PHANTOMATIC **M4 L**

CABINET MACHINING CENTERS

CNC machining centre with 4 controlled axes and automatic tool rotation enabling machining on 3 sides of the workpiece. Designed for machining bars or workpieces made of aluminium, PVC, light wood in general and steel up to 2 mm thick. It has a manual 9-station tool magazine and an automatic 4-station tool magazine located on the left side of the safety guard. An optional a second automatic 4-station tool magazine can be installed on the right side of the safety guard. The profile is positioned by a pneumatic stop on the left side. It is blocked by 4 sturdy clamps which are positioned automatically with axis X. The installation of a second pneumatic stop (optional) on the right side allows oversize machining of bars whose length is double compared to the work field. All CNC axes are absolute and do not require resetting upon machine restart. It also has a mobile work surface that facilitates the piece loading/unloading operation and significantly increases the workable section.

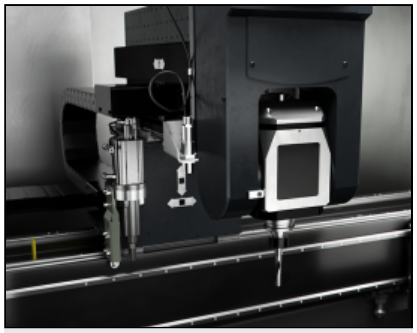
Emmegi S.p.A.
Via Archimede, 10
41019 - Limidi di Soliera (MO)
ITALY

Tel +39 059 895411
Fax +39 059 566286
P.Iva/C.Fisc 01978870366
info@emmegi.com
www.emmegi.com

The right to make technical alterations is reserved.

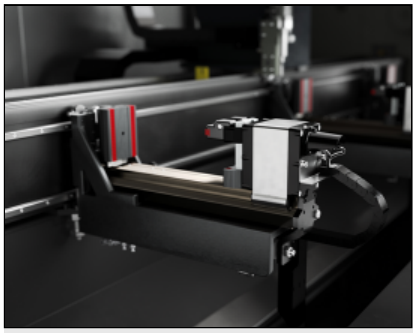
Operator interface

The new control version with suspended interface allows the operator to look at the monitor from any position, as it can be rotated around the vertical axis. The operator interface has a 15" touch screen display with all USB connections necessary to interface with a remote PC and NC. It has a push-button panel, mouse and keyboard. It is also set up for the connection of a barcode reader and remote push-button panel. It is equipped with a front USB socket for data transfer.



Electrospindle - M -

The 4 kW electrospindle in S1 can reach 20,000 rpm. The electrospindle movement along A axis performs -90° to +90° rotation, allowing to work on 3 sides of the profile with no need to reposition it. It can be used on profiles made of aluminium, PVC and light wood and can process extruded steel that is 2 mm thick.

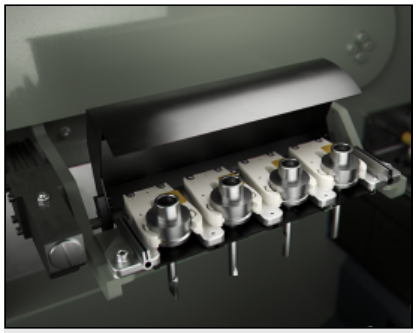


Vices

The machine software can calculate the correct positioning measure for each vice unit, according to the length of the workpiece and to the type of machining to be performed. The automatic positioner allows picking all vice units and moving them by means of the gantry. This operation is performed at the highest speed and with great precision and spares longer time and collision risks, so that the machine can also be easily used by less experienced operators. The mobile work table facilitates the piece loading/unloading operation and significantly increases the machinable section.

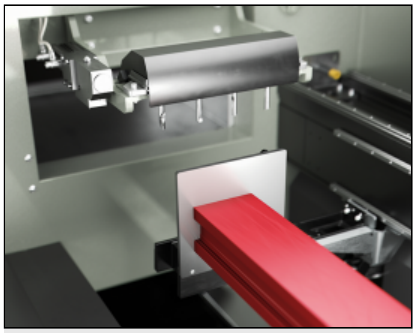
Manual tool changer

The standard, retractable toolholder magazine can house 9 toolholder cones that can be manually taken and installed on the spindle. the position numbering allows identifying the requested tool from the hmi for each machining. the magazine is located on board the machine, in a position suitable for easy access by the operator.



Automatic left tool changer

The machine is equipped with an additional tool changer, located on the left side of the cab. It can house 4 toolholders with respective tools and adjusted as desired by the operator. the tool change is managed by the cnc according to the programmed machining.



Left pneumatic stop

The machine features a robust stop device for bar reference, located on the left side. The stop is activated by a pneumatic cylinder, it is of retractable type and is automatically selected by the machine software according to the machining to be performed.

