



GASPARINI

Shaping your ideas

BENDING TECHNOLOGIES

Catalogue 2021



**40 years
of knowledge.**

**40 years
of excellence.**





Shaping your ideas.

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Sheet metal forming

www.gasparini.com



THE COMPANY

Gasparini Industries.

We work every day to give a new shape to the future.

Operators and skilled technicians allow for maximum customization and an effective assistance, guaranteeing **performance**, **quality** and **service**.

2 product platforms

press brakes and hydraulic shears

8.000 +

machines installed worldwide

10.000 m²

production site

2.400 m²

offices

700 m²

showroom

VISION & MISSION

Experience and passion.
We turn your ideas into reality.

We aim at making bending and cutting sheet metal a quick, precise and reliable process.

We try to make our Clients more productive and competitive.

We aim to become the constant point of reference in the theory and practice of press braking and shearing.

*We don't offer plain machines.
We study solutions to provide
the best answer to everyone.*



> ECOLOGY

Gasparini has always respected ecological principles and was among the first to employ special water-based paints and steam washing machines for cleaning and degreasing instead of common chemical products.

Gasparini has always been complying with the laws for environment protection, developing a production system with respect for ecology.

> RESEARCH

Thanks to its constant engineering research, Gasparini is qualified as a Research Laboratory by the MIUR (Ministry of Education, University and Research).

> PATENTS

- Gasparini real-time adaptive crowning
- GPS4 spring-back correction and angle measurement system
- Gasparini pneumatic clamping and AirSlide tool adapters for quick setup

> QUALITY

The quality of Gasparini products is granted by the permanent research and development activity for product's innovation and operator's safety.





X-Press Press Brake

GASPARINI | BENDING TECHNOLOGIES 2021

- > Form boxes with sides exceeding 150 mm > [Increased open height](#)
- > Extract bent pieces easily > [Increased stroke](#)
- > Design

- > Change punches and dies quickly > [Pneumatic clamping](#)
- > Move tool adapters faster > [Hydraulic clamping](#)

- > Work with small batches or different materials without samples
- > Get precise angles and correct springback > [GPS4](#)
- > Perfect bends even on the thickest plates > [LaserCheck](#)
- > Measure and correct angles easily > [Wireless protractor](#)

- > Bend pieces of different length > [Backgauges with Z1-Z2 axes](#)
- > Make conical bends up to 80° > [Backgauges with X5 and X6 axes](#)
- > Work with the utmost robustness and flexibility > [Tower backgauge](#)
- > Bend without backgauges > [Laserline](#)

- > Use dies with different heights > [Sliding front supports Plus](#)
- > Bend long, thin, or delicate pieces safely > [Sheet lifters](#)

- > Get the same angle on short and long pieces > [Reflex](#)
- > Get the same angle on the center and on the ends with no canoe effect > [Gasparini Adaptive Crowning](#)

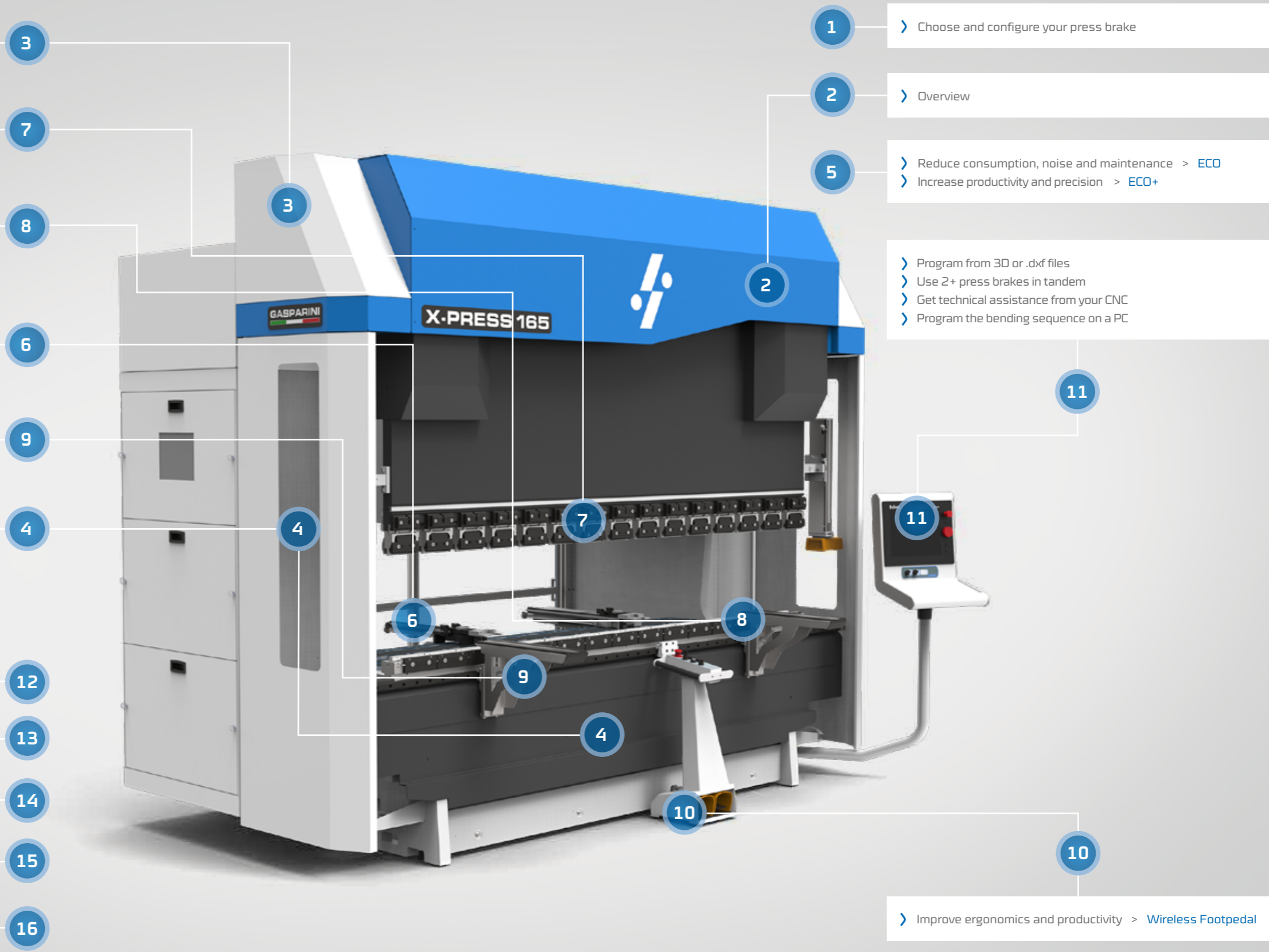
- > Easier positioning of tools and operator > [Drive Bar](#)

- > Bend very long pieces while doubling your capacity > [Tandem](#)

- > Automate your production > [Automated lines and robotic cells](#)

- > Adapt the die opening via CNC > [Matrix](#)

- > Access the most common functions via remote control > [Syner-G](#)
- > Manage parts and programs online > [Barcode reader](#)



- > Choose and configure your press brake

- > Overview

- > Reduce consumption, noise and maintenance > [ECO](#)
- > Increase productivity and precision > [ECO+](#)

- > Program from 3D or .dxf files
- > Use 2+ press brakes in tandem
- > Get technical assistance from your CNC
- > Program the bending sequence on a PC

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- > Improve ergonomics and productivity > [Wireless Footpedal](#)

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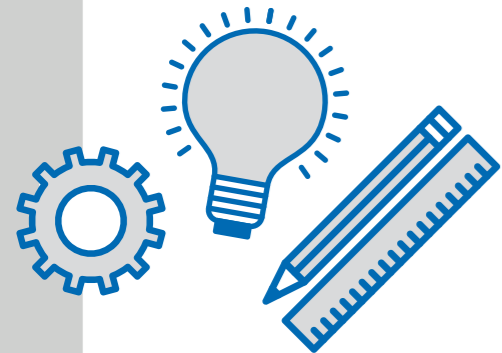
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CHOOSE AND CONFIGURE YOUR PRESS BRAKE



Your business takes a new twist.

Finally a press brake tailored to your needs.

1 LENGTH

It varies according to the maximum dimensions of the part.

2 TONNAGE

It depends on the material and its thickness; hemming requires a higher tonnage.

3 OPEN HEIGHT

The open height is the opening between bench and ram. An increased open height allows to form boxes without the need for special punches.

4 STROKE

An increased stroke allows for easier extraction of formed parts.

5 THROAT

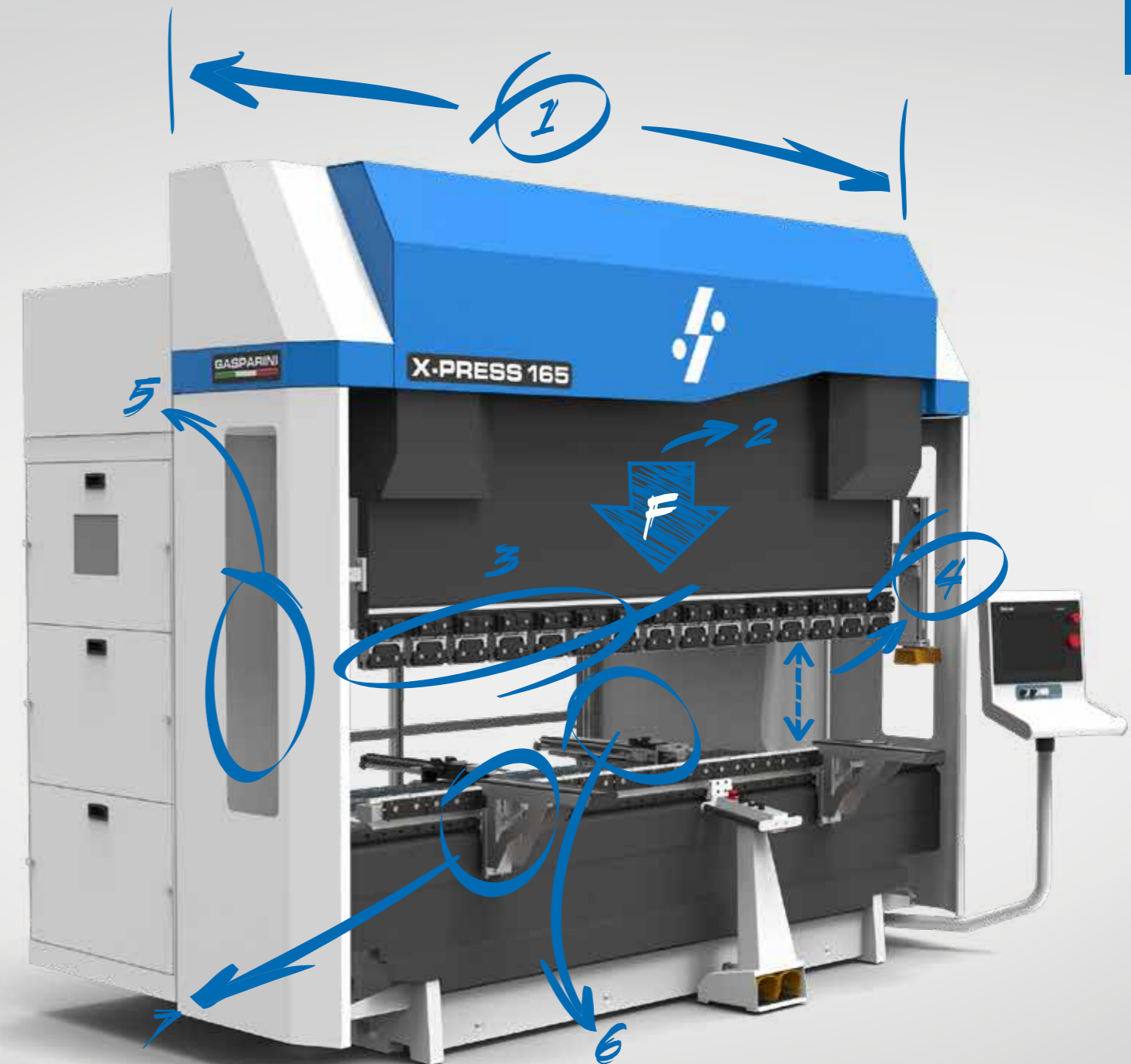
It varies according to machine size. Increased throat is useful for lateral extraction, as well as for tandem machines.

6 BACK GAUGES

As well as the basic axis X+R, we can add Z1+Z2 axis for very long pieces; X5 and X6 axis are used to make conical bends. An increased number of axis allows for more flexibility on conical or complex bends. Tower backgauge is the stronger and most powerful solution.

7 FRONT SUPPORTS AND SHEET LIFTERS

Useful to protect and support the sheet, with hemming bench, or with very large pieces.



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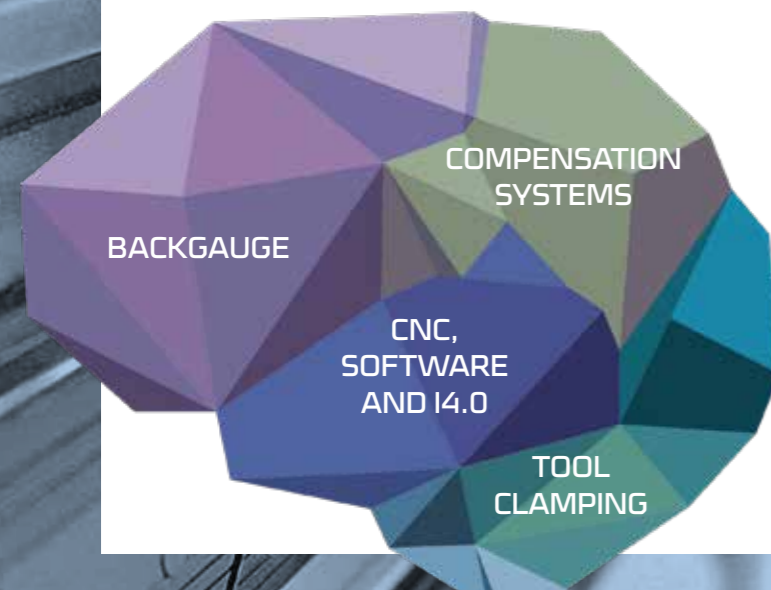
X-PRESS PRESS BRAKES

X-Press hydraulic press brake renovates its structure, its accessories and its design.

X-Press is now available in three trims: Easy, Next, and SuperCustom. These three configurations may be customised according to the final product, manufacturing flexibility, and ease of tool change.

The X-Press press brakes can be produced in any bending force and with any length. Our productive structure in Istrana (Treviso, Italy) allows us to make even exceptionally powerful and big machines. Press brakes can be configured as stand-alone, or in tandem/tridem/quadrem and integrated in a robotic cell or automated line.

Our machines have been certified as compliant to Industry 4.0 guidelines by the Polo Tecnologico di Pordenone (Pordenone Technology Hub).



Four elements,
new forms of intelligence.

Design and production
made in Gasparini.

X-Press Easy

- + Easy to use
- + Perfect for most parts
- + Custom work area
- + Proportional crowning by default
- + ECO energy saving system
- + Simplified option list
- + X-R 2-axes backgauge
- + Delem DA-58T CNC with 15" touchscreen



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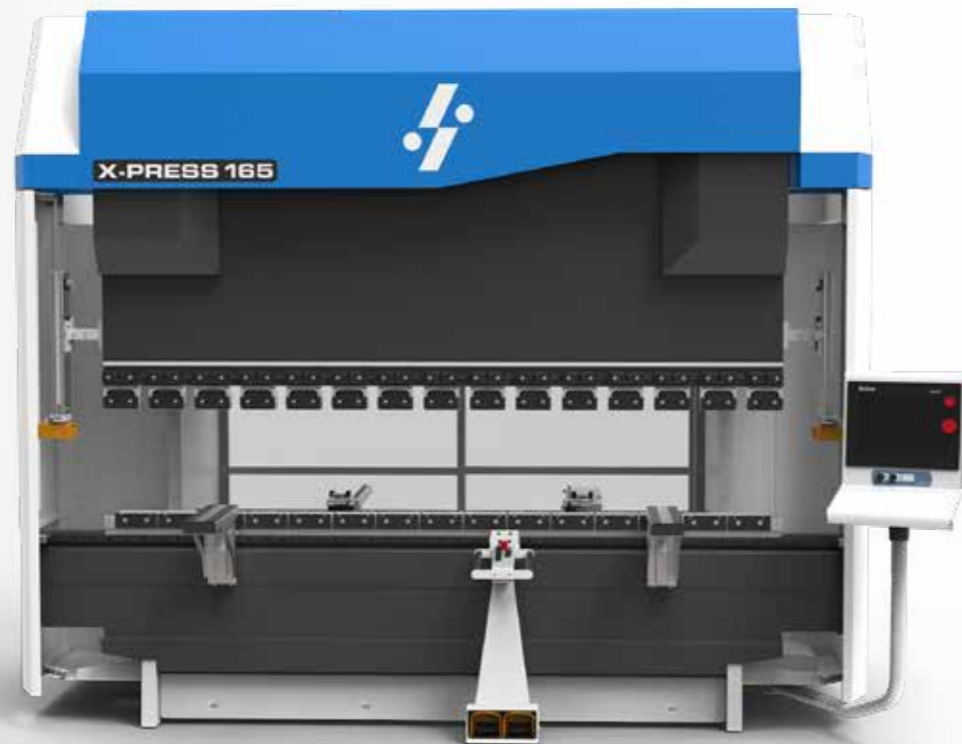
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X-Press Next

- + Perfect machine to increase production efficiency
- + Allows complex processes
- + Custom work area
- + Proportional crowning by default, or Gasparini Adaptive Crowning as an option
- + Several energy saving systems
- + Complete option list
- + Delem DA-66T/69T CNC
- + Compliant with Industry 4.0 guidelines



X-Press SuperCustom

- + Completely made to measure in daylight, stroke, throat, and tool adapters height
- + Complete option list
- + Frame dimensioned with FEM analysis
- + Perfect for making deep boxes, tanks and large sinks



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FRAME

A welded and milled frame, made of high-resistance steel, ensures the highest precision.



