



# MX4

## High Performances 5 Axis Machining Center

**Performance**  
**Technology**  
**Power**  
**Accuracy**





# MX4

## Powerfull, Rapid and Accurate 5 Axes High Performance Machining Center

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 axes 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 Axes

- 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

## 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**<sup>®</sup> 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

## Numerical Controller

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

## Environment - Ergonomics

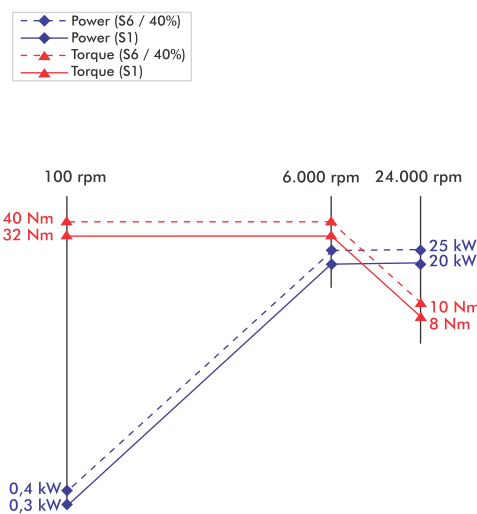
- Evacuation channels for chips equipped with washing device
- Tool magazine outside of working area
- Complete safeguard ensuring safety of the machine, the operator and environment
- Very large accessibility to the table and the work piece
- Operator panel



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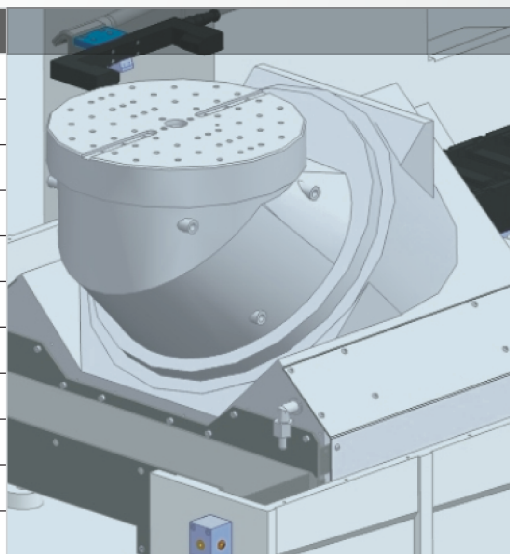
## The Spindle 24.000 rpm

