacturer of point-of-purchase displays. When challenged with an in-store display design for a retailer's stores, Midland developed a new method for fastening components to the shelves using hybrid threadform.

B.J. McDonald, Midland Metal Products operations manager, quantified the savings using the hybrid threadform tool in several ways. The direct savings difference was one cent for each of 24 thread forms per display versus fifteen cents each for the same number of welded nuts per display. The indirect savings of eliminating secondary welding operations were also significant. Once the tool is loaded into Midland's Prima Power punch press, it operates at a fast 200 hits-per-minute—much like a standard piercing tool. So, the actual production time of the threadforming versus welding was much less. Additionally, there was no post-paint hole inspection or thread cleaning needed, resulting in additional labor time-savings. The new process was so effective that the company plans to use it wherever possible on future display designs.

You may also combine the **Hybrid Threadform** 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.

If you have a secondary operation you want to eliminate that is not covered by one of Mate's standard solutions, our team of custom design engineers and applications specialists has helped hundreds of customers solve their issues. They can create a custom solution for you quickly and affordably. Standard or custom, all Mate products are backed by world-class field support and 100% satisfaction guarantee.

For more information about Mate tooling systems for Prima Power punch presses, please visit **mate.com**. *If you want to learn more on how Mate's Custom Engineering group can help you, please visit* **mate.com/en/fabrication-solutions.**



CUSTOMER PROFILE

It All Begins with a Good Machine

This article describes the history of cooperation between two market leaders. One is the Italian-Finnish laser & fabrication machine manufacturer Prima Power. The other is Kifato, a Russian manufacturer, of trade, refrigeration, and storage equipment. Both companies share a long-term cooperation, a leading position in their markets, and the constant striving for development. By visiting Kifato's production facilities in Klin, a town near Moscow, we have learned how this cooperation developed between Prima Power and the Russian manufacturer.

Kifato is a privately held company that was founded in 2000. According to Alexander Moskvichev, Kifato's chief engineer, the company's first endeavor was the output of refrigeration equipment for stores of different trade sectors. The company experienced extensive success in this market segment, and by 2006 had gained the experience and financial resources to launch another promising product line: production of racks and shelving structures for trade and storage purposes.

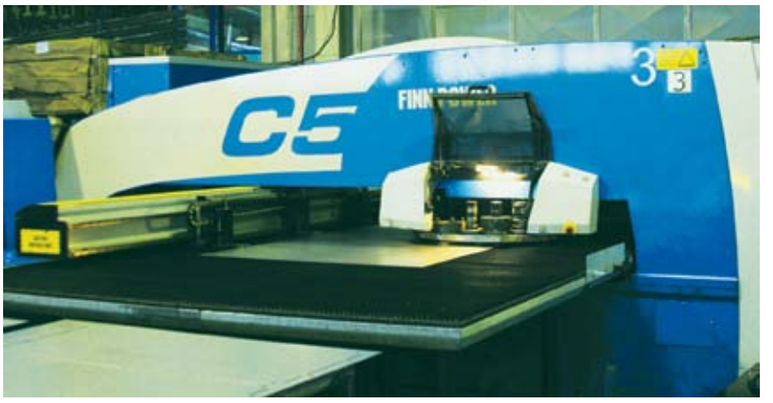
It was evident that this new area of development required equipment of high quality. "During the late 1990's, CNC controlled metalworking machines were exceptionally uncommon," explains Moskvichev. "While there were occasional deliveries of equipment like this, mainly for the military-industrial complex, no commercial civil industries have ever received these types of machines."

So, when expansion of foreign machines began in Russia, it was not easy to "find the grain" in the flood of equipment. The very first machines were purchased by Kifato through a dealer recommended by the company's Italian partners. They provided Kifato with initial reference information, proving the equipment to be of excellent quality, reliable, efficient, and with a good price.

