GASPARINI

BENDING & CUTTING TECHNOLOGIES

COLLECTION 2011

THE PHOENIX HAS TAKEN OFF

...TOWARDS YOUR FUTURE

Little more than a year has elapsed since Gasparini Industries rose from the ashes, and the Phoenix has now taken off. It has been a year of hard work, during which, with our passion, professionalism and technological innovation, we have started building your future as well as ours.
Now is the time to show it to you!

Simone Ferrari
Chief Executive Officer
Gasparini Industries.

Gasparini Industries srl
COLLECTION 2011
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PASSION MEETS INNOVATION TO DELIVER UN-MATCHABLE PERFORMANCES

The product range

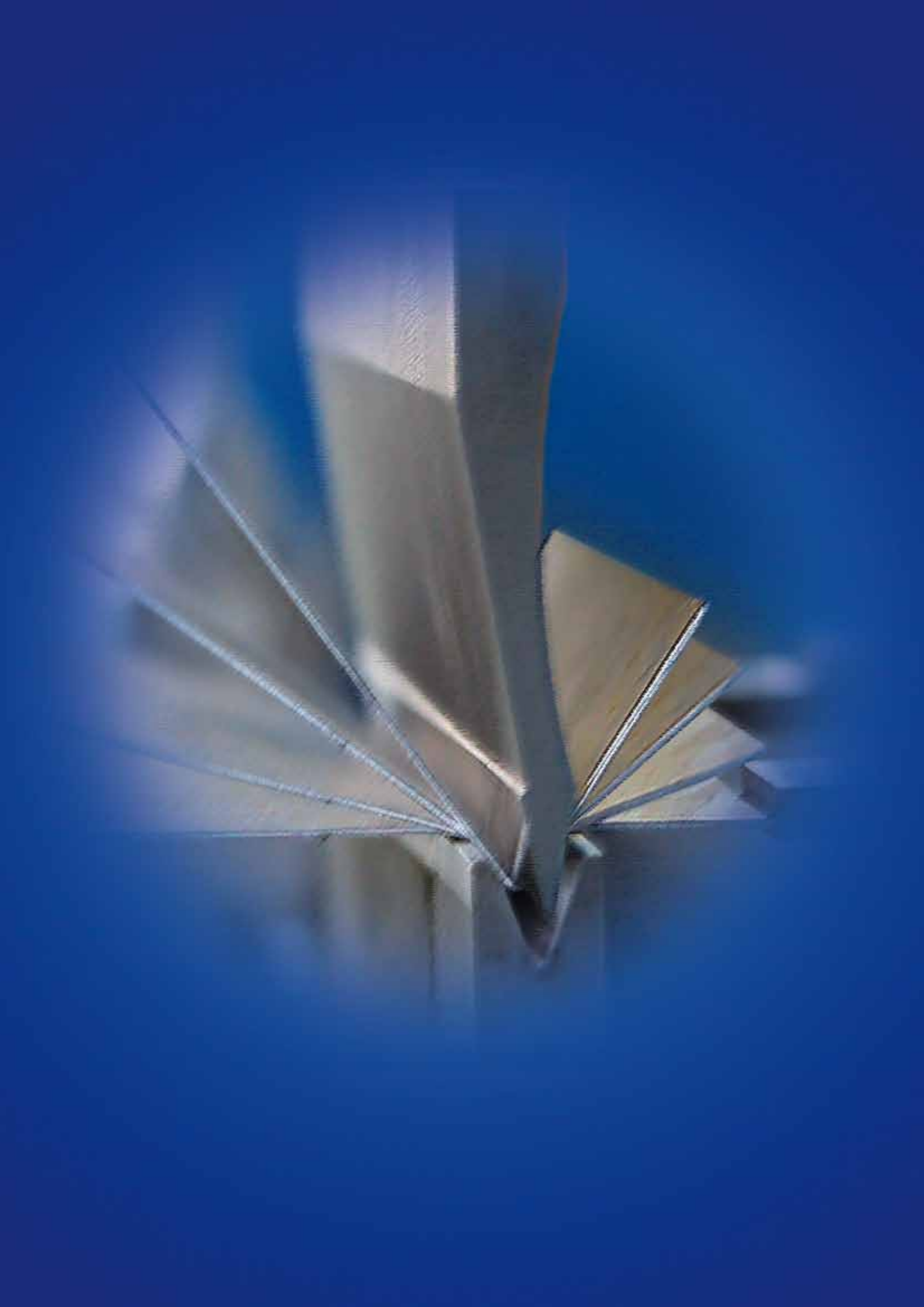
Gasparini offers three main product platforms: press brakes, shears and plasma cutting machines. All products are positioned at the high end of their specific market, providing a significant technological content, a robust design, together with an "easy to use" configuration and a wide range of options and accessories, to customize the machine according to your needs.
The press brakes range includes machines with bending force from 25 to 1500 tons and bending length from 1250 to 10000 mm, available as single machine or in tandem solution, stand-alone or integrated in a robot cell.
Shears have been completely re-designed, maintaining all the strong points of Gasparini's historical CO series, while introducing several innovative solutions, offering a product range with cutting capacity up to 30 mm, cutting length from 2 to 6 mt. We can also offer complete cutting lines equipped with feeding, stacking, conveying systems as well as other automation, on demand.
Plasma cutting machines can be supplied with width from 1.5 mt to 4 mt and length from 3 mt to 27 mt, able to cut up to 80 mm depending on generator power. Gasparini plasma machines, thanks to the precision, speed, flexibility and the wide range of options and accessories, are well recognised as some of the highest-performing plasma machines on the market.

The Customer: our "Magnificent Obsession"

All the staff at Gasparini Industries are dedicated to customer satisfaction; we highly value the opinion of our partners and end users, since our first aim is to improve our performance and to fulfill market expectations.
With this purpose, we have introduced in our organization the "Tech Center Division", formed by a team of specialists, fully dedicated to analyzing the specific customer needs and to providing the best "tailor made" solution.
The Service Organisation and related processes have also been significantly improved to guarantee excellent service levels, both as concerns spare parts availability and timely maintenance.

The factory and the location

Gasparini Industries covers a total area of 40,000 m², including 10,000 m² shopfloor, 2,400 m² offices and 700 m² for the renewed Show Room.
All production processes have been re-designed, introducing the "Kaizen" production system, to deliver continuous improvement, through the outstanding contribution of passionate people.
Gasparini Industries is located in Istrana, North-East Italy, only 40km by car from Venice and 15 Km from Treviso; easily reachable also by train or plane.



PRESS BRAKES

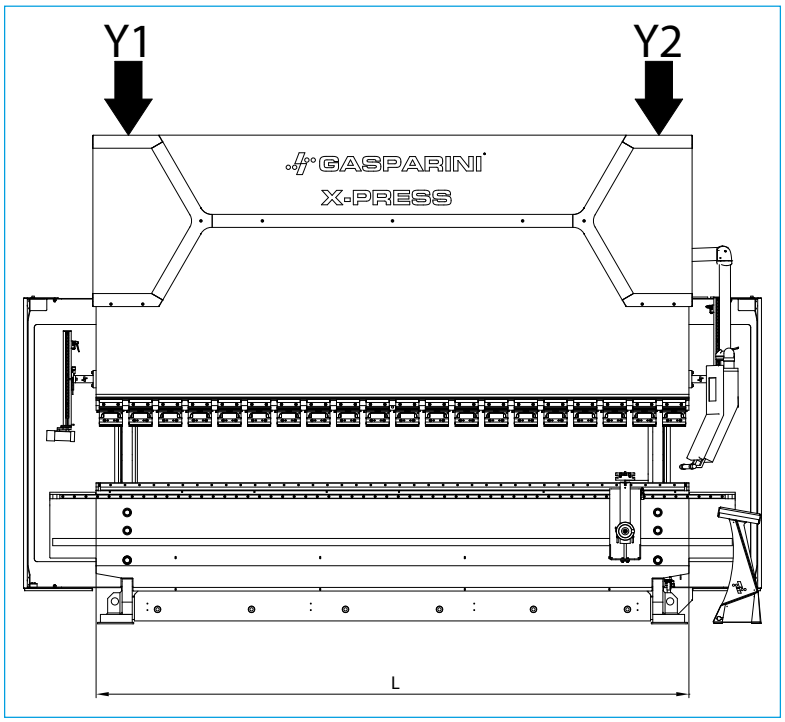
GASPARINI

BENDING & CUTTING TECHNOLOGIES

BENDING PROCESSES

The following pages provide users with the fundamental concepts of bending. They are not meant to be an exhaustive guide, but we think it could be beneficial to understand the basics of a process that is, in fact, much more complicated than it looks.

PRESS BRAKE SIZE



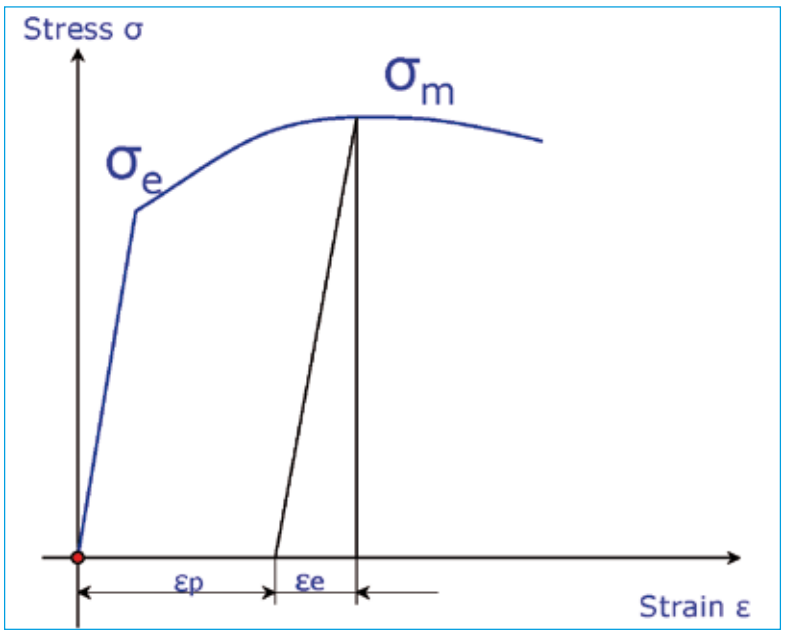
A press brake is basically defined by:

L=BENDING LENGTH

F=FY1+FY2=BENDING FORCE

Ex: 100 t x 3 m (100-3000)

WHAT IS A "BEND"?

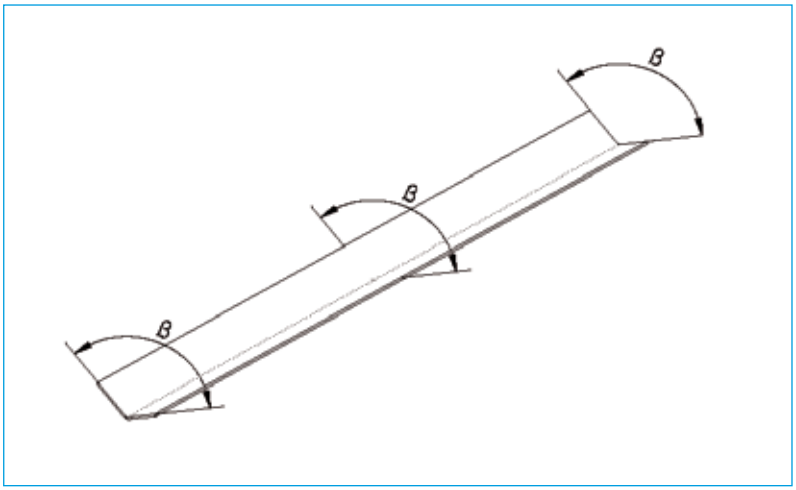


Permanent deformation of sheet metal under the effect of an external force

ep = PLASTIC DEFORMATION

ee = SPRINGBACK

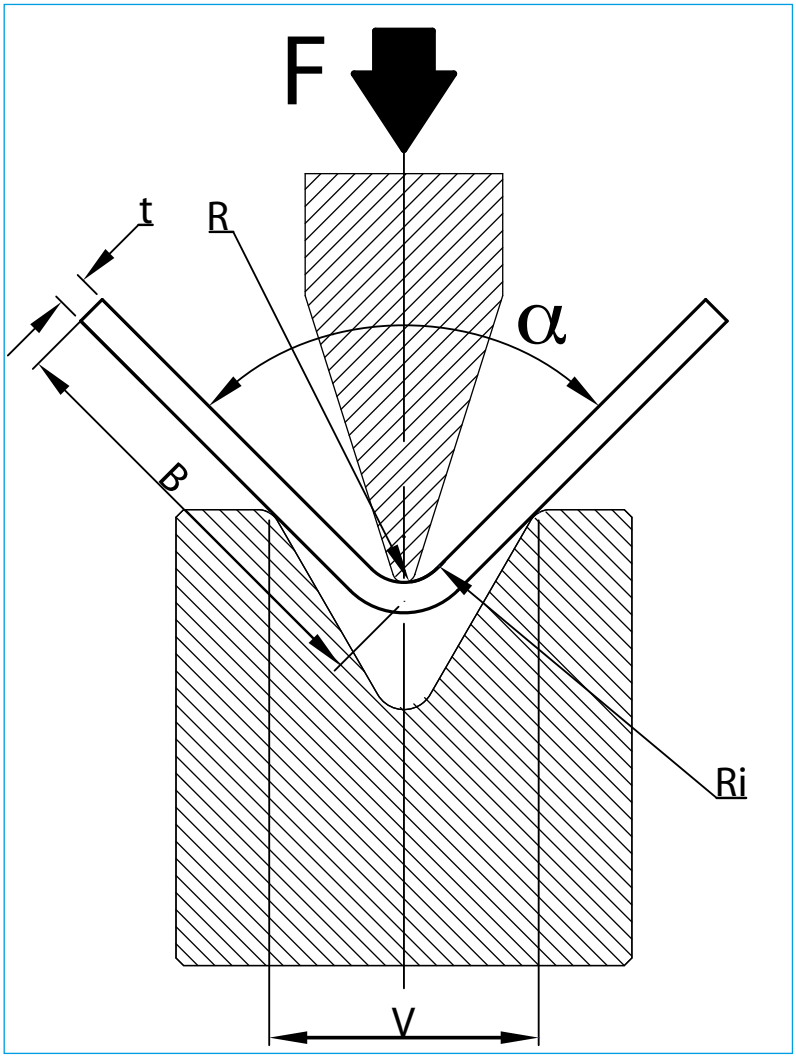
WHAT IS A PERFECT BEND?



A perfect bend is defined by three main factors:

- Accurate bending angle (βtheor vs βreal)
- Constant bending angle to the entire bending length
- Correct parallelism along the entire bending length

WHAT IS V-BENDING?



It is the most widely used technique for sheet bending.

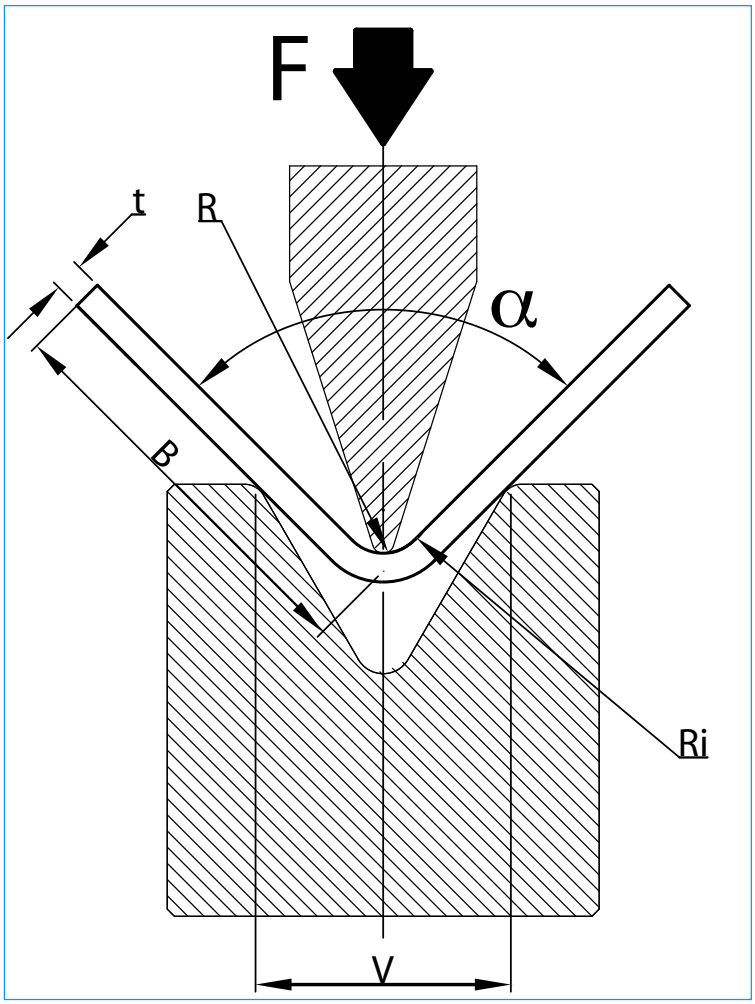
The process normally involves a punch pressing the material down into a V-shaped die.

A very important process parameter is the ratio between die V-opening and workpiece thickness: V/t.

Types of V-bending:

Parameters involved:
t , σ_m , α, R_i, B+V , F , R

AIR BENDING



It is the most used V-bending process.

- 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).

Advantages

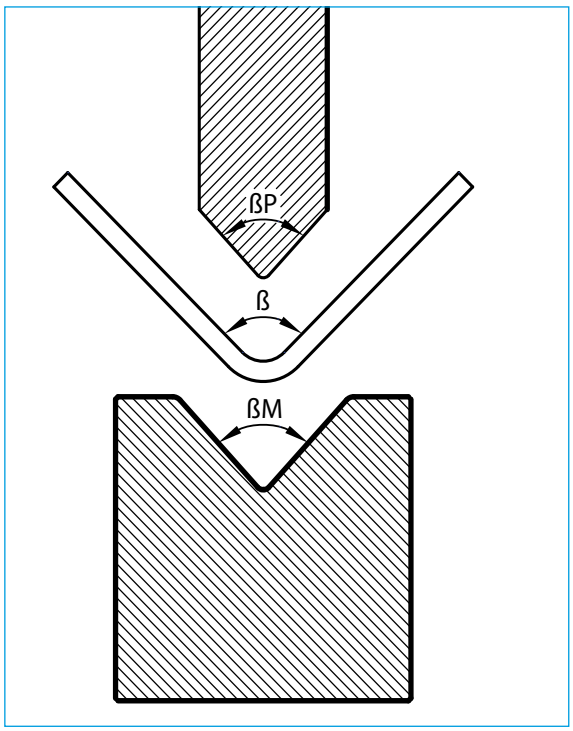
It needs a low bending force, allowing to use machines in the "lower tonnage range".

It allows bending very thick sheets and to obtain different angles with the same tools.

Disadvantages

Initial difficulty in finding the correct bending angle due to sheet springback.
It requires a high tech press brake to guarantee excellent bending precision.

SPRING-BACK – EFFECT COMPENSATION

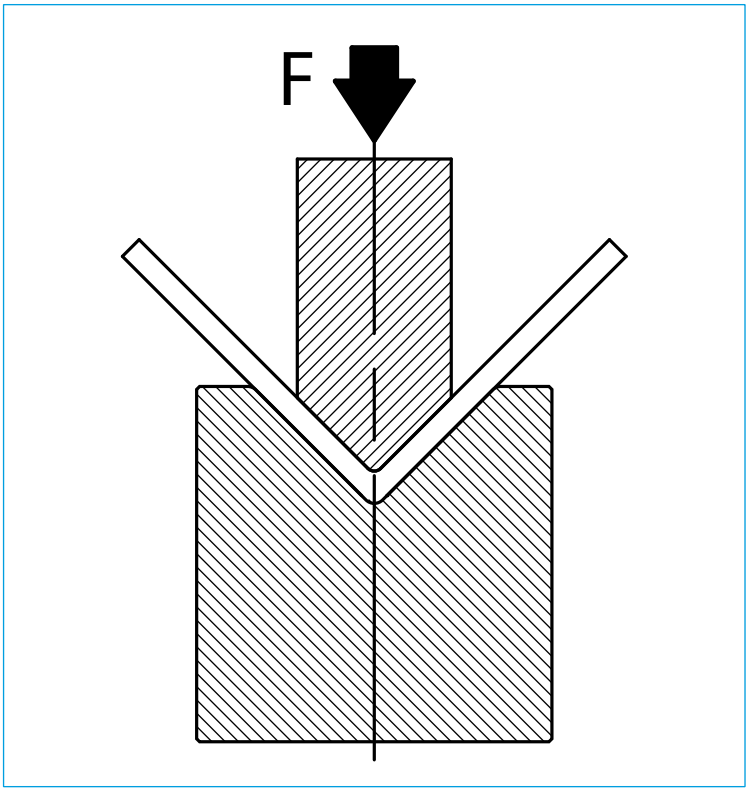


In order to offset the spring-back of the sheet metal, the tools should be chosen in the following ranges:

PUNCH: $\beta P = \beta - 2° \div \beta - 10/12°$

DIE: $\beta M = \beta - 2° \div \beta - 10/12°$

COINING (BOTTOMING)



- The bend is obtained by forcing the part completely into the die, so that the sheet metal follows exactly the die profile/angle.
- The sheet metal is permanently deformed and spring-back is minimized.

