Phantomatic M4 F

CNC machining centres



CNC machining centre, with 4 controlled axes; the spindle has an automatic tool slewing system that allows processing on 3 sides of the workpiece. Designed for machining bars or parts made of aluminium, PVC, light alloys in general or steel up to 2 mm. A removable front loading bench, mounted on wheels to facilitate movement, allows you to load already assembled frames into the machine and carry out processing on 4 sides. It is provided with a manual tool magazine with 9 places and a 4 places automatic tool magazine on the left side of the cabin. Optionally a second automatic tool magazine with 4 places can be added at the right side of the cabin. The workpiece or frame is positioned by a pneumatic stop positioned at the left side of the machine, and is blocked by 4 strong clamps that are positioned by the slider on the X axis. Adding a second optional stop on the right side, the machine may perform extended machining of bars up to twice the work capacity. All CNC axes are absolute and do not require resetting upon restarting the machine. Moreover it is equipped with a movable work plane for easier workpiece loading/unloading; this also allows considerable increase in the machinable section.

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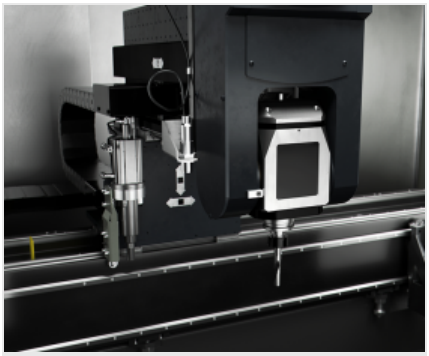
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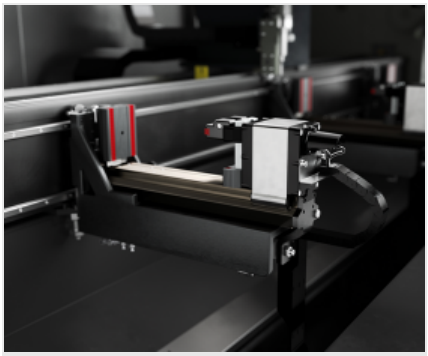
Operator interface

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.



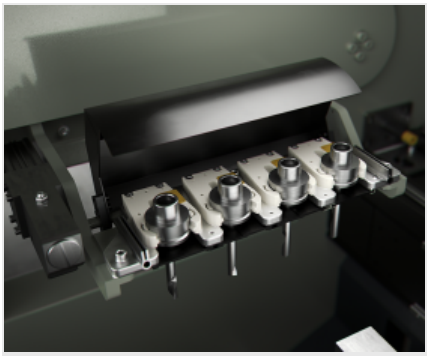
Vices

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.



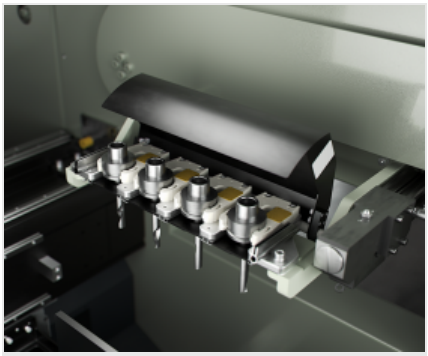
Manual tool changer

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.



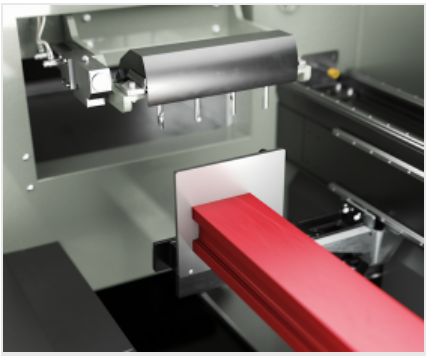
Automatic right tool changer (Optional)

The machine can be optionally equipped with an additional automatic tool changer, located on the right 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.

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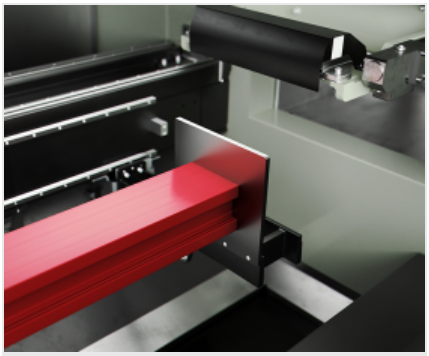
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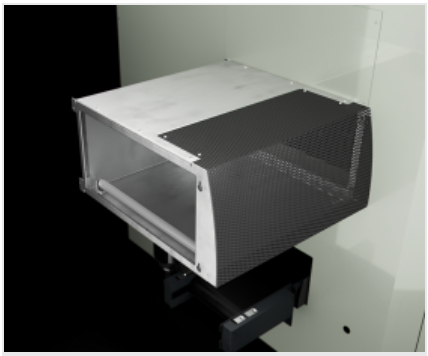
Left pneumatic stop

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.



