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## Prima Power introduces new solutions for laser cutting and flexible manufacturing

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### Compact FMS Upgraded with Shear Brilliance

Prima Power PSBB (short for punching, right angle shearing, buffering and bending) is a fully automatic manufacturing line for processing sheet into ready-bent, high-quality components. The current offering includes many improvements and with the new Shear Brilliance as the punching - shearing cell raises manufacturing speed and productivity to a new level.

#### Always the optimum operation mode

Extreme system flexibility derives from versatility of work stages and the availability of several operating modes. With buffering and the operating modes maximum production efficiency can always be ensured despite the difference in cycle times of different work stages. Operation possibilities, which can be used simultaneously, are:

- Direct, material flow from Shear Brilliance to bending cell
- Use of the whole stacking area for buffering in direct connection
- Simultaneous stacking on tables/wagons and retrieval of components from tables/wagons to bending cell
- Use of the whole stacking area in unattended operation



## Flexible import of material

Raw material can be loaded from wagons, the system can be integrated with a cut to length line, and flat components can be brought from outside the system for automatic bending.

## Punching and shearing - Shear Brilliance

The vast majority of all fabricated sheet metal components are rectangular, so a highly economical method to produce them is to perform first punching and then shear the components loose in the same automatic process with an integrated right angle shear. Also, parts with two or three straight edges are perfect for fabrication with a right angle shear.

The new, fully servo-electric Shear Brilliance features linear drive technology for fast sheet positioning and raises manufacturing speed and productivity up to a new level. With long travel of the 4,070 mm coordinate table full 3,100 working area for punching and can be used without repositioning, accurately and at great speed. The sheets are pre-positioned during machine operation which reduces loading time considerably.

In loading the production time is maximized due to loading in hidden time. Also the fast 1,300 hpm punching speed adds productivity. Shear Brilliance offers a huge tooling capacity in a 24 or 30 station turret which ensures minimum set-up times and maximum tool quantity in single set-up. Tool sizes can be chosen by the customer, which adds flexibility required in modern production.

Up to 35 tons of servo-electric ram force - the highest available in servo-electric punching - allows very complex contours, using one hit instead of two. As fewer hits



are needed production is faster. Despite the ram force speed has not been compromised.

Automatic clearance setting of the intelligent servo-electric right angle makes changing from one material thickness to another automatic and fast, saving time and adding productivity. A wide range of thicknesses can be sheared, up to 5 mm aluminium (5 mm mild steel, 3 mm stainless steel). Maximum sheet size for punching and shearing is 3,100 mm x 1,565 mm.

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 direct 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

The automatic Express Bender solution, featuring Prima Power's servo electric technology, offers outstanding benefits through very fast operation, flexibility for small series production, and low energy and low maintenance cost. Even the most intricate bends can be made. Max. bending length is 2,250 mm (Express Bender EBe 4), 2,650 mm (EBe5) or 3,350 mm (EBe6).



Bending quality is excellent as required by e.g. design products. This is achieved through precise control of bending axes, fast and smooth bending, open programmability, and the fact that the construction is immune to variation in thermal conditions.

A turning device is included in the PSBB on display.

## Options

All the versatile Prima Power punching and bending options can be included in a PSBB line. Similarly, several solutions are available for automatic handling of bent components. Most options can also be installed later as machine upgrades.

### Automatic storages

Equipped with a COMBO storage the PSBB line is the perfect solution for lights-out production of production of even the most intricate components from a variety of materials, which can be can be changed, as programmed, automatically.

When fast response time for material change is needed, a highly productive optional feature is available for loading single sheets to the PSBB line with a special gripper. Thus the COMBO storage crane has a dual function: handling sheets stacks on cassettes and loading individual sheets.

The PSBB can also be integrated in Night Train FMS® solutions.

### Picking and stacking robot PSR

The picking and stacking robot PSR has a major role in system flexibility. It allows re-organization and optimization of production flow between Shear Brilliance and



the Express Bender cell, and thus nesting can be optimized for punching - laser cutting.

With the robot, parts can be added to production flow via storage connections or from other cells with wagon connection. In this way, the utilization ratio of the bending cell can be considerably increased considerably.

Using the large buffering area and with flexible process control even demanding kit production can be organized for outstanding efficiency.

### Sustainability - modularity that allows system growth

In line with Prima Power's Green Means® philosophy, the line is servo electric apart from one auxiliary function of the automatic bending cell, and fiber laser technology is used. Energy consumption is low and maintenance cost far smaller than in hydraulic technology.

