

BENDING



Scalable-automation press brakes

salvagnini

CHANGING

Is it possible to significantly increase the availability of the press brake?

Salvagnini has already done so by introducing a **modular and scalable concept of automation** that can increase the flexibility and independence of the press brake, allowing it to adapt itself in setting up and managing the tools on the basis of what it needs to produce.

The aim is to make bending an operation that is less influenced by the process variables and, as a result, provides greater certainties, for example, in terms of machining times, as well as costs and budgets.

Salvagnini has developed 4 automation devices: **ATA** and **ATA.L** automatically adjust the length of the upper and lower tools, **MVM** automatically adapts the die opening, **AU-TO** automatically sets up the tools.

The modularity of these devices allows all Salvagnini's press brakes to be configured to meet actual production requirements, allowing custom intermediate automations to ensure high levels of productivity and efficiency, while at the same time improving the margins on the finished product.

What are the challenges faced by the companies today?

Today companies have to face many challenges to remain competitive in a continuously developing market. Such as:

1. **Improve the efficiency of the information management, creating a lean, error-proof production environment**, integrating ERP/MRP company systems with production management software.
2. **Increase autonomy and efficiency of the production systems**, automating low value-added activities (such as tool set-up), aiming to optimize resources and reduce downtimes.
3. **Implement user-friendly and accessible software solutions for programming**, so as to prevent it from becoming a bottleneck for production and ensure smoother work flow.



Regardless of the level of automation chosen from the four available, the B3.G4 remains the solution with the smallest footprint currently available on the market.

Maximum availability, maximum productivity.

OEE is the measure of the total effectiveness of a system.

In traditional press brakes, depending on the production, it can drop to 30%. Even in the case of advanced, precise and fast technologies, manual press brakes are limited by factors such as tooling and set-up times as well as down times for sheet metal feeding, programming, part handling and checking.

How to make press brake productivity independent of batch size?

ATA/ATA-LT and **ATA/MVM** are proprietary Salvagnini automation solutions for tool management. They allow kit and batch-one production on press brakes, while keeping high productivity.

How to make the press brake independent of the operator?

AU-TO is Salvagnini's patented automatic upper and lower tool changer. It sets up the press brake, guaranteeing it complete independence and efficiency in applying the best strategies according to the production flow.

How to make production independent of material changes?

MAC3.0 is the set of adaptive technologies (S-CROWNING, AMS, TFC2) embedded in the press brake. It makes the system intelligent, eliminating scrap and part correction, widening the range of products which can be produced.

Is it possible to integrate the press brake into the company system?

All B3.G4 press brakes can be equipped with the OPS process software, which enables communication between the machine and the company ERP. They are also ready to be connected to LINKS, the IoT solution for condition monitoring.

Minimum consumption and maximum safety.

The architecture and technical solutions adopted allow the B3.G4 press brake to respect both people and the environment, without reducing productivity.

ENERGY CONSUMPTION

DIRECT DRIVE - On-demand consumption

The Direct Drive system **optimizes energy consumption** of Salvagnini press brakes **adapting it to the need of the bending process in real time**. This approach allows to use only the amount of power you need, guaranteeing maximum efficiency and reducing energy waste. Ram movements are driven by **two independent direct-drive brushless motors**, which allow both fast approach and fast return movements to be achieved, with speeds as high as 250 mm/s.

LED lighting

Two sets of LED lights are installed in the upper and inner sections of the press brake to illuminate the work area and the backgauges, and guarantee suitable visibility during the operating cycles, while keeping power consumption down and preventing undesirable heating due to heat emissions in the work area.

SAFE ENVIRONMENT

LSB safety system

This is composed of a laser transmitter and HD camera for detecting objects in the danger zone. It is able to **reduce the speed-change position** to as little as 2 mm from the sheet metal.

Radar safety system

The Radar safety system – integrated into press brakes with automatic ATA and AU-TO tool change – **guarantees a perfect balance between safety, ergonomics and performance**. The advanced sensor system installed in the machine detects the movements of the operator – it accurately differentiates them from inanimate objects near the work area – and, in the event of potential dangers, it trips and blocks the operations, thus ensuring a safe and efficient work environment.

