

## Comprehensive

Product Catalogue

jyoti.co.in

## Comprehensive

Product Catalogue

#### Turning, **Turn-Mill** Centers /

3-Axis

02

Machining **Centers**/



DX 60, DX 100 CNC Chucker

Page 07





**DX Series** Turning & Turn-Mill Center



TS 120 Turning Center with Automation

Page 23





Page 08

DX 150

**VTL Series** Vertical Turning Center



**DX Large Series** 

Page 18

Turning & Turn-Mill Center



Page 19

i-Sect Oval Turning Center



DX 200 Series Simple Turning Center

#### Page 16

Page 09



**DXG 100** Turning Center with Automation



**AX Series** High Precision Turning/ Turn-Mill Center





Vertical Machining Center





5-Axis Machining Centers /

Multi-Tasking

Machines/





**U-Mill Series** Machining Center

Page 44-45





**KX Large Series** Double Column Machining Center





**TMX Series** Twin Spindle Twin Turret Turn-Mill Center

### **MTX Series**













Machining

Centers /

3-Axis

Horizontal Machining Centers /









**KXG Series** Gantry Type Machining Center











**Tachyon Series** High Speed Mill-Tap Center



Mill-Tap Series Mill-Tap Center

Page 29

K Mill / KX Series

Page 24

**AT/ATM Series** Inverted Turning Center



**PX Series** Vertical Machining Center

Page 30



**Performance Series** Bridge Type Machining Center Vertical Machining Center

Page 32

**EX Series** 

Moving Column

Page 34-35

Machining Center





**HX Series** 

Horizontal Machining Center



Page 40







Page 50-51

**RX / RAX Series** 





NX Series Double Column Machining Center

Page 36-37

Page 33



**HSX Series** High Precision Horizontal Machining Center

#### **DELIVERING METAL CUTTING SOLUTIONS TO CUSTOMERS** WORLDWIDE

technology contributor to the World, Jyoti possibilities in the World of Machine Tools. Credited with many firsts in the in India and France (Huron-100 % company based at Strasbourg, France. Catering to wide range of industries, our presence with operations worldwide.

Mu Tech Machining Center





Multi-Tasking Machine

#### Page 41



MX 4 High Performance Machining Center



**KX Five Series** High Performance Machining Center



**MX Series** 5-Axis Mill-Turn Machining Center

#### Page 54-57

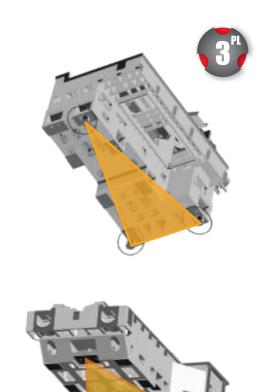
Sales & Service Network

#### THREE POINT LEVELING

Generally machines are leveled on 4 points adjusting the leveling pad screws. This is because the uneven mass and leveling points would not allow.

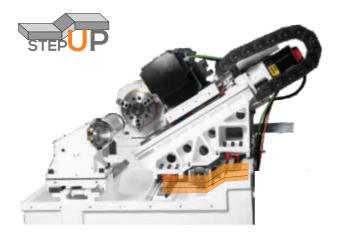
you to balance the machine on **THREE POINTS.** Special care has been taken to design JYOTI machines to balance the same on 3 points which allows these machines to rest on three points without stress. While 4 point leveling requires patience and tedious work to level the machine completely, the machines with 3 point leveling could be installed with ease and precision and can be easily relocated.

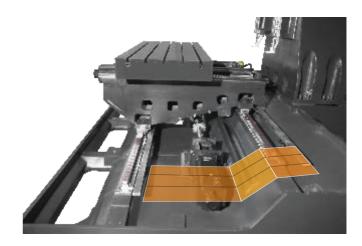
The stress created while leveling the machines with 4 points, may lead to the distortion in the level plane of the body, which gradually twists the machine body and results in erratic geometry of the machine. With a 3 point balanced machine, the body of the machine is always at rest and no stress or twisting takes place throughout the life, resulting a consistent geometrical accuracy.



#### **STEP-UP STRUCTURE**

**Step-up** bed structure concept with widely spread guideways provides structural stability during demanding dynamic cutting condition and enables consistent machining performance even at higher extension of axis travels.





#### MAXIMUM IMPACT WITH MAXIMUM EASE!!

The Table with Rotary Integral Motor which is a unique feature applied on JYOTI high tech machines. With TRIM concept, the complexity of mechanical elements in a rotary table are TRIMMED with the use of a High Torque Integral Servo Motor which replaces the complex mechanical elements like Worm Gears. The torque transmission is direct as the motor itself is the rotating part of the table. TRIM makes the rotating axis of machine perfect !



TRIM is Technology
TRIM is Lean
TRIM is Simple
TRIM is Time Saving
TRIM is Easy to Handle
TRIM is the Future



#### **HIGH SPEED MACHINING**

**High-Speed Machining** is a chip removal operation involving cutting speeds which, for certain materials, are five to ten times higher than those traditionally used for the same materials.

Such rapid cutting speeds generate sufficiently high temperatures in the chip shear plane for the machanical properties of the material to be greatly diminished during machining.

Important role played by structural design, spindle, tool and NC selection, cutting stratagy, cooling system & chip removal in machine tool.

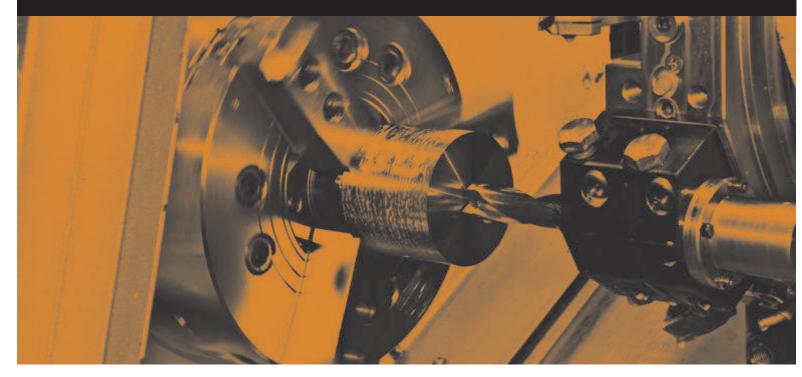
#### ADVANTAGES OF HSM

- Cutting time reduced by a factor of 3 to 5.
- Increasd productivity + Surface quality.
- Precise & Accurate contours (repeatability, positioning)
- Reduced polishing time & Leadtimes.
- Reduced part distoration.
- Machining of hard materials.
- Machining of thin "web".
- Overall cost reduction.





## **Turning / Turn-Mill** Centers



Simple Turning / **Turn-Mill Center** 

**Vertical Turning** Center

**Turning Center** with Automation **Inverted Turning** Center

Camless oval **Turning Center** 

i Sect

**High Precision Turning**/ **Turn-Mill Center** 

DX 60 / DX 100 VTL Series DX 150 DX 200 Series **DX** Series **DX Large Series** 

DXG 100

TS 120

AT / ATM Series

AX Series

06





## Model Variants **DX60 DX100**

#### For small precision disc-type components in mass.

- Slant Bed Monoblock structure for rigidity even at higher dynamics. Better vibration dampning for better tool life.
- Gang type Linear tooling for quick approach to job for unmatched tool change time.
- Completely compatible for productivity options like Part Catcher, Automatic Tool Setting. Integration with Bar Feeder, Gantry Auto Loading, Robot Arm etc...



Specifications	DX 60	DX 100
Chuck Size	135 mm	170 mm
Std. Turning Dia.	60 mm	100 mm
Max. Turning Length	60 mm*	200 mm*
Travel (X / Z Axis)	240 / 100 mm	360 / 200 mm
Rapid Feed (X / Z Axis)	24 m/min	24 m/min
Spindle Motor Power - Mitsubishi	5.5 / 3.7 kW (A <sub>2</sub> 4)	_
Spindle Motor Power - Fanuc	-	7.5 / 5.5 kW (A <sub>2</sub> 5)
Spindle Motor Power - Siemens	4.2 / 2.8 kW (A <sub>2</sub> 4)	10.5 / 7 kW (A <sub>2</sub> 5)
Spindle Speed Range	50 - 6000 rpm	50 - 4500 rpm
Tooling System	Gang Type	Gang Type



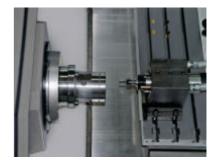
\*Depends on Work holding device, Tooling & Workpiece



Part Catcher



Gang Type Linear Tooling



Live Tool System







Specifications	<b>DX</b> 150
Chuck Size	170 mm
Max. Turning Dia.	250 mm
Max. Turning Length	350 mm*
Travel (X / Z Axis)	150 / 350 mm
Rapid Feed (X / Z Axis)	24 m/min
Spindle Power - Fanuc	7.5 / 5.5 kW (A <sub>2</sub> 5)
Spindle Power - Siemens	10.5 / 7 kW (A <sub>2</sub> 5)
Spindle Speed Range	50 - 4500 rpm
Max. Bar Capacity	38 mm
Tooling System	8 St. Servo Turret

\* Depends on Work holding device, Tooling & Workpiece

#### **DX150**

#### **Compact and Versatile**

- Designed to produce small components and between center ٠ workpieces.
- Unique vertical (90°) monoblock design providing stability • with least distortion, even for smooth dry machining with heavy cuts for faster production.
- Vertical fall of chip and coolant, prevents damage to Linear • Motion Guideways and Ball Screws, thus increasing overall machine life.





Tail Stock





STEPUP





Automatic Tool Setting

**Step-up Structure** 

#### **DX200**

#### One of the most successful model in Indian Market

Your partner to deliver the optimum productivity with many features, delivering optimum performance to match demands of various workpiece size applications.

Step-up Structure concept with widely space guideways at higher • tool life and least vibration even with hard material higher diameters. No vibration, means better surface finish even with grooving or threading materials.

#### **RODUCTIVITY**



**Operator Friendly** 



Tail Stock

Specifications	DX 200 - 3A	DX 200 - 3B	DX 200 - 4A	DX 200 - 4B	
Chuck Size	170 mm	210 mm	170 mm	210 mm	
Max. Turning Dia.	320	mm	320	mm	
Max. Turning Length*	300	mm	400	mm	
Travel (X / Z Axis)	175 / 3	00 mm	175 / 400 mm		
Rapid Feed (X / Z Axis)	30 m	ı/min	30 m/min		
Spindle Power - Fanuc	7.5 / 5.5 kW (A <sub>2</sub> 5)	11 / 7.5 kW (A,6)	7.5 / 5.5 kW (A <sub>2</sub> 5)	11 / 7.5 kW (A.6)	
Spindle Power - Siemens	10.5 / 7 kW (A <sub>2</sub> 5)	13.5 / 9 kW (A <sub>2</sub> 6)	10.5 / 7 kW (A,5)	13.5 / 9 kW (A <sub>2</sub> 6)	
Spindle Speed Range	50 - 4000 rpm	50 - 4000 rpm	50 - 4000 rpm	50 - 4000 rpm	
Max. Bar Capacity	38 mm 52 mm		38 mm	52 mm	
Tooling System	8-St. Ser	vo Turret	8-St. Sei	vo Turret	

#### High duty spindle.

- Bi-directional servo turret.
- Precision & class LM Guide & direct couple ball screw.
- Tailstock with 1-V Type & 1-Flat Type Guide.
- Rear / Front chip conveyor option

Specifications	DX 200 - 5A	DX 200 - 5B	DX 200 - 7A	DX 200 - 7B	DX 200 - 12A	DX 200 - 12B
Chuck Size	210 mm	250 mm	210 mm	250 mm	210 mm	250 mm
Max. Turning Dia.	350	mm	365	mm	365	mm
Max. Turning Length*	500	mm	700	mm	1200	) mm
Travel (X / Z Axis)	200 / 500 mm		200 / 700 mm		200 / 1200 mm	
Rapid Feed (X / Z Axis)	24 m/min		24 m/min		24 m/min	
Spindle Power - Fanuc	11 / 7.5 kW (A₂6)	15 / 11 kW (A <sub>2</sub> 8)	11 / 7.5 kW (A <sub>2</sub> 6)	15 / 11 kW (A <sub>2</sub> 8)	11 / 7.5 kW (A <sub>2</sub> 6)	15 / 11 kW (A <sub>2</sub> 8)
Spindle Power - Siemens	13.5 / 9 kW (A <sub>2</sub> 6)	16.5 / 11 kW (A <sub>2</sub> 8)	13.5 / 9 kW (A <sub>2</sub> 6)	16.5 / 11 kW (A <sub>2</sub> 8)	13.5 / 9 kW (A <sub>2</sub> 6)	16.5 / 11 kW (A <sub>2</sub> 8)
Spindle Speed Range	50 - 4000 rpm	50 - 3500 rpm	50 - 4000 rpm	50 - 3500 rpm	50 - 4000 rpm	50 - 3500 rpm
Max. Bar Capacity	52 mm	75 mm	52 mm	75 mm	52 mm	75 mm
Tooling System	8-St. Ser	vo Turret	8-St. Ser	vo Turret	8-St. Sei	vo Turret

\* Depends on Work holding device, Tooling & Workpiece



### **DX** Series CNC Turning & Turn-Mill Center



- 45° Slant Bed Monoblock Structure with improved bed • twisting rigidity for heavy duty & dynamic load cutting
- Step-up structure for DX 250-500 •
- Wide precision class Linear Motion (Roller Type) Guideways • with directly coupled Ball screws, for enhanced machining capability
- Capable to deliver best performance even in hard part • machining
- Heavy duty spindle with angular contact bearing •
- Bi- Directional Servo Tool Turret •
- Special plunger system for feed control movement of • tailstock
- Wider working area & Efficient Chip Disposal system •
- Easy-to-operate operator panel for operator friendliness .
- Gearbox option for application demanding higher torque at . lower rpm





(500/700/1000)

(700/1000/1500/2000)

These machines are for producing world class products, with quick, accurate output and with minimum non-productive time. Robust machining of bigger components that require higher cutting load with better dampening capacity maintaining consistent accuracy, marginally boosting working capability.





