Diamant E

CNC machining centres

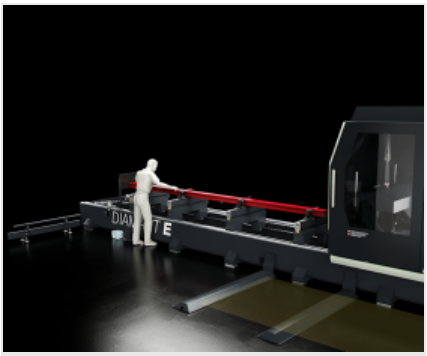


4-axis CNC mobile gantry machining centre, designed to run milling, drilling, threading and cutting processes on large bars in aluminium, PVC, and light alloys; machinings on steel up to a thickness of 2 mm, excluding cutting. The mobile part of the machine mainly consists of a gantry equipped with precision motorisation rack. The high-power electrospindle allows even heavy-duty machining to be run with excellent speed and accurate results. The local safety cab was designed to combine top functionality, accessibility and light with safety and ergonomic requirements. The operator has broad glazed surfaces to check machining execution and easy access during cleaning and maintenance. The cab interior includes the complete segregation of the work area from the remaining sections of the tool magazine and other accessories supplied on the trolley, ensuring maximum chip collection towards the conveyor belt and, as optional, dedicated extraction of machining fumes. The 12-place tool magazine is integrated to the mobile gantry, can host a blade of Ø300 mm maximum. In its dynamic version, the machine has 1 extra axis available for vices and reference stop positioning, enabling the vices to be positioned in concurrent operation time when the machining centre is running in double mode. The reference stops disengage the area when machining profile heads. All CNC axes are absolute and do not require resetting upon restarting the machine.

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

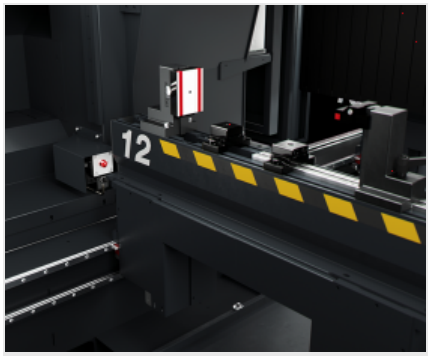
Tel +39 059 895411
Fax +39 059 566286
P.Iva/C.Fisc 01978870366
info@emmegi.com
www.emmegi.com

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Double operation mode

Work system that allows reducing machine downtimes to a minimum during the loading and unloading of the workpieces. The machine safely manages the division of the work area into two independent zones and allows loading, unloading and adjustment operations to be carried out in one area while profile machining proceeds in the other, even with different programs between the two work zones.



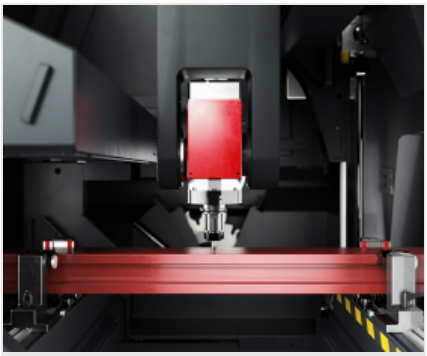
Vice automatic positioning

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 vice positioner on the gantry positions each vice unit with maximum precision, avoiding manual operations and risks of collision during machining.



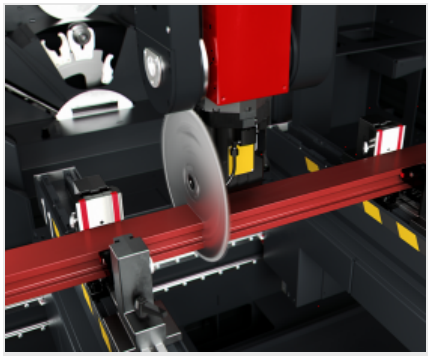
Tool magazine

The tool magazine is large and quick and is installed directly on the machine's carriage. Its lateral position, together with an exclusive housing, guarantees maximum protection of the toolholder cones from swarfs and accidental knocks. The magazine has 12 tool positions, including one suitable to accommodate a 300-mm diameter blade, which can be configured at the operator's discretion.



