

# POWER *Line*



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CUSTOMER PROFILES • NEW TECHNOLOGY • PRODUCTIVITY • FLEXIBILITY

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# Three Trade Shows... and a Genius Idea

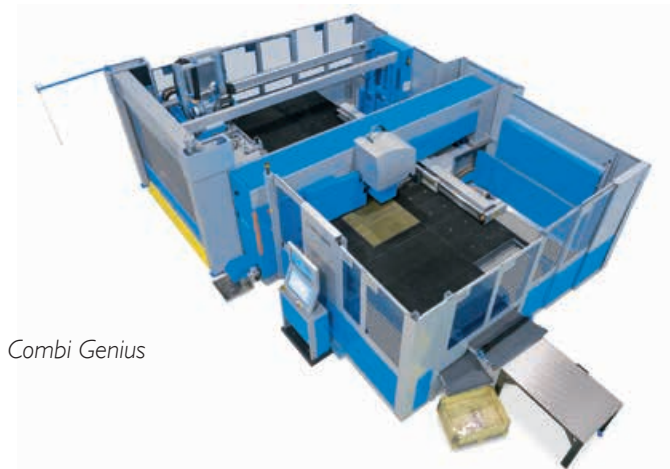
By Ezio Basso, Prima Industrie Managing Director, Prima Power Division



The simultaneous presence in three major exhibitions, on three different continents, and the worldwide launch of the new Genius machines demonstrates Prima Power's willingness and commitment to become increasingly competitive in the global market place. The Genius innovative line, which completes the company's product range in all market segments, presently includes three models: Laser Genius, a new high-end flat laser of outstanding productivity, accuracy and efficiency; Combi Genius, a faster and even more versatile machine for combined punching and fiber laser cutting; and Punch Genius, a modern punching machine with more features in a compact package.



Laser Genius



Combi Genius



Punch Genius

The Genius line was showcased in the world preview at Blechexpo in Stuttgart (November 3-6) and at Fabtech in Chicago (November 9-12). At Blechexpo, Prima Power also exhibited the new servo-electric press brake eP2040, a fast, accurate, non-hydraulic bending solution, and the FastBend FBe5 panel bender, a new generation machine with greater bending capacity supported by the most innovative CAM and HMI software.



Blechexpo, Stuttgart

Nearly 40,000 visitors from 110 countries and 1,234 exhibitors participated at Blechexpo, where Prima Power's products raised a lot of interest. Many customers, from Germany and throughout Europe visited our stand, and many good contacts were made during the exhibition.

Blechexpo has furthermore seen the world premiere of Prima Power machines' new design: a modern, accurate and appealing style, always focused on ergonomics and functionality, which received a great deal of positive feedback.



FABTECH, Chicago

The Laser Genius attracted considerable interest among visitors at FABTECH as well.

Over 44,000 visitors from 90 countries and 1,700 exhibitors participated at FABTECH, where record crowds filled the Prima Power booth each day of the show. For two

days during the show, customers also discovered our products at Prima Power's Open House at our showroom in Arlington Heights.

In spite of China's economic slowdown, the MWCS fair held in Shanghai (November 3-7) - the most important exhibition after the inauguration of the new plant in Suzhou in March 2015 - attracted considerable interest among business operators. Prima Power displayed the 2kW Platino Fiber with Compact Server - already produced at our local plant - and the BCe5 panel bender which is earning excellent results on the Chinese market.

The good results of the latest events and the positive customer feedback is encouraging and, at the same time, is an incentive to increasingly improve in the future.

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# Diversity & Automation are Keys to Success for Florida Contract Manufacturer

From its modest start in 1994 as a small job shop with an old turret punch press, press brake, with three employees housed in a 3,300-square-foot facility, Earnest Products, Inc., Sanford, FL, has evolved into a major player in providing high-quality sheet metal fabrication and related services to customers throughout Central Florida.

Today, the company has grown into a 240,000-square-foot building with 135 employees with a veritable arsenal of stand alone and automated cutting, forming, welding/grinding, and powder coating equipment with a large assembly area, buss bar manufacturing capability, mechanical and electrical design, and order management and fulfillment. Earnest Products serves such diverse markets as power generation and distribution, transportation, medical, telecommunications, pump control panels and enclosures, etc.

And *diversity* has been the mantra at Earnest since its founding. “I started the business with the mindset of being very diverse,” reflects Bryan Earnest, President & CEO. “We work in many different markets while avoiding the ones that aren’t within our core competency.”

Another step to diversification was Earnest’s acquisition of Southern Manufacturing in 2011. Southern Manufacturing is entrenched in markets such as Intelligent Transportation Systems (ITS), NEMA enclosures, internally illuminated street name signs, etc.

## Increasing Production

The combination of these two companies helped achieve consistent double-digit growth for a number of years. By 2013, Earnest Products was running its three stand-alone turret punch presses and one automated laser 24/7 in order to keep up with growing production demands. “We were running a tremendous amount of overtime,” explains Earnest. To solve this problem, the company management began a search to automate its fabrication and bending operations. The equipment purchase was planned to coordinate with the move to the new facility.



In 2014, Bryan Earnest purchased an automated line from Prima Power, which consisted of a servo-electric Shear Genius punch/shear combination, a servo-electric EBe panel bender, two servo-electric press brakes, and a Night Train Material Management System.

**“The Night Train reduced the number of employees involved in material handling from 7 to 2. They were moved from material handling into more value-added areas such as assembly or operations where they could earn a higher wage. We are now able to dedicate more time into producing parts instead of manually moving components.”**



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.

Both Earnest and Southern Manufacturing personnel were familiar with Prima Power through previously purchased turret punch presses. After a thorough search of the latest sheet metal fabrication equipment on the market, Earnest purchased an automated line from Prima Power, which consisted of a servo-electric Shear Genius punch/shear combination, a servo-electric EBe panel bender, two servo-electric press brakes, and a Night Train Material Management System.

## 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.

“When we moved into our new facility in March, 2014, we were able to position the fabrication area to accommodate the Night Train and other automated equipment,” says Earnest. “As a result, we were able to cut our overtime significantly. The Night Train reduced the number of employees involved in material handling from 7 to 2. They were moved from material handling into more value-added areas such as assembly or operations. We are now able to dedicate more time into producing parts instead of manually moving components. The floor layout really helped our flow.”

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# Diversity & Automation are Keys to Success for Florida Contract Manufacturer

Continued from page 3

## Punch/Shear Combination

With the Shear Genius concept, the objective is to provide one machine capable of transforming a full-sized sheet into finished parts. These parts can be moved to final production stages for immediate integration directly into final product assembly. The Shear Genius functions with sophisticated simplicity, able to perform the most demanding jobs with minimal set-up times and “lights out” operation. The Shear Genius increases material productivity through efficient and versatile nesting programs. The level of automation can be customized through Prima Power’s flexible modular solutions for raw material storage, loading, unloading, sorting and stacking. These features can be added later as budgets allow and production demands increase.

The Shear Genius eliminates wasteful skeletons and costly secondary operations such as deburring. Nibble edges on the part exteriors were eliminated through the use of the integrated right angle shear. In fact, the same clamps that hold the sheet for punching also hold it for shearing. In essence, the Shear Genius allows the automated process to begin with a full-sized sheet of material and end with a finished part after automated loading, punching, forming, shearing, and unloading – all in one operation.



*The Shear Genius eliminates wasteful skeletons and costly secondary operations such as deburring. Nibble 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.*



*The automated unloading and stacking for EBe machines feature up to 24 programmable stacking positions.*



*The EBe bending operation is fully automated, from the loading of flat punched parts to unloading of the finished product.*

## 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 Earnest EBe bender has a maximum bending length of 104” (2650 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.

“The EBe has been a great performer for us,” explains Earnest. “It has reduced the amount of exposure our operators have to rotator cuff injuries. It can handle heavier parts without human intervention. The EBe produces parts quicker and can hold better tolerances. Bending larger parts on a press brake is difficult because if you want to put a flange on the end of a long, narrow part, it often takes two people

**“The EBe has been a great performer for us. It has reduced the amount of exposure our operators have to rotator cuff injuries. It can handle heavier parts without human intervention. The EBe produces parts quicker and can hold better tolerances.”**

working in unison to complete the task. The EBe really does a great job of helping to produce large and heavy parts quicker and better. We wanted a panel bender that could handle thicker material. Of all the panel benders we inspected, only the EBe could bend 11 gauge material."

