



The Bend
The Combi
The Laser
The Punch
The System
The Software

**Servo electric bending technology
by Prima Power**

Servo electric eP-1030 press brake



Prima Power has been a true pioneer in applying servo electronics in sheet metal working. The first punching machine with the green e-technology was introduced as early as 1998. Today this technology is offered in a wide range of products e.g. stand-alone punching machines, laser combi machines, Shear Genius® machines integrating punching and right angle shearing as well as panel benders.

Prima Power has now applied a servo-electric drive system on the new eP-Series press brake. It is a fast, accurate, non-hydraulic bending solution. The in-

novative machine concept combines productivity, accuracy, flexibility and reliability with high respect to ecological aspects – we call this concept “Green Means®”

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

Model	Press tonnage (t)	Bending length (mm)
eP-0520	55	2040
eP-1030	105	3060



What does Green mean?

Green means a win-win for you and sustainable development.

Sustainability adds to manufacturing efficiency and productivity.

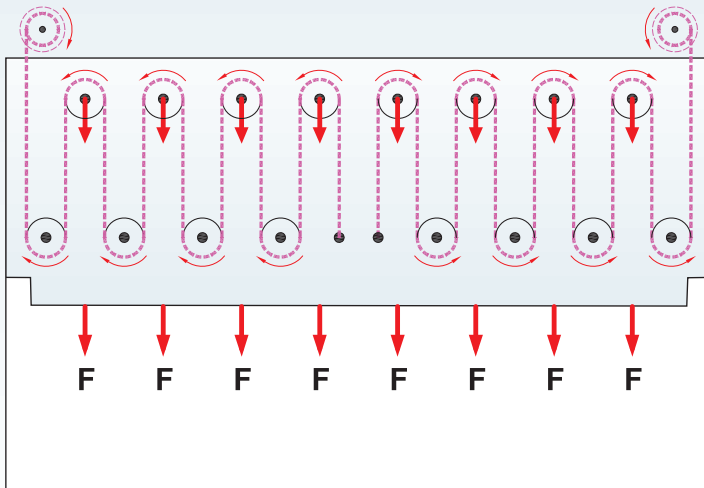
Your customers, your employees and the community you operate in demand it more and more.

Sustainability & social responsibility are characteristics of a modern company and add to competitiveness.

They make a difference between the best and the rest.

And you make better sheet metal components at lower cost.

Design concept



Pulley-belt force transmission

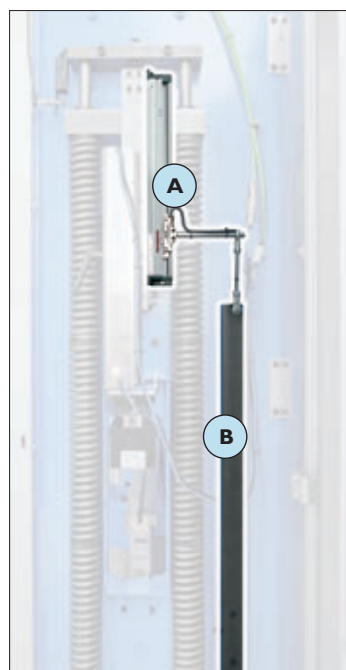
The pulley belt system is actuated by Prima Electro servo drives and distributes the bending force over the whole bending length. The system consists of fixed and moving rolls spread out over the total working length of the upper beam. The belt itself is a steel wire reinforced maintenance free belt. It is not a tooth-belt, nor is the functioning based on friction, but the entire force is transmitted through tension – a simple and reliable solution. Servo motor drives offer superior movement control and accuracy. Thermal influences on precision are eliminated through the absence of oil.

5-year warranty

The steel reinforced belts made of modified polyurethane are extremely flexible, hardwearing and durable. They are virtually corrosion resistant due to their galvanised steel, and their polyurethane coating ensures anti-slip traction and efficient, very smooth running power transmission. In combination with an annual service contract PrimaPower grants a 5-year warranty for the mechanical drive system.