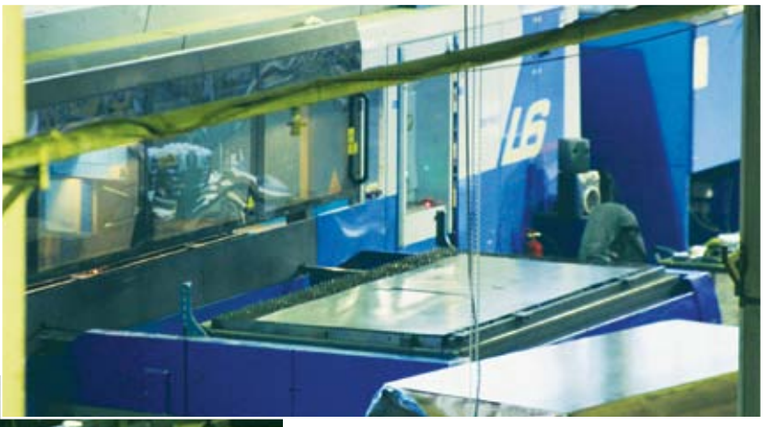
"In 2000, we bought our first CNC machine, a Finn-Power (now Prima Power) A5-25 turret punch press," says Moskvichev. "At that time, it was state-of-art technology and we never regretted the purchase because the machine is still working."

As a result, when the company found it necessary to once again increase production, the choice of a vendor was an easy choice for Kifato. There is a common misconception that Russian companies can't develop successfully, but Kifato obviously negates that myth. Having selected a target market, the company continued to strengthen its position in the market by increasing the number of machines. Soon the company purchased four similar Finn-Power punch presses.

"Our next purchase was four Finn-Power automatic bending centers – BCe4 – which could be called robotized complexes that allow bending material almost without human interference, says Moskvichev. "At the time, this was quite advanced and expensive equipment, but this investment has paid off."



Then in 2005-2006, Kifato purchased five C5 punching machines. And in 2007, after completing analyses of the market, the company purchased the Finn-Power L6 laser cutting machine. All these machines are still in use at Kifato.



"Our acquaintance with Prima began after the purchase of the laser cutting machine," continues Moskvichev. "Even though we purchased a previously used machine, it was in a very good condition." This purchase was completed shortly before the merger of two major machine manufacturers – Finn-Power and Prima Industrie.

Along with the development of the new Prima Power, Kifato was also growing.

Production of racks proved to be very successful. Now Kifato manufactures racks of two types: for storage, for retail stores, factories, production plants, and shops of all sizes. The company also has experience in manufacturing automatic racks, but these products are not in much demand in Russia. "The majority of racks are manufactured on the rolling equipment, but non-standard production needs flexible equipment that can be easily adjusted. Due to that reason, this year we bought two of the newest E5x machines by Prima Power that combine energy efficiency, ergonomics, accuracy, and performance in one unit," states Moskvichev.

"This year we bought two of the newest E5x machines by Prima Power that combine energy efficiency, ergonomics, accuracy, and performance in one unit."

The global slump has barely affected Kifato. "We've tried to find new markets, and before the recession we started to cooperate with major international logistics networks like *Cash and Carry, OBI, Media Markt, Saturn, Mosmar,* etc., during their active penetration into the Russian market. In many ways, this cooperation has helped us to survive," explains Moskvichev.

Today, there are about 500 people working for the company and most of them are involved in the painting process. Although the painting line is automatic, the work piece must be hung and removed manually. The production area covers about 70,000 m². Last October, the company reached the level of 4500 tons of metal processing per month. The material is supplied by JSC Novolipetsk Metallurgical Plant and JSC Severstal. Major international and domestic industrial networks, as well as the automotive industry giants like Russian subsidiaries of General Motors and central spare parts warehouses of Toyota and Honda are Kifato's customers.

"To date, in terms of price, quality, and availability of service, Prima Power is beyond any competition."

Kifato's engineers usually monitor market novelties, as well as the products of Prima Power competitors with attention. However, to date, in terms of price, quality, and availability of service, Prima Power is beyond any competition. "A very important thing about machines is the convenience of human engineering for the operator: sheet loading system, sheet positioning, and clamping are very user friendly, while in competitors' machines it does not work as well. In Prima Power machines, loading is achieved with just one operator. At EuroBLECH 2012 in Hannover, I saw a lot of new equipment and again evaluated the merits of Prima Power automation," explains Moskvichev.

A clean production site where people are using modern and high-quality machines, controlled by chief engineers or heads of department, high-quality metal sheets going off from production lines to be directly loaded into the standby trucks – that's how operation goes in a modern Russian production facility that has an accurate and reasonable approach in selection of equipment.

"If we decide to increase our production, we know where to go. We'll go directly to Prima Power."

