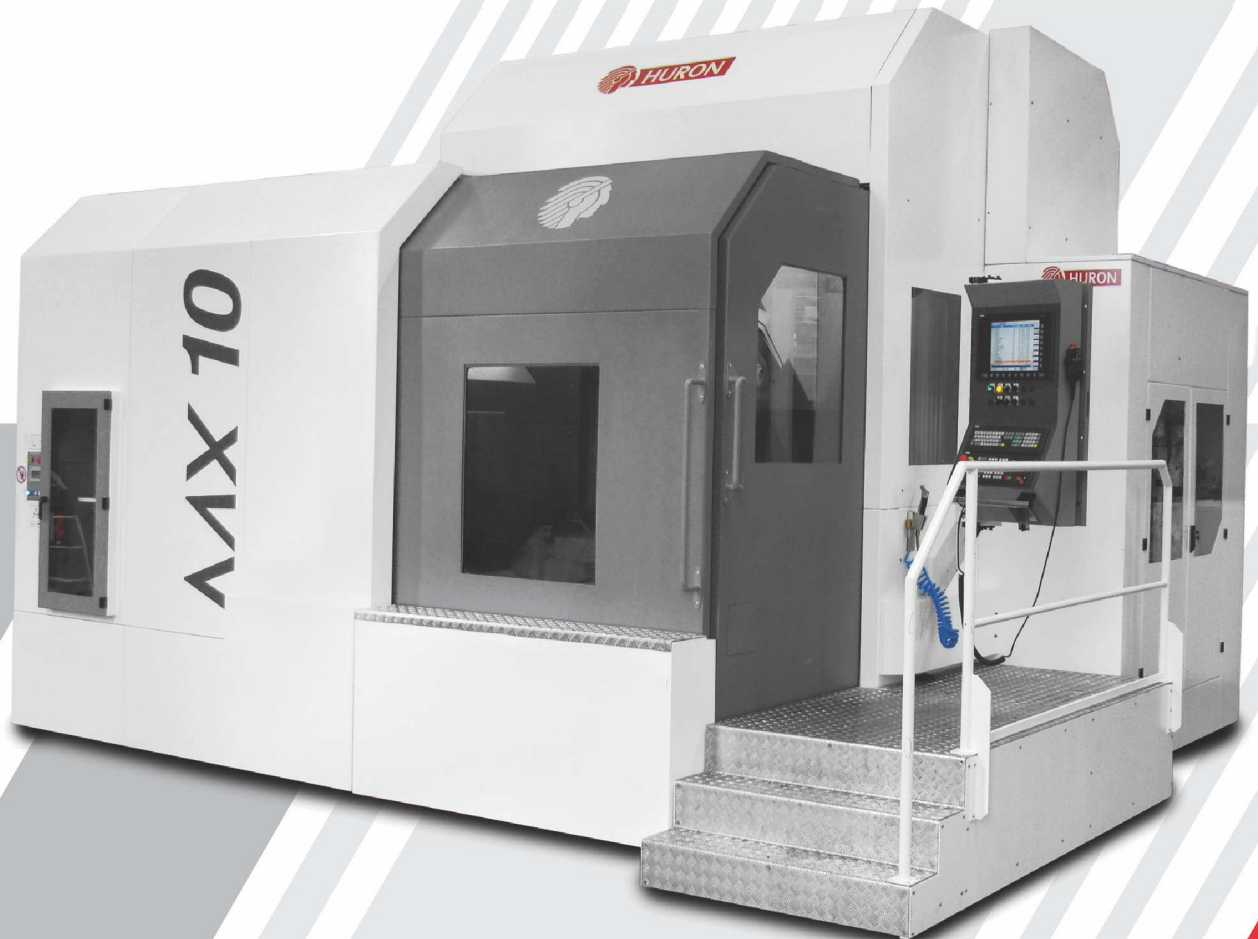




MX Series

Milling and Turning Centre

Performance
Technology
Power
Accuracy



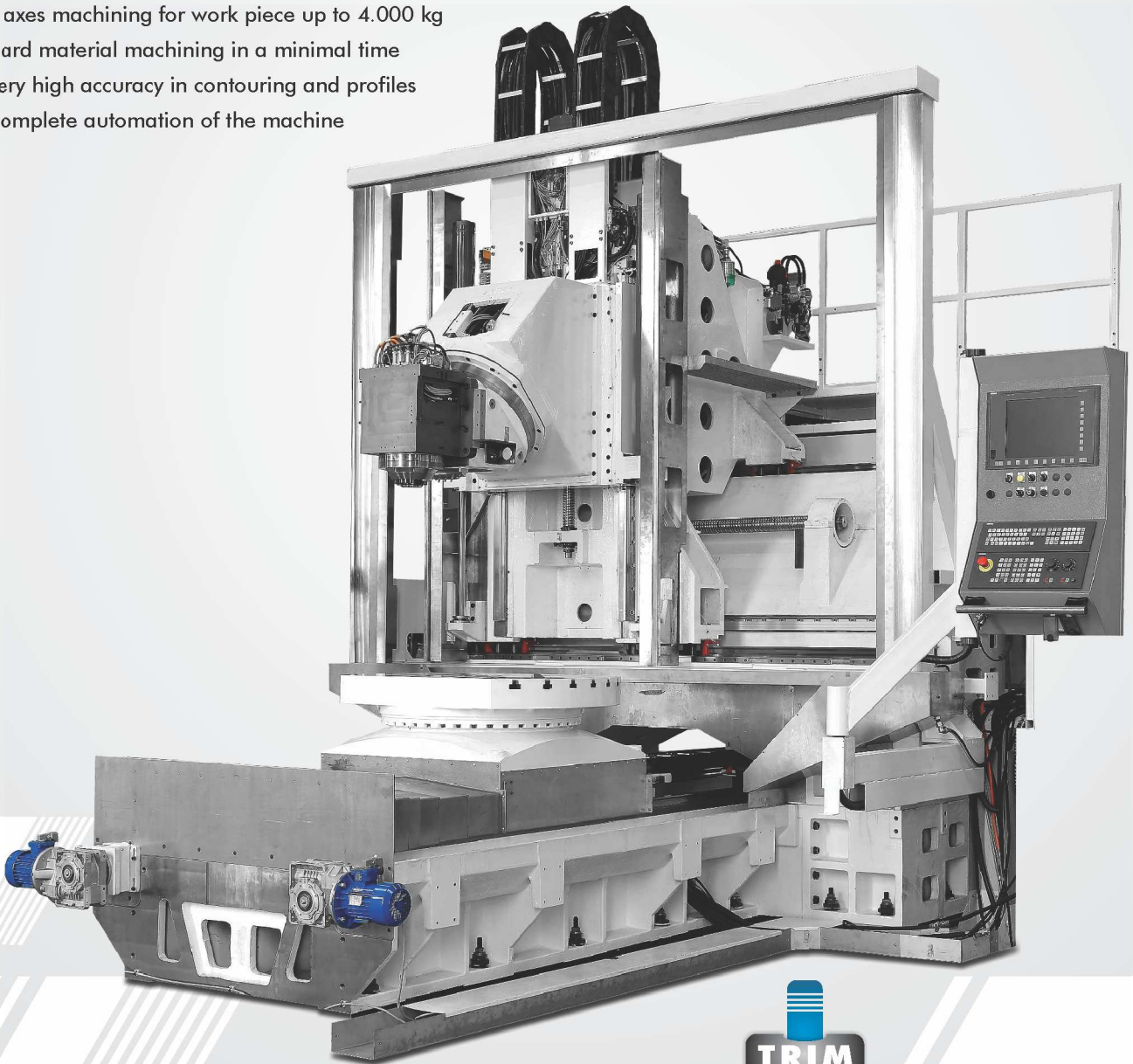


MX Series

Powerfull, Rapid, Accurate Milling **M** and Turn/Mill **MT** Center

The MX multifunction machining center is a high flexibility machine 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 4.000 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 mobile column
- 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 fixed on the rear of the portal and protected IP54

Linear Axes

- Ball screw with integrated system of compensation for expansion
- Recirculating linear roller guide shoes ensuring minimum friction and efficient axis drive
- Grease lubrication of linear roller guides minimising the pollution of coolant
- Absolute linear measurement by optical encoders in conformity with norm VDI/DGQ 3441

Head and Spindle

- Head equipped with integrated torque motor.
- Head on a 45° plane allowing tilting from -45° to +180°
- 2 working positions : Vertical and Horizontal