***"We no longer store parts on pallets after a process and then move it to a press brake. The EBe has also reduced our cycle times and queues. We have several parts that we run on a weekly basis that would normally take two press brakes the better part of an entire week to process. The panel bender can run 60% of that job in a day."***

### Increased Productivity

The Prima Power automated system has also increased productivity at Earnest Products. "We can now punch, shear, and bend without human intervention," says Earnest. "We no longer store parts on pallets after a process and then move it to a press brake. The EBe has also reduced our cycle times and queues. We have several parts that we run on a weekly basis that would normally take two press brakes the better part of an entire week to process. The panel bender can run 60% of that job in a day."

According to John Steadman, director of sales & marketing for Southern Manufacturing, the company reduced its inventory by \$600,000 during the past eight months, while increasing its output. "The new Prima Power system was a big piece of the puzzle in achieving these

results," explains Steadman. "It has also contributed to downstream productivity because we now have parts coming off the system that are in tighter tolerances, better bends, which reduces the amount of welding and secondary operations. Our welders really enjoy the parts coming off the panel bender because they are very consistent and have much tighter tolerances."

***"The Prima Power installation crew was phenomenal. They were very competent. Prima Power has also been very good in staying on top of operator training and answering our questions."***

### Fringe Benefits

"The new Prima Power system has allowed us to be able to focus more on the business instead of making the parts," says Earnest. "And because the EBe, the Shear Genius, and the Night Train are servo-electric, and not hydraulic machines, we have the entire cell on a battery back up. Because of the energy efficiency it was affordable to buy a back up. In Florida, we have our share of power outages and brown outs, so when there are power flickers we're not affected. The Prima Power installation crew was phenomenal. They were very competent. Prima Power has also been very good in staying on top of operator training and answering our questions."



*The Prima Power automated system has also increased productivity at Earnest Products. The company can now punch, shear, and bend without human intervention. Parts are no longer stored on pallets after a process and then moved to a press brake. Earnest has reduced its inventory by \$600,000 during the past eight months while increasing its output.*

"Manufacturing in the U.S. is on its way back," concludes Earnest. "We've seen products coming back from China. Today, China must make the same kind of investments that we are in equipment. They have power and material costs. While their labor still may be a little less expensive, that is starting to change as well. Many of our customers are mentioning that in China the quality of life is going up, which means the pay is going up. The Prima Power automated system helps us level the playing field."

# When Laser is Synonymous with Flexibility

**Using laser cutting technology in all its forms, a dynamic Piedmont-based company makes versatility its “creed.”**

by **Vittorio Pesce**

**M**LLA Srl is a company operating in the field of precision structural work on flat sheets and three-dimensional elements. Biagio Michieletti and his brother Emanuele are owners of the company. The production plant is located in Trofarello, in the province of Turin. MLLA works in different fields of application, such as furniture, machinery for agriculture, food, etc. It utilizes the most modern technologies, including 2D and 3D laser cutting systems for processing steel, iron, and aluminium sheets and box-profiles/tubes. Continuous innovation in terms of machines, software, together with the continuous staff training, allow MLLA to respond quickly and effectively to the market demands.

## A Story of Progress and Development

MLLA was founded in the 1960s as an artisan business involved in the automotive bodywork field. According to Emanuele Michieletti, “The collaboration with leading and historical body shops of Turin has allowed the company to be in the spotlight of the Italian industrial design through the production of complex, customized parts, both prototypes and production.”



By 2014 as the economy recovered, MLLA was positioned to move forward and update their laser technology by replacing the Platino CO2 laser with a new Platino 1530 fiber laser.

Over the years, MLLA has broadened its skills by widening its range beyond the automotive sector, adding such industries as environmental, automation, architecture, pure design, art, and precision structural work sectors. “MLLA has continually invested in the latest technology and in staff training,” says Michieletti. “This policy has allowed us to enter into a variety of new and different applications and industries, responding to the multiple and complex market demands. We work with Italian and international loyal customers, who appreciate the quality of the finished product and our construction methods.”



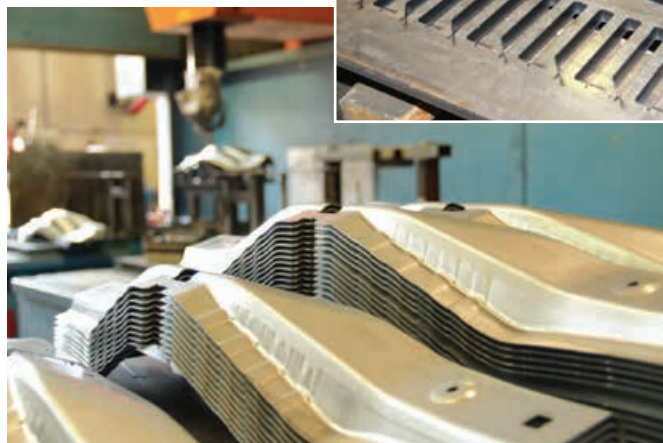
From left: Antonio Bellini, Prima Power Area Manager, and Biagio and Emanuele Michieletti, owners of MLLA srl.

## From Design to Finished Product

In its production plant in Trofarello, MLLA manufactures light and medium-heavy precision carpentry works, using sheet metal 3D and 2D laser cutting, bending, punching and shearing operations, as well as MIG/TIG welding and assembly. “Prior to production, we support our customers through a co-design service in order to provide optimal solutions in both functional and design terms,” explains Michieletti. “Often these are alternative solutions to those proposed by the client. We work closely with the customer in analyzing how to build the piece, including welding, assembly, and installation.”



Automotive components cut with 3D machine.



MLLA made a technological quantum leap in 1999 when it transitioned from an artisan to an industrial enterprise. That was the year that founder Benito Michielett decided to invest in a 2D laser cutting machine. "My father was very impressed by laser technology," explains Biagio Michieletti.

Obviously, different manufacturers were evaluated and, after a period of research and comparison, the company chose the Prima Power Platino 1530 laser. "At that time," adds Michieletti, "it was a real leap of faith, considering the investment cost. However, my father's courage was rewarded. The Prima Power laser allowed us to begin processing sheet metal in a new way."

***"The Prima Power laser allowed us to begin processing sheet metal in a new way."***

Following that purchase, CAD-CAM software was also introduced to the company. The new laser and software allowed MLLA to modernize production with more industrial and engineering methods. According to Antonio Bellini, Area Manager of Prima Power, "2D laser cutting allowed MLLA to take more complex jobs that were unthinkable a few months earlier while gaining a new customer base."

In fact, laser technology allowed MLLA to process a much wider range of materials and thicknesses, with very tight and perfectly parallel cutting edges. As a result, the company could now achieve complex profiles, with small radius of curvature, and with a very limited thermal alteration of the material melting zone without mechanical distortions to the work piece.



*The Platino fiber laser allowed MLLA to increase its versatility and expand its market with its ability to process many types of ferrous and non-ferrous metals such as copper, brass, titanium, non-metals, etc., on an extensive variety of thicknesses, and with dramatically-reduced power consumption.*

The results were so dramatic, that after only two years, MLLA made the decision to invest in the Prima Power Rapido, a 3D laser machine that allowed the company to build 3D parts with great speed, versatility, precision, and efficiency.

A period of growth followed, in which MLLA implemented new manufacturing solutions, increased its skills, and expanded the market. In 2007, a third Prima Power laser was purchased. The Platino 1530 HS is a high-powered 5 kW CO2 laser, suitable for cutting a variety of materials and thicknesses, including mild steel up to 25 mm.



*The results were so dramatic, that after only two years, MLLA made the decision to invest in the Prima Power Rapido, a 3D laser machine.*

Because of the flexibility that the Prima Power lasers provided, MLLA was able to survive the challenges of the economic downturn which began in 2008. By 2014, as the economy recovered, MLLA was positioned to move forward and update their laser technology by replacing the Platino CO2 laser with a new Platino 1530 fiber laser.

***"For us, it is crucial to count on a partner like Prima Power. Our questions and our requests are never regarded as a problem, but addressed with solutions."***

The fiber laser allowed MLLA to increase its versatility and expand its market with its ability to process many types of ferrous and non-ferrous metals such as copper, brass, titanium, non-metals, etc., on an extensive variety of thicknesses, and with dramatically reduced power consumption.

In addition, the following year MLLA's satisfaction and increased flexibility motivated the company to also purchase another Prima Power 2D fiber laser, the PLATINO 2.0 1530 FIBER with 4 kW power generator.

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# When Laser is Synonymous with Flexibility

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## Maximum Satisfaction

According to Biagio Michieletti, his company is extremely satisfied with its equipment acquisitions. "We are a company of 12 employees with four laser cutting systems. For us, it is crucial to count on a partner like Prima Power. Our questions and our requests are never regarded as a problem, but addressed with solutions."