"We were rewarded for our wisdom in equipment selection with a decent profit," concludes Moskvichev. "If we decide to increase our production, we know where to go. We'll go directly to Prima Power. I have seen other machines, but these are operator friendly. Thanks to their construction, it needs very little effort. It's very convenient to place work pieces. I don't have to bend down because the structure of the machine allows easy access. An average level of technical knowledge, together with a short course of training is sufficient to operate the machines. I can't find any drawbacks, the equipment is really easy to use," adds Maxim Urusov, head of the metal working shop.

This article was translated, edited, and reprinted from the November 2012 issue of RITM magazine.

PRODUCT HIGHLIGHT

Prima Power PSBB – a Compact Flexible Manufacturing System

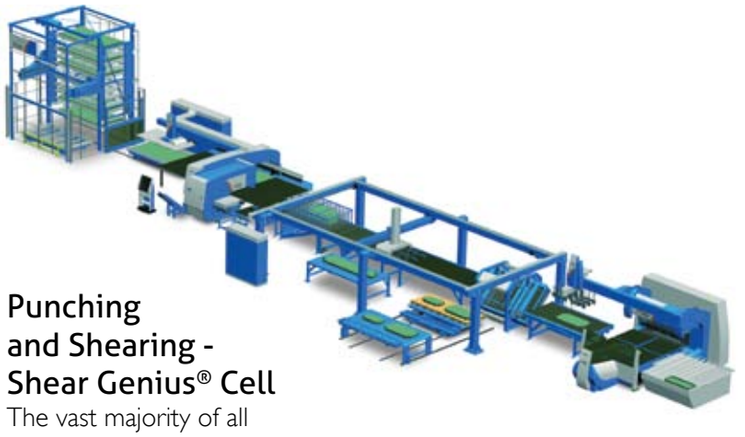
Prima Power PSBB, short for punching, right angle shearing, buffering and bending, is a fully automatic manufacturing line for processing sheet metal into high-quality components.

In line with the company's Green Means® philosophy, the PSBB line is servo electric, except for one auxiliary function of the automatic bending cell. Energy consumption and maintenance costs are dramatically reduced when compared to hydraulic technology.

To centralize the management of fabrication from a single machine to a factory-wide process, Prima Power developed the integrated and scalable software tool Tulus.®

Combo Storage

Equipped with a Combo storage, the PSBB line is the perfect solution for lights-out production of even the most intricate components from a variety of materials. Programming is easily achieved. However, in addition to fully automatic processing, the turret punch is free for use in manual operation to produce even a single part.



Punching and Shearing - Shear Genius® Cell

The vast majority of all fabricated sheet metal components are rectangular, so a highly economical method to produce them is the Shear Genius® punch/shear combination cell. Parts with two or three straight edges are perfect for fabrication with a right angle shear.
The heart of the servo-electric Shear Genius SGe is an updated servo-electric turret punch press. The right angle shear has a servo-electric actuation system of its own, which makes shear movement at the same time both fast and fully controlled, which optimizes productivity.
Ram force is 300 kN (33 U.S. tons) maximum hit speed 1,000 hpm, maximum positioning speed 150 m/min, and index tool rotation speed is 250 rpm. Maximum sheet size is 1,500 mm x 3,000 mm.

The SGe has optimized tool changes, while other auxiliary times have been minimized for best production output. Well-known features, such as automatic clearance setting of blades, are included to maintain a high-quality part surface.

After shearing, the components are picked and stacked by a gantry robot for buffering and subsequent bending.

Buffering

Material flow can be arranged in flexible ways to transfer parts directly to automatic bending: to balance the different time requirements of bending and punching/shearing; to exit material from the system; and to bring new material into it.
The flexible and versatile buffering function ensures that optimum operation in terms of manufacturing cost and throughput time can always be chosen, whatever the manufacturing task at hand.

Automatic Bending

A gantry robot transfers the components, as programmed, into the automatic bending unit. The EBe automatic solution, featuring Prima Power's servo-electric technology, offers outstanding benefits through very fast operation, flexibility for small series production, excellent bending quality, and low energy and maintenance cost.