- Powerful spindle with high torque 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
- High rate of rotational and acceleration
- No backlash
- No wear
- Rigidity : high clamping torque enabling high power during roughing
- 2 versions : Milling and Turn/Mill

Numerical Controller

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

Environment - Ergonomics

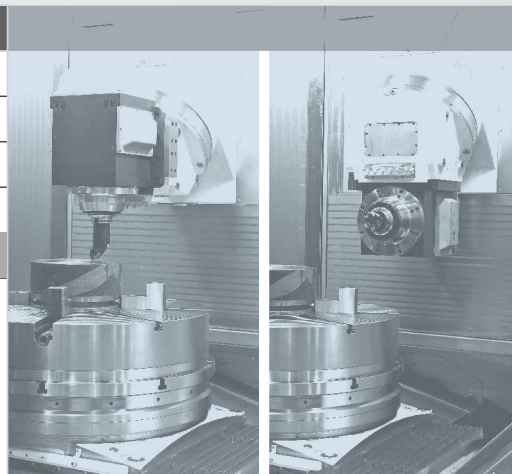
- Evacuation channels for chips equipped with washing device
- Tool magazine outside of working area
- Complete safeguard ensuring a safety of the machine, the operator and environment
- Very large accessibility to the table and the work piece
- Tilting operator panel



MX Series

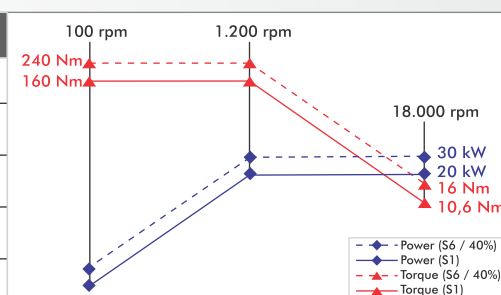
The Head

	MX 8 [M / MT]	MX 10/12 [M / MT]
Rotating speed	100 rpm	100 rpm
Torque : Motor S1 / Clamping	1.200 / 800 Nm	2.500 / 1.200 Nm
Measuring on axes	Circular encoder	Circular encoder
Resolution	0,001°	0,001°
Clearance :		
- Spindle axis / saddle plan	+180°/-45°	
- Spindle axis / table plan	-30° (Left) 0° (Vertical) -90°(Horizontal Right)	