## When the Strength is in the Service

One of the strengths of Prima Power is the technical support offered competently, quickly, and effectively to the customer. "Prima Power has a global service network responsible for a specific area and manages a service staff periodically trained to keep the pace with the technology," says Antonio Bellini. The Italian sites in Turin and Cologna Veneta, and the sites in Finland and the United States are the major service centers of the group, where customers are trained.



The Prima Power Rapido allowed MLLA to build 3D parts with great speed, versatility, precision, and efficiency.

"The technical support offered by Prima Power is essential," explains Emanuele Michieletti "For example, all our machines work perfectly, even those in use for years, because they were subject to cycles of preventive and routine maintenance that we perform in close collaboration with the Prima Power technicians. The idea is to constantly ensure the proper operation of the equipment and achieve the objectives set without inefficiencies."

## From Body Work to Fashion

As a result of the Prima Power technology, MLLA's extensive flexibility is exemplified by Dual – a collection of belts, rings, necklaces, and bracelets created by the Turin company for the fashion industry.

*"The technical support offered by Prima Power is essential. For example, all our machines work perfectly, even those in use for years, because they were subject to cycles of preventive and routine maintenance that we perform in close collaboration with the Prima Power technicians."*

"We created the Design Digest brand to market steel accessories, which we design and build on our own, where we combine design, industry and craft," explains Biagio Michieletti. "These are products that MLLA designs internally thanks to expertise in the design world, and that requires pushing our machines' parameters to the maximum before the manual finishing. To work in certain sectors being flexible is not enough. We need to go further and study the behavior of new materials, while using the machine in different ways. I believe that the hybridization of technical knowledge is the way to create incredible products and is one of the greatest strengths of *Made in Italy*."



As a result of the Prima Power technology, MLLA's extensive flexibility is exemplified by Dual – a collection of belts, rings, necklaces, and bracelets created by the Turin company for the fashion industry. MLLA created the Design Digest brand to market steel accessories, which it designs and builds.

This article was translated, edited, and reprinted from the December 2015 issue of *Lamiera Magazine*



# Laser Genius...

## Amazing Performance & User Friendly

Impressive performance, state-of-the-art technologies, energy efficiency – pure genius. The new *Laser Genius*, the spearhead of Prima Power 2D fiber laser cutting technology, stands out for productivity, accuracy, and efficiency, and for the innovative application of synthetic granite and carbon fiber.

High-dynamic linear motors ensure a 15% increase in productivity compared with conventional drive systems. The *Laser Genius* has a comprehensive range of automation modules and the effective CNC proprietary management guarantees accuracy in cutting and head positioning.

*Laser Genius* is a high-tech product with low operating costs, high-energy efficiency, no laser gases, and reduced maintenance. This result is obtained from Prima Power's proven leadership in laser technology in terms of flexibility, quality, and user friendliness, and nearly 2,000 flat laser machines installed worldwide.

*Laser Genius* has linear motors on X and Y axes, carbon fiber carriage, synthetic granite frame – unique characteristics allowing it to maximize fiber laser technology at its best. Another feature that stands out is the proprietary hardware and software for laser process control and the high brilliance 6 kW fiber laser.

The Prima Power fiber cutting head features single lens strategy, safe impact protection system, high dynamic focal axis with 35 mm stroke, lens drawer with quick alignment system (OPC), and protection glass drawer for easy inspection. These features make it an accurate, versatile, and efficient machine capable of 24/7 lights-out production.



*The Prima Power fiber laser cutting head features single lens strategy, safe impact protection system, high dynamic focal axis with 35 mm stroke, lens drawer with quick alignment system (OPC), and protection glass drawer for easy inspection. These features make it an accurate, versatile, and efficient machine capable of 24/7 lights-out production.*

*Laser Genius* has been developed to maximize customers' competitiveness according to their application. A series of option suites is dedicated to the different production needs:

- **SMART Cut**, for fast cutting of thin sheets (up to 5 mm) allows a reduction of the cycle times up to 30%
- **MAX Cut**, for the fast cutting of medium-thick gauge sheets, makes it possible to reduce processing times up to 40%
- **NIGHT Cut**, for intensive production, grants a higher piercing and cutting process safety

The *Laser Genius* provides excellent machine quality and extraordinary performance, always focusing on the environment and ergonomics. It is designed and developed following the Prima Power **Green Means**<sup>®</sup> philosophy: high technology and know-how which meet the requirements of both productivity and more sustainable manufacturing.

The cabin is available in two different versions: **Lean Cabin** design for a minimum footprint, easy installation, and a competitive price and **Open Cabin** with fully-opening sliding doors that offer excellent accessibility and user friendliness for the operator, in line with Prima Power's tradition. With the launch of *Laser Genius* on the market even more customers will find that Prima Power is the right partner to meet and exceed their needs.



*Laser Genius is a high-tech product with low operating costs, high-energy efficiency, no laser gases, and reduced maintenance.*

# Remarkable Results Through Prima Power Investments



Vallox production manager Mikko Mäki.

Vallox Oy is a Finnish manufacturer of ventilation equipment. The company was established in 1945. Its top products over the years have been MUH ventilation units, roof ventilators and cooker hoods, as well as Valmet air heating systems. During its 70-year history, the company has manufactured more than 345,000 ventilation units. Today, over half of the production is exported, mainly to the European countries.

"As the EU legislation directed heat recovery equipment as compulsory in buildings, we knew that the demand would grow

dramatically," explains Vallox production manager Mikko Mäki. "The value of exports has increased and exceeded half of the production in 2011. However, in recent years, domestic sales have grown faster, which has led to a better market position in Finland. This was the result of reliable products, fast deliveries, and very efficient after-sales service."

The rapid increase in production also created unexpected challenges. "At first, we hired 50 additional employees, and soon thereafter another 70," says Mäki. "We soon outgrew our facility, and there was much training in progress. Management of model changes was challenging as there were so many different product models in production. We were also working with many subcontractors to produce different parts. Due to lack of space we had to store some of the subcontracted parts outside the plant under tarpaulins. It was clear that we had to extend our factory building and increase the production capacity, as well as invest in manufacturing automation."

## Increased Capacity with Prima Power Shear Genius SGe

The company decided to invest in a Prima Power SGe punch/shear combination machine. According to Mäki, the most important criteria when making the decision were the flexibility, speed, and high capacity of the machine.

The turret was equipped with tools perfectly suitable for Vallox parts, which makes the machine very flexible and ideal for different production needs. In addition, it saves a lot of setup time, which in turn brings more production capacity.



Vallox decided to invest in a Prima Power SGe punch/shear combination machine for its flexibility, speed, and high capacity.

The operational speed of punching and shearing on the Shear Genius is state-of-the-art. The SGe enables outstanding sheet utilization and a fast lead-time from blank sheet to ready components. As the produced parts are perfectly suitable for a right-angle shear, the sheet utilization rate is high. Efficient sheet utilization decreases the amount of waste, and, is thus cost-effective. The Vallox SGe was equipped with automatic loading and unloading equipment, which also helps to achieve high capacity. "The result was that even higher efficiency was possible than previously calculated," explains Mäki.



After the SGe investment, Vallox also acquired Prima Power press brakes, a panel bender, and a servo-electric turret punch press.

The SGe is an energy-saving servo-electric machine which is very accurate. These features were also important to the Vallox corporate image. "Our company operates in the energy-saving sector, and we want our actions to reflect sustainability," explains Mäki. "The recycling rate at our factory is as high as 98%."

### Investments Continue

After the SGe investment, Vallox also acquired Prima Power press brakes, a panel bender, and a servo-electric turret punch press. "The benefits of the panel bender in our production are speed and efficiency," says Mäki. "We simply get more output from the machine. Additionally, the machine is accurate and independent of the operator. The bending process is easy and the quality is always excellent."

With their latest investment, an E6 turret punch press with a loading and stacking system, Vallox primarily aimed at production efficiency and minimization of manual work stages. Earlier, the mere handling of sheet skeletons had required intense manual labor. Thanks to the investment, there is no longer need to shake sheet skeletons manually. Moreover, the efficiency of the machine was even better than expected. In addition, the maintenance costs have decreased significantly."

*"The benefits of the panel bender in our production are speed and efficiency. We simply get more output from the machine. Additionally, the machine is accurate and independent of the operator. The bending process is easy and the quality is always excellent."*

The Vallox production has become much more efficient through these investments. "In 2009, we reached a turnover of 20 M€ with the old machines in maximum use, combined with a high level of subcontracted parts," concludes Mäki. "Today, we have doubled our turnover with the same number of employees. The investments in production automation have certainly paid off."