**Rigid Turret** 



Wide Working Area

Specifications	DX 250 - 500	DX 250 - 700	DX 250 - 1000	DX 350 - 700A	DX 350 - 700B
Chuck Size	210 mm	250	mm	250 mm	305 mm
Max. Turning Dia.	490 mm	480	mm	600	mm
Max. Turning Length*	500 mm	700 mm	1000 mm	700	mm
Travel (X / Z Axis)	250 / 520 mm	250 / 700 mm	250 / 1000 mm	310 / 7	00 mm
Rapid Feed (X / Z Axis)	24 m/min	24 n	24 m/min		ı/min
Spindle Nose	A <sub>2</sub> 8	Α	A <sub>2</sub> 8		A <sub>2</sub> 11
Spindle Power - Fanuc	15 / 11 kW	15 /	11 kW	18.5 / 15 kW	22 / 18.5 kW
Spindle Power - Siemens	16.5 / 11 kW	18 /	18 / 12 kW		27.8 / 18.5 kW
Spindle Speed Range	50 - 3500 rpm	50 - 25	50 - 2500 rpm		50 - 1500 rpm
Max. Bar Capacity	75 mm	65 mm		65 mm	90 mm
Tooling System	8 St. Survo Turret	8 - St. Su	8 - St. Survo Turret		ervo Turret
Tailstock (Dia. / Stroke)	85 / 120 mm	85 / 1	20 mm	85 / 12	20 mm

\* Depends on Work holding device, Tooling & Workpiece





#### FLEXIBILITY FOR INTERFACING VARIOUS PRODUCTIVITY IMPROVING OPTIONS

Digital-Tailstock, High Speed Electro Spindle, Steady-Rest, Automatic Tool Setting, Gear-Box for higher torque at lower rpm, Big bore spindle for heavy jobs. More atomization by interfacing machines with Over-Head Gantry system / Robotic arm High Speed Unmanned Mass Production.

### TURN-MILL OPTION WITH DRIVEN TOOL TURRET

Servo driven 12 Station -Live Tool Indexing Turret can be chosen for Turn-Mill Center version which allows mix and match of static or powered tools. Turret movement is controlled by High-Torque motor for various applications like PCD Drilling & Tapping, OD & ID profiles with Radial and Axial Live Tools.





**Radial Live Tool** 



Axial Live Tool



Hydraulic Steady Rest



**Overhead Gantry Interface** 

	DX 350 - 1000A	DX 350 - 1000B	DX 350 - 1500A	DX 350 - 1500B	DX 350 - 2000A	DX 350 - 2000B
Chuck Size	250 mm	305 mm	250 mm	305 mm	250 mm	305 mm
Max. Turning Dia.	600	mm	600	mm	60	0 mm
Max. Turning Length*	1000	) mm	1500	) mm	200	)0 mm
Travel (X / Z Axis)	310 / 10	000 mm	310 / 17	700 mm	310/2	2000 mm
Rapid Feed (X / Z Axis)	24 n	n/min	24 m/min		24 m/min	
Spindle Nose	A <sub>2</sub> 8	A <sub>2</sub> 11	A <sub>2</sub> 8	A <sub>2</sub> 11	A <sub>2</sub> 8	A <sub>2</sub> 11
Spindle Power - Fanuc	18.5 / 15 kW	22 / 18.5 kW	18.5 / 15 kW	22 / 18.5 kW	18.5 / 15 kW	22 / 18.5 kW
Spindle Power - Siemens	18 / 12 kW	27.8 / 18.5 kW	18 / 12 kW	27.8 / 18.5 kW	18 / 12 kW	27.8 / 18.5 kW
Spindle Speed Range	50 - 2500 rpm	50 - 1500 rpm	50 - 2500 rpm	50 - 1500 rpm	50 - 2500 rpm	50 - 1500 rpm
Max. Bar Capacity	65 mm	90 mm	65 mm	90 mm	65 mm	90 mm
Tooling System	8 -St. Servo Turret		8 -St. Servo Turret		8 -St. Servo Turret	
Tailstock (Dia. / Stroke)	85 / 12	20 mm	130 / 150 mm		130 / 150 mm	

\* Depends on Work holding device, Tooling & Workpiece

Bita IP Series Motor Available as an optional in Fanuc



## DX Large Series

CNC Turning & Turn-Mill Center



- Bed & Saddle made from higher grade cast-iron for maximum rigidity, most suitable for hard part turning
- Offer wide range of cutting sizes along with rapid positioning & bidirectional turret, for unmatched cycle time.
- FEM proven construction to optimally work with high speed & heavy duty process forces with minimal vibrations
- Wide precision class Linear Motion (Roller Type) Guideways
   with directly coupled Ball screws, for enhanced machining
   capability
- Heavy duty spindle with angular contact bearing with option of gearbox for high torque at lower rpm

Model Variants

(1000/1250/2000)

**DX 750** (1250/3000)

An ideal partner for machining large diameter components used in heavy engineering industry such as automobile, oil & natural gas, earth moving, various allied and subcontracting industries.





Multiple Steady Rest For Extra Long Job

Specifications	DX 500 1000 A	DX 500 1000 B	DX 500 1000 C	DX 500 1250 A	DX 500 1250 B	DX 500 1250 C
Chuck Size	305 mm	380 mm	380 mm	305 mm	380 mm	380 mm
Max. Turning Dia.		700 mm			800 mm	
Max. Turning Length*		1000 mm			1250 mm	
Travel (X / Z Axis)		360 / 1000 mm			410 / 1250 mm	
Rapid Feed (X / Z Axis)		24 m/min		24 m/min		
Spindle Nose	A <sub>2</sub> 8	A <sub>2</sub> 11	A <sub>2</sub> 15	A <sub>2</sub> 8	A <sub>2</sub> 11	A <sub>2</sub> 15
Spindle Power - Fanuc	22 / 18.5 kW	26 / 22 kW	37 / 30 kW	22 / 18.5 kW	26 / 22 kW	37 / 30 kW
Spindle Power - Siemens	27.8 / 18.5 kW	33 / 22 kW	45 / 30 kW	27.8 / 18.5 kW	33 / 22 kW	45 / 30 kW
Spindle Speed Range	50 - 2500 rpm	50 - 1500 rpm	50 - 1200 rpm	50 - 2500 rpm	50 - 1500 rpm	50 - 1200 rpm
Max. Bar Capacity	65 mm	90 mm	90 mm	65 mm	90 mm	90 mm
Tooling System	8 - St. Servo Turret			8 - St. Servo Turret		
Tailstock (Dia./ Stroke)		130 / 150 mm			130 / 150 mm	

\* Depends on Work holding device, Tooling & Workpiece





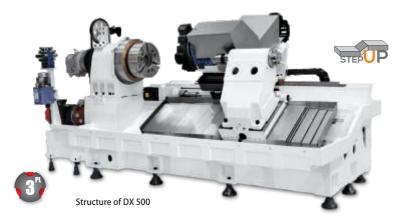


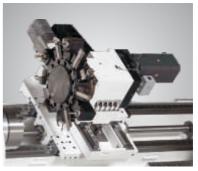
#### TURN-MILL OPTION WITH DRIVEN TOOL TURRET

Servo driven 12 Station -Live Tool Turret can be chosen for Turn-Mill Center version which allows mix and match of static or powered tools. Turret movement is controlled by High-Torque motor for various applications like PCD Drilling & Tapping, OD & ID profiles with Radial and Axial Live Tools.



- Wider working area & Efficient Chip Disposal system
- Operator and TPM friendly





Live Tool Turret for TMC

Specifications	DX 500 2000 A	DX 500 2000 B	DX 500 2000 C	DX 750 1250 A	DX 750 1250 B	DX 750 3000 A	DX 750 3000 B	
Chuck Size	305 mm	380 mm	380 mm	380	mm	380	mm	
Max. Turning Dia.		800 mm	1	920	mm	920	mm	
Max. Turning Length*		2000 mm		1250	) mm	3000	) mm	
Travel (X / Z Axis)		410 / 2000 mm			480 / 1250 mm		480 / 3100 mm	
Rapid Feed (X / Z Axis)		24 m/min			24 m/min		24 / 20 m/min	
Spindle Nose	A28	A <sub>2</sub> 11	A <sub>2</sub> 15	A <sub>2</sub> 11	A <sub>2</sub> 15	A <sub>2</sub> 11	A <sub>2</sub> 15	
Spindle Power - Fanuc	22 / 18.5 kW	26 / 22 kW	37 / 30 kW	26 / 22 kW	37 / 30 kW	26 / 22 kW	37 / 30 kW	
Spindle Power - Siemens	27.8 / 18.5 kW	33 / 22 kW	45 / 30 kW	33 / 22 kW	45 / 30 kW	33 / 22 kW	45 / 30 kW	
Spindle Speed Range	50 - 2500 rpm	50 - 1500 rpm	50 - 1200 rpm	50 - 1500 rpm	50 - 1200 rpm	50 - 1500 rpm	50 - 1200 rpm	
Max. Bar Capacity	65 mm 90 mm 90 mm			90 mm		90 mm		
Tooling System	8 - St. Servo Turret			12 - St. Servo Turret		12 - St. Servo Turret		
Tailstock (Dia. / Stroke)	·	130 / 150 mm		170/2	200 mm	170/2	.00 mm	

\* Depends on Work holding device, Tooling & Workpiece







\*Large Spindle Bore Options Available





## Model Variants VTL500 VTL750

#### **Compact and Versatile**

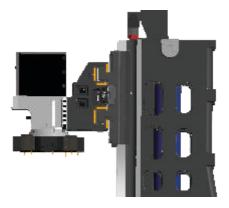
VTL Series machines are specially designed for heavy and larger diameter component machining of heavy engineering industries like railways, heavy automobiles, oil &natural gas, compressor, power, earthmoving and other with addition to components like valves, pumps, motor bodies, gear blanks and components from various subcontracting industries.

- Box type design for heavy duty & dynamic load cutting
- High glade C.I. thermally stable bed & column
- Broad hardened and ground guide for rigidity at greater extension of turret
- Rigid structure with wider working area & Efficient Chip Disposal system
- Bi- Directional Servo Tool Turret
- Easy-to-operate operator panel for operator friendliness
- Hydraulic Counter Balancing system
- Ergonomic design for easy component loading / unloading
- Live Tool Turret option available for turning & milling in single set-up

#### **PRODUCTIVITY** SOLUTIONS

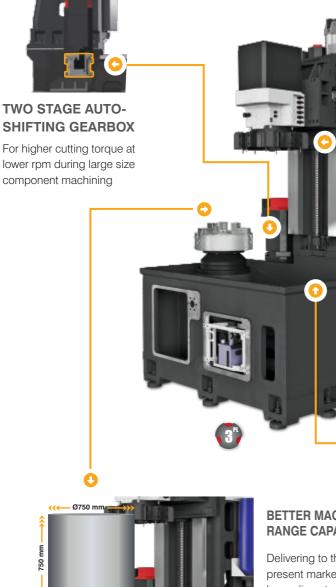
#### 3-SIDED ADJUSTABLE SUPPORTS FOR AXIS

3-sided support on both X & Z - Axis helps maintaining tolerance between axis & guide-ways during reversal movement delivering long term accuracy and durability.



Specifications	VTL 500 5A	VTL 500 5B	VTL 500 7A	VTL 500 7B	VTL 750A	VTL 750B
Chuck Size	315 mm	400 mm	315 mm	400 mm	400 mm	530 mm
Max. Turning Dia.	500 mm	500 mm	500 mm	500 mm	750 mm	750 mm
Max. Turning Hieght*	500 mm	500 mm	750 mm	750 mm	750 mm	750 mm
Travel (X / Z Axis)	265 / 500 mm	265 / 500 mm	265 / 750 mm	265 / 750 mm	400 / 750 mm	400 / 750 mm
Rapid Feed (X / Z Axis)	20 m/min	20 m / min	20 m/min	20 m / min	20 m / min	20 m/min
Spindle Nose	A2-8	A2-11	A2-8	A2-11	A2-11	A2-15
Spindle Power - Fanuc	18.5 / 15 kW	22 / 18.5 kW	18.5 / 15 kW	22 / 18.5 kW	22 / 18.5 kW	22 / 18.5 kW
Spindle Power - Siemens	27.8 / 18.5 kW	46.5 / 31 kW				
Spindle Speed	2500 rpm	2000 rpm	2500 rpm	2000 rpm	2000 rpm	1200 rpm
Gearbox	Opt.	Std.	Opt.	Std.	Std.	Std.
Max. Boring Bar Dia.	50 mm	50 mm	50 mm	50 mm	60 mm	60 mm
Turret	8 St. Servo	8 St. Servo				

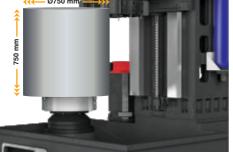
\* Depends on Work holding device, Tooling & Workpiece





#### **TURN-MILL VERSION**

12 station servo driven live tool turret on to avoid multiple setup and increase the productivity. Turret movement is controlled by high torque servo motors for various applications like PCD Drilling, Tapping and OD & ID profiles with radial and axial live tools.



#### **BETTER MACHINING RANGE CAPABILITY**

Delivering to the need of present market requirement for huge diameter components in full turning range capability.

[MAX. DIA. of component Turned to FULL LENGTH ]



#### **EFFICIENT CHIP REMOVAL**

Gravity fall of chips with hollow centre & flush coolant system for effective chip evacuation through rear side of machine.