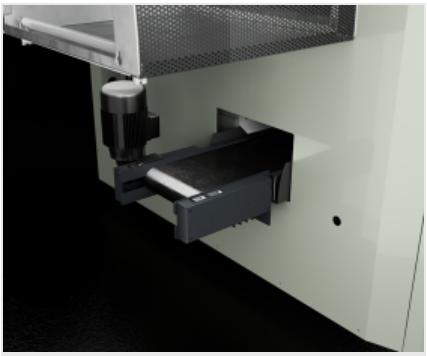
Right pneumatic stop (Optional)

A stop can also be optionally fitted on the right side of the machine. 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. the advantage of the dual stop system is that allows repositioning of the bar or short cut when machining particularly long profiles.



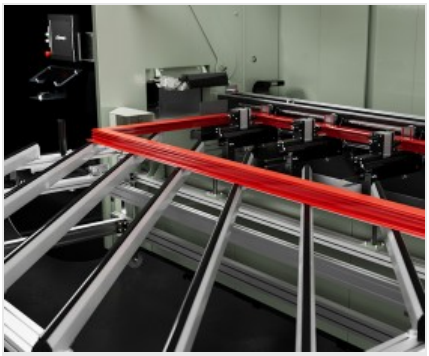
Tunnel (Optional)

The machine can perform oversize machining of bars with length up to twice the relevant nominal work area. for this type of machining, the machine must be equipped with side protection tunnel to ensure the operator safety also near the side openings of the cab.



Swarf conveyor belt (Optional)

The machine can be optionally integrated with a conveyor belt for ejection of swarfs and parts of the profile being machined. thanks to this device, machining scraps are directly conveyed into a container, reducing the need to stop machining and facilitating cleaning inside the machine.



Loading bench

The peculiar characteristic of this model is the possibility to attach a loading bench to the front part of the machine. This device allows you to load already assembled squares and machine all 4 sides, ensuring perfect alignment and support. A pneumatic system allows lifting the frame upon insertion into the machine, to easily position the profile to be machined on the vice table.



Electric panel air conditioner (Optional)

The electric panel air conditioner is the solution for all applications where the environmental conditions require a higher cooling level to preserve the efficiency and durability of the machine electrical and electronic components. A dedicated, carefully sized equipment allows to maintain the correct temperature and humidity inside the electric panel even under unfavourable climatic conditions and extreme workloads.

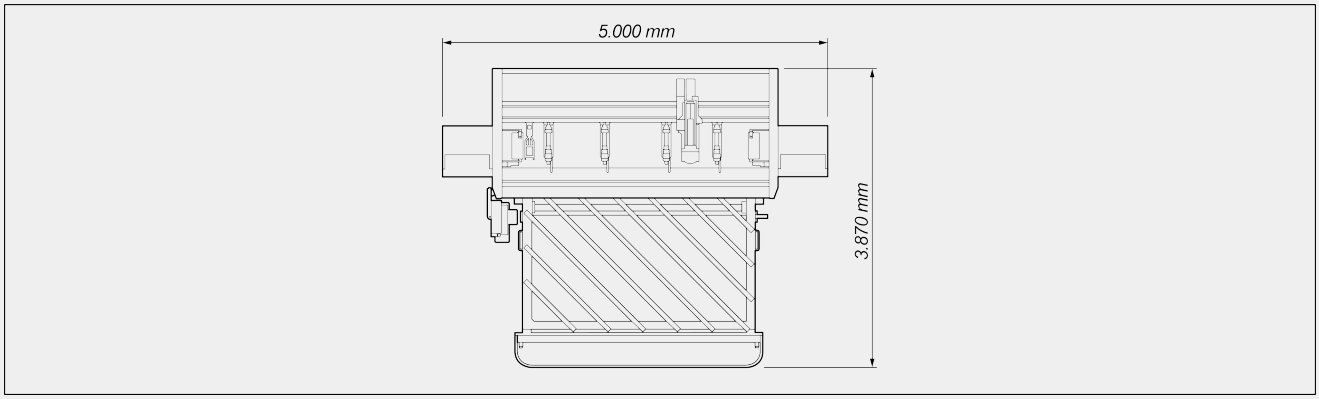
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PHANTOMATIC M4 F / CNC MACHINING CENTRES