*"Today, we have doubled our turnover with the same number of employees. The investments in production automation have certainly paid off."*

## FACTS

1945

Manufacturing of ventilation equipment starts in Tampere

1971

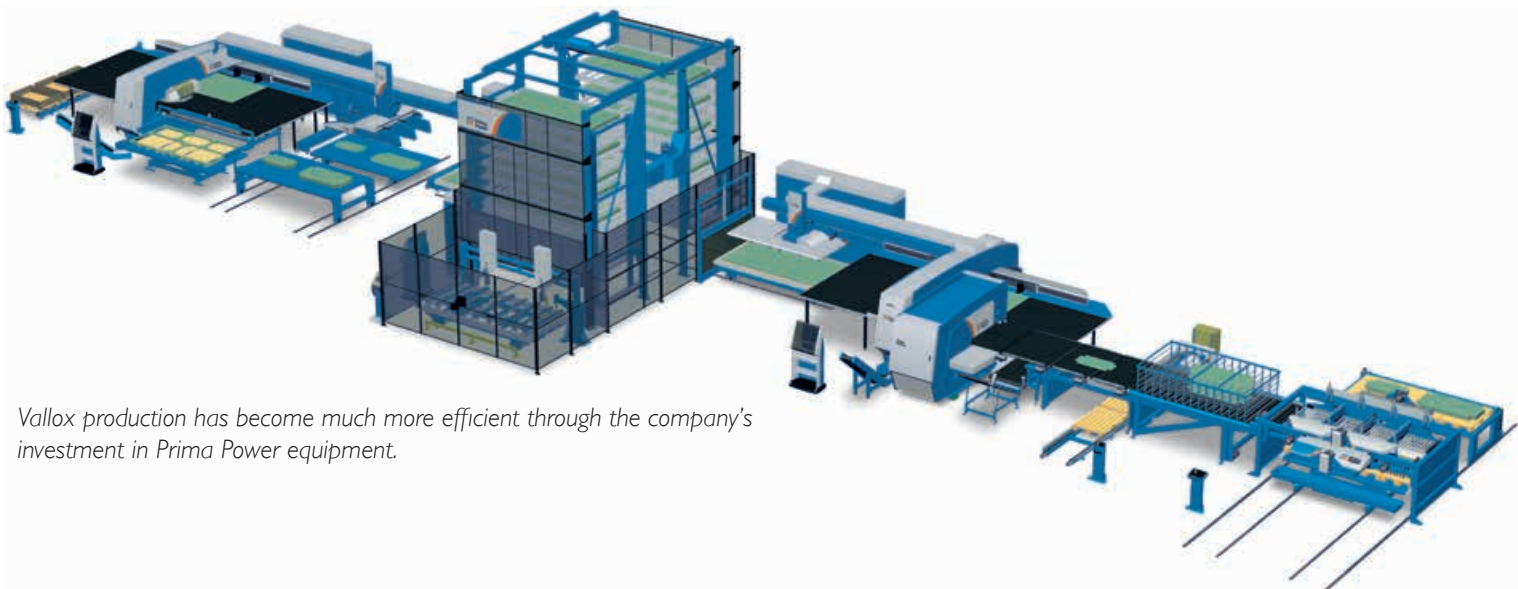
Operation is transferred to its present location in Loimaa

1987

Valmet gives up ventilation equipment manufacture, Vallox Oy is established

2002

German TOP AIR AG acquires the majority of company shares



Vallox production has become much more efficient through the company's investment in Prima Power equipment.

# Blechexpo International Trade Fair

Nearly 40,000 visitors from 110 nations, 1,234 exhibitors from 36 countries: numbers that describe much more than words the indisputable success of Blechexpo International Trade Fair, held in Stuttgart from November 3 – 6. Prima Power participated in the exhibition with a stand of over 500 m<sup>2</sup>, which had 180 visit reports from 25 different countries, showcasing the world premiere of the Genius line, the new servo-electric press brake eP2040 and the FastBend FBe5

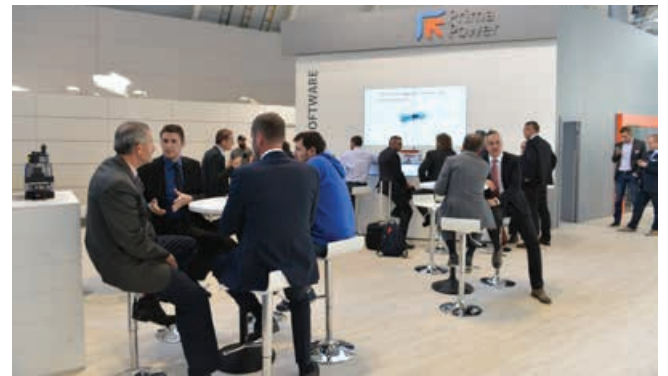
panel bender. All these machines have a modern, accurate and appealing design and represent the world's latest technology in sheet metal manufacturing.

"We are proud of all new products exhibited at Blechexpo, a fair which is becoming more and more international," says Emilio Maio, Vice President Central & Eastern Europe Countries. "Prima Power showed numerous innovations which completes the company's product range in all market segments, and this is the result of considerable investment in research and development."

Many customers from Germany and throughout Europe were impressed by the performance of Prima Power products. "We received much positive feedback about our new machines like the Laser Genius (6 kW Fiber laser and linear drive) and the Combi Genius (compact version of the well known punch/laser combined machine)," explains Maio. "And thanks to the other two machines, the FBe5 panel bender and the eP2040 press brake, we have shown the best example of our servo electric bending technology."

According to Maio the growing number of visitors is a positive sign for the European market.

"European customers once again have the possibility to make new investments...and this is great news for the entire sector."



# FABTECH 2015 & Open House

Prima Power made a strong impact at FABTECH 2015, held November 9 – 12 at McCormick Place, Chicago, IL. Heralded as North America's largest metal forming, fabricating, welding & finishing event, FABTECH 2015 covered more than 730,000 net square feet of floor space by more than 1,700 exhibitors, and attracted over 44,000 attendees from over 90 countries.

Record crowds filled the Prima Power booth each day of the show. Visitors were enthusiastic when they were introduced to the Laser Genius, the new fiber laser cutting technology with enhanced productivity, accuracy, and efficiency. The innovative linear drive motor technology provides unparalleled speeds, even in small notches or narrow contours. Features include linear drive motors on all axes, advanced carbon fiber carriage, synthetic granite frame, and proprietary hardware and software for laser process control.

Also on display was the latest model Shear Brilliance SBe that can process a full sheet, up to 60" x 120" without repositioning and an eP servo-electric press brake.



For two nights during FABTECH, Prima Power hosted an Open House after show hours at its showroom in Arlington Heights, IL. Visitors were able to get a close-up look at the servo-electric Shear Genius SGe, the FASTBEND FBe, the Synchrono Fiber Laser, and the Platino 2D Laser System.



## Open House



# Shanghai MWCS Exhibition



The MWCS exhibition in Shanghai from November 3 – 7, the largest trade show since the inauguration of the Prima Power manufacturing plant in Suzhou in March 2015, generated a great deal of interest among business operators. Prima Power displayed 2kW Platino Fiber with Compact Server - already produced at our local plant - and BCe5 panel bender, which is becoming increasingly popular in the Chinese market.