B3.G4, the ideal press brake for dynamic production.



Scalable automation

The automation devices available (ATA, MVM, AU-TO) combine **productivity** and **flexibility**, both for kit and batch-one production.



Wide range

Salvagnini B3.G4 press brake is available in **20 models**, with stroke of **300 to 450 mm** and from **80 to 400 tons**, to meet all production needs.



Sustainable productivity

The technical solutions adopted (Direct Drive) allow it to **respect both people and the environment**, without reducing productivity. The architecture increases the machine's versatility, relaxing part geometry constraints.



Adaptive technology

The integrated adaptive technologies (S-CROWNING, AMS, TFC2) make the system intelligent, **eliminate scrap and part correction**, and expand the range of products which can be produced.



Connectivity

The proprietary **LINKS** and **OPS** softwares establish communication between the system and the company departments involved in the production flow.



The B3.G4 was designed by combining the features and benefits of **electric** and **hydraulic** press brakes with Salvagnini's in-depth knowledge of **automation, software, mechanics** and **electronics**.

Scalable automation.

FIRST LEVEL

The **ATA** (Automatic Tool Adjuster) device is used to change and automatically adjust the **upper bending tool** length, saving time and increasing production efficiency. Changeover is fast, taking just a few seconds, and programming is simple and intuitive.



For the frequent change in the length of the parts

SECOND LEVEL

The **ATA.L** device, for the **lower tools**, is the ideal solution for kit production, as it allows parts of different lengths to be bent in sequence.



For the frequent change in the length of the parts with negative bends

THIRD LEVEL

The **MVM option**, the **variable opening die** which is an alternative to **ATA.L**, automatically adapts the opening of the V on the basis of the program and allows materials with different thicknesses and/or bending radii to be bent. It does not require manual die set-up, increasing the productivity and flexibility of the press brake.



For the frequent change in the sheet metal thickness

FOURTH LEVEL



For the frequent change of all parameters

Salvagnini's **fourth level** of automation is represented by the **AU-TO** automatic tool change device. **AU-TO** does not disable the operation of the **ATA** devices, but rather prepares the machine by maximizing the potential of the automatic tool set-up and applying the best strategies on the basis of the production flow.

It reduces set-up times and increases the availability of the B3.G4 press brake: the movements occur outside the bending area, and their impact on the activities with high added value is limited. The tool magazine, **covered** and located in the rear section of the press brake, can hold up to 24 m of tools without requiring any segmentation. The operations are rapid and take place in-cycle and in masked time, contributing to further increasing the efficiency of the technology.

Adaptive technology.

AMS

Angle measurement system

Laser system that detects variations in the bending angle due to sheet metal springback. Angle measurement can even be performed in a single point, regardless of the length of the press brake, for shorter cycles. It allows measurement recording and active monitoring for greater productivity.



TFC2

Total frame control

Closed-chain control carried out by smart sensors embedded in the press brake structure. If any variations are detected in-cycle, the NC immediately takes corrective action, preventing deviation in the bending angle.



S-CROWNING

Adaptive crowning

The adaptive mechanical crowning system ensures consistent bending along the entire bending length, even if the parameters change, without operator intervention.



