

MX4

High Performance 5-Axis Machining Center



MX 4

High Performances 5-Axis Machining Center

OVERVIEW

The MX multifunction machining center offers high levels of flexibility enabling machining operations in 5 axes and on 5 sides, in one setup part clamping, from roughing to finishing, as well as turning operations.

- 5 axis machining for work piece up to 250 kg
- Hard material machining in a minimal time
- Very high accuracy in contouring and profiles
- Complete automation of the machine





STRUCTURE : RIGIDITY AND ACCURACY

- Structure with portal configuration
- Cast iron with a high mechanical performance which maximises structure rigidity and allows optimum harmonic stability and maximum damping during demanding cutting conditions
- Machine secured on foundation with weight equally distributed over fixing points enabling extreme rigidity and a very high geometrical stability
- Modular design allows maximum flexibility in machine configuration to adapt to the technical requirements of customer
- Electrical cabinet protected IP54

LINEAR AXIS

- Ball screw on X axis with integrated system of compensation for expansion
- Linear motors on Y and Z axes allowing an optimum feedrates
- Roller guide rails ensuring minimum friction and efficient axis drive at low or high feedrates
- Automatic grease lubrication of ballscrews and bearings minimising the pollution of coolant
- Incremental measurement by optical encoders in conformity with norm VDI/DGQ 3441

NUMERICAL CONTROLLER

- Ergonomic design
- Very high capacity of memory and calculation
- Interactive programming
- Graphic simulation before machining for optimal safety

SPINDLE

- Powerful spindle allowing high metal removal rates
- Spindle vibration monitoring allowing a very high level of harmonic stability

ROTARY TABLE

- Table equipped with torque motor : TRIM® technology
- Table on a 45° plane allowing tilting from -45° to +180°
- Continuous tilting from horizontal position to vertical position
- High rate of rotational and acceleration
- No backlash
- No wear
- Rigidity : high clamping torque enabling high power during roughing

ENVIRONMENT - ERGONOMICS

- Evacuation channels for chips equipped with washing device
- Tool magazine outside of working area
- Complete safeguard ensuring safety of the machine, the operator and environment
- Very large accessibility to the table and the work piece
- Operator panel

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ELECTRO SPINDLE 24000 RPM

Taper	HSK 63-A
Rotating Speed	100 - 24000 rpm
Power (S6-40% / S1)	25 kW / 20 kW
Torque (S6-40% / S1)	40 Nm / 32 Nm
Characteristic Speed	6000 rpm
Equipment :	
<ul style="list-style-type: none">■ Air wall for spindle protection■ Control captor for angular positioning of the spindle■ Electro spindle cooling system■ Mechanical clamping with spring rings■ Tool unclamping with hydraulic control■ Air/Oil greasing of bearings■ Taper cleaning by compressed air	