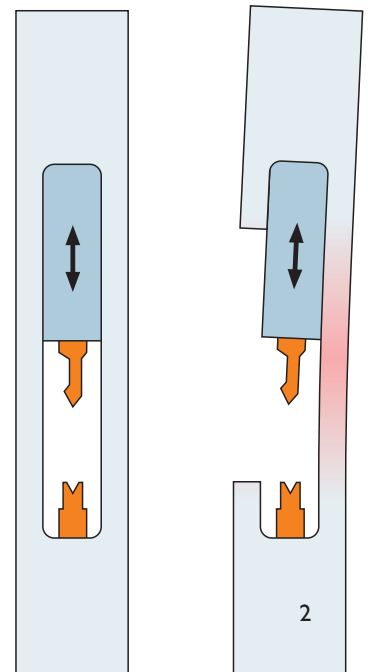
Stable eP-Brake frame

The Prima Power eP-Brake is based on a rigid O-frame. This ensures tool alignment even under stress deformation since there is no horizontal displacement. The position of the upper beam, in relation to the lower beam, is measured by dual Y1 and Y2 linear encoders (A) that are attached independent (B) of the machine frame and are bed referenced. This design isolates ram positioning accuracy from any deflection in the side frames under load and maintains accurate positioning even during off centre bending operations. Ram repeatability on the eP-Series is ± 0.005 mm.



eP brake O-frame

Conventional frame



Ease of programming

The eP-series utilizes the Prima Industrie Group's know-how in control technology and features the Prima Electro Open Control. For maximum processing speed this MSWindows based control has two separate processors, one for real time operations and one for bending application tasks.

An operator friendly 17" Touch Screen user interface leads to a significant improvement of data input rates and a considerable reduction in programming time. 2D graphical programming with automatic bending sequencing will assist in making even first time operators productive.

The Prima Electro Open Control has a big hard disc, two USB ports, a network connection and it offers access to all control functions over teleservice.

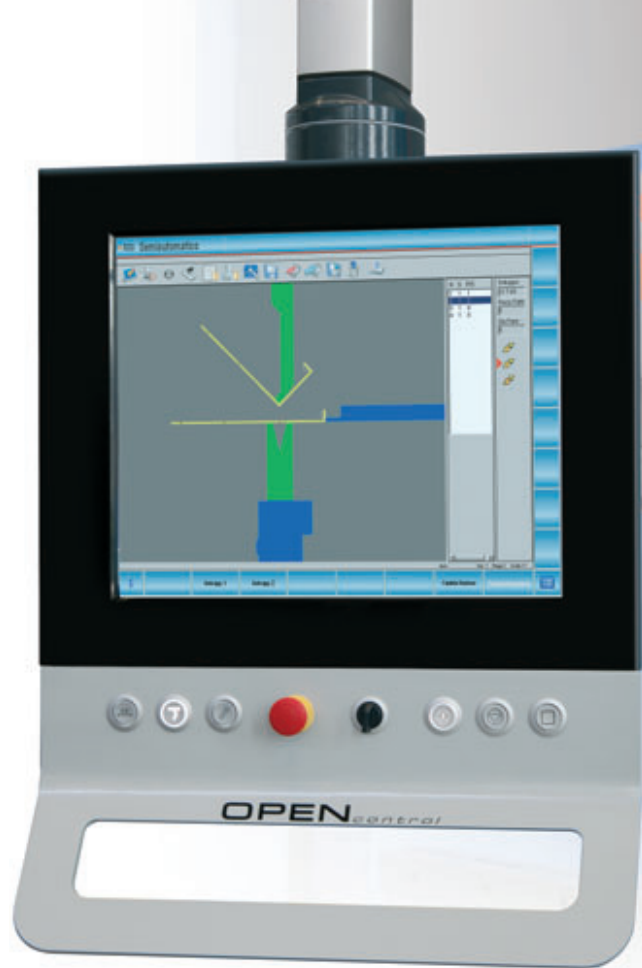
Most bending applications are easily programmed by using the 2D graphical on-line programming with auto sequencing. As the demands may change in the course of time one may face the necessity of 3D off-line programming and 3D visualization of the parts in the machine control. The Prima Electro Open Control can at any time easily be SW-upgraded to meet this requirement.

AutoPOL off-line programming

AutoPOL is an easy-to-use and effective tool for off-line programming of Prima Power eP-Brakes. Sophisticated bending simulation makes it possible to shorten set-up times and to ensure already in the office that the bending task can be performed.

3D models can be created with AutoPOL's designer program or they can be imported in 2D and 3D-format from practically any CAD program. AutoPOL's bend allowance algorithm takes into account also bending tools to obtain correct radii and thus correct unfolding dimensions. The 2D unfold pattern can be exported as a DXF file to be used in programming punching and cutting machines.

AutoPOL includes a **3D designer** for designing of sheet metal parts, 2D and 3D file import functions, an **Unfolder** for automatic flat part calculation and a **Bend Simulator** for graphical programming and simulation.