Frame is designed and sized using Finite Element Analysis (FEA).



It is made of welded elements, processed with CNC milling machinery, to ensure maximum construction precision.



Machining accuracy is ensured by controls under quality certifications on all construction and designing steps. Special oversized machines are designed and made to measure with additional attention.



We only use welded steel with high tensile strength and stiffness. Upon request, we can check all welds with advanced non-destructive analysis, such as magnetoscopic testing and ultrasounds.



Integrate all the components of the machine



Provide strength and stiffness to ensure precision

THE SUPPORTING FRAME

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> COMPENSATION SYSTEMS

Different parts, variable materials, constant angles.

All systems based on statistical deformations are inaccurate by nature. Each type of material, due to its own characteristics and conditions, behaves differently during the bending process. That is why it is almost impossible to foresee all the possible reactions involved while maintaining maximum precision.



We measure and counteract deflections in real time.

REFLEX

the proportional compensation system

GASPARINI ADAPTIVE CROWNING

the active real-time crowning system

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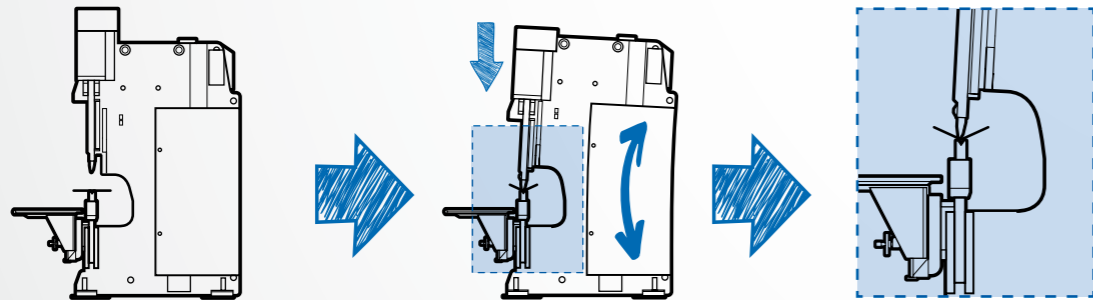
Reflex

Patented proportional frame deformation correction system.

During the bending process, the side frames are subject to strong forces that cause deformation in the throat area. This effect results in the top beam moving away from the lower beam, compromising the accuracy of the control systems. Frame deformation is a physical phenomenon that cannot be avoided. Only a machine equipped with a compensation system can overcome and correct this problem.

Reflex controls the deformation of the side frames thanks to a network of sensors in the machine and its hydraulic circuit. This error is measured and compared with the ram position encoder and oil pressure. This way we can determine the real height of the punch tip, regardless of frame deflections.

Whatever the part length, thickness variations, part positioning, and sheet metal characteristics, the ram position is always under control during the bending process to guarantee angle repeatability.



Measure the frame deformation



Guarantee uniform angles over the entire length

**EFFECTIVE ON EACH
AND EVERY PIECE**

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Gasparini Adaptive Crowning

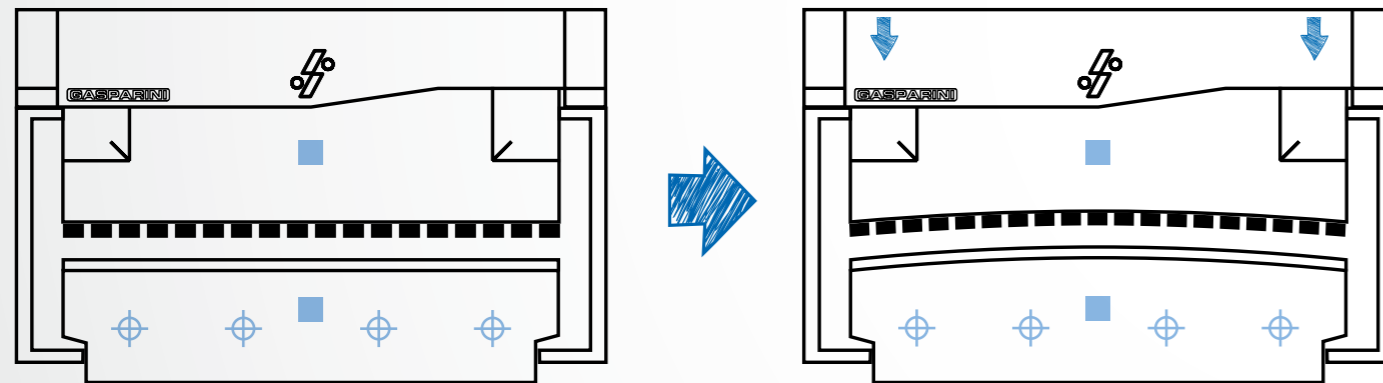
The only patented active crowning system for a constant angle.

The heart of our Adaptive Crowning system lies in the two sensors placed on the ram and on the lower beam of the machine. The former detects deformation of the ram since the beginning of the bending process. The CNC drives the cylinders in the lower beam until the reading of the latter sensor equals the former. This way, the two beams are completely parallel.

The result is complete control at maximum precision and absolute repeatability, with any material.

You don't have to set any value: the machine reads it from its sensors.

The material may change completely from one piece to another, and the press brake will always react in the best way.



Gasparini Adaptive Crowning Plus

In this configuration, we have a pressurized oil reservoir, charged when the press brake is not active. When bending, the system therefore already has a spare volume of oil, ready to be used. Crowning starts instantly, reducing idle times and lowering motor and pump stress. Also power consumption is reduced, because the oil reservoir enables a smaller pump that can run at reduced power.

Gasparini Adaptive Crowning Plus is a [patented system](#), a result of Gasparini's research and development.

CONTROL OF THE
MACHINE DEFORMATION
IN REAL TIME

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ENERGY EFFICIENCY

Three innovative solutions to reduce waste and increase productivity.

The ECO concept has a double value: **economy** to optimize the usage of company resources; **ecology** to take care of the environment for a better future. The ECO+ option includes Gasparini Adaptive Crowning Plus.



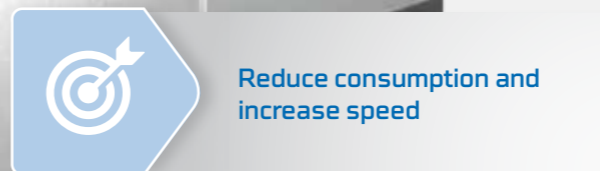
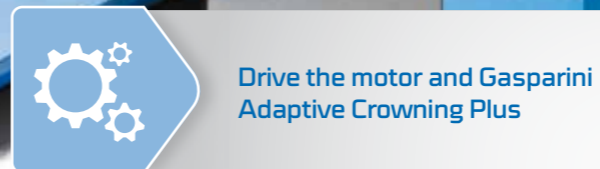
- + RESPECT FOR THE ENVIRONMENT
- + ENERGY SAVING
- + SPEED
- + REDUCED NOISE
- + LESS MAINTENANCE
- + LESS WASTE
- + EXTREME PRECISION
- + REPEATABILITY

ECO

includes the inverter drive for the main motor. It can be equipped with the Gasparini Adaptive Crowning, powered by the main hydraulic circuit.

ECO+

in addition to the inverter drive, it includes the Gasparini Adaptive Crowning Plus. This version consists of a dedicated hydraulic section (motor, pump, pressurized tank) able to provide a faster response with lower power consumption.



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ON DEMAND

› POWER ONLY WHEN YOU NEED IT

The motor is controlled by an inverter, which is only activated when the machine is operating, always and only delivering the power requested by the bending process. When the machine is idle, the pump is stopped so that energy consumption and oil stress are greatly reduced.



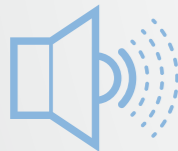
› SAME JOB, 50% LESS ENERGY

The ECO system permits a more rational and efficient use of energy, with a saving of up to 50% compared to the standard version. Gasparini Adaptive Crowning Plus, fast and precise, is only available in the ECO+ package.



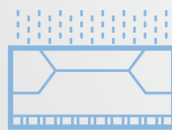
› LESS WASTE, LESS MAINTENANCE

Reduced maximum oil temperature means less energy usage, increased oil and pump life, and less maintenance costs.



› LESS NOISE: < 63 dBa

Noise level on the operator side never exceeds 63 dBa: as much as a normal conversation, less than a vacuum cleaner.



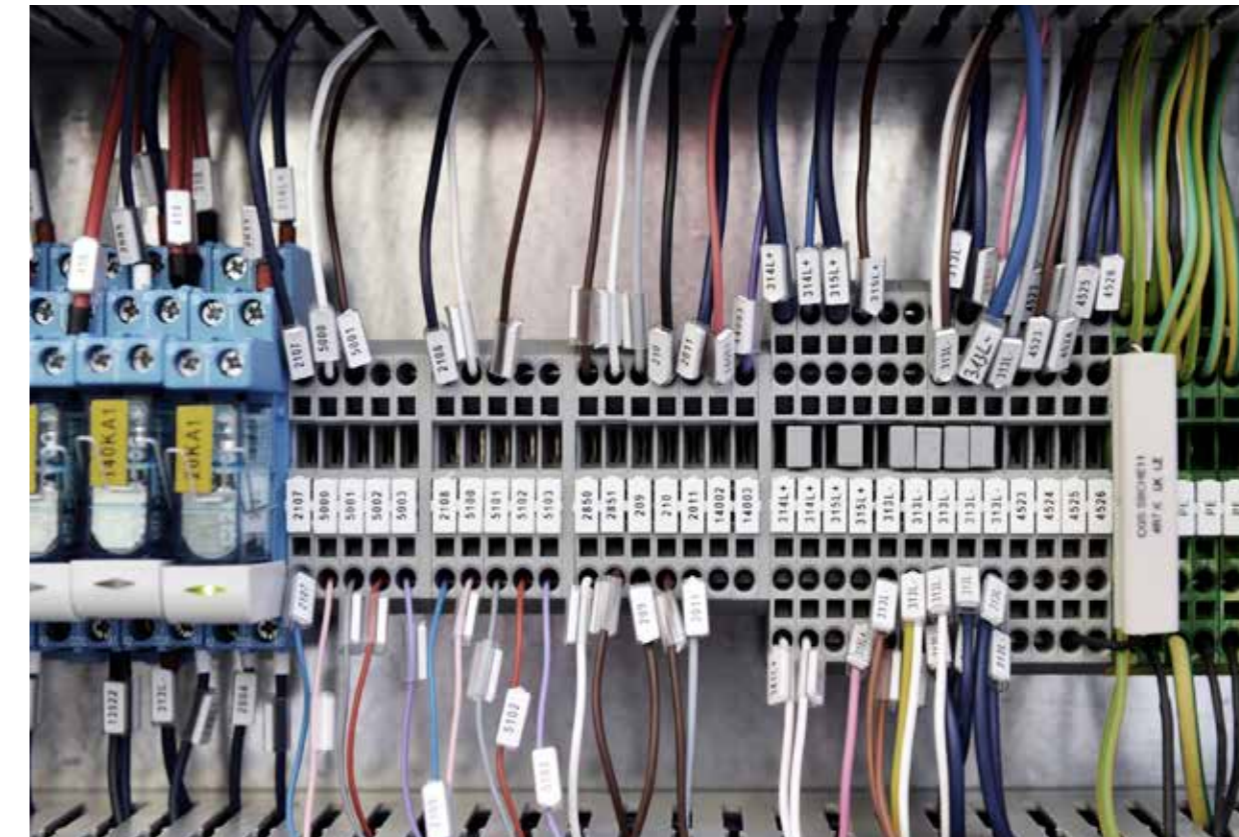
› MORE SPEED: 230 MM/S

The new X-Press ECO sets a new industry record with approaching and return speeds of up to 230 mm/s.

Stand-By

In traditional hydraulic circuits, the motor and the pump **are continuously rotating** even while the ram is still. As a result, electricity is wasted and hydraulic oil is overheated, increasing operating and maintenance costs.

The simplest solution is the **Stand-by system**: a device monitors machine activity and **switches off the motor** after a **certain period of inactivity**. As soon as you start working again, the hydraulic circuit is immediately back in operation.



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BACKGAUGE

Two main CNC-controlled backgauge models; both are synonymous of robustness, accuracy and speed.

SPEED

Movements are carried out through expandable and flexible EtherCAT digital servodrives. Motors and drivers are manufactured by Panasonic Electric Works, who developed their application in cooperation with Gasparini.

PRECISION

Double recirculating ball linear bearing with rack-and-pinion movement and no mechanical play ensure high and constant precision.

FLEXIBILITY

The type of backstops and number of axes can be adapted to the type of process, part size, and number of working stations.



Position the piece to bend in the desired place



Bend profiles, boxes, pipes and any other product

Range

1500 t

400 t

330 t

275 t

225 t

165 t

115 t

80 t

50 t

30 t

	GASPARINI BACKGAUGE	TOWER BACKGAUGE
1500 t		
400 t	<p>4 axis: Y1 - Y2 - X - R</p>	
330 t	<p>6 axis: Y1 - Y2 - X - R - Z1 - Z2</p>	
275 t		
225 t	<p>7 axis: Y1 - Y2 - X - R - Z1 - Z2 - X5</p>	
165 t		
115 t	<p>8 axis: Y1 - Y2 - X - R - Z1 - Z2 - X5 - X6</p>	
80 t		
50 t		<p>8 axis: completely independent</p>
30 t		



Gasparini Backgauge

Greater efficiency, high precision, easy positioning of the pieces.

Standard configuration includes X and R axes (depth and height), and is equipped with 2 or more manual backstops. The Gasparini Backgauge system is expandable also on existing press brakes and covers all combinations from 2 to 6 axes.

SAFETY

Backstops have an integrated anti-collision safety feature. Thanks to the Anti-collision System, the back gauge punch is unlocked in the event of shocks that could damage it or even make it lose its position. In this case, the operator can easily put the gauge back in its seat.

PROTECTION

With the Thin-support system (optional retractile back supports) even thinner sheets are always correctly positioned and guided.

VERSATILITY

Adding Z1-Z2 axes, backstops can be moved crosswise to simplify positioning of parts with different lengths or when working on multiple stations.

Should our part have offset or staggered resting points, you can add one backstop with an independent stroke with the X6 axis. By adding this axis, it is also possible to make conical bends up to 75°. In this case, shaped fingers provide three reliable resting points, to get a correct angle and bend position. To reach maximum versatility you can automate both backstops with X5-X6 axes, reaching an angle of 80° on oblique bends.