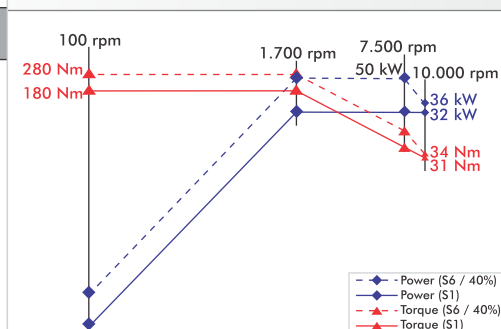


Spindles

	MX 8 [M]	MX 8 [MT], MX10/12 [M / MT]
Taper	HSK 63-A	HSK 100-A
Rotating speed	100 - 18.000 rpm	100 - 10.000 rpm
Power (S6 / S1)	30 kW / 20 kW	50 kW / 32 kW
Torque (S6 / S1)	240 Nm / 160 Nm	280 Nm / 180 Nm
Characteristic speed	1.200 rpm	1.700 rpm

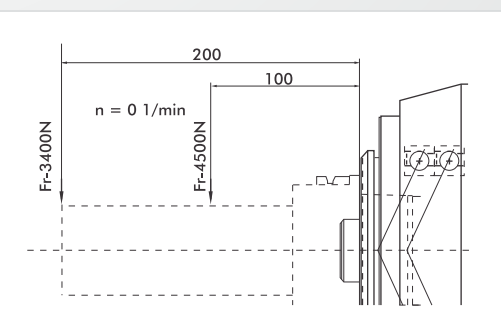


Equipment:	
- Air wall for spindle protection	
- Control captor for angular positioning of the spindle	
- Electro spindle cooling system	
- Mechanical clamping with spring rings	
- Tool unclamping with hydraulic control	
- Air/Oil greasing of bearings	
- Taper cleaning by compressed air	



Spindle Clamping by Hirth Coupling

	MT
Clamping	Hirth coupling
Clamping torque	800 Nm
Coupling pitch	1°
Admissible radial thrust	Tool length
45.000 N	100 mm
34.000 N	200 mm