## **DXG** Series

CNC Turning Center with Automation



### **DXG100**

#### **CNC Chucker With Gantry Robot**

 An ideal solution for manufacturers looking for complete automation with mass productivity of chucker type components.



- Monoblock designed structure for better rigidity during full load conditions
- Special preloaded job conveyors for long unattended production
- Efficient chip removal system with free chip falls to match production rate
- Machine for flexible Machine utilization of 2 identical operations or 1<sup>st</sup> & 2<sup>nd</sup> operations with Turn-around station option

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Integral 2-Axis Gantry Robot



Auto Feeder





### **TS** Series CNC Turning Center with Automation

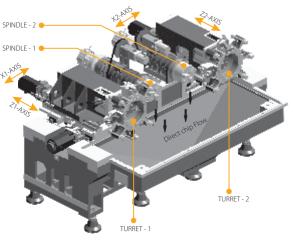
#### **Ts120**

Twin Spindle Twin Turret With Gantry Robot

Automation with twin turret, twin headstock & gantry arm for • unintrupted mass production.







#### **3-AXIS GANTRY ROBOT**

High dynamic gantry with dual gripper swivel head helps instant and accurate automation Loading/ Unloading enabling long hours of unattended operation.

Stroke (X/Y/Z) : 1850/560/150 mm Job Capacity : Ø 120 x 80 mm



Integral 3-Axis Gantry Robot

Twin Spindle  $(A_25)$  with Twin Turret 2 [16  $(8 \times 8)$ ]

Specifications	TS 120
Chuck Size	170 mm
Max. Job Dimension (Loader Capacity)	Ø120 mm X 80 mm
Travels (X / Z Axis)	75 / 145 mm
Rapid Traverse (X / Z Axis)	24 m/min
Servo Turret (No. of Tools)	16 (8 + 8)
Spindle Power - Fanuc	7.5 / 5.5 kW (A <sub>2</sub> 5)
Spindle Power - Siemens	8.3 / 5.5 kW (A <sub>2</sub> 5)
Spindle Speed Range	50 - 4500 rpm
Max. Job Weight	3 kg X 2



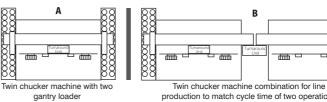


Work Piece Change-Over Station



**Customized Auto Feeder System** 

#### CUSTOMIZE LINE WITH DIFFERENT LAYOUT OPTIONS



17



Twin Servo Turret with **Twin Spindle** 

- 100





#### **ADVANTAGES OF VERTICAL** LINE MACHINES

- Spindle automatically loads/unloads job reducing cycletime. .
- Multi Function Station for Customization with auto job . feeding arrangement
- Very high rapid traverse with 5000 rpm electro spindle ensures reduced cycletime
- Ideal chip flow (directly falls to the bottom chip conveyor) ensures ease of maintenance and better machine life
- Compact footprint
- Easily replaces horizontal single spindle machines with of ٠ gantry loaders or robots because of its simplicity and compactness.

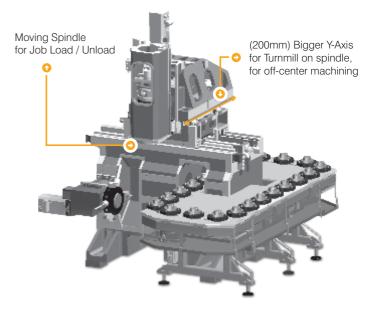




#### Inverted Spindle with Automation

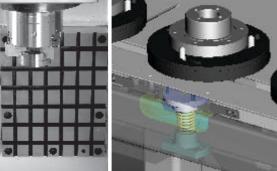
Vertical Line Series machines with automated job feeding feature are quite suitable for batch type daily production to mass production jobs performing variety of operations in one setup like Turning, Milling, Drilling & Tapping and even Grinding.



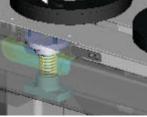


AT 160

8- St Servo



Customized **Tool Station** 



**Pick up Station** 







**Specifications** 

Travel (X / Y / Z Axis)

Rapid Traverse (X / Z Axis)

Customized Tooling Table

Spindle Speed Range

Spindle Motor Power - Fanuc

Spindle Motor Power - Siemens

Max. Job Capacity (Ø X L) of Auto Loader

Chuck Size

Turret Type

Spindle Nose



160 mm [200 mm]

Ø160 X 200mm (10 kg)

700 / NA / 300 mm 700 / 200 / 300 mm

50 m/min

340 x 430 mm

18.5 / 15 kW

9 / 7.5 kW

50 - 5000 rpm

Flat Dia. 140

ATM 160

12 - St. Live Tool

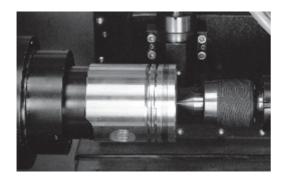


#### iSect

#### Catching the pulse with linear motors for ovality

• With cutting edge technology and research, iSect the Non Circular Turning Machine has become the first Indian Machine, specially designed for Aluminum Piston Oval Turning to help users to cope-up with various national and international standard norms.





Specifications	i Sect	
Travel (X/Z Axis)	120 / 350 mm	
Travel Y Axis (Linear)	25 mm	
Max. Turning Length	300 mm	
Max. Turning Dia.	200 mm	
Rapid Feed (X/Z Axis)	20 m/min	
Spindle Power - Siemens	13 / 10 kW (A₀5)	
(S6-40% /Cont. Rating)	107 10100 (120)	
Spindle Speed Range	50 - 3000 rpm	
Min. C-Axis Increment	0.001°	
Quill (Dia. / Stroke)	75 / 100 mm	





#### **Electro Spindle with C Axis**

High power electro spindle with quick acceleration / deceleration. Hydraulic disc brake in C-Axis.

#### **Y-Axis**

Special linear motor on Y-axis for maximum dynamics and accuracy.

#### **Turret & Tailstock**

I Sect is available with standard tail stock & optional 4 station tool turret for jobs like Diesel Engine Pistons with Cast Iron Piston Rings. Changing of tools allows using different tools for different surfaces and thus saving tool life.



#### POTS (Piston Oval Turning Software)

POTS is a programming software by JYOTI, exclusively used for programming Piston Oval Turning. This software can be used to create almost all type of Piston Profiles. The programs created in POTS can be verified by the graphic display of Piston Profiles.

## **AX** Series

CNC High Precision Turning & Turn-Mill Center



- Roller type LM Guideways for higher rigidity and accuracy to maximize productivity.
- Digital tailstock with option to replace with Sub-spindle.
- 1<sup>st</sup> and 2<sup>nd</sup> setup machining in single part clamping with better accuracy.
- Single piece slant bed architecture made out of high grade cast iron 
   for maximal rigidity working at higher feed rates up to 35 m/min.



MAIN ELECTRO SPINDLE

DIGITAL STEADY REST TAILSTOCK PROVISION

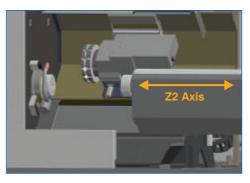


#### **Compact and Versatile**

Moving a step ahead in achieving even higher level of accuracy & precision, AX Series machines have been designed. Thus to cater increasing demand of market for multi-tasking with highest precision in turning and milling to deliver productivity solutions with reliability.



- Off center machining capability due to Y-Axis in turret.
- Linear Glass Scale delivering (6  $\mu {\rm m})$  positioning with (3  $\mu {\rm m})$  repeatability.
- Fully capable to interface with various other productivity improvement options for better output.
- Machining capability of angled surfaces and complex part machining.



Sub Spindle with Z-Axis Movement



#### (Main + Secondary) Electrospindle

Powerful electrospindle as standard, enclosed in headstock made out of closed grain casting and provided with provision for better heat dissipation.

- Hydraulically clamped C-axis disc brake to enable heavy duty and precision milling operations.
- Sub-spindle has Z-Axis movement to pick component from main spindle.
- Sub-spindle can work in synchronisation to main spindle for critical long shaft application.



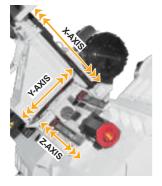








**Radial-Live Tool** 



#### Y-AXIS FUNCTION FOR DIFFERENT APPLICATION

In Y-axis plane, tools can move in a (+) or (-) direction perpendicular to the Z-axis and spindle centre line, Y motion is away from the door of the machine. Various shapes of cutting as below

- On-centre face groove
- Poly side machining
- Off-centre side grooving
- Y & X circular interpolation

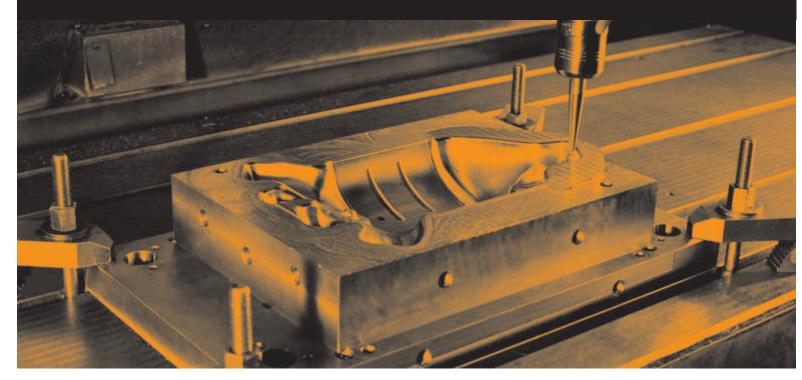
Specifications	AX 200	AX 200 M	AX 200 MY	AX 200 MSY
Chuck Size	210 mm	210 mm	210 mm	210 mm
Max. Turning Dia.	370 mm	330 mm	330 mm	330 mm
Max. Turning Length*	325 / 625 mm	325 / 625 mm	325 / 625 mm	625 mm
Travel (X / Y / Z Axis)	200 / NA / 325 & 625 mm	200 / NA / 325 & 625 mm	200 / ±40 / 325 & 625 mm	200 / ±40 / 625 mm
Rapid Feed (X / Y* / Z Axis)	24 / NA / 35 m/min	24 / NA / 35 m/min	24 / 24 / 35 m/min	24 / 24 / 35 m/min
Spindle Power	10 kW (A <sub>2</sub> 6)			
Spindle Speed Range	5000 rpm	5000 rpm	5000 rpm	5000 rpm
Sub Spindle Power			-	7 kW (A <sub>2</sub> 5)
Tooling System	8 St. Servo Turret	12 St. LTT Turret	12 St. LTT Turret	12 St. LTT Turret
Tailstock	Digital with Live Quill	Digital with Live Quill	Digital with Live Quill	

Specifications	AX 300	AX 300 M	AX 300 MY	AX 300 MSY
Chuck Size	250 mm	250 mm	250 mm	250 mm
Max. Turning Dia.	480 mm	420 mm	420 mm	420 mm
Max. Turning Length*	600 / 1200 mm	600 / 1200 mm	600 / 1200 mm	600 mm
Travel (X / Y / Z Axis)	250 / NA / 625 & 1225 mm	250 / NA / 625 & 1225 mm	250 / <u>+</u> 50 / 625 & 1225 mm	250 / ±50 / 625 mm
Rapid Feed (X / Y* / Z Axis)	24 / NA / 30 m/min	24 / NA / 30 m/min	24 / 24 / 30 m/min	24 / 24 / 30 m/min
Spindle Power	20 kW (A <sub>2</sub> 8)	20 kW (A <sub>2</sub> 8)	20 kW (A <sub>2</sub> 8)	20 kW (A <sub>2</sub> 8)
Spindle Speed Range	4000 rpm	4000 rpm	4000 rpm	4000 rpm
Sub Spindle Power			_	10 kW (A <sub>2</sub> 6)
Tooling System	8 St. Servo Turret	12 St. LTT Turret	12 St. LTT Turret	12 St. LTT Turret
Tailstock	Digital with Live Quill	Digital with Live Quill	Digital with Live Quill	

\* Depends on Work holding device, Tooling & Workpiece

\* If Applicable

## Vertical / Horizontal Machining Centers (3-Axis)



#### **Mill-Tap Center**

**Tachyon Series** 

Mill-Tap Series

**Production Series** 

**PX** Series

**RX** Series

**RAX Series** 

#### **Die-Mould Series**

**RDX Series** K Mill / KX Series Performance Series **Die-Mould Large Series** 

Performance Large Series **EX** Series NX Series

#### **Horizontal Machining Center**

HX Series HSX Series

## **TACHYON** Series

High Speed Mill-Tap Center

## Model Variants TACHYON 4 TACHYON 5 TACHYON 7

#### **Compact and Versatile**

 Machine is totally dedicated to fast drilling, tapping and light milling operations for small & medium mass production components to achieve cut-throat cycletime with almost nil loading/unloading time.



- All axis movement on top, none on table
- Very high axis acceleration upto 15 m/s<sup>2</sup>
- Rapid rate (X/Y/Z : 60 m/min)
- Integrated workpiece changer (changeover time : 4 Sec)

90° Tilting Panel





- Combination of high speed & precision [ATC + Work Piece Changer + Axis Rapid with high acceleration] help achieve productivity
- 3 LM Guide in Y-Axis + highly stable X & Z-Axis more overall stability during demanding dynamic load condition
- Direct-coupled powerful and precise spindle motor
- Perfect potential partner for In-Line machining
  - Ergonomic design for operator and TPM friendly
- Flexibility of mounting 4th & 5th rotary table or hydraulic fixture interface
- Effective Chip removal

•

Specification	TACHYON 4	TACHYON 5	TACHYON 7
Pallet Table Section (Each)	500 X 400 mm	600 X 400 mm	800 X 400 mm
Travels (X/Y/Z Axis)	400 / 400 / 450 mm	550 / 400 / 450 mm	750 / 400 / 450 mm
Rapid Traverse (X/Y/Z Axis)	60 m/min	60 m/min	60 m/min
Pallet Load Capacity (Each)	250 kg X 2	300 kg X 2	300 kg X 2
Max. Spindle Speed (Taper)	10000 (BT 30)	10000 (BT 30)	10000 (BT 30)
Spindle Power - Siemens	4.8 kW	4.8 kW	4.8 kW
Tool Storage Capacity	16 [24]	16 [24]	16 [24]

[] Options



## MILL TAP Series

Mill-Tap Center



Model Variants

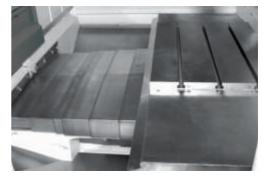


**Compact and Versatile** 

Mill Tap Centers and PX Series have been designed and developed with the capability to deliver high speed, high performance and high productivity requirements of industries seeking performance for production workpieces in 3 & 4 axis machining segment.