- + High speed
- + High precision and reliability
- + Brushless motors
- + Movement of axes on recirculating ball linear bearing, with hardened rack and pinion
- + Z-Axis movement on recirculating ball linear bearing, with hardened and precision-ground rack and pinion
- + Conical bends up to 80°
- + Less noise, longer lifespan and better accuracy

VERSATILE,
FAST, ACCURATE

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X AXIS

Stroke	600 mm
Maximum distance between bending line and backstop	800 mm
Speed	500 mm/s
Accuracy	up to $\pm 0,05$ mm
Repeatability	up to $\pm 0,02$ mm

R AXIS

Stroke	250 mm
Speed	250 mm/s
Accuracy	$\pm 0,1$ mm
Repeatability	$\pm 0,05$ mm

Z1-Z2 AXES

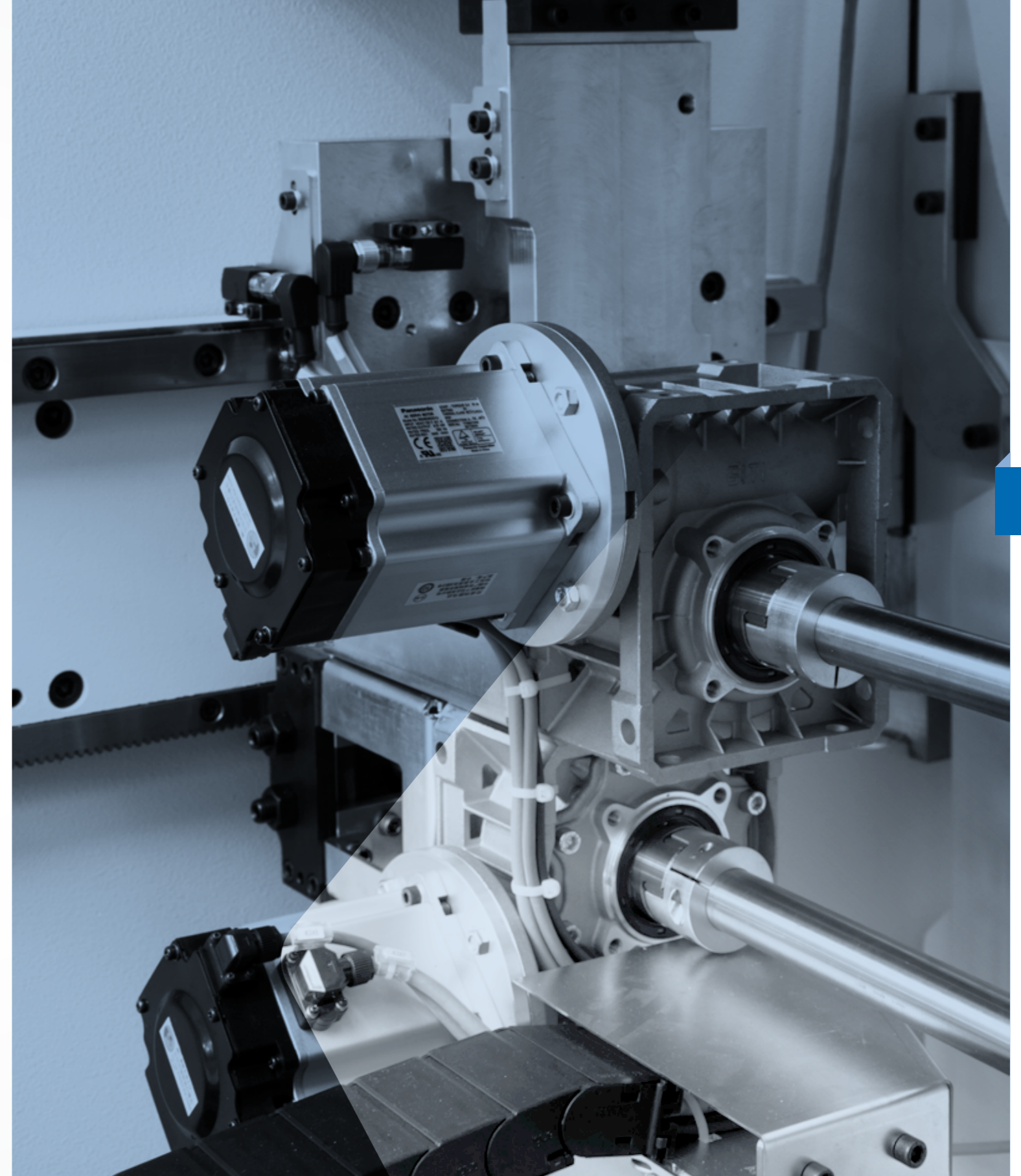
Speed	1600 mm/s
Accuracy	up to $\pm 0,25$ mm
Repeatability	$\pm 0,15$ mm

X5 AXIS

Stroke	± 150 mm
Speed	125 mm/s
Accuracy	$\pm 0,1$ mm
Repeatability	$\pm 0,05$ mm
Maximum conical angle	75°

X5-X6 AXES

Stroke	± 150 mm
Speed	125 mm/s
Accuracy	$\pm 0,1$ mm
Ripetibilità	$\pm 0,05$ mm
Maximum conical angle with X5-X6	80°



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Tower Backgauge

For parts you can't afford to get wrong, the most advanced backgauge ever.

In order to assure this level of performance, the backgauges are designed and manufactured with high technology, sophisticated and reliable components, providing a wide handling range, an easy oblique positioning, a very high precision and the possibility to integrate back sheet lifters.

The Tower back gauge series consists of two or more trolleys, each equipped with 3 axes (X-R-Z), which are moved by linear guides, ball screws and AC brushless motors. This configuration with independent trolleys and axes enable any kind of positioning, does not limit any kind of inclination or conical bending, and furthermore allows the operator to make a large variety of movements within the machine itself.

- + High flexibility
- + X1-X2-R1-R2-Z1-Z2
- + Independent axes
- + Increased X-axis stroke

FEATURE	VALUE
Standard X axis stroke	up to 950 mm
X axis speed	600 mm/s
X axis accuracy	±0,1 mm
X axis repeatability	±0,02 mm
Standard R axis stroke	300 mm
R axis speed	200 mm/s
R axis accuracy	±0,1 mm
R axis repeatability	±0,05 mm
Z axis speed	560 mm/s
Z axis accuracy	±0,02 mm
Z axis repeatability	±0,01 mm

SUITABLE FOR
HEAVY PROCESSING

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LaserLine

Bend without backgauges for multi-step bending and bumping.

It stems from the need of some customers to perform the so-called "bending by marking", a bend without the aid of back gauges; the typical case of the [multi-step bending \(bump bending\)](#).

The Laserline allows you to check that the metal sheet is in the correct position for the bend. It can also be applied in machines already installed, depending on the CNC version.



CONICAL BENDS
MADE EASIER

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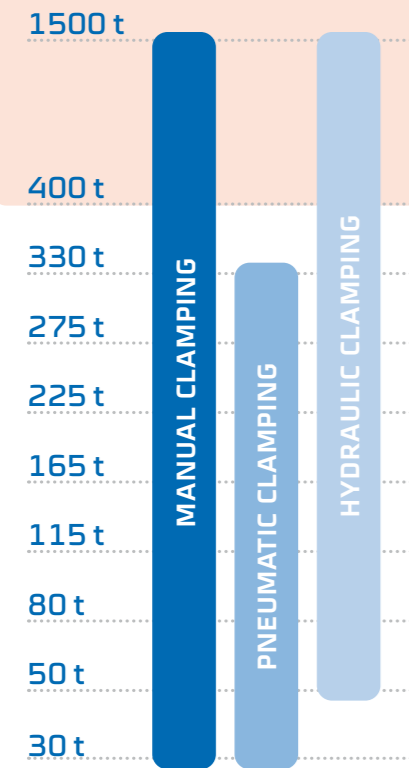


TOOL CLAMPING

Reduce setup time by up to 80%.

Gasparini designs and manufactures a wide range of clamping systems for dies, punches and tool adapters. Thanks to Gasparini's know-how, customers' needs are translated into systems that increase bending efficiency.

* Tonnage not recommended on European-style tooling (Promecam)



Gasparini press brakes can equally use **long type tools** (i.e. Wila, Beyeler, LVD, Gasparini, etc.) fitted straight on the ram and **short type tools** (i.e. Promecam, etc.) fitted on the tool adapter.

	EUROPEAN (PROMECAM)	WILA	GASPARINI	COLGAR-LVD BEYELER
PNEUMATIC CLAMPING	only with adapters	stand-alone	stand-alone	not available
HYDRAULIC CLAMPING	not available	stand-alone	stand-alone	only with adapters
MANUAL CLAMPING	stand-alone and with adapters	stand-alone	stand-alone and with adapters	stand-alone and with adapters



Clamp punches and dies



Quickly change tools and hold them firmly

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Pneumatic clamping

Gasparini Pneumatic Clamping

The Gasparini upper self-aligning pneumatic tools clamping with intermediate, is suitable for European type tools. Gasparini clamp allows the tools to be inserted and removed safely from the front of the machine in a vertical manner. Tools are automatically aligned, seated and clamped, reducing changing time and significantly increasing productivity.

The Gasparini Pneumatic Clamping system also allows the usage of punches in a reversed position, using a rear plate that can be activated from the front of the machine. Pneumatic clamping cannot be used above a certain tool weight or a maximum tonnage per meter.

AirSlide pneumatic sliding tool adapters

AirSlide, the new patented pneumatic sliding tool adapters, are a revolution in the world of press brake tool clamping. An innovative compressed air distribution system allows you to move them along the entire length of the ram in any position.

There is no air piping or other connections to be set. You can position them in the desired point, with just the push of a finger: you don't need any tools and there are no idle times. Tool adapters can be removed or added in any combination, with no air leaks. Moreover, they're self-aligning: when hydraulic clamping is activated, adapters are immediately seated on the ram. No test bends are needed to align the elements.

- + no connection pipes, not even on the clamps
- + can be moved anywhere on the ram
- + no special tools needed, just a finger
- + no unproductive setup times
- + can be added or removed in any combination
- + with hydraulic clamping, no preparatory bends are needed to rest the punches



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Hydraulic clamping

The hydraulic clamping system is used in **large size machines** and high bending forces, or with long tools that do not need tool adapters.

The system achieves **high locking strengths** and, **acting over large surfaces**, needs low pressure and thereby guarantees a longer life for the system. The clamps allow the rapid and precise locking of the tool, guaranteeing perfect alignment even in the case of segmented tools.

Manual clamping

When production conditions do not require frequent tool changeover, the manual clamping system is a good choice. The manual clamping system is **very robust**: it does not have tonnage limit and can thus be used even for the highest tonnage.

Tools are extracted from the side in total safety since punches stay in place even when the clamping is open.



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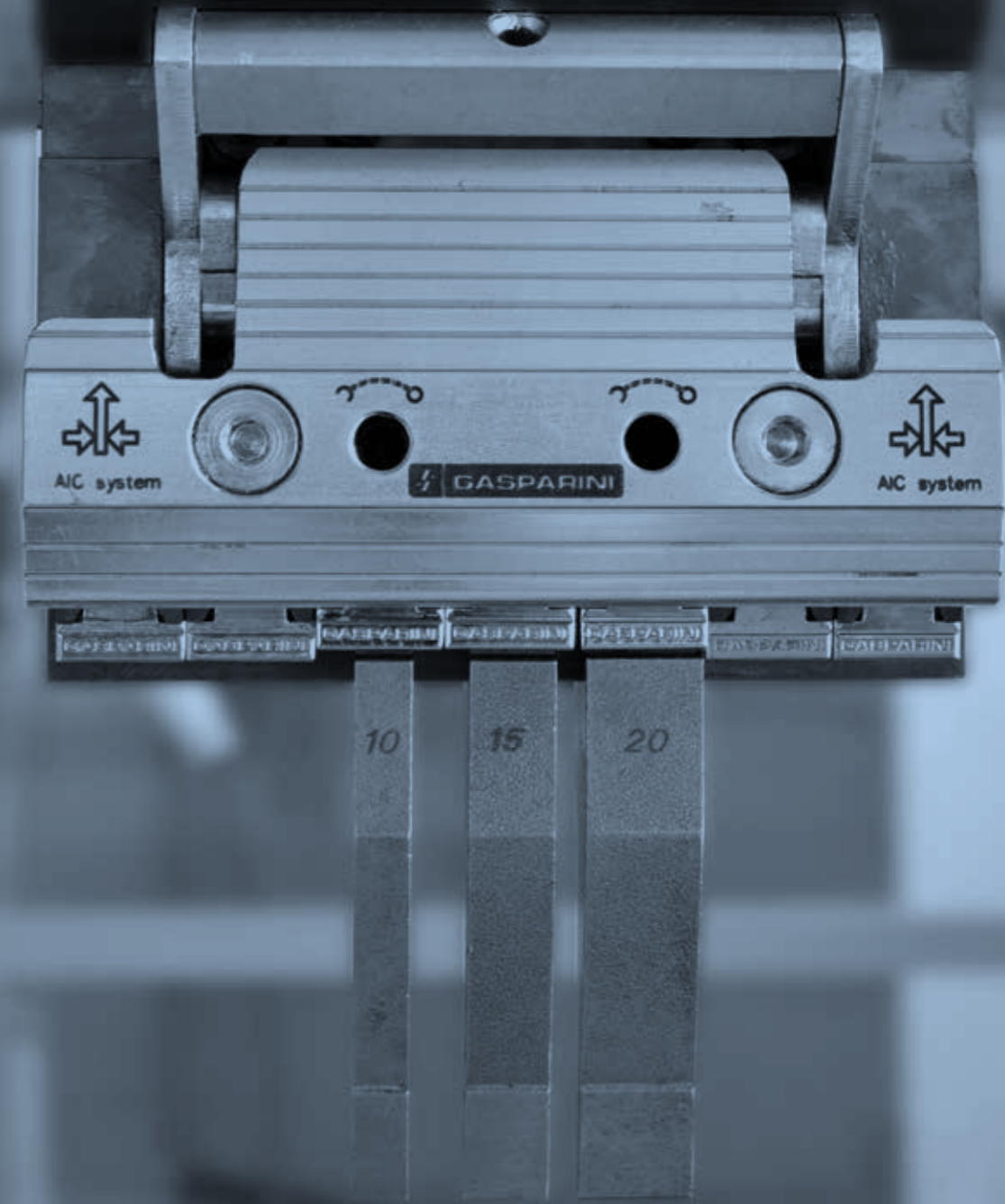
Toolever manual clamping tool adapters

Toolever adapters have a new quick-acting lever tool clamping. Thanks to the lever latching without special keys they allow for an **enormous time saving** compared to traditional manual clamping.

- + 100-mm height: does not require CNC reprogramming
- + Front wedge crowning: tool adapters can be placed one against the other without gaps
- + Dual sided clamping with front locking for reversed tooling
- + Swift clamping and unclamping does not require any special tools, just an ordinary Allen key or a screwdriver
- + Even when clamps are open, tools remain in safety position without falling
- + Self-aligning: when closing, punches are lifted and seated on the tool adapter, eliminating the need for preliminary bends
- + Works even with 10-mm wide segmented punches

Wila tool clamping

Gasparini press brakes can be equipped with hydraulic clamping, with micro-adjustment and Nitrex hardening treatment. These **clamping systems for Wila-style tooling** are available also on high-tonnage machines and with the longest bending lengths.



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Clamping systems for tool adapters

Tool adapters can be mounted on the ram with **Hydraulic** or **Manual** clamping systems. The range includes four single-tool adapters (one tool position) and six double-tool adapters (front and reverse tool positions) with various combinations of clamping systems. Tools can be mounted on the tool adapters both manually or pneumatically.

The range of tool adapters includes versions suitable to be mounted on almost all rams: this allows the press brake to equally use **long type tools** (i.e. Wila, Beyeler, LVD, Gasparini, etc.) fitted straight on the ram and **short type tools** (i.e. Promecam, etc.) fitted on the adapter.