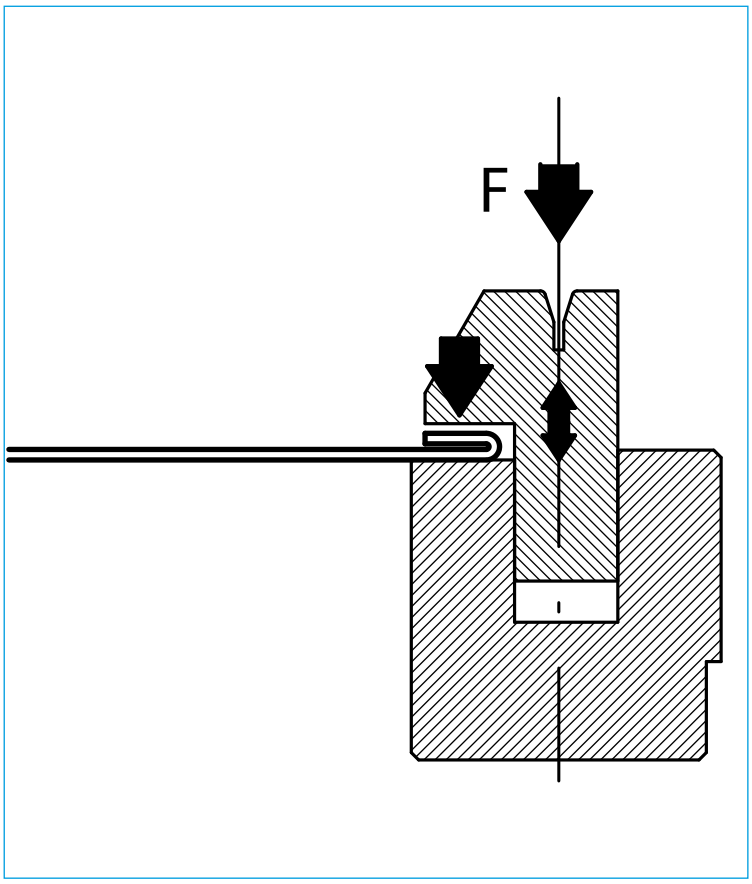
Advantages

High angle precision.
Elimination of springback.
Possibility to obtain smaller bending radius.

Disadvantages

It is normally executed when the part specification calls for avoiding sharp edges.
Different tools and dies are require dto obtain different angles.

HEMMING (FLATTENING)



- It is normally applied when the part specification require to avoid sharp edges.
- It is a 2-step process.
- There is always a 30°-35° pre-bend (by air bending process).
- You can have a complete or a partial "flat" angle, depending on the applied force.

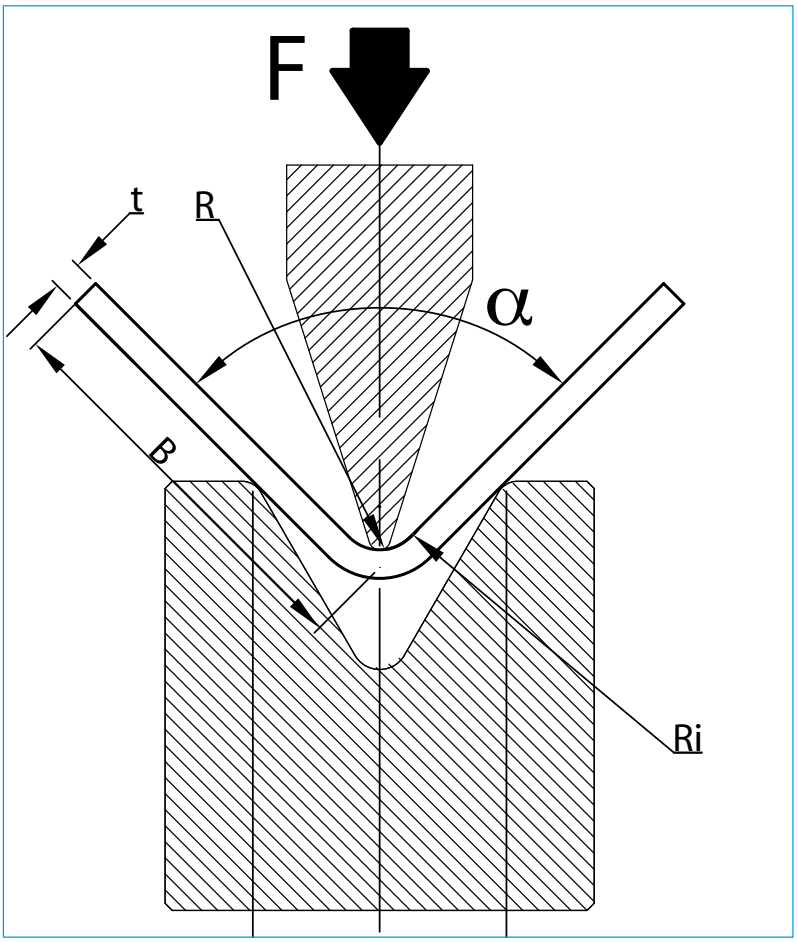
Advantages

Elimination of sharp edges.

Disadvantages

Requires a machine with a higher tonnage, since the bending force is up to 5 times more than the air bending force.
Specific and high tools cost.

BENDING FORCE DEFINITION



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

$$F = k\,(L * t^2 * \alpha_m) / V$$

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

V/t reccomended:

V/t = 8 (if t < 8 mm)
V/t = 10 (if t ≥ 8 mm)
] SS, MS

V/t = up to 18 !!!
] HSS (see HSS bending)

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 value given refers to air bending process, mild steel and a 90° angle. However, the tool includes the correction factor to be applied, depending on angle, material and bending process.

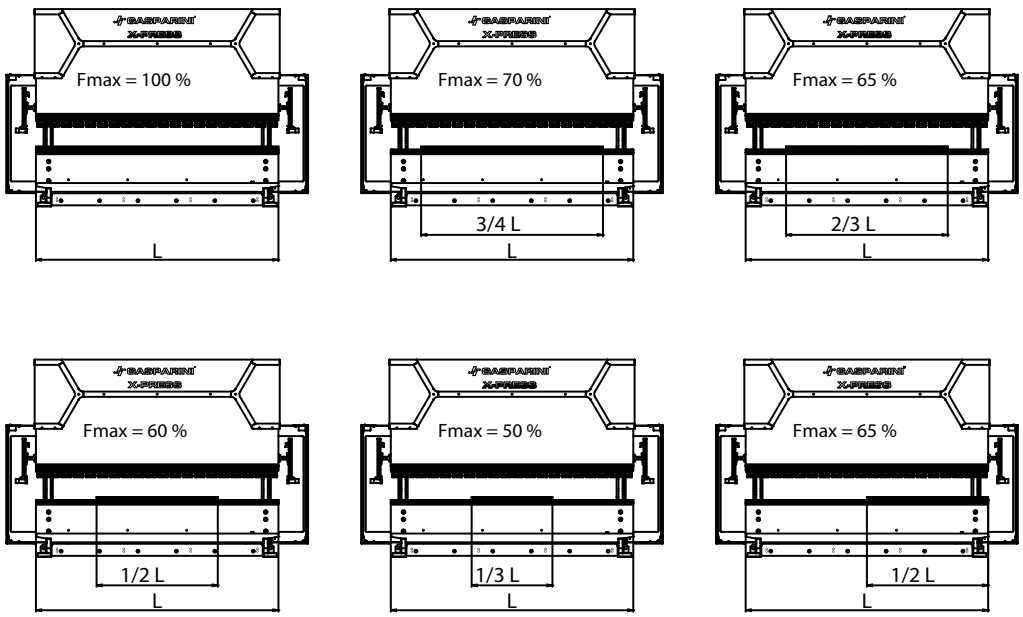
High Strength Steel (HSS) BENDING

The following table shows the minimum recommended punch radius (R) and V-opening die (W), ratio to part thickness (t) for different HSS types for plate bent at 90° along rolling direction or at a right angle.

	Thickness (mm)	At right angles R/t	Along R/t	At right angles W/t	Along W/t	Spingback [°]
S355 - EN 10025		2.5	3.0	8.0*	8.0*	3-5
WELDOX 700	t < 8 8 ≥ t < 20 t ≥ 20	1.5 2.0 3.0	2.0 3.0 4.0	7,0 7.0 8.5	8.5 8.5 10.0	6-10
WELDOX 900/960	t < 8 8 ≥ t < 20 t ≥ 20	2.5 3.0 4.0	3.0 4.0 5.0	8.5 8.5 10.0	10.0 10.0 12.0	8-12
WELDOX 1030	t < 8 8 ≥ t < 20 t ≥ 20	3.0 3.5 4.5	3.5 4.5 5.5	9.0 9.0 11.0	10.0 11.0 13.0	10-32
WELDOX 1100	t < 8 8 ≥ t < 20 t ≥ 20	3.5 4.0 5.0	4.0 5.0 6.0	10.0 10.0 12.0	10.0 12.0 14.0	11-18
WELDOX 1300	t < 6 6 ≤ t < 10	3.5 4.0	4.0 5.0	10.0 12.0	12.0 14.0	12-45
HARDOX 400	t < 8 8 ≥ t < 20 t ≥ 20	2.5 3.0 4.5	3.0 4.0 5.0	8.5 10.0 12.0	10.0 10.0 12.0	9-13
HARDOX 450	t < 8 8 ≥ t < 20 t ≥ 20	3.5 4.0 5.0	4.0 5.0 6.0	10.0 10.0 12.0	10.0 12.0 14.0	11-18
HARDOX 500	t < 8 8 ≥ t < 20 t ≥ 20	4.0 5.0 7.0	5.0 6.0 8.0	10.0 12.0 16.0	12.0 14.0 18.0	12-20

*Depending on thickness

BENDING FORCE vs BENDING LENGTH



The maximum bending force (F max) applicable to the sheet metal, as a percentage of the total nominal machine force (F tot), depends on the length of the part (vs. machine length) and the bending position (centered or not).
F max is further reduced when coining, due to the heavy process.

Also the "machine utilization" (Time) at full capacity is a factor to be considered when dimensioning correctly the press brake.

It is always recommendable to over-dimension the machine by about 20-30%.

NEW GASPARINI

X-PRESS

RANGE

NEW RANGE
X-PRESS

Gasparini X-Press press brake range, provides top class machines, able to satisfy the most sophisticated and complex customer needs, thanks to the flexibility, the high performance and quality standards, based on several specific features and execution, which position Gasparini press brakes at the top of the market. The product range, the outstanding versatility, as well as the possibility to configure the machine according to the specific customer needs, allow to execute any bent parts, always guaranteeing a high quality standard, with unbeatable precision, consistency and repeatability, while optimizing processing time. The product range has been recently improved, standardizing the previous X-Press and PSG family in one single and larger range, including a new hydraulic system, to further increase both approaching and returning speed, to further reduce the processing time and introducing a new design that provides a unique, technological and Italian look for worldwide recognition.


GASPARINI
PRESS 200

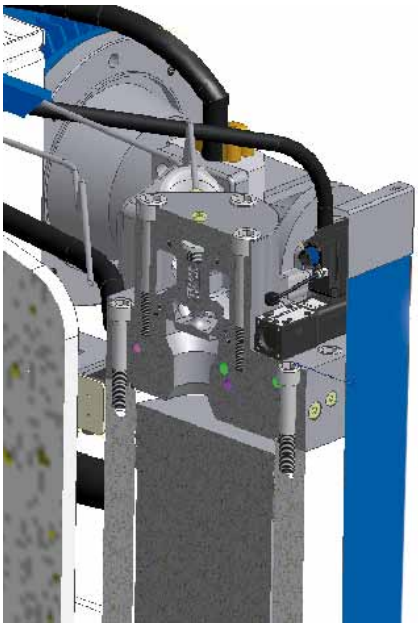
NEW DESIGN

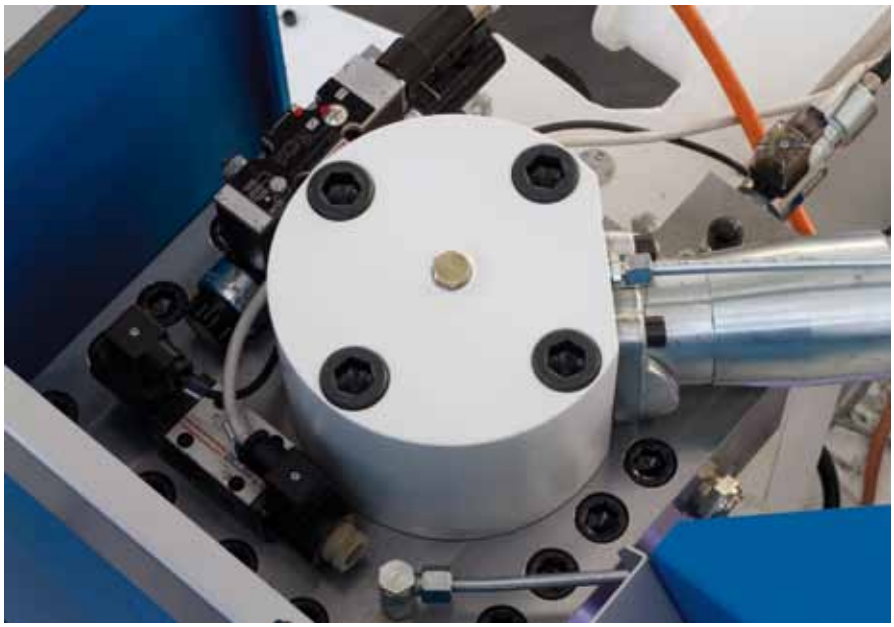
The new product design, applied to all new Gasparini products, including shears and plasma cutting machines, supports the new Company image and its commitment to innovation. While introducing some state of the art technology, like LED lighting and poly-carbonate films, the new design is aligned with three important values, which are among the pillars of the Company's Innovation Strategy: unique, technological, Italian.

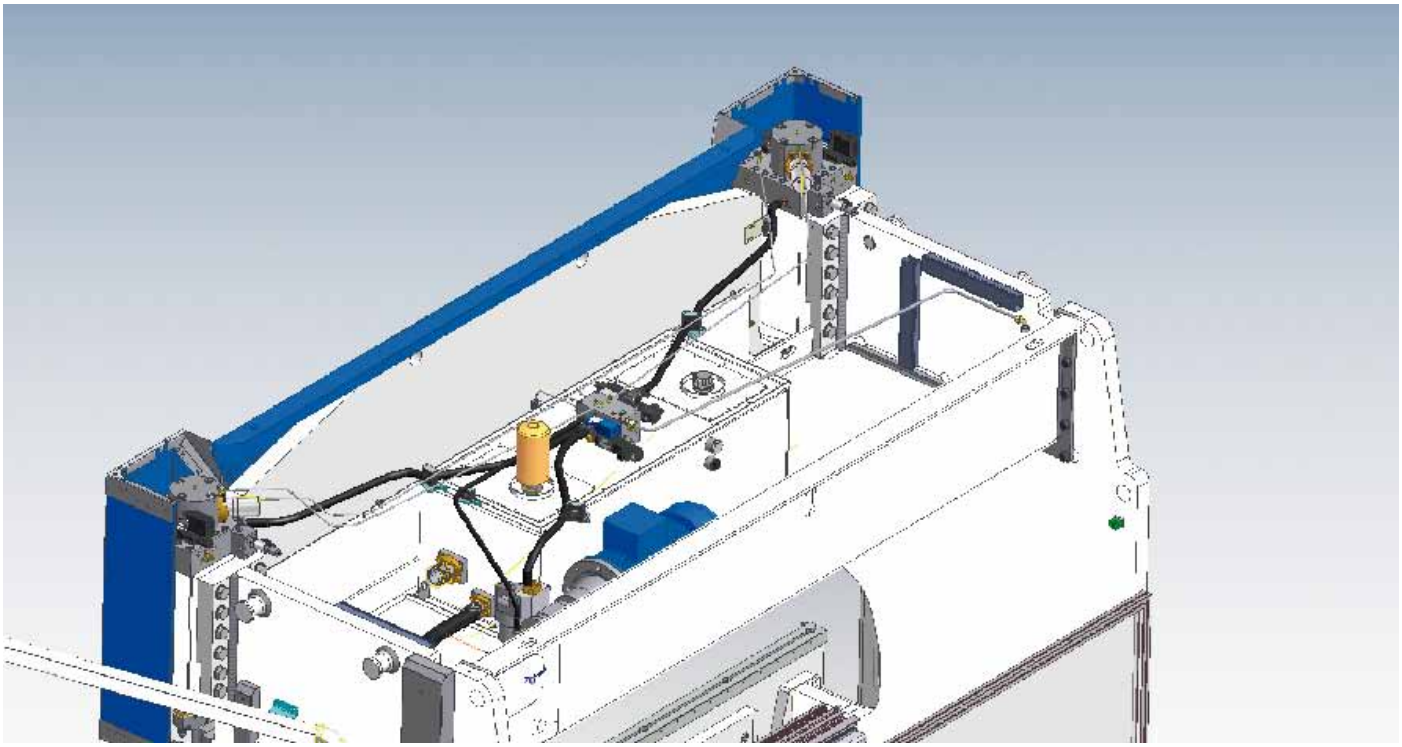

GASPARINI
X-PRESS 200

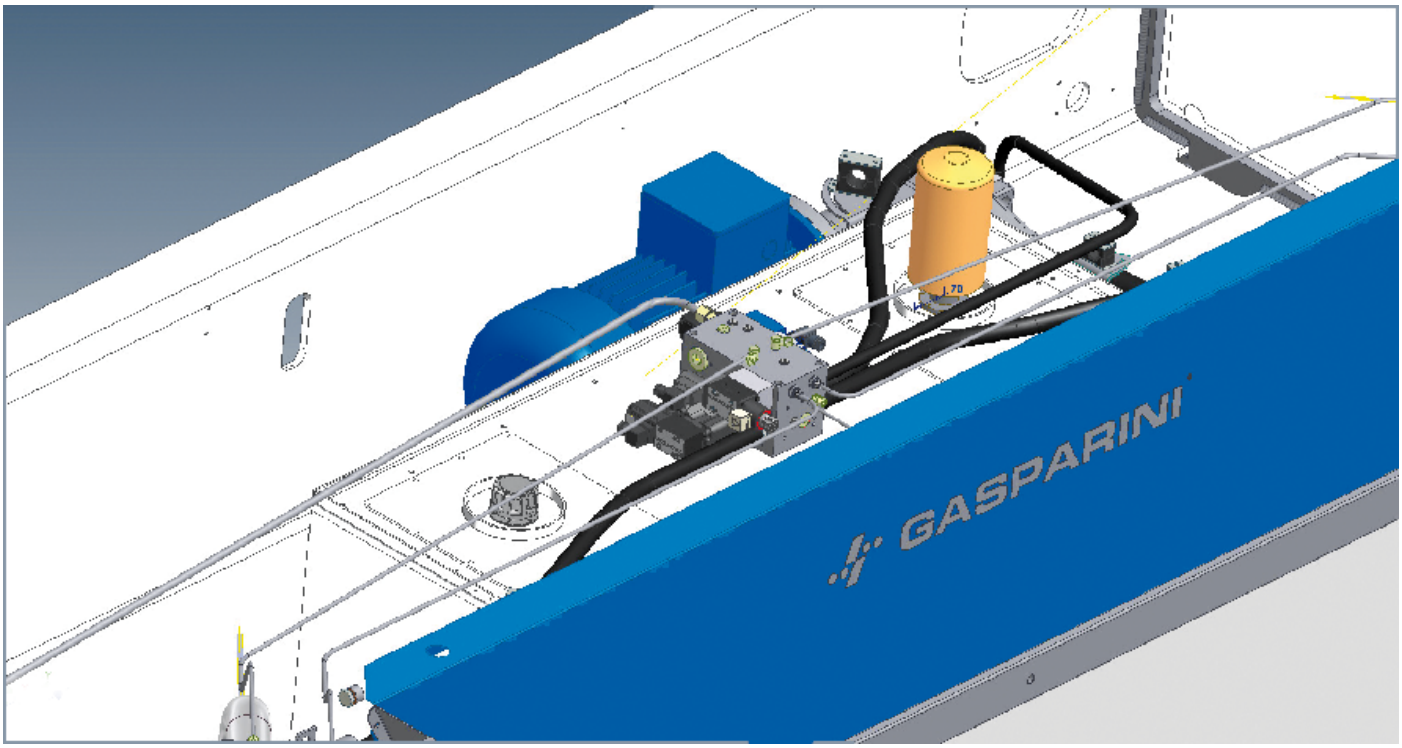
NEW HYDRAULIC SYSTEM

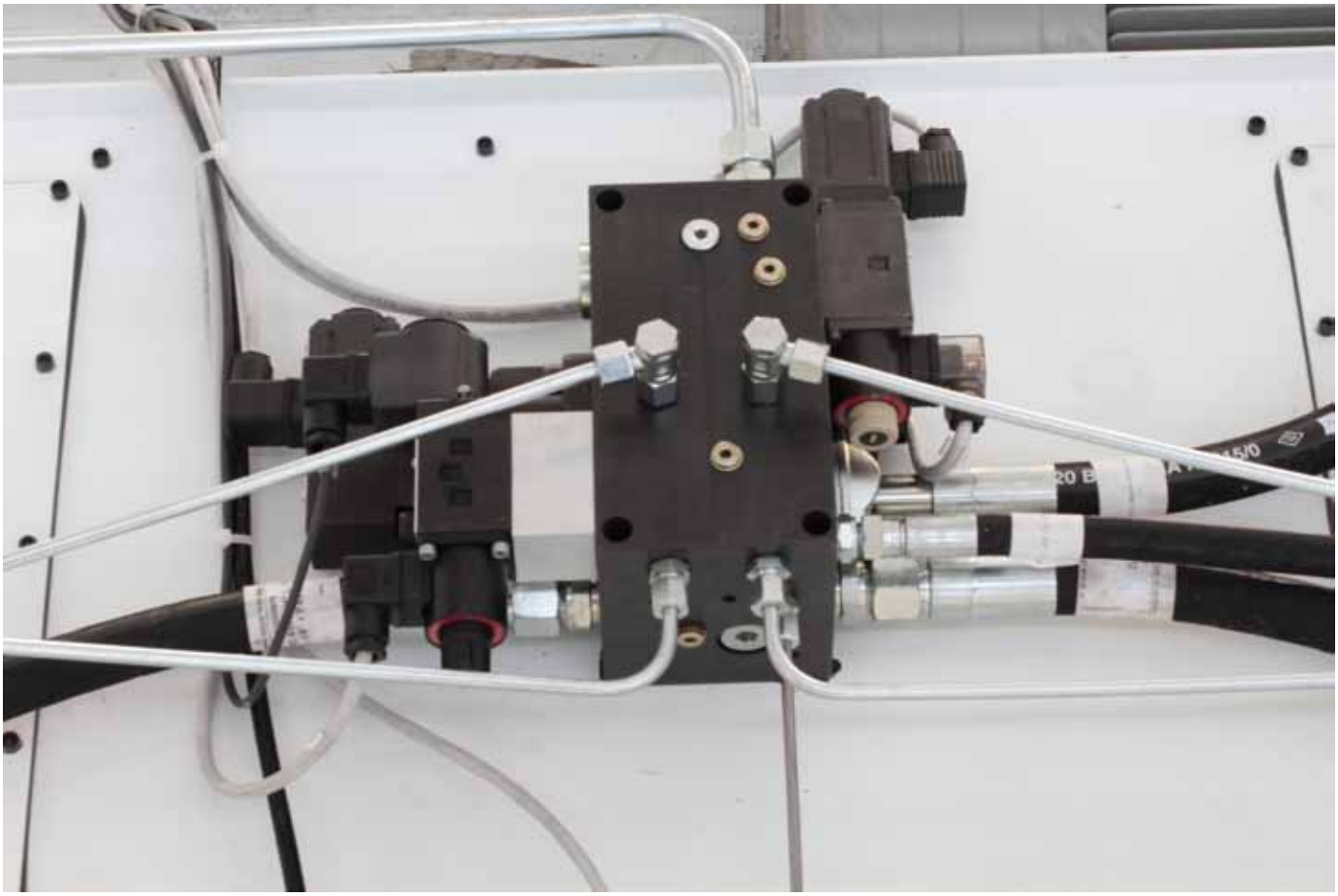
The new X-Press range is equipped with a new standardized hydraulic system recently developed by Gasparini. This new system has further improved the performances of Gasparini press brakes, already recognized among the best in the market, allowing to increase the returning speed and particularly the working speed from 10 up to 17mm/sec, depending on machine size (for robot use only).