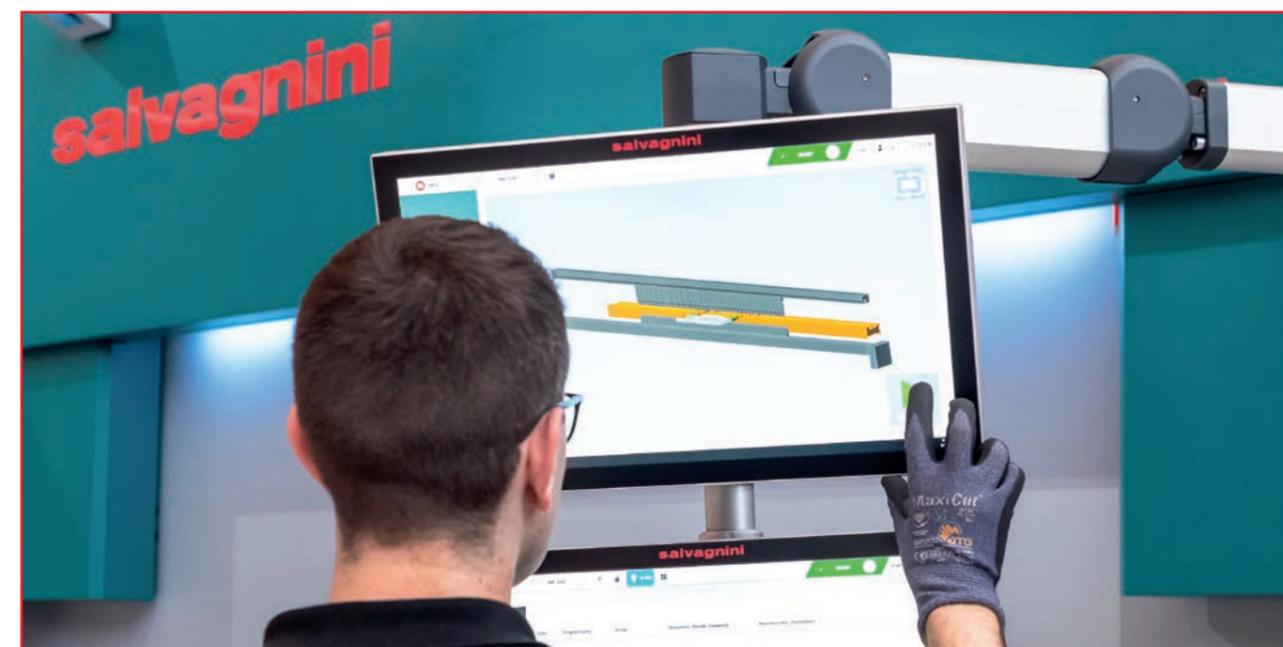
P-PB-CXN

P-PB-CXN is the software used for the direct connection between the Salvagnini panel bender and press brake, **automating the loading of the B3.G4 program at the end of the bending cycle on the panel bender.** This solution not only significantly increases system productivity, but also reduces the risk of error, assigning the operator the task to start the program already loaded automatically. A perfect combination of efficiency and reliability to optimize the production flow.

PRESSTUDIO

PRESSTUDIO is the Salvagnini software for **writing bending programs in 2D environment:**

- **It is used to program the bending cycle easily and rapidly** using the 2D drawing of the desired profile.
- **It facilitates the management of specific bending**, such as safe edges and radius curves.
- **It checks the bending sequences and their relative parameters** (such as force and crowning compensation), **generating the optimal bending program automatically.**



FACE is the Salvagnini human-machine interface, extended to the entire product range.

Simple and intuitive.

It reduces the time required for interaction, as each function is immediately clear and available in just a few clicks.

It is used to control production progress, dynamically manage the production lists, simulate the cutting sequence in real time, and schedule production stops and restarts. It offers support for diagnostics with EasyData2.0.

Standard equipment at your service.

Each B3.G4 press brake offers extensive configurability: options and accessories facilitate operation and part handling, enhance the versatility of the press brake or improve its ergonomics.

Backgauges

Available in six different types, for **maximum production flexibility**. All axes slide on linear guides to guarantee accuracy and sturdiness.

BG4



BG6



BG7



BG8



BG8T



BG9



2MF

Pair of additional micrometrically adjusted gauges for back gauge type BG4-2MF, BG7-2AF and BG8-2AF. The gauges are integrated with the crossbeam in X, while they must be manually positioned along the Z axis. In case of BG7-2AF and BG8-2AF, the installation of the additional gauges reduces the stroke of the Z1 and Z2 axes by 240 mm.