Various tool adapters are available, for all ram types



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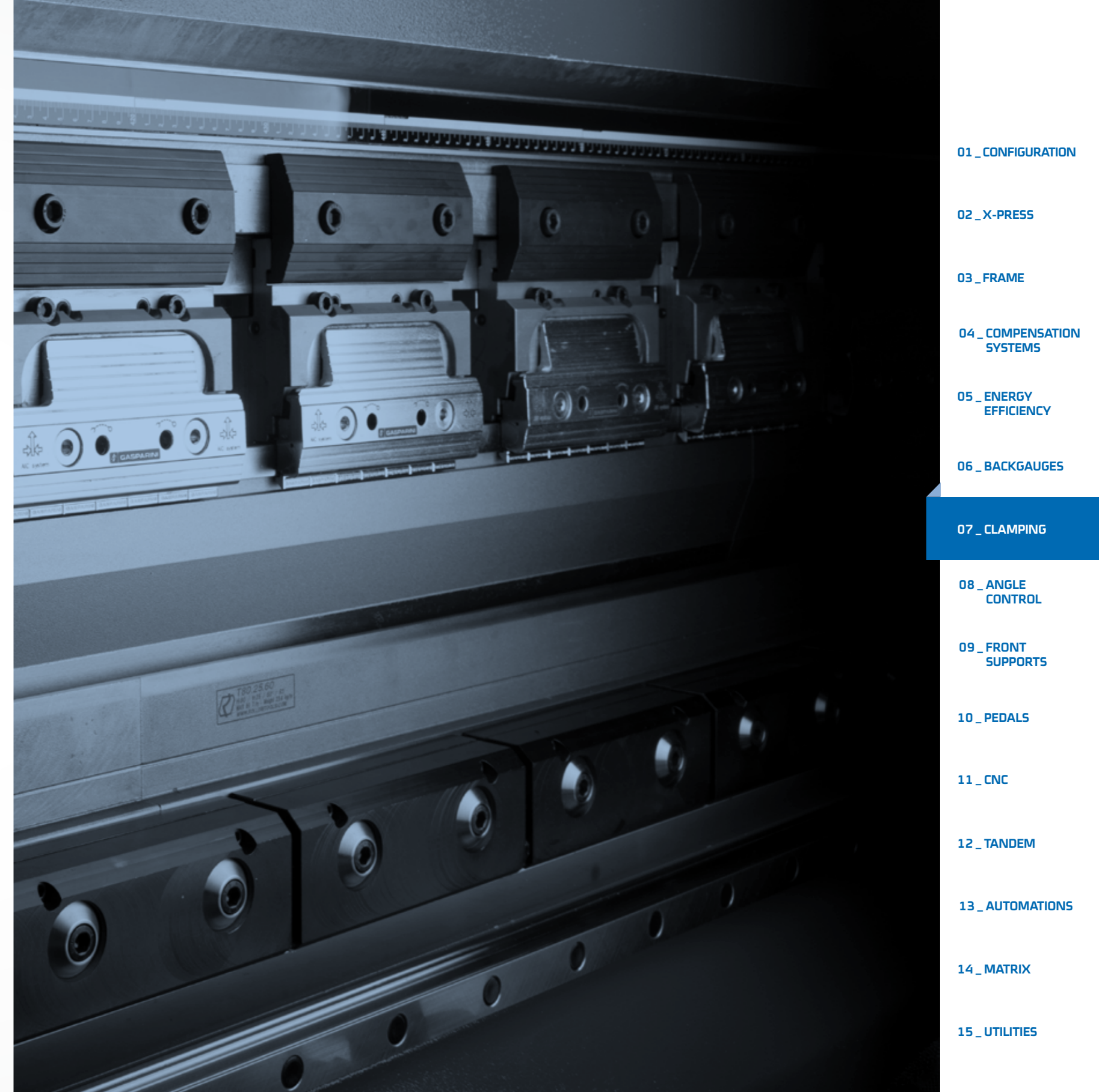
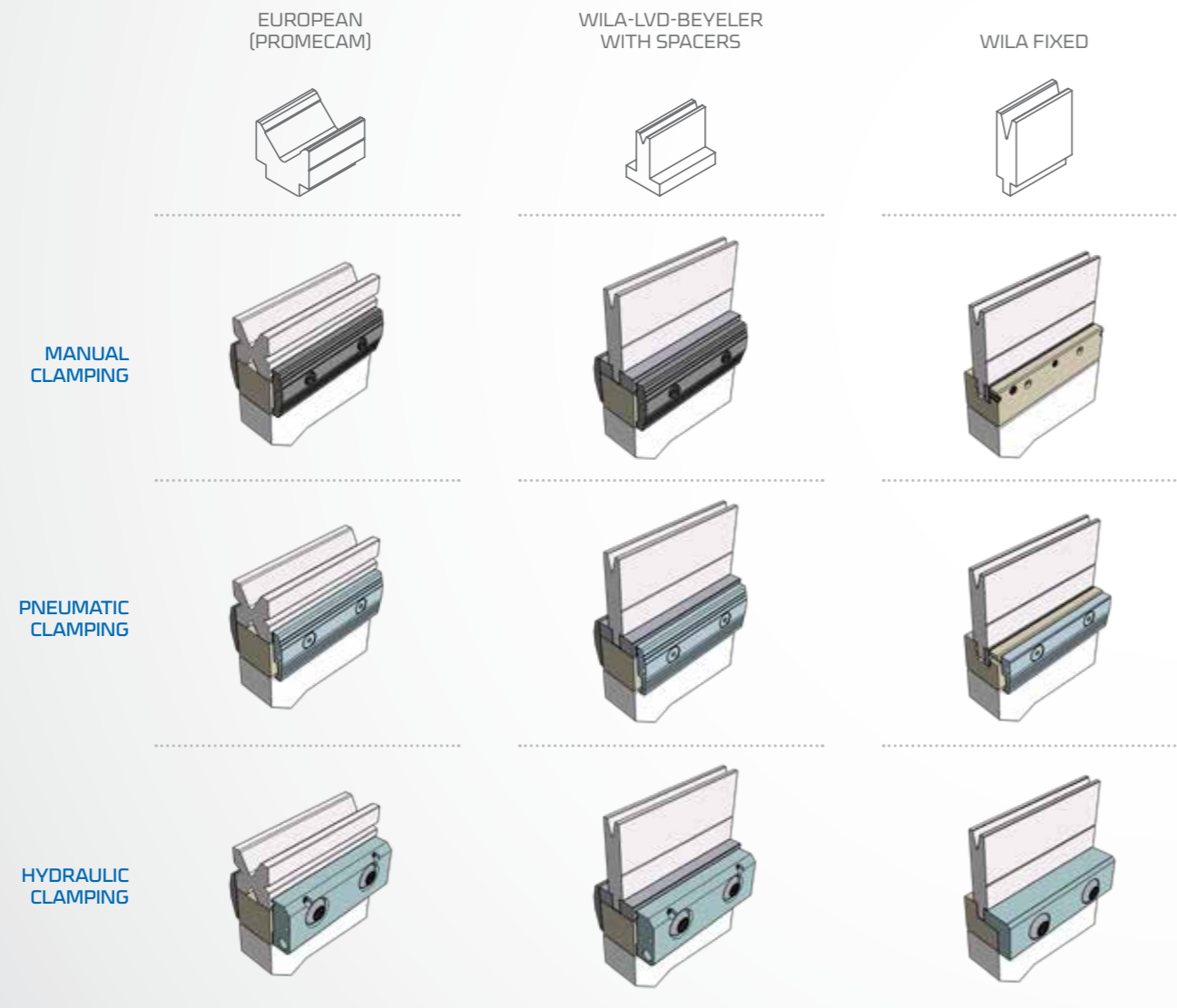
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Lower tool clamping systems

Thanks to the wide range of clamping systems, we can use almost all lower tools (i.e. European-Promecam, Wila, Beyeler, LVD, Gasparini, etc.) with Pneumatic, Hydraulic or Manual clamping technologies.



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GPS4

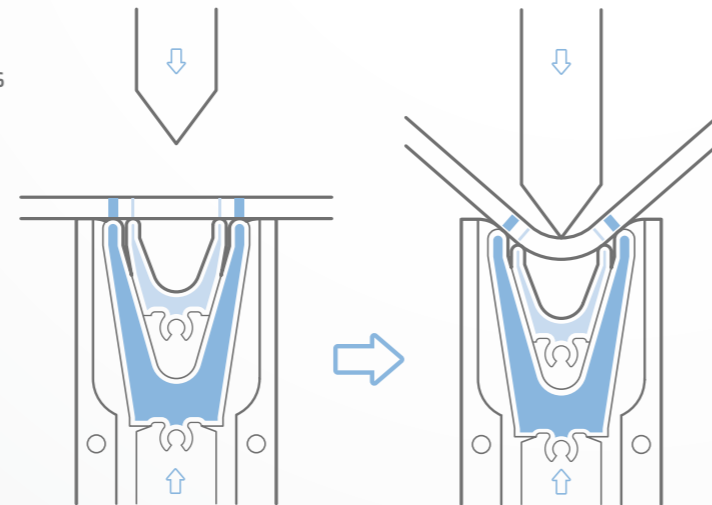
One reading for the entire length.

Springback is a phenomenon that appears when bending any type of material under any type of condition. The GPS4 angle measurement system ensures precise bends without the need to perform tests or corrections.

The GPS4 controls and adjust the angle during the bending process. A sensor, physically contacting the material, measures the current angle in real time. It then sends the data to the CNC, allowing the press brake to reach the desired angle.



The heart of the system is the **double-fork-sensor** establishing **4 contact points** on the material: this detects the bending angle on two points on both sides of the bend. It then sends the data to the control system, thus enabling a perfect bend angle from the first piece to the last.

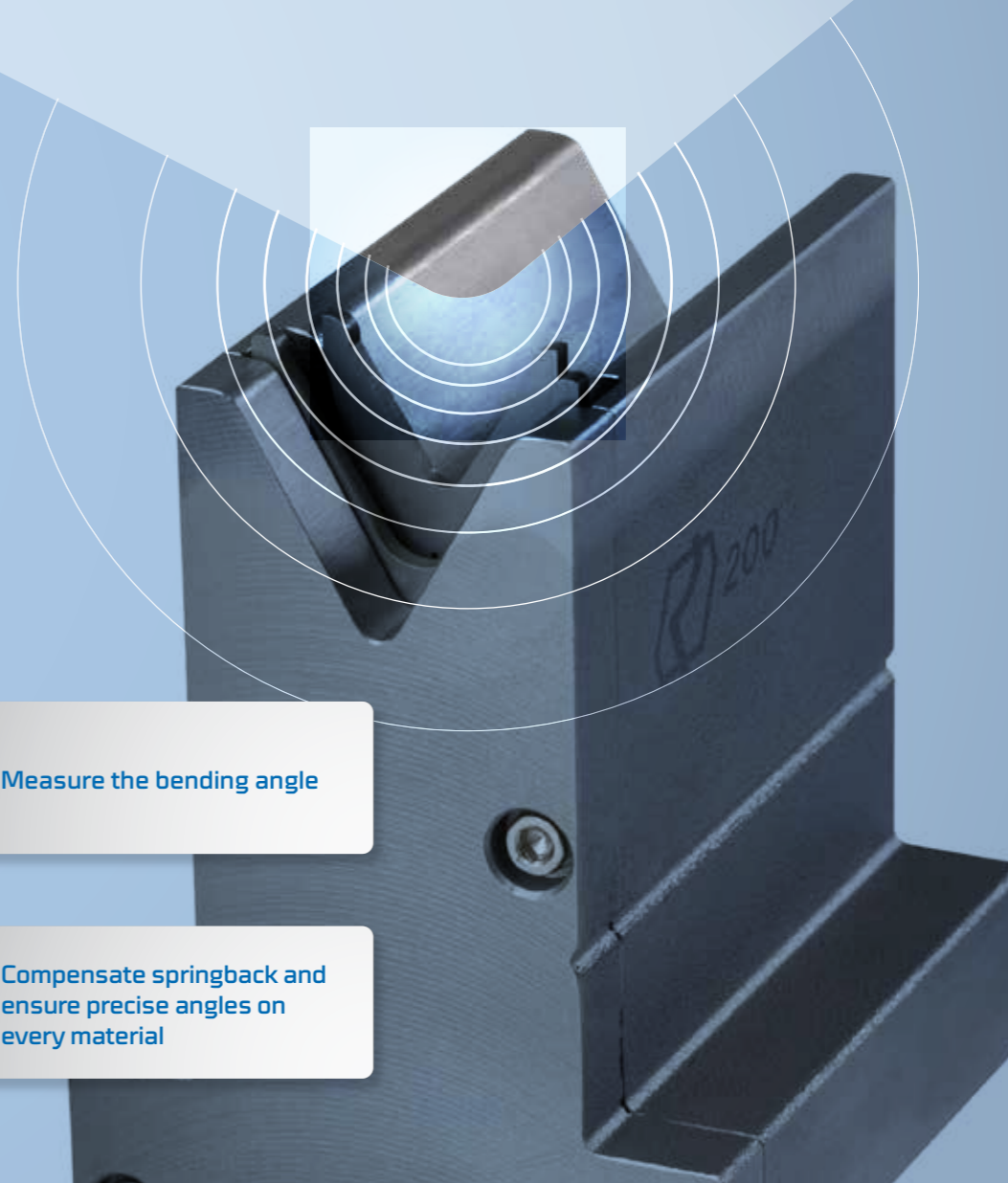


Minimum V die opening	8 mm
Maximum V die opening	160 mm
Minimum die length	67 mm
Minimum angle reading	70°
Minimum angle reading	150°

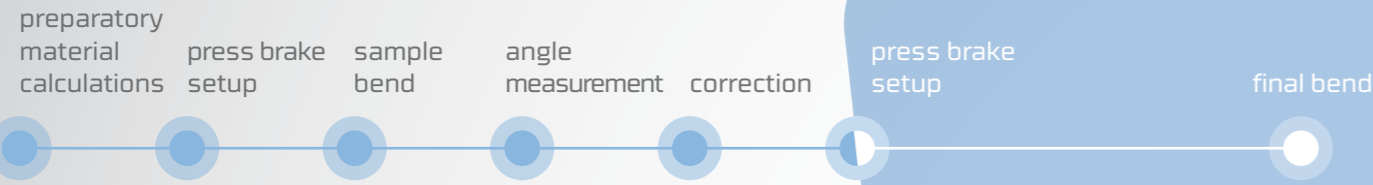
NO MORE WRONG PARTS

Measure the bending angle

Compensate springback and ensure precise angles on every material



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PRODUCTION TIMES

*Much more precise.
In much less time.*

VS

empirical method

GPS4 system

It allows to bend pieces with flanges that do not extend beyond the width of the V-die



It allows to bend pieces with counterbends, without problems derived by error accumulation



Maximum precision and repeatability without manual correction



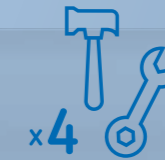
The angle measurement is real, not theoretic



The system leaves free space around the work area



It is possible to use up to four working stations



Available for most commercial dies



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Mitutoyo wireless digital protractor

Digital precision and freedom of movement.

The Mitutoyo® wireless digital protractor provides the possibility to connect a digital protractor to the CNC wirelessly.

The operator measures the angle with the digital protractor and sends the value to the CNC, simply by pressing a button. The angle correction will be automatically calculated and fine-tuned by the CNC control.

Range	-360° to +360°
Tolerance	±2' (±0.03°)
Repeatability	1'

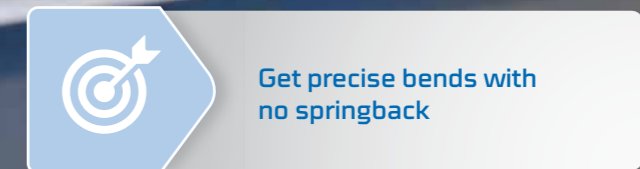
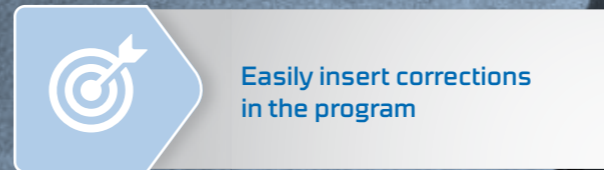
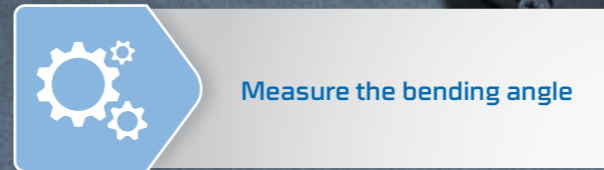
LaserCheck

High tonnages, high precision.

Laser Check is a bend angle measurement and correction system by means of a laser beam. The device is made of a laser and a camera on both sides of the bending line. Detection is carried out in this way:

- › A laser beam is projected on the sheet metal surface
- › The camera detects the laser beam
- › The angle between the beam and the camera axis determines the bend angle

The most important features of this system are the possibility to being installed on any press brake with no modifications to the tools. There are no die opening limitations, even with variable-V dies. It can be used with very high tonnages.



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STANDARD FRONT SUPPORT

An ever-present help.

Front support arms supplied by default with our press brakes can be repositioned and fixed on the bench along the entire machine length. Their height can be adjusted with a clamping handle.



ADJUSTABLE
HEIGHT

SLIDING FRONT SUPPORT ARMS

Height-adjustable front sliding arms mounted on a linear guide, with tool drawer.

It can be easily unfastened from the guide if needed, and thanks to its low weight it can be handled with little effort. Support plane measures 600 x 140 mm, is covered with anti-scratch polyethylene profiles and bears up to 250 kgs.



ALL AT YOUR
FINGERTIPS

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SLIDING FRONT SUPPORT PLUS

This type of sliding front support has been designed to facilitate the operator's job.

They are attached to the press brake by means of a linear guide which allows positioning along the entire length of the machine; they are also vertically adjustable with a precision recirculating ball screw to suit the height of the bottom tool. The linear guides extend beyond the table where the supports can be parked when not in use.