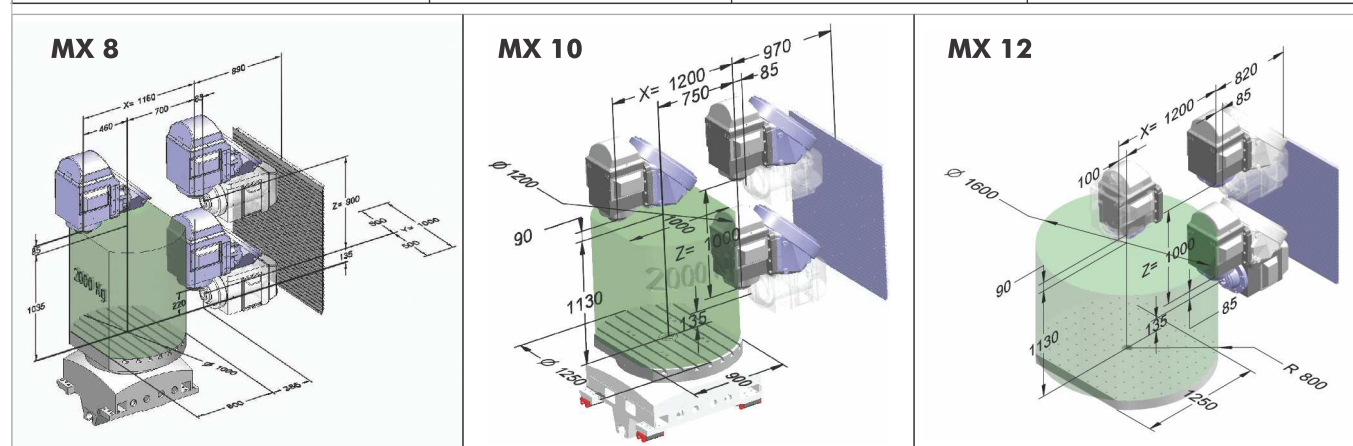


All dimensions are in mm

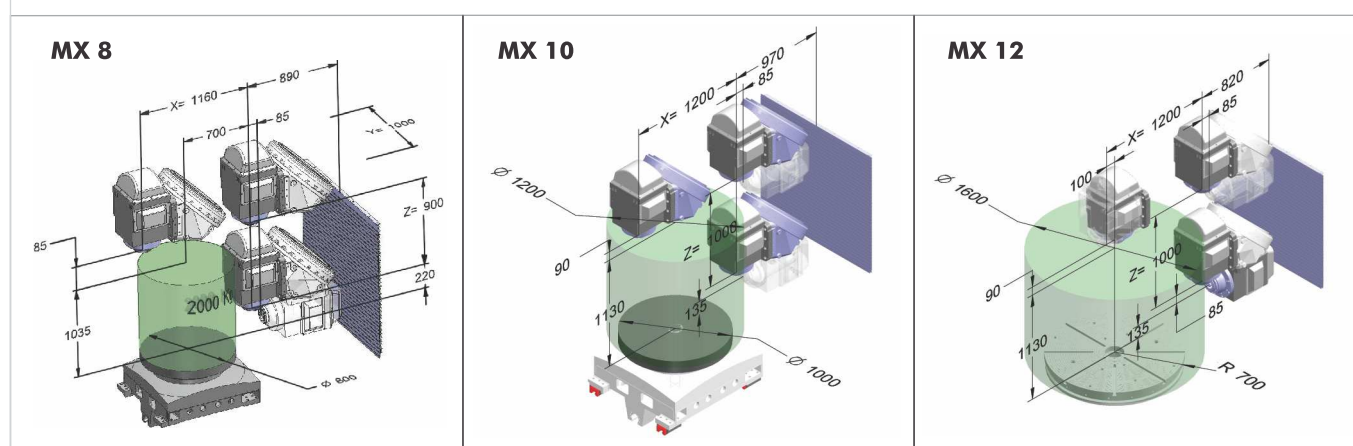


The Table

M	MX 8	MX 10	MX 12
Table area	Ø 1.000 x 800 mm	Ø 1.250 x 900 mm	Ø 1.600 x 1.250 mm
Machining volume (ØxHeight)	Ø 1.000 x 1.000 mm	Ø 1.200 x 1.130 mm	Ø 1.600 x 1.130 mm
Admissible load	2.000 kg	2.000 kg	4.000 kg
Rotating speed	50 rpm	65 rpm	50 rpm
Torque : Motor/Clamping	10.000 / 1.210 Nm	2.700 / 7.000 Nm	3.200 / 7.000 Nm
Clamping system	7 T-Slots / 22	7 T-Slots / 22	Holes M16 – 125/125 mm
Referring	Ø 67H7	Ø 67H7	Ø 100H7



MT	MX 8	MX 10	MX 12
Table area	Ø 800 mm	Ø 1.000 mm	Ø 1.400 mm
Machining volume (ØxHeight)	1.000 x 1.000 mm	1.200 x 1.130 mm	1.600 x 1.130 mm
Admissible load	2.000 kg	2.000 kg	3.000 kg
Rotating speed	500 rpm	500 rpm	250 rpm
Torque : Motor/Clamping	10.000 / 1.580 Nm	2.330 / 7.000 Nm	3.200 / 7.000 Nm
Clamping system	8 T radial slots – 22H7	8 T radial slots – 22H7	8 T radial slots – 22H7
Referring	Ø 63H7	Ø 63H7	Ø 100H7



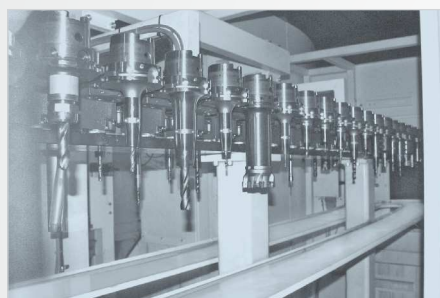
All dimensions are in mm



MX Series

The Tool Changer

	MX 8 [M]	MX 8 [MT] MX10/12 [M / MT]
<ul style="list-style-type: none"> - The tool magazine is a chain type - The automatic load/unload of the tool is made vertically 		
Pockets qty	60	48
Taper	HSK 63-A	HSK 100-A
Tool Dimensions :		
Max. Ø contiguous/non contiguous	90 / 120 mm	125 / 180 mm
Max. length	400 mm	400 mm
Max. weight	8 kg	15 kg
Max. weight admissible in magazine	240 kg	360 kg
Tool changing time :		
tool to tool - chip to chip	6 sec - 12 sec	6 sec - 12 sec



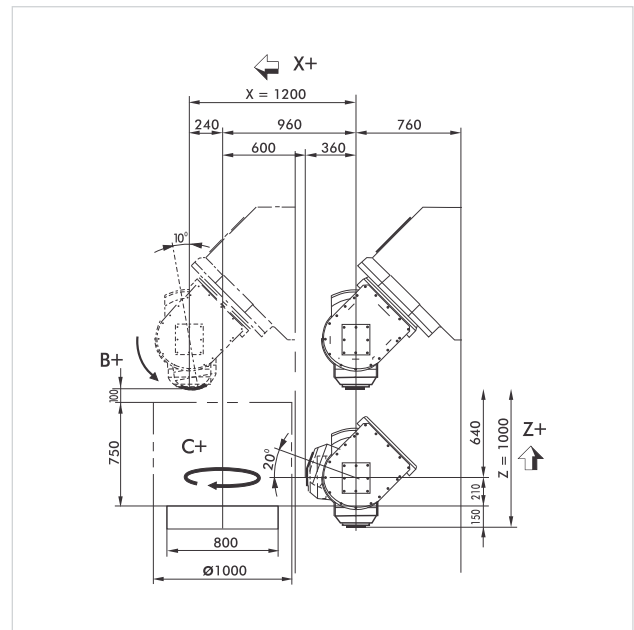
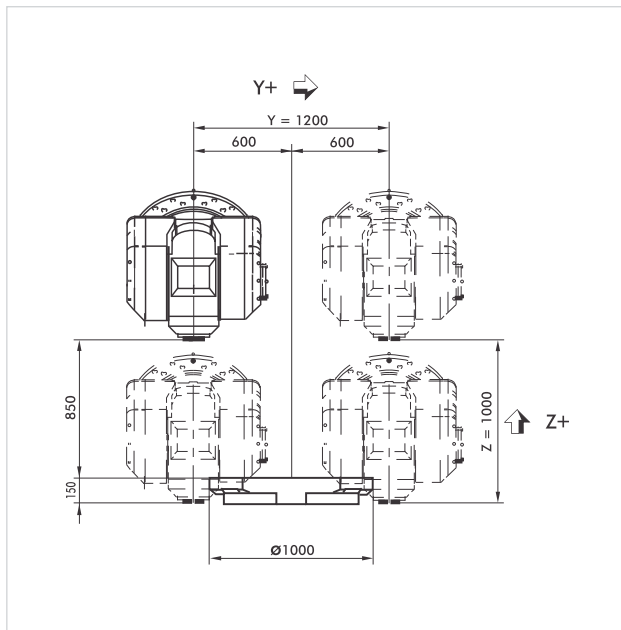
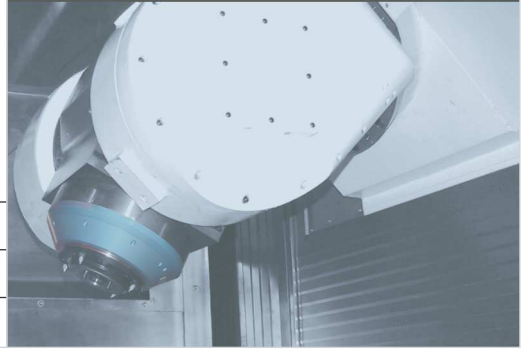
Alternatives Tool Changers