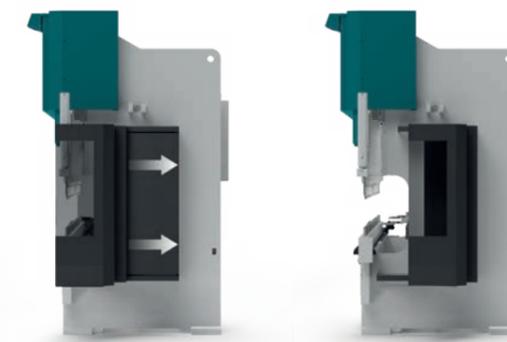
Front sliding shelves

Pair of front sliding shelves with capacity of **120 kg** that support the sheet of metal being machined. They guarantee ergonomic use and ease of handling for the workpieces.



Sliding doors

Attached to the press brake structure, they allow **easy handling of tools and workpieces**, without increasing the machine's footprint.



Optional equipment

Double monitor

Additional monitor installed on the command console, above the standard one, equipped with adjustable support and swivel joint. It can be used to display PDF documents or Salvagnini applications.

Data part reader

Device for reading barcodes, Data Matrix and QR-code applied on labels or directly on parts to be produced. The scanner transfers information to the machine control software quickly and accurately, allowing automated elaboration and immediate execution of the corresponding program. It is ideal to optimize production processes and ensure maximum operating efficiency.

STL lighting

The STL LED system is available on request. This is installed on the upper tool clamp to guide the operator in setting up the press brake or during the bending phases.

FLW sheet follower

The FLW sheet follower is recommended for bending particularly large or heavy parts. Each FLW has a maximum capacity of 150 kg and is pushed along a linear guide. They are equipped with maneuvering devices to move toward the support surface bend line and to change the vertical position, up to a 60° angle.



Change perspective, think results.

Thanks to their extensive expertise in systems and automation, and wide application experience in sheet metal processing, Salvagnini's specialists are able to help the customer to choose the best solution, whether it be a stand-alone press brake, a robotized bending cell, a flexible bending cell or an automatic factory.

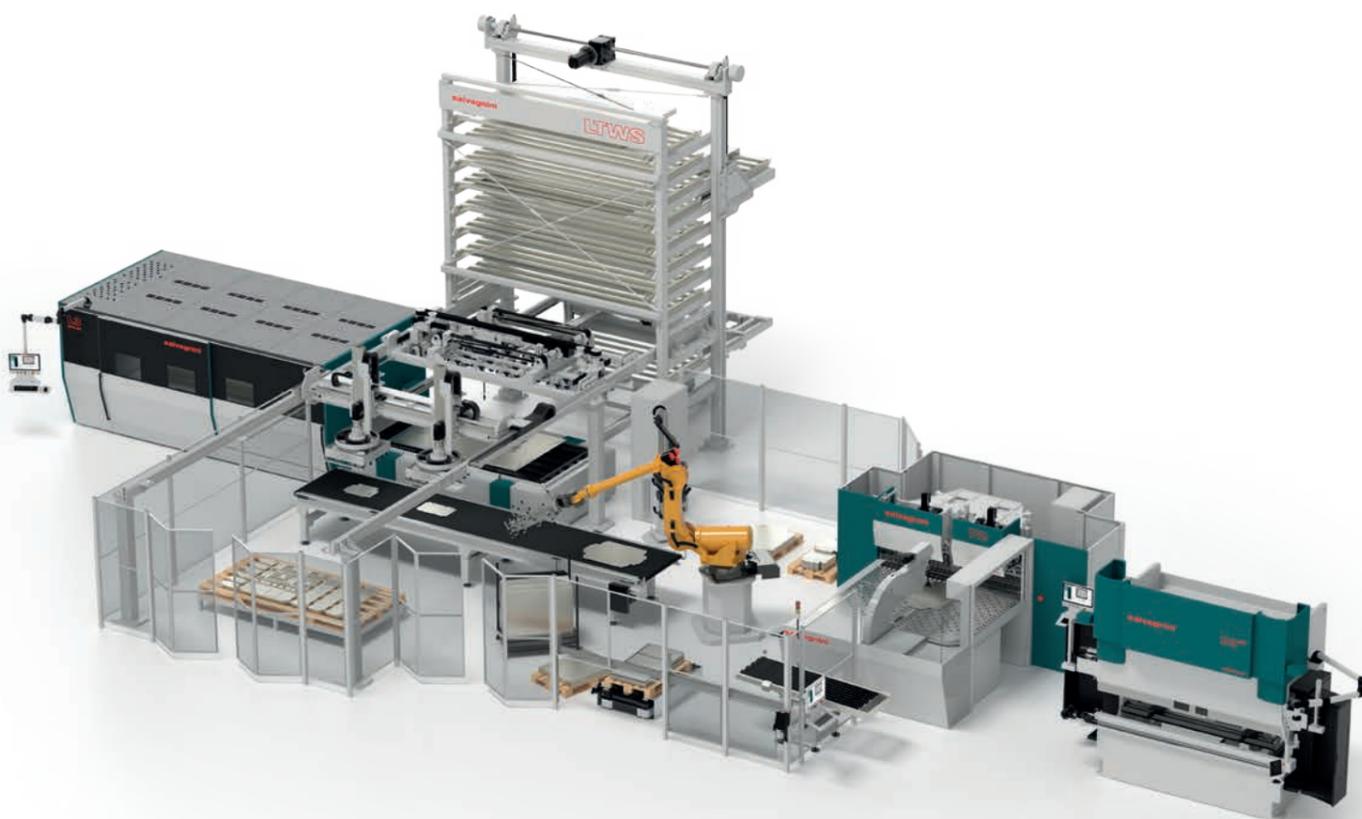
The **robotized bending cell** is an automatic solution for unmanned management of Salvagnini press brakes and consists of the intervention of a robot designed to manage all activities, completely autonomously.