GASPARINI

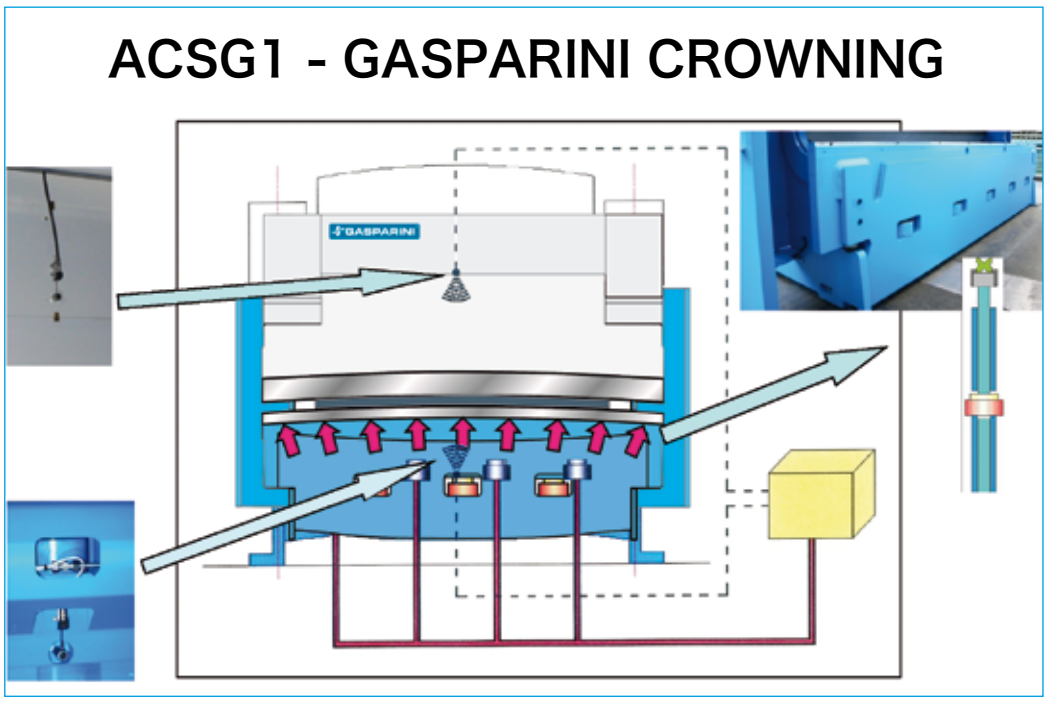


ACTIVE CROWNING SYSTEM ACSG1

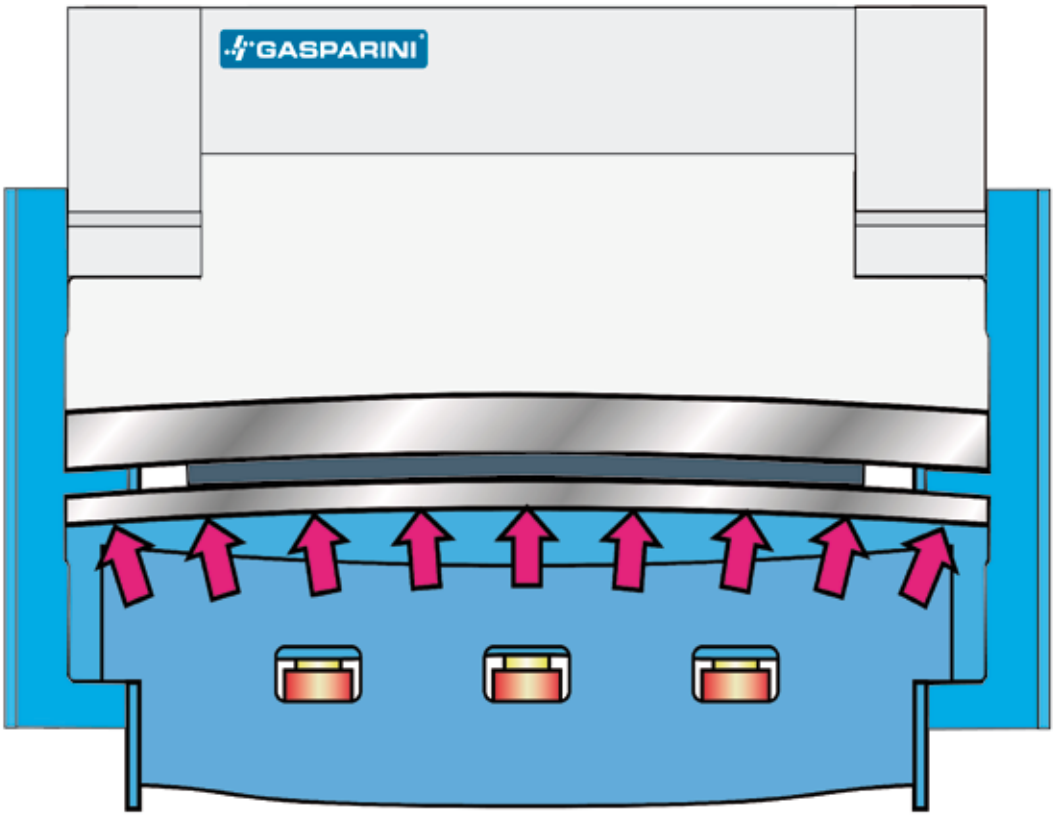
X-PRESS: A PRESS BRAKE WITH OUTSTANDING PERFORMANCES

The new X-Press range is equipped, already in the standard range configuration, with the features that distinguish Gasparini press brake from the other machine available in the market.

Gasparini Active Crowing System (Acsg1), available on all X-press models over 2000 mm long, is one of the most important strengths of Gasparini press brakes. The system automatically and dynamically adjusts the deflection of the lower ram, to offset the deformation of the upper beam, without the need for any further corrections. Consequently, bending operations can be performed centrally or laterally in the machine, regardless of the length of material or the load imposed by the work piece.
The system is completely automatic, which means that no corrections should be done by the operator. The variations in tensile strength and material thickness from one part to the other not only change the ram position requirement due to spring back and thickness changes, but will also influence the amount of deflection on the entire system, including tooling. It is the deflection of the tools at various loads that cannot be compensated for in other systems. The Gasparini ACSG1 system automatically monitors and compensates, through an electronic and hydraulic circuit, any parameter variation, without any intervention by the operator, who only has to specify the bending angle.



A transducer measures the effective deformation of the ram, in real time, during the bending process.
The lower beam, consisting of three plates assembled in a sandwich structure, is activated by a series of hydraulic cylinders.
The lower beam also contains a transducer, which controls the deflection of the lower beam to automatically and dynamically offset the deformation of the ram in real time.

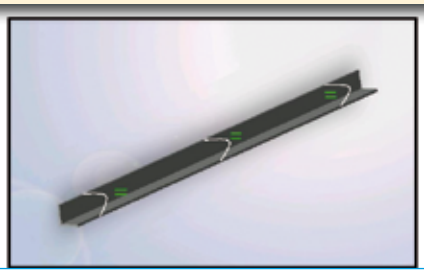


The system ensures the lower cylinders provide the same crowning action in the loower beam as the one brought about by the bending process on the upper ram.
The deflection of the lower beam is not preset, but is dynamically adjusted in real time, in accordance with the upper ram; this guarantees a uniform action all along the length of the beam.

ACSG1 - A DIFFERENT RESULT

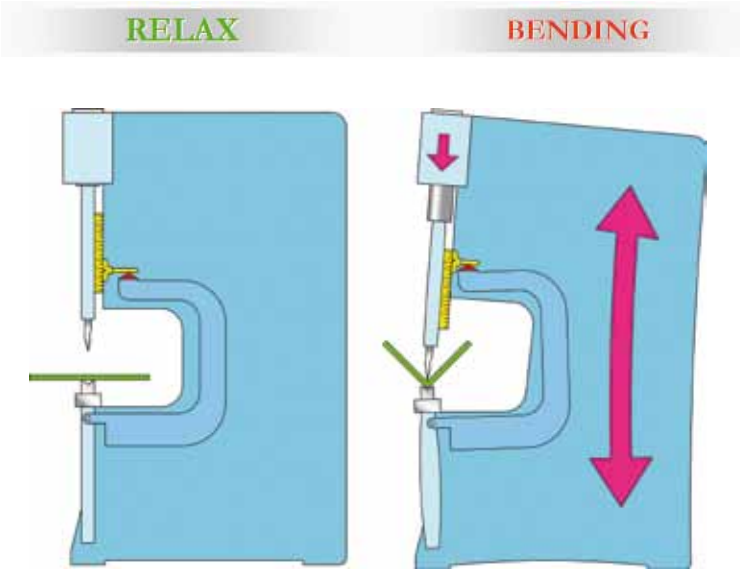
WITHOUT CROWNING OR BY STYLE CROWNING

BY GASPARINI CROWNING

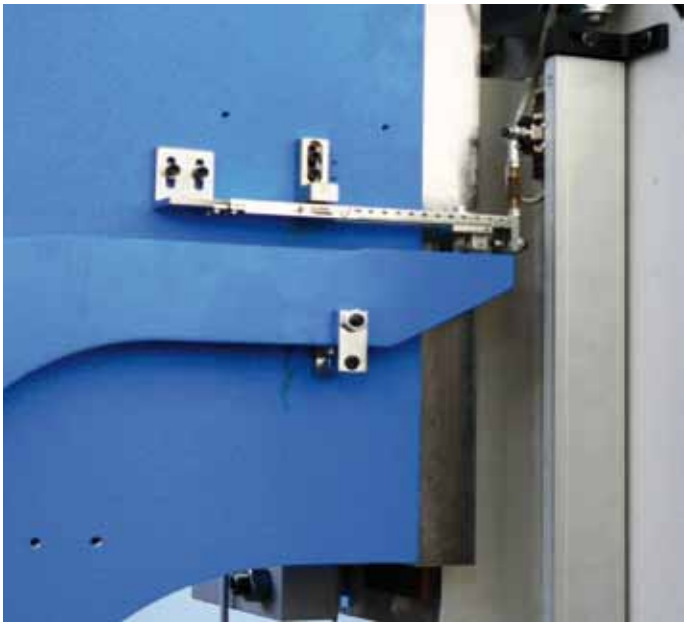


The system provides in conclusion a huge benefit to the customer, guaranteeing a constant bending angle, all over the length of the bending line, without any need for alignment, correction or maintenance by the operator. The operator only needs to specify, at the beginning of the process, the angle and the material thickness, without specifying position and length of the sheet metal and without setting up the crowning system, as required by most of the competitors' machines

REFLEX SYSTEM

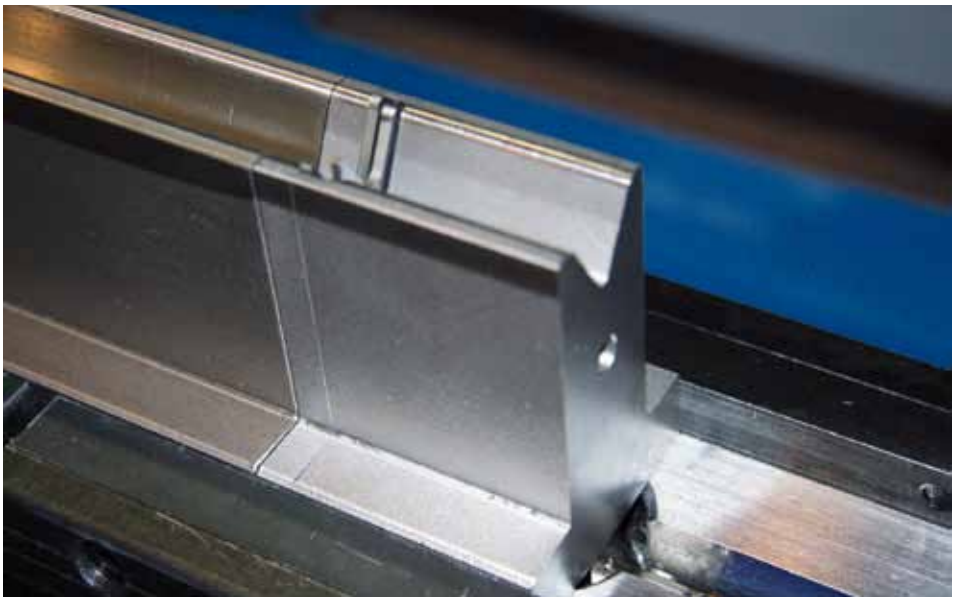


During the bending process, the whole press brake frame is subject to deformations that may vary according to load, thickness, length, part positioning and steel plate characteristics. To perform correct bending, the reference points for ram positioning must not be affected by such deformations..
The REFLEX proportional frame deflection compensation system, ensures each bend is executed with a constant angle (bending depth), regardless of the specific characteristics of the piece to be bent.
Ram position is measured by linear encoders, installed upon idle frames that do not undergo the frame deformation while bending. Linear encoders are fully calibrated in internal testing before shipment, so that the ram positioning accuracy is granted in every working condition.
The linear encoders installed by Gasparini achieve up to 1 µm accuracy in ram position measurement, granting the highest positioning repeatability and setting the state of the art in the market.



Like active crowning, the Reflex system is also installed as a standard feature on the Gasparini X-Press press brake range.
The system guarantees a constant angle, regardless of the length of the part, also in this case, without any need of alignment, correction or maintenance by the operator.

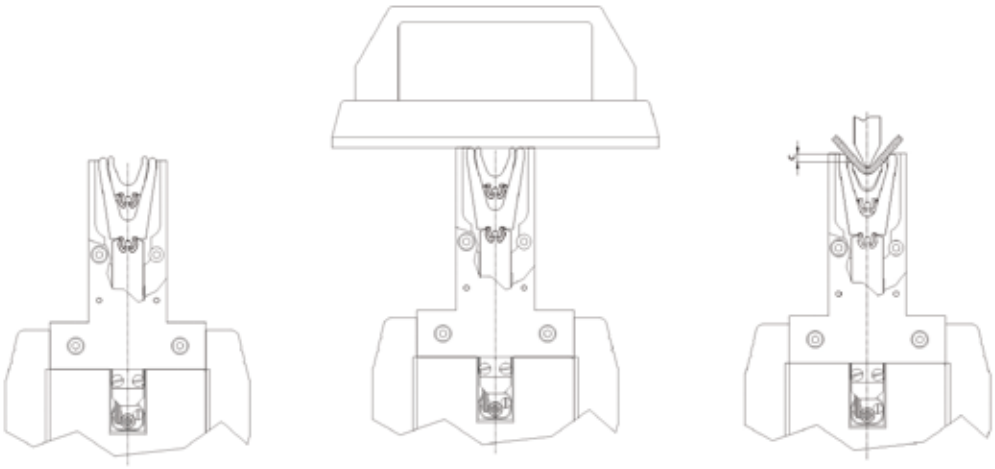
GPS4-R: AUTOMATIC ANGLE CONTROL AND ADJUSTMENT SYSTEM



Gasparini GPS4 automatic angle control and adjustment systems, is one of the best angle measurement system in the market. The device allows an on-going control and adjustment of the bend angle during the bending process. A double fork-shaped tracer detects the bend angle of both sides of the sheet in four different points and displays the actual bending angle on the CNC control.

The drawing shows how the forks are integrated into the die. The system is pre-set with a specific device (included).

PRE-SETTING AND MESUREMENT

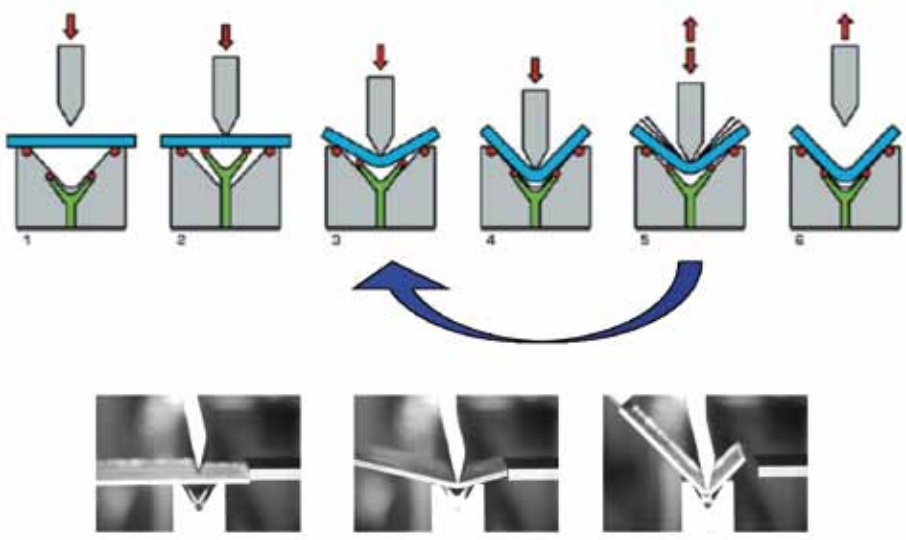


GPS4 on: forks at the TDC

GPS4-R during bending: the forks are pushed and aligned with the presetting device in the die reference plane, the devide is reset in such position

GPS4-R during bending: the forks are pushed against the sheet metal, the C height difference between the forks gives the bending angle.

GPS4 PROCESS



The system control the bending process with a loop that permit to make automatically up to three adjustement to achieve the correct angle.

GPS4-R guarantees a "perfect bend" with an outstanding device precision.
Precision is determined by the device tolerance and is also depending on die size:

- For dies from V 8 to 12 (included) it is ±20'
- For all the other dies with V up to 125 it is ±15'

Among the many advantages offered by this device, on top of the unbeatable bending precision, those concerning productivity and user-friendliness immediately stand out:

- No settings of material thickness
- No settings of material type
- No settings of material length
- No setting of bending force
- No sampling test
- No manual correction needed

THE OPERATOR HAS ONLY TO SET THE DESIRED ANGLE

In addition:

- The device is applicable to all standard and special tools (with V up to 125)
- It has no limit on minimum die edge
- It has no bending profile limitations
- It provides the possibility to work with multiple tools stations

Delivering a significant competitive advantage, compared with other angle measurement systems available in the market.