	MX 8/10/12 [M / MT]	MX 10/12 [M]	MX 8/10/12 [M]
	Spindle 10.000 rpm	Spindle 18.000 rpm	Spindle 18.000 rpm
<ul style="list-style-type: none"> - The tool magazine is a chain or multi-chain type - The automatic load/unload of tools is made in vertical position 			
Pockets qty	96	60	120
Taper	HSK 100-A	HSK 63-A	HSK 63-A
Tool Dimensions :			
Max. Ø contiguous/non contiguous	125 / 180 mm	90 / 120 mm	90 / 120 mm
Max. length	400 mm	400 mm	400 mm
Max. weight	15 kg	8 kg	8 kg
Max. weight admissible in magazine	720 kg	240 kg	480 kg
Tool Changing Time :			
tool to tool - chip to chip	6 sec - 12 sec	6 sec - 12 sec	6 sec - 12 sec



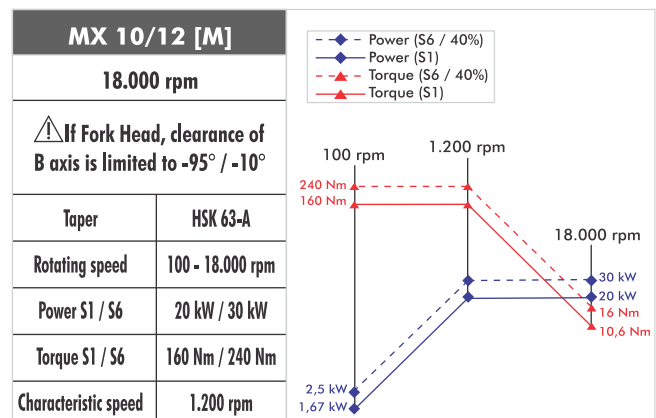
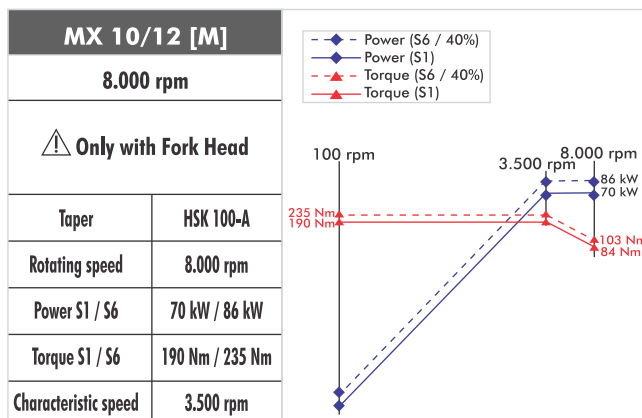
Alternative Head – Fork Head

MX 10/12 [M]	
<p>The Fork milling head has 1 rotating axis. The B axis, parallel to the Y axis allows the evolution of the spindle around the horizontal axis.</p> <p>The axis has a torque motor directly connected to the rotating parts ensuring a movement without backlash ensuring very accurate positioning.</p>	
Axis drive	Working axis
B axis clearance (rotation / Y axis)	- 110° / + 10°
Resolution	0,001°