100 rpm 6000 rpm 24000 rpm

40 Nm
32 Nm

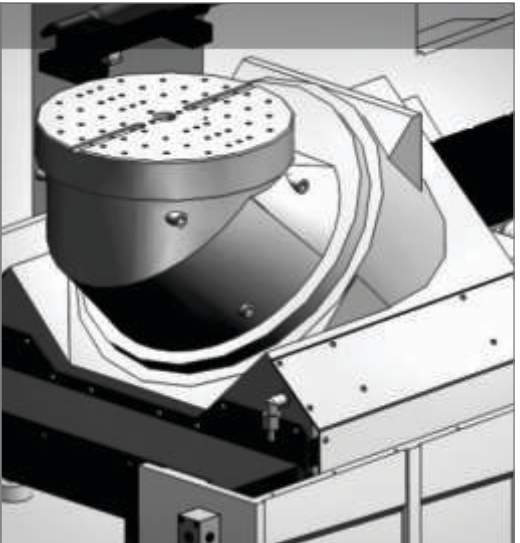
25 kW
20 kW

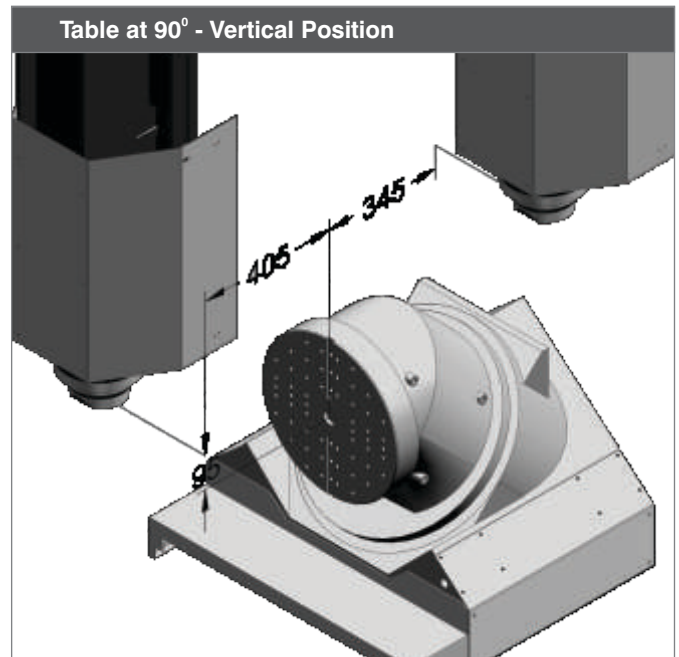
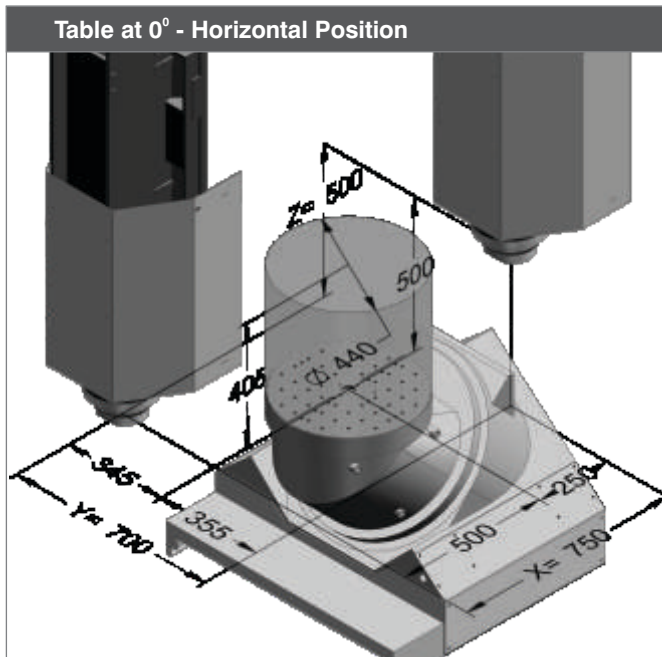
10 Nm
8 Nm

0.4 kW
0.3 kW

Power (S6 - 40%)
Power (S1)
Torque (S6 - 40%)
Torque (S1)

THE TABLE

		
A axis : - Table Tilting on a 45° Plane	-45° / +180°	
C axis : - Table Rotation	360°	
Rotating Speed	100 rpm	
Table Area	Ø 440 mm	
Machining Volume (Ø x Height)	Ø 440 mm x 405 mm	
Admissible Load	250 kg	
Increment of Measurement	0.001°	
Torque : Motor / Clamping	A=740 Nm, C = 430 Nm / A,C = 2500 Nm	
Clamping System	Holes M12 – 50/50 mm	
Referring	Ø 40H7	
Positioning	Slot 20H7	



All dimension in mm

THE TOOL CHANGER

<ul style="list-style-type: none"> ■ The tool magazine is a chain type ■ The automatic load/unload of the tool is made vertically 	
Pockets Quantity	36
Taper	HSK 63-A
Tool Dimensions :	
Max. Ø Adjacent Tools / Non Adjacent Tools	70 / 90 mm
Max. Length	250 mm
Max. Weight	5 kg
Max. Weight Admissible in Magazine	240 kg
Tool Changing Time :	
Tool to Tool	3 sec
Chip to Chip	8 sec

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ALTERNATIVE : ELECTRO SPINDLE

Taper	HSK 63-A	
Rotating Speed	100 - 16000 rpm	
Power (S6-40% / S1)	36 kW / 22 kW	
Torque (S6-40% / S1)	98 Nm / 60 Nm	
Characteristic Speed	3500 rpm	
Equipment : <ul style="list-style-type: none"> Air wall for spindle protection Control captor for angular positioning of the spindle Electro spindle cooling system Mechanical clamping with spring rings Tool unclamping with hydraulic control Air/Oil greasing of bearings Taper cleaning by compressed air 		<p>100 rpm 3500 rpm 10000 rpm 16000 rpm</p> <p>98 Nm 60 Nm 36 kW 22 kW 15 kW 9 Nm 1 kW 0,6 kW</p> <p> ◆ Power (S6 - 40%) ◆ Power (S1) ◆ Torque (S6 - 40%) ◆ Torque (S1) </p>

ALTERNATIVE : PALLETIZED TABLE

A axis : Table Tilting on a 45° Plane	-45° / +180°	
C axis : Table Rotation	360°	
Rotating Speed	100 rpm	
Table Area	Ø 400 x 400 mm	
Machining Volume (Ø x Height)	Ø 400 mm x 350 mm	
Admissible Load	200 kg	
Increment of Measurement	0.001°	
Torque : Motor / Clamping	A=740 Nm, C = 430 Nm / A,C = 2500 Nm	
Clamping System	Holes M12 – 50/50 mm	
Referring	Ø 50H6	
Positioning	Slot 20H6	

