P1

**The productive,
flexible bending solution.**

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The panel bender is a smart manufacturing tool, invented by Guido Salvagnini in 1977, designed for flexible and automatic production of panels starting from punched blanks without retooling or operator intervention.

Developed to fit in 86 sq ft, designed to produce with just 3 kW and featuring high bending dynamics, the P1 is the flexible solution for the production of parts and panels, offered as an alternative to traditional bending in terms of investment and manufacturing feasibility.

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The P1 changes the shape of panel bending.

MAC 2.0

Patented kinematics

Low consumption

Zero waste

High dynamics and broader feasibility

With the bending unit's patented kinematics, the P1 bends in less than 2 sec. an impressive variety of items, including parts that are not feasible with other panel bender models.

Automatic production cycle

The machine does not require manual intervention during bending cycle and the operator's only task is to position the sheet on the worktable and remove the manufactured item once bending is complete.

Wide and diversified production

Compared to traditional bending, for the same geometric characteristics, the P1 produces a greater number of parts of different materials and thicknesses with universal tools, including kit and batch-one production, without any machine downtime.

Sustainable consumption and small footprint

The P1 fits in 86 sq ft and produces with just 3 kW thanks to direct drives technology and to the optimized design, which is the result of FEM analyses and in-depth market research.

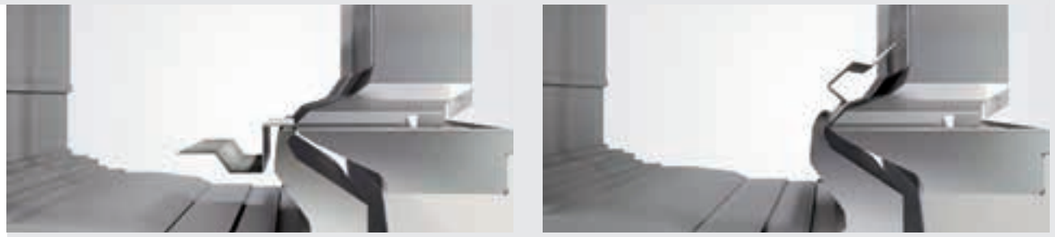
Flexible automation.

Universal bending tools

The P1 uses universal bending tools that **do not require set-up times** and adapt automatically to panel geometry; this becomes a plus for operator safety and ensures productivity and flexibility. Bending on each side of the sheet is achieved thanks to the **controlled interpolated movements** of the two oscillating blades that make the bends, while the sheet is handled automatically.

Down bend - NEGATIVE

Up bend - POSITIVE



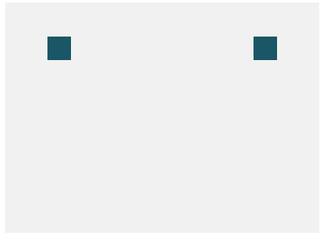
Flattened bend - WITH BLADE

WATCH THE VIDEO

Universal bending tool: zero set-up and **wide versatility.**

One single and controlled centering process

Finished panels are **always of the right size** thanks to the controlled reference stops. **The sheet is centered just once on the notches:** this reduces cycle time and possible errors in accuracy, which are all absorbed by the first bend.



Positioning

Referencing

Centering

PRESS
The press is the heart of the panel bender.
Its sturdy frame holds:

- the **bladeholder,** which holds upper and lower blades, the two tools featuring interpolated controlled movement and responsible for bending;
- the **counterblade,** which helps clamp the sheet during the cycle;
- the **blankholder,** one of the distinguishing features of the Salvagnini panel bender, which works simultaneously with the blades and counterblade to bend and hold the sheet.

MANUAL BLANKHOLDER
MLA is the blankholder that can be adjusted to suit the dimensions of the panel to be bent. Two symmetrical side segments enable quick automatic expansion or contraction. Blankholder length is adjusted in 0.19 in steps.

AUTOMATIC BLANKHOLDER
As an alternative to MLA, the P1 can be equipped with an ABA blankholder that automatically adjusts itself to the dimensions of the panel to be bent, eliminating the need for tool change. The profile of the tools allows inward bends up to 1.77 in. Blankholder length is adjusted in 0.19 in steps.

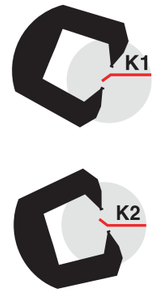
AUTOMATIC MANIPULATOR
The sheet is handled, gripped and rotated by the manipulator, which handles all sheet movements throughout the processing cycle quickly and entirely automatically. The operator's only task is to position the sheet on the feeding device, where applicable, and remove the manufactured item once bending is complete.

Accurate controlled handling

The sheet is gripped, rotated and handled so as to ensure unbeatable **accuracy, repeatability and finished product quality,** thanks to the electric manipulator.