All dimensions are in mm

Alternatives Spindles

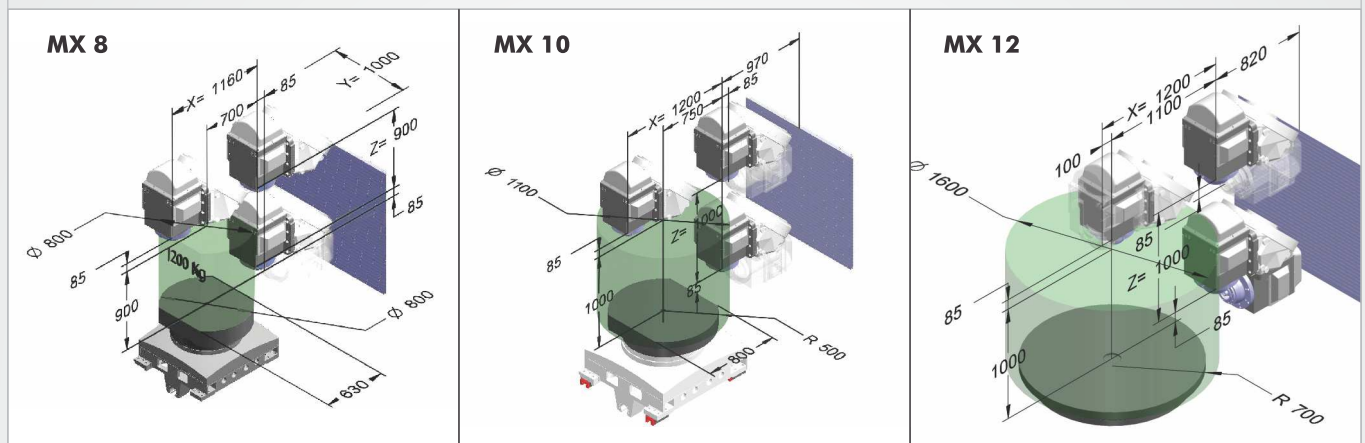




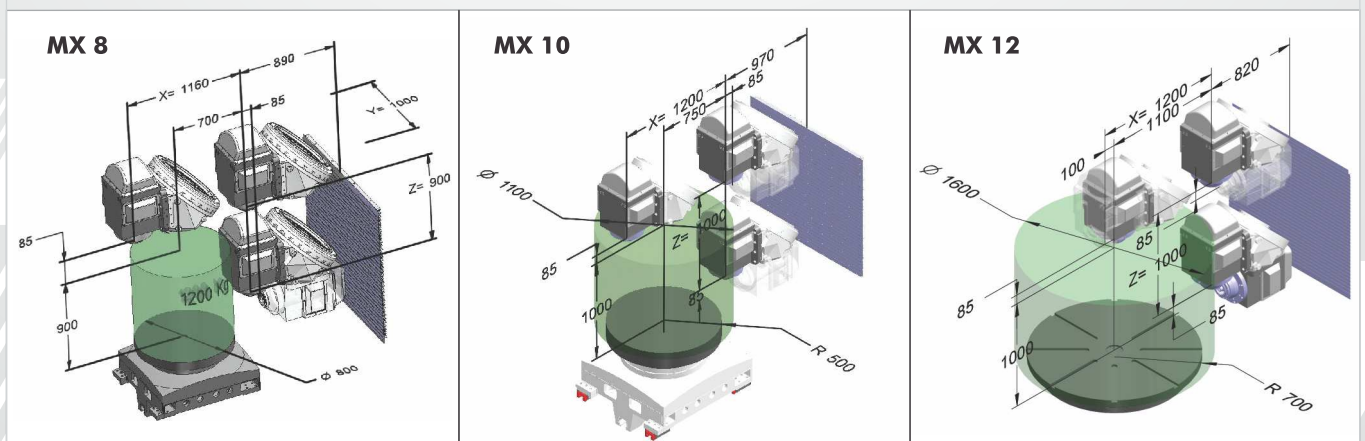
MX Series

Alternative Palletized Table with Working Pallet

M	MX 8	MX 10	MX 12
Table area	Ø 800 x 630 mm	Ø 1.000 x 800 mm	Ø 1.400 mm
Machining volume (ØxHeight)	Ø 800 x 900 mm	1.100 x 1.000 mm	1.600 x 1.000 mm
Admissible load	1.200 kg	1.500 kg	2.500 kg
Rotating speed	50 rpm	65 rpm	50 rpm
Torque : Motor/Clamping	10.000 / 1.210 Nm	2.700 / 10.000 Nm	3.200 / 7.000 Nm
Clamping system Referring	7 T-Slots / 22 Ø 63H7	Holes M16 – 100/100 mm Ø 63H7	Holes M16 – 125/125 mm Ø 100H7



MT	MX 8	MX 10	MX 12
Table area	Ø 800 mm	Ø 1.000 mm	Ø 1.400 mm
Machining volume (ØxHeight)	Ø 800 x 900 mm	1.100 x 1.000 mm	1.600 x 1.000 mm
Admissible load	1.200 kg	1.500 kg	2.500 kg
Rotating speed	500 rpm	500 rpm	250 rpm
Torque : Motor/Clamping	10.000 / 1.580 Nm	2.330 / 7.000 Nm	3.200 / 7.000 Nm
Clamping system Referring	8 T radial slots – 22H7 Ø 63H7	8 T radial slots – 22H7 Ø 63H7	8 T radial slots – 22H7 Ø 100H7