GPS4-R COMPARED TO COMPETITORS' DEVICES

- ***REAL TIME ON GOING ANGLE MEASUREMENT AND ADJUSTMENT***

No theoretical measurement

Measuring both sides of the sheet

No virtual contact with laser beam

- ***DEVICE COMPLETELY HIDDEN IN THE DIE WITHOUT ANY HANDLING LIMITATIONS FOR COMPLEX PIECES***

No limit of minimum edge

No external devices in front or behind the work bench or nearby the die

No needs of complex device with exposed and damageable electronic equipment

THE "PERFECT PRESS BRAKE" TO GUARANTEE THE "PERFECT BEND"

The combination of the GPS4-R option, together with the Active Crowning and the Reflex system (standard on all Gasparini X-Press above 2 m), guarantees, at the first bending, an overall accuracy of ±30' on the nominal angle value (depending on material, thickness and length), state-of-the-art bending technology.

NEW TELE-LINK

The new Gasparini Tele-link system, available as standard on all X-Press machines, is a software suite that allows Gasparini Service Engineers to connect to the customer's Delem CNC through a Bridge PC.
Internet for remote help, reducing machine down times.

GASPARINI SERVICE IS ABLE TO ACT DIRECTLY ON CUSTOMER'S DELEM CNC CONTROL

ADVANTAGES OF TELE-LINK

- Rapid failure analysis and reduction of machine down times.
- Possibility to fix software and CNC issueremotely.
- Reduction of the time spent on telephone assistance
- Easy to use
- Safe

REQUIREMENTS

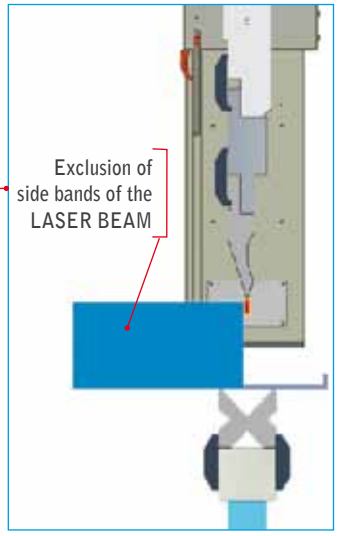
- Delem DA6xW CNC with Tele-link software installed.
- Ethernet connection between Delem CNC control and Bridge PC.
- Bridge PC connected to internet.
- Tele-link software suite on a USB key.

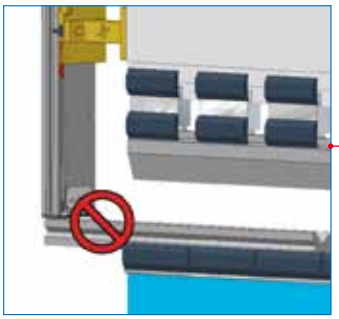
DSP LASER SAFETY DEVICE

The DSP laser safety device applied on Gasparini press brakes (up to 12m), provides a wide protection for the operator during the ram movement, at the same time as guaranteeing easy machine set up and extreme flexibility, to address different customer requirements. The DSP device, is installed on the upper beam ram, and is active in the down stroke movement. Laser beam interruption immediately stops the down movement.

BLANKING

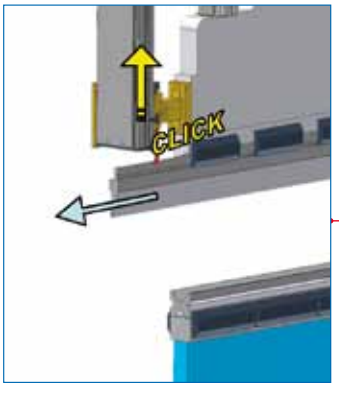
This function is used when bending boxes.
When this function is set, the device automatically recognise the box and following the operator's command, the ram moves down completely, without any intermediate stop.





SAFE RELEASE

Preventing damages of the device.(e. g. in case of dies accidentally placed in the working area).



FAST EXCLUSION

System which allows for easy and fast side extraction from part or upper tools.

CNC CONTROL
DELEM DA-66W

Gasparini press brakes are equipped with a Delem DA-66W, Real Time Windows based graphical CNC system, that offers advanced functionality to do even more with the CNC:

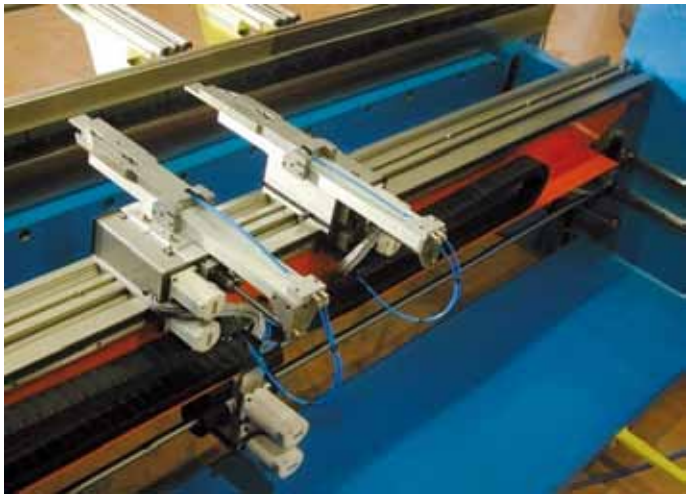
- 2D colour programming
- Advanced programming facilities
- Sharing product files over your local area network
- Sending and receiving email
- Internet access and access to your ERP-system
- Real Time Windows operating system
- Stable, multitasking environment
- Embedded pre-configuration
- Microsoft Networking standard on board
- Structured program storage (subdirectories)
- Instant Shut Off
- User specific applications support
- Colour LCD display (12" TFT, 800x600 pixels, 16-bit colour)
- 600 MHz microprocessor
- Memory capacity 128 Mb
- Free product and tools memory 64 Mb
- Millimetres/inches
- External connection to USB keyboard, mouse
- Error messaging system
- PLC functionality (sequencer)
- Machine time + stroke counter
- Tandem operation
- Emergency push button

Touch screen, 3D as well as the DA-69W are available as options.

OTHER STANDARD MACHINE FEATURES

BACK GAUGE RPS FOR PRESS-BRAKES UP TO 330T

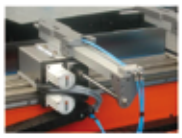
The back gauge RPS consists of a one-piece structure, driven by rack & pinion travelling on recirculation balls linear guides.
It includes an X and R axes (depth and height) in the standard configuration and is fitted with two reference back fingers, mounted on linear guides.
The back fingers can be adjusted manually with micrometric references. All axes of the back gauge are programmed for maximum speed for all movements and for deceleration when nearing requested distances.
The back gauge has an integrated safety device so that it cannot hit the tools and which varies according to the size of the lower tool. The system can be upgraded (optional) up to 6 axes (X-R-Z1-Z2-X5-X6) and additional back gauge fingers may be fitted on request.

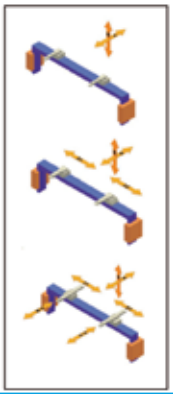


RPS: X-PRESS 25 -330 t

RPS: 25-330 t

- High speeds
- High precision and reliability
- AC Brushless motors
- Racks and pinions transmission
- Up to 75 degrees as conical bending





RPS PERFORMANCE

	RPS-0	RPS-1	RPS-2
X Standard Stokes	300 mm	600 mm	800 mm
X Speed (mm/s)	500 mm/s	500 mm/s	300 mm/s
R speed (mm/s)	125 mm/s	250 mm/s	160 mm/s
X Precision	± 0,05	± 0,05	± 0,05
X Repeatability	± 0,02	± 0,02	± 0,02
Anti-collision	YES	YES	YES
Type of Press	25 t	50 – 150 t	200-330 t

BACK GAUGE RPL FOR PRESS-BRAKES FROM 420t

The back gauge RPL consists of a solid structure, driven by screw travelling on rack & pinion and linear guides.

It includes X and R axes (depth and height) and is fitted with two reference finger assemblies, mounted on linear guides, which may be moved from the front of the machine by means of a special tool.
Additional back gauge finger assemblies may be fitted on request.

RPL: 420 - 1500 t

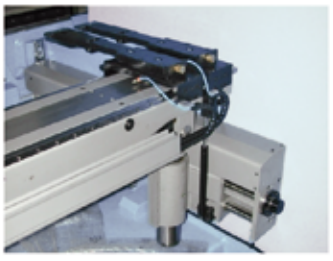
- X Standard strokes
- X Speed (mm/s)
- X Precision
- X Repeatability
- Anti-collision
- Presses

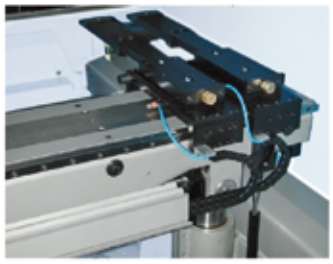
RPL-3

800 mm
250 mm/s
± 0,1
± 0,05
YES (optional)
More than 330 t

RPL: 420 - 1500 t

- High precision and reliability
- AC Brushless motors
- Ball screw transmission
- Sturdiness
- Inclined bending





STANDARD TOOL HOLDERS

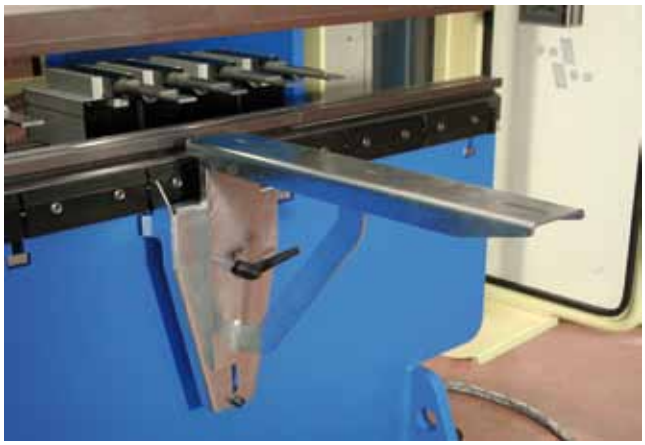
STANDARD MANUAL CLAMPING

Standard intermediate manual tools clamping.

SELF CENTERING BENCH

Self-centring bench for bottom tools with base from 60 or 90 mm.

STANDARD CE FRONT SUPPORT ARMS



CE- Standard front sheet support adjustable in height.

OPTIONS / ACCESSORIES

THE FOLLOWING PAGES CONTAIN ONLY THE MAIN OPTIONS AND ACCESSORIES. THE FULL LIST OF OPTIONS AND ACCESSORIES IS MUCH WIDER, INCLUDING POSSIBILITIES OF "TAILOR MADE" SOLUTIONS TO SATISFY THE MOST DISCERNING CUSTOMERS' NEEDS

BACK GAUGE RPG

The back gauge type RPG is extremely sturdy and precise, suitable to making heavy work and any type of bending. In order to assure this level of performance the back gauges 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 followers.
The back gauge type RPG consists of two trolleys, each equipped with 3 axes X-R-Z which are moved by guides, ball screws and AC motors. This configuration with independent trolleys and axes allows making any kind of positioning, does not limit any kind of inclination or misaligned stops, furthermore it allows the operator to make a big variety of movements within the machine itself.

RPG: 100 - 1500 t

- **High flexibility**
- **X1-X2-R1-R2-Z1-Z2**
- **Back sheet followers option**
- **Longer X stroke**

TOOL CLAMPING DEVICES

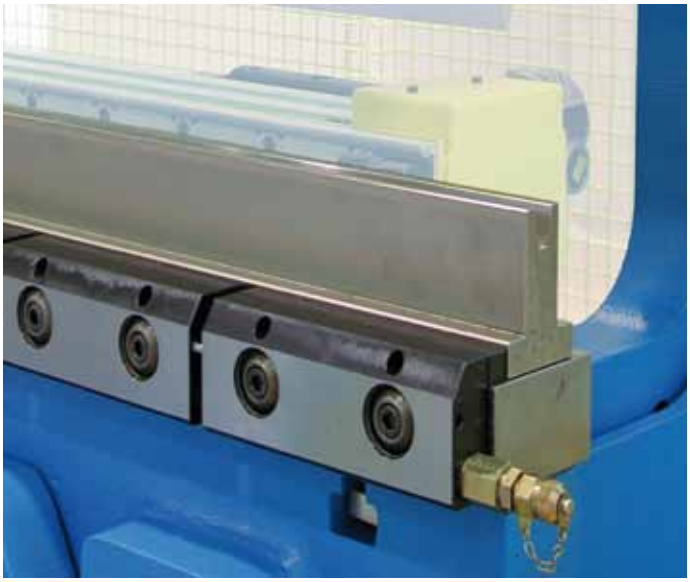
LOWER TOOLING CLAMPING EUROPEAN STYLE (PROMECAM)

PNEUMATIC SELF-ALIGNING LOWER TOOLS CLAMPING ABC

The pneumatic clamp for bottom tools is installed on self- centring beds with a 60- or 90 mm-wide base. This device speeds up the replacement of the bottom tools, reducing set up times by as much as 70%. The pneumatic clamping mechanism is completely integrated in the clamping, in order not to cause any limitation to part geometry.

HYDRAULIC LOWER TOOLS CLAMPING

The system is also available with a hydraulic instead of pneumatic circuit



UPPER TOOL CLAMPING EUROPEAN STYLE (PROMECAM)

PNEUMATIC SELF-ALIGNING UPPER TOOLS CLAMPING AIC

The upper pneumatic tools clamping is a very useful accessory when producing parts that require high opposing flanges. The intermediate clamp model AIC, with self-aligning pneumatic clamping, is suitable for ordinary top tools having an offset central connection and safety groove (European type). This type of top clamp allows the tools to be inserted and removed safely from the front of the machine in a vertical manner. The tools are automatically aligned, seated and clamped, reducing changing time and significantly increasing productivity.
The AIC clamping system also allows the fitting of reversed top tools, using a rear plate which can be activated from the front of the machine.

HYDRAULIC UPPER TOOLS CLAMPING

The hydraulic clamping system is used in large size machines or machines without the need of intermediate tool holders.

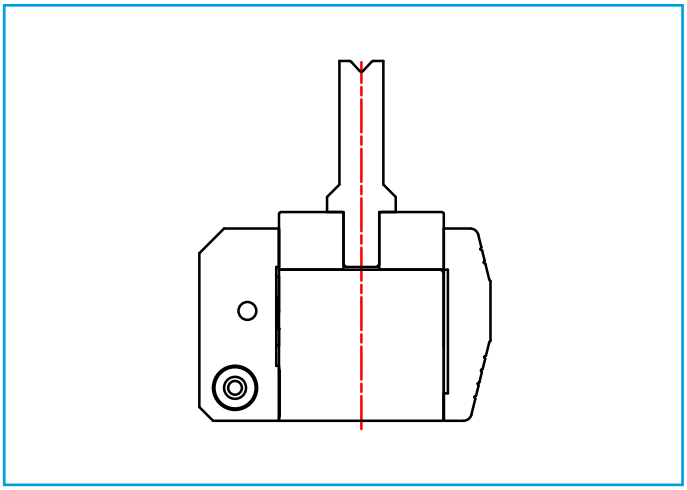
WILA TOOLS CLAMPING

GASPARINI PRESS BRAKES MAY BE EQUIPPED ALSO WITH WILA TOOLS CLAMPING

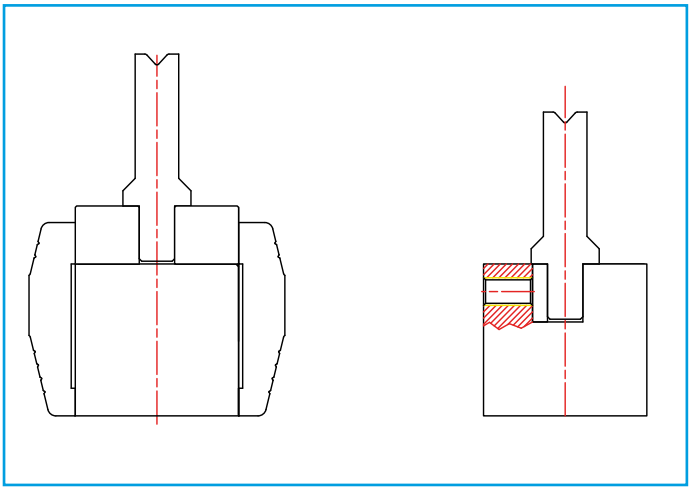
WILA MANUAL UPPER TOOLS CLAMPING

WILA HYDRAULIC UPPER TOOLS CLAMPING

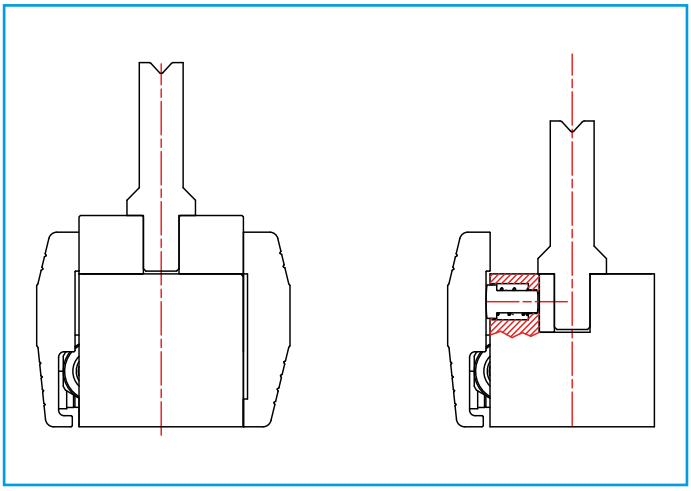
WILA HYDRAULIC LOWER TOOLS CLAMPING



WILA MANUAL LOWER TOOLS CLAMPING



WILA PNEUMATIC LOWER TOOLS CLAMPING



FRONT SUPPORTS

FRONT SUPPORT FSA-A

Front support arms, realized in aluminium profiles. A quick coupling system to the press brake, allows positioning along its entire length. They are also vertically adjustable to suit the height of the bottom tool. The support has a particular aluminium profile allowing:

- disappearig stops
- graded rule
- ball transfers (steel).

Various accessories can be fitted on request such as brushes for supporting materials with delicate surfaces, micrometric gauges, and protractor.

FRONT SUPPORT FSA-B

This type of sliding front support has been designed to facilitate the job of the operator. They are attached to the press brake by means of a linear guide with precision ball screws which allows positioning along the entire length of the machine; they are also vertically adjustable to suit the height of the bottom tool.
The linear guides extend beyond the table where the supports can be stored when not in use.
The support has a particular aluminium profile with T-slot, allowing:

- disappearig stops
- graded rule
- ball transfers (steel).

Various accessories can be fitted on request such as brushes for supporting materials with delicate surfaces, micrometric gauges, and protractor.

FRONT SUPPORT FSA-C

This type of front support has a pneumatic height adjustment (dual positioning), controlled by the CNC. This function is useful both when working with hemming bottom tools, which require positioning the plate at a different height as needed.

FRONT SUPPORT FSA-D

This type of front support has a motorized height adjustment completely controlled by CNC.
This function is useful both when working with fold-and-crush bottom tools and for particular profiles with counter-bends facing down, which require positioning the plate on surfaces at different heights.

FRONT SHEET FOLLOWERS

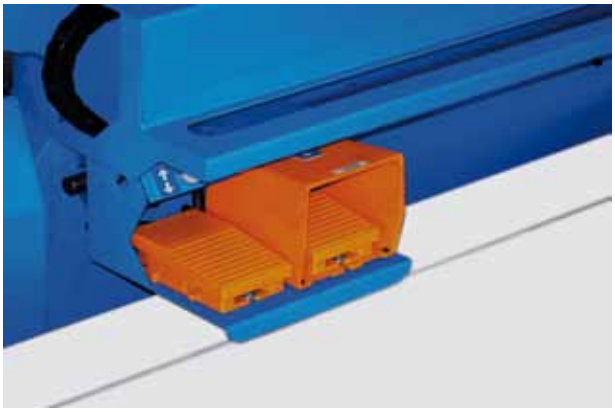
The sheet follower is an effective accessory for press brakes. It basically consists of a pair of sheet supports placed on the front of the machine at the height of the bending line (bottom tool). Each support is controlled by CNC and is synchronized with the bending process, moving together and supporting the metal sheet.