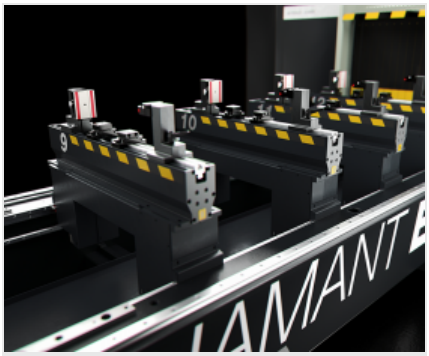
Spindle

The 8.5 kW electrospindle with HSK63F toolholder is able to perform even heavy-duty machining with excellent, rapid and accurate results. The electrospindle movement along A axis performs 0° to 180° rotation, allowing to work on 3 sides of the profile with no need to reposition it. A 11 kW electrospindle with encoder for rigid tapping is available as optional.



Blade angle machining head (Optional)

The tool magazine on the carriage can accommodate 2 angle machining heads. By means of the angle machining head with 2 90°-outlets, it is also possible to perform machining operations on the bar ends. The angle machining head with 300-mm blade allows cutting and separation of the workpiece, giving this 4-axis centre the potential of a top-class 5-axis machine.



Vices

Well-dimensioned vice unit capable of guaranteeing correct clamping of profiles, even of large dimensions, in aluminium, steel, PVC and light alloys. It is possible to mount specific counterblocks for adaptation to profiles of special shapes making the machine extremely versatile. The vice unit is available optionally in double hold-down device version to machine two profiles in parallel.

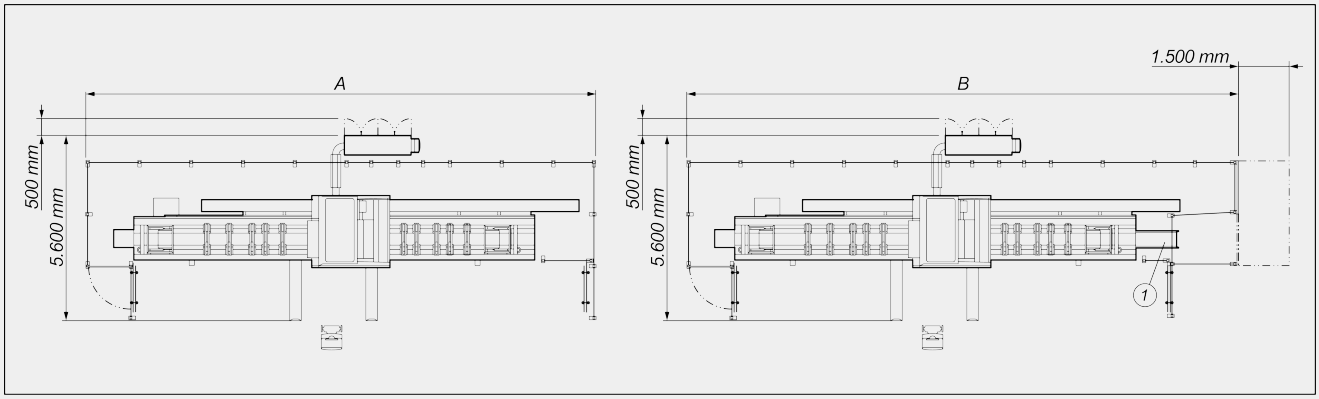
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Via Archimede, 10
41019 - Limidi di Soliera (MO)
ITALY