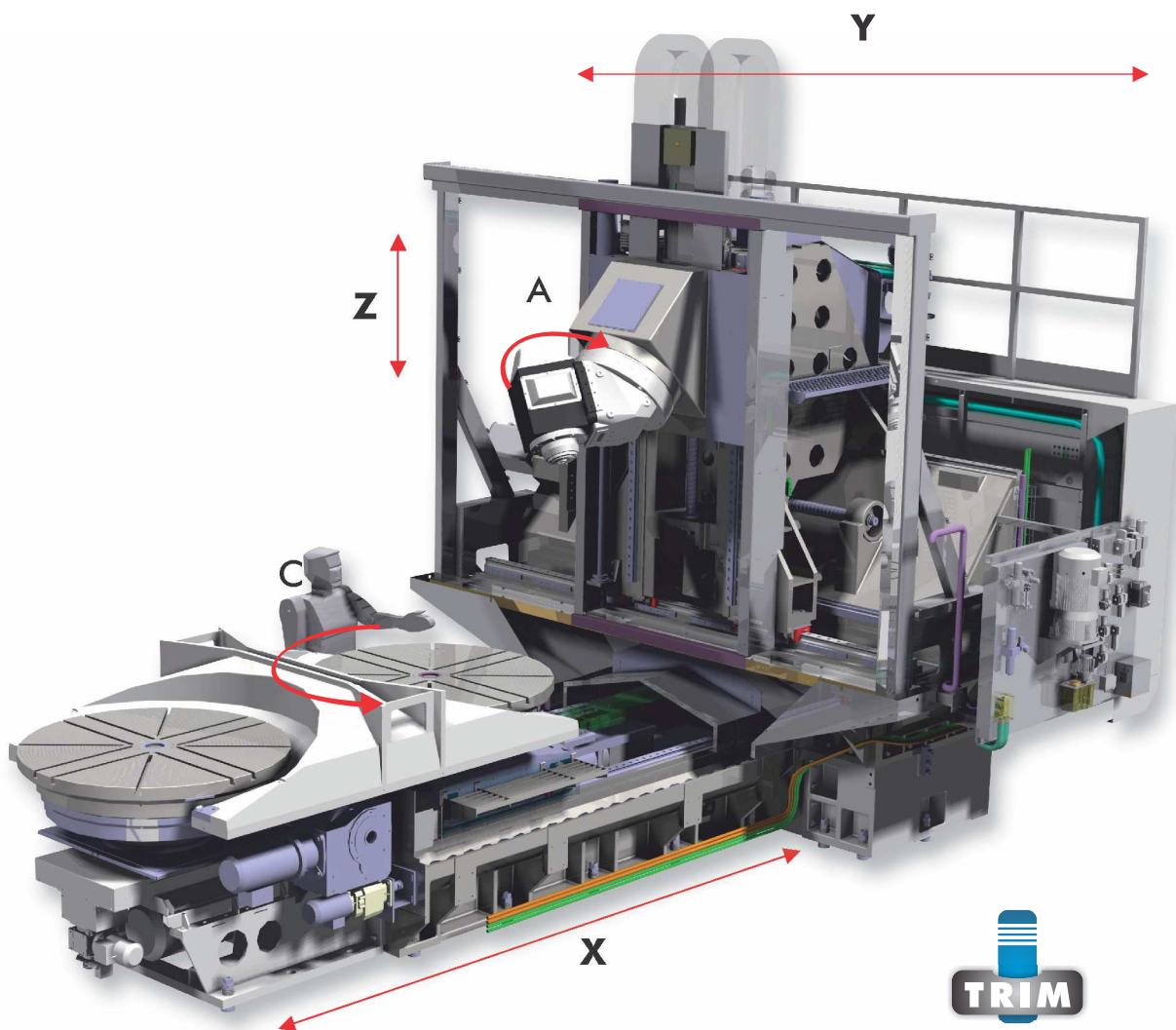
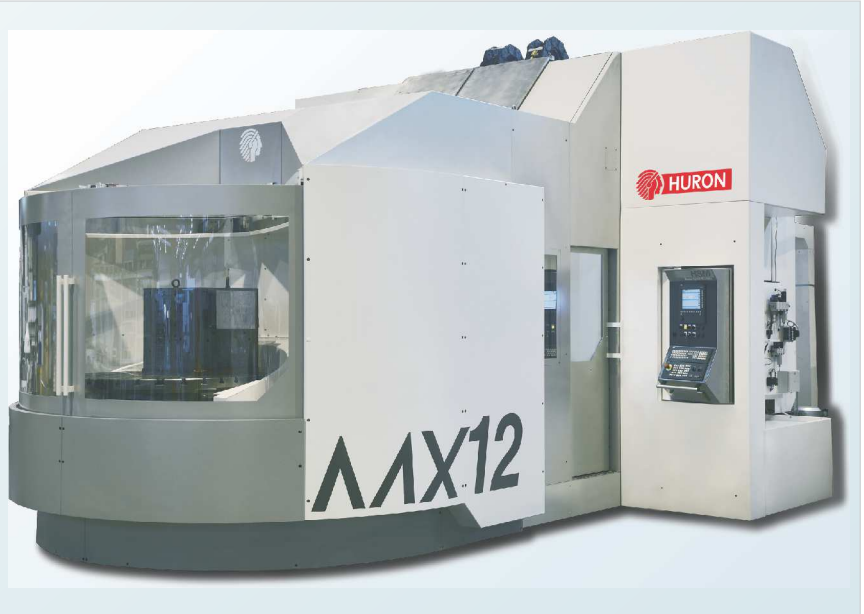


All dimensions are in mm



Alternative Pallet Device

M / MT	
Machine equipped with a twin-pallet device. Includes :	
<ul style="list-style-type: none">- 1 rotating pallet device fixed on the front of the machine- 1 rotating loading/unloading station- 1 palletized table with its pallet- 1 additional pallet- a complete circular safeguard with 2 doors allowing free access to the pallet from the top, enabling an ergonomic and easy loading / unloading of the work piece	
Pallet changing time	< 1 min.
Motorized indexing of the loading station	4 x 90°
Pallet selection	Rotation of the pallet device driven by NC