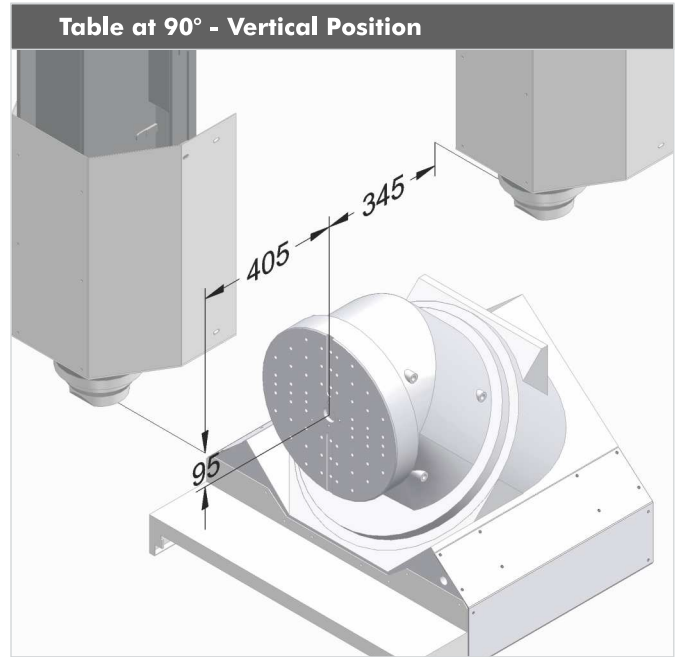
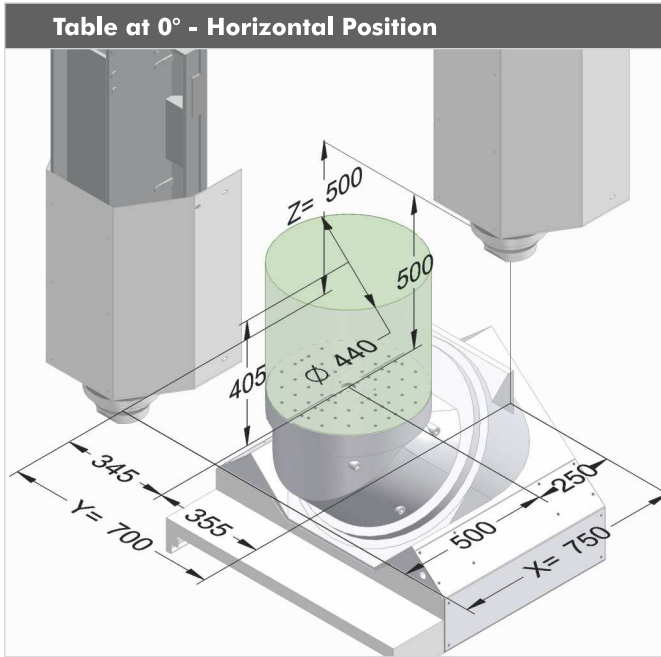
<b>Taper</b>	<b>HSK 63-A</b>
<b>Rotating speed</b>	<b>100 - 24.000 rpm</b>
<b>Power S1 / S6</b>	<b>20 kW / 25 kW</b>
<b>Torque S1 / S6</b>	<b>32 Nm / 40 Nm</b>
<b>Characteristic speed</b>	<b>6.000 rpm</b>
<b>Equipment :</b>	
<ul style="list-style-type: none"> <li>- Air wall for spindle protection</li> <li>- Control captor for angular positioning of the spindle</li> <li>- Electro spindle cooling system</li> <li>- Mechanical clamping with spring rings</li> <li>- Tool unclamping with hydraulic control</li> <li>- Air/Oil greasing of bearings</li> <li>- Taper cleaning by compressed air</li> </ul>	



## The Table

<b>A axis : - Table tilting on a 45° plane</b>	<b>-45° / +180°</b>
<b>C axis : - Table rotation</b>	<b>360°</b>
<b>Rotating speed</b>	<b>100 rpm</b>
<b>Table area</b>	<b>Ø 440 mm</b>
<b>Machining volume (ØxHeight)</b>	<b>Ø 440 mm x 405 mm</b>
<b>Admissible load</b>	<b>250 kg</b>
<b>Increment of measurment</b>	<b>0,001°</b>
<b>Torque : motor / clamping</b>	<b>A=740 Nm, C = 430 Nm / A,C = 2.500 Nm</b>
<b>Clamping system</b>	<b>Holes M12 – 50/50 mm</b>
<b>Referring</b>	<b>Ø 40H7</b>
<b>Positioning</b>	<b>Slot 20H7</b>





All dimension in mm

## The Tool Changer

<ul style="list-style-type: none"> <li>- The tool magazine is a chain type</li> <li>- The automatic load/unload of the tool is made vertically</li> </ul>	
Pockets qty	36
Taper	HSK 63-A
<b>Tool Dimensions :</b>	
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
<b>Tool Changing Time :</b>	
tool to tool	3 sec
chip to chip	8 sec



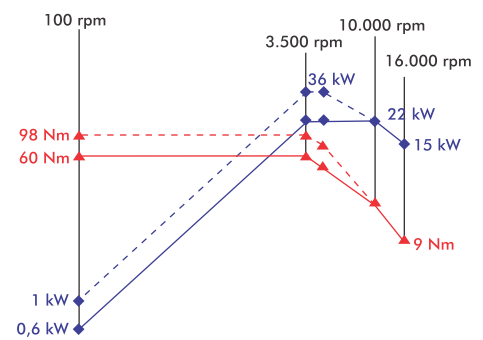


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## Alternative : Spindle

<b>Taper</b>	<b>HSK 63-A</b>
<b>Rotating speed</b>	<b>100 - 16.000 rpm</b>
<b>Power S1 / S6</b>	<b>22 kW / 36 kW</b>
<b>Torque S1 / S6</b>	<b>60 Nm / 98 Nm</b>
<b>Characteristic speed</b>	<b>3.500 rpm</b>
<b>Equipment :</b>	
<ul style="list-style-type: none"> <li>- Air wall for spindle protection</li> <li>- Control captor for angular positioning of the spindle</li> <li>- Electro spindle cooling system</li> <li>- Mechanical clamping with spring rings</li> <li>- Tool unclamping with hydraulic control</li> <li>- Air/Oil greasing of bearings</li> <li>- Taper cleaning by compressed air</li> </ul>	