On the aluminum profile you can add several options:

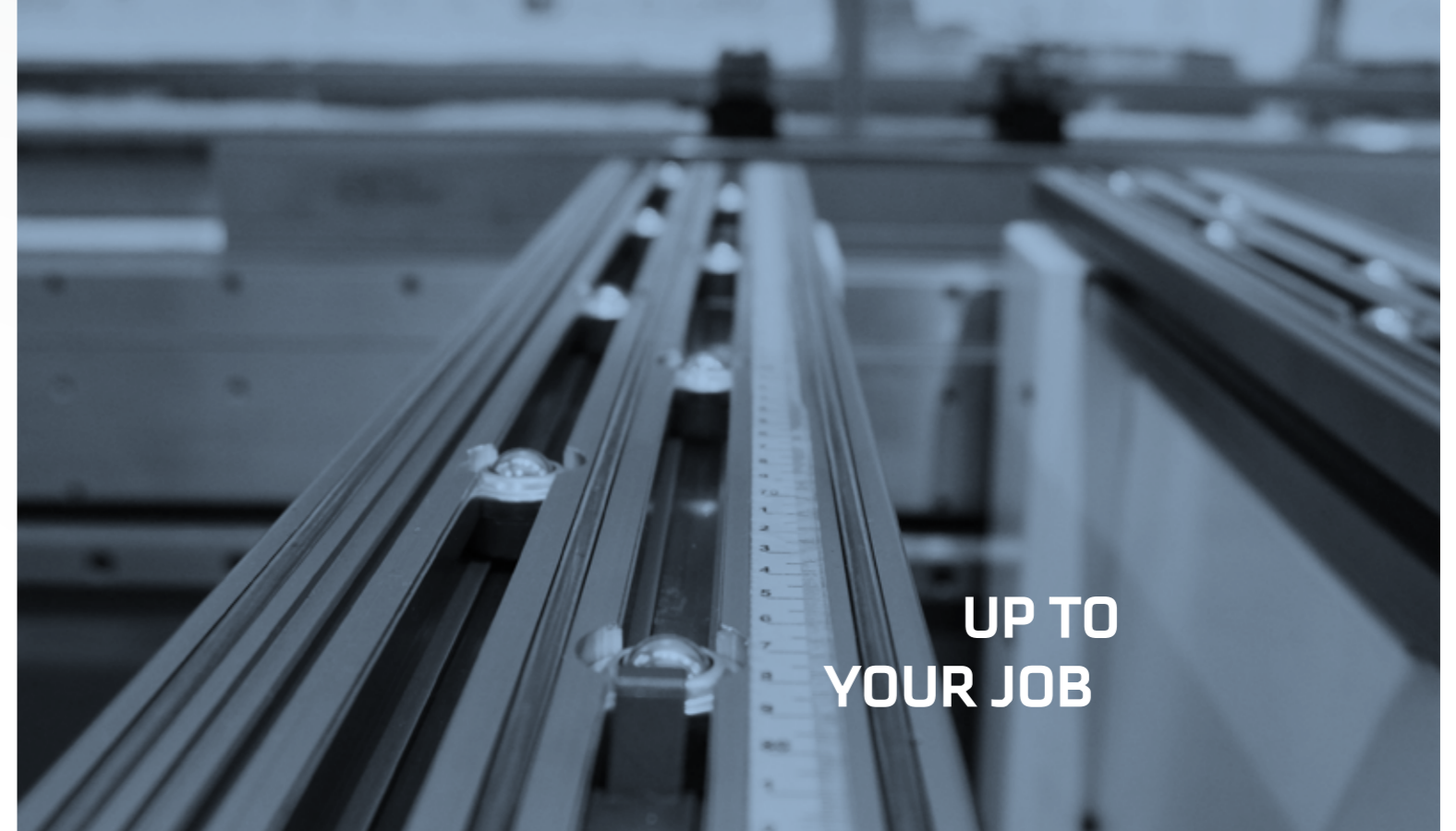
- > disappearing stops
- > graded ruler
- > steel ball transfers
- > anti-scratch brushes
- > micrometric gauges
- > protractor

SHEET LIFTERS

New electric sheet lifters for press brake, entirely controlled by the CNC

They are available as single or dual axis with optional interpolation for better sheet tracking and support. The dual interpolated axis configuration allows to continuously follow the part during the bend, to reduce the risk of scratches and counterbends. Parts that needed two operators, now can be bent by just one person, in complete safety and without physical strain. In many cases, also the use of forklifts and overhead travelling cranes may be reduced.

- | | |
|--|---|
| > 1 or 2 CNC-controlled axes | > less physical strain and safety risks |
| > 600 or 1200 Nm | > protection from counterbends and scratches |
| > fewer operators needed | > bend as closed as 70° |
| > reduction of lifting equipment usage | > R axis -30/+170 mm; maximum die opening 100 to 160 mm |
| > improved shop floor efficiency | > several accessories available |



UP TO
YOUR JOB



SUPPORT
AND FOLLOW
THE SHEET

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WIRELESS PEDAL

Discover the freedom of movement.

This is the evolution of the standard Gasparini foot controls. It has been designed for those customers who do not want the hassle of connecting cables on the ground in front of the machine. It can be clasped to a sliding bearing to slide it along the press brake with the simple push of a foot.

The wireless foot control is equipped with a radio transmitter in constant communication with the receiver in the control cabinet. The radio system is certified for use on industrial machines. In most cases it can be installed as a retrofit on Gasparini machines as well as on those of other manufacturers.

**NO CONNECTION
CABLES**



Avoid bothering cables



Work easily and safely

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CNC

Advanced control and remote assistance.

Our press brakes can be equipped with different types of CNC, according to requirements, preferences and products:

Delem




- DA-53T
- DA-58T
- DA-66T
- DA-69T

All models can be connected to corporate LAN to exchange programs and other data. Your programs and configurations are safe, thanks to backup utilities and Gasparini TeleLink remote assistance.

Each platform has its own characteristics that fit specific customer needs.



 Manage all sensors, valves and servodrives of the press brake

 Generate bending sequences, import drawings, connect to servers

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Delem

Delem DA-58T

Delem DA-58T CNC allows to program in 2D (profile) mode in an easy and quick way thanks to the full-touch 15" display.

Interaction and programming simplicity make it ideal for everyday operation. It can be installed on machines in tandem and manage up to 4 axes.

Delem DA-66T and DA-69T

Powerful DA-66T and DA-69T CNCs are available on the X-Press Next and SuperCustom. Thanks to the tried and true user interface they allow to quickly go from programming to production. The wide 17" touchscreen makes the operator job easier and can be used while wearing gloves. Its hardware allows to manage all Gasparini devices, even the most demanding and powerful.

DA-69T differs from DA-66T for its 3D programming features. Both CNC support the possibility to synchronously manage more than one press brake (aligned in a tandem, tridem, or quadrem) as well as operating them independently as stand-alone machines. Multiple machine configurations allow to maximise productivity with mixed batches of long and short pieces.

These CNCs are eligible for Industry 4.0 guideline compliancy.

COMPATIBILITY AND RELIABILITY

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Industry 4.0

Smart Factory enters the world of sheet metal bending

Gasparini press brakes have been certified from the Pordenone Technology Hub, because they are in compliance with Industry 4.0 recommendations. The road to the Digital Factory is complicated, especially in the sheet metal field. But what makes our machines compliant to the Smart Factory guidelines?

Interconnection

Open and robust communication standards allow Gasparini press brakes to connect to other machines and information systems.

Remote control

CNCs can be interfaced with ERPs and databases, as well as to carry out advanced functions through a simple and intuitive user interface. TeleLink allows to remotely control the press brake operations and perform remote maintenance interventions.

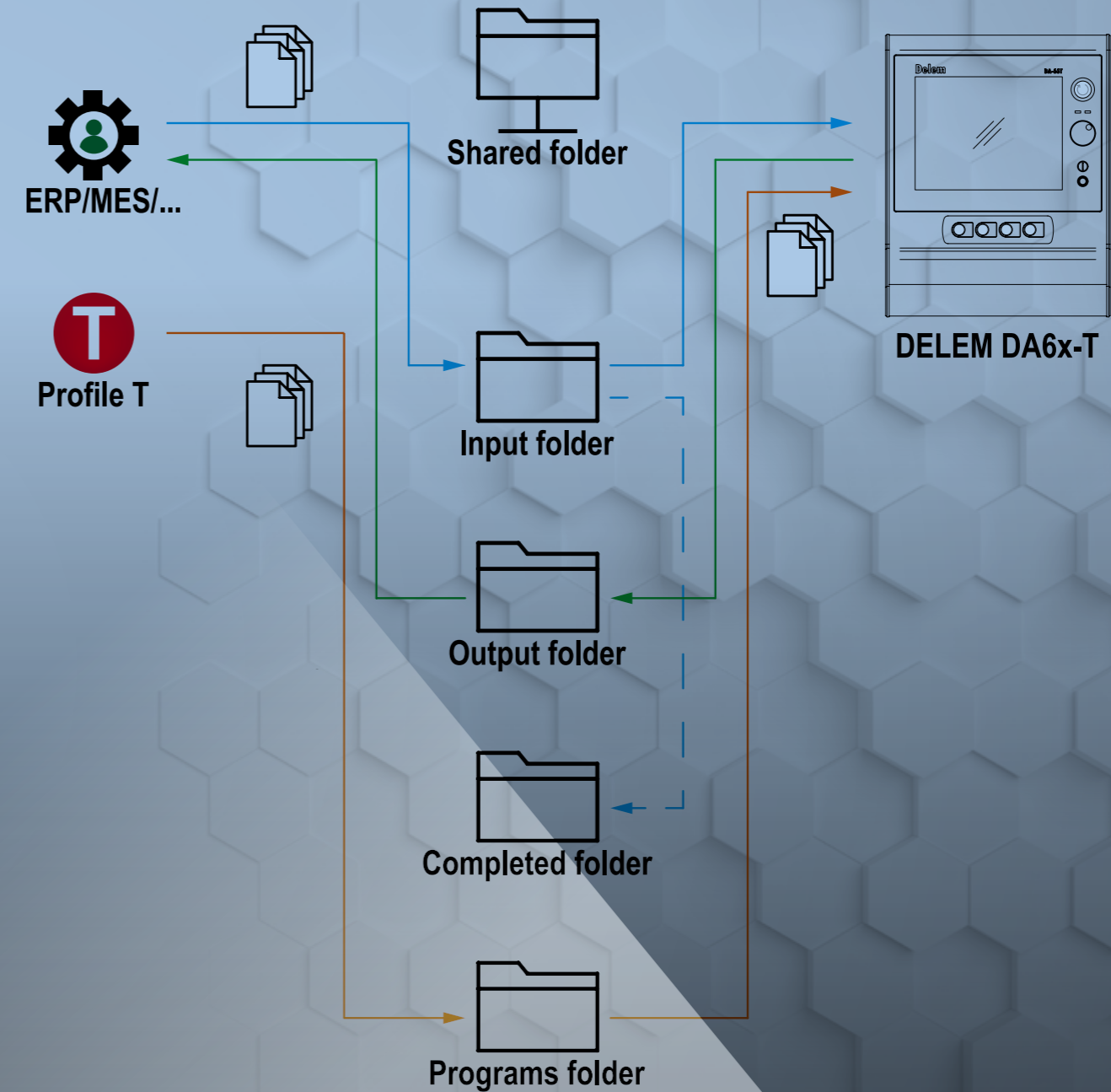
Everything under the radar

A series of sensors allows to measure material characteristics and working parameters, that will be made available to data collection and reporting tools.

Information and data

Dedicated software allows to turn this data into information, useful for:

- > Quality control
- > Predictive analysis
- > Preventive maintenance
- > Fault prevention
- > Part tracking and order status
- > Cycle times
- > Materials modelling



SMART FACTORY IN FABRICATION

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Offline Software

Program the press brake from your desk.

Thanks to the offline software, you can work on your PC as if you were in front of the folder. You can create programs and upload drawings without interrupting the operator's work, and send data over the network to various machines.

The offline software offers the same functions as the CNC installed on the press brake, giving the user a familiar and easy-to-use interface. The designer can also add operator instructions, facilitating communication between departments.

The advantages that an offline software provides are:

- + check for collisions with the frame and other parts of the press brake
- + verify feasibility of a part according to available punches, dies, and tool adapters
- + simulate and optimize the bending sequence
- + estimate production times
- + arrange working stations and add notes for the operator
- + import drawings in several CAD file formats in 2D or 3D according to the software version
- + export bending programs to the machine

Delem Profile-T is available in three versions: **Lite** (included), **T2D**, and **T3D**. The latter allows to program in 3D and to import DXF, STEP, and IGES files.



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Telelink

The support you need, with the speed you want.

With its Teleassistance & Telediagnosis kit Gasparini offers a specialized, immediate, and secure service.

Remote assistance allows our technicians to analyse the problem as if the operator were in front of the machine. By connecting to the CNC we will have access to the press brake parameters to diagnose most problems or help you with programming.

- > Preventive maintenance
- > Quick fault analysis and reduced machine downtime
- > Ability to solve CNC and software problems remotely
- > Reduction of over-the-phone assistance
- > Ease of Use
- > Safety

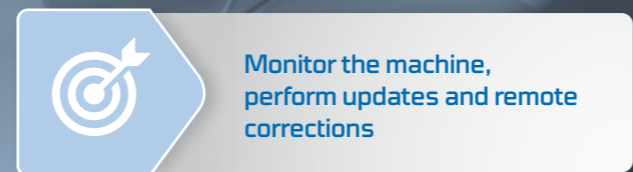
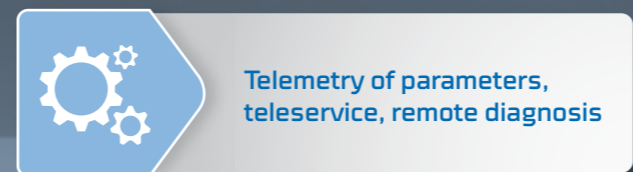
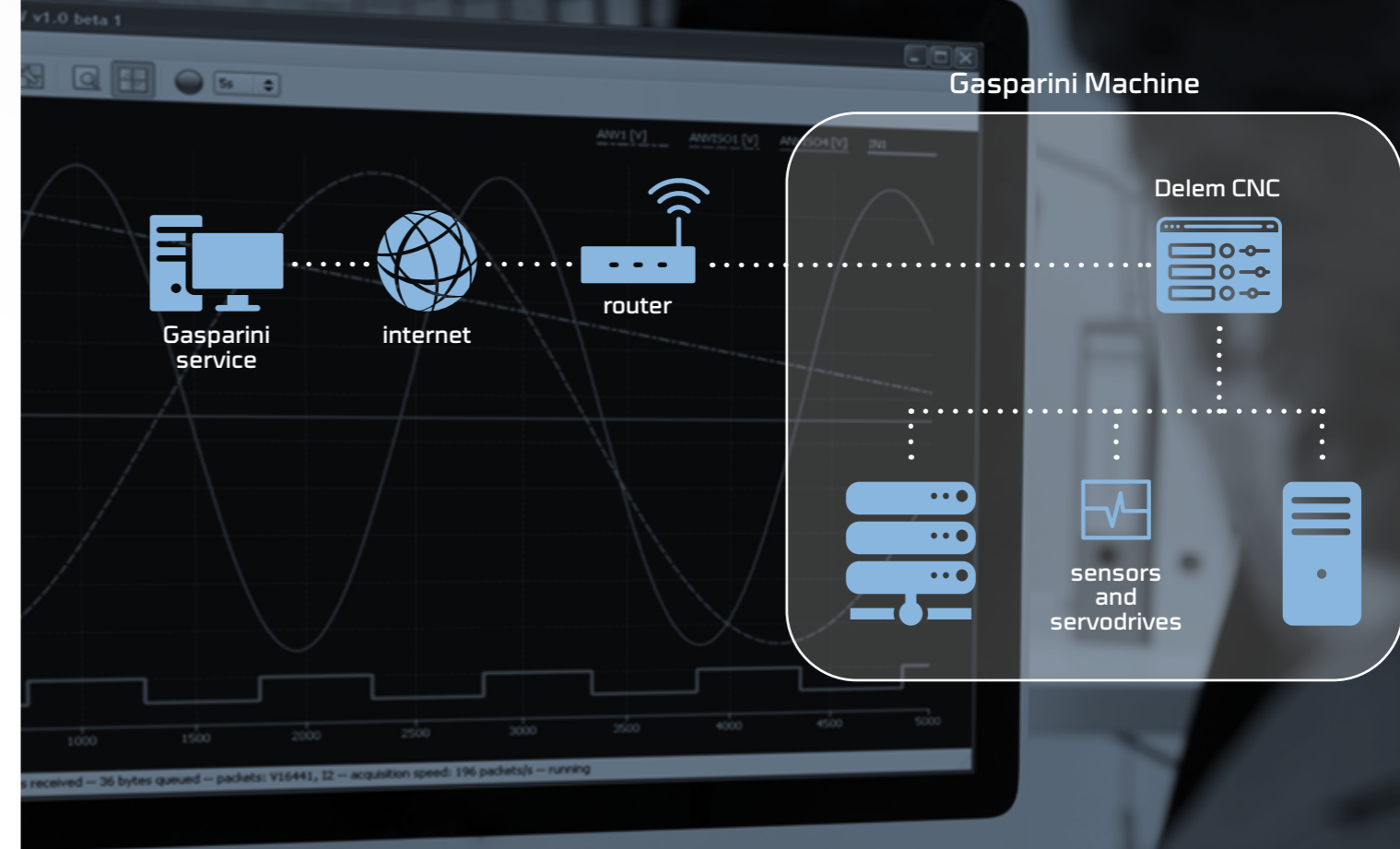
These features can be accessed through an Internet connection (ADSL or HDSL) for testing, piloting, analyzing and possibly update the smart devices that compose the machine.