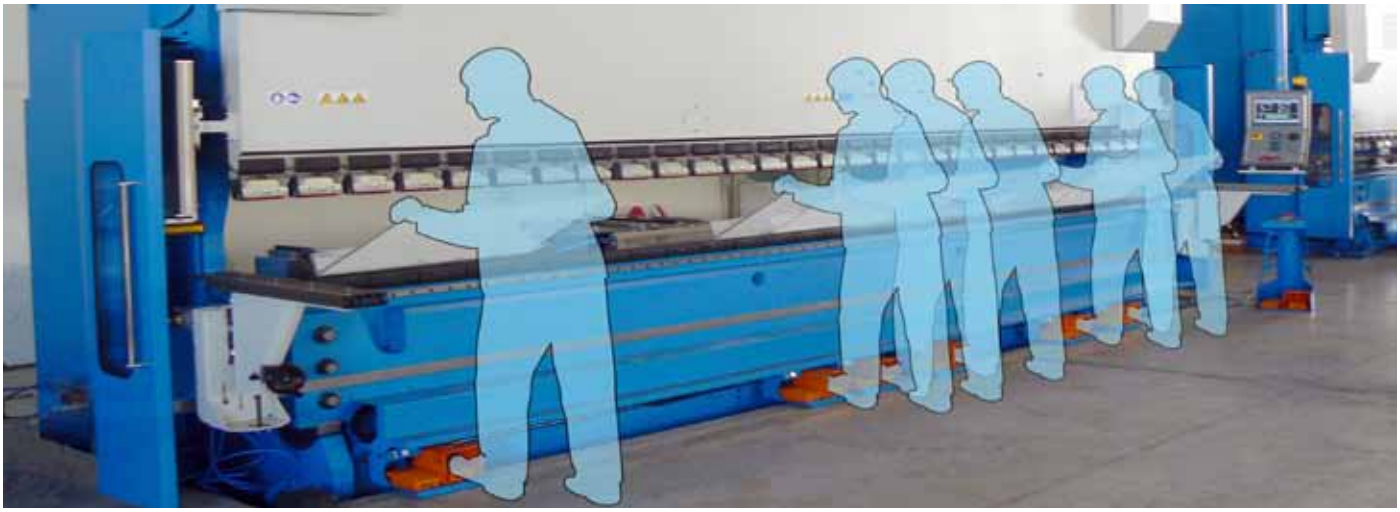
TIP - TAP

MuMulti – station bending processes are not normally easy to manage for the operator and productivity is typically low, since while stepping over to the next work position with the bent part, the operator must also manage to move the foot pedal box.
The Multi Pedal Option (TIP TAP) is a concrete help in such kind of production, since each work position is equipped with a pedal.

TIP-TAP HIGHLIGHTS

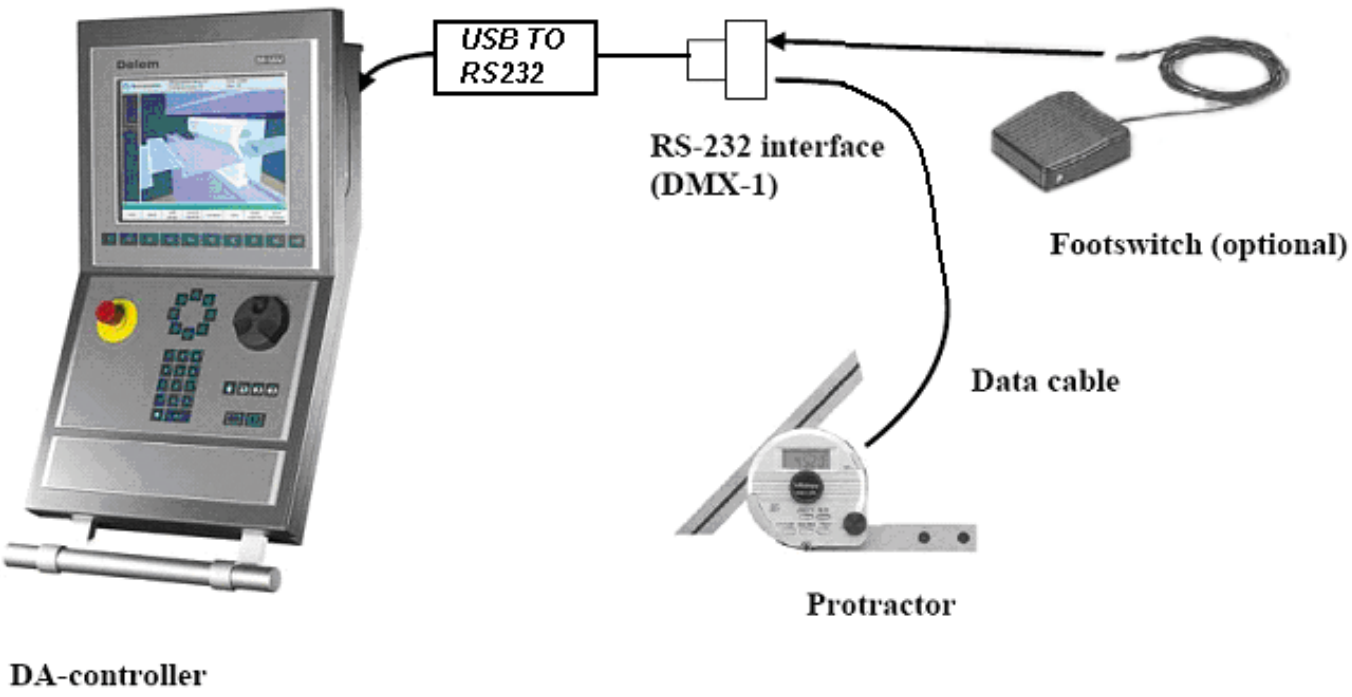
- programmable pedals' activation sequence according with bending sequence
- pedals can be positioned all along the bending line or parking position
- one-movement placement & quick fastening
- transparent safety guard upon the sliding rail of pedals
- active pedal marked by blinking led
- possibility to install up to 6 pedals
- productivity improvement.





ANGLE MEASUREMENT SYSTEM A-MDG-1

The A-MDG-1, or Angle Measurement Device Gasparini, provides the possibility to connect a digital protractor to the CNC usb port. The operator measures the angle with the digital protractor to measure the angle and send the value to the CNC, simply with a push buton. The angle correction will be automatically calculated and corrected into the CNC control.

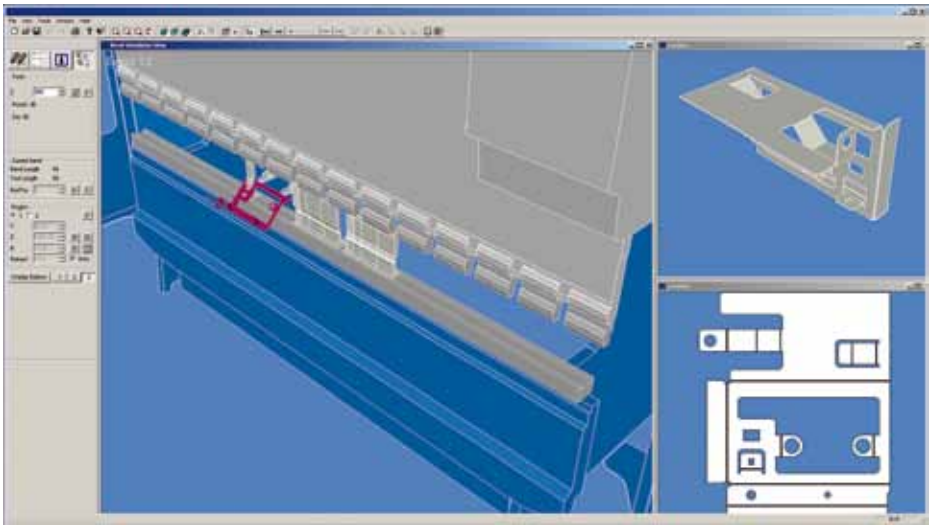


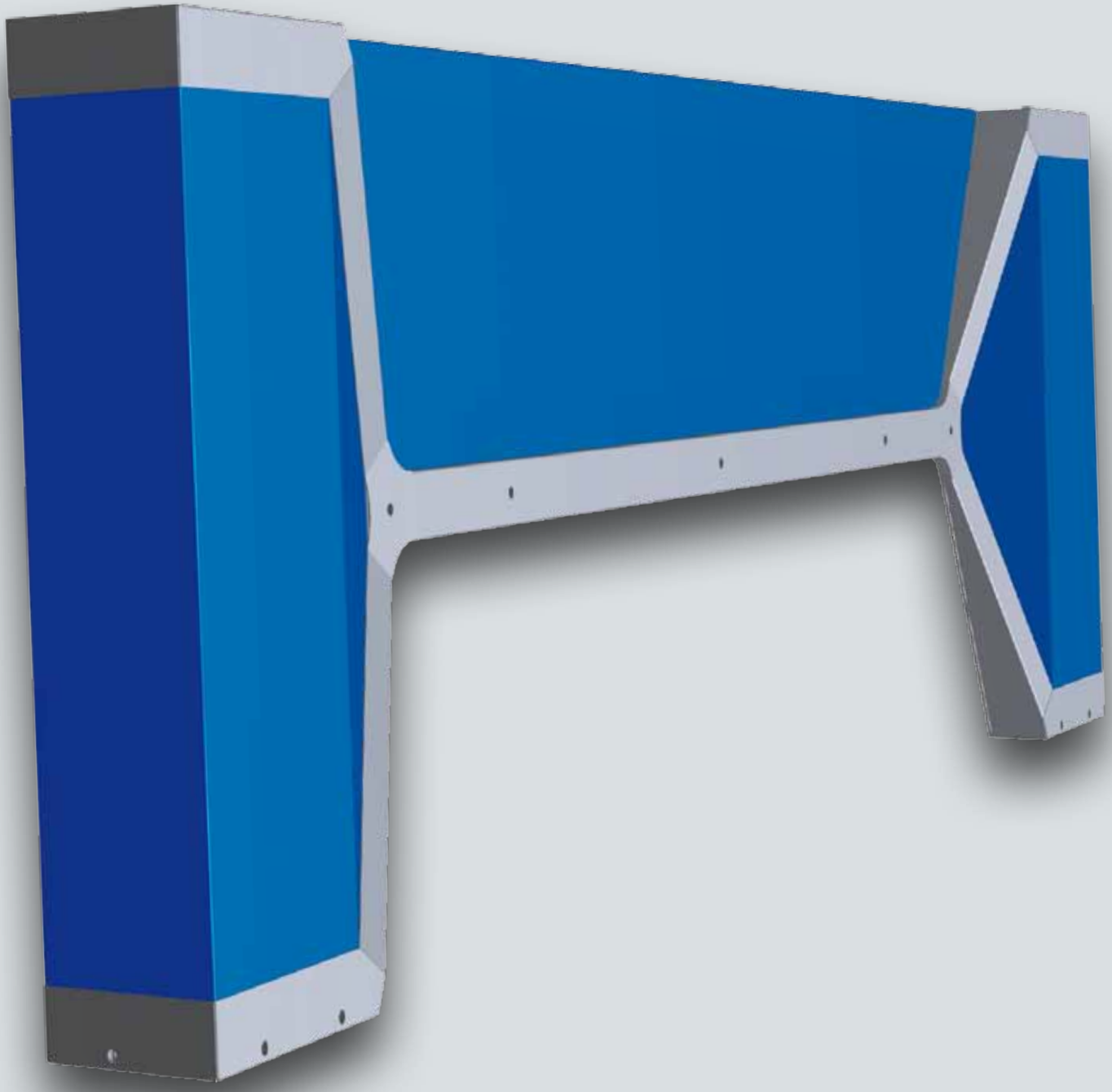
G-BEND SOFTWARE FOR PRESS BRAKES

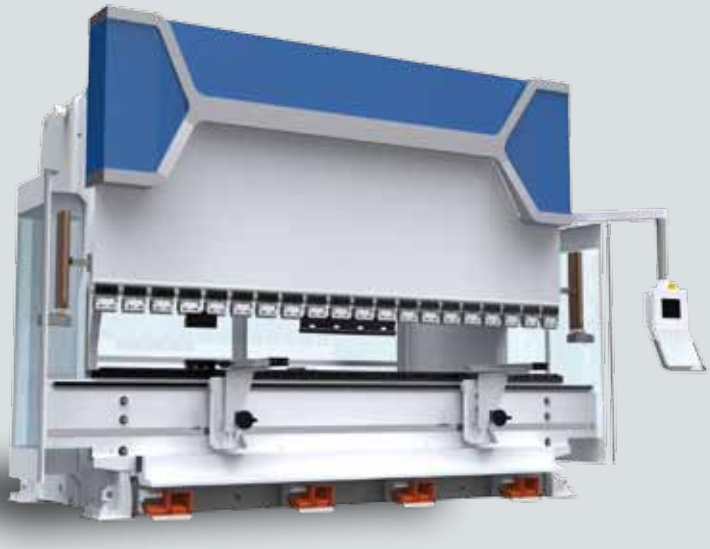
- Import 3D solid drawings in SAT, IGES, STEP format
- Direct import and export of the 3D solid model from Inventor and SolidWorks
- Tooling set up and sequence in automatic mode
- D simulation and data set up for NC
- OFF-LINE programming decreases machine down time and defective parts
- Feasibility study on PC avoiding any trial run
- Adjustable criteria to find best sequence and set production standard
- Creation of tooling template for similar parts
- Bend allowances calculation based upon tools or values in custom database
- Print out of 3D view of bending sequence to avoid operator errors
- Direct output of part program for numerical control.

DRIVE BENDING PROCESS FROM OFFICE

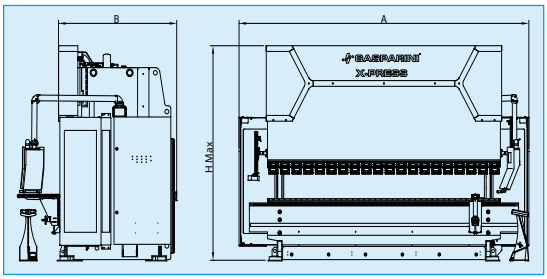
The CAM module G-BEND can drive the whole bending process in your engineering department starting from a 3D solid drawing (IGES and STEP format) or from a direct link with Inventor and SolidWorks. These drawings coming from a CAD system are processed in fully automatic mode, simulating the manual process normally executed in the production department. It's possible to verify that a part is feasible comparing the geometrical features and the available tooling, avoiding waste of material and production time.





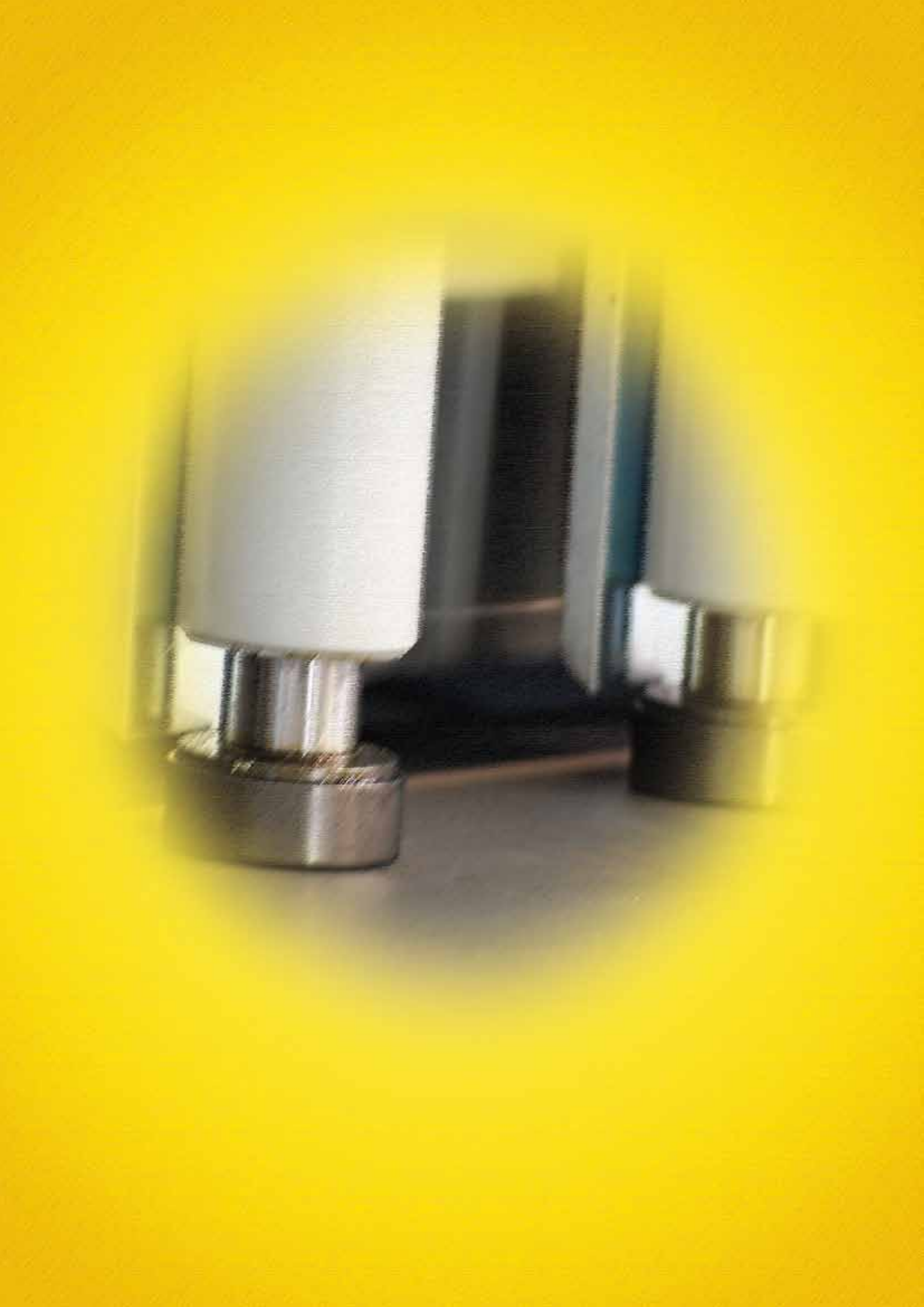


TECHNICAL SPECIFICATIONS



PRESS BRAKES			WORK AR			
MODEL	Nominal length	Bending Force	Max Real Length	Distance between side frames	Throat	Y Maximum ram stroke
	mm	kN	mm	mm	mm	mm
X-PRESS 25	1250	250	1250	1200	0	150
X-PRESS 50	1600	500	1670	1300	300	200
	2000	500	2100	1600	300	200
	2000 I	500	2100	1600	300	200
	2000 C	500	2100	1600	300	300
X-PRESS 100	2500	1000	2600	2100	400	300
	3000	1000	3100	2600	400	300
	3000 I	1000	3100	2600	400	300
	3000 C	1000	3100	2600	400	400
	4000	1000	4100	3600	400	300
X-PRESS 150	3000	1500	3100	2600	500	300
	4000	1500	4100	3600	500	300
	4000 I	1500	4100	3600	500	300
	4000C	1500	4100	3600	500	400
	5000	1500	5100	4600	500	300
X-PRESS 200	3000	2000	3100	2600	500	300
	4000	2000	4100	3600	500	300
	4000 I	2000	4100	3600	500	300
	4000 C	2000	4100	3600	500	400
X-PRESS 250	3000	2500	3100	2600	500	300
	4000	2500	4100	3600	500	300
	4000 I	2500	4100	3600	500	300
	4000 C	2500	4100	3600	500	400
	6000	2500	6100	5600	500	300
X-PRESS 330	3000	3300	3100	2600	500	300
	400	3300	4100	3600	500	300
	4000 C	3300	4100	3600	500	400
	6000	3300	610	5600	500	300
X-PRESS 420	4000	4200	4300	3600	500	400
	6000	4200	6300	5600	500	400
X-PRESS 640	5000	6400	5300	4600	500	400
	600	6400	6300	5600	500	400
X-PRESS 800	5000	8000	5100	4100	500	450
	6000	8000	6100	5100	500	450
X-PRESS 1000	6000	10000	6100	5100	500	600
	8000	10000	8100	7100	500	600

EA			DIMENSIONS AND WEIGHT					TECHNICAL SPECIFICATIONS			
Daylight (distance between table and ram)	Intermediate height	Working table height	A Length	Hmax Height (Hmin BDC for transport)	B Depth	Pit depth	Approx. weight	Approaching speed	Working speed	Return speed	Power 50 Hz - 380 V
mm	mm	mm	mm	mm	mm	mm	t	mm/s	mm/s	mm/s	kW
340	-	905	2000	2000	1100	0	1,9	0-10	0-10	170	3
400	100	950	2650	2550 (2475)	1610	0	3.8	200	0-10	170	5.5
400	100	950	2950	2550 (2475)	1610	0	4.2	200	0-10	170	5.5
600	300	950	2950	2750 (2675)	1610	0	4.5	200	0-10	170	5.5
500	100	950	2950	2750 (2675)	1610	0	4.5	200	0-10	170	5.5
500	100	950	3475	3030 (2830)	2000	0	8.5	200	0-10	170	11
500	100	950	4000	3030 (2830)	2000	0	10.0	200	0-10	170	11
800	400	950	4000	3330 (3130)	2000	0	10.2	200	0-10	170	11
600	100	950	4000	3020	2000	0	10.2	200	0-10	170	11
500	100	950	5000	3030 (2830)	2000	0	12.3	200	0-10	120	11
500	100	950	4000	3140 (2970)	2150	0	12.1	200	0-10	140	18.5
500	100	950	5000	3140 (2970)	2150	0	15.0	200	0-10	140	18.5
800	400	950	5000	3440 (3270)	2150	0	15.8	200	0-10	140	18.5
600	100	950	5000	3240 (3170)	2150	0	15.8	200	0-10	140	18.5
500	100	950	6000	3450	2150	0	18.7	180	0-10	100	18.5
500	100	965	4020	3300 (3260)	3000	0	15.6	200	0-10	145	22
500	100	965	5020	3370 (3260)	2000	0	19.6	200	0-10	145	22
800	400	965	5020	3770 (3560)	2100	0	20.7	200	0-10	145	22
600	100	965	5020	3770 (3560)	2100	0	20.7	200	0-10	145	22
500	100	965	4020	3340 (3260)	2100	0	16.1	200	0-10	145	30
500	100	965	5020	3410 (3260)	2100	0	20.0	200	0-10	145	30
800	400	965	5020	3710 (3560)	2200	0	21.0	200	0-10	145	30
600	100	965	5280	3760 (3710)	2200	0	21.0	200	0-10	145	30
500	100	1075	7020	3670 (3370)	2200	0	33.0	150	0-10	95	30
500	100	965	4010	3555 (3430)	2100	0	18.5	200	0-8.5	125	30
500	100	965	5040	3555 (3430)	2100	0	22.0	200	0-8.5	125	30
600	100	965	5040	3775 (3715)	2100	0	23.2	200	0-8.5	125	30
500	100	965	7040	3950 (3600)	2100	1350	35.0	150	0-8.5	85	30
600	-	930	5375	4000	2500	1250	41.0	100	0-8.5	100	37
600	-	930	7375	4300	2500	1500	51.0	100	0-8.5	70	37
600	-	920	6420	4180	2600	1285	26.0	100	0-8.5	100	55
600	-	920	7420	4330	2600	1575	70.0	100	0-8.5	90	55
650	-	920	5900	4500	2840	1285	61.5	80	7.5	90	75
650	-	920	7025	4735	2840	1575	78.0	80	7.5	90	75
850	-	850	7100	5800	2970	1900	90.0	80	7.5	90	90
850	-	850	9100	6050	2970	2750	160.0	80	7.5	65	90



SHEARS

GASPARINI

BENDING & CUTTING TECHNOLOGIES

SHEARING PROCESS

THE FOLLOWING PAGES PROVIDE USERS WITH THE FUNDAMENTAL CONCEPTS OF SHEARING. THEY ARE NOT MEANT TO BE AN EXHAUSTIVE GUIDE, BUT WE THINK THEY MIGHT BE USEFUL FOR UNDERSTANDING THE BASICS OF A PROCESS THAT IS OFTEN UNDERESTIMATED.