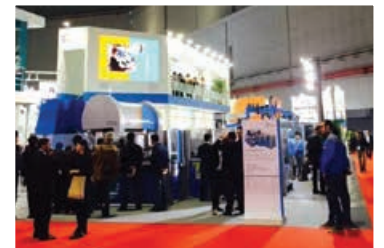
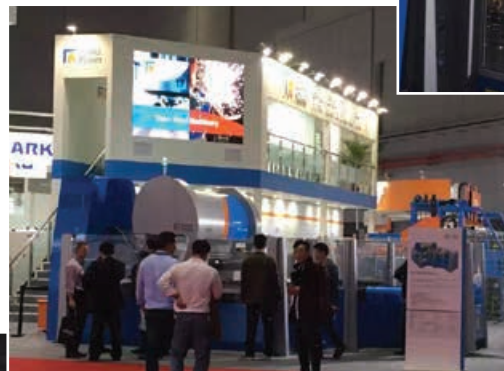
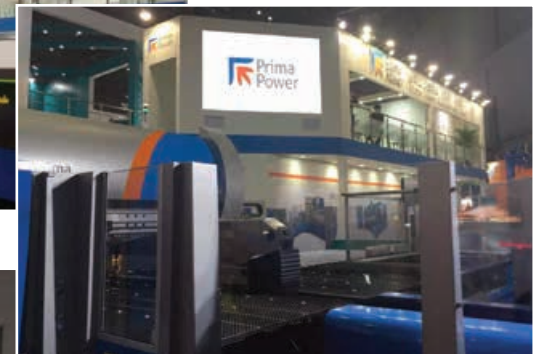
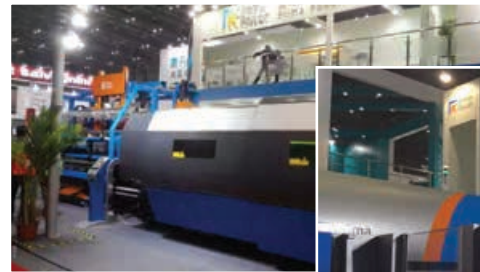
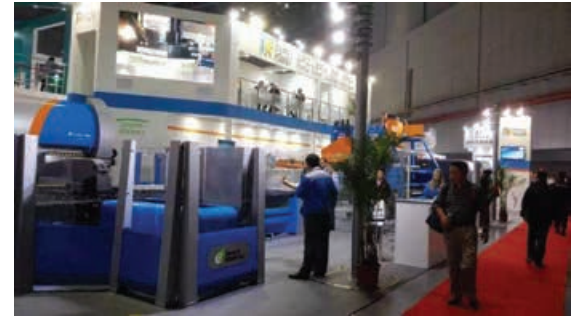
“There’s a growing demand for automation

in China mainly for two reasons: the increasing labor cost and the difficulty of finding specialized personnel,” explains Fabrizio Barberis, Sales Manager Stand-Alone Products for China. “Those are the reasons why we chose these machines for MWCS, including: The BCe5 panel bender stands out for the automatic and flexible bending process that, in contrast to the press brakes, doesn’t require specialized personnel. To demonstrate how user friendly the BCe5 is, the machine was operated by a local hostess... and we perfectly achieved our objective!”



The growing need for automation finds its best expression in the Platino Fiber configuration showcased in Shanghai. “Thanks to the Compact Server, the machine can run through unmanned operation,” adds Barberis. “This increases the customer’s production capacity and efficiency. By the way, the huge number of local and international 2D fiber laser suppliers let us understand the importance of distinguishing ourselves even more from the competitors. The key point of our strategy is the “Green Means” philosophy. High technology and know-how meet the requirements of both productivity and more sustainable manufacturing”.

Despite China’s adverse macroeconomic scenario, Prima Power is confident in the future. “Chinese economic slowdown in 2015 is indisputable and of course the ongoing crisis is affecting the sales of the sector,” concludes Barberis. “But thanks to our recent commercial reorganization and our wide range of products, the order intake of sheet metal working machines has more than doubled in 2015, giving us good prospects for 2016.”



# Don't Blink

## Laser Genius

It's easy to miss movements on the Prima Power Laser Genius. That's because our innovative linear drive motor technology provides unparalleled speeds...even in small notches or narrow contours.

But the Laser Genius is not just another fast fiber laser...and is definitely not your *father's* laser.

### **We are the laser of today...and tomorrow.**

The Laser Genius combines the following features to provide unequalled precision for customers requiring strict tolerances:

- Linear drives motors on all axes
- Advanced carbon fiber carriage
- Synthetic granite frame
- Proprietary hardware and software for laser process control

The Laser Genius is the perfect answer for needs of the most demanding OEMs and precision contract manufacturers.



Contact us today for a descriptive brochure and an action-packed video of the Laser Genius in operation. But remember...*Don't Blink!*

[WWW.PRIMAPOWER.COM](http://WWW.PRIMAPOWER.COM)

 **Prima  
Power**

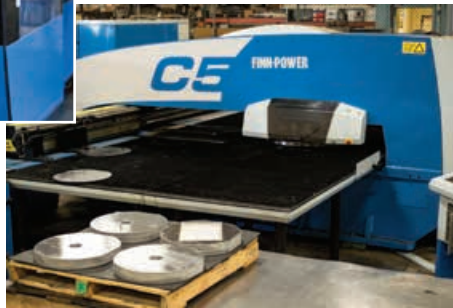
# Evolving Technology Helps Family Job Shop Compete

Family businesses are widely seen as the backbone of the global economy. They account for more than two-thirds of all companies around the world, provide 50-80% of employment in most countries, and are locally rooted and connected to their communities. Yet in today's volatile and unpredictable market, can you imagine starting a family business that will be around 50 years from now?

Perhaps that thought was in the minds of David Weber and his father Wesley in 1968 when they founded Mode Industries in a humble 2,500 square-foot building in Genoa City, WI. The fledgling company's used equipment included a few small punch presses, a small shear and press brake, and some old hand equipment. David's son Spencer joined the company in 2003, and the company has evolved into its third location – a 40,000-square-foot facility in Delevan, WI. The equipment list at Mode Industries has also been modernized with a CO2 laser, a turret punch press, seven press brakes, five OBI punch presses, a variety of spot and MIG welders, as well as one robotic welder. Today, the company serves such industries as electrical transmission enclosures, P.O.P. display components, utility vehicle, furniture & display, and others.



In 2001, Mode Industries purchased a C5 hydraulic turret punch press from Finn-Power (now Prima Power). With the C5, the company experienced the benefits of nesting parts. The company purchased a Prima Power Platino CO2 laser in 2013.



And to what does Mode Industries attribute its longevity? According to both David and Spencer Weber, there is no secret to the company's success...but rather its ability to retain customers through excellent quality and service. "We are continually updating our technology to provide the highest quality and efficiency available," explains David Weber.

***"With the experience that we had with Prima Power, we always received immediate response from Prima Power to solve a problem and make our machines operable."***

## Technology Evolution

In 1999, Mode purchased a used early-model Finn-Power turret punch press to help meet growing production demands. "The Finn-Power TP-250 opened our eyes to what a turret punch press could offer; we also realized the limitations of an older machine," reflects Spencer Weber. "In 2001, we purchased a new C5 hydraulic turret punch press from Finn-Power (now Prima Power). With the C5, we experienced the



David Weber (right) and his son Spencer attribute their success to excellent customer service, while updating their company's technology to provide the highest quality and efficiency available.

benefits of nesting parts. Rather than doing things the hard way with our old single punch/single die machine, we no longer had to change out a punch every time we had to change a hole."

"Several years later," Weber continues, "one of the display companies brought us an enormous job for a large retail chain. The turnaround time was too short for them to go to China, and we made most of the boxes for the rollout. There were 30 holes that had to be tapped. We purchased a tapping mechanism for the C5 and it saved us an unbelievable amount of time. We never could have gotten the job through our door without it. It was those types of things that made us realize the extent of what a turret could do by not having to touch the part multiple times. We began to experience the benefits of the more flexible technology."

## Enter the Laser

Several years ago, Mode management began to notice that many customers were designing their parts with the laser in mind – with sweeping radiuses, curves, and hole sizes beyond the standard punch dimension. "We were using a dependable laser outsource for our laser cutting needs for many years," says Spencer Weber. "They were very accommodating to us, but it got to a point where our turnaround times were getting shorter and shorter, and our vendor had many other customers to service as well. As a result, we contacted Prima Power to discuss the latest technology in sheet metal fabrication. They really wowed us with the laser. They demonstrated a lot of laser features and benefits such as speed, accuracy, and durability."

At first, Mode was interested in purchasing a used laser, but soon decided that if their company was going to make the leap into the new era, it should do it with the most modern equipment that they could afford. The company purchased a Prima Power Platino laser in 2013.



**“We’ve had the laser for two years now, and the amount of work that has migrated to the laser – and the efficiencies of the material – have really benefited us.”**

### 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 ( $\frac{5}{8}$  in), thick aluminum ( $\frac{1}{2}$  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.

### Service is King

According to David Weber, the most important aspect of the purchases was the ability to have training and service support. “We were concerned with both the technical aspects of programming and the day-to-day operation of something as sophisticated as the laser,” he explains. “Our management team discussed this need and came to an easy decision. With the experience that we had with Prima Power, we always received immediate response from Prima Power to solve a problem and make our machines operable. We called everyone that we knew in the fabrication business that owned different brand name lasers in the marketplace. And the focus kept coming back to Prima Power. We were entering a new strange territory that was going to cost us a lot of money, which was a risk to our small business. The best answer was to go with Prima Power, where we had the least amount of risk.”

