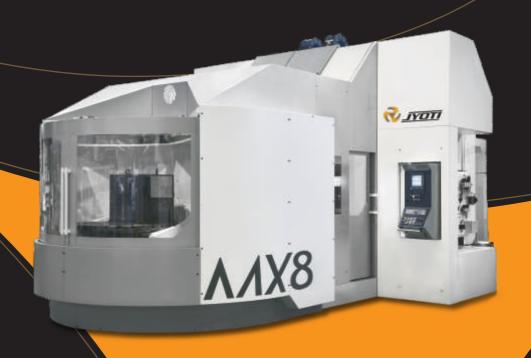


MXSeries

Milling and Turning Centers



jyoti.co.in



Milling and Turning Center

OVERVIEW

Milling M - Mill Turn MT Center

The MX multifunction machining center is a high flexibility machine enabling machining operations in 5-Axis 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 4000 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 IP 54

LINEAR AXIS

- 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
- Incremental linear 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

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 & Mill Turn

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



THE HEAD

	MX8 [M/MT]	MX 10/12 [M / MT]
Rotating Speed	100 rpm	100 rpm
Torque: Clamping / Motor S1	2500 / 1410 Nm	2500 / 1200 Nm
Measuring on Axis	Circular Encoder	Circular Encoder
Resolution	0.001°	0.001°
Clearance :		
Spindle Axis / Saddle plan	+180°	/ -45°
■ Spindle Axis / Table plan	-30°	(Left)
	0° (Ve	rtical)
	-90° (Horizo	ontal Right)

ELECTRO SPINDLE

	MX 8 [M]	MX 8 [MT], MX10/12 [M / MT]	100 rpm 1200 rpm
Taper	HSK 63A	HSK 100-A	240 Nm
Rotating Speed	100 - 18000 rpm	100 - 10000 rpm	18000
Power (S6-40% / S1)	30 kW / 20 kW	50 kW / 32 kW	
Torque (S6-40% / S1)	240 Nm / 160 Nm	280 Nm / 180 Nm	
Characteristic Speed	1200 rpm	1700 rpm	Powe
Equipment:			Torqu
Air wall for spindle pro	otection		100 rpm 1700 rpm 7500 rpm
Control captor for angular positioning of the spindle			280 Nm50 kW 100
■ Electro spindle cooling system			18U NM
■ Mechanical clamping	with spring rings		
■ Tool unclamping with hydraulic control			
■ Air/Oil greasing of bearings			
■ Taper cleaning by cor	mpressed air		Power
			Power

SPINDLE CLAMPING BY HIRTH COUPLING

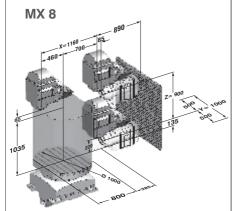
	MT	200 .
Clamping	Hirth Coupling	100
Clamping Torque	800 Nm	n = 0 1/min N 00 N 17/7/7/1
Coupling Pitch	1°	1-3400N 1-3400N 1-3400N
Admissible radial thrust	Tool length	
45000 N	100 mm	
34000 N	200 mm	

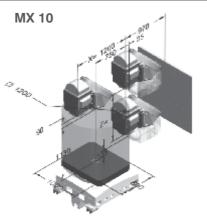


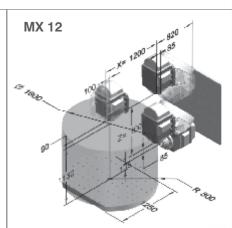
THE TABLE



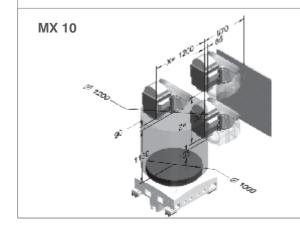
М	MX 8	MX 10	MX 12
Table Area	Ø 1000 x 800 mm	Ø 1000 x 800 mm	Ø 1600 x 1250 mm
Machining Volume (Ø x Height)	Ø 1000 x 1000 mm	Ø 1200 x 1130 mm	Ø 1600 x 1130 mm
Admissible Load	2000 kg	2000 kg	4000 kg
Rotating Speed	50 rpm	50 rpm	50 rpm
Torque : Clamping / Motor	10000 / 2120 Nm	10000 / 2700 Nm	12000 / 4590 Nm
Clamping System	7 T -Slots / 22	Holes M16 – 100/100 mm	Holes M16 – 125/125 mm
Referring	Ø 67H7	Ø 63H7	Ø 100H7

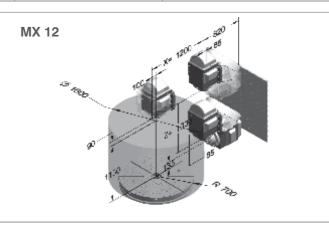






МТ	MX 8	MX 10	MX 12
Table Area	Ø 800 mm	Ø 1000 mm	Ø 1400 mm
Machining Volume (Ø x Height)	1000 x 1000 mm	1200 x 1130 mm	1600 x 1130 mm
Admissible Load	2000 kg	2000 kg	3000 kg
Rotating Speed	500 rpm	500 rpm	250 rpm
Torque : Clamping / Motor	10000 / 2120 Nm	10000 / 3270 Nm	12000 / 5670 Nm
Clamping System	8 T radial slots – 22H7	8 T radial slots – 22H7	8 T radial slots – 22H7
Referring	Ø 63H7	Ø 63H7	Ø 100H7