Investment in a Flexible Manufacturing System is a highly cost efficient solution when production targets are challenging. The investment is also easy to make since thanks to modularity the system can be flexibly built up in stages.

If, for example, technology currently used for bending gives satisfactory performance but the production of flat components needs to be improved, nothing prevents commissioning a punching - shearing cell now and upgrading it to FMS level with bending capacity later. Or vice versa, if the time to replace press brakes with an automatic bending cell is now, but blank fabrication capacity is sufficient, a punching - shearing cell can be integrated with Express Bender EBe years after it has been installed.



## **New Shear Brilliance punching and shearing cell with linear drives**

Prima Power introduced linear drives for sheet position in integrated punching and shearing in late 1990's. Since then, fabrication technology has been revolutionized by servo-electric technology, and this has now been applied to the Shear Brilliance product range.

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## Flexible automation

Loading, part exit and scrap removal are automatic in the standard Shear Brilliance delivery.

Prima Power has engineered a wide range of modular technology for automating the fabrication process further.

Equipped with a COMBO storage Shear Brilliance can be used for extensive runs of unmanned operation. For automatic component handling, sorting and stacking systems and robots are available.

The COMBO storage can also be used for buffering ready components. If it is used only for raw material, a highly productive optional feature is available for loading single sheets the PSBB line is the perfect solution for lights-out production of production of even the to the machine with a special gripper. Thus the COMBO storage crane has a dual function: handling sheets stacks on cassettes and loading individual sheets.

Shear Brilliance can also be integrated with bending, as in the PSBB line on display in Hannover, and in Night Train FMS® solutions. In addition to fully automatic processing, e.g. the turret punch is free for use in manual operation to produce even a single part.

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High-resolution illustrations are available in the Download section of the Prima Power website ([www.primapower.com/en/news/downloads/](http://www.primapower.com/en/news/downloads/)).



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## Prima Power presents a full range of products for 2D and 3D laser processing

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### **The new 3D laser system for automotive production is born at Prima Power**

Automotive part manufacturers need highly specialized products for the cutting of sheet metal parts, capable of answering to all their specific requirements.

Thanks to a deep and unique experience of over 35 years in this field and to a continuous dialogue with customers and partners operating in the car industry, Prima Power has designed the new 3D laser machine for automotive production: Laser Next.

In developing Laser Next Prima Power has focused on the achievement of the following main benefits for the user:

1. Maximizing throughput thanks to a dramatic reduction of cycle times. During the last ten years the performance of Prima Power 3D laser machines for automotive applications have been growing steadily. With Laser Next a fundamental step forward was made: productivity on a typical benchmark component (B-pillar) was raised by 25%. In other words, four Laser Next produce as five machines of the previous model.

At the base of this result, there are the best dynamic performance on the market for a 3D laser machine (208 m/min trajectory speed and 2.1 g acceleration),



granted by the use of highly innovative solutions and materials for kinematics and machine structure such as, just to quote some, direct motors and transducers for main axes and focusing head, and machine frame in synthetic granite with optimized shape.

2. Space efficient layout both for stand-alone and multi-machine configuration. Space is money and well-conceived layout help saving square meters and optimizing plant logistics.

The compactness of the installation further improves installing more machines, since you can have up to three units one next to the other connected to the same magnetic scrap conveyor, with no need of excavation works. Given the same area, in fact, it is possible to install more machines (e.g. four Laser Next instead of three units of the previous model). Considering the performance of Laser Next, the productivity per square meter ratio is simply astonishing.

3. Improved Overall Equipment Efficiency (OEE). For Laser Next Prima Power capitalized on its know-how of hundreds of installations for the 24/7 manufacturing of High Strength Steel components, widely used in car production.

Every single detail was studied and developed to maximize machine uptime. Maintenance was also cut down and simplified to reduce non productive times and the need of specialized resources dedicated to these activities.

Laser Next has a work volume of 3,050 x 1,530 x 612 mm and is equipped with 3 kW or 4 kW high brilliance fiber laser. Its compact focusing head, fully sealed for best protection, features direct drive motors, double protection SIPS, fully metallic sensor, and Focal Position Control.



The high-precision and dynamic turntable with servo motor and absolute encoder is designed to ensure the highest reliability, safety and ergonomics. Thanks to reduced blocking times, the distance between table and light curtains is very short, allowing faster and more comfortable loading/unloading operations in full safety.

## **Platino® Fiber: innovative technology made simple**

At EuroBLECH Prima Power presents the latest version of Platino Fiber.