Any failures or problems can therefore be diagnosed and understood in real time.

We can therefore react promptly to customer needs while reducing response time and maintenance costs.

FEATURES AND BENEFITS

- | | |
|--|--|
| + CNC control and telemetry | + Control of digital and analog inputs and outputs |
| + Software updates | + Control of pressures, positions, limit switches, fuses |
| + Data monitoring and editing | + Status of motors, axes, electrovalves, accessories |
| + Program execution and control | + Monitoring and parametrization of crowning system |
| + Creation and editing of models and tools | + Management of safety software |
| + Remote training | |



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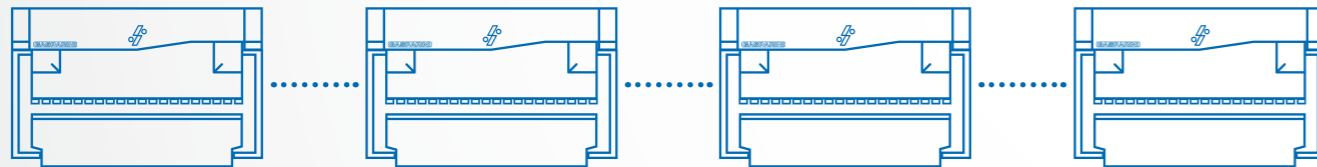


TANDEM

Tandem, tridem and quadrem configuration: real teamwork.

Gasparini press brakes can be connected in tandem with up to 4 machines, to produce very long parts such as tubes, poles, channels and so on. Safety devices are designed to adapt to new configurations: with safety lasers there is no need for infrared light curtains.

The CNC "Tandem Link" option allows to transfer bending programs among different machines. Press brakes can be turned back to stand-alone usage in any moment.



Connect and synchronize from 2 to 4 press brakes



Use press brakes independently or together for long pieces



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4.0 AUTOMATED AND ROBOTIC BENDING AND SHEARING LINES

An automated yet flexible and reconfigurable plant allows to reduce waste and accurately determine production times.

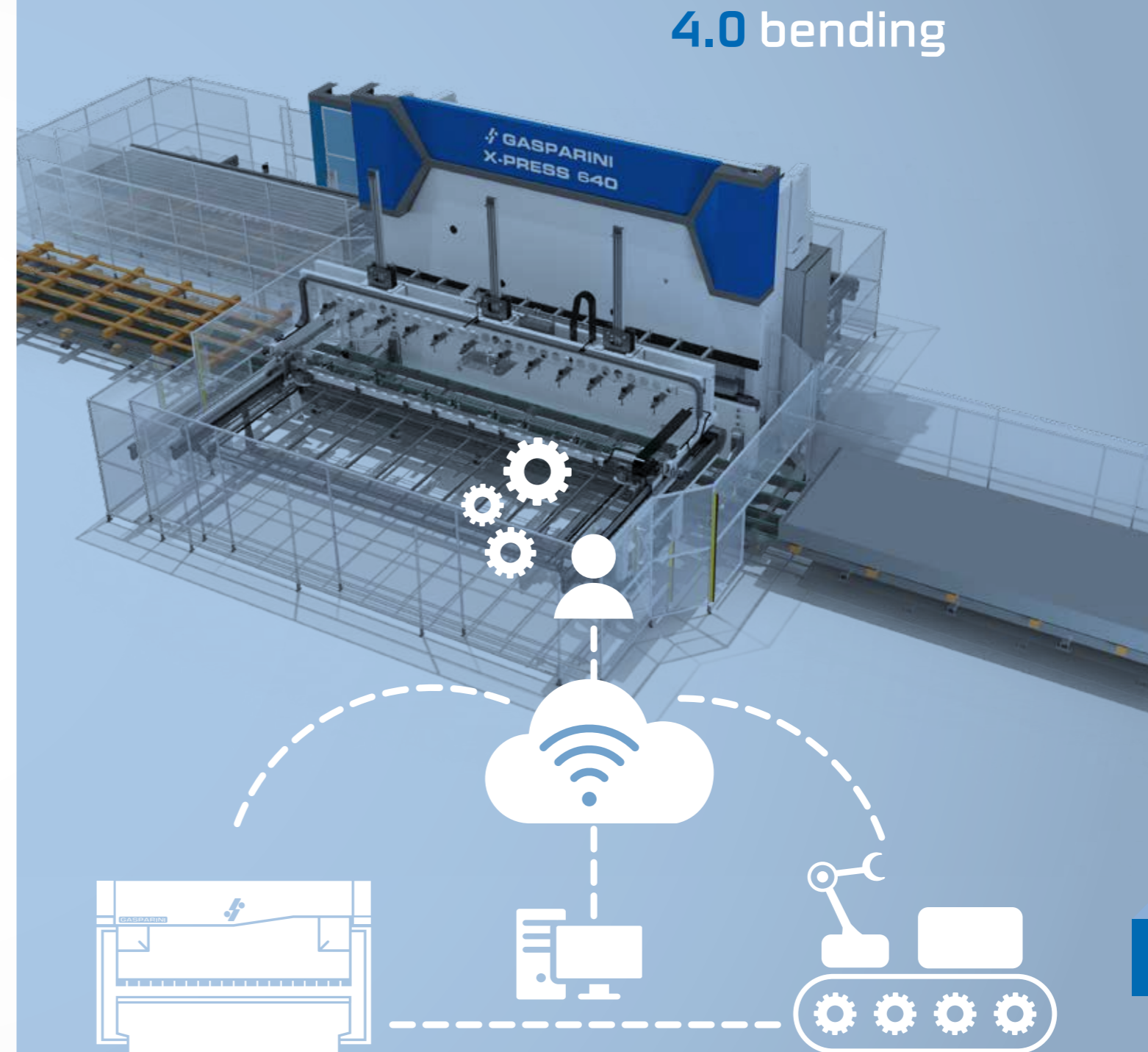
Gasparini studies the most suitable plant to your needs, allowing you to make your manufacture more flexible while reducing variability and processing errors.

We are able to design and produce robot cells, manipulators and automations. Our Research & Development office can design and manufacture machines equipped with:

- > Remote programming
- > Machine sensorization
- > Predictive maintenance
- > ERP, CAD-CAM, NAS, LAN interfacing
- > Automatic tool change
- > Sheet loading/unloading
- > Sheet picking and thickness check
- > Smart positioning
- > K-factor autodetection
- > 24/7 unattended operation
- > Usage stats
- > Interface with warehouse, laser cutting, welding
- > Embedded quality check
- > Compensation for material variability and machine deformation

An automated yet flexible and reconfigurable plant allows to reduce waste and accurately determine production times. By leveraging vital information on your workflows you will be able to monitor the material characteristics, check production steps, and reduce the risk of faults. By connecting bending to other machine tools and corporate LAN you can track workflows and control bottlenecks.

Gasparini has a long experience in the production of shearing lines, from the most simple ones to large robotic plants. Our shears are versatile and powerful, and can be inserted into fast and high-volume production cycles, with the highest cutting quality and reliability.



4.0 bending

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Robotic bending cells

The future of automated bending: integration of a press brake and a robot and ensure maximum production throughput.

Gasparini press brakes can be used in a robotic cell, either completely robotic, or when either a robot and an operator can alternatively use the machine.

With the exclusive use of the robot, production cycles can be much accelerated. In this case, the press is equipped with some accessories that can increase the speed. On the other hand, safety devices can be removed. It is also important to automatically control the operating conditions, to avoid mechanical stress and damage.

Press brakes that will be used by either robots and human operators will be equipped with side guards and laser safety device to guarantee maximum security.

Gasparini can provide all the accessories and services necessary to allow the robot to bend and manipulate the sheet metal.



**PUSH PRODUCTIVITY
TO THE LIMIT**



Interface between robot
and press brake



Quickly bend pieces
in big batches

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MATRIX

CNC-controlled variable-opening die to dynamically fit working conditions.

The Matrix variable opening die is a lower tool whose opening can be increased or decreased so as to adapt to the manufacturing needs. Movement is controlled by the CNC according to material and bending type.

- + Optimal control of the force and the radius of curvature: varying the die opening allows you for better control over the bending parameters
- + Comfort and safety of the operator: you no longer have to manipulate many different dies
- + Time saving: tool change is drastically reduced
- + Great versatility: Matrix dies can achieve a bending angle of 75° on the whole extension

MODEL	DIMENSION	STEP	TONNAGE
MATRIX I	V 10÷160 mm	10 mm	3000 kN/m
MATRIX II	V 40÷300 mm	20 mm	4000 kN/m
MATRIX III	V 40÷400 mm	20 mm	4000 kN/m

The Matrix variable die can be equipped with inserts such as rollers (10 mm or 30 mm), rounded edges, or standard fixed dies.



A single die for all thicknesses



Eliminate tooling changing times

A THOUSAND TOOLS IN ONE

01_CONFIGURATION

02_X-PRESS

03_FRAME

04_COMPENSATION
SYSTEMS05_ENERGY
EFFICIENCY

06_BACKGAUGES

07_CLAMPING

08_ANGLE
CONTROL09_FRONT
SUPPORTS

10_PEDALS

11_CNC

12_TANDEM

13_AUTOMATIONS

14_MATRIX

15_UTILITIES

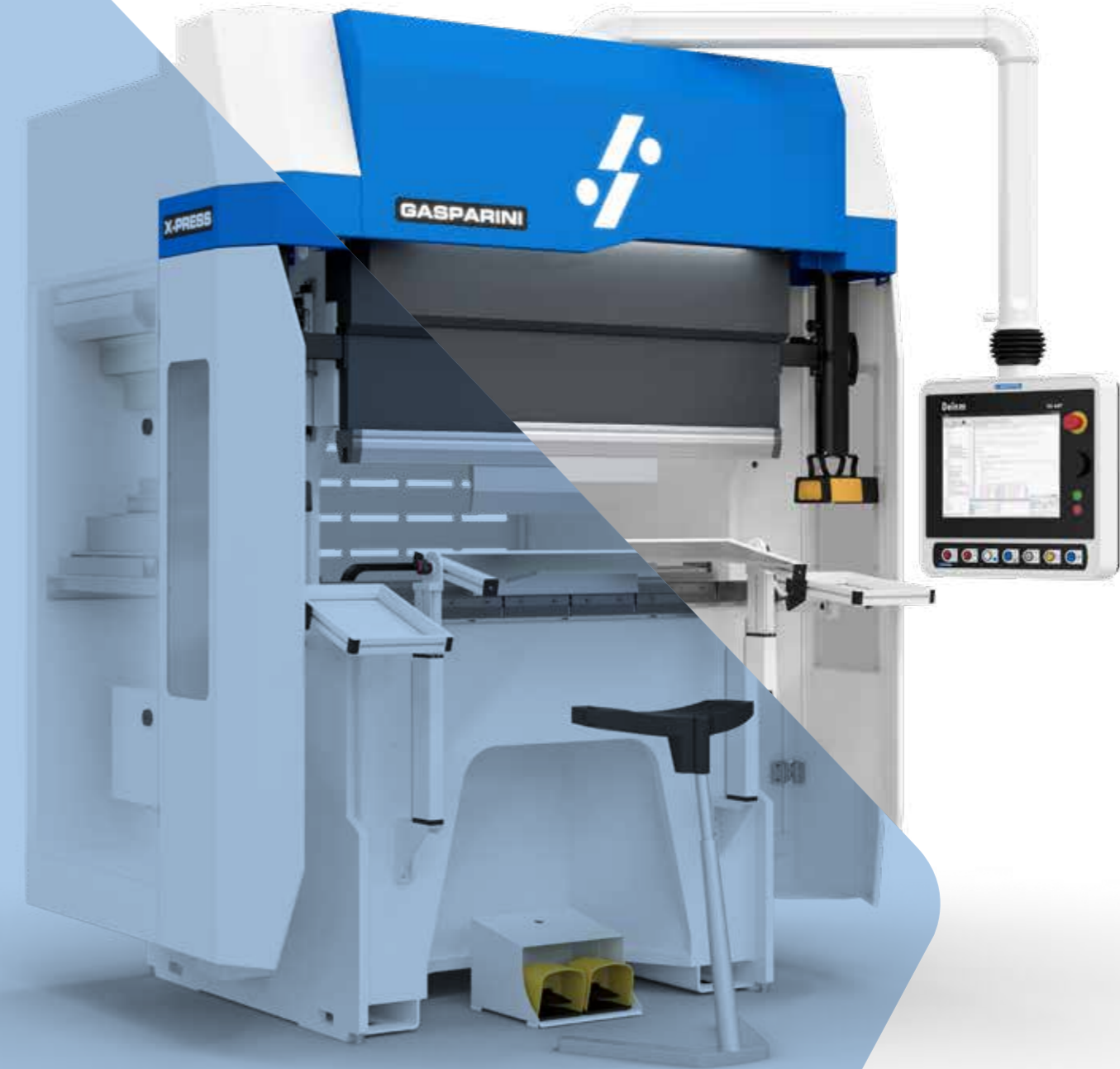


› UTILITIES

The path we follow in the development of our products is traced by a constant focus on our customers and their way of working.

Making our machines more and more flexible, smart and easy to use is a constantly evolving process. We have therefore created a series of accessories to facilitate the most common operations:

DRIVE BAR
BARCODE READER
SYNER-G REMOTE CONTROL
HEMMING BENCH
DSP-AP SAFETY SYSTEM



01_CONFIGURATION

02_X-PRESS

03_FRAME

04_COMPENSATION
SYSTEMS05_ENERGY
EFFICIENCY

06_BACKGAUGES

07_CLAMPING

08_ANGLE
CONTROL09_FRONT
SUPPORTS

10_PEDALS

11_CNC

12_TANDEM

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15_UTILITIES



Drive Bar

Coloured lights for tool positioning and highlighting the active working station.

Drive bar is an array of RGB LEDs, controlled directly by the CNC. They are useful in the case of press brakes with multiple workstations.

In this way, the operator is positioned directly at the point indicated for the next bend, without any hesitations, allowing a considerable saving of time.

..... BLUE LIGHT


tells the operator where upper tools must be installed

..... GREEN LIGHT

indicates where the part must be positioned




Marks working stations with LED lights



Highlights tool positioning and bending phases

- 01_CONFIGURATION
- 02_X-PRESS
- 03_FRAME
- 04_COMPENSATION SYSTEMS
- 05_ENERGY EFFICIENCY
- 06_BACKGAUGES
- 07_CLAMPING
- 08_ANGLE CONTROL
- 09_FRONT SUPPORTS
- 10_PEDALS
- 11_CNC
- 12_TANDEM
- 13_AUTOMATIONS
- 14_MATRIX
- 15_UTILITIES



Barcode Reader

Gasparini united the power of CNCs with the versatility of a hand-held laser scanner.

Managing many small and different production batches can be complicated. Simplifying the operator's job means reducing production times and mistakes, increasing overall efficiency. This wireless code reader communicates with the CNC through its recharge base. It's able to read traditional 1D bar codes (EAN, Code128, Code39 Extended, etc) as well as the newer and more efficient 2D codes (DataMatrix, QRCode, ecc).

In order to load a bending program, one just has to scan the code. This code can be printed on a production note, on a label, or engraved directly on the sheet metal blank. The program can be stored locally or on a server. The scanner helps the reading by projecting crosshairs and delimiting the scanned area with four red dots. Should the reading be correct, the scanner gives a feedback to the user with a green dot on the code and a light on its back. A beep is also emitted, which can be disabled by the user. The first configuration and all following setups are carried out by simply scanning specific 2D codes.

The Bar Code Reader can be installed also on existing Gasparini machines, updating the software and adding the necessary components.