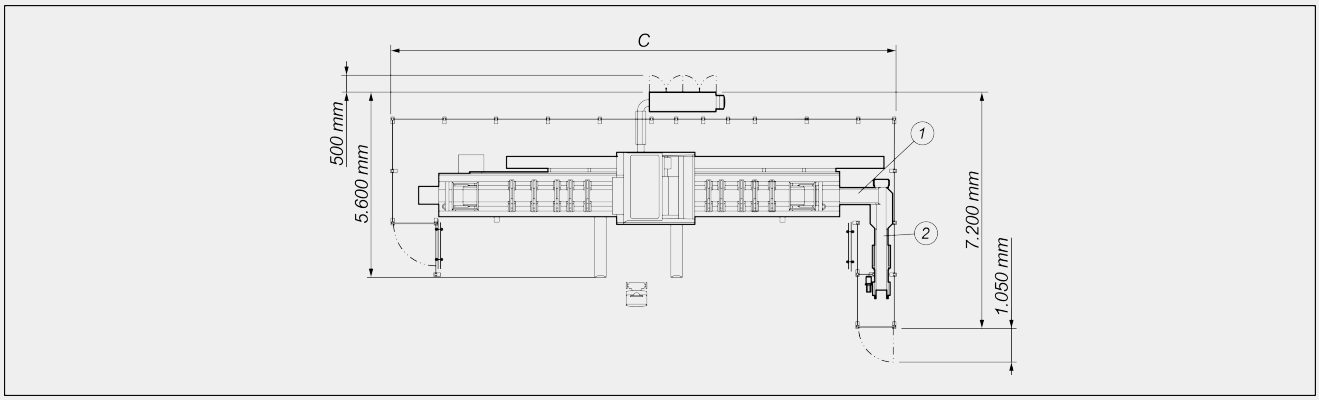
Tel +39 059 895411
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P.Iva/C.Fisc 01978870366
info@emmegi.com
www.emmegi.com

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DIAMANT E / CNC MACHINING CENTRES

LAYOUT





	A	B	C
Diamant E - 7,8m (mm)	12.800	14.000	12.900
Diamant E - 10,5m (mm)	15.300	16.600	15.400

1. Metal mesh swarf evacuation belt with outlet to the right (optional)
2. Belt for conveying swarf and short cuts to collector bag (optional)

The overall dimensions may vary depending on the product configuration.

AXIS STROKES

X AXIS (longitudinal) (mm)	7.800 ; 10.500
Y AXIS (transversal) (mm)	1.100
Z AXIS (vertical) (mm)	655
A AXIS (head vertical-horizontal rotation)	-120° ÷ +120°

Emmegi S.p.A.
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41019 - Limidi di Soliera (MO)
ITALY

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POSITIONING SPEED

A AXIS (head vertical-horizontal rotation) (°/min)	8.800
Z AXIS (vertical) (m/min)	60
Y AXIS (transversal) (m/min)	60
X AXIS (longitudinal) (m/min)	75

ELECTROSPINDLE

Maximum power in S1 (kW)	8,5
Maximum power in S6 (60%) (kW)	10
Maximum speed (rpm)	24.000
Toolholder cone	HSK – 63F
Automatic tool holder coupling	●
Cooling with heat exchanger	●
Electrospindle controlled on 4 axes with the possibility of simultaneous interpolation	●

HIGH-PERFORMANCE ELECTROSPINDLE (OPTIONAL)

Maximum power in S1 (kW)	11
Maximum power in S6 (60%) (kW)	13,5
Electrospindle with encoder for rigid tapping	●
Electrospindle prepared for Flow Drill	●

AUTOMATIC TOOL MAGAZINE ON BOARD THE GANTRY

12-place tool magazine	●
Maximum dimension of the tools that can be loaded into the magazine (mm)	Ø = 80 - L = 190
Maximum size of the blade that can be loaded into the magazine (mm)	Ø = 300 - L = 100
Additional 15-place tool magazine – 27 total	○

TAPPING CAPACITY (with Tap On Aluminium And Through Hole)

With compensator	M8
Stiff (optional)	M10

WORKABLE SIDES

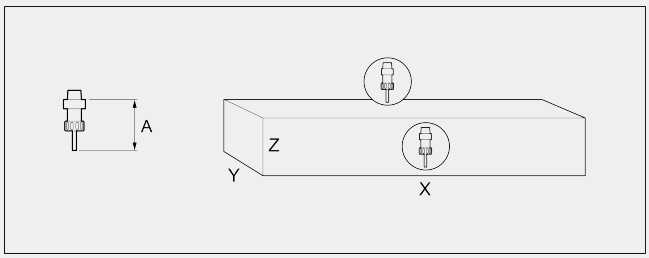
With direct tool (upper face and side faces)	3
With blade tool Ø 300 mm (upper face, side faces, heads)	1 + 2 + 2
With angle machining head (heads)	2
With angular head for blade, Ø 300 mm (top face, side faces)	1 + 2