Options

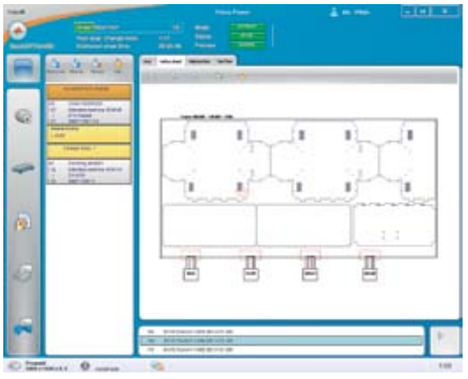
All the versatile Prima Power punching and shearing options can be included in a PSBB line. Similarly, several solutions are available for automatic handling of bent components. A turning device can be included with the PSBB.

Tulus Software

The latest version of Tulus® includes many new productivity enhancing features such as:

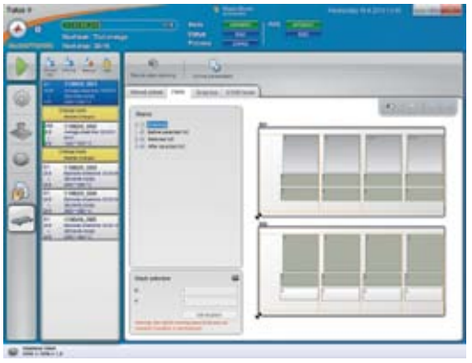
- Improved sorting and stacking management with the possibility to follow up production and edit parameters online
- Storage support for PSBB lines and PR + EB cells
- Coil line management for cutting material sheets
- Possibility to divide production orders into production orders containing only one NC program
- Test part function for checking the part correctness before running the complete sheet. The user can graphically select part(s) from the nest for punching (depending on the machine model)
- Support for Hebrew and Cyrillic character sets in Inkjet printing
- Restart from simulation screen
- Visualized online machine status, axis coordinates, inputs, etc. for easier diagnosis
- Improved touch screen support

Tooling/turret – Tool setup is fast due to graphical turret view and online tool data synchronization with NC Express.

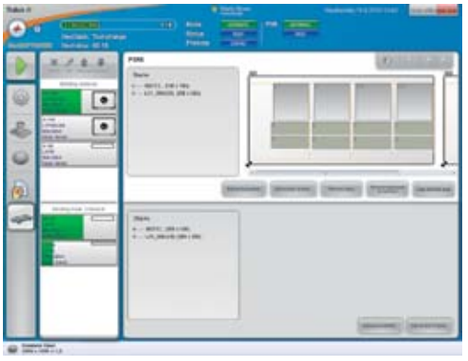


Task list / simulation – Tulus® is easy to use. Online task list helps speed up the setup processes, and online simulation shows process status clearly.

Laser – Laser setup is fast with integrated laser technologies & parameters and visualization of the cutting process.



Stacking management – Tulus® is a powerful tool for automated production with features such as automatic online stacking management, visualized information on stacking and sorting, as well as online production follow-up.

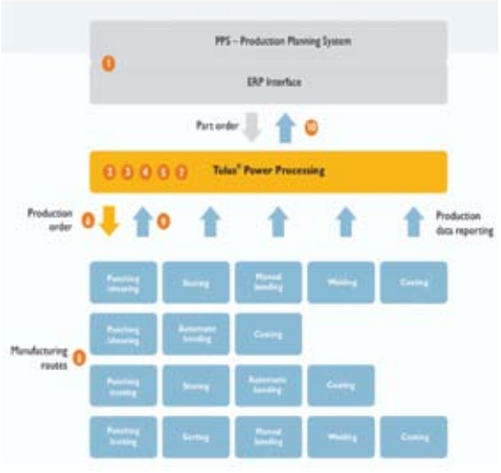


Bending – Online bending process follow-up & machine task list. Line production control in any location.

Tulus Power Processing

Power Processing operates as a Manufacturing Execution System with a two-way ERP connection, providing remote optimization, control and reporting of the whole production process from part order handling to the finished part, and to production and performance reporting, management of raw material, etc.

Tulus® controls machines by tasks and provides an easy way of adding new production orders to the task list. The task list contains all essential information on machine-related tasks within the same window. Tasks can be reorganized, added or removed depending on the production schedule even during machine run. Task management automatically responds to the working order, immediately giving a new production schedule, including tool and material changes as well as estimated delivery times.



Fast production change requests and utilization optimization are now easy to handle simultaneously. Automatic, high-quality part processing – everything is ready for the next work stage.