Specifications	Mill Tap 10	Mill Tap 20		
Working Table size	660 X 360mm	660 X 460mm		
Travel (X/Y/Z Axis)	510 / 410 / 510 mm	510 / 510 / 510 mm		
Rapid Traverse (X/Y/Z Axis)	40 m/min			
Table Load Capacity	250 kgf			
Max. Spindle Speed	8000 rpm			
Spindle Taper	BT-30			
Spindle Power - Fanuc	5.5 / 3.7 kW			
Spindle Power - Siemens	5.6 / 3.8 kW			
Tool Storage Capacity	20			



Efficient Chip Removal System

#### HIGH PRODUCTIVITY IN MILL TAP

- Non-cutting time is reduced by increasing spindle acceleration/deceleration.
- Various functions, such as rapid traverse rate of 40 m/min with increased acceleration for repeated start - stops for short distances during drills & tap.
- · Stable machine structure to withstand high dynamic loads.
- Special and faster Automatic Tool Changer with enhanced feature to • achieve tool change time of 1.6 sec.
- Use of rotary table with production system and hydraulic fixture is possible for improvising productivity.



4th Axis Rotary Production System





#### Model Variants



#### Easy Operating and Maintenance

- Operator Panel mounted on right side with better ergonomics for operator friendliness.
- Complete safeguard around machine ensuring safety.
- In better proximity for operator ease.
- TPM friendly design.





Specifications	PX 10	PX 20	PX 30	PX 40
Working Table size	660 X 360 mm	660 X 460 mm	915 X 360 mm	915 X 460 mm
Travel (X/Y/Z Axis)	510 / 410 / 510 mm	510 / 510 / 510 mm	760 / 410 / 510 mm	760 / 510 / 510 mm
Rapid Traverse (X/Y/Z Axis)	25 r	n/min	25 n	n/min
Table Load Capacity	400 kgf		500 kgf	
Max. Spindle Speed	6000 rpm		6000 rpm	
Spindle Taper	BT-40		BT-40	
Spindle Power - Fanuc	7.5 / 5.5 kW		7.5 / 5	5.5 kW
Spindle Power - Siemens	8.25 / 5.5 kW		8.25 /	5.5 kW
Tool Storage Capacity		20	2	20

- Precision class L.M. Guideways in all 3-Axis with directly coupled Ballscrews and thermally stable structure.
- 6000 rpm (BT40 Taper) precision spindle for various industry needs for machining on various variety materials.
- Various productivity improving options available such as Rotary Table, Coolant Through Spindle, Probes, Fully tooled up solutions...
- Rapid 40 m/min available as an option.
- Efficient chip disposal with unique center through structure from rear.



Wide Working Area



Easy Chip Removal



## **RX / RAX** Series

Vertical Machining Center (3-Axis)



- High Precision and powerful spindle with ACBB
- Extra broad column design to take heavy cutting load
- Single piece rigid broad base with heavy cross ribbings
- Rigid saddle for excellent stability
- Special design Combination of Integrated nut & bearing housing + direct coupled precision ballscrews + precision LM Guides + better motor drive with acceleration special for Die-Mould
- Rapid 40 m/min with high acceleration
- 90 Tilting Operator Panel
- Effective Chip removal

Specifications	RX 10	RX 20
Working Table size	800 X 500 mm	1000 X 530 mm
Travel (X / Y / Z Axis)	600 / 450 / 510 mm	820 / 510 / 510 mm
Rapid Traverse (X / Y / Z Axis)	40 m/min	40 m/min
Table Load Capacity	400 kgf	400 kgf
Max. Spindle Speed	8000 rpm	8000 rpm
Spindle Taper	BT-40	BT-40
Spindle Power - Fanuc	11 / 7.5 kW	11 / 7.5 kW
Spindle Power - Siemens	15.8 / 10.5 kW	15.8 / 10.5 kW
Tool Storage Capacity	20 [24, 40]	20 [24, 40]

# Model Variants RX10 RX20 RAX10 RAX20 RAX30

#### Your Productivity Partner

To match the demand of greater accuracy and total reliability at higher speeds, Jyoti has developed special RX Series Vertical Machining Center. These machines are rigid base C-Type machines with moving table for easy access. The high dynamic structure supports rapid axis take-offs with a higher acceleration.

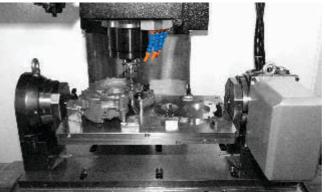














Improved Maintenance

Rotary Production System



Flush Coolant



**Tilting Panel** 

#### AUTOMATIC PALLET CHANGER

Keeping in mind customer's requirement for reducing total production time, JYOTI presents Vertical Machining Centers with Auto Pallet Changer equipped with spindle of 8000 rpm.

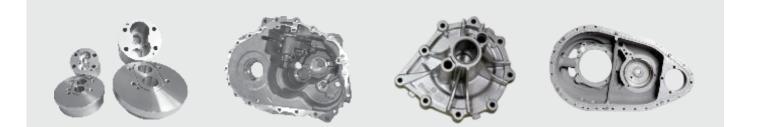
Hydraulic fixture can be interface to reduce job setup time.

Specifications	RAX 10	RAX 20	RAX 30
Working Table size (each pallet)	600 X 430 mm	800 X 485 mm	1000 X 585 mm
No. of Pallet	2	2	2
Travel (X / Y / Z Axis)	600 / 450 / 510 mm	820 / 510 / 510 mm	1020 / 600 / 610 mm
Rapid Traverse (X / Y / Z Axis)	40 m/min	40 m/min	24 m/min
Table Load Capacity	300 kg X 2	400 kg X 2	600 kg X 2
Max. Spindle Speed (Taper)	8000 rpm (BT 40)	8000 rpm (BT 40)	8000 rpm (BT 40)
Spindle Power - Fanuc	11 / 7.5 kW	11 / 7.5 kW	11 / 7.5 kW
Spindle Power - Siemens	15.8 / 10.5 kW	15.8 / 10.5 kW	15.8 / 10.5 kW
Tool Storage Capacity	20 [24, 40]	20 [24, 40]	20 [24, 30]

#### **BROADER COLUMN**

Heavy extra broad construction of column help for better stability & balancing the whole machine while taking heavy cutting load.

#Series with Pallet Changer (Twin Electromechanical Type)





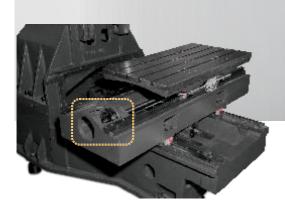
### Model Variants



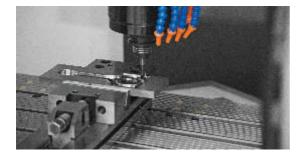
#### **Compact and Versatile**

Jyoti has specially developed RDX Series for die and moulds • application with greater accuracy. Structure with broad rigid base is made out of graded casting dampens the effect of vibration and giving better thermal stability for continuous working condition to keep the pace with growing die-mould market applications.





INTEGRATED HOUSING (FRONT AND END BRACKET)





- Extra broad column design to take heavy cutting load Single piece rigid broad base with heavy cross ribbings
- Rigid saddle for excellent stability
- Special design Combination of Integrated nut & bearing housing + direct coupled precision ballscrews + precision LM Guides + better motor drive with acceleration special for Die-Mould
- 90 Tilting Operator Panel
- Effective Chip removal •

Specifications	RDX 10	RDX 20
Working Table size	800 X 500 mm	1000 X 530 mm
Travel (X / Y / Z Axis)	600 / 450 / 510 mm	820 / 510 / 510 mm
Rapid Traverse (X / Y / Z Axis)	30 m/min	30 m/min
Table Load Capacity	400 kgf	400 kgf
Max. Spindle Speed	8000 rpm	8000 rpm
Spindle Taper	BT-40	BT-40
Spindle Power - Fanuc	11 / 7.5 kW	11 / 7.5 kW
Spindle Power - Siemens	15.8 / 10.5 kW	15.8 / 10.5 kW
Tool Storage Capacity	20 [24, 40]	20 [24, 40]



## K Mill / KX Series

Bridge Type Vertical Machining Center (3-Axis)

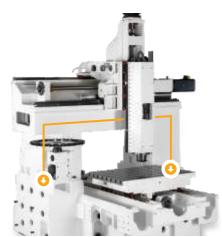


# Model VariantsK Mill8K2X8KX10K Mill10K2X10K2X20KX30

#### Bridge Type Machining Center

Bridging gap between big and small machines





**Bridge Type Structure** 

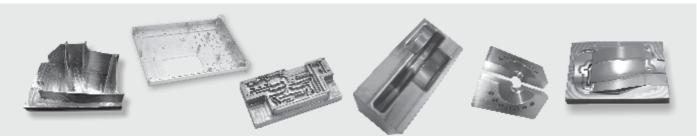
These machining center enable machining operations in 3 axis, from roughing to finishing, of all kind of complex work pieces such as injection molds, forging dies, punching dies, cutting tools, aeronautic jobs or pieces for mechanics. These vertical machining center are projected to be at the highest level in its category.

- Machining for work piece up to 2500 kg
- Harmonic 8 table structure for demanding cutting conditions.
- Hard material machining in a minimal time
- Very high accuracy in 3D contouring and profiles
- HSM (High Speed Machining) capability
- · Best performance for complex applications with repeated start stop

**Specification** K Mill 8 K Mill 10 K2X 8 Travels (X / Y / Z Axis) 700 / 600 / 500 mm 1000 / 700 / 600 mm 700 / 600 / 450 mm Rapid Feedrate (X / Y / Z Axis) 40 / 40 / 40 m/min 30 / 30 / 18 m/min 40 / 40 / 40 m/min Table Size 800 x 600 mm 1250 x 700 mm 800 x 600 mm Spindle Speed (Taper) 15000 rpm (BT-40) 15000 rpm (BT-40) 24000 rpm (HSK-63A) Spindle Power - Torque (Siemens) 15 kW - 110 / 84 Nm 15 kW - 110 / 84 Nm 25 / 20 kW - 40 / 32 Nm Tool Changer Capacity 24 24 20 [30 / 40 / 60 / 100] Accuracies (as per VDI / DGQ 3441) 0.010 mm 0.004 mm 0.015 mm Positioning Uncertainty: P (X / Y / Z) 0.005 mm 0.002 mm Repeatability: (Ps Medium) 0 007 mm

	K2X 10	K2X 20	KX 10	KX 30
Travels (X / Y / Z Axis)	1000 / 800 / 500 mm	1200 / 1000 / 500 mm	1000 / 700 / 600 mm	1800 / 1000 / 600 mm
Rapid Feedrate (X / Y / Z Axis)	60 / 60 / 60 m/min	50 / 60 / 60 m/min	30 / 30 / 18 m/min	30 / 30 / 18 m/min
Table Size	1150 x 800 mm	1400 x 1000 mm	1250 x 700 mm	2000 x 1000 mm
Spindle Speed (Taper)	18000 rpm (HSK 63A)			
Spindle Power - Torque (Siemens)	35 / 25 kW - 130 / 86 Nm	35 / 25 kW - 130 / 86 Nm	35 / 25 kW - 130 / 86 Nm	35 / 25 kW - 130 / 86 Nm
Tool Changer Capacity	20 [30 / 40 / 60 / 100]	20 [30/ 40 / 60 / 100]	20	20 [30/ 40 / 60 / 100]
Accuracies (as per VDI / DGQ 3441)				
Positioning Uncertainty: P (X / Y / Z)	0.004 mm	0.005 mm	0.007 mm	0.009 / 0.007 / 0.007 mm
Repeatability: (Ps Medium)	0.002 mm	0.003 mm	0.005 mm	0.005 mm

Machine Capacities with Siemens Controller. [] Options



## **Performance** Series

Vertical Machining Center (3-Axis)



### Model Variants

## VMC640 VMC850 VMC1050 VMC1060 VMC1260

#### C-Frame machines at it's best

These machines have been designed to match the demand of greater accuracy delivering total reliability for complex 3D profile contours of Die & Mould applications with better cutting parameters at great acceleration/decelaration rates.

- The high dynamic structure supports rapid axis take-offs with an acceleration of 5 m/s<sup>2</sup>.
- FEA proven structure made out of graded casting and heat treated for consistent accuracy for long time.
- Broad rigid heavily ribbed base with heavy column dampens the effect of vibrations while balancing machine while taking high cutting load.
- Powerful BT40 spindle for ability to efficiently work on varieties of materials
  High Torque directly coupled axis motors with widely spaced precision LM
- High forque directly coupled axis motors with widely spaced precision Liv guides for higher material removal rates.
- High Speed Electro Spindle options upto 18000 rpm.
- BT 50 Spindle Available with Higher Motor Power.