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)	390
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)	4,0
Maximum speed (rpm)	20.000
Toolholder cone	HSK-50F
Automatic tool holder coupling	●
Liquid cooling	●
Automatic tool rotation	-90° ÷ +90°

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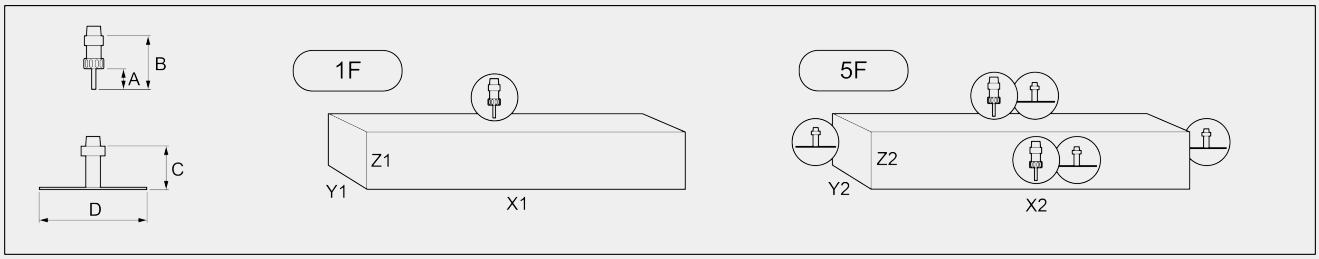
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TOOL MAGAZINE

Maximum number of tools in manual magazine	9
Automatic tool magazine with 4 places (left)	●
Secondary automatic tool magazine with 4 places (right)	○
Maximum dimension of the tools that can be loaded into the magazine (mm)	Ø=80 ; L=150 (*)

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(*)

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

TAPPING CAPACITY (with Tap On Aluminium And Through Hole)

With compensator	M5
With helical interpolation	●

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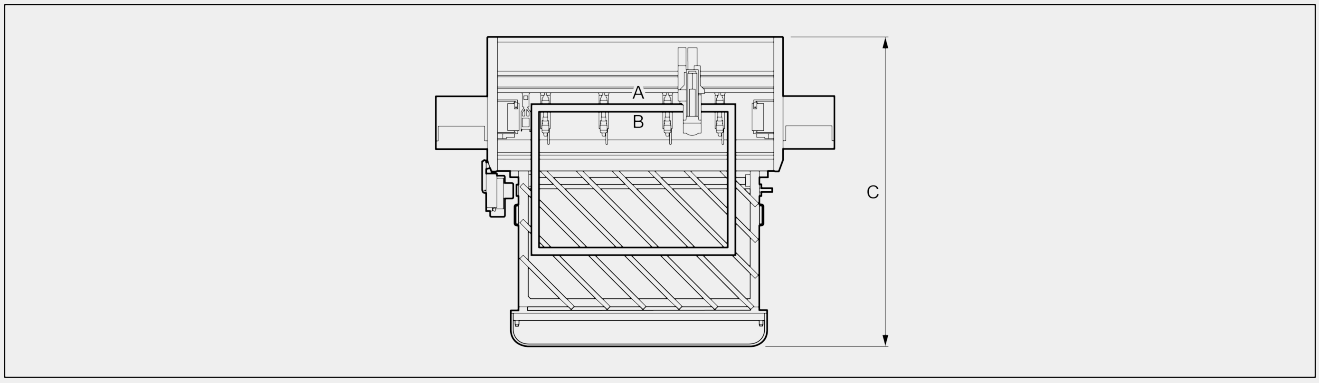
PROFILE POSITIONING

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

LOADING BENCH

Total dimension C: machine + loading bench (mm)	3.870
Pneumatic lifting	●
Removable bench	●
Swivel wheels	●
Maximum profile thickness (mm)	100
Minimum internal dimension B of the loadable frame (mm)	400
Maximum external dimension A of the loadable frame (mm)	2.700

LAYOUT



WORKPIECE LOCKING

Number of pneumatic vices	4
Automatic vice positioning through X axis	●

SAFETY DEVICES AND PROTECTIONS

Machine integral protection booth	●
Side tunnels	○

Included ● Available ○

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