Table at 0° - Horizontal Position	Table at 90° - Vertical Position

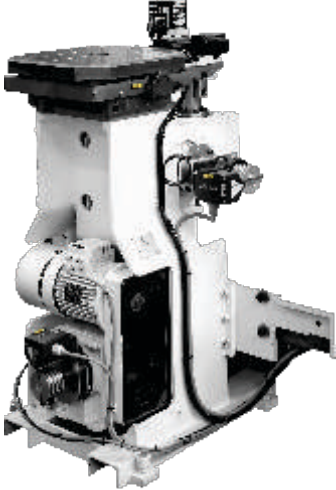
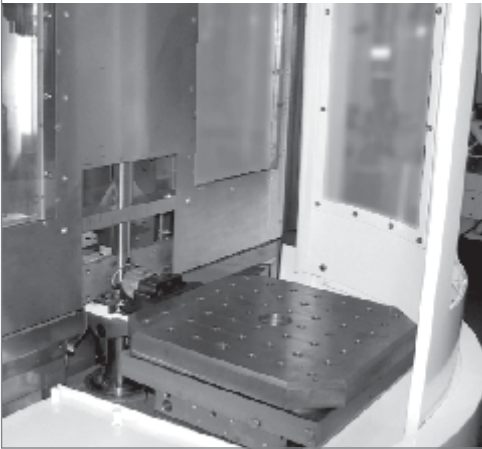
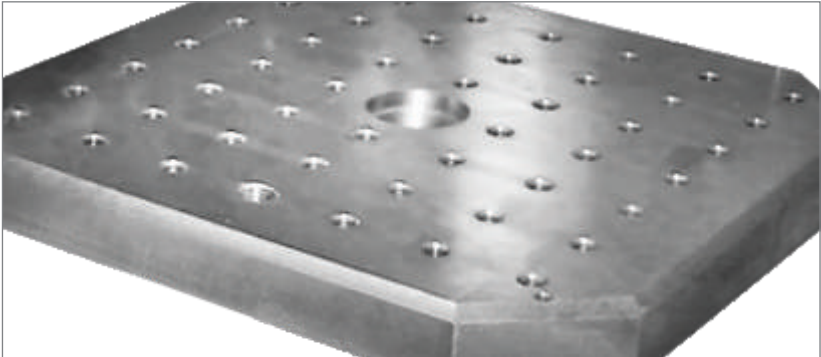
All dimension in mm



ALTERNATIVE : TOOL CHANGER

Pockets Quantity	42	84	162	210
Type	Chain Transfer arm	Double chain Transfer arm	Tower with 4 plates Transfer arm	Tower with 5 plates Transfer arm
Taper	HSK 63-A	HSK 63-A	HSK 63-A	HSK 63-A
Tool Dimensions :				
Max. Ø Contiguous / Non Contiguous	70 / 90 mm	70 / 90 mm	70 / 90 mm	70 / 90 mm
Max. Length	300 mm	300 mm	300 mm	300 mm
Max. Weight	5 kg	5 kg	5 kg	5 kg
Max. Weight Admissible in Magazine	210 kg	360 kg	720 kg	720 kg
Tool Changing Time :				
Tool to Tool	6 sec	6 sec	6 sec	6 sec
Chip to Chip	10 sec	12 sec	12 sec	12 sec