UTIONS

4-L.M. Guideways on Y-Axis, 6-Blocks on X-Axis on VMC - 1050,1060 & 1260







Specifications	VMC 640-DM	VMC 850-DM	VMC 1050-DM	VMC 1060-DM	VMC 1260-DM
Working Table Size	800 X 500 mm	1000 X 530 mm	1200 X 530 mm	1200 X 630 mm	1400 X 630 mm
Travels (X/Y/Z Axis)	600/400/510 mm	820/510/510 mm	1020/510/510 mm	1020/600/610 mm	1220/600/610 mm
Rapid Traverse (X/Y/Z Axis)	24 m/min	24 m/min	24 m/min	24 m/min	24 m/min
Table Load Capacity	400 kgf	500 kgf	800 kgf	900 kgf	1200 kgf
Max. Spindle Speed	10000 rpm	10000 rpm	10000 rpm	10000 rpm	10000 rpm
Spindle Taper	BT-40	BT-40	BT-40	BT-40	BT-40
Spindle Power - Fanuc	11 / 7.5 kW	11 / 7.5 kW	11 / 7.5 kW	11 / 7.5 kW	11 / 7.5 kW
Spindle Power - Siemens	15.8 / 10.5 kW	15.8 / 10.5 kW	15.8 / 10.5	15.8 / 10.5	15.8 / 10.5
Tool Storage Capacity	20 [24, 40]	20 [24, 40]	20 [24, 40]	20 [24, 40]	20 [24, 40]

Specifications	VMC 640-P	VMC 850-P	VMC 1050-P	VMC 1060-P	VMC 1260-P
Working Table Size	800 X 500 mm	1000 X 530 mm	1200 X 530 mm	1200 X 630 mm	1400 X 630 mm
Travels (X/Y/Z Axis)	600/400/510 mm	820/510/510 mm	1020/510/510 mm	1020/600/610 mm	1220/600/610 mm
Rapid Traverse (X/Y/Z Axis)	24 m/min	24 m/min	24 m/min	24 m/min	24 m/min
Table Load Capacity	400 kgf	500 kgf	800 kgf	900 kgf	1200 kgf
Max. Spindle Speed	6000 rpm	6000 rpm	6000 rpm	6000 rpm	6000 rpm
Spindle Taper	BT-40	BT-40	BT-40	BT-40	BT-40
Spindle Power - Fanuc	15 / 11 kW	15 / 11 kW	15 / 11 kW	15 / 11 kW	15 / 11 kW
Spindle Power - Siemens	18 / 12 kW	18 / 12 kW	18 / 12 kW	18 / 12 kW	18 / 12 kW
Tool Storage Capacity	20 [24, 40]	20 [24, 40]	20 [24, 40]	20 [24, 40]	20 [24, 40]

[] Options

## Performance Large Series

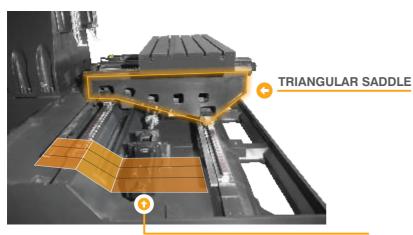
Vertical Machining Center (3-Axis)

## Model Variants VMC1570 VMC1580 VMC1870 VMC1880

T-Base machines at it's best

To match the demand of bigger size heavy component like with greater accuracy, Jyoti has developed special Performance Large Series Vertical Machining Centres broad based C type Structure with moving table for easy access. For complex work piece such as injection moulds, forging dies, large plates to keep the pace with growing market applications.





#### STEP-UP BED CONSTRUCTION



- Graded C.I. rigid step-up structure for optimum stability and maximum vibration damping even at heavy depth of cut.
- To support broad table, X axis with 8 LM blocks and Y axis with 3 LM Guideways for better dynamics with increased load carrying capacity.
- Precision class Roller type L. M. Guideways with directly coupled axis motor and ballscrew.
- FEA proven design with superior vibration damping characteristics during heavy interrupted metal cutting operations.
- High Speed Electro spindle options available upto 18000 rpm.
- BT 50 Spindle Available with Higher Motor Power.
- Complete TPM friendly design.

Specifications	VMC 1570	VMC 1580	VMC 1870	VMC 1880
Working Table Size	1700 X 810 mm	1700 X 810 mm	2000 X 810 mm	2000 X 810 mm
Travel (X / Y / Z Axis)	1510 / 710 / 810 mm	1510 / 810 / 810 mm	1810 / 710 / 810 mm	1810 / 810 / 810 mm
Rapid Traverse (X / Y / Z Axis)	20 m/min	20 m/min	20 m/min	20 m/min
Table Load Capacity	2000 kgf	2000 kgf	2500 kgf	2500 kgf
Max. Spindle Speed	8000 rpm	8000 rpm	8000 rpm	8000 rpm
Spindle Taper	BT 40	BT 40	BT 40	BT 40
Spindle Power - Fanuc	11 / 7.5 kW			
Spindle Power - Siemens	15.8 / 10.5 kW			
Tool Storage Capacity	20 [24, 40]	20 [24, 40]	20 [24, 40]	20 [24, 40]

[] Options



### **EX** Series Moving Column Vertical Machining Center (3-4-5 Axis)



Model Variants

### EXF1280 EXF1680 **EXF2480**

#### High Performance Machining Centers with great versatility

EX Series of machines have capacity to cover maximum range of jobs within the working envelope to machine work pieces with complex shapes along 3, 4 and 5 Axis from light weight till heavy weight workpieces.



- High speed machining with very high metal removal.
- Moving column structure in X & Y-Axis, with fixed table.
- Graded C.I. structure with a high mechanical performance which maximizes structure rigidity and with optimum harmonic stability during demanding cutting conditions
- Fixed table standard with option of (A) or (C) Axis rotary table
- Precision class LM (Roller) guideways with rapid traverse rate up to 30 m/min.
- Options of (P) & (N) head for 4<sup>th</sup> & 5<sup>th</sup> Axis application. •



TYPE "F" (Fixed Head)



TYPE "N" (2-Position Head **Only Horizontal & Vertical)** 



TYPE "P" (Cont. Servo for 5-Axis) B-Axis : +100°



The Fixed Table



**Rotating Table in Table** 700 mm × 800 mm

Specifications	EX-F 1280	EX-F 1680	EX-F 2480
Travels (X / Y / Z Axis)	1200 / 800 / 800 mm	1600 / 800 / 800 mm	2400 / 800 / 800 mm
Rapid Feedrate (X / Y / Z Axis)	30 m/min	30 m/min	30 m/min
Table Size	1600 X 800 mm	2000 X 800 mm	2800 X 800 mm
Max. Load on Table	2500 Kg	3500 Kg	4500 Kg
Spindle Speed	8000 rpm	8000 rpm	8000 rpm
Spindle Taper	BT-40	BT-40	BT-40
Spindle Power - Fanuc	15 / 11 kW	15 / 11 kW	15 / 11 kW
Spindle Power - Siemens	16.5 / 11 kW	16.5 / 11 kW	16.5 / 11 kW
Tool Changer Capacity	20 [36 - 40 - 60]*	20 [36 - 40 - 60]*	20 [36 - 40 - 60]*

- No. of tools depends on head type - Different power and rpm options with relative spindle taper and head [] Options



## **NX** Series

Double Column Vertical Machining Center (3-Axis)



# NX2215 NX3215 NX3222 NX4222

#### High Performance Double Column Machining Center

NX Series Heavy Duty Double column vertical machining center are suitable for heavy machining of large part components with wider range of tool lengths to be used in the same setup.



- Ram type Z-Axis movement in headstock for more rigid machining at greater extensions without much interference of Axis elements.
- FEM proven state-of-art design with a wider gap maintained between both the columns enabling it to have larger size components.
- X amd Y Axis moves on precise L.M. Guideways (Roller Type) enabling higher rapids and better productivity.
- Wider range of spindle taper and rpm options.



Wide Working / 90° Auto Indexing Head



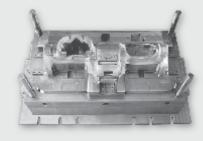
**Head Changer Solution** 



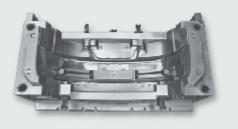
Auto Tool Changer

Specification	NX 2215	NX 3215	NX 3222	NX 4222
Travels (X / Y / Z Axis)	2200 / 1500 / 800* mm	3200 / 1500 / 800* mm	3200 / 2200 / 800* mm	4200/ 2200 / 800* mm
Rapid Traverse (X / Y / Z Axis)	20 / 20 / 15 m/min	15 / 20 / 15 m/min	15 / 15 / 15 m/min	15 / 15 / 15 m/min
Distance Between Column	1600 mm	1600 mm	2500 mm	2500 mm
Working Table Size	2200 X 1250 mm	3000 X 1250 mm	3000 X 2000 mm	3500 X 2000 mm
Table Load Capacity	6000 kgf	8000 kgf	10000 kgf	10000 kgf
Max. Spindle Speed	6000 rpm	6000 rpm	6000 rpm	6000 rpm
Spindle Taper	BT-50	BT-50	BT-50	BT-50
Spindle Power - Fanuc	22 / 18.5 kW	22 / 18.5 kW	22 / 18.5 kW	22 / 18.5 kW
Spindle Power - Siemens	32.3 / 21.5 kW	32.3 / 21.5 kW	32.3 / 21.5 kW	32.3 / 21.5 kW
Tool Storage Capacity	24 [40 / 60 / 90]	24 [40 / 60 / 90 ]	24 [40 / 60 / 90 ]	24 [40 / 60 / 90]

[] Options \*1000 mm Z-Axis stroke available







## HX Series

Horizontal Machining Center



- TPM & Operator friendly design
- T-Base robust design for even large job envelop cutting at higher parameters
- Optimum spaced LM Guides for load uniformity and geometrical accuracy
- Wide door opening for easy loading/unloading
- APC (180° indexing) and pressurized air spray concept

#### Model Variants

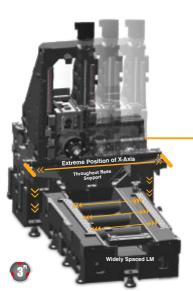
#### HX500 HX510 HX600 HX610

#### **Compact and Versatile**

To match the demand of multiple face machining operations in single set-up with high accuracy and precision for heavy components like Gear Box Casing, Engine Head & Cylinder, Valve and Pump Body etc. and machining of components in multiple stacking with higher rigidity and productivity, Jyoti has developed state-of-art HX Series Horizontal Machining Centre Series. Rugged & graded cast iron T-Base structure with higher mechanical performance from roughing to finishing operation.

#### **PRODUCTIVITY** SOLUTIONS

- Effective chip disposal with unique center through structure design
- Heavy duty spindle with high torque gear head option
- Flexibility to interface with Pneumatic + Hydraulic line for complex fixtures
- 5<sup>th</sup> Axis Rotary Table interfacing
- 40 Tool ATC with 60, 90, 120 tool option



WIDE T-BASE STRUCTURE

#### STEP-UP STRUCTURE WITH TRIANGULAR COLUMN

HX Series comprises of Step-up base construction for better load distribution and triangular column construction to support X-Axis in extreme position ensuring higher rigidity, with higher cutting parameters.

STEPUP



#### AUTOMATIC PALLET CHANGER

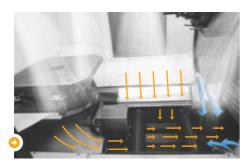


#### **ROTARY TABLE**

HX Series consists of 180° rotary type Automatic pallet change During pallet change cycle, strong jets of air are discharged from the taper cones which removes any chips & provides clean surface for location of pallet onto the machine ensuring high repeatability of pallet position.



SHOWER COOLANT SYSTEM



EFFICIENT CHIP FLOW



EASY ACCESSIBILITY FROM TOP SIDE

Specifications	HX 500	HX 510	HX 600	HX 610	
Twin Pallet Changer ( Pallet Size)	500 x 500 mm		630 x 630 mm		
Max. Workpiece Size (Ø x Height)	Ø 650 x 750 mm		Ø 800 x 950 mm		
Maximum Weight on Pallet	500 kg		800 kg		
Travels (X / Y / Z Axis)	700 / 600 / 600 mm	800 / 600 / 600 mm	900 / 730/ 750 mm	1200 / 730 / 750 mm	
Rapid Traverse (X / Y / Z Axis)	30 m/min		30 m/min		
Type of Table	1° Indexing Rotary Table		1° Indexing Rotary Table		
Spindle Speed (Belt Driven)	6000 rpm (BT-50)		6000 rpm (BT-50)		
Spindle Power-Fanuc	15 / 11 kW		22 / 18.5 kW		
Spindle Power-Siemens	18 / 12 kW		27.8 / 18.5 kW		
Tool Storage Capacity	40		40		



High Dynamic Horizontal Machining Center



#### **HSM**

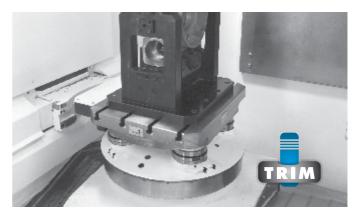
- Higher table load carrying capacity with wider working area.
- Efficient chip removal and coolant system.
- Operator-friendly panel.
- Thermally stable graded cast-iron body with widely spaced, heavily ribbed base to damp vibration and enable higher cuttiing parameters.
- Moving Column with Step-Up structure for accuracy, higher dynamic & vibration dampening.
- Precision class (Roller Type) LM Guideways High Rapid traverse rate upto 50 m/min total non cutting time.

#### Model Variants HSX540 HSX650 HSX860 HSX1080 HSX1210

#### **Compact and Versatile**

 A revolutionary concept of High Dynamic High Precision HSX Series are suitable for a wide range of applications right from heavy duty cutting to high speed machining with better positional accuracy metal removal rate and reduce ideal machining time delivering quick response to commands.