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



## Alternative : Palletized Table

<b>A axis : Table tilting on a 45° plane</b>	<b>-45° / +180°</b>
<b>C axis : Table rotation</b>	<b>360°</b>
<b>Rotating speed</b>	<b>100 rpm</b>
<b>Table area</b>	<b>Ø 400 x 400 mm</b>
<b>Machining volume (ØxHeight)</b>	<b>Ø 400 mm x 350 mm</b>
<b>Admissible load</b>	<b>200 kg</b>
<b>Increment of measurement</b>	<b>0,001°</b>
<b>Torque : motor / clamping</b>	<b>A=740 Nm, C = 430 Nm / A,C = 2.500 Nm</b>
<b>Clamping system</b>	<b>Holes M12 – 50/50 mm</b>
<b>Referring</b>	<b>Ø 50H6</b>
<b>Positioning</b>	<b>Slot 20H6</b>



Table at 0° - Horizontal Position

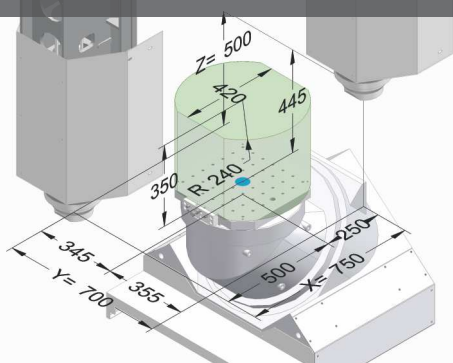
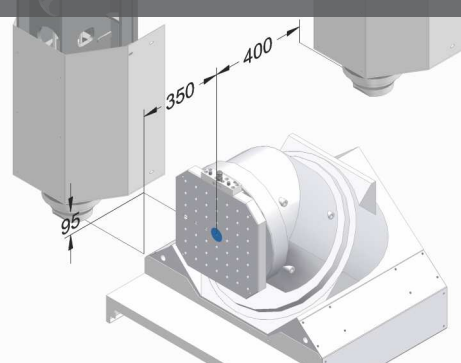


Table at 90° - Vertical Position

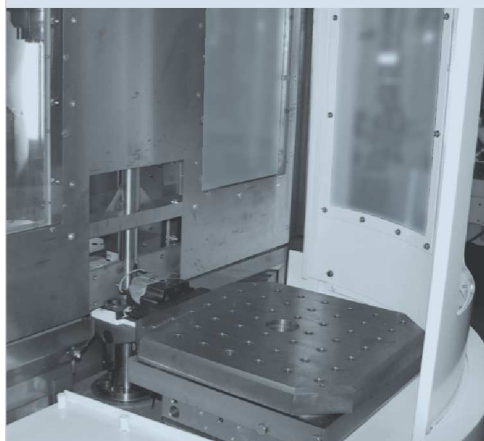


All dimension in mm

## Alternative : Tool Changers

	42	84	162	210
Pockets qty	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
<b>Tool Dimensions :</b>				
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
<b>Tool Changing Time :</b>				
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 qty	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 (ØxHeight)	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 = 2.500 Nm
Clamping system	Holes M12 – 50/50 mm
Referring	Ø 50H6
Positioning	Slot 20H6



## Technical Features

Linear Axes X / Y / Z		MX4	
Travels	mm	750 x 700 x 500	
Rapid feedrates	m/min	X = 60, Y-Z = 120	
Acceleration on axis	m/s <sup>2</sup>	X = 6, Y-Z = 10	
Rotating Axes 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 = 2.500 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	24.000	
Taper		HSK 63-A	
Power – Torque (S1 / S6)	kW - Nm	20 / 25 – 32 / 40	
Characteristic speed	rpm	6.000	
Tool Magazine			
Pockets qty		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	16.000			
Taper		HSK 63-A			
Power – Torque (S1 / S6)	kW	22 / 36 – 60 / 98			
Characteristic speed	rpm	3.500			
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 = 2.500 Nm			
Tool Magazines					
Pockets qty		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

