P1

Compact electric panel bender.

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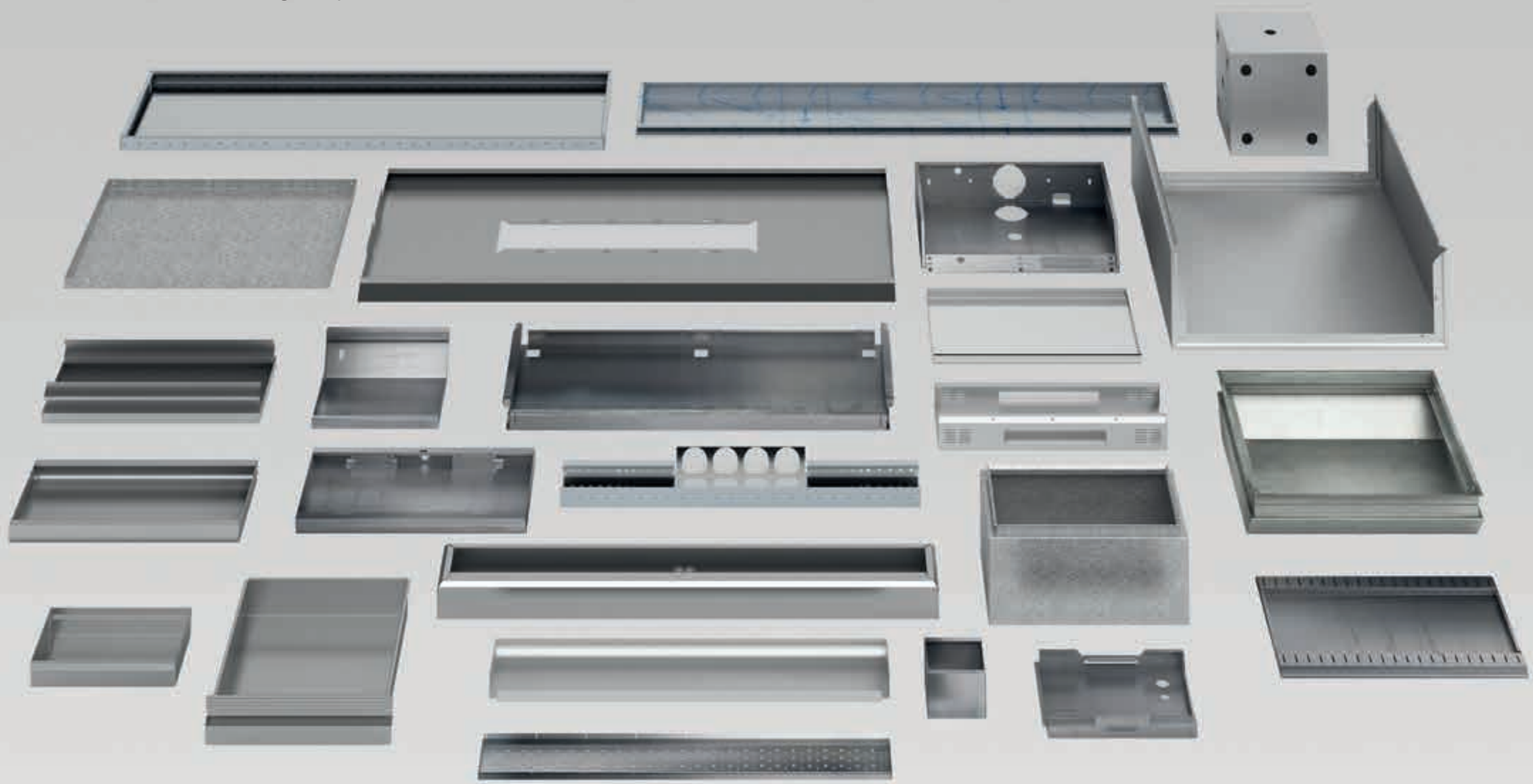
The productive, flexible bending solution.

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 8 m², 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.