Platino Fiber is based on the fully tested Platino platform, which can boast more than 1500 installations all around the globe. Over the time this product has been constantly innovated, improving its performance and flexibility and simplifying its use, with the aim of maximizing customer's profit in the easiest and uncomplicated way.

Six years' experience and hundreds of installations of fiber laser systems have allowed Prima Power to develop a product wholly focused on fiber cutting applications and capable of exploiting all the advantages of this innovative technology.

The first result is a substantial increase of productivity, mainly obtained through new piercing devices, particularly for mid-high thickness mild steel.

This reduction of cycle times is also combined with an increase of application flexibility, which includes the effective cutting of highly reflective materials and thick gauge mild steel (up to 25 mm).

Thanks to the new focusing head, this application versatility can be easily exploited with no setup time, since all materials are cut with a single, universal lens. The



reliability of the head is also further enhanced thanks to a new design, where the optical chain is totally sealed and protected from any contamination.

Other features of the focusing head are the Safe Impact Protection System (SIPS), protecting the machine head in case of collisions with workpieces or fixtures, the quick alignment system (OPC), the high dynamics focal axis with 35 mm stroke, a wide range of nozzles for any application which can be automatically exchanged.

Platino Fiber is the right tool for round-the-clock production. Manual intervention during machine operation has been brought down to zero. Thanks to software solutions and various levels of automation, once the production schedule is programmed, PLATINO Fiber takes care of the necessary settings, tip replacement, sheet change and storage, etc.

Some machine functions are particularly dedicated to 24/7 operation: Laser Piercing Monitor, for the automatic management and monitoring of piercing operations and the real time setting of the parameters, automatic restart functions, automatic switch on/off, failure notification via email or SMS, etc.

Platino Fiber can be equipped with various laser powers and in Hannover it will be exhibited in the 5 kW version. For sheet metal handling, the machine can be provided with the full range of Prima Power automation modules dedicated to laser systems, including Compact Server (displayed at the EuroBLECH), Compact Tower, LST and Night Train FMS®.



## Prima Power Laserdyne will be demonstrating the latest precision laser technology at EuroBLECH

Prima Power Laserdyne will present a live demonstration and will be available to discuss the latest in precision laser processing solutions at EuroBLECH in Hall 12 on Stands B64 and B70. These include the LASERDYNE 430BD - shown on the Prima Power stand, LASERDYNE 795, and the newest generation of BeamDirector; as well as the impact of fiber lasers on precision laser processing and the increasingly challenging requirements for precision beam positioning in three dimensions.

### LASERDYNE 430 Series

The LASERDYNE 430 Series of systems is designed for cutting, welding and drilling of 2D and 3D component parts requiring exact precision. It offers a suite of standard options and multiple configurations from 3 to 6 axes for processing parts in those market segments requiring manufacturing flexibility, rapid prototyping, and quick change overs.

The 430 Series of precision laser systems is now available with up to 20 kW QCW (quasi continuous wave) fiber lasers. This addition to the product offering expands the capability and flexibility of the system for precision cutting, welding, and drilling applications. This is especially important for contract manufacturers and the wide range of OEM's that require precision processing, consistent throughput and quality in a system that is flexible in applications and space efficient.

This laser system can be integrated with LASERDYNE'S BeamDirector®, as demonstrated during EuroBLECH.. It features advanced motion and process control capabilities in a highly space efficient platform when coupled with a fiber laser. The 430 BeamDirector is capable of cutting and welding a wide range of materials as well as drilling advanced shaped holes.



The third generation BeamDirector® features LASERDYNE's exclusive contouring head that provides C (rotary) axis motion of 900 degrees, and D (tilt) axis motion of 300 degrees. This positioning capability of a BeamDirector when coupled with a rotary table provides a six-axis system enabling new manufacturing processes while improving existing ones.

Additional features include: Automatic Focus Control™, patented Optical Focus Control (OFC), ShapeSoft™, BreakThrough Detection™, SmartRamp™, SmartPierce™, and SPC Data Acquisition.

The LASERDYNE 430 BeamDirector® operates at speeds up to 0-20 m/min (0-800 inch/min) in all linear axes with bidirectional accuracy of 12.7 micrometer (0.0005 inch). This accuracy is throughout the system's 585 x 408 x 508 mm work envelope, making it ideal for demanding processing requiring validation and reliability.