Syner-G Remote Control

This device allows to easily access some functions:

- › Opening and closing of pneumatic clamping for punches and dies
- › Opening and closing of hydraulic clamping for tool adapters
- › Sensor calibration for the GPS4 angle control system
- › Parking of motorized laser safety system and back gauges

There is one spare button that can be associated to one out of some other functions at your choice. This optional is included as standard if the press brake is equipped with pneumatic or hydraulic clamping, with GPS4, or with motorized laser safety system.



Identify parts and load bending programs



Manage production batches and automate flows



Control clampings, GPS4, backgauges and laser systems



Keep the most common functions at hand

01 _ CONFIGURATION

02 _ X-PRESS

03 _ FRAME

04 _ COMPENSATION SYSTEMS

05 _ ENERGY EFFICIENCY

06 _ BACKGAUGES

07 _ CLAMPING

08 _ ANGLE CONTROL

09 _ FRONT SUPPORTS

10 _ PEDALS

11 _ CNC

12 _ TANDEM

13 _ AUTOMATIONS

14 _ MATRIX

15 _ UTILITIES



Hemming bench

The Gasparini hemming bench can fold the edges of the sheet metal quickly and accurately.

It consists of two parts: the upper part holds the die for the air bending. The upper part rests on the bottom part and is lifted with a pneumatic system controlled by the CNC. After making the first bend, the top is raised and the operator inserts the edge of the sheet in a lateral seat. The punch lowers and pushes on the die, folding the sheet in the side slot.

The same bench also allows to make air bends without having to change punches and dies, even on thick and long sheets.

With Gasparini's hemming bench, reverse bands are easier with respect to traditional hemming benches. It is also cheaper on the long run because you will need fewer dedicated dies.

DSP-AP safety system

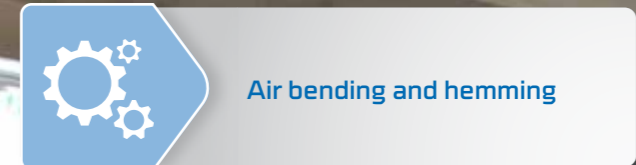
DSP-AP Laser safety system with lowering of the mute point and reduction of cycle time.

DSP-AP generates a visible laser protection compliant to EN12622 regulation. The beam protects the press brake operator from the danger of being crushed between upper and lower tool. This device allows to reduce the mute point (speed change point) to up to 4 mm from the sheet metal, thus permitting a remarkable saving in the duration of the bending cycle.

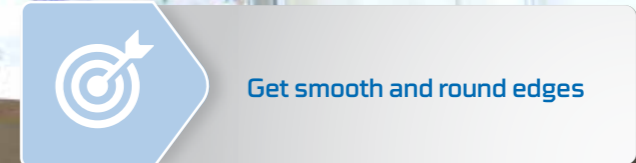
As a result, the ram moves at a higher speed for a longer time, keeping the part of the bending cycle when it moves at a lower speed to a minimum. The amount of time that can be saved by DSP-AP with respect to a conventional system is about 1.2 seconds per each bend.

- + Auto-blanking for automatic box and side wall detection
- + "Safe Release" supports are unhooked without damages in case of collision

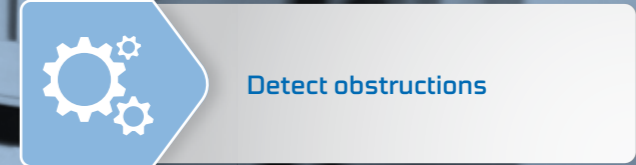
Transmitter and receiver can be equipped with CNC motorized positioning. The two devices are placed to the exact height according to tools used and working conditions.



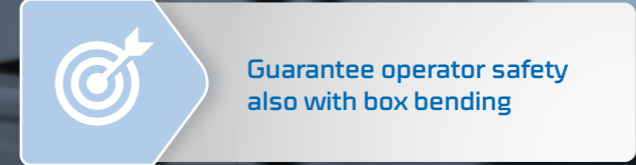
Air bending and hemming



Get smooth and round edges



Detect obstructions



Guarantee operator safety also with box bending

01_CONFIGURATION

02_X-PRESS

03_FRAME

04_COMPENSATION SYSTEMS

05_ENERGY EFFICIENCY

06_BACKGAUGES

07_CLAMPING

08_ANGLE CONTROL

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13_AUTOMATIONS

14_MATRIX

15_UTILITIES



Service & Retrofit

GASPARINI | BENDING TECHNOLOGIES 2021



› GASPARINI AFTER SALES

Gasparini Industries is structured to ensure customers of an efficient and professional assistance service thanks to the preparation and many years of experience of its technicians and of all the technical staff that represent it in the world.

+ SET UP AND INSTALLATION

Upon request, we can provide shipping, unloading and installation as a complete service. Skilled personnel will take care of the final test, making sure that the machine is in perfect efficiency, ready to work.

+ ASSISTANCE SERVICE

Through its own local sales and service network, Gasparini ensures customers of efficient and professional support.

+ RAPID SUPPLY OF ORIGINAL SPARE PARTS

Our warehouse is able to provide most of the Gasparini replacement parts. We work closely with our partners to always have all the other components in a short time.

+ TRAINING SESSIONS

Gasparini organises refresher and training courses for its customers. Gasparini also offers seminars and events in collaboration with other companies and associations in the sector.

- › 90% OF SPARE PARTS IN STOCK FOR SAME-DAY SHIPPING
- › AVERAGE CALL-TO-DOOR TIME AS LOW AS 12 HOURS
- › AVERAGE REPAIR TIME OF JUST 2.5 HOURS
- › WE CAN REPLICATE COMPONENTS OF ANY MACHINE, EVEN VERY OLD ONES
- › REMOTE DIAGNOSTICS



*We're there for you
at all times to ensure you
get the peace of mind
your production needs.*





PLANNED MAINTENANCE

If you own a Gasparini machine whose warranty is about to expire, you can take advantage of the scheduled assistance program “Gasparini Planned Maintenance”.

Our technicians will inspect your press brake and will allow you to work with peace of mind and safety.

It is an annual contract that includes two separate visits, during which we will perform:

- › An inspection of machine general conditions
- › Alignment of ram and bench according to Gasparini recommendations
- › Back gauge alignment
- › Oil leaks check
- › Fastening of pipes and fittings
- › Greasing of all moving parts
- › Safety systems check
- › Oil filter change
- › Hydraulic oil change (oil not included)

Our Service team is at your complete disposal to explain all details of Gasparini Planned Maintenance.





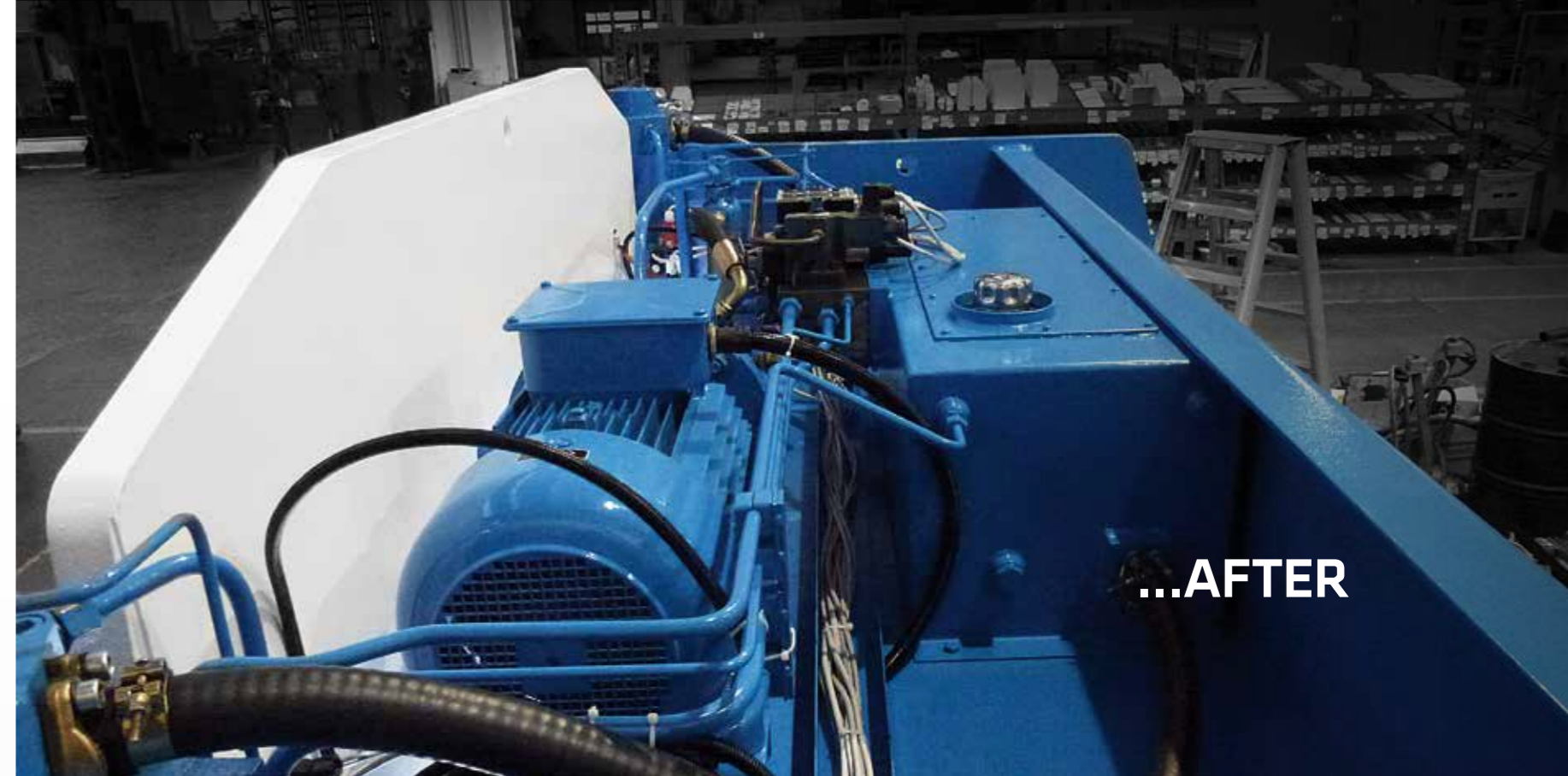
RETROFIT OF PRESS BRAKES AND GUILLOTINE SHEARS

Hydraulic circuit

- › All pipes and fittings are replaced
- › Analog proportional valves are replaced with new digital integrated valves in order to increase Speed and precision
- › The hydraulic system is cleaned and calibrated with standard pressure
- › Waste oil is replaced
- › Oil filters are replaced with newer models

Electric circuit and CNC

- › Replacement of wiring and components
- › Complete rewiring of all power and signal connections
- › Replacement of pedals and pushbuttons
- › LED lighting on front and back
- › Optional wireless pedal
- › Newer CNC





Safety systems

Bring your press brake up to code and upgrade its protection devices:

- › Replacement of standard laser barrier with the new DSP laser system
- › Optional integration of the new DSP-AP laser curtain:
 - More protection thanks to the unique shape of laser beam
 - Sheet thickness recognition
 - Repositioning of speed change point > cycle time reduced by 1.2 seconds
 - Auto-blanking function for box bending
 - Quick unlock for punch change
 - Emergency unlock in case of collision
- › User manual integration
- › Declaration of "Safety device upgrade"
- › Blinking light installation
- › Supply and installation of stopping space verification system

Hardware

- › Bench milling for correct die support
- › Ram milling
- › Tool adapters milling for correct punch support
- › Milling and control of backgauges
- › Laser alignment of all machine geometries
- › Optional upgrade of pneumatic/hydraulic clamping
- › Optional upgrade of backgauges



BEFORE...



...AFTER



Bending

GASPARINI | BENDING TECHNOLOGIES 2021

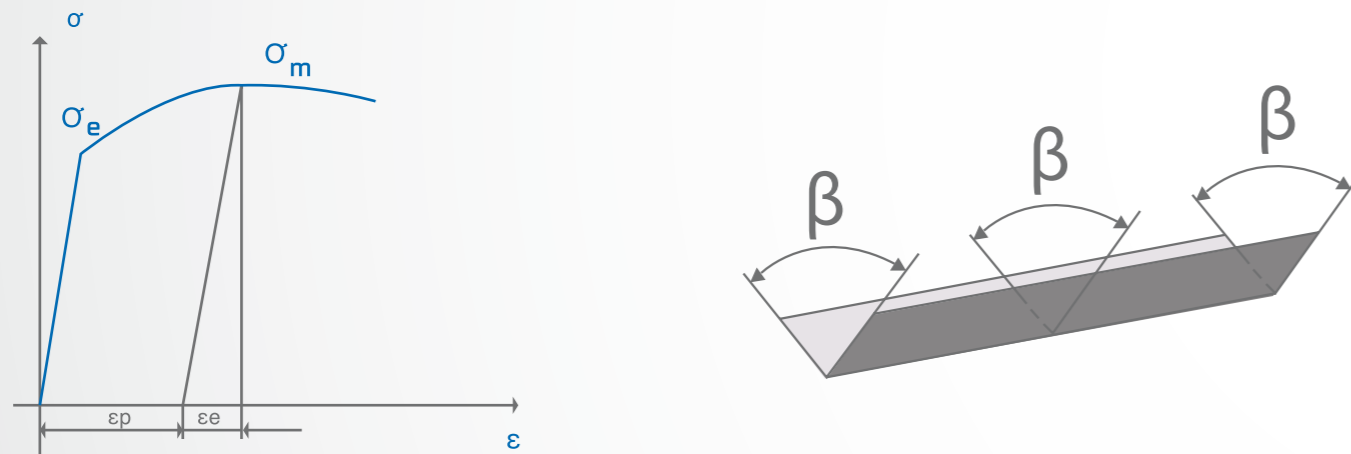


THE BENDING PROCESS

A bend is the permanent deformation of sheet metal under the effect of an external force.

Most of the sheet metal forming processes involve an initial folding of the blank. Different bending processes are widely used in a wide range of products: automotive, furniture, doors, trains, construction, aerospace, electronics, telephony, ships, etc.

The process of folding a metal sheet finds a place in the vast majority of the products. Despite its apparent simplicity, the bending process is a highly complex manufacturing technique that must be understood, led and dominated.



ϵ_p = plastic deformation
 ϵ_e = springback

In the fabrication industry, one of the critical challenges is to maintain close geometric tolerances in finished products. The perfect bend is defined by three main factors:

- › Accurate bending angle (theoretical β angle equal to real β angle)
- › Correct parallelism of ram and bench
- › Alignment of backgauges





Springback

The problem in respecting angle tolerances is related to the springback effect in the sheet metal: this effect is caused by the elastic recovery of stresses not uniformly distributed in a deformed part after forming load is removed. In other words, the bent piece tends to open a little, trying to get back to the original shape because it maintains a small elasticity.

V-bending

V-bending is the most used forming technique. There are three V-bending techniques: **Air bending**, **Coining** (Bottoming), and **Hemming** (Flattening).

All work on the principle of a punch that forces the sheet metal into the bottom die.

Air bending

Among the V-bending processes, **air bending is the simplest one** and it is commonly used in a wide range of productions.

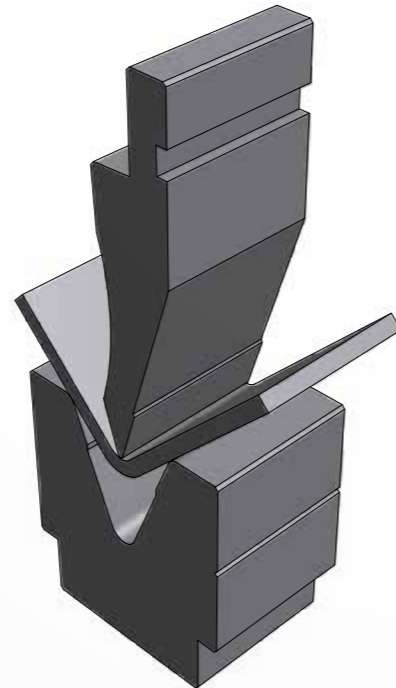
Air bending involves the punch pressing the sheet metal down into a V-shaped die. This way sheet metal flanges are folded up, creating the angle at the contact point between punch and sheet metal.

The sheet metal has 3 contact points with tool and die.

The bending angle is determined by how deep the tool pushes the sheet metal into the die. The spring-back is compensated by a longer stroke, allowing the plate to return to the required bending angle (over-bending).

The advantages of air bending are: **low bending force**, possibility to **bend very thick sheets** and possibility to **obtain different angles with the same tools**. These make it less expensive and more flexible.

Air bending is characterized by an initial difficulty in finding the correct bending angle due to sheet springback, and the need for a high-tech press brake to guarantee excellent bending precision.