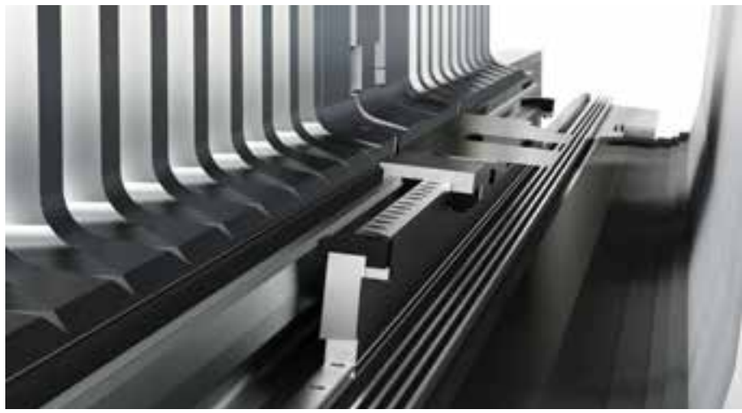
Exclusive kinematics

The very small masses involved and the P1 optimized dimensions allow the bladeholder to reach a greater degree of freedom in its movements, and positions from where it can even make bends that would not be feasible with other panel benders.



CLA tools

CLA auxiliary blades are modular in length, come in both positive and negative versions (for making upward or downward tabs) and engage and disengage quickly and automatically between the blank and the bending blades. They are used to make bends that are shorter than the side to be bent.



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Sustainable adaptive technology.

MAC 2.0: guaranteed quality, each and every time.

Bending technology, machine type and material are the three factors that determine the result of the bending process.
The proprietary bending formula that controls movements, FEM deflection analysis and the numerous innovative solutions built into the machine eliminate any effects linked to the machine factor.
Then there is the MAC 2.0 adaptive technology which enables the machine to compensate in-cycle for any variations in material quality.
An innovative control procedure means that even the slightest variations in the material's mechanical properties are detected and, where necessary, compensated for in-cycle by the movements of the bending unit.
As a result, part quality remains consistent, even with variations in material, resulting in zero waste and optimized production times, for maximum productivity.
MAC 2.0 also reduces costs per part as the Salvagnini panel bender delivers an accurate bending result regardless of material quality.

Zero waste

Quality

High productivity

Fully electric solution

The use of the most innovative technologies available on the market has allowed the P1 to be optimized down to the finest detail, including structure weight, machining precision, installation and consumption, also making it fully electric.

100% electric

3kW consumption

Panel bender 4.0, ideal for flexible manufacturing cells.

The P1 makes a successful addition to FMC flexible manufacturing cells and is an ideal solution for companies looking for efficient and flexible solutions to meet their variable and diversified production needs. The intelligent integration of the P1 panel bender with a Salvagnini press brake results in a flexible manufacturing cell, FlexCell: the proprietary OPS-FlexCell software running the cell can actually optimize the production flow as it exploits the advantages of each technology, maximizing the cell's efficiency based on the current production process.

4.0 Connectivity

Ideal for FlexCell

OPS-FlexCell manages and optimizes the production flow

TECHNICAL SPECIFICATIONS	P1
Maximum length of incoming sheet	62 in
Maximum width of incoming sheet	39.4 in
Maximum diagonal that can be rotated	63 in
Maximum bending length	49.2 in
Maximum bending height	5 in
Minimum thickness	27 gage
Maximum thickness and bending angle steel, UTS 59500 psi (gage)	16 (± 90°) / 18 (± 130°)
Maximum thickness and bending angle stainless steel, UTS 84200 psi (gage)	18 (± 90°) / 20 (± 120°)
Maximum thickness and bending angle aluminum, UTS 38500 psi (gage)	16 (± 90°) / 18 (± 130°)
Average consumption (kW)	3.0
Noise level (dB)	64
Weight	17200 lb

Values refer to a standard machine. Salvagnini reserves the right to modify this data without prior notice.

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CHECKLIST

Catering to all requirements - both today's and tomorrow's.

Flexibility
Wide and diversified production.
Bending tool with interpolated movement for producing a great variety of items that were not possible on a panel bender before.

Productivity
Bending in less than 2 seconds.
Minimum cycle times thanks to the patented kinematics and controlled movements of the tools.

Sustainable
AAA machine.
Use of electric drives resulting in average consumption not exceeding 3 kW.

Optimized
Cutting-edge architecture.
Shape and content fine-tuned with powerful FEM analyses and simulations to pack universally affordable exceptional capabilities into less than 86 sq ft.

Quality
Adaptive technology.
MAC 2.0 adapts bending to the material in real time.

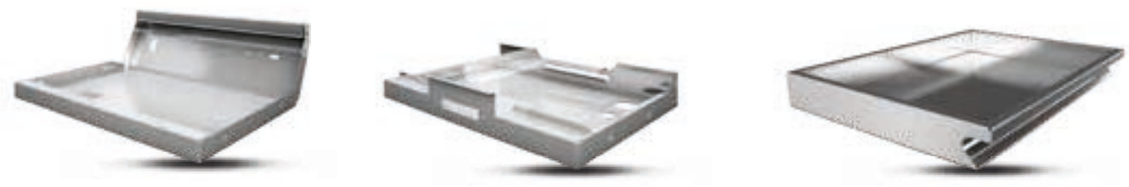
Safety
Risk-free results.
The operator's only job is to load and unload, thanks to the automatic manipulator, eliminating the need for in-process handling.

New bending horizons.

Lighting

Steel furniture

Catering and restaurant industries



Electrical enclosures

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P1 2019 IMPERIAL