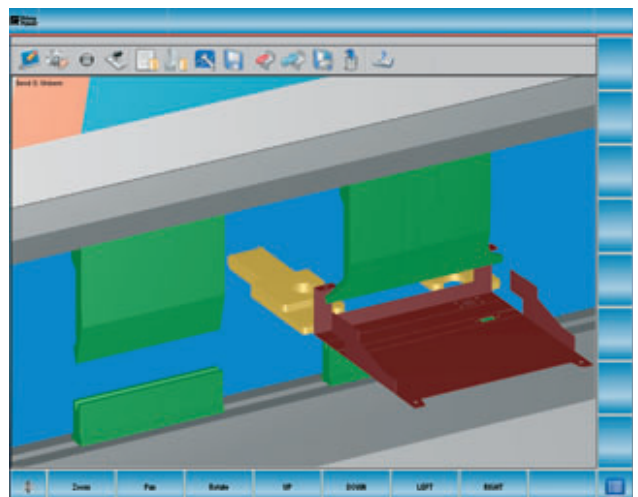


2D programming with automatic bending sequencing

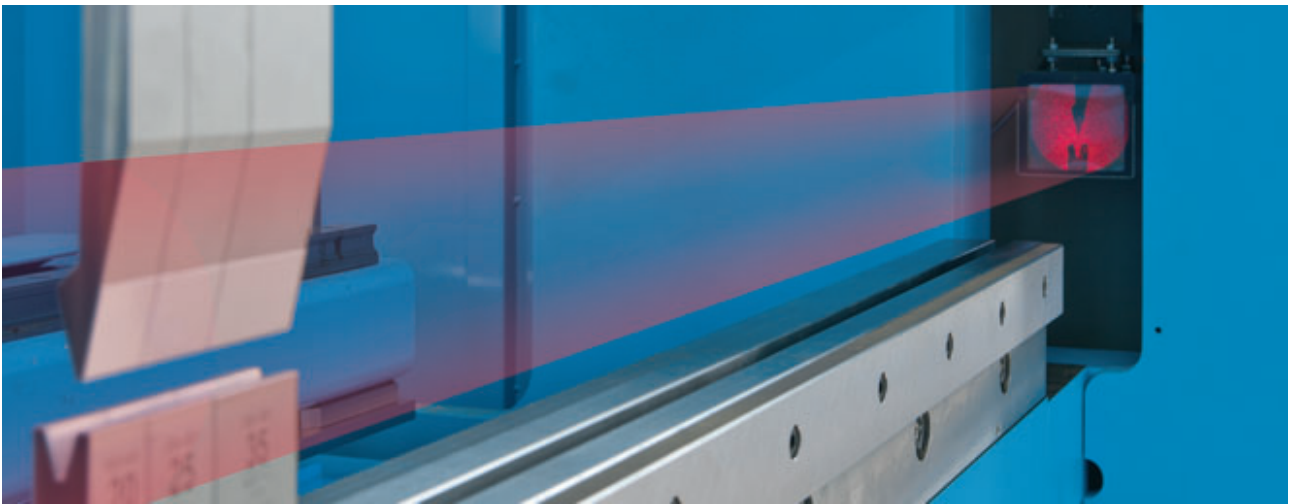


Auto-Pol off-line programming

OPEN control 3D visualization of off-line programs



The state of the art in combining safety and productivity



The "Block Laser" safety equipment by Lazer Safe represents the most advanced safety solution for press brakes in terms of productivity and protection level. Its unique features increase the competitiveness of the eP-Brake:

- Speed change at 2 mm above material
- Allows the operator to safely work close to the tools without interrupting high approaching speed
- Tool crash protection
- Box mode to achieve complex shapes with no compromise to speed
- Fully integrated in the control; different operating modes selectable bend by bend (stop at mute - auto mute - box flange height)
- Automatic alignment function in relation to tooling
- Fast removal with automatic repositioning for lateral tool changing