- 1 **MAIN FEATURE:**
robotic bending
- 2 **TARGET MARKET:**
wide
- 3 **TYPICAL APPLICATION AREA:**
large batches
- 4 **APPLICATION SECTOR:**
job shops, electrical industry, ...
- 5 **MACRO ADVANTAGES:**
repeatability for serial production

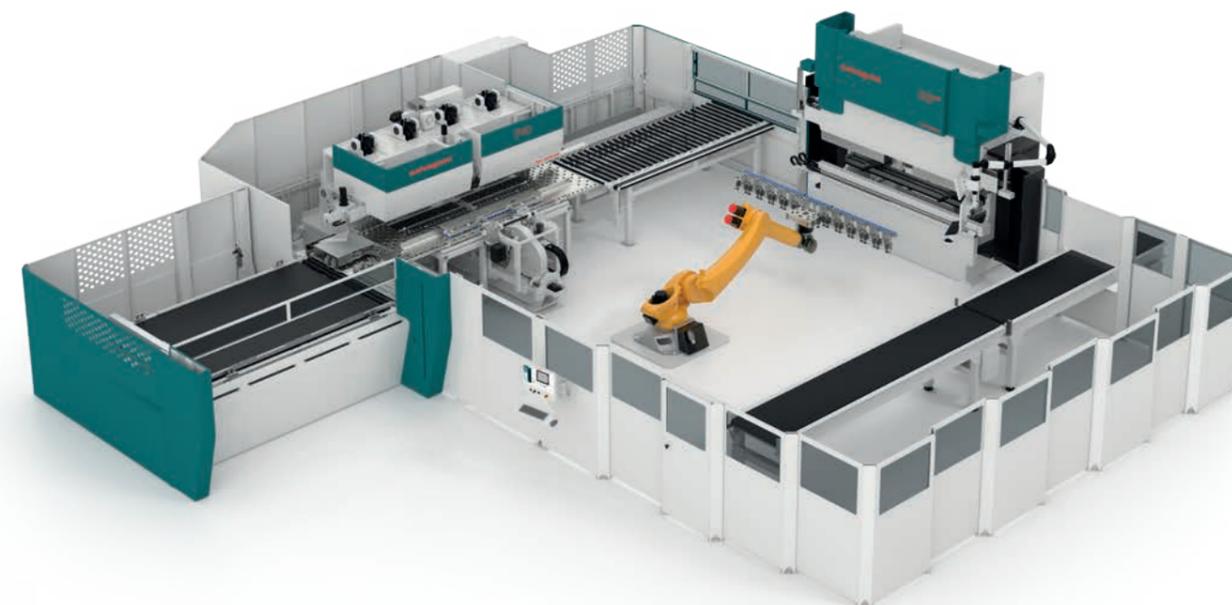
+ The B3.G4 press brake can easily be integrated into systems, flexible cells or automated factories to meet all automation needs.