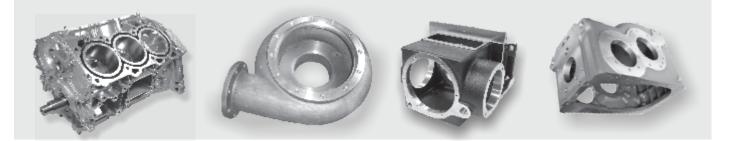




**Rotary Table** 

#### **ROTARY TABLE**

B-Axis with 1° indexing rotary system. Option of Rotary Integrated motor table (TRIM). Available with rotating speed of 80 rpm for HSX 540, 60 rpm for HSX 650, and 50 rpm for HSX 860 / HSX 1080 / HSX 1210 for better cutting parameters, accuracy and overall life. TRIM enables cutting of large work-piece in single cut, offering precise positioning mechanism for multiple drilling and tapping.

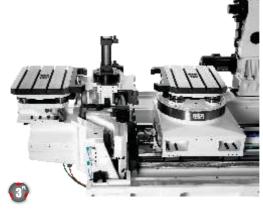


**Electro Spindle** 

Electro Spindle having special temperature controlled chilling with better ramp-up and ramp -down for optimum speed power & torque

#### AUTO PALLET CHANGER

180° indexing hydraulic actuated APC for faster and accrate indexing multiple pallet changer options such as 6 pallet system or automated line as per requirement.

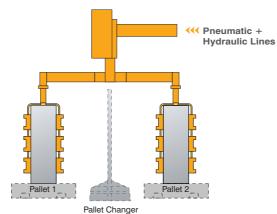




Easy Accessibility at work

#### **ON-LINE FIXTURE INTERFACE (HYDRAULIC + PNEUMATIC)**







- Various Combination of Pneumatic & Hydraulic ports for online fixture
- Air-Seat Check for Job Clamping Confirmation
- 5th Axis Rotary Table Interfacing





#### MP PRO (6-Pallet System Option)

Specifications	HSX 540	HSX 650	HSX 860	HSX 1080	HSX 1210
Twin Pallet Changer ( Pallet Size)	500 x 400 mm	630 x 500 mm	800 x 630 mm	1000 x 800 mm	1200 x 1000 mm
Max. Workpiece Size (Ø x Height)	Ø650 x 750 mm	Ø800 x 950 mm	Ø1000 x 1100 mm	Ø1200 x 1250 mm	Ø1600 x 1250 mm
Maximum Weight on Pallet	400 kg	700 kg	1100 kg	1500 kg	2500 kg
Travels (X / Y / Z Axis)	630/600/600 mm	800/730/750 mm	1100/900/1000 mm	1400/1000/1000 mm	1700/1000/1200 mm
Rapid Traverse (X / Y / Z Axis)	50 m/min	50 m/min	40 m/min	20 m/min	20 m/min
Type of Table	1° Indexing Rotary Table [Direct Torque Motor - TRIM]				
Spindle Speed (Electro Spindle)	12000 rpm (BT-40)	10000 rpm (BT-50)		10000 rpm (BT-50)	
Spindle Power-Siemens (Fanuc)	26 kW (18.5/22 kW)	41 kW		41 kW	
Tool Storage Capacity	40 [60 / 90 / 120]	40 [60 / 90 / 120]		40 [60 / 90 / 120]	

[] Options

# **5-Axis Machining** Center



#### **5-Axis Machining Center**

U-Mill Series MU Tech 5-Axis High Performance Machining Center MX 4 KX Five Series

#### **5-Axis Large Machining Center**

KX Large Series KXG Series

# **U-Mill** Series

Vertical Machining Center (5-Axis)

# Model Variants

#### **Compact and Versatile**

• These range of 5-Axis machining centers are designed with compact footprint to job machining capability, enhanced rigidity for high performance and quality machining. Ideally suited for complex 5-axis high precision mechanical parts, aerospace, automotive, rail, energy applications with 3D typical contours.



Specification	U-Mill6	
Travels (X / Y / Z Axis) (Linear)	700 / 740 / 550 mm	
Rapid Feed (X / Y / Z Axis)	40 / 40 / 40 m/min	
Axis Acceleration (X / Y / Z Axis)	6 / 4 / 6 m/s <sup>2</sup>	
Table Swiveling A-Axis	- 20° / +110°	
Table Rotation C-Axis	360° continuous	
Rapid Feed A - C Axis	20 - 35 rpm	
Table Size	Ø630 mm	
Spindle Speed	10000 rpm	
Spindle Taper	SK 40	
Spindle Power (S6 / S1) - Torque	26.2 / 12 kW - 250 / 115 Nm	
Tool Changer Capacity	30	

#### Accuracies (As Per VDI / DGQ 3441)

Positioning Uncertainty: P	Linear : 0.015 mm
Repeatability (Ps Medium)	Linear : 0.005 mm

Machine Capacities with Siemens Controller.



HSM

- Capable of HSM (High Speed Machining)
- 5-Axis machining of workpiece upto 600 kg
- Portal structure + Swiveling rotary table on fixed cradle with high geometric stability
- Modular design for configuration flexibility
- Roller Type (LM) Guideways for speed and stability
- Powerful direct coupled spindle with high torque motor for high MRR
- Long nose spindle for excellent approach to 5-Face machining
- Operator & TPM friendly design
- Effective Chip removal



**Rotary Table** 



**Direct Inline Spindle** 



Easy Loading from Top

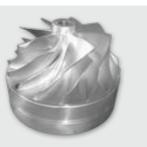


Structure









# **MU Tech** Series

Vertical Machining Center (5-Axis)

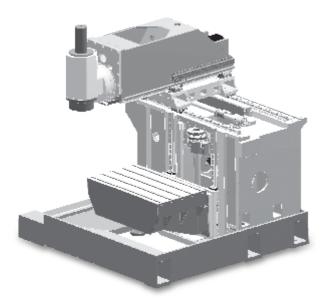
# **MU Tech6**

#### **Compact and Versatile**

MU TECH is a versatile milling center bringing up revolution in 5-Axis machining technology.

- Bigger working envelop with smaller footspace requirement.
- Symmetric ribbed architecture ensuring machining stability.Continous head rotation by a play-free system for possible
- continuous fread totation by a play-free system for possible simultaneous 5-Axis machining applications.
   +30° / -120° (B-Axis) covers both vertical & horizontal
- +30° / -120° (B-Axis) covers both vertical & horizontal operations.
- Geometric capacities, clamping surface and power for heavy, bulky milling jobs to complex small size workpieces with precision.





#### Fixed table with integrated rotating table - C axis

-	-
Fixed Table	1000 x 600 mm
Rotating Table	Ø 600 mm
Max. Workpiece	Ø 800 x 550 mm
Max. Admissible Load	500 kg



Specification

MU Tech 6

Travels (X / Y / Z Axis)	750 / 560 / 560 mm
Rapid Feedrate (X / Y / Z Axis)	30 m/min
Table Size	1000 X 600 mm
Rotating Head (B axis)	· 00 <sup>0</sup> / 100 <sup>0</sup>
Spindle Axis / Saddle Plane	$+30^{\circ}/-120^{\circ}$
Rotating Speed (B axis)	35 rpm
Spindle Taper	SK 40
Spindle Speed	12000 rpm
Spindle Power-Torque (S6 - 40 % / S1)	23.6 kW- 110 / 84 Nm
Electrospindle	
Tool Changer Capacity	24 [40 - 60]
Accuracies (As Per VDI / DGQ 3441)	
Positioning Uncertainty: P (X-Y-Z Axis)	0.010 mm
Repeatability: Ps Medium (X-Y-Z Axis)	0.005 mm
Machine Capacities with Siemens Controller.	[] Options



Rotating Table (C-Axis)



Rotating Head (B-Axis)





-		LM	

Specification	MX4
Travels (X / Y / Z Axis) (Linear)	750 / 700 / 500 mm
Rapid Feedrate (X / Y / Z Axis)	60 / 120 / 120 m/min
Axis Acceleration (X / Y / Z Axis)	6 / 10 / 10 m/s <sup>2</sup>
Table Swiveling A-Axis	- 45° / 180°
Table Rotation C-Axis	360° continuous
Rapid Feedrate A - C Axis (Rotation)	100 rpm
Pallet Size	Ø440 mm
Spindle Speed	24000 rpm
Spindle Taper	HSK-63 A
Spindle Power (S6 / S1) - Torque	25 / 20 kW - 40 / 32 Nm
Tool Changer Capacity	36

#### Accuracies (As Per VDI / DGQ 3441)

	,
Positioning Uncertainty: P	Linear : 0.004 mm
Fositioning oncertainty. F	Rotating : 7.2 sec
Repeatability (Ps Medium)	Linear : 0.002 mm
hepeatability (13 Medium)	Rotating : 3.6 sec

Machine Capacities with Siemens Controller.

## **BRIDGE TYPE MACHINE WITH** SWIVELLING TABLE

- The "linear motor" technology for Cartesian Axis. Rapid . Traverse (Y & Z = 120 m/min)
- Swiveling Table (A-Axis : -45° / +180° C-Axis : 360°) .

# **MX4**

#### **Turbulent Speed Delivered with Perfection**

Revolutionary New Concept High Performance 5-Axis Bridge Type Machining Centers for machining of complex and critical components with maximum productivity.





- Capable of HSM (High Speed Machining)
- 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
- A & C Axis for horizontal, vertical and intermediate positions
- Machine with Bi-Pallet changer option



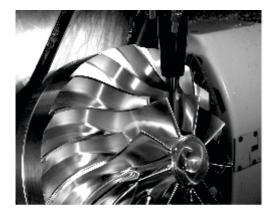
# **KX Five** Series

Bridge Type Vertical Machining Center (5-Axis)



# **HSM**

- Capable of HSM (High Speed Machining)
- Fixed bridge type architecture with Step-Up base
- A & C axis TRIM table with high torque capacity
- Direct measurement on all 5 Axis for very high accuracy in counting & profile
- 5 Axis powerful algorithms in torque, speed, acceleration & jerk for remarkable reduction in cycletime & cost
- Electro spindle with 24000 rpm (HSK 63 A taper)
- 5-Axis machining for work pieces up to 500 kg (750 kg with reduced feeds)
- Very large accessibility to the table and the work piece from tom top and side







#### 5-Axis Machining Marvel

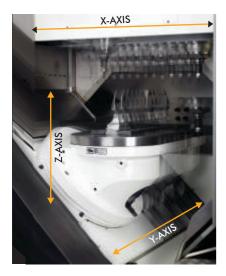
A range of very high performance 5-Axis bridge type machining center for machining of complex and critical components with very high surface finish for complex profiles in one setup clamping.



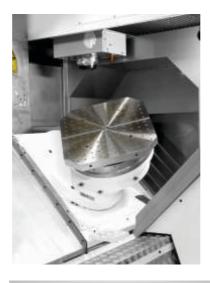








Pallet changer option to zero down on component loading/unloading and setup time improvising productivity.





20° Negative Angle (K3X 8 Five)

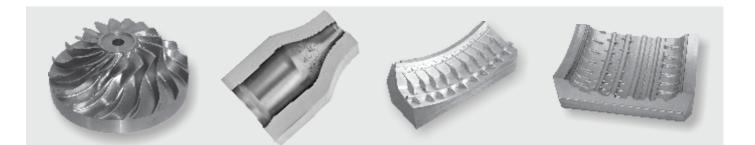


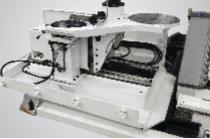


Specification K3X 8 FIVE **K2X 10 FIVE** Travels (X / Y / Z Axis) 780 / 700 / 500 mm 900 / 900 / 500 mm Rapid Feedrate (X / Y / Z Axis) 50 m/min 50 m/min Travel A (Rotary Axis) · 30° / + 180 - 45° / + 180° (20° Negative Angle Travel C (Rotary Axis)  $360^{\circ}$  $360^{\circ}$ Ø 630 mm Table Size Ø 500 mm Spindle Speed 24000 rpm 24000 rpm [16000 - 42000] [16000 - 42000] Spindle Taper HSK-63A HSK-63A Spindle Power - Torque (S6-40% / S1) 25 / 20 kW - 40 / 32 Nm 25 / 20 kW - 40 / 32 Nm 20 [30 - 40 - 60 - 100] Tool Changer Capacity [Options] 20 [30 - 40 - 60 - 100] Accuracies (As Per VDI / DGQ 3441) Positioning Uncertainty : P (X-Y-Z / A-C) 0.004 mm / 7.2 sec 0.004 mm / 7.2 sec Repeatability : Ps Medium (X-Y-Z / A-C) 0.002 mm / 3.6 sec 0.002 mm / 3.6 sec Machine Capacities with Siemens Controller. [] Options



**Easy Maintenance** 





# **KX Large** Series

High Speed Double Column Machining Center (5-Axis)



Model Variants



High Performance Double Column Machining

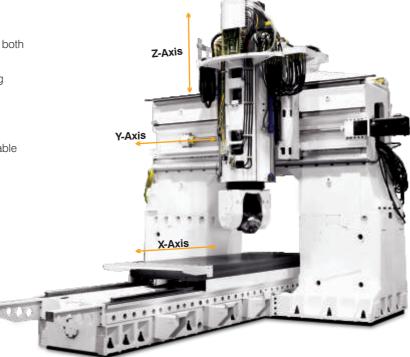
Center for machining of complex parts

- Capable of HSM (High Speed Machining) with rigidity in structural elements
- Portal architecture equipped with forked milling head with (C & B) Axis
- 5-Axis powerful algorithm in torque, speed, acceleration & jerk leading to remarkable reduction in cycletime & cost
- High accuracy performance in positioning and in 3D contouring
- Excellent for very precise engineering applications of aeronautic, toolroom, Die Mould...