Angle measurement option

Angle measuring

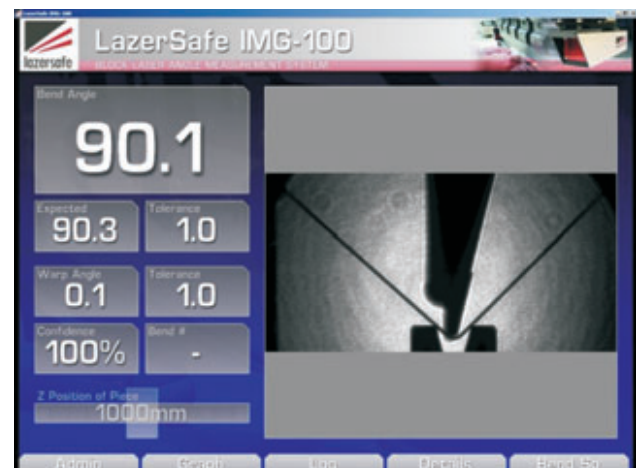
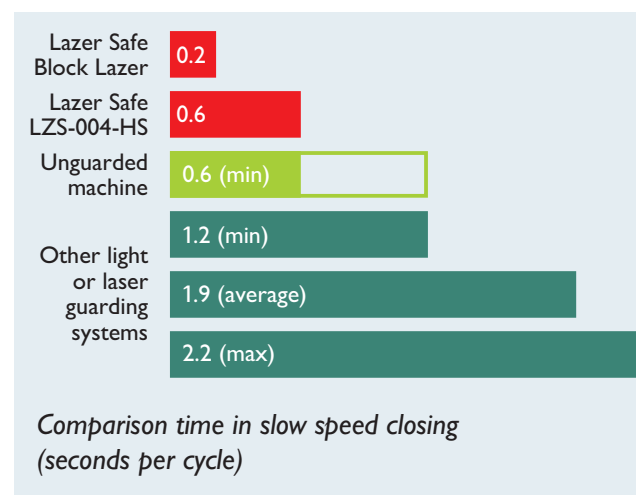
Outstanding precision is one of the most characteristic features of the Prima Power eP-series brakes. However, variations in sheet metal material can negatively affect work piece quality.

The "Block Laser" can be equipped with the IMG 100 angle measurement option; high speed digital image processing technology to measure the angle of the formed work piece on every cycle.

The integration into Prima Electro Open Control allows automatic correction of the bend program. The image measuring takes into consideration:

- Variation in thickness
- Deviation in ram positioning
- Tolerances in tool geometry
- Rolling direction

Block-lazer to maximize safety, productivity and tool crash protection



IMG 100 angle measurement.

For spring back calculation the control has a sophisticated algorithm as well as the possibility of using a customer specific data base.

Front and back of the eP-Brake

Apart of its outstanding rigidity and stress behaviour the O-frame construction offers big advantages in terms of flexibility. The uprights being mounted outside the bending length, there is no throat limitations for long parts that is typical with C-frame structures; distance between uprights = maximum bending length! In addition the back gauge system can be used effectively over the whole bending length.

A programmable dual drive back gauge is standard on all eP-Series press brakes. Two rigid fingers are provided with manual adjustment along the length of the gauge via linear-guides. Three stops are available to maximize the target surface for the operator and to extend the back gauge range while providing material support for deep flanges.

For higher flexibility and productivity the standard BG2 can be equipped with CNC controlled:

- Z1- and Z2-axis for side movement of the fingers
- Relative X-movement, X1, to program a different depth position for one finger
- 6-axis tower back gauge for the most complicated parts

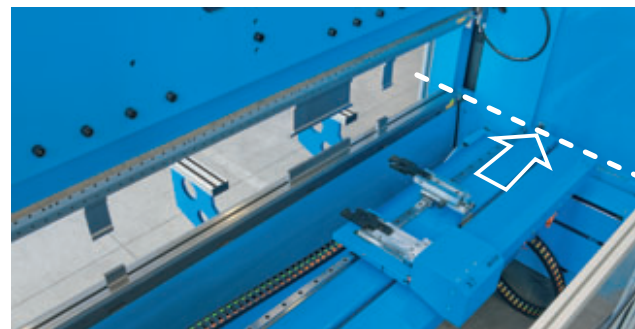
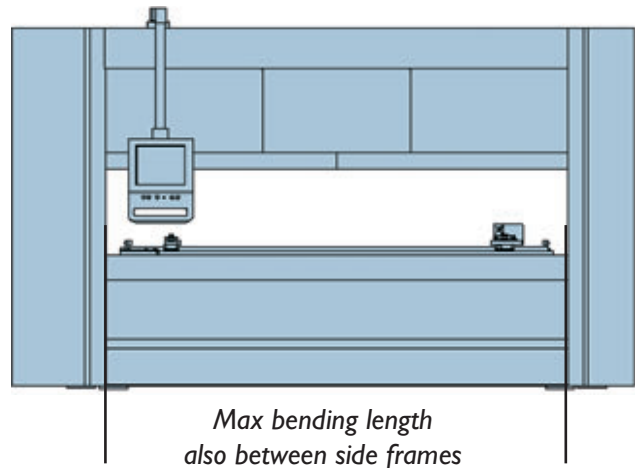
The eP-Series press brakes come with heavy duty front supports. They can optionally be mounted on linear guides and equipped with spring-aided, key-less height adjustment mechanism.

Positioning big parts is often difficult and wrong timing in supporting the part during bending causes angle deviations.

With Prima Power AQ -bending follower these bending applications can easily be mastered by any operator. A second operator is no more needed.