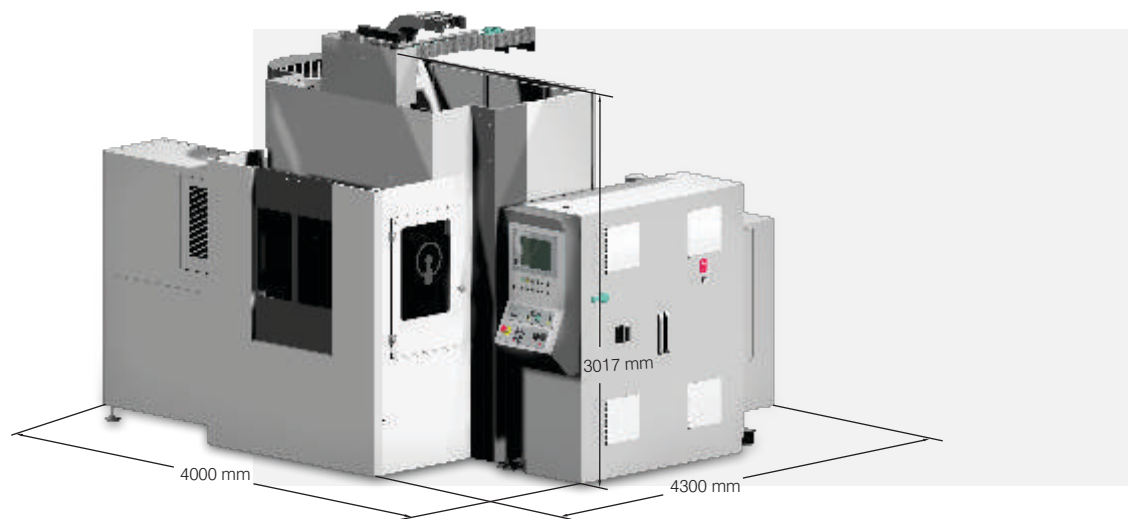
ALTERNATIVE : PALLET DEVICE

	Station Quantity	2
	Type	Milling pallet on palletized table
	Pallet Changing Time	12 sec
		
	A axis : - Table Tilting on a 45° Plane	-45° / +180°
	C axis : - Table Rotation	360°
	Rotating Speed	100 rpm
	Table Area	Ø 400 x 400 mm
	Machining Volume (Ø x Height)	Ø 400 mm x 350 mm
	Admissible Load	250 kg
	Increment of Measurement	0.001°
	Torque : Motor / Clamping	A=740 Nm, C = 430 Nm / A,C = 2500 Nm
	Clamping System	Holes M12 – 50/50 mm
	Referring	Ø 50H6
	Positioning	Slot 20H6

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OVERALL MEASUREMENTS – STANDARD MACHINE



OVERALL MEASUREMENTS – MACHINE WITH PALLET DEVICE





TECHNICAL FEATURES

Linear Axis X / Y / Z		MX 4	
Travels	mm	750 x 700 x 500	
Rapid Feedrates	m/min	X = 60, Y – Z = 120	
Acceleration on Axis	m/s²	X = 6, Y – Z = 10	
Rotating Axis on Table A – C			
A : Tilting Table on a 45° Plane	Deg.	-45° / +180°	
C : Rotating Table	Deg.	360°	
Working Positioning (Angle Spindle Axis / Table)	Deg.	Horizontal position = 0° Vertical position = 90°	
Area	mm	Ø 440	
Admissible Load	kg	250	
Rotating Speed	rpm	100	
Torque : Motor / Clamping	Nm	A=740 Nm, C = 430 Nm / A,C = 2500 Nm	
Accuracies		Linear Axes	Rotating Axes
Uncertainty : P		4 μ	7.2 sec
Repeatability : Ps Medium		2 μ	3.6 sec
Spindle			
Rotating Speed	rpm	24000	
Taper		HSK 63-A	
Power – Torque (S6-40% / S1)	kW - Nm	25 / 20 – 40 / 32	
Characteristic Speed	rpm	6000	
Tool Magazine			
Pockets Quantity		36	
Taper		HSK 63-A	
Tool Dimension : Length – Diameter – Weight	mm - Ø mm - kg	250 - 70 - 5	
Coolant			
Flow – Pressure	l/min – bar	30 - 3	
Tank	Litres	250	

ALTERNATIVES

Spindle					
Rotating Speed	rpm	16000			
Taper		HSK 63-A			
Power – Torque (S6-40% / S1)	kW	36 / 22 – 98 / 60			
Characteristic Speed	rpm	3500			
Palletized Table					
A : Tilting Table on a 45° Plane	Deg.	-45° / +180°			
C : Rotating Table	Deg.	360°			
Working Positioning (Angle Spindle Axis / Table)	Deg.	Horizontal position = 0° Vertical position = 90°			
Area	mm	Ø 400 x 400			
Admissible Load	kg	250			
Rotating Speed	rpm	100			
Torque : Motor / Clamping	Nm	A=740 Nm, C = 430 Nm / A,C = 2500 Nm			
Tool Magazines					
Pockets Quantity		42	84	162	210
Taper		HSK 63A	HSK 63A	HSK 63A	HSK 63A
Tool Dimension : Length – Diameter – Weight	mm - Ø mm - kg	300 - 90 - 5	300 - 90 - 5	300 - 90 - 5	300 - 90 - 5

OPTIONAL EQUIPMENTS

- Pallet Changer
- Micro Spraying Coolant
- High Pressure Coolant 50 Bar
- Air Blast
- Components Washing Device
- Component Probe
- Tool Probe
- Oil Extraction System
- Pressurization of Measuring Scales
- Air Conditioning of Electrical Cabinet
- Sigh Glass
- Oil Separator

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Note: Specified information are subject to change arising out of continuous product improvement without notice. The description standard accessories/feature conforms to its list; not the photo of machine show in the catalogue. Other controller will have different configuration. Machine images are shown with option.



ISO 9001 : 2008