Continued on page 24

Continued from page 23

Tulus® Solutions

Tulus® Office makes it possible to follow up several machine statuses wherever this is required. It also gives the possibility to utilize full featured production planning and customer database functions.

Tulus® Mobile Information System gives more information to the operator than ever before. Several users can be allocated to different working shifts, and the right person always gets the information of what is going on. SMS messages inform whether sheet material is running out or if the safety area is passed. Further, it makes possible to make inquiries to the machine and get actual status information on how the machine is performing.

Tulus® Web Information System gives machine status, alarm and task list information about, for example, the next machine stop when operator steps are necessary. The Tulus® Web Information System can be used with a computer, smartphone, and tablet PC. The connection to the server operates through the Internet or the network.

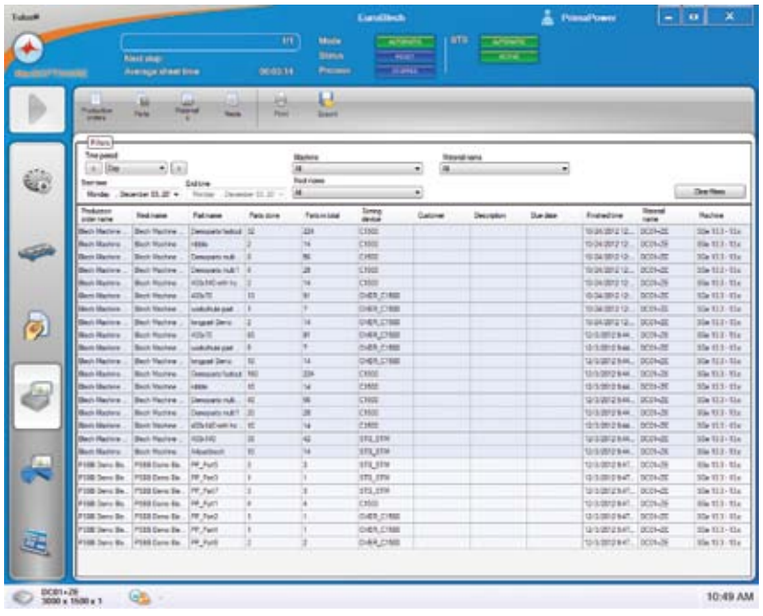
Tulus® Production Reporting

Real-time machine production data is available. It prepares reports on processed production. Production data includes: programs, components, and material completed. It provides, for example, information about what material has been used and what parts have been completed in the production. Production Reporting option is available for Tulus machines.

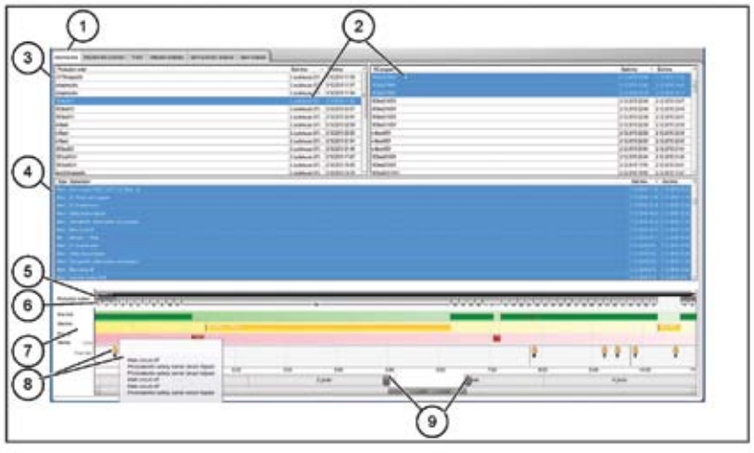
Manage, view, and report your processed production:

- Raw material inventory
- Manufactured parts inventory
- Completed production orders and nests

Follow material utilization rate to reduce waste and use material reports to help budgeting and production planning. Tulus® Production reports generated can be printed, shared, or used to report back to ERP. The reports can be saved to computer in HTML, CSV, or XML format.



Tulus® Performance Reporting gives a huge amount of information available about machine performance and utilization rate. It allows analyzing where improvement is possible for production planning and where tool maintenance would be helpful. Tulus Performance Reporting can be installed in any machine, also in a third-party machine.