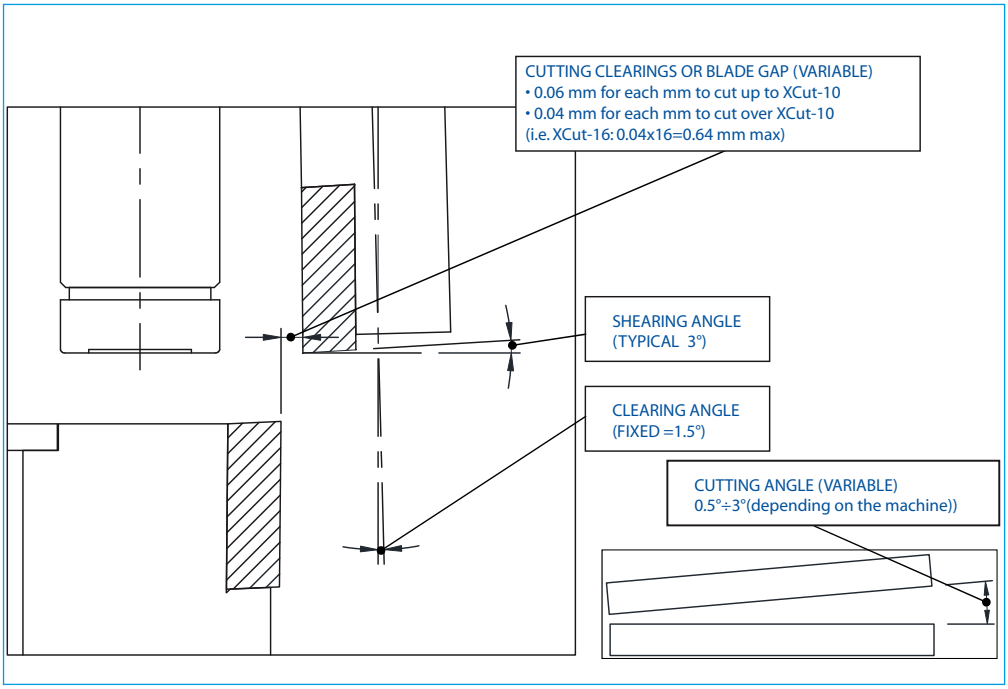
SHEARING IS A METAL FABRICATING PROCESS USED TO CUT STRAIGHT LINES ON SHEET METAL

Material is cut (sheared) between the edges of two opposed cutting tools. It works by first clamping the material with hold down cylinders. During the shearing process, a moving blade comes down across a fixed blade with the space between them determined by a required offset.
The moving blade may be set at an angle in order to shear the material progressively from one side to the other; this angle is referred to as the shear angle and this decreases the amount of force required, but increases the stroke.
As far as equipment is concerned, the machine consists of a shear table, work-holding device, upper and lower blades, and a gauging device. The gauging device is used to ensure that the workpiece is being cut where it is supposed to be.

SHEARING ANGLE
influences slightly the cutting force; using two square edge blades requires higher cutting force than if the upper blade is ground at a slight angle; this shearing angle is typically 3°.

CUTTING ANGLE
has a heavy effect on cutting force and has an important effect on distortion which can occur when shearing thin strips. The cutting angle is less than 3°.

CUTTING CLEARANCE
is the perpendicular distance between the shearing blades. Exact cutting clearance depends on plate thickness and material strength. Accurate values must be determined for each case. If the cutting clearance is too small tool wear increase: tooling costs and cutting force will be higher. If the cutting clearance is too large, the material is drawn between the two blades. The result will be a cut edge with increased taper and larger plastic deformation. Cutting clearance is a key factor for edge quality.

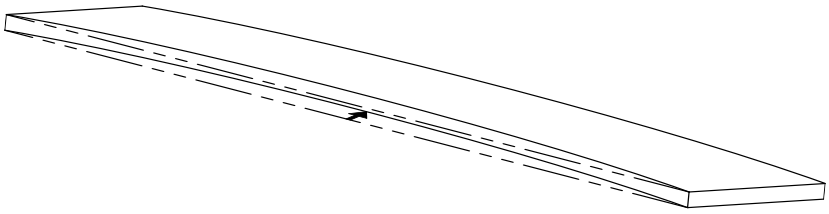


A perfect shearing is made with a perfect guillotine in order to eliminate the typical shearing defects that are:

- Straightness error
- Torsion effect
- Low bending effect
- Not straight cut edge

STRAIGHTNESS ERROR

This defect is related to strip width, workpiece thickness, material strength and previous cold rolling direction (residual stresses).



RECOMMENDATION:
- smaller cutting angle
- pre cuts (scraps) along rolling direction

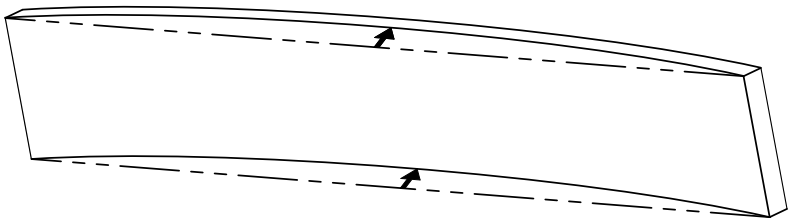
TORSION EFFECT

Shearing narrow strips can result in torsion effect. The table below lists some parameters which reduce the torsion effect.

PARAMETER	TWIST REDUCTION
Thickness	Thinner
Hardness	Harder
Strip width	Wider
Strip lenght	Shorter
Stresses	Even distribution
Cutting angle	Small
Cutting speed	High

LOW BENDING EFFECT

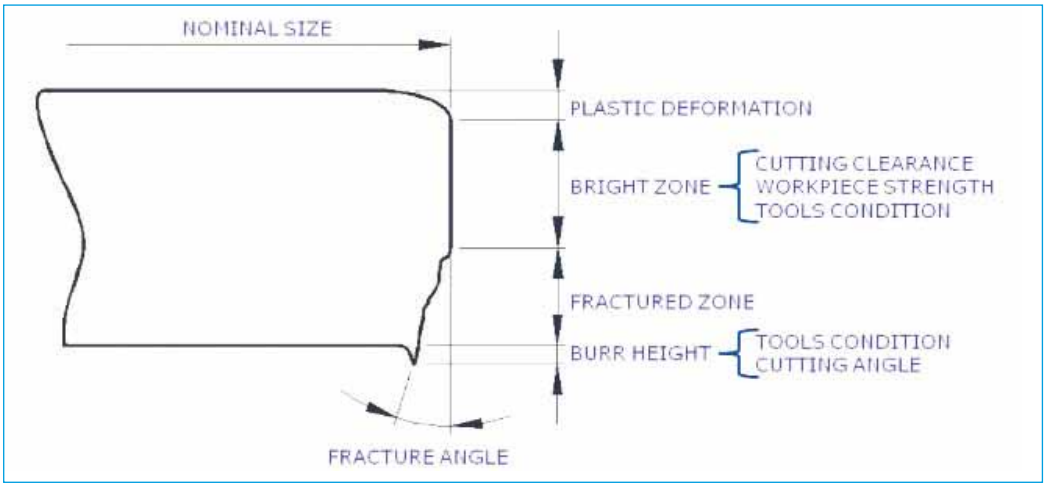
This defect is related to cutting angle and workpiece strength.



RECOMMENDATION:
- smaller cutting angle
- back sheet support

NOT STRAIGHT CUT EDGE

The material to be cut deforms plastically in a very small region that causes a residual deformation.
The bright zone is where the upper blade penetrates the material before the formation of a crack that produces a rough and irregulars surface known as the fractured zone. This area extends into the edge burr which occurs during the final phase of shearing and depends on cutting clearance, workpiece strength and tools condition.



NEW GASPARINI

X-CUT

RANGE

GASPARINI

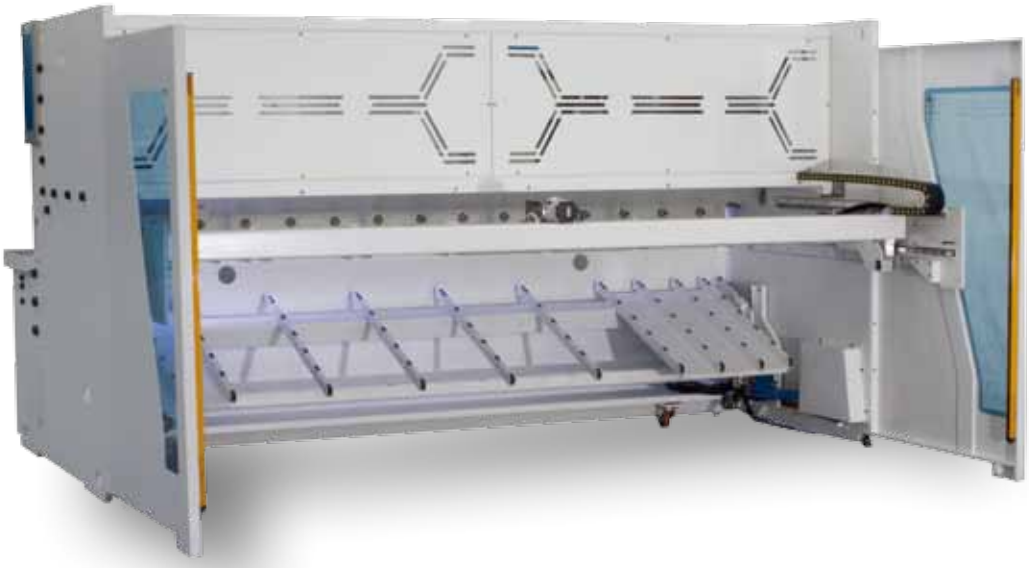
BENDING & CUTTING TECHNOLOGIES

NEW RANGE
X-CUT

HYDRAUILC GUILLOTINE SHEAR

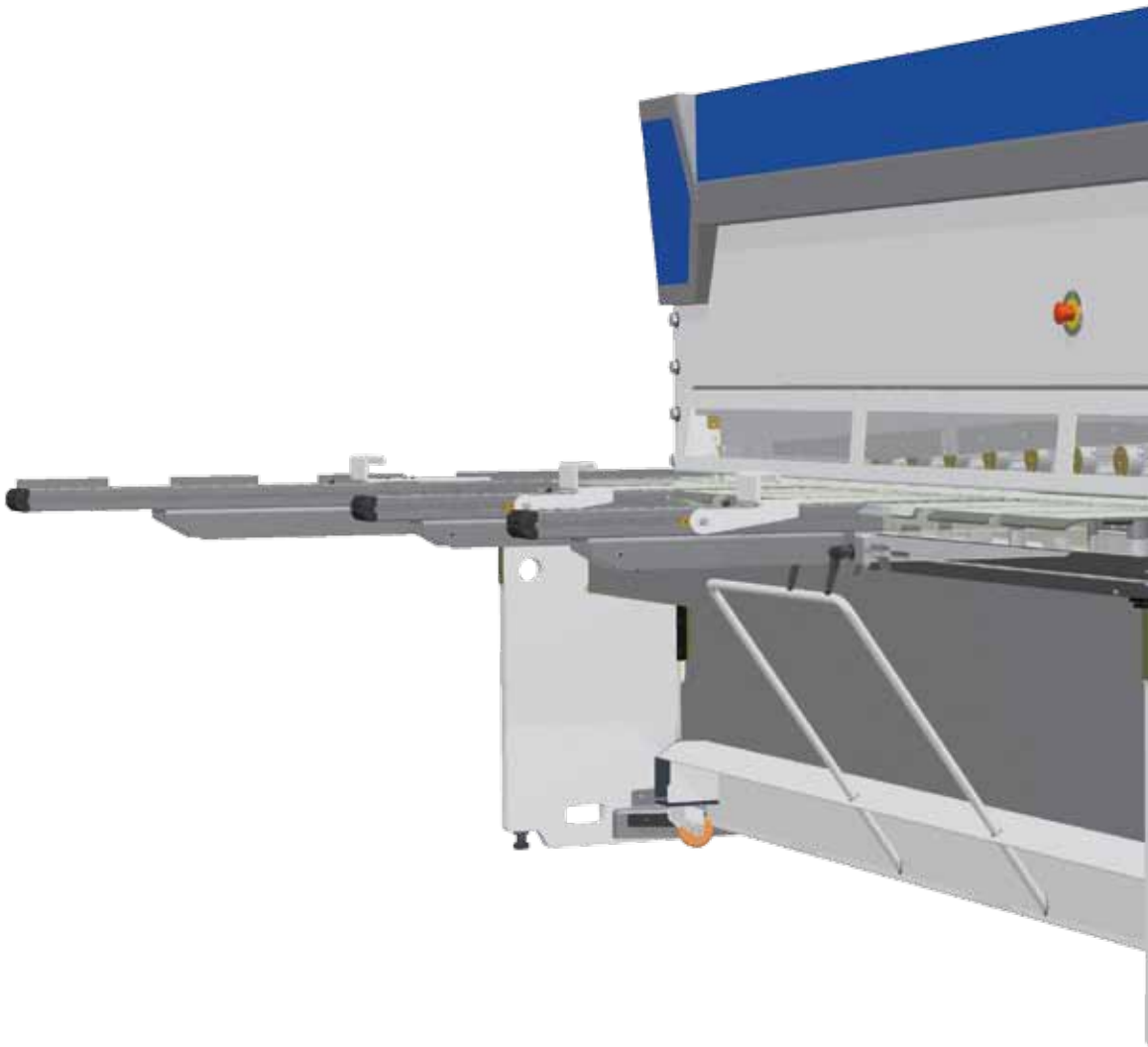
All of Gasparini's 40 years' experience in sheet-metal shearing are concentrated in the new X-Cut Gasparini Guillotine Shear range. Top class machine, high performances and quality standards to produce highest precision cut blanks in large volumes, cost-efficiently:

- the best cutting quality available in the market;
- higher performances;
- better comfort;
- less power consumption (ecocompatibility).

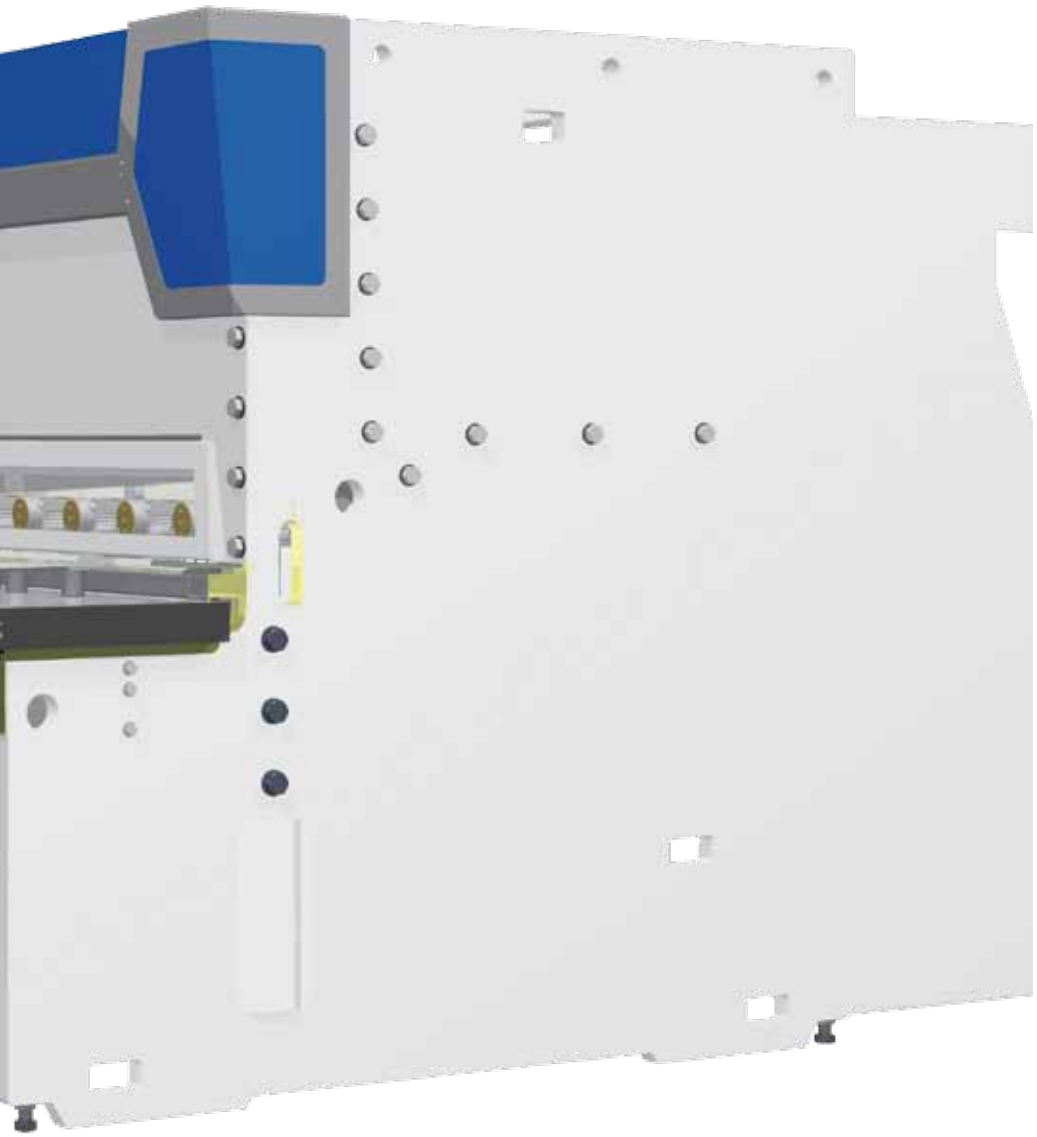



PARINI
X-CUT 3006

NEW DESIGN



The new product design, applied to all new Gasparini products, including shears and plasma cutting machines, supports the new Company image and its commitment to innovation. While introducing some state of the art technology, like LED lighting and poly-carbonate films, the new design is aligned with three important values, which are among the pillars of the Company's Innovation Strategy: unique, technological, Italian.



CUTTING-LINE LED LIGHTING

The new X-Cut shears are equipped with powerful LED cutting line lighting. Thanks to the appropriate light, metallic colors are highlighted in the best possible way so that the cutting line is perfectly lit and the operator will not get fatigued. And still more energy is saved!

NEW HYDRAULIC SYSTEM

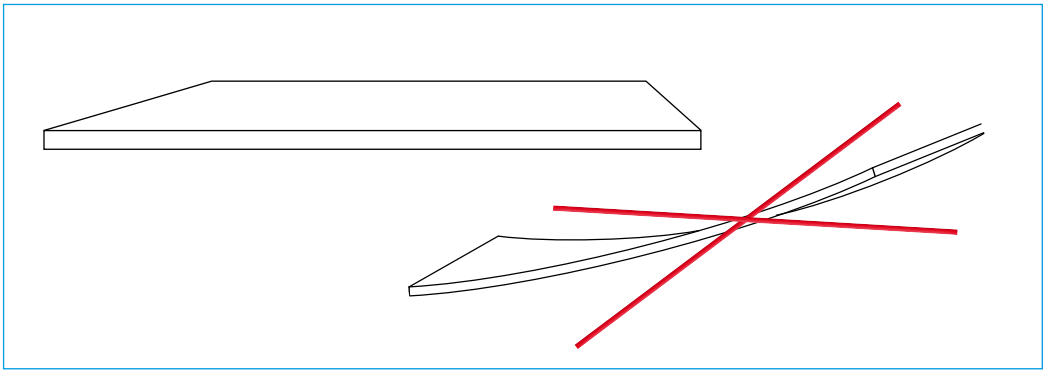
Operating efficiency has been substantially improved through the use of a newly developed oil pressure system. The pump motor and the power circuits are switched off after the shear has been inactive for a specific time. The switching on can be done by means of the command pedal: 1. Electrical comsumption cut down during long inactivity times. 2. Lower oil stress.