THE TOOL CHANGER

	MX 8 [M]	MX 8 [MT] MX10/12 [M / MT]
■ The tool magazine is a chain type		
■ The automatic load/unload of the tool is	made vertically	
Pockets Quantity	60	48
Taper	HSK 63A	HSK 100A
Tool Dimensions :		
Max. Ø Contiguous/Non Contiguous	95 / 120 mm	125 / 180 mm
Max. Length	300 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 CHANGER

	MX 8/10/12 [M / MT]	MX 10/12 [M]	MX 8/10/12 [M]
	Spindle 10000 rpm	Spindle 18000 rpm	Spindle 18000 rpm
■ The tool magazine is a chain or multi-c	chain type		
■ The automatic load/unload of tools is r	made in vertical position		
Pockets Quantity	96	60	120
Taper	HSK 100A	HSK 63A	HSK 63A
Tool Dimensions :			
Max. Ø Contiguous / Non Contiguous	125 / 180 mm	95 / 120 mm	95 / 120 mm
Max. Length	400 mm	300 mm	300 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

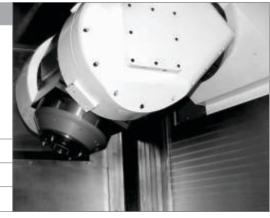


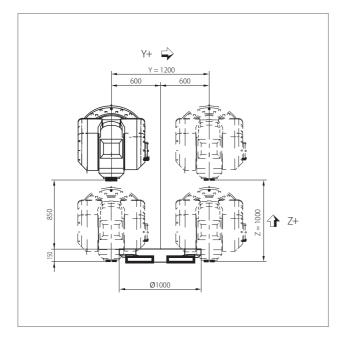
ALTERNATIVE HEAD - FORK HEAD

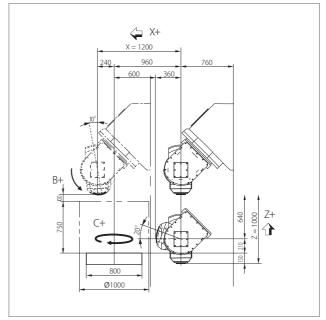
MX 10/12 [M]

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. The axis has a torque motor directly connected to the rotating parts ensuring a movement without backlash ensuring very accurate positioning.

Axis Drive	Working axis
B axis Clearance (Rotation / Y Axis)	- 110° / +10°
Resolution	0.001°

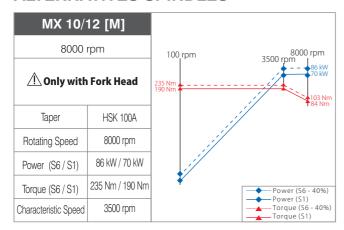


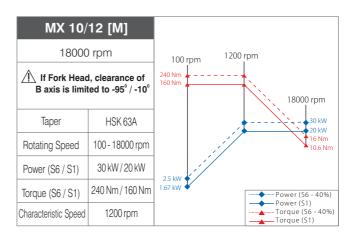




All dimensions are in mm

ALTERNATIVES SPINDLES







ALTERNATIVE PALLETIZED TABLE WITH WORKING PALLET



M	MX 10	MX 12
Table Area	Ø 1000 x 800 mm	Ø 1400 mm
Machining Volume (Ø x Height)	1200 x 1000 mm	1600 x 1000 mm
Admissible Load	1500 kg	2500 kg
Rotating Speed	50 rpm	50 rpm
Torque : Clamping / Motor	7000 / 2700 Nm	7000 / 3200 Nm
Clamping System Referring	Holes M16 – 100 / 100 mm Ø 63H7	Holes M16 – 125 / 125 mm Ø 100H7
	1200 P 12	85 100 820 85 100 85 1

МТ	MX 10	MX 12
Table Area	Ø 1000 mm	Ø 1400 mm
Machining Volume (Ø x Height)	1200 x 1000 mm	1600 x 1000 mm
Admissible Load	1500 kg	2500 kg
Rotating Speed	500 rpm	250 rpm
Torque : Clamping / Motor	7000 / 2330 Nm	7000 / 3200 Nm
Clamping System Referring	8 T radial slots – 22H7 Ø 63H7	8 T radial slots – 22H7 Ø 100H7
		All dimensions in mm