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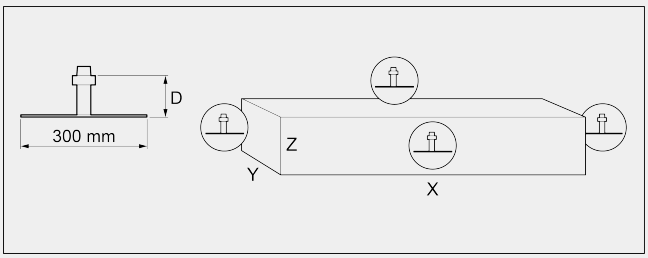
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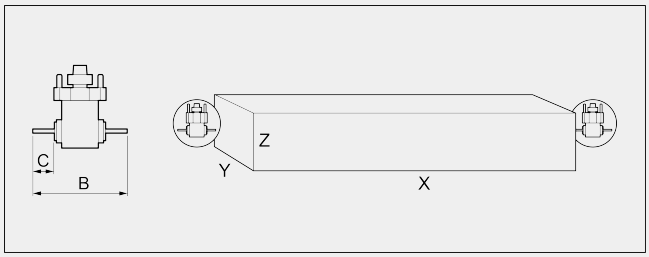
WORK AREA



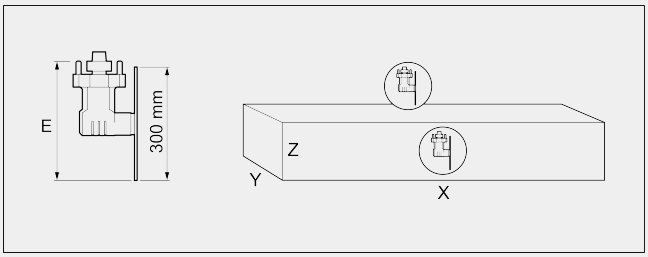
		A	X	Y(a)	Z
DIAMANT E 7.800 mm	single mode	130	7.800	600	300
	double mode	130	3.805	600	300
DIAMANT E 10.500 mm	single mode	130	10.500	600	300
	double mode	130	5.155	600	300



		D	X	Y	Z
DIAMANT E 7.800 mm	single mode	169	7.400	420	300
	double mode	169	3.530	420	300
DIAMANT E 10.500 mm	single mode	169	10.100	420	300
	double mode	169	4.880	420	300



		B	C	X	Y(a)	Z
DIAMANT E 7.800 mm	single mode	240	45	7.400	600	300
	double mode	240	45	3.530	600	300
DIAMANT E 10.500 mm	single mode	240	45	10.100	600	300
	double mode	240	45	4.880	600	300



		E	X	Y(b)	Z(b)
DIAMANT E 7.800 mm	single mode	305	7.400	110/600	210/100
	double mode	305	3.530	110/600	210/100
DIAMANT E 10.500 mm	single mode	305	10.100	110/600	210/100
	double mode	305	4.880	110/600	210/100

Dimensions in mm

a. Size clampable with vice without standard end pieces
b. The application of an angular unit with Ø300 mm blade reduces the working capacity in Z to 210 mm. By taking advantage of the cut on Y and Z axes it is possible to cut a profile up to 110X210 mm. Using exclusively the Y movement, it is possible to cut a profile with a height of 100 mm and a width equal to the entire Y working range

Tapping with angular unit is only possible with the optional high-performance electrospindle with encoder. The angular unit does not perform tapping with length compensation.

Warning: The use of an angular unit with a Ø 300 mm blade, as well as the use of any tool that exceeds the size of 190 mm, involves the risk of collision during manual movements, even with the Z axis positioned at its maximum height.

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

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WORKPIECE LOCKING

7,800 mm versions; standard number of pneumatic vices	8
7,800 mm versions; maximum number of pneumatic vices	12
7.800 mm versions; maximum number of vices per area	6
10,500 mm versions; standard number of pneumatic vices	10
10,500 mm versions; maximum number of pneumatic vices	12
Maximum workpiece size in Y that can be locked in the standard vice (mm)	600
Automatic vice positioning through P independent axis (dynamic double operation version)	●
10,500 mm versions; maximum number of vices per area	6
Automatic vice positioning through X-axis (static double operation version)	●
Double horizontal hold-down device on pneumatic vices	○

Included ● Available ○

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