Bending Thick Plate Materials

New Wila "HD" Heavy Duty Clamping & Crowning Systems That Maximize Productivity, Quality, & Safety

By David Bishop, Business Development Manager, Wila USA

Wila recently introduced our new New Standard "HD" Heavy Duty System. This system consists of Tooling, Clamping, Crowning, and Lower Tool Holder Systems that are designed to handle the extremely high tonnage levels and harsh demanding conditions that are common to bending thick plate materials. It also includes an innovative Press Brake Productivity ToolStation, which is used for tooling storage as well as easy tool loading and unloading. Due to limited space, this article will focus on the new Clamping and Crowning Systems that make up key components of the new Wila HD System.

New Standard "HD" Clamping System

The Wila New Standard "HD" Clamping System is designed to be bolted directly to the ram of the press brake. It is considerably wider than traditional clamping systems. This displaces the pressure over a larger load bearing surface thus enabling them to handle tonnage levels up to 84 tons per foot (250 tons per meter) on head loaded New Standard Punches, and 269 tons per foot (800 tons per meter) on shoulder loaded New Standard Punches. They come with CNC-Deephardened working surfaces for maximum durability and maximum long term accuracy retention.

Other features include hydraulic clamping of punch segments weighing up to a maximum of 700 pounds per foot (1000 kg per meter). They also include an aluminum cover strip with a vernier scale for fast tool location, and a fine adjustment along the 'Tx' axis to provide precision adjustment of the tooling centerline.

New Standard "HD" Crowning Systems

With its new New Standard "HD" System, Wila has introduced a new series of crowning systems that, like its New Standard "HD" Clamping Systems, are designed to handle the extremely high tonnage levels and harsh demanding conditions that are common to bending thick plate materials. They come in widths of 5.906" (150mm) and 9.843" (250mm). Premium versions are provided with CNC-Deephardened working surfaces and are capable of handling tonnage levels up to 269 tons per foot (800 tons per meter). Pro versions are provided with pre-hardened working surfaces and are capable of handling tonnage levels up to 168 tons per foot (500 tons per meter).

Standard features include centralized adjustment of the crown, direct mounting to the bed of the press brake, or a tang for press brakes that have a slot in the bed with set-screws, and an aluminum cover strip with a vernier scale for fast tool location (black on New Standard "HD" Pro versions). Units that are 5.906" (150mm) wide include a fine adjustment along the 'Tx' axis to provide precision adjustment of the tooling centerline. They are also available with hydraulic or manual die clamping.

Optional features include a revolutionary hydraulic lifting system that lifts dies up and off of the load bearing surfaces of the crowning system. When used with Wila's New Standard "HD" Dies with E2M roller bearings installed, large heavy dies can be moved in and out of the crowning systems with ease. Other optional features include a CNC motor drive that automatically sets the crown via the machine's control when using tooling that weighs up to 8960 pounds (4000 kg). For applications that require tooling that exceeds 8960 pounds (4000 kg),

Wila provides New Standard "HD" Crowning Systems with hydraulic adjustment of the crown. Wila New Standard "HD" Crowning Systems are also capable of holding 4-way dies.

Other optional features that include a new set of adjustable pillars that are designed to provide support for large dies that are wider than the crowning system. They are bolted the front and rear of the crowning system and can be adjusted vertically to meet the level of the base of the die.

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CUSTOMER PROFILE

Platino Lasers Increase Accuracy and Product Line for Radiator Manufacturer

In 1926, Borger, TX was an oil boom town sitting on top one of the largest oil fields in the world. That was the same year that Fuzzy's Radiator was founded by a man named Fuzzy Whitlock to service the radiators on the many machines in the oil fields. Through the years, and various owners, the company mostly remained a small family-run radiator repair shop while retaining its original name. However, the company's focus began to change in 1985, when Alan Jones, son of the then current owner Kenneth Jones, purchased the company from his father. Today, Fuzzy's Radiator has evolved into a respected producer of industrial radiators and heat exchanges serving the oil & gas, mining & logging, agricultural, and power plant industries.

"In 1991, we were experiencing quality issues with our suppliers on radiator cores," explains Alan Jones, owner/partner. "We decided that we needed to begin manufacturing our own cores and built a factory. In 1995, we added on to that building, doubling its size, and added more equipment because our share of the market was growing. Today, manufacturing radiators and heat exchangers comprises 90% of our business, while service and repair now accounts for only about 8-10%."