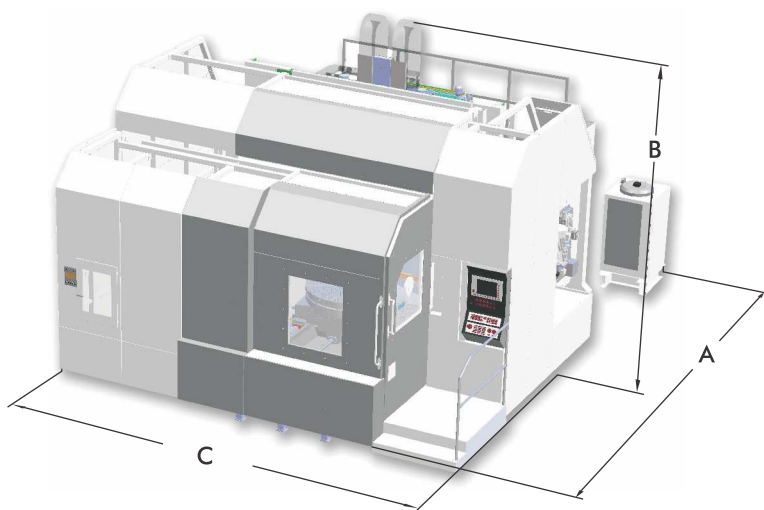




MX Series

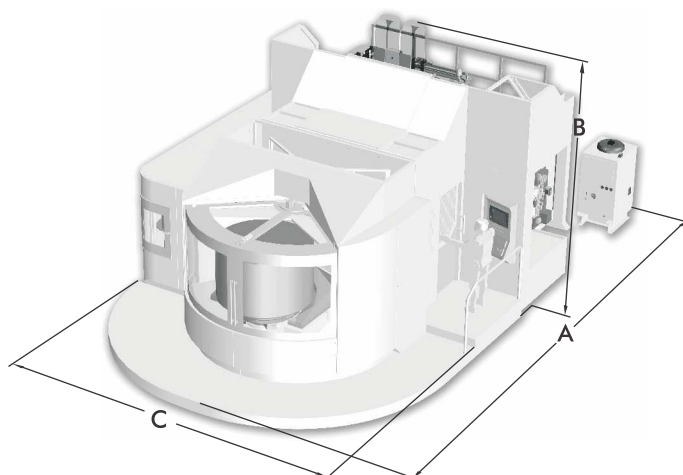
Overall Measurements – Standard Machine

	MX 8 / [M/MT]	MX 10 / [M/MT]	MX 12 / [M/MT]
A : Length	6.150 mm	7.950 mm	8.130 mm
C : Width	6.250 mm	6.330 mm	6.350 mm
B : Height	3.930 mm	4.870 mm	4.870 mm



Overall Measurements – Machine with Pallet Device

	MX 8	MX 10	MX 12
A : Length	7.498 mm	10.500 mm	10.950 mm
C : Width	5.508 mm	6.100 mm	6.124 mm
B : Height	3.826 mm	4.870 mm	4.870 mm





Technical Features

Linear Axes X / Y / Z		MX 8 [M/MT]		MX 10 [M/MT]		MX 12 [M/MT]	
Travels	mm	1.160 x 1.000 x 900		1.200 x 1.200 x 1.000		1.200 x 1.600 x 1.000	
Rapid feedrates	m/min	40		40		40	
Acceleration on axis	m/s ²	4		4		4	
Rotating Axis A – Head							
Rotating speed	rpm	100		100		100	
Torque : Motor / Clamping	Nm	1.200 / 800		1.200 / 2.500		1.200 / 2.500	
Rotating Axis C – Table							
		M 8	MT 8	M 10	MT 10	M 12	MT 12
Rotating speed	rpm	50	500	65	500	50	250
Area	mm	1.000 x 800	Ø 800	1.250 x 900	Ø 1.000	Ø 1.600 x 1.250	Ø 1.400
Admissible load	kg	2.000	2.000	2.000	2.000	4.000	3.000
Spindle							
Rotating speed	rpm	18.000		10.000			
Taper		HSK 63A		HSK 100A			
Power – Torque (S6 / S1)	kW / Nm	20/30 – 160/240		32/50 – 180/280			
Characteristic speed	rpm	1.200		1.700			
Accuracies							
		Linear Axes				Rotating Axes	
Uncertainty P		7 µ				10 sec	
Repeatability : Ps medium		4 µ				5 sec	
Tool Magazine							
Pockets qty		60		48			
Taper		HSK 63A		HSK 100A			
Tool dimension :							
Length – Diameter – Weight	mm - Ø mm - kg	400 - 90 - 8		400 - 125 - 15			
Coolant							
Flow – Pressure	l/min – bar	30 - 5		60 - 5			
Tank	Litres	700		1.500			

Alternatives

Rotating Axis A – Fork Head		MX 10/12 [M]					
Axis drive		Working axis					
B - Clearance	Deg.	-110° / +10°					
Torque : Motor / Clamping	Nm	500 / 7.000					
Acceleration	rd/s ²	6					
Spindles		MX 10/12 [M]			MX 10/12 [M]		
		With Fork head, clearance of B - Axis limited : -95° / +10°			Only with Fork head		
Rotating speed	rpm	18.000			8.000		
Taper		HSK 63-A			HSK 100-A		
Power - Torque (S6 / S1)	kW	20 / 30 - 160 / 240			70 / 86 - 190 / 235		
Characteristic speed	rpm	1.200			3.500		
Rotating Axis C – Palletized Table		MX 8 [M]	MX 8 [MT]	MX 10 [M]	MX 10 [MT]	MX 12 [M]	MX 12 [MT]
Rotating speed	rpm	50	500	65	500	50	250
Area	mm	Ø 800 x 630	Ø 800	Ø 1.000 x 800	Ø 1.000	Ø 1.400	Ø 1.400
Admissible load	kg	1.200	1.200	1.500	1.500	2.500	2.500
Tool Magazines		MX 10/12 [M]		MX 8/10/12 [M/MT]		MX 8/10/12 [M]	
Pockets qty		60		96		120	
Taper		HSK 63-A		HSK 100-A		HSK 63-A	
Tool dimension :							
Length – Diameter – Weight	mm - Ø mm - kg	400 – 90 – 8		400 – 125 – 15		400 – 90 – 8	

Equipment as Options

- Palletization
- High pressure coolant 50 bar
- Part probe
- Oil extraction system
- Air conditioning of electrical cabinet
- Oil separator
- Micro spraying coolant
- Air blast
- Tool probe
- Pressurization of measuring scales
- Sight glass
- Paper filtration for aluminium and thin chips

ISO : 9001



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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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