Accurate tools and good clamping system are fundamentals for correct angles. Prima Power recommends Wila tooling system which features several advantages:

- Quick fastening with patented safety click system
- Interchangeable high precision tools
- Tools can be installed in any position of the beam regardless of tool width (no shimming)
- Fastening mechanism both centralizes and straightens the tools automatically
- Horizontal reverse is possible because the adaptation is symmetrical to the center line
- Hydraulic clamping system is available for the shortest possible setups



Gauging over the whole bending length.

Relative X1-axis for gauging of e.g. conic parts.



Heavy duty front supports, 150 kg payload each

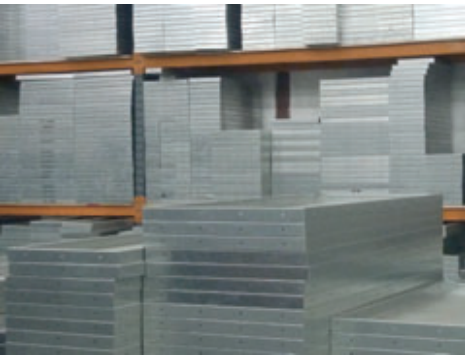


AQ bending follower



Wila quick clamping tooling system.

Maximum productivity



The eP-Brake features the advantages of high acceleration, deceleration and fast response times of the servo electric drive system. Compared to conventional brakes considerable productivity increase can be reached; reduction of cycle times by up to 30 % and more is the reality.

Working speed is programmable to ensure bending is made without loss of product quality or operator safety. Lazer Safe's "Block Laser" system provides safe high speed closing down to just 2mm. Compared with other guarding systems or even unguarded machines the block laser system can save up to 2 or more seconds per cycle. Fast positioning speeds ensure the back gauge will be ready when the part is presented for each operation.



eP-Brake green means in a nut shell

The Profit



Energy saving

- 50 % lower consumption than hydraulic brakes on an average

Productivity

- Thanks to the high dynamic electro mechanic drive system and "Block Laser" safety 30 % shorter cycle times on an average
- Quick change tooling systems, sophisticated on- and off-line programming possibilities and intuitive touch screen machine interface guarantee short set-up times
- High reliability thanks to missing hydraulics

Part quality

- High repeating accuracy due to
- Rigid O-frame construction
- Servo electrically driven upper beam
- Absence of thermal influence of hydraulic oil
- Sophisticated tooling systems

Low maintenance cost

- Fewer critical components than in hydraulic machine

The Footprint

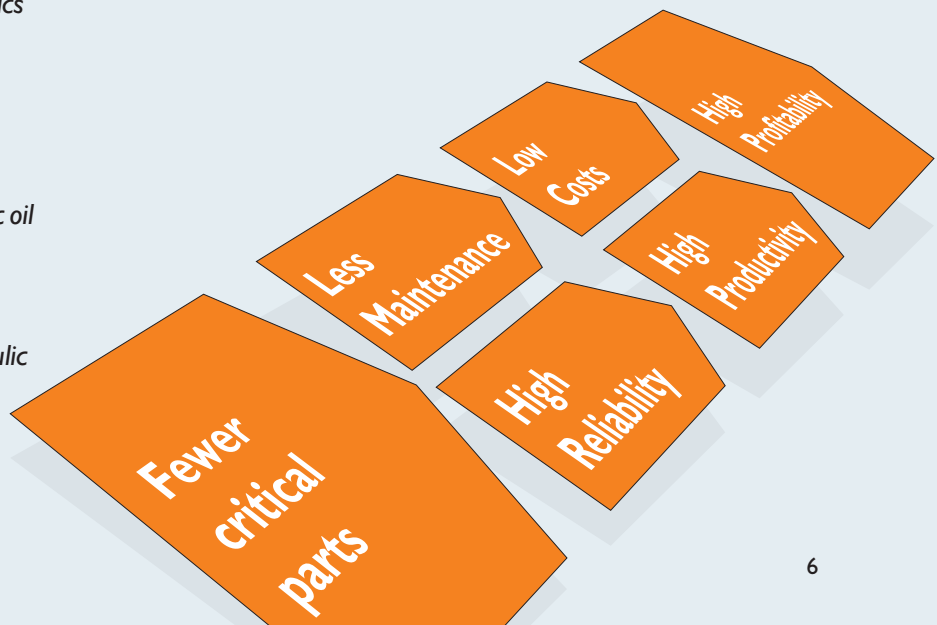


Less energy and waste of material
= less CO₂

No hydraulic oil
= no hazardous waste

Easy programming and high accuracy
= less waste parts

Higher productivity
= less machinery for the same production



primapower.com