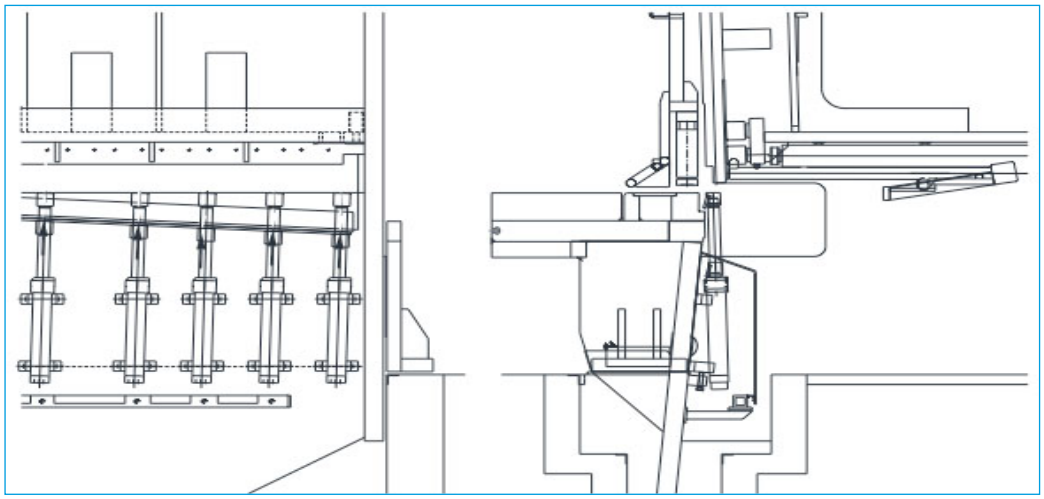
BLADE GAP PADS

X-Cut: the hydraulic guillotine shear with the best cutting quality in the world. The new X-Cut range is equipped, already in the standard range configuration, with the exclusive blade gap system that places Gasparini shears at the top of the market. The blade gap is the main point of strength of Gasparini shears. It consists of a series of adjustable pads that force accurate blade positioning every 200 mm throughout the entire length. Cutting linearity and accuracy are guaranteed.

ANTI-TORSION DEVICE

When the depth of the plate to be cut is less than 10 times the thickness, the internal tensions caused by cutting make it take on a "helical" shape, in other words the plate tends to twist.
This phenomenon is amplified when the cutting angle is open. To reduce this phenomenon to a minimum it is recommended to apply the anti-torsion device (optional). This accessory consists of a series of hydraulic cylinders fitted below the bottom blade which support the plate against the top blade. This contrasting action is carried out during the cutting phase. The cylinders exert a counter-pressure in proportion to the thickness cut. This device can be added also post machine installation.





The combination of the Blade Gap Pads (standard on all Gasparini X-Cut series), together with the high stiffness frame and the Anti-Torsion Device (optional) guarantee an overall cutting straightness error less or equal than 0.05 mm/m and a torsion effect less or equal than 3°/m (depending on material, thickness and strip width).

Want to get more? Please ask us!

OTHER STANDARD MACHINE FEATURES

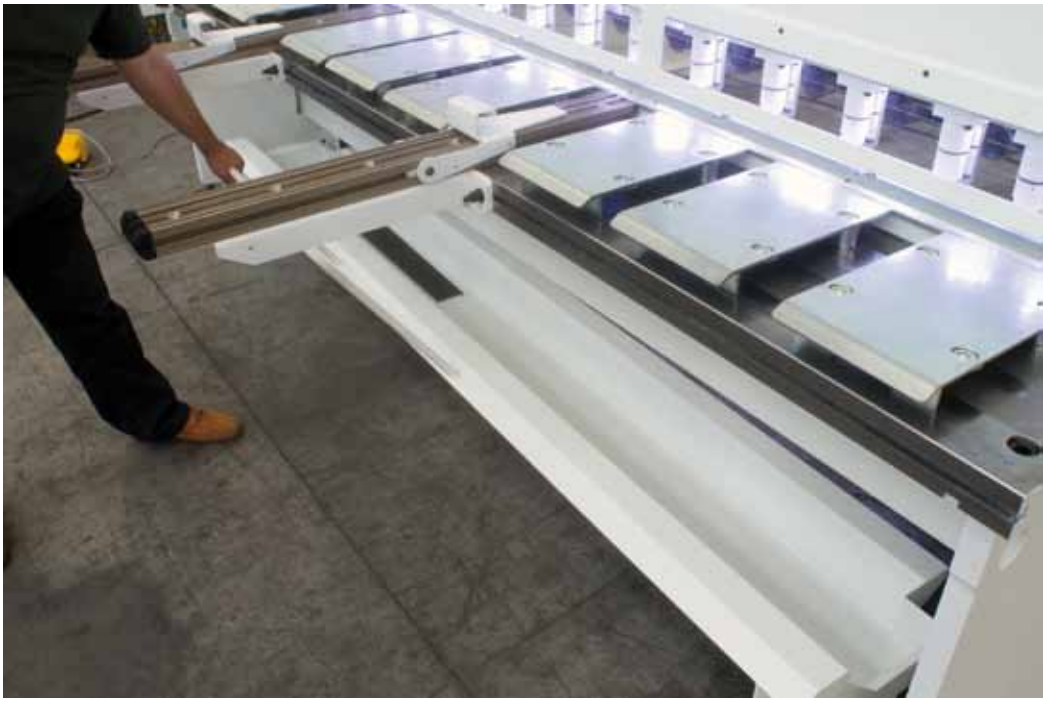
The new X-Cut range is equipped, already in the standard range configuration, with the features that place Gasparini shears at the top of the market:

- **Ram**: planar upper beam with ferrozel guides and adjustable pads distributed along the whole length.
- **Blades**: 4 cutting edges with 90° angle suitable for shearing stainless steel (max. tensile strength 750 N/mm^2); double blade life time; operating cost savings; guaranteed of cutting quality;
- **Cutting angle adjustement**: 0°÷3° (with different length of the machine, max cutting angle changes (it decreases when length increases);
- **Blade gap regulation**: manual (controlled by CNC as optional);
- **Adjustable starting** and end stopping position for entire length of the cutting beam;
- **Bench**: milled monolithic bench with milled slots to facilitate sheet movement;
- B**ack gauge**: high dynamics CNC controlled back gauge; repeatability ± 0.01 mm; precision ±0.05 mm; stroke 1000 mm;
- **Hold down**: automatic pressure adjustment proportional to cutting force;
- **Fixed rear** discharge chute according the CEN-EN13985:2003;
- **Front guard**: in series 4 and 6 the front guard is fixed with a 10 mm port and the distance from hold down is 40 mm; in larger series there is a manual front guard with easy opening operated by gas springs;
- **Ruled squaring arm**: length for X-Cut 4, 6, 8: 1500 mm; length for X-Cut 10 and 12: 2000 mm; length for X-Cut 16, 20, 30: 2500 mm;
- **Front supports**: front supports with balls, disappearing gage and measuring rule; length for X-Cut 4, 6, 8 is 1500 mm; length X-Cut 10, 12, 16, 20, 30 is 2000 mm;
- **Cutting line** LED lighting;
- **CNC**: Delem DAC 360.

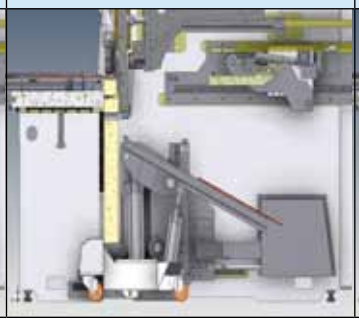
OPTIONS/ACCESSORIES

FOR MAXIMUM OPERATING EASE THE NEW X-CUT RANGE SHOULD BE EQUIPPED WITH A WIDE RANGE OF ACCESSORIES. THE FOLLOWING ARE THE MOST REPRESENTATIVE; MANY MORE ACCESSORIES NOT MENTIONED BELOW ARE AVAILABLE. PLEASE ASK US FOR A "TAILORED" SOLUTION!

FRONTAL SCRAP RECOVERY CARRIAGE BOX



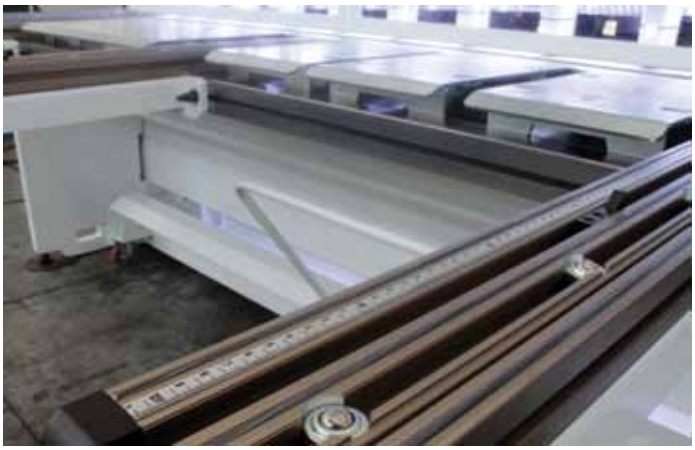
PNEUMATIC SHEET METAL BACK SUPPORT WITH 2, 3 OR 4 MOVEMENTS

Cutting function with sheet metal support (perfectly horizontal)	Rear discharge function	Scrap and small piece front discharge function	Return to sender function
			

No of movements	Movement description	Functions
1	Up-down	Cutting function with sheet metal support (perfectly horizontal)
2	Up - down; support rotation ON - OFF	Cutting function with sheet metal support (perfectly horizontal). Rear discharge function.
3	Up - down; support rotation ON – OFF; discharge ON-OFF	Cutting function with sheet metal support (perfectly horizontal). Rear discharge function. Scrap and small piece front discharge function
4	Up - down; support rotation ON/OFF; discharge ON-OFF; discharge limiting ON/OFF	Cutting function with sheet metal support (perfectly horizontal). Rear discharge function. Scrap and small piece front discharge function. Return to sender function

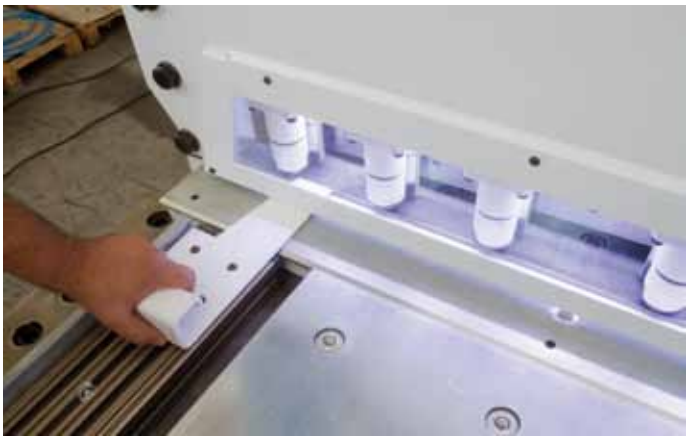
FRONT SUPPORT

Front supports can be supplied on demand in extended version +1000 mm
Micrometric retractable gauge
Brushes
Additional measuring rule
Side stop

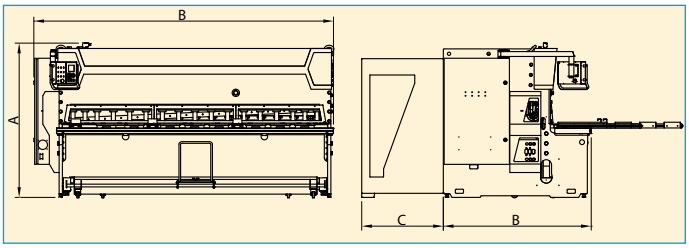


OTHER OPTIONS

- Blade Anti-scratch Device.
  This option lifts the metal sheet on feed side while movable blade is returning up to start position eliminating the contact between blade and the sheet itself. The result is to reduce the scratches and flaws on the sheet border, improving the quality of the finished part.
- Hi-speed package.
  High speed package especially suitable for automated shearing lines, with high frequency and/or fast sequential cuts. The actual speed of the shear (blade movements, feeding and back gauge positioning, etc.) can be then improved, assuring final higher productivity.
- Heat exchanger: a dedicated heat exchanger for the hydraulic oil is recommended, either for installation of the shear with heavy duty applications, such as within automated shearing lines, or for tropical environmental conditions.
- Sensor in the backgauge.
- Voltage stabilizer.
- Spare parts kit: The current option provides a kit of recommended spare parts and consumables (blades excluded) for safe production for 2,000/4,000 working hours.
- Cutting start square with pneumatic retractable gauge
- Ruled protractor: The ruled protractor become necessary whenever cuts with angles other than 90° are required. The protractor can be supplied with side stop arm, with 2 different arm lengths available: 750 mm and 1000 mm.
- Pneumatic front guard.
- Stripes feeder: assures cutting very close to the blade area in accordance with CEN-EN13985:2003.
- Back gauge with increased 1500 mm stroke.



TECHNICAL SPECIFICATIONS



X-Cut Shear	Cutting capacity [mm] S275 (430 N/mm²)	Cutting capacity [mm] AISI 304 (430 N/mm²)	Cutting length [mm]	No. of strokes /min	Cutting angle 0.5° max [°]	Backgauge reach [mm]	Backgauge accuracy [mm]	Backgauge repeatibility [mm]	No. of hold-downs pad	Machine height A [mm]	Machine length B [kg]	Machine depth C [mm]	Rear guard depth D [mm]	Weight [ton]
2004	4	3	2050	22 ÷ 40	2.5	1000	±0,05	±0,02	12	2065	2600	1555	1150	4.3
3004			3050	16 ÷ 31	2.5				17	1800	3600	1950	1150	5.5
4004			4100	11 ÷ 28	3.0				22	1870	4700	2050	1150	8.5
6004			6100	11 ÷ 25	2.0				32	2290	6900	2300	1150	17.0
3006	6	4	3050	12 ÷ 28	3.0				17	1900	3600	2300	1150	7.7
4006			4100	10 ÷ 25	3.0				22	2050	4700	2190	1150	10.9
6006			6100	10 ÷ 24	2.5				32	2700	6900	2350	1150	17.9
3010	10	8	3050	15 ÷ 30	3.0				16	2200	3740	2460	1150	11.5
4010			4100	9 ÷ 22	3.0				22	2200	4860	2500	1150	17.0
6010			6100	7 ÷ 17	2.5				32	2850	6860	2560	500	27.2
3012	12	10	3050	14 ÷ 28	3.0				16	2200	3740	2460	1150	11.5
4012			4100	8 ÷ 20	3.0				22	2200	4860	2500	1150	17.0
6012			6100	7 ÷ 17	2.5				32	2850	6860	2560	500	27.2
3016	16	11	3050	12 ÷ 25	3.0				16	3050	3850	2600	1150	20.0
4016			4100	9 ÷ 18	3.0				21	3050	5050	2750	1150	26.5
6016			6100	7 ÷ 17	3.0				30	3050	7000	2900	-	52.5
4020	20	13	4100	9 ÷ 15	3.0				20	3180	5000	2730	-	32.5
6020			6100	7 ÷ 15	2.5°				30	3180	7050	2900	-	63.0
6030	30	22,5	6100	4 ÷ 11	2.5°				26	3420	7100	2900	-	75.0

PLASMA

GASPARINI

BENDING & CUTTING TECHNOLOGIES

PLASMA CUTTING PROCESS

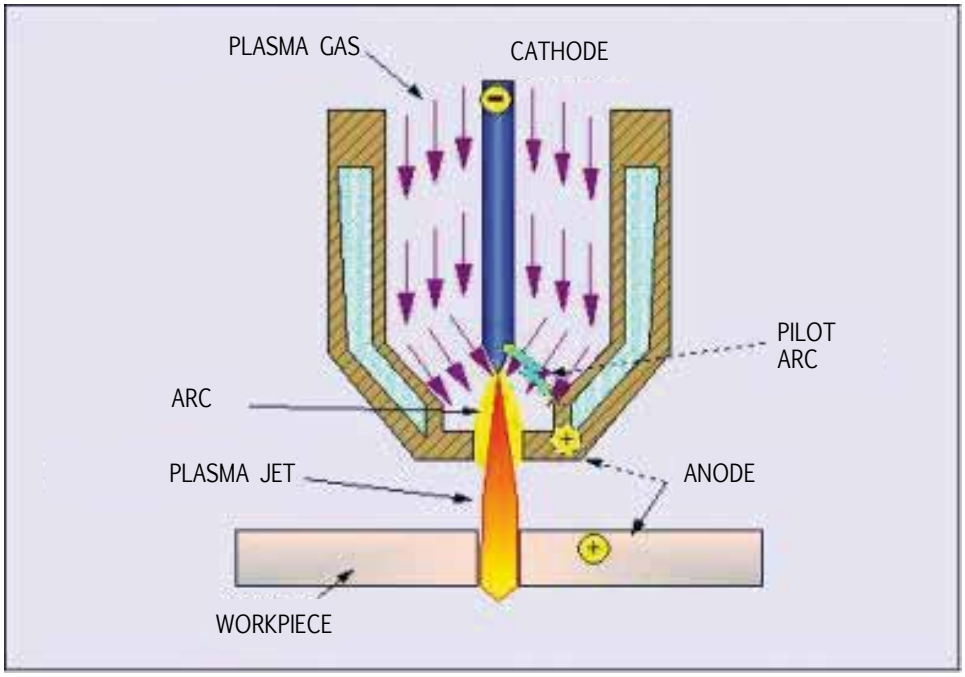
BRIEF HISTORY

Plasma cutting was born from an existing technology, plasma jet welding. It was achieved through a system (still being used) by means of which one could obtain a high-energy jet of plasma capable of machining the workpiece surface, both for surface treatments and to obtain a proper weld.
The inventive step that led to plasma cutting can be traced to the 1955 patent by Robert Gage. Stemming from his research, he introduced a nozzle, or a wall, placed along the path of the hot plasma, forcing it into a well-defined shape. The result of the presence of this component is a much thinner, harder and more stable jet, that has such a high specific power as to be able to cut metals.

OPERATING PRINCIPLE

A gas is blown at high speed from a nozzle, at the same time as an electric arc is established through this gas between an electrode and the surface to be cut, which transforms the gas into plasma. It transfers heat to the metal material until it reaches melting temperature and thus breaks the continuity of the metal. The kinetic energy of the gas expels the molten metal from the cutting area, thus allowing the operation to proceed.
In the first phase (flashover phase) a high voltage, low current triggers a small high intensity spark between the electrode and nozzle, creating a small pouch of plasma which is called pilot arc. Another flashover system, which is 'cleaner' in terms of electromagnetic interference, is the trigger by contact.
This technology calls for the electrode to be in contact with the nozzle and a current to pass between these two elements in short circuit. The gas is blown at the same time that the current flows and detaches the electrode from the nozzle, thus generating the spark ignition. In the next phase (transfer phase) the plasma makes contact with the workpiece, which is the anode. The plasma completes the circuit between the electrode and the workpiece and conducts a high electric current at low voltage. If the plasma cutting machine uses high frequency / high voltage to start the circuit, the circuit is usually turned off to avoid over-consumption. The plasma, which is held between the workpiece and the electrode, travels at over 15,000 km/h (over twelve times the speed of sound in the atmosphere).

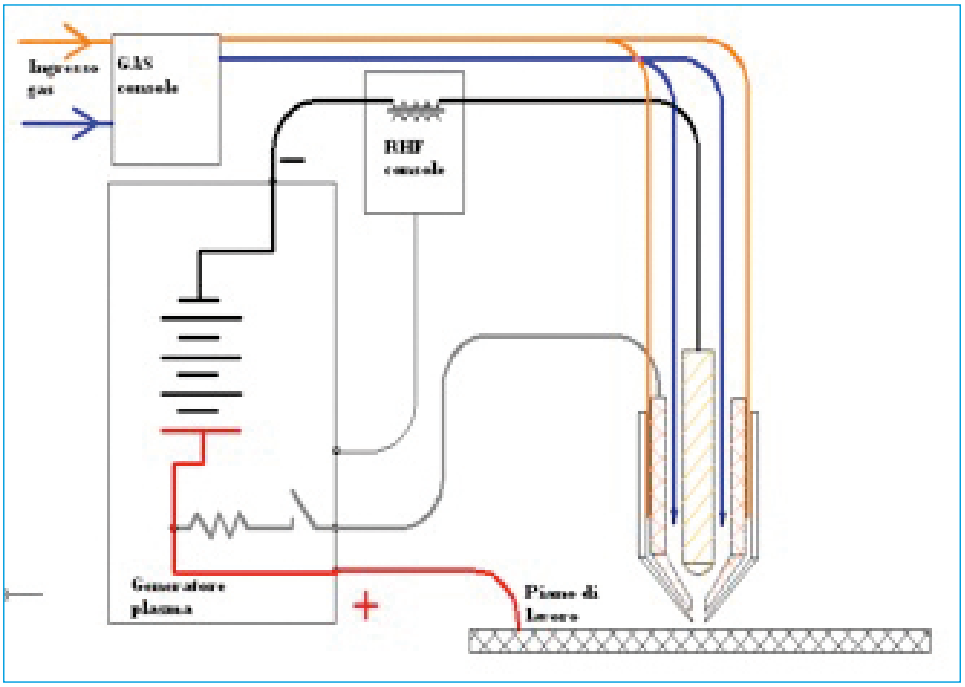
TYPES OF PROCESSES AND APPLICATIONS



Conventional plasma cutting

The plasma cutting processes can be divided – based on the generators used – into conventional plasma cutting and high-definition plasma cutting. The choice of materials (torches, generators) depends on the type of procedure, the material being processed and the thickness involved. High definition cut differs from the traditional one also in substantial changes to the torch, the fact that a shielding gas is always used and there is a cooling system (water). Among the advantages, as well as improved cut quality, there is longer nozzle life and increased ability to break through (the torch can be brought very close to the piece).