### Future Automation

In addition to the service support, Spencer Weber also points out the problem Mode has had in finding and maintaining a skilled workforce in his geographic area. “We knew that somewhere down the line that automation is going to play a part in our business,” he says. “And the Prima Power version of the storage towers that stack over the bed takes up little or no more square footage than the current machine does now. That also intrigued us. It made good business sense for us to plan for some automated loading/unloading system with the machine and the same footprint as it is now. Everywhere we turned and looked we just felt very comfortable with Prima Power.”

### Workhorse

“We’ve had the laser for two years now, and the amount of work that has migrated to the laser – and the efficiencies of the material – have really benefited us,” continues Spencer Weber. “It’s a different sound in

our shop today...the laser is quiet compared to punch presses. During the last few years, we’ve realized just how vital the laser is running day in and day out. After the Platino was installed, we began changing some of our mentality of how we approach new customers. The display industry was once a major segment for us, but the industry had its peaks and valleys. When that market went away, we began looking for different avenues. The laser has allowed us to have a more stable environment...more of a long-term approach in building our customers’ product lines, with the prospect of big blanket orders, longer running cycles, etc.



*The Platino laser has changed Mode’s mentality on how they approached new customers.*

**“It’s been a good ride with Prima Power. Every time we have approached them with questions, they have been right back with answers and are helpful at every step.”**

“Another benefit of the Platino is its nesting ability. One of the largest enclosures that we’ve made for years was laid out for a 48” x 120” sheet. We would get two bodies, two covers, and two backs on each sheet. We literally took those same exact cut sheets, converted them into a dxf file, and programmed them into the laser. Now all the holes and notches are cut into the parts. As a result of safety ratings, customers specify rounded corners, which before the laser was a secondary operation for us. Today, we can provide nice curved radius corners with no sharp edges. Now when the sheet comes off the laser, we are getting parts with the holes already in them, the radius cut, the notches put in the corners, and ready for the next process. Sheet utilization is up almost 20% with the Platino. On the turret, we get about 65-70%. With the laser, it’s 90-95% sheet utilization.”

“It’s been a good ride with Prima Power,” concludes David Weber. “Every time we have approached them with questions, they have been right back with answers and are helpful at every step.”

*Dave Weber is very active in his community in helping provide professional training for the next generation of machine tool operators. He has worked with various technical schools and the local Economic Development Department on creating the best approach to meeting the needs of local manufacturers for qualified machine operators.*

# Prima Power Night Train Delivers the Ultimate in Automation at Nuaire

With a turnover of €66 million and 475 employees, Nuaire in Caerphilly is the UK market leader in energy-efficient domestic and commercial ventilation solutions. It has been involved in many high-profile installations including the Gherkin and Terminal 5 in London and the Millennium Stadium in Cardiff.

In 2012, a major investment in Prima Power automation transformed its production capabilities, enabling it to achieve lead times of 5-10 days for its 40,000 product lines. Alun Jones, director of manufacturing, explains, "The majority of our parts are largely made up of rectangular shapes and cutouts, so the punching and shearing solution we opted for is by far the quickest method of production. We also process aluzinc and coated material, where the Prima machine is used to fold and wrap sharp edges to produce safe components."

Prima Power proposed an automated system with two Prima Power Shear Genius SGe5 punching and shearing cells, a Prima Power Night Train FMS system with robot handling, and a Prima Power EBe automated servo-electric bending machine. The complete system is fully integrated with Nuaire's ERP software, through Prima Power's Tulus software, responding to orders and their delivery dates. The Night Train system has 80 pallets with capacity for more, and the system runs 24/7. "The driving principle behind the system was to make parts available for assembly on a just-in-time basis, minimizing the amount of floor space required for component storage," says Jones. "Components occupy 15 to 20 times more space once they are folded, so the aim is to keep them in their flat state up until two days before they are actually required for assembly."

With the technology available in the Night Train system and the skill of the software engineers at

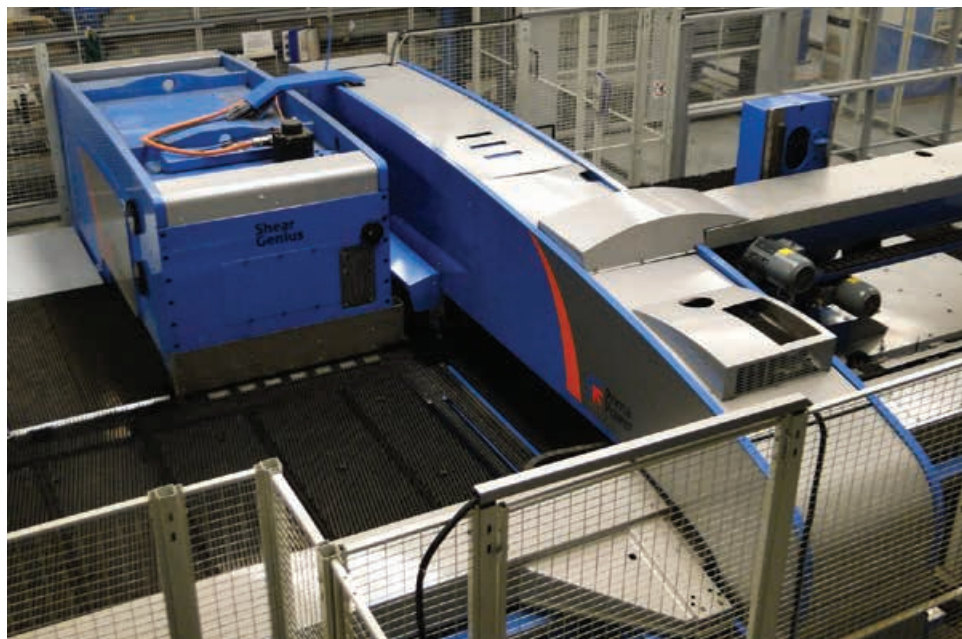


*In 2012, Alun Jones, director of manufacturing, initiated a major investment in Prima Power automation that transformed Nuaire's production capabilities for the company's 40,000 product lines.*

Nuaire, the solution is both elegant and highly efficient. Working back from the required delivery dates, the manufacturing information is passed into the Tulus software, where parts are dynamically nested into sheets to optimize material utilization. A mix of parts is put on each sheet, and software determines the sequence of operations: cutting parts and putting them into storage in their flat state for bending later, or transferring them to the Prima Power EBe for immediate bending.

By shearing the long edges and punching the apertures and holes, the system is extremely quick in producing each flat component.

Once the flat part comes off the Shear Genius SGe5, it is picked up by a robot, which automatically alters the position of the lifting suckers to avoid apertures and to fit the component shape. The software then decides if the part is to be put into storage in the Night Train system or passed directly to the folding stage. "Dynamic nesting of parts can mean that parts which will be ultimately assembled together can be made on



*By shearing the long edges and punching the apertures and holes, the system is extremely quick in producing each flat component.*

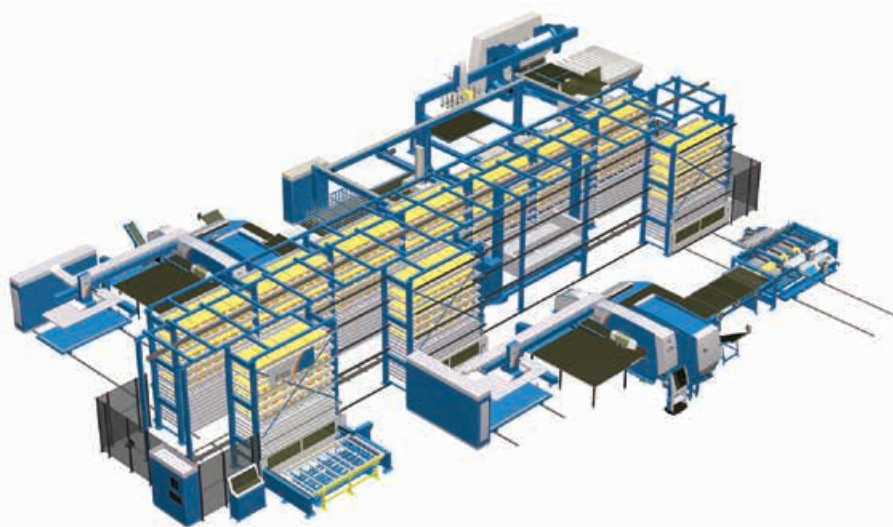
*“Because the machine is running 24/7, and the assembly operation operates Monday to Friday, the out-of-hours working is truly lights out, with the machine operating in the dark making flat parts. On Monday morning, most of the activity is folding parts, made over the weekend, ready for assembly.”*



*The bending machine is robot loaded, and automated tool changing makes changing from one series of bending sequences to another, as each different component arrives, something that takes just a few seconds.*

completely different machines,” explains Jones. “Because the machine is running 24/7, and the assembly operation operates Monday to Friday, the out-of-hours working is truly lights out, with the machine operating in the dark making flat parts. On Monday morning, most of the activity is folding parts, made over the weekend, ready for assembly.”