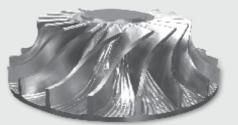
# LINEAR AXIS

- X axis is as a moving table with wider spacing around both columns
- Y axis is mounted on a traverse supporting the moving saddle.
- Z axis equipped with orientable milling head with 2 orthogonal rotation axes and an electro spindle.
- Linear guideways with recirculating roller bearings enable feedrates up to 40 m/mn



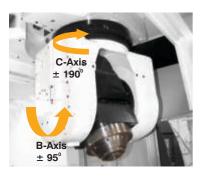






# **ROTARY AXIS**

For KX Large Series B & C Axis are equipped with angular encoder directly mounted and offer high positioning accuracy. Both the axis have direct driven high torque motors designed specially by Jyoti Huron to synchronize with all linear axis movements for overall excellent results.







Specifications	KX 50 M	KX 50 L	KX 100	KX 200	KX 300
Travels (X / Y / Z Axis)	2000 / 1700 / 900 mm	3000 / 1700 / 900 mm	2300 / 2300 / 1000 mm	3300 / 2300 / 1000 mm	5000 / 3100 / 1500 mm
Rapid Feedrate (X / Y / Z Axis)	40 / 40 / 40 m/min	40 / 40 /40 m/min	40 / 40 / 40 m/min	25 / 40 / 40 m/min	20 / 20 / 20 m/min
Tilting Head (B / C) Axis	$\pm 95^{\circ} / \pm 190^{\circ}$	$\pm 95^{\circ} / \pm 190^{\circ}$	±95°/±190°	$\pm 95^{\circ}  /  \pm 190^{\circ}$	$\pm 95^{\circ}$ / $\pm 190^{\circ}$
Table Size	2200 x 1250 mm	3300 x 1250 mm	2500 x 1250 mm	3500 x 1250 mm	5200 x 2000 mm
Max. Rotation Speed (B - C)	60 rpm	60 rpm	30 rpm	30 rpm	30 rpm
Spindle Speed	20000 rpm	20000 rpm	18000 rpm	18000 rpm	18000 rpm
	[10000]	[10000]	[12000]	[12000]	[12000]
Spindle Taper	HSK-63A	HSK-63A	HSK-63A [HSK-100A]	HSK-63A [HSK-100A]	HSK-63A [HSK-100A]
Spindle Power (S6-40% / S1)	75 / 60 kW	75/ 60 kW	30 / 20 kW	30 / 20 kW	30 / 20 kW
Spindle Torque (S6-40% / S1)	75 / 60 Nm	75 / 60 Nm	240 / 160 Nm	240 / 160 Nm	240 / 160 Nm
Tool Changer Capacity	30 [40 / 60 / 100]	30 [40 / 60 / 100]	40 [60 / 100]	40 [60 / 100]	40 [60 / 100]
Accuracies (as per VDI/DGQ	3441)				
Positioning Uncertainty: P	Linear : 0.007 mm	Linear : 0.007 mm	Linear : 0.007 mm	Linear : 0.007 mm	Linear : 0.010 mm
(X-Y-Z / B-C)	Rotating : 10 sec	Rotating : 10 sec	Rotating : 10 sec	Rotating : 10 sec	Rotating : 10 sec
Repeatability: Ps Medium	Linear : 0.004 mm	Linear : 0.004 mm	Linear : 0.004 mm	Linear : 0.004 mm	Linear : 0.005 mm
(X-Y-Z / B-C)	Rotating : 5 sec	Rotating : 5 sec	Rotating : 5 sec	Rotating : 5 sec	Rotating : 5 sec

Machine Capacities with Siemens Controller. [] Options

# **KXG** Series

Gantry Type Machining Center with Linear Motor (5-Axis)

# Model Variants KXG45-14 KXG45-23 KXG60-23 KXG90-23

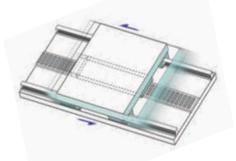
Linear Motor Gantry Machining Center for Very Highspeed 5-Axis Machining

5-Axis Big Size Gantry Type Vertical Machining Center with Llnear Motor suitable for big sized complex workpieces with requirement of high precision.



- Capable of HSM (High Speed Machining ) with high MRR
- A very high static and dynamic rigidity of structures.
- Head equipped with Integrated torque motor with high rate of rotational acceleration
- Capability for 5-Axis machining for work piece up to 52000 kg
- High dynamics Linear Motors in X-Axis lateral walls, cooled ballscrews, coupled motors and acceleration higher than 1g with 5-Axis.
- High precision with direct measure for high accuracy in contour profiles



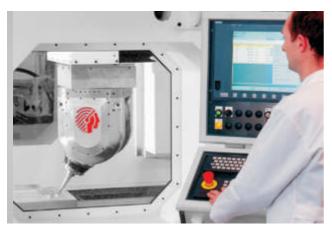


# Linear Motor in X-Axis Supported by Two Lateral Walls

Dual linear motors are used for maximum dynamics and accuracy for high quality and faster production rates. Acceleration rates up to 18 m/s<sup>2</sup>. They are adequately protected from dust and temperature maintained with separate chiller unit.

Specification	KXG 45-14	KXG 45-23	KXG 60-23
Travels (X / Y / Z Axis)	4500 / 1400 / 800 mm	4500 / 2300 / 800 mm	6000 / 2300 / 800 mm
Rapid Feedrate (X / Y / Z Axis)	60 / 60 / 45 m/min	60 / 60 / 45 m/min	60 / 60 / 45 m/min
Axis Acceleration (X / Y / Z Axis)	4 / 4.5 / 6 m/s <sup>2</sup>	4 / 4.5 / 6 m/s <sup>2</sup>	4 / 4.5 / 6 m/s <sup>2</sup>
Travels B - C Axis	B-Axis: ± 95°	B-Axis: ± 95°	B-Axis: ± 95°
(2 Axis continuous swivelling head)	C-Axis: $\pm 190^{\circ}$	C-Axis: ± 190°	C-Axis: ± 190°
Max. Rotation Speed (B, C)	60 rpm	60 rpm	60 rpm
Axis Acceleration (B, C)	12 rad/s <sup>2</sup>	12 rad/s <sup>2</sup>	12 rad/s <sup>2</sup>
Table Area	4700 X 1400 mm	4700 X 2500 mm	6200 X 2500 mm
Max. Load on Table	18000 Kg	25000 Kg	30000 kg
Spindle Speeds	20000 rpm [10000 rpm]	20000 rpm [10000 rpm]	20000 rpm [10000 rpm ]
Spindle Taper	HSK-63A	HSK-63A	HSK-63A
Spindle Power Torque (S6-40% / S1)	75 / 60 kW - 75 / 60 Nm	75 / 60 kW - 75 / 60 Nm	75 / 60 kW - 75 / 60 Nm
Tool Changer Capacity	40 [60 / 100]	40 [60 / 100]	40 [60 / 100]
Accuracies (As per VDI DGQ 3441)			
Positioning Uncertainty: P	Linear : 0.01 mm	Linear : 0.01 mm	Linear : 0.01 mm
(X - Y - Z / B - C)	Rotating : 10 sec	Rotating : 10 sec	Rotating : 10 sec
Repeatability: Ps	Linear : 0.005	Linear : 0.005	Linear : 0.005
(X - Y - Z / B - C)	Rotating : 5 sec	Rotating : 5 sec	Rotating : 5 sec

Machine Capacities with Siemens Controller.





Structure integrating large glasses allowing an easy control of machining

# Twin / Pendulum Machine Option

- Special modified design for those high end workshop applications that require single machine yet with capability to machine 2 different high precision bigger 5-Axis components
- Partition for clamping 2 different components separately.
- Dual control system for each component.



#### Powerful spindle

B-axis : ±95° C-axis : ±190°

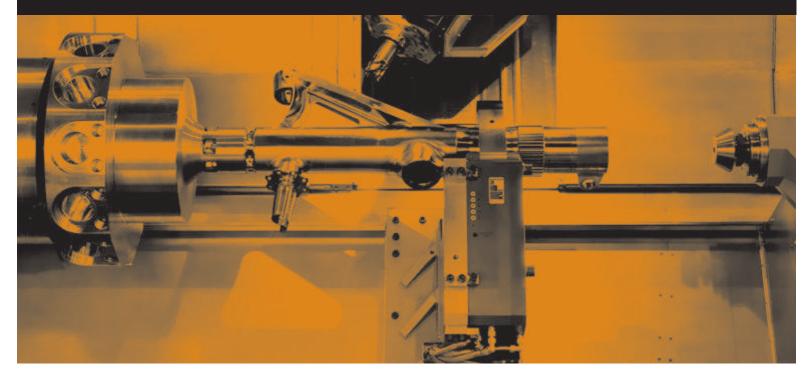
#### KXG 90-23

9000 / 2300 / 800 mm
60 / 60 / 45 m/min
4 /4.5 / 6 m/s <sup>2</sup>
B-Axis: $\pm$ 95°
C-Axis: ± 190°
60 rpm
12 rad/s <sup>2</sup>
9000 X 2500 mm
52000 Kg
20000 rpm [10000 rpm]
HSK-63A
75 / 60 kW - 75 / 60 Nm
40 [60 / 100]

Linear : 0.01 mm	
Rotating : 10 sec	
Linear : 0.005	
Rotating : 5 sec	



# Multi-Tasking Machines



#### **Turn-Mill Series**

**Mill-Turn Series** 

TMX Series MTX Series MX Series

# **TMX** Series

Twin Spindle Twin Turret Turn-Mill Center



# LINEAR AXIS (TURRETS)

Standard live-tool servo Upper Turret with (X1/Y/Z1 Axis) for complex application requirements in turning and milling & Secondary Turret available with (X2 / Z2 Axis).

#### **Flexible Simultaneous Machining Combinations**

- (MS+UT) & (SS+LT) (MS+UT+LT) & (SS+UT+LT)
- (MS+LT) & (SS+UT) (MS+SS+UT+LT)
- Multitasking possible with combination of two spindle and two turrets with only one workpiece clamping thanks to live tool, C & Y Axis
- Significant reduction in cycle time
- · Ergonomy and easy accessibility for setting up of tools and inserts
- Very efficient removal of chips
- Possibility to add optional equipments as bar feeder, finished workpiece conveyor to achieve maximum profitability

**Specifications TMX 200** Standard Turning Dia. Ø250 mm Max. Turning Length 725 mm Chuck Size 210 mm Travel (X1/Y/Z1 Axis) 300 / ±40 / 750 mm Travel (X2/Z2/Z3 Axis) 180 / 750 / 770 Rapid Feed (X1/Y/Z1 Axis) 25 / 15 / 30 m/min Rapid Feed (X2/Z2/Z3 Axis) 25 / 30 / 30 m/min Spindle Power (Electrospindle) 27 / 21 kW (A<sub>2</sub>6) (Main & Secondary Spindle) Spindle Speed Range 50 - 4000 rpm Upper & Lower Turret 12 -St. Live Tool Turret

Machine Capacities with Siemens Controller.











# MAIN & SUB ELECTROSPINDLE

- Both spindle have C-Axis monitoring with braking system for milling operations
- High Power/Torque spindle with better provision of head dissipation
- Z-Axis in Subspindle to collect job from main spindle for 2nd set-up machining
- For long jobs, both main and subspindle can work in synchronization for various typical turning and milling operations
- Tailstock is available instead of sub spindle

Specifications	MTX 300	
Max. Turning Diameter	520	-
(with Milling Spindle)		
Distance Between Center Length*	2300	
	Main Spindle	Sub Spindle
Spindle Power	35kW (A28)	35 kW (A28)
Spindle Speed	4000 rpm	4000 rpm
Travel (Z3 Axis)		2000 mm
Rapid Feed (Z3 Axis)		30 m/min
Tail Stock Travel (Taper)	2000 mm (MT 5)	

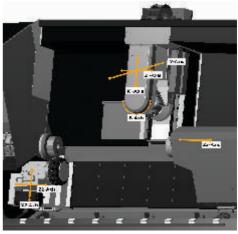
\* Depends on Work holding device, Tooling & Workpiece

Model Variants

#### The Multi-Tasking Machine

This series of state-of-art designed machine from Jyoti, caters to special needs of those complex components, demanding both 5-Axis complex precise milling + precise 4-Axis turnmill operations in single machine with very high accuracy output in 3D contour profile.

Multitasking with uninterrupted & unmanned machining of typical applications demanding close tolerance machining for industries like aerospace, automotive, mechanical, power, Oil & Gas and other.



**Axis Nomanclature** 

# LOWER LIVE TOOL TURNMILL TURRET

- VDI 50 Turret for better rigidity against cutting force and higher boring capacity
- Flexible lower slide with option of steady or turret

Lower Turret	12 St. Live Tool
Max. Live Tool Speed / Power	3000 rpm (8.8 kW)
Travel (X2 / Z2 Axis)	230 / 2000 mm
Rapid Feed (X2 / Z2 Axis)	26 / 40 m / min



- 6-sided complete machining and turning of complex workpieces in one-setup part clamping.
- No more multiple set-up time & typical clamping systems for worth complex jobs

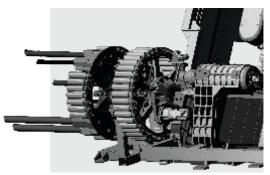
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# AUTOMATIC TOOL CHANGER

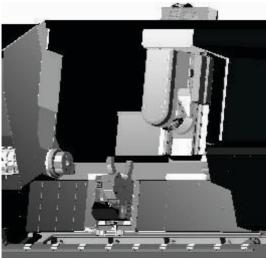
- Higher capacity tool changer provided to support variety of operations.
- 1000 mm long tool for boring having weight 90 kg.
- Option of 80, 120 tool changer
- Tool change in any Z axis position.