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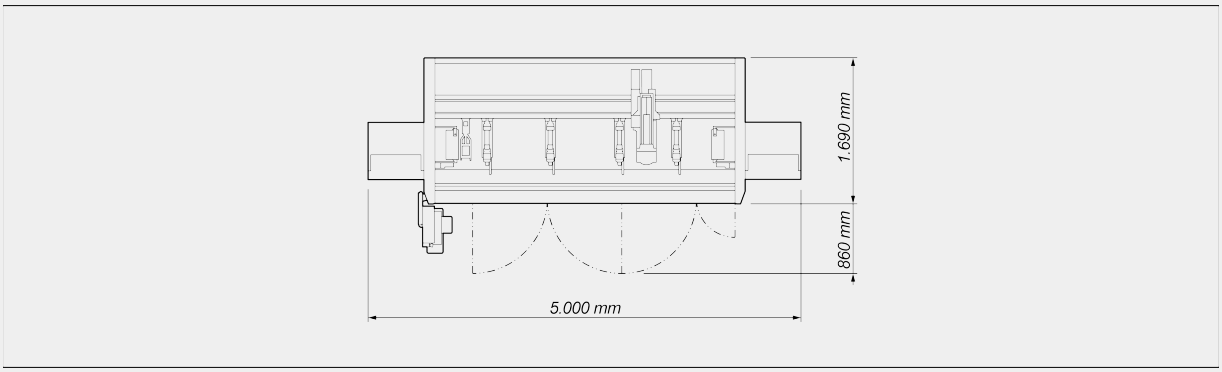
LAYOUT



The overall dimensions may vary depending on the product configuration.

AXIS STROKES

X AXIS (longitudinal) (mm)	3.000
Y AXIS (transversal) (mm)	274
Z AXIS (vertical) (mm) max. tool diameter configuration 80 mm	374
Z AXIS (vertical) (mm) max. tool diameter configuration 120 mm	344
A AXIS (electrospindle rotation)	- 90° ÷ + 90°

POSITIONING SPEED

X AXIS (longitudinal) (m/min)	56
Y AXIS (transversal) (m/min)	22
Z AXIS (vertical) (m/min)	22
A AXIS (electrospindle rotation) (°/min)	6.600

ELECTROSPINDLE

Maximum power in S1 (kW)	4
Maximum speed (rpm)	20.000
Toolholder cone	HSK - 50F
Automatic tool holder coupling	●
Liquid cooling	●
Automatic tool rotation	- 90° ÷ + 90°

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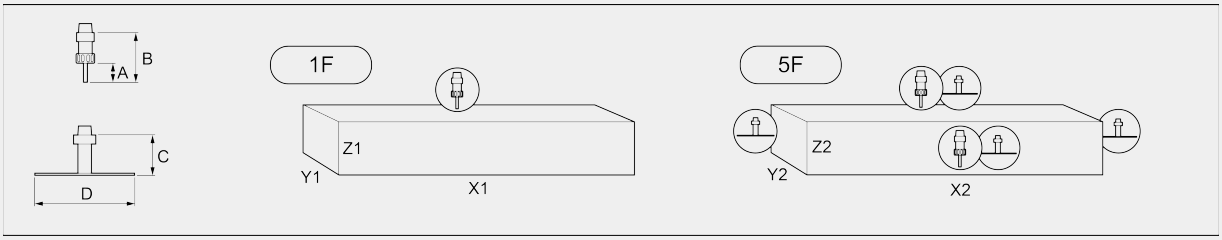
TOOL MAGAZINE

Maximum number of tools in manual magazine	9
Automatic tool magazine with 4 places (left)	●
Secondary automatic tool magazine with 4 places (right)	○
Max. tool length loadable in the tool magazines (mm)	150 (*)
Max. tool diameter in standard version (mm)	80
Max. tool diameter in special version (mm)	120 (**)

(*) tools over 100 mm length limit the work capacity
(**) tools over 80 mm diameter limit the work capacity

WORK AREA

1F = 1 face machining **5F = 5 faces machining**



	Automatic tool magazines	A	B	C	D	X1	Y1	Z1	X2	Y2	Z2
Max. tool diameter: 80 mm											
Machining within the work capacity	left	45	102	113	80	2.815	230	210	2.815	160	210
Machining within the work capacity	left + right	45	102	113	80	2.630	230	210	2.630	160	210
Extended machining	left	45	102	113	80	5.630	230	165(*)	5.630	160	165(*)
Extended machining	left + right	45	102	113	80	5.260	230	165(*)	5.260	160	165(*)
Max. tool diameter: 120 mm											
Machining within the work capacity	left	45	102	105	120	2.815	230	180	2.815	160	180
Machining within the work capacity	left + right	45	102	105	120	2.630	230	180	2.630	160	180
Extended machining	left	45	102	105	120	5.630	230	135(**)	5.630	160	135(**)
Extended machining	left + right	45	102	105	120	5.260	230	135(**)	5.260	160	135(**)

Dimensions in mm
(*) with max.admissible length tools (B = 150 mm) charged into the automatic magazine the Z value decreases to 130 mm
(**) with max.admissible length tools (B = 150 mm) charged into the automatic magazine the Z value decreases to 100 mm

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TAPPING CAPACITY (with Tap On Aluminium And Through Hole)

With compensator	M5
With helical interpolation	●

PROFILE POSITIONING

Workpiece reference LEFT stop with pneumatic movement	●
Workpiece reference RIGHT stop with pneumatic movement for extended machining	○

WORKPIECE LOCKING

Number of vices	4
Automatic vice positioning through X axis	●

SAFETY DEVICES AND PROTECTIONS

Machine integral protection booth	●
Side tunnels	○

MACHINING UNIT

Carriage structure	●
Minimal oil diffusion lubrication system	●
Chip conveyor with rubber belt	○

ELECTRIC CABINET COOLING

Ventilated electrical cabinet for < 40 °C operating temperatures	●

Included ● Available ○

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