For the bending operations, the design is taken from the company’s AutoCAD Inventor software and the bends integrated. Technicians then use the Tulus software to automatically select the tools, work out the bend sequence and create a bending program for the Prima Power EBe. The bending machine is robot loaded, and automated tool changing makes changing from one



*Prima Power proposed an automated system with two Prima Power Shear Genius SGe5 punching and shearing cells, a Prima Power Night Train FMS system with robot handling, and a Prima Power EBe automated servo-electric bending machine. The Night Train system has 80 pallets with capacity for more, and the system runs 24/7.*



*Caption goes here. Once the flat part comes off the Shear Genius SGe5, it is picked up by a robot, which automatically alters the position of the lifting suckers to avoid apertures and to fit the component shape.*

series of bending sequences to another, as each different component arrives, something that takes just a few seconds. Alun Jones adds, “We can experiment with the logic of the system to maximize production. This makes it possible to try out new methods. For example, we can test if it is quicker to keep the tools in place on the EBe and bend several parts, while putting others temporarily in storage or, to keep changing the EBe tools as each different part arrives. By having an in-house software team, we are able to have a continuous improvement program running.”

*“We have never had a case of parts being lost in the Night Train system, which is a remarkable achievement. We would not have been able to realize the growth we have achieved without it.”*

Part identification is linked into the system so that, as each part is completed, the correct identification label is attached as it comes off the Prima Power EBe as, because of the volume and variety of components, it is impossible to follow the system manually. “We have never had a case of parts being lost in the Night Train system, which is a remarkable achievement,” concludes Jones. “We would not have been able to realize the growth we have achieved without it.”

# Prima Power Provides Ideal Manufacturing Climate for Groupe Atlantic



*This modern and productive Prima Power PSBB system allows Groupe Atlantic to confidently approach the many product developments made necessary by a constantly changing market.*

**G**roupe Atlantic is a leading French company committed to climate control engineering. Founded in 1968 by engineers, Paul Radatand and Pierre Lamoure, in la Roche-sur-Yon on the west coast of France, the company's various brands offer customers a range of products that meet all types of needs: water heaters and electric heaters, domestic and collective boilers, air conditioning, ventilation, and renewable energy sources.

Through the years, this independent, family-owned company, has continued to evolve through sustained internal and external growth. Today, Groupe Atlantic

is composed of 11 strategic and complementary brands that create thermal comfort solutions in four areas: heating, hot water, air conditioning, and ventilation. The company has 17 manufacturing sites, including nine located in France, and in the past 20 years has expanded its work force from 1,300 to 5,200 employees. The brands and products are now distributed in more than 100 countries worldwide and the Group's international activity is growing steadily.

## Changing Market

Atlantic's business has greatly changed in recent years, and the company has had to quickly adapt to the changing market. To meet market demand, it now has to produce a larger number of series, but for smaller quantities of parts. "We have moved from series numbering 300 to 600 parts that we produced

by stamping on our conventional machines to series numbering 60 to 100 parts," explains Thierry Palacoer, project manager at Atlantic. "Tool changeover time of roughly 45 minutes between each series, thus became a problem, causing us in 2012 to review our methods of manufacturing."

Palacoer challenged Prima Power France to give his company the best industrial solution to produce sheet metal parts and remain competitive while keeping the manufacturing facility in France. After working closely with Atlantic, in 2014 Prima Power installed a PSBB



*Christophe Berquet (right), sales director Prima Power France and Thierry Palacoer, Groupe Atlantic's project director in front of the new PSBB system.*

Line at Atlantic's THERMOR plant located in Saint Jean de la Ruelle, just outside Orléans.

## Prima Power PSBB Line

The Prima Power PSBB is a compact, flexible manufacturing line that processes blank sheets into ready-bent, high-quality components. The PSBB concept includes the following functions:

- system design
- software
- machine tools and cells
- material handling automation
- customer support and service
- automatic storages and flexible buffering

The combo storage allows processing of components from a variety of materials, which can be changed, as programmed, automatically. The sheets are transferred into a Shear Genius punch/shear cell. After shearing, the components are sent to buffering and subsequent bending in an automatic bending cell.

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. Flexible buffering ensures optimal operation of integrated machines.

The main components of the PSBB line include:

- Shear Genius servo-electric punch/shear combination SGe6
- Buffer tables
- Express Bender servo-electric EBe

## Servo-Electric 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.

The heart of the servo-electric Shear Genius SGe is an updated servo electric 30-ton punching machine 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, which makes shear movement both fast and fully controlled for maximum productivity.

## Express Bender EBe

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" (3,350 mm) and a maximum opening height of 8" (200 mm). The new construction features actuations of the bending blade movements (vertical and



*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.*

***“We have proven that it was possible to replace the stamping line that was productive but not flexible with an automated sheet metal fabrication line. We were able to plan and work with Atlantic management to provide a comprehensive solution to their present and future sheet metal fabrication needs.”***

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.

## An Automated System with Impressive Features and Size

The Prima Power automated system does not go unnoticed in the Atlantic factory, with its dimensions of 30 meters in length by 10 meters in width, and its sky blue color that lights up the production workshop. This modern and productive Prima Power PSBB system allows Atlantic to confidently approach the many product developments made necessary by a constantly changing market.

*“We have proven that it was possible to replace the stamping line that was productive but not flexible with an automated sheet metal fabrication line,”* explains Christophe Berquet, sales director at Prima Power France. *“We were able to plan and work with Atlantic management to provide a comprehensive solution to their present and future sheet metal fabrication needs.”*

*Portions of this article were translated and edited from the May, 2015 issue of EQUIP PROD magazine.*

# Prima Power Laserdyne Fiber Lasers: A Leap of Faith for Paradigm Precision

Few companies use laser processing in their manufacturing process the way Paradigm Precision, Stuart, FL, does. Today, this innovative company, consisting of 18 manufacturing facilities in six countries, machines and fabricates complex, high-precision components for aerospace, marine, and power generation industries. Many of the component features are created by using state-of-the-art laser technology available only from Prima Power Laserdyne.



Gary Loring, laser supervisor/engineer for Paradigm Precision with PRIMA POWER LASERDYNE's newest laser addition—a remanufactured LASERDYNE 890 BeamDirector system equipped with a fiber laser. The system is used to produce complex cooling holes in turbine engine components.

Paradigm Precision purchased its first Laserdyne multi-axis laser system in 1994, and today operates 14 of the precision systems, including the LASERDYNE 795XL system equipped with a fiber laser and the first installation of the unique LASERDYNE 890, produced as part of the Laserdyne re-manufacturing program.

## Leap of Faith with Fiber Laser Turns into Blueprint for Successful Growth

"The fiber laser represents a leap of faith for Paradigm Precision," explains Gary Loring, laser supervisor and engineer for Paradigm Precision. "We learned through our initial use of the new Laserdyne systems that there are advantages to using a fiber laser – especially when control of the laser is fully integrated with the system motion."

"Redefining our laser processes using the newest technology is extremely important to us and our customers," says Loring. "Even though Paradigm Precision has continuously improved our laser capabilities over the past 23 years, our program has really accelerated with the advent of fiber lasers. Much of Paradigm



High speed drilling on turbine engine components using the LASERDYNE 795XL. It has exclusive OFC (Optical Focus Control), BTD (Breakthrough Detection) and CylPerf programming at shallow and compound angles. This fiber laser system meets every challenge for producing cooling holes in today's increasingly complex aerospace engines.

Precision's growth is fueled by our expertise in laser processing and the Laserdyne systems used. With roughly 1,900 employees at our 18 facilities, we expect continued expansion of our use of fiber laser technology."

## Fiber Laser Improves Productivity Compared to the YAG Laser

"With the latest Laserdyne fiber laser technology, we're drilling and cutting complex turbine components significantly faster than with Nd:YAG systems," continues Loring. "Cutting operations are now demonstrating as much as 6 times the speed on the Fiber Laser compared to the Nd:YAG system. We're committed to fiber technology because it provides greater opportunity for technological advancement. Many of our older systems are or will be converted to fiber lasers. We started this renewal process a few years ago in a partnership with Laserdyne, and we feel that it has enhanced our production capabilities."