High definition plasma cutting



- Blue = Plasma gas
- Orange = Gas shield
- Red = positive
- Black = negative
- Grey = plasma arc connection system

CONVENTIONAL PLASMA CUTTING

Materials: carbon steel, stainless steel, light alloys

Thickness: max 90-100 mm

Gas used: oxygen, air, nitrogen, argon/hydrogen (on the specifier's specifications)

Material	Gas
CARBON STEEL	OXYGEN AIR NITROGEN
STAINLESS STEEL	AIR NITROGEN ARGON HYDROGEN
ALUMINIUM AND LIGHT ALLOYS	AIR NITROGEN OXYGEN ARGON HYDROGEN

HIGH DEFINITION PLASMA CUTTING

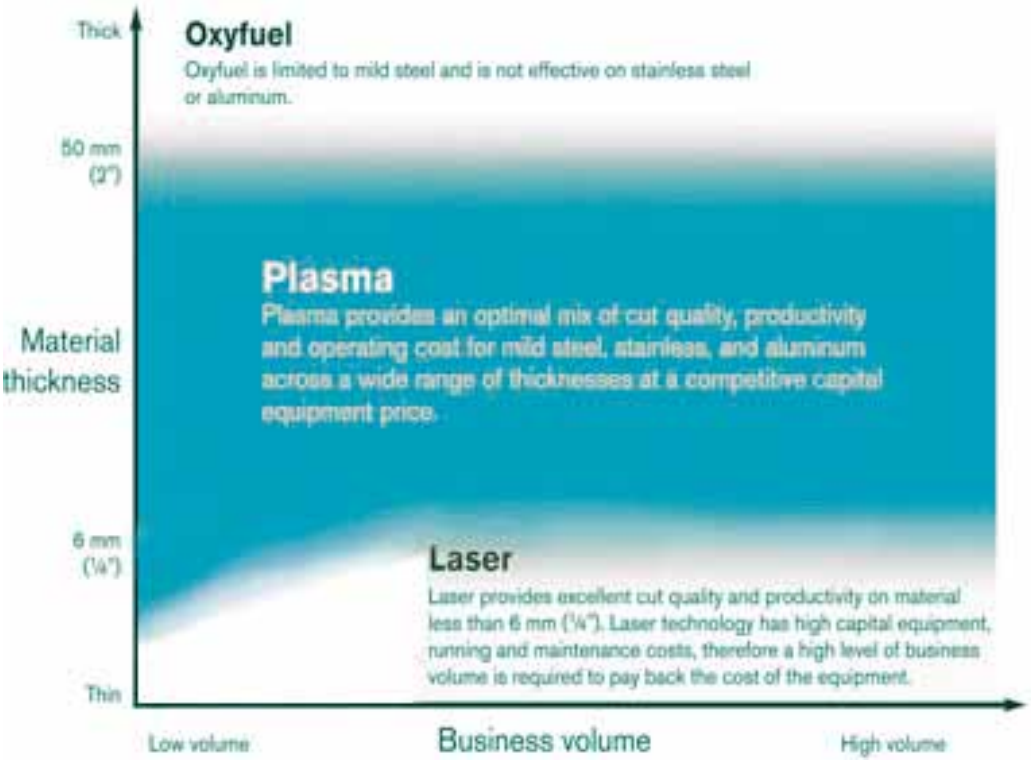
Materials: carbon steel, stainless steel, copper, aluminum and light alloys

Thickness: max 50-60 mm

Gas used: oxygen, air, nitrogen, argon/hydrogen, methane, CO_2

Material	Plasma gas	Protection Gas
CARBON STEEL	OXYGEN AIR	OXYGEN AIR NITROGEN
STAINLESS STEEL	AIR NITROGEN ARGON HYDROGEN (35%)	AIR NITROGEN CO2 METHANE
ALUMINIUM AND LIGHT ALLOYS	AIR NITROGEN ARGON HYDROGEN (35%)	AIR NITROGEN CO2 METHANE
COPPER	OXYGEN	OXYGEN NITROGEN

COMPARISON ON PLASMA, OXYFUEL AND LASER



Plasma advantages vs. oxyfuel

- **Better cut quality**
- **Greater material flexibility**
- **Significantly higher productivity**
- **Significantly lower cost per length of cut**

Plasma advantages vs. laser

- **Significantly higher productivity**
- **Increased flexibility to cut a wide range of material thicknesses and types**
- **Significantly lower capital, operating and maintenance costs**

NEW GASPARINI

SPARK HEAVY

RANGE

GASPARINI

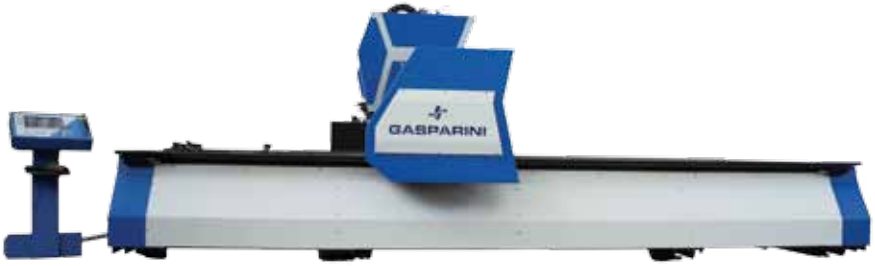
BENDING & CUTTING TECHNOLOGIES

NEW RANGE
SPARK HEAVY

The Spark Heavy high-definition plasma cutting plant is the synthesis of the latest process technologies in this type of manufacturing operation. Several innovative solutions place it at the top of the range in terms of performance, cut quality, ease of use, savings on running costs and product versatility. Last but not least the use of numerical control, which integrates user-friendly controls on board the machine with the most sophisticated offline management systems, nesting and automatic programming.

NEW DESIGN

The new product design, applied to all new Gasparini products, including shears and plasma cutting machines, supports the new Company image and its commitment to innovation. While introducing some state of the art technology, like LED lighting and polycarbonate films, the new design is aligned with three important values, which are among the pillars of the Company's Innovation Strategy: unique, technological, Italian.



EXTREMELY SOLID STRUCTURE

The structure, which is bridge electro-welded, has also been designed for maximum torsional rigidity, freeing up the aisle of the work underneath. In this way one can take advantage of the hood and the burr and debris collection tank.

KINEMATICS

The power and motion transmission is ensured by an electronic gantry system on toothed racks and helical pinions, which are precision ground on the X and Y axes.

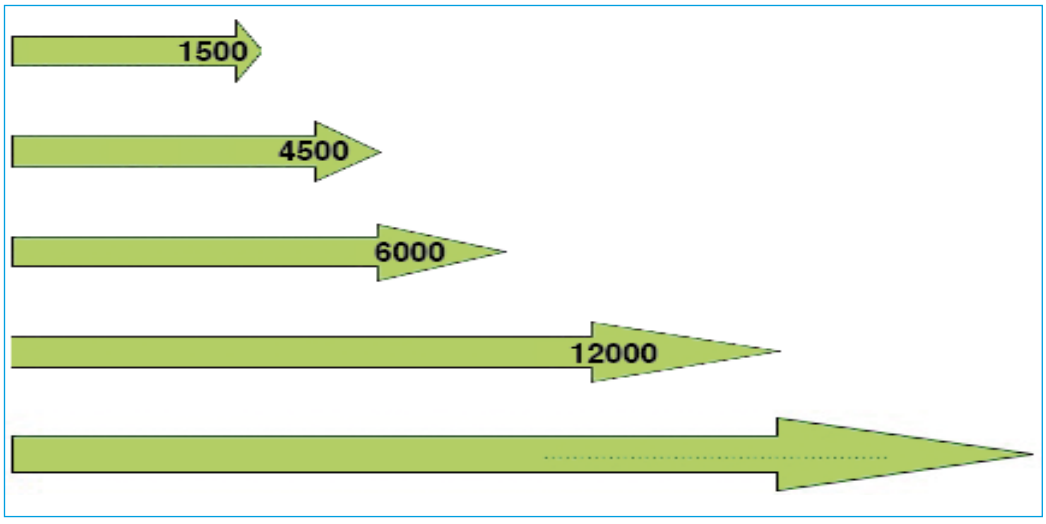
- Tolerance on pitch = 0.053 mm/m
- Speed along the X and Y axes: up to 100 m/min
- X and Y axis acceleration: 1g
- Highly flexible platform for special applications.

This design concept assures maximum flexibility to the system by facilitating the installation of various accessory heads without affecting the work area or performance.

MODULAR LENGTH MACHINE

The cutting table can be extended at a later date without having to replace the existing plasma machine.

1500	1500 3000 4500	1500 3000 4500	



STANDARD CONFIGURATIONS

NEW CLEAN AIR SYSTEM, COMFORT DURING CUTTING OPERATIONS

The innovative vacuum system allows effective removal of cutting fumes, requiring only half the power of conventional systems. This system consists of a movable "decantation" hood, supported by a chimney chamber, which ensures a high percentage of efficiency of pipes and fume filter over time. The hood fits special protective stainless steel baffles that protect the recovery tank from damage and can be easily replaced in case of wear. Most importantly, the hood structure is totally independent from the bench and moves through a circuit chain. Gasparini Industries can easily supply the bench with the conventional suction tank system. ("F" version).

INNOVATIVE BURR COLLECTION SYSTEM

The burr collection system has been designed to be particularly user-friendly and to facilitate the operators' work because they do not need to raise the grill to clean the movable hood. Simply select the exhaust hood mode and it will all be conveyed into the burr collection basket, which is easy to handle and easy to empty. The hood moves along the X axis of the machine with the use of a fixed chain with suitable protection and motorized pinions, one on each side of the tank (left / right). This system requires only 2 square meters at the back of the machine and most importantly does not need any additional space at the sides of the plasma machine.

CUTTING HEAD

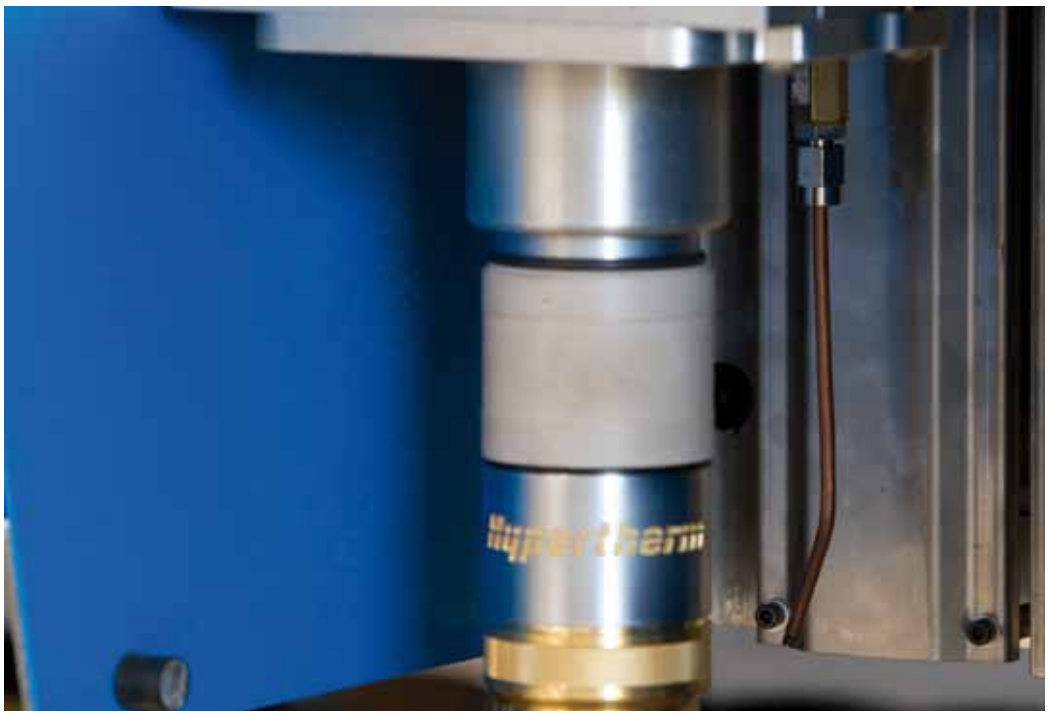
The cutting torch is mounted on a recirculating ball screw, which is precision ground and designed to assure maximum performance in total safety. The automatic cutting torch floating device ensures the correct distance between the nozzle and the material, at any point on the work surface, even in the presence of corrugated metal. In addition, the starting position of the head can be easily and quickly selected by means of the handy laser pointer system.
The torch is mounted on a new portal that allows more room for both standard applications such as marker and flame cutting head, and for special applications such as high-precision air spindle etc.

ANTI-COLLISION SYSTEM

The torch housing is designed to absorb any impact during the cutting operation and immediately block the main axes by making the cutting torch move back along its axis to prevent any damage to the system. During this operation, thanks to the orbital pins system it is fitted with, the torch is repositioned perpendicular to the cutting plane so that, once the obstacle has been removed, cutting can be resumed from where it was interrupted.

ANTISPATTER

The torch boasts an innovative “Antispatter system” that increases the operational life of consumables and torch itself. By means of a device aimed at the nozzle, a special, non-flammable, high-pressure fluid is sprayed just before the breakthrough so that the cutting point remains clean and the waste generated by cutting does not stick to the torch.



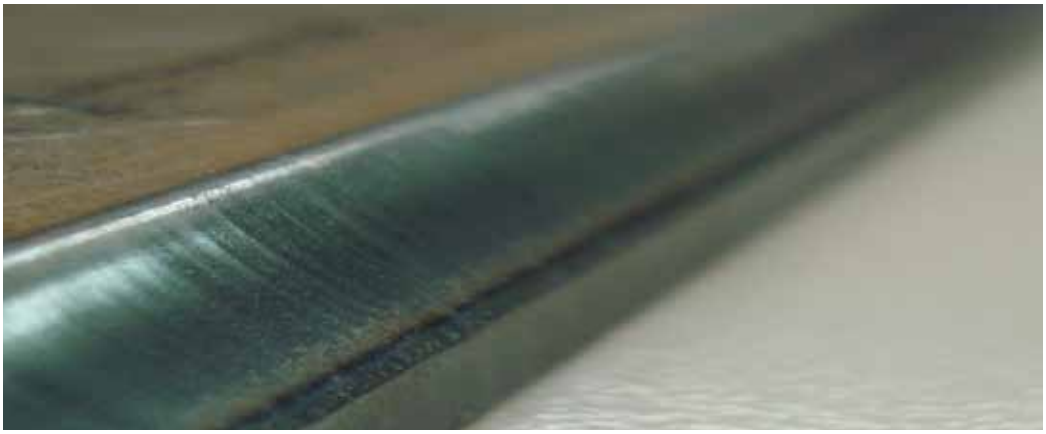
SOFTWARE AND CN G-CUT

The control console has a CN developed by Gasparini Industries specifically for use in plasma cutting machines. It offers simple and intuitive management, fully automatic or with manual intervention option at any time.
With the CN, typical parametric forms which have already been entered, can also be executed, that is, programming can be carried out directly at the machine. The GCUT offline software on the other hand, automatically creates machine CAM programming, with advanced options for nesting, parameterizations and cutting mode.

OPTIONS AND ACCESSORIES

BEVELLING HEAD

2 D MANUAL DEVELLING HEAD + / - 45°



DRILLING AND TAPPING HEAD

6-tool unit (available on request with 8 tools)

Standard capacity:

- Maximum drilling diameter: 20 mm
- Maximum possible thread: M18
- Available for machines with high crane (350 mm).

OXY-CUT HEAD

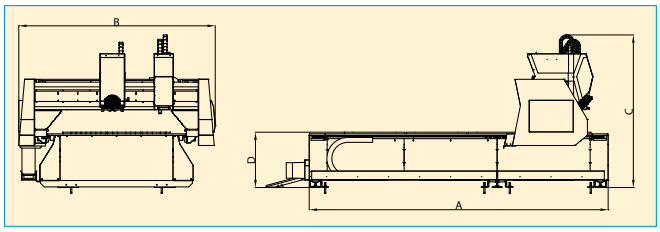
- Maximum cutting capacity: thickness 100 mm
- Maximum number of oxy-fuel torches applicable: depending on the width of the bench.

TECHNICAL SPECIFICATIONS

		WORK AREA			OVERALL DIMENSIO		
MODEL	Hypertherm model	Max sheet metal lenght [mm]	Max sheet metal width [mm]	Standard vertical axis (Z) stroke [mm]	A Length [mm]	B Width [mm]	C Height [mm]
SH 1530	HPR 130 HPR260	3050	1550	200	5200	3250	231
SH 2045	HPR 130 HPR260	4530	2050	200	670	3750	231
SH 2060	HPR 130 HPR260	6050	2050	200	8200	3750	231
SH 2080	HPR 130 HPR260	8050	2050	200	11200	3750	231
SH 20120	HPR 130 HPR260	12050	2050	200	14200	3750	231
SH 2545	HPR 130 HPR260	4550	2550	200	6700	4250	231
SH 2560	HPR 130 HPR260	6050	2550	200	8200	4250	231
SH 2580	HPR 130 HPR260	8050	2550	200	11200	4250	231
SH 25120	HPR 130 HPR260	12050	2550	200	14200	4250	231
SH 3060	HPR 130 HPR260	6050	3050	200	8200	4750	231
SH 3080	HPR 130 HPR260	8050	3050	200	11200	4750	231
SH 30120	HPR 130 HPR260	12050	3050	200	14200	4750	231
SH 30150	HPR 130 HPR260	15050	3050	200	17200	4750	231
SH 30180	HPR 130 HPR260	18050	3050	200	20200	4750	231
SH 35120	HPR 130 HPR260	12050	3550	200	14200	5250	231
SH 35150	HPR 130 HPR260	15050	3550	200	17200	5250	231

* Speed and acceleration depending on the number of heads installed

** Every model can be supplied with the conventional down draft table ("F" version. Required for HPR400)



ONS AND WEIGHT			MAX SPEED*		MAX ACCELERATION*		ACCURACY					
	D Height of working bench [mm]	Approx. Weight [t]	Max speed X axis [m/min]	Max speed Y axis [m/min]	Max acceleration on X axis [m/s2]	Max acceleration on Y axis [m/s2]	X axis - positioning [mm]	X axis - repeatability [mm]	Y axis - positioning [mm]	Y axis - repeatability [mm]	Z axis - positioning [mm]	Z axis - repeatability [mm]
10	916	3.5	95	100	9	9	0.1	0.05	0.1	0.05	0.05	0.03
10	916	4.5	95	100	9	9	0.1	0.05	0.1	0.05	0.05	0.03
10	916	5.0	95	100	9	9	0.1	0.05	0.1	0.05	0.05	0.03
10	916	6.0	95	100	9	9	0.15	0.05	0.1	0.05	0.05	0.03
10	916	7.0	95	100	9	9	0.15	0.05	0.1	0.05	0.05	0.03
10	916	5.0	95	100	9	9	0.1	0.05	0.1	0.05	0.05	0.03
10	916	5.5	95	100	9	9	0.1	0.05	0.1	0.05	0.05	0.03
10	916	6.5	95	100	9	9	0.1	0.05	0.1	0.05	0.05	0.03
10	916	8.0	95	100	9	9	0.15	0.05	0.1	0.05	0.05	0.03
10	916	9.0	95	100	9	9	0.1	0.05	0.1	0.05	0.05	0.03
10	916	10.0	95	100	9	9	0.1	0.05	0.1	0.05	0.05	0.03
10	916	11.5	95	100	9	9	0.15	0.05	0.1	0.05	0.05	0.03
10	916	13.0	95	100	9	9	0.15	0.05	0.1	0.05	0.05	0.03
10	916	14.5	95	100	9	9	0.2	0.05	0.1	0.05	0.05	0.03
10	916	15.0	95	100	9	9	0.15	0.05	0.1	0.05	0.05	0.03
10	916	16.5	95	100	9	9	0.15	0.05	0.1	0.05	0.05	0.03

- TAILOR MADE SOLUTIONS

GASPARINI

BENDING & CUTTING TECHNOLOGIES

TAILOR MADE SOLUTIONS

GASPARINI INDUSTRIES is an Industrial Company, with the ambition to be recognized as the Leader in the development of bending and cutting technology. We develop ideas, design solutions and realize products, for Customers looking for the best Partner, as for skill, commitment, safety and service. Our Team is capable to understand and even anticipate, the most sophisticated customer's needs, providing outstanding "tailor made" solutions, supported by our differentiation factors: co-design attitude, adaptability, ecological approach.
The following examples are just some of the Projects developed recently.

PROJECT: PRESS BRAKES "TANDEM" 2X 200T-3M

Destination: Russia
Customer field: Trucks equipment & road construction machinery

PROJECT: SHEAR LINE 6 m - 10 mm, WITH SEMI-AUTOMATIC DOWN LOADING DEVICE

Destination: Switzerland
Customer field: Metal parts production

PROJECT: SHEAR LINE 4m - 6 mm, WITH SEMIAUTOMATIC LOADING, DOWN LOADING AND STAKING DEVICES

Destination: Switzerland
Customer field: Multi-metal service center

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