Multiprocess solutions for automatic bending.



- 1 **MAIN FEATURE:**
system combination
- 2 **TARGET MARKET:**
medium
- 3 **TYPICAL APPLICATION AREA:**
various production
- 4 **APPLICATION SECTOR:**
subcontractors (jobshop)
- 5 **MACRO ADVANTAGES:**
Flexibility, production autonomy, optimized time and costs

Flexible Smart Job Shop (FSJ) is the combination of different stand-alone systems, which are able to work together, when required, to manage convergent production jobs. The connection between the different systems is guaranteed by the software, but also by sorting devices, robots, transfers and AMRs.



- 1 **MAIN FEATURE:**
in-line bending
- 2 **TARGET MARKET:**
medium
- 3 **TYPICAL APPLICATION AREA:**
production of families of parts
- 4 **APPLICATION SECTOR:**
doors, profiles
- 5 **MACRO ADVANTAGES:**
speed and repeatability

Frame Bender is the automatic bending solution achieved by integrating a panel bending system with a press brake, both employing dedicated robots to handle WIP parts and connected to automatic devices.

A wide range at your service.

Salvagnini offers a wide range of models, with strokes of **300 to 450 mm** according to size, to meet all production requirements and maximize the use of the press brake.

TECHNICAL DATA	80/2000	100/3000	135/3000	135/4250	170/3000	170/4250	170/3000XL	170/4250XL	170/5100XL	240/3000	240/4250	240/5100	240/6100	320/3000	320/4250	320/5100	400/4250	AU-TO 170/4250	AU-TO 240/4250	AU-TO 320/4250
Maximum bending force [tons]	80	100	135	135	170	170	170	170	170	240	240	240	240	320	320	320	400	170	240	320
Table length L [mm]	2040	3060	3060	4250	3060	4250	3060	4250	5100	3060	4250	5100	6100	3060	4250	5100	4250	4250**	4250**	4250**
Distance between side frames I [mm]	1740	2640	2640	3640	2640	3640	2650	3620	4620	2650	3620	4620	5600	2630	3600	4600	3600	3640	3620	3600
Throat depth TD [mm]	350	435	435	435	435	435	520	520	520	520	520	520	520	520	520	520	520	435	520	520
Maximum approach and return speed [mm/s]	250	250	250	250	250	250	180	220	180	220	220	220	220	220	220	220	220	250	220	220
Bending speed* [mm/s]	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Maximum stroke [mm]	300	300	350	350	350	350	450	450	450	450	450	450	450	450	450	450	450	350	450	450
Table-ram distance OH [mm]	Wila 550	Promecam 585	550	600	600	600	700	700	700	700	700	700	700	700	700	700	700	600	700	700
Total length B [mm]	3200	4270	4310	5310	4310	5310	4360	5330	6330	4360	5330	6330	7400	4380	5350	6350	5350	5560	5560	5700
Total width P [mm]	1875	1725	1735	1735	1735	1735	2080	2080	2080	2080	2080	2080	2080	2085	2085	2085	2085	2170	2240	2245
Total height H [mm]	3025	3025	3295	3295	3295	3295	3705	3705	3705	3705	3705	3705	3705	3755	3755	3755	3755	3290	3690	3740
Average consumption [kWh]	1	1	1.5	1.5	2	2	2	2	2	2.5	2.5	2.5	2.5	3.5	3.5	3.5	3.5	2	2.5	3.5
Mass [kg]	6200	8600	11700	13500	11700	13500	17000	19400	21500	17000	19400	21500	23500	21800	25000	30000	27000	15500	21600	27200

* Bending speed regulated by current standards. Salvagnini reserves the right to modify this data without prior notice.

** automatic tools set up L=3060 mm