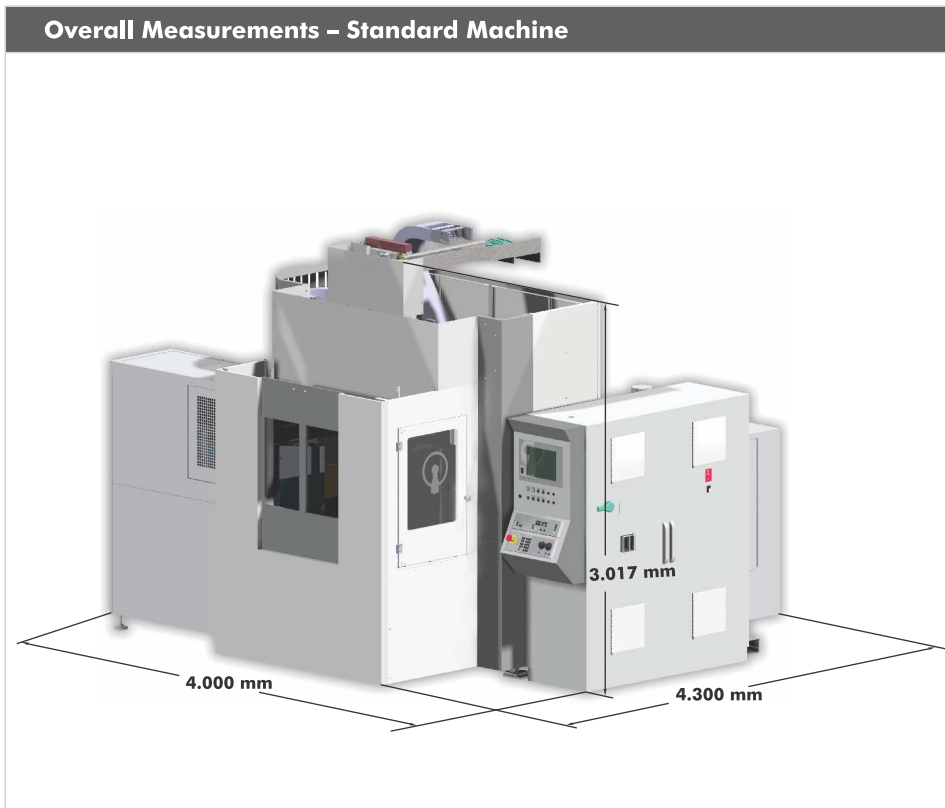
## Equipment as Options

- 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





### Overall Measurements – Standard Machine



### Overall Measurements – Machine with Pallet Device



ISO : 9001



**FRANCE : HURON GRAFFENSTADEN**

156, Route de Lyon - BP 30030  
67401 Strasbourg-IIIkirch Cedex  
Tel +33 (0)3 88 67 52 52  
Fax +33 (0)3 88 67 69 00  
[www.huron.eu](http://www.huron.eu) / [commercial@huron.fr](mailto:commercial@huron.fr)

**CANADA : HURON CANADA**

408 Isabey  
St-Laurent, Québec H4T 1V3  
Tel +1 514 44 84 873  
Fax +1 514 44 84 875  
[www.huron.fr](http://www.huron.fr) / [infocanada@huron.fr](mailto:infocanada@huron.fr)

**GERMANY : HURON FRÄSMASCHINEN**

Siemensstrasse 56 - 70839 Gerlingen  
Tel +49 (0)7156 92836 12  
Fax +49 (0)7156 92836 50  
[www.huron.de](http://www.huron.de) / [verkauf@huron.de](mailto:verkauf@huron.de)

Note : \*All above information is subject to change arising out of continuous product improvement.  
• The description 'standard accessories / feature' conforms to its list; not the photo of machine shown in the catalogue.

Jyoti Group



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