ALTERNATIVE PALLET DEVICE

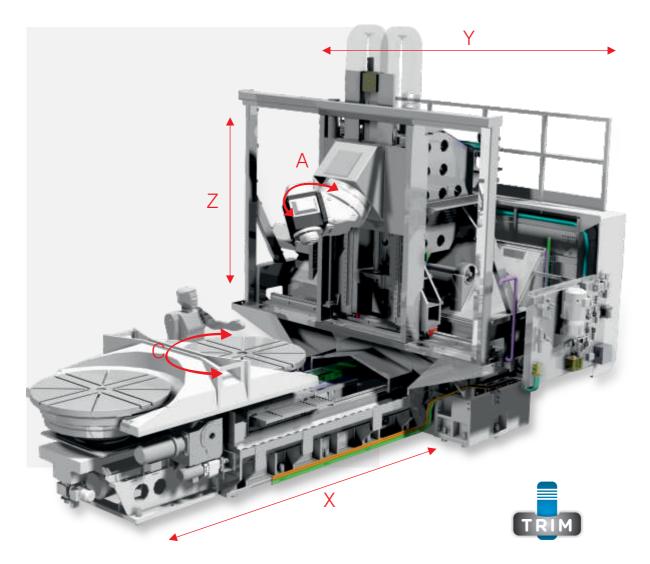
M / MT

Machine equipped with a twin-pallet device which includes :

- 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







OVERALL DIMENSION - STANDARD MACHINE

	MX 8 [M/MT]	MX 10 [M/MT]	MX 12 [M/MT]	
A: Length	6150 mm	7400 mm	7620 mm	
C : Width	6250 mm	5800 mm	6090 mm	
B : Height	3930 mm	4800 mm	4800 mm	
B: Height 3930 mm 4800 mm 4800 mm				

OVERALL DIMENSION - MACHINE WITH PALLET DEVICE

	MX 10 [M/MT]	MX 12 [M/MT]						
A: Length	10000 mm	10240 mm						
C : Width	5800 mm	6124 mm						
B : Height	4800 mm	4800 mm						





TECHNICAL FEATURES (MILLING M - MILL TURN MT CENTER)

Linear Axes X / Y / Z		MX 8 [M/MT]		MX 10 [M/MT]		MX 12 [M/MT]				
Travels	mm	1160 x 1000 x 900		1200 x 1200 x 1000		1200 x 1600 x 1000				
Rapid Feedrates	m/min	40		40		40				
Acceleration on Axis	m/s²	4		4		4				
Rotating Axis A – Head	Rotating Axis A – Head									
Rotating Speed	rpm	100	00 10		00	100				
Torque : Clamping / Motor	Nm	2500 / 1	1410 2500 /		1200	2500 / 1200				
Rotating Axis C – Table		M 8	MT 8	M 10	MT 10	M 12	MT 12			
Rotating Speed	rpm	50	500	50	500	50	250			
Area	mm	1000 x 800	Ø 800	1000 x 800	Ø 1000	Ø 1600 x 1250	Ø 1400			
Admissible Load	kg	2000	2000	2000	2000	4000	3000			
Spindle										
Rotating Speed	rpm	18000	10000							
Taper		HSK 63A	HSK 100A							
Power – Torque (S6 / S1)	kW - Nm	30/20 - 240/160	50/32 – 280/180							
Characteristic Speed	rpm	1200	1700							
Accuracies		Linear Axes Rotating Axes								
Uncertainty P			7 μ			10 sec				
Repeatability: Ps Medium		4 μ				5 sec				
Tool Magazine										
Pockets Quantity		60	48							
Taper		HKS 63A	HSK 100A							
Tool Dimension :										
Length - Diameter - Weight	mm - Ø mm - kg	300 - 95- 8	400 - 125 - 15							
Coolant										
Flow – Pressure	I/min – bar		60 - 5							
Tank	Litres		1500							

Blocking by Hirth Coupling in MT

ALTERNATIVES

Rotating Axis A – Fork Head		MX 10/12 [M]						
Axis Drive		Working axis						
B - Clearance	Deg.	-110°/+10°						
Torque : Clamping / Motor	Nm	7000 / 500						
Acceleration	rd/s²	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	18000		8000				
Taper		HSK 63-A		HSK 100-A				
Power - Torque (S6 / S1)	kW	30 / 20 - 240 /160		86 / 70 – 235 / 190				
Characteristic Speed	rpm	1200			3500			
Rotating Axis C – Palletized Table		MX 10 [M]	MX	10 [MT]	MX 12 [N	IJ	MX 12 [MT]	
Rotating Speed	rpm	50		500	50		250	
Area	mm	Ø 1000 x 800	Ø 1000		Ø 1400		Ø 1400	
Admissible Load	kg	1500	1500		2500		2500	
Tool Magazines		MX 10/12 [M]	MX 8/10/12		2 [M/MT]		MX 8/10/12 [M]	
Pockets Quantity		60 96		96		120		
Taper		HSK 63-A HSK 1		100-A		HSK 63-A		
Tool Dimension : Length – Diameter – Weight	mm - Ø mm - kg	300 – 95 – 8		400 – 125 –15 300 – 95 – 8		300 – 95 – 8		

OPTIONAL EQUIPMENTS

- Palletization
- High pressure coolant 50 bar
- Component 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

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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.