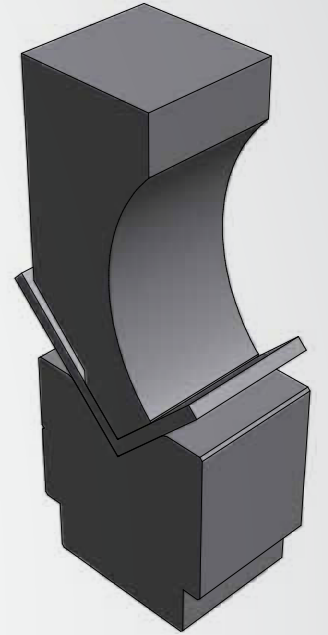
Coining (bottoming)

In coining, the punch presses the sheet metal completely into the die, so that the punch, the sheet metal, and the die are coupled together. For bottom bending, the punch and die have to fit together exactly.

Bottom bending is mainly used for producing 90-degree angles on thin sheet metal parts where a small bend radius is required. The bend is obtained by forcing the part completely into the die, so that the sheet metal follows exactly the die profile and angle. The sheet metal is permanently deformed and spring-back is minimized.

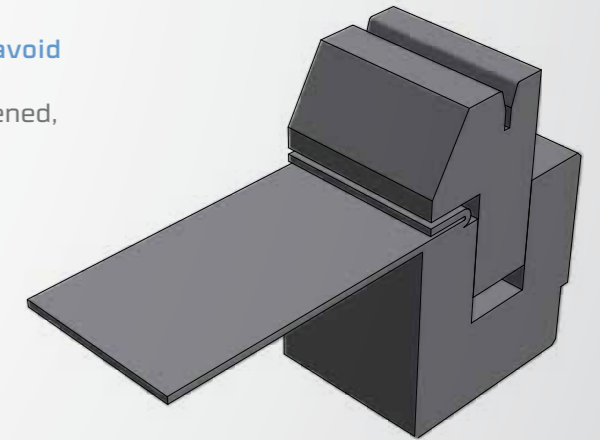
Its advantages are a higher angle precision, no springback, and the possibility to obtain smaller bending radiuses.

Its main disadvantages are the need for a different tool set for each angle and shape, and the need for a higher tonnage (about 5 times with respect to air bending).



Hemming (flattening)

It is normally applied to obtain **rigidity, edge protection, and to avoid sharp edges**. It is a 2-step process: first a 26°-35° pre-bend (by air bending), then the bent part is completely or partially flattened, depending on the applied force.



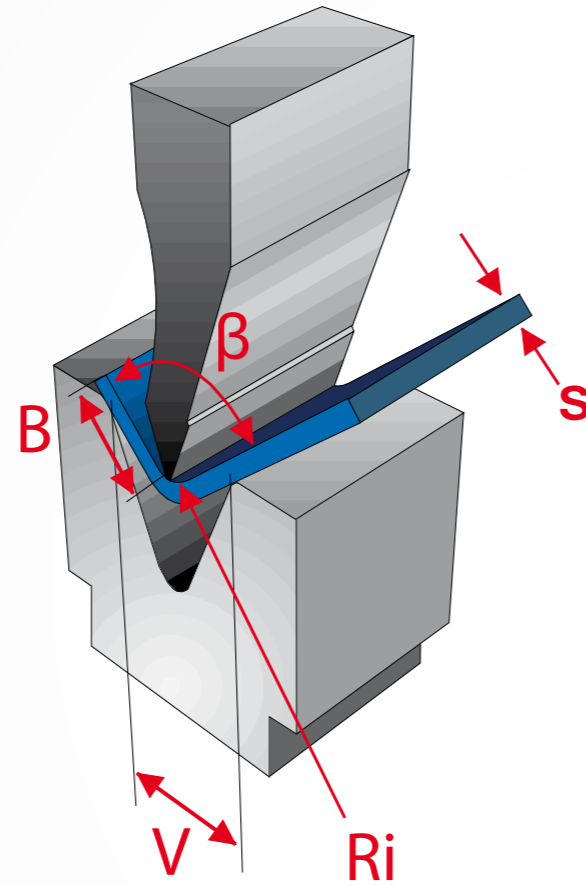


› BENDING FORCE

The following formula allows to calculate the required bending force and consequently to correctly size the press brake:

$$F = k (L * s^2 * \sigma_m) / V$$

L = bending length
 σ_m = tensile strength
 k = correction factor



Recommended V/s:

MILD STEEL



with $s < 8$ mm: $V/s \geq 8$

STAINLESS STEEL



with $s \geq 10$ mm: $V/s \geq 10$

HIGH-STRENGTH STEEL



> V/s up to 20
 (see Bending HSLA steel)

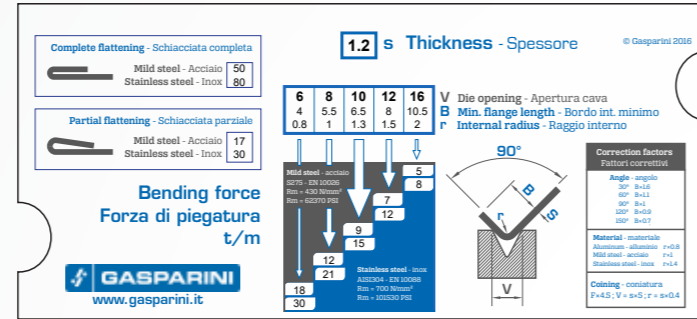




Bending force ruler

The bending force ruler is an easy tool to define the required bending force per meter (t/m), given the thickness (s), and the die opening (V).

The resulting value refers to air bending of mild steel at a 90° angle. However, the tool includes correction factors to be applied for different angles, materials and bending processes.

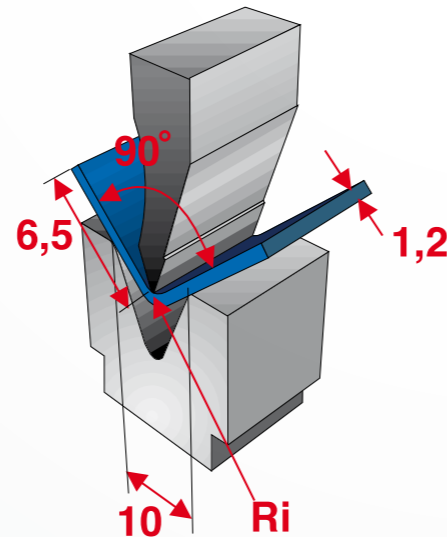
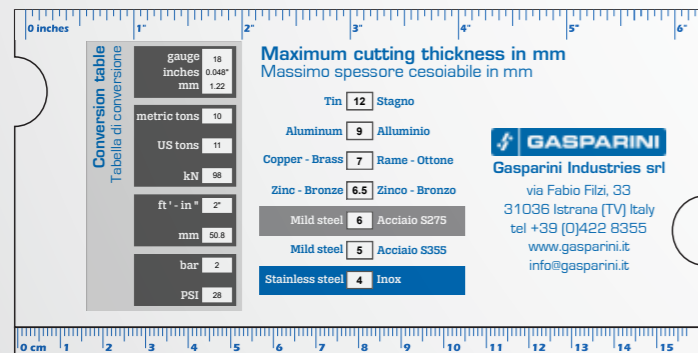


Ruler usage example

To calculate the tonnage required for air bending, slide the rule until you have the correct sheet metal thickness in the window labelled Thickness (Spessore). In the window below you will see the recommended values for the die opening. Minimum is on the left, optimal is on the center and maximum is on the right. A different die opening implies different minimum flange lengths and internal radiuses. The windows at the bottom show the force (in tons per meter) required with the various die openings of the matrix, for construction steel and for stainless steel. The two boxes on the left indicate the force required for partial and complete hemming.

EXAMPLE

- Thickness: 1,2 mm
- Optimal die opening: 10 mm
- Minimum flange length: 6,5 mm
- Internal radius: 1,3 mm
- Tonnage: 9 t/m with mild steel, 15 t/m with stainless steel



High-Strength Low-alloy Steel or HSLA

Given their characteristics, HSLA steels require specific setting of the bending process. The following table shows the minimum radius of curvature (Ri) and the opening of the V-die (V), for different types of material HSLA. The values are relative to the thickness of the piece being formed (s), for metal sheets bent with an angle of 90° along the rolling grain or perpendicular (across the grain).

	Thickness [mm]	Ri/s perpendicular to the rolling direction	Ri/s along the rolling direction	V/s perpendicular to the rolling direction	V/s along the rolling direction	Springback [°]
S355 - EN 10025		2,5	3,0	8,0	8,0	3-5
WELDOX 700	s < 8	1,5	2,0	7,0	8,5	6-10
	8 ≥ s < 20	2,0	3,0	7,0	8,5	
	s ≥ 20	3,0	4,0	8,5	10,0	
WELDOX 900/960	s < 8	2,5	3,0	8,5	10,0	8-12
	8 ≥ s < 20	3,0	4,0	8,5	10,0	
	s ≥ 20	4,0	5,0	10,0	12,0	
WELDOX 1300	s < 8	3,0	3,5	9,0	10,0	10-32
	8 ≥ s < 20	3,5	4,5	9,0	11,0	
	s ≥ 20	4,5	5,5	11,0	13,0	
WELDOX 1100	s < 8	3,5	4,0	10,0	10,0	11-18
	8 ≥ s < 20	4,0	5,0	10,0	12,0	
	s ≥ 20	5,0	6,0	12,0	14,0	
WELDOX 1300	s < 6	3,5	4,0	10,0	12,0	12-45
	6 ≥ s < 10	5,0	5,0	12,0	14,0	
HARDOX 400	s < 8	2,5	3,0	8,5	10,0	9-13
	8 ≥ s < 20	3,0	4,0	10,0	10,0	
	s ≥ 20	4,5	5,0	12,0	12,0	
HARDOX 450	s < 8	3,5	4,0	10,0	10,0	11-18
	8 ≥ s < 20	4,0	5,0	10,0	12,0	
	s ≥ 20	5,0	6,0	12,0	14,0	
HARDOX 500	s < 8	4,0	5,0	10,0	12,0	12-20
	8 ≥ s < 20	5,0	6,0	12,0	14,0	
	s ≥ 20	7,0	8,0	16,0	18,0	



	Force [kN]	Maximum bending length [mm]	Distance between uprights [mm]	Throat [mm]	Open height - Stroke [mm]	Height of manual tool adapters [mm]	Distance b/w bench and adapters [mm]	Floor pit depth [mm]	Approximate weight [t]	Maximum approach speed [mm/s]	Maximum return speed [mm/s]	Maximum bending* speed [mm/s]	Main motor power [kW]
X-Press 30/1250	300	1250	1200	150	340 - 150 400 - 200	NA 100	NA 300	0	2,2	250	200	25	3
X-Press 50/1600	500	1670	1300	300	400 - 200 500 - 300 600 - 400	100	300 400 500	0	3,7	200	200	20	5,5
X-Press 50/2000	500	2100	1600	300	400 - 200 500 - 300 600 - 400	100	300 400 500	0	4,2	200	200	20	5,5
X-Press 50/2500	500	2600	2100	300	400 - 200 500 - 300 600 - 400	100	300 400 500	0	5,2	230	200	20	5,5
X-Press 80/2000	800	2100	1600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	5,8	200	200	20	7,5
X-Press 80/2500	800	2600	2100	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	6,8	200	200	20	7,5
X-Press 115/2500	1150	2600	2100	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	7,3	200	200	20	11
X-Press 115/3000	1150	3100	2600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	8,8	200	200	20	11
X-Press 115/4000	1150	4100	3600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	11,4	200	180	20	11
X-Press 165/3000	1650	3100	2600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	11,9	200	190	20	15
X-Press 165/4000	1650	4100	3600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	14,4	200	170	20	15
X-Press 165/5000	1650	5100	4600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	17,4	200	135	20	15
X-Press 225/3000	2250	3100	2600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	15,5	200	200	17	22
X-Press 225/4000	2250	4100	3600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	18,5	200	200	17	22
X-Press 225/5000	2250	5100	4600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	23	200	150	17	22
X-Press 225/6000	2250	6100	5600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	29,5	200	140	17	22
X-Press 275/3000	2750	3100	2600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	16	200	200	14,5	30
X-Press 275/4000	2750	4100	3600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	19	200	200	14,5	30
X-Press 275/5000	2750	5100	4600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	24,5	200	170	14,5	30
X-Press 275/6000	2750	6100	5600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	31,5	200	150	14,5	30



	Force [kN]	Maximum bending length [mm]	Distance between uprights [mm]	Throat [mm]	Open height - Stroke [mm]	Height of manual tool adapters [mm]	Distance b/w bench and adapters [mm]	Floor pit depth [mm]	Approximate weight [t]	Maximum approach speed [mm/s]	Maximum return speed [mm/s]	Maximum bending* speed [mm/s]	Main motor power [kW]
X-Press 330/3000	3300	3100	2600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	17,5	200	170	10,5	30
X-Press 330/4000	3300	4100	3600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	21	200	120	10,5	30
X-Press 330/5000	3300	5100	4600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	26	180	150	10,5	30
X-Press 330/6000	3300	6100	5600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	34	160	120	10,5	30
X-Press 400/4000	4000	4100	3600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	34	120	120	8,5	37
X-Press 400/5000	4000	5100	4600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	44	120	100	8,5	37
X-Press 400/6000	4000	6100	5600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	0	50	100	100	8,5	37
X-Press 400/7000	4000	7100	6600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	1750	56	85	70	8,5	37
X-Press 400/8000	4000	8100	7600	400	400 - 200 500 - 300 600 - 400	100	300 400 500	2050	63	85	70	8,5	37
X-Press 500/4000	5000	4100	3600	500	600 - 400 800 - 600	NA	NA NA	1350	45	120	100	8,5	45
X-Press 500/5000	5000	5100	4600	500	600 - 400 800 - 600	NA	NA NA	1600	48	100	100	8,5	45
X-Press 500/6000	5000	6100	5600	500	600 - 400 800 - 600	NA	NA NA	1750	63	100	70	8,5	45
X-Press 500/7000	5000	7100	7600	500	600 - 400 800 - 600	NA	NA NA	1900	68	100	70	8,5	45
X-Press 500/8000	5000	8100	7600	500	600 - 400 800 - 600	NA	NA NA	2200	75	100	70	8,5	45
X-Press 640/4000	6400	4100	3600	500	600 - 400 800 - 600	NA	NA NA	1500	68	100	100	8,5	55
X-Press 640/5000	6400	5100	4600	500	600 - 400	NA	NA	1700	63	100	100	8,5	55
X-Press 640/6000	6400	6100	5600	500	600 - 400	NA	NA	1700	70	100	100	8,5	55
X-Press 640/7000	6400	7100	6600	500	600 - 400	NA	NA	2050	78	100	100	8,5	55
X-Press 640/8000	6400	8100	7600	500	600 - 400	NA	NA	2200	90	100	100	8,5	55
X-Press 800/5000	8000	5100	4100	500	650 - 450	NA	NA	1600	65	100	90	7,5	75
X-Press 800/6000	8000	6100	5100	500	650 - 450	NA	NA	1700	68	100	90	7,5	75
X-Press 800/7000	8000	7100	6100	500	650 - 450	NA	NA	2050	100	90	75	7,5	75
X-Press 800/8000	8000	8100	7100	500	650 - 450	NA	NA	2050	105	90	75	7,5	75
X-Press 1000/4000	10000	4100	3100	500	850 - 600	NA	NA	1900	80	80	65	7,5	75
X-Press 1000/5000	10000	5100	4100	500	850 - 600	NA	NA	1900	85	80	65	7,5	90
X-Press 1000/6000	10000	6100	5100	500	850 - 600	NA	NA	1900	90	80	65	7,5	90
X-Press 1000/7000	10000	7100	6100	500	850 - 600	NA	NA	2200	120	80	65	7,5	90
X-Press 1000/8000	10000	8100	7100	500	850 - 600	NA	NA	2750	160	80	65	7,5	90
X-Press 1000/9000	10000	9100	8100	500	850 - 600	NA	NA	2850	190	80	65	7,5	90
X-Press 1000/10000	10000	10100	9100	500	850 - 600	NA	NA	3100	210	80	65	7,5	90
X-Press 1250/7000	12500	7100	6100	500	850 - 600	NA	NA	3000	160	60	60	6	104
X-Press 1250/9000	12500	9100	8100	500	850 - 600	NA	NA	3300	180	60	60	6	104
X-Press 1250/10000	12500	10100	9100	500	850 - 600	NA	NA	3300	210	60	60	6	110

* For EC countries the working speed is limited according to current safety regulations.

Concept: claim.brandindustry

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Printed in April 2021

GASPARINI INDUSTRIES S.R.L.

Via Fabio Filzi, 33
31036 Istrana (TV) Italy

www.gasparini.com
info@gasparini.it
t (+39) 0422 8355
f (+39) 0422 835 700