"The lasers have been great and have dramatically increased our accuracy that we couldn't achieve on the punch presses."

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Fuzzy's Radiator began manufacturing the radiator cores in 1992 with a punch press. In 1999 they added another punch press to fabricate component parts for complete radiators. "We perfected that to a degree but we experienced accuracy problems," explains Jones. "The accuracy problem was created because we had to shear to size…and there is no way we could get within 1/32" tolerance. When you a have a piece of metal that is going to be bent four times and you are off a 1/32 of an inch, on the last bend you will be off 1/8 of an inch. As a result, in 2009 we bought our first laser."

In 2009, Alan Jones purchased the Prima Power Platino 5000 watt laser with a 10-shelf tower, and soon added a 4000 watt Platino with a 3-shelf tower.

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Platino 2D Laser

The Prima Power Platino is equipped with lasers developed and produced at Prima Electro 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.

"We run both lasers all day, every day. We really like the accuracy and cleanliness of the laser cut. Thanks to the Platino lasers, we've almost eliminated shearing operations."

"We cut everything we can one inch or less with the Platino lasers… even parts for our new building" says Jones. "The lasers have been great and have dramatically increased our accuracy that we couldn't achieve on the punch presses. We currently have a robotic cell on order that we would not have been able to utilize without the lasers.

All the parts on the robotic arm have to be consistent, especially where there are welding operations involved. And they have to be consistent and within very tight tolerances. The Platino lasers provide that consistency."

"Where we used to say 'we can't do that' because of our accuracy limitations, we now say 'we can do that' because of the lasers. We use the lasers for everything we manufacture. 95% of our product line depends on the laser. And we are exploring additional new products to bring to market."

Fuzzy's Radiator laser cuts carbon steel, stainless steel, and aluminum with the Platino lasers. "We have taken the Platino 5000 laser to its limits and are now cutting 1" plate with it," says Jones. "We run both lasers all day, every day. We really like the accuracy and cleanliness of the laser cut. Thanks to the Platino lasers, we've almost eliminated shearing operations."

Prior to the addition of the Platino lasers with the material handling towers, the shop operation was mostly run by manual labor. The Prima Power TowerServer is a loading/unloading device for handling blanks and processed sheets. "It took 2 -3 people to handle the heavy sheets," explains Jones. "Today everything is handled by racks and the parts come off in pieces that are easy to handle. We've experienced a 30% savings on labor and materials. We are using the nesting capabilities with the lasers, and are able to use much more of the material that we used to throw into the scrap pile."

The Prima Power lasers have also helped expand Fuzzy's Radiator's product line. "The lasers have given us more to sell," says Jones. "We were unable to manufacture some products due to accuracy problems with the punch presses. "And now we have more capability. Where we used to say 'we can't do that' because of our accuracy limitations, we now say 'we can do that' because of the lasers. We use the lasers for everything we manufacture. 95% of our product line depends on the laser. And we are exploring additional new products to bring to market."

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"We feel that we got the best machine for our application for the money. I am happy with every aspect of Prima. They did everything they said they were going to do, and have gone out their way to take care of us. The machines are dependable. Our personnel had no problem learning how to operate the lasers. The Platino lasers were our ticket that allowed us to compete in the marketplace. They literally changed our operation overnight."

The management of Fuzzy's Radiator inspected a number of lasers prior to choosing the Platino lasers. "We preferred Prima Power's fine optics over the competitors," explains Jones. "When you move 300 lbs. around opposed to 5,000 lbs. around its got be faster and more economical to run. We feel that we got the best machine for our application for the money. I am happy with every aspect of Prima. They did everything they said they were going to do, and have gone out their way to take care of us. The machines are dependable. Our personnel had no problem learning how to operate the lasers. The Platino lasers were our ticket that allowed us to compete in the marketplace. They literally changed our operation overnight."

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30

IT WAS THREE DECADES AGO.

The first step in the history of Prima Power punching technology was taken with the introduction of the Finn-Power TP 250 turret punch press in 1983. Since then, many steps have been added covering a considerable journey.

What became the true pioneer in hydraulic punching now holds the same position in servo-electric technology, offering a wide range of turret punch presses, integrated manufacturing cells, and modular automation solutions.

primapower.com

Prima Power

The Bend | The Combi | The Laser | The Punch | The System

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