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 8 m^2 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

Quick controlled movements, universal tool, ***unbeatable safety.***

Controlled single referencing

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

Positioning

Referencing

Centering

Automatic manipulator

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

Technical focus

PRESS
The press is the working heart of the Panel Bender. Its sturdy frame holds:

- *the* ***bladeholder,*** *which has 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 Benders, 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. The blankholder is sectional and can be adjusted between the minimum and maximum length in 5 mm increments.

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 which make up the blankholder allows inward bends up to 45 mm. Blankholder length is adjusted in 5 mm steps.

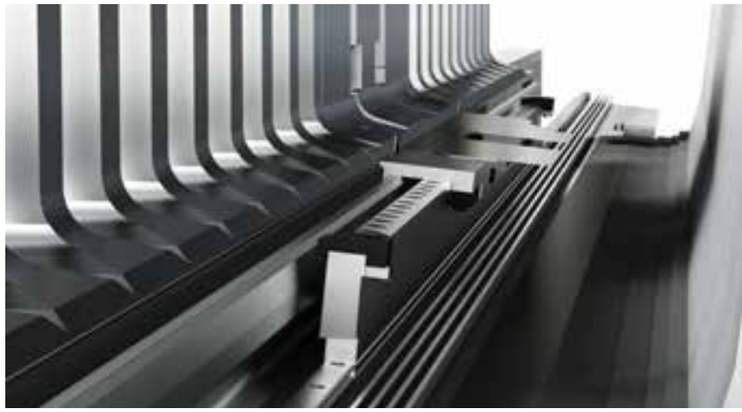
Exclusive kinematics

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

Custom solutions, to widen versatility.

CLA tools: CLA auxiliary blades are modular in length; they come in a positive version and engage and disengage quickly and automatically between the blank and the lower bending blade. 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

PANEL BENDER 4.0

Being the result of Salvagnini's deep experience in panel bending, the P1 has been designed with FEM simulations and is based on an analysis of an ever-more discerning, economically and environmentally conscious market. This, together with the use of the most innovative technology available on the market, has allowed to optimize the machine right down to the very smallest detail - from weight to architecture, from the precision machining to consumption – and make P1 100% electric.

100% electric

3kW consumption

Compact layout just 8 m²

The ideal solution 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.

Ideal for FlexCell

OPS-FlexCell manages and optimizes the production flow

Technical data.

Technical specifications	P1
Maximum length of incoming sheet (mm)	1575
Maximum width of incoming sheet (mm)	1000
Maximum diagonal that can be rotated (mm)	1600
Maximum bending length (mm)	1250
Maximum bending height (mm)	127
Minimum thickness (mm)	0.4
Maximum thickness and bending angle steel, UTS 410 N/mm² (mm)	1.60 (±90°) / 1.30 (±130°)
Maximum thickness and bending angle stainless steel, UTS 660 N/mm² (mm)	1.30 (±90°) / 1.10 (±120°)
Maximum thickness and bending angle aluminium, UTS 265 N/mm² (mm)	1.60 (±90°) / 1.30 (±130°)
Average consumption (kW)	3.0
Noise level (dB)	64
Weight (kg)	7800

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 4.0.
Shape and content fine-tuned with powerful FEM analyses and simulations to pack universally affordable exceptional capabilities into less than 8m².

Quality
Constant repeatability.
MAC 2.0 adapts bending to the material in real time.

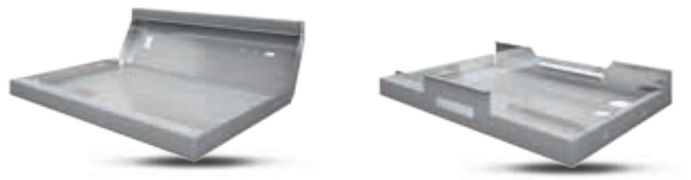
Safety
Risk-free results.
The operator's only job is to load and unload, thanks to the automatic manipulator, eliminating the need for in-process handling.

New bending horizons.

Lighting

Steel furniture

Catering and restaurant industries



Electrical enclosures

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Simply our trademark

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