**"Cutting operations are now demonstrating as much as 6 times the speed on the Fiber Laser compared to the Nd:YAG system. We're committed to fiber technology because it provides greater opportunity for technological advancement."**

Paradigm Precision's newly-acquired system, the LASERDYNE 795XL, with a BD3Y BeamDirector and fiber laser, is producing parts with a shorter cycle time and with a better airflow consistency. The LASERDYNE 795XL is a six-axis system with a 2m x 1m x 1m (80 inch x 40 inch x 40 inch) work envelope that incorporates a high accuracy rotary table and Laserdyne's latest controller, the S94P. The S94P controller has allowed Laserdyne engineers to improve hardware and software features such as Optical Focus Control (OFC) and BreakThrough Detection while introducing new features that make processing easier and more consistent. This has proven valuable to Paradigm Precision's operations.



Paradigm's new 6-axis laser system drills, cuts and welds medium to large 3D parts with combined high velocity

and acceleration. The Laserdyne third generation Beam Director® provides rotary (C axis) motion of the laser beam of 900 degrees, and 300 degrees of tilt (D axis) motion of the laser beam. A precision rotary table that is fully integrated into the control system provides the sixth axis of motion.

The latest BeamDirector® – laser beam positioning capability and axis positioning of the LASERDYNE 795 system – when combined with high accuracy rotary table motion supports new manufacturing processes while improving existing ones.

As for speed, the new Laserdyne fiber laser system operates at up to 800 inch/min in all axes (0-20 m/min) with bidirectional accuracy of 0.0005 inch (12.7 micrometer). This accuracy is throughout the system's 2.0 m x 1.0 m x 1.0 m (80 inch x 40 inch x 40 inch) work envelope, making it ideal for demanding process validation and reliability requirements. Accuracy of the new system is certified to ISO 230-1:1996 and 230-2:2006 in accordance with Prima Power Laserdyne's standard accuracy and repeatability test procedures.



A LASERDYNE 795 XL system shown processing a turbine engine component with thermal barrier coating.

## Rebuilt LASERDYNE 890 With Fiber Laser Also Attracts New Projects

With five gantry style LASERDYNE 890 systems already in-house, some nearly 20 years old, Paradigm saw an opportunity to upgrade their capabilities. The LASERDYNE 890 has a 2.4 m x 1.8m x 0.9 m (96 inch x 72 inch x 36 inch) work envelope, ideal for processing large combustion liners, airfoils, frame assemblies and similar large size parts.

"I had the idea to rebuild one of our 890's to see if the results would benefit our company," says Loring. "The LASERDYNE 890 is a unique motion system based on its moving beam concept with no part (XYZ) motion required. It is similar to the design of all of the Laserdyne systems but many of our programs are based on the gantry capabilities with its large but space efficient layout. Laserdyne took on the project to replace everything except the basic gantry frame. The goal was to keep the same platform but make improvements from the ground up with new technology. We were pleasantly surprised by the results and the competitive advantage this has given us."

Paradigm Precision appreciates Laserdyne's philosophy of offering to remanufacture older LASERDYNE 780 and now 890 systems.

"Remanufacturing older systems gives Paradigm Precision the advantages of the LASERDYNE S94P control, the new high accuracy and compact BD3Y BeamDirector as well as software and hardware process control tools in a system design and layout, with which we are familiar," explains Loring. "What many people fail to recognize, is the importance of the laser interface in obtaining the maximum benefit from a laser. The interface communicates between the controller, laser, and positioner and coordinates the laser output throughout the process."

***"With the fiber laser, we're able to drill quality holes that meet all requirements, plus cut at speeds of 25 to 30 inches a minute – six times faster than with a Nd:YAG system."***

## Fiber Laser Has Greater Flexibility with Reduced System Maintenance

Paradigm Precision says that one advantage of its Nd:YAG lasers is that they are good for drilling the engine cooling holes but are significantly slower than fiber lasers when cutting is required.

"With the fiber laser, we're able to drill quality holes that meet all requirements, plus cut at speeds of 25 to 30 inches a minute – six times faster than with a Nd:YAG system," says Loring. "While the drilling and cutting is not done in the same setup, the speed of the cutting operation is the difference."

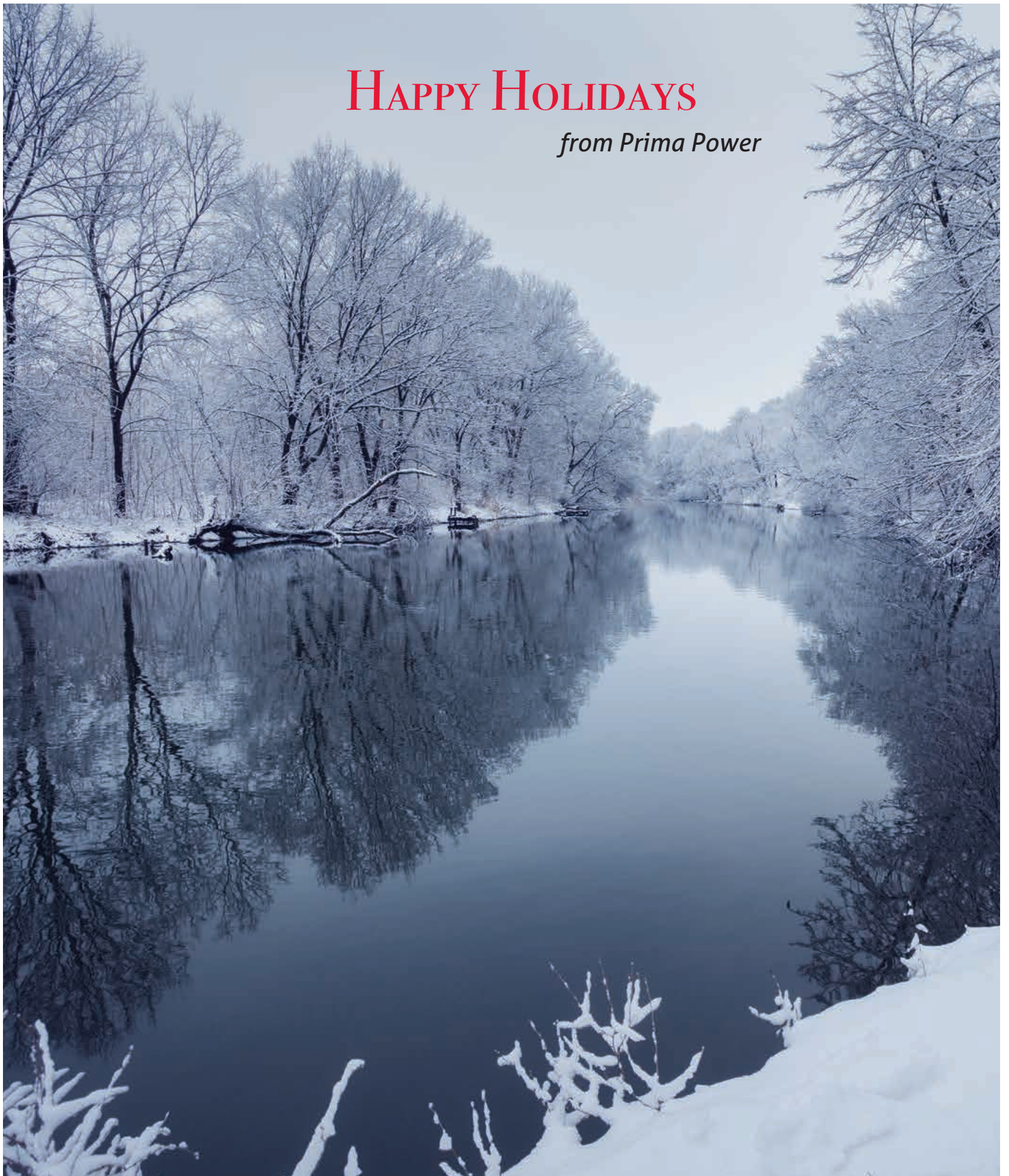


Transitioning from a YAG to a fiber laser process requires full validation to ensure all levels of quality are met.

As for system maintenance, Loring contends that Nd:YAG lasers are subject to higher maintenance and downtime. "They require careful tuning," says Loring. "Fiber lasers have fewer components so there's less that can go wrong with them. That in itself is a big advantage, plus there is a savings in lower power consumption with fiber lasers."

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*from Prima Power*



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