### LASERDYNE Model 795

The LASERDYNE 795 system is designed to cut, weld, and drill medium to large volume 3D components with a minimum of setups helping to insure part accuracy and minimum total cycle time. Its unique moving beam motion system includes a full complement of LASERDYNE hardware and software features. It is the first and only standard multi-axis laser system guaranteeing volumetric accuracy within this large volume.

The 795 is designed for flexibility of motion and tight tolerances in applications including hole drilling in combustion liners, hydroformed exhaust and heat shield components, nozzle guide vanes and blades; trimming of stamped and spun parts and producing shaped holes for land-based and aero turbine components.

With higher velocity and acceleration, the third generation BeamDirector, called BD3Y, has the exclusive LASERDYNE contouring head design with C (rotary) axis



travel of 900 degrees, and D (tilt) axis travel of 300 degrees. Among its many new features for improved accuracy and repeatability are: higher assist gas pressures, high resolution optical encoders, an adjustable mirror design for easy and accurate beam alignment, and cassette mounted lens and cover slides for quick, accurate changeover.

Like the LASERDYNE 430, the LASERDYNE 795 system includes the LASERDYNE S94P control, which includes a full complement of standard hardware and software features. Additional features include: Automatic Focus Control™, patented Optical Focus Control (OFC), SmartRamp™, Smart Pierce™, Drill At Focus™, Hole Diameter Compensation™, ShapeSoft™, and Breakthrough Detection™, and SPC Data Acquisition.

Accuracy of the new 795 system is certified to ISO 230-1:1996 and 230-2:2006 in accordance with Prima Power Laserdyne standard accuracy and repeatability test procedures. The BD3Y BeamDirector laser contouring head continues to have an industry leading five-year warranty for crash related incidents.

Get ideas and find answers to your laser system requirements and questions at the Prima Power stand at EuroBLECH Booth B64 and B70 in Hall 12. As a world leader in showcasing manufacturing technology show, EuroBLECH will provide a wealth of dedicated and focused platforms.

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## Servo-electric press brake technology

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The eP series press brakes by Prima Power are based on extensive experience in press brakes and servo-electric machine tools for sheet metal working.

The servo-electric technology, thanks to a belt-pulley system for force transmission, provides high dynamics and high accuracy. Rigid O-frame construction ensures excellent control of high beam positioning. The open tooling concept is compatible with all tooling systems in the market. Prima Electro touch screen control is used and a state-of-the-art CNC controller with a powerful CPU and a large touch screen facilitate use.

The eP series is in line with the Prima Power Green Means® philosophy as no hydraulic oil is used and energy consumption is very low.

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## TheSOFTWARE: next to our customers with smart products

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Prima Power presents its comprehensive software family including its newest member Tulus® Power Processing, which is a manufacturing execution system (MES). With Tulus® Power Processing it is possible to control the whole production process from order management, programming and machine time scheduling all the way to the finished product and reporting. The status of the production and the work stage of each part is always known, making the production transparent and easy to manage.

For the programming and control of Prima Power panel bender machines, the new product Tulus® Bend in the Tulus® suite is available together with Master Bend. As it will be demonstrated in Hannover, the machines in the PSBB line are now all managed through the same HMI.

The Operator concept provides first class service and technical support to all Prima Power customers around the world. The Operator collects information of the machine from many sources, e.g. via cameras and remote control, ensuring a wide-range knowledge of the machine throughout its life cycle. The Operator also monitors the machine condition and safety, making sure that the production can run smoothly and uninterrupted.

NC Express e<sup>3</sup> CAM software is developed to get the best performance from Prima Power machines, always proven and tested for Prima Power machines and fully supported by Prima Power. NC Express e<sup>3</sup> CAM software has now a new 3D-model import with a comprehensive support for different CAD file formats. It can unfold the model precisely for further processing on Prima Power Laser, Punch and Combi



machines. Components are nested efficiently with a new high-performance free-form nesting as standard. The proven and tested travel path optimization and post-processing produces reliable and fast NC programs for Prima Power machines. User can verify the NC program with a new simulation module, which shows the actual work path exactly as it is going to run at the machine.

Prima Power will also present Maestro-Libellula® Tube, the new programming system for 2D laser machines with rotary axis for cutting round, square, and rectangular tubes.

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## Prima Power introduces tooling solutions

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Prima Power has introduced an extensive tooling range under its own brand. The standard material used is powder steel with which the average tool life is extended by a fifth compared with traditional material choices. Other standard features include e.g. very strong springs providing more stripping force as often required when processing thick sheets.

There are also several new solutions such as a fast ps:multi-thread tapping unit with six taps and Multi-Tool® MTH-16 with 16 stations.

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