Automatic Tool Changer	Main ATC	Long Tool ATC	
Tool Storage Capacity	40	6	
Maximum Tool Length	500 mm	1000 mm	
Maximum Tool Weight	15 kg	90 kg	



Automatic Tool Changer

## **B-AXIS MILLING + TURINING ELECTROSPINDLE**



Milling Spindle

- Highly reliable and thermally stable graded CI structure delivering highest part accuracy in multi-axis machining with precision
- Widely spaced guideways with high rapid traverse speed upto 40 m/min
- High precision positioning by glass scale

- 5-Axis capability for complex profile machining working with C-Axis
- Off-center machining with bigger Y axis travel:  $\pm$  150 mm
- Hydraulic locking for milling spindle for turning operations
- Effectively can hold & can do boring uptill 1200 mm long boring bar
- High Power/Torque spindle with HSK taper to reach intricate machining areas
- Applications : 5-Axis Milling, Drilling, Boring, Cam profiling, B-Axis Turning, Camshaft turning, Grinding, Gear hobbing, Shaping, Off Center angular machining.

Spindle Power (S6 / S1)	26 kW
Spindle Speed (Taper)	6000 rpm (HSK 63A)
Spindle Swiveling Range (B Axis)	<u>+</u> 110°
Travel (X1 / Y / Z1 Axis)	600 / <u>+</u> 150 / 2150 mm
Rapid Feed (X1 / Y / Z1 Axis)	40 / 40 / 40 m / min

- Optimal use of working area delivering productivity with reduced production time maintaining close tolerance levels
- Special algorithm and better acceleration for better dynamics in 5 axis cutting
- Efficient chip disposal from complete machine
- TPM and Operator friendly





# Model Variants

#### Solution for Large Complex Workpieces

MX Series Machines are multifunction machining center having high flexibility enabling machining operations in 5-axis and on 5 sides, in one setup part clamping, from roughing to finishing, as well as turning operations.





**=HSM** 



## POWERFUL, RAPID, ACCURATE MILLING [M] - MILL TURN [MT] CENTERS

- 5-Axis machining for work piece up to 4000 kg
- · Hard material machining in a minimal time
- Very high accuracy in contouring and profiles for requirement such as of tool room
- Large table accessibility with tilting operator panel

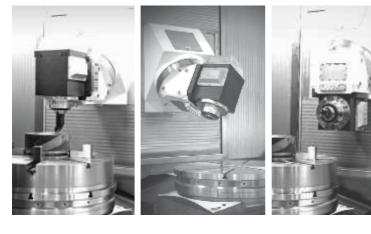
#### Head and Spindle

- Head equipped with integrated high torque motor spindle for high MRR (material removal rate)
- Head on a 45° plane allowing tilting from 45° to +180°
- Spindle vibration monitoring for high harmonic stability
- Very high accuracy & surface finish in 3D surfaces
- High rapid 40 m/min + Special tool change logic

Specification	MX 8 [M]	MX 8 [MT]	MX 10 [M]	MX 10 [MT]	MX 12 [M]	MX 12 [MT]
Travels (X / Y / Z Axis)	1160 / 1000 / 900 mm		1200 / 1200 / 1000 mm		1200 / 1600 / 1000 mm	
Rapid Feedrate (X / Y / Z Axis)	40 / 40 / 40 m/min		40 / 40 / 40 m/min		40 / 40 / 40 m/min	
Axis Acceleration (Linear Axis)	4 m	n/s²	4 m/s <sup>2</sup>		4 m/s <sup>2</sup>	
Tool Changer Capacity	60	48	48		48	
Table Rotation C-Axis	36	0°	360°		360°	
Pallet Size	1000 X 800 mm	Ø 800 mm	1000 X 800 mm	Ø 1000 mm	Ø1600 X 1250 mm	Ø 1400 mm
Admissible Load	2000 kg	2000 kg	2000 kg	2000 kg	4000 kg	3000 kg
Table Rotation Speed	50 rpm	500 rpm	50 rpm	500 rpm	50 rpm	250 rpm
Spindle Speed	18000 rpm		10000 rpm		10000 rpm	
Spindle Taper	HSK-63A		HSK-100A		HSK-100A	
Spindle Power-Torque (S6-40% / S1)	30/20 kW-240/160 Nm	50	/ 32 kW - 280 / 180 Nm		50 / 32 kW - 280 / 180 Nm	
Accuracies (As Per VDI DGQ 3441)						

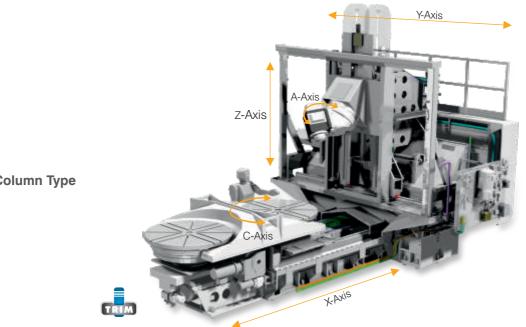
#### Positioning Uncertainty: P Linear : 0.007 mm Linear : 0.007 mm Linear : 0.007 mm (X-Y-Z / B-C) Rotating : 10 sec Rotating : 10 sec Rotating : 10 sec Repeatability: Ps Medium Linear : 0.004 mm Linear : 0.004 mm Linear : 0.004 mm (X-Y-Z / B-C) Rotating : 5 sec Rotating : 5 sec Rotating : 5 sec

Machine Capacities with Siemens Controller.



## **ROTARY TABLE**

- TRIM technology for high rpm and torque
- Rigidity : high clamping torque during heavy roughing
- 2 versions : Milling & Mill Turn



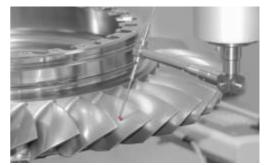
Moving Column Type Machine



Chain Type ATC Outside of Working Area



Fork Head Option for -ve angle



**Online Quality Check** 









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#### JYOTI CNC AUTOMATION LTD.

G-506, Lodhika G.I.D.C., Village : Metoda, Dist : Rajkot - 360021. Gujarat (INDIA). Phone : +91-2827-306100/306101/287081/287082, Fax : +91-2827-306161/287811, E-mail : info@jyoti.co.in, sales@jyoti.co.in

## **OUR BRANCHES**

#### AHMEDABAD

B-404, Shapath Hexa, Opp.Gujarat High Court, S.G. Road, Ahmedabad (Gujarat) - 380 060 Phone : +91-9978999703, Cell : +91-9979862231 Email : ahmedabad@jyoti.co.in

#### VADODARA

246-B, Atlantis Tower K 10/A, Sarabhai Road, Nr Genda Circle, Vadodara (Gujarat) - 390 007 Cell: +91-99798 62232 E-mail : vadodara@jyoti.co.in

#### SURAT

A-302, Udhna Udhyognagar Sangh, Near Divya Bhaskar Press, Central Road, Udhyognagar, Udhna, Surat (Gujarat) - 394210 Cell : +91 99798 62235 E Mail : surat@jyoti.co.in, vapi@jyoti.co.in

#### JAMNAGAR

Shop no. 19, Golden Point Complex, Dared Phase- III, GIDC, Jamnagar (Gujarat) - 361004 Cell : +91-9099942148, E Mail : jamnagar@jyoti.co.in

#### **NEW DELHI**

Plot No.-10, Sec-2A, IMT Manesar, Gurgram (Haryana) - 122101 Phone : +91-124-2290113, Cell : +91-9783307603 / 9899829503 E-mail : delhi@jyoti.co.in

#### JAIPUR

406, Alankar Plaza, Vidhyadhar Nagar, Jaipur (Rajasthan) - 302 023 Phone : +91-141-2233784, Cell : +91-97833 07603 Email : jaipur@jyoti.co.in

#### KOLKATA

3A, Hindustan Road, Near Gariahat Crossing,
Opp. Mrurulidhar Girls School, Kolkata (West Bengal)-700029.
Phone/Fax : +91-33-24618635, Cell : +91-9836113939
E-mail : kolkata@jyoti.co.in

#### JAMSHEDPUR

Room No. - 521, Ashiana Trade Center, Commercial Complex, Adityapur Industrial Area, Jamshedpur (Jharkhund) - 831013 Phone/Fax : +91-657-2383192, Cell : + 91-7549000992 E Mail : jamshedpur@jyoti.co.in

#### INDORE

## **OUR DIRECT REPRESENTATIVES**

BELGAUM	:	+91-97390 01091
HOSUR	:	+91-99625 62783
NAGPUR	:	+91-97644 42662
VAPI	:	+91-97277 37189
VAPI	:	+91-97277 37189

#### HURON SALES IN INDIA

Cell : +91-90991 84000 Email : sdesai@huron.fr

#### CHENNAI

B-15, Industrial Area, Mogappair East, Chennai (Tamil Nadu) - 600037 Phone/Fax : +91-44-26563813 Cell : +91-9962562505/02, 8939802840, 9962562780 E-mail : chennai@jyoti.co.in

#### COIMBATORE

112-A, Chenny's Chamber, Dr. Nanjappa Road, Coimbatore (Tamil Nadu) - 641 018 Phone/Fax : +91-422-4394770, Cell : +91-99625 62511/12/20 Email : coimbatore@jyoti.co.in

#### HYDERABAD

Unit No: B - 28/II, Technocrats Industrial Estate, Balanagar, Hyderabad (Telangana) - 500 037. Phone/Fax: +91-40-40149647, Cell: +91-9703216651/52 E-mail: hyderabad@jyoti.co.in

#### BANGALORE

# 1 A, Peenya Industrial Area, Phase 2, Systems Stop, Bangalore (Karnataka) - 560058
Cell: +91-9739001092, 9739900830,
Email : bangalore@jyoti.co.in

#### PUNE

4/8, Adhar Sahakari Industrial Premises Society Ltd., Sector No.10, P.C.N.T.D.A, Bhosari, Pune(Maharashtra)-411026 Phone : +91-9764442640, +91-20-66305453 Fax : +91-20-66305452, Cell : +91-97642 66600, Email : pune@jyoti.co.in, belgaum@jyoti.co.in

#### MUMBAI

314, 3rd Floor, Puranik Capitol, Kasarvadavali,
Ghodbunder Road, Thane (W),
Mumbai (Maharashtra)-400 607.
Phone :+91-22-25976768, Cell : +91-98204 27984
Email : mumbai@jyoti.co.in, nagpur@jyoti.co.in

#### NASHIK

Nashik Engineering Cluster, "Sahastrarashmi" C-10, MIDC AMBAD, Nashik (Maharashtra) - 422 010 Cell : +91-9764442660, Email : nashik@jyoti.co.in

#### KOLHAPUR

Plot No. P-36, Maharashtra Industrial Development Corporation (M.I.D.C.) Shiroli, Kolhapur (Maharashtra) - 416122, Cell : +91 9764442654, Email : kolhapur@jyoti.co.in

#### AURANGABAD

C-252/1, Vardhaman Complex, Mahavir Chowk, MIDC, Wałuj, Aurangabad (Maharashtra)--431136- - - Cell : +91-9545510255 E Mail : aurangabad@jyoti.co.in

### **OUR CHANNEL PARTNER**

## LUDHIANA

MTA Technologies SCF 21, Urban Estate Phase II, Focal point, Ludhiana (Punjab) - 141 010, Phone/Fax : +91- 161 4624748 Cell : +91-98728 88746, 95010 28746, Email : info@mtaindia.in

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#### **EXPORT DIVISION**

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#### GERMANY HURON FRASMACHINEN

SiemensstraBe 56 - D-70839 Gerlingen, Phone : +49(0)7156-92836-12, Fax : +49(0)7156-92836-50 E-mail : verkauf@huron.de | www.huron.de

#### TURKEY HURON TURKEY

Gayrettepe mah. Ayazma Dere Caddesi Pazar sok. Bareli Is merkezi No.2-4 Kat 2 34387 Gayrettepe / Istanbul Phone : +90 212 671 20 92, Fax : +90 212 252 51 75 Email : info-turquie@huron.fr | www.huron.fr

#### EUROPE

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#### CANADA HURON CANADA INC.

85 rue St-Charles Ouest, bur 105 Longueuil, QC, Canada, J4H 1C5 Phone : +1 514 448 4873 Cell : +1 514 466 1061 Email: abernard@huron.fr | www.huron.fr

#### USA

Jyoti Representation : Cell : +1 201 747 9901 Email : arjun.jadeja@jyoti.co.in | export@jyoti.co.in

#### SUNAG CORPORATION (Exclusive Distributor)

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#### ARGENTINA, CHILE, PARAGUAY, URUGUAY SORSABURU CONSULTING

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#### AFRICA, BANGLADESH, MIDDLE EAST, SRI LANKA

Jyoti Representation : Cell : +91 96876 93041 Email : prayag.pandya@jyoti.co.in | export@jyoti.co.in

#### **AUSTRALIA & OTHER OVERSEAS INQUIRY**

Cell : +91 9825011450 Email : mihir@jyoti.co.in | export@jyoti.co.in

#### CHINA

## SHANGHAI MILI MACHINERY CO. LTD.

(Exclusive Distributer) Room 604-02, Building 2 | 38, Debao Raod | Pilot Free Trade Zone | Shanghai, China Phone : +86 13661429083 | +852 90384556 www.jyoti.co.in

#### **ASEAN COUNTRIES**

Jyoti Representation : Cell India : +91 8469684580 Cell China : +86 137 6715 8725 Email : harshad.akhave@jyoti.co.in | export@jyoti.co.in

## SOUTH KOREA

OTRA Trading Co., Ltd 31, Giheungdanji-ro 24beon-gil Gyeonggi-do, Korea Phone : +82 31 275 2491 Fax : +82 31 275 2494 Email : div1@otra.co.kr | www.otra.co.kr

# SOUTH AFRICA

**EDM SHOP** P.O.Box 20043, Kagiso East, 1758, 13A, Nellmapius Street, Chamdor, Krugersdorp, Johannesburg, South Africa. Phone : +27 11 762 5231, Fax : +27 11 762 5228

### Email : steve@edmshop.co.za | www. edmshop.co.za

#### IRAN

### SANAYE MACHINE ABZAR SAZI CO.

No. 567 - Kaveh6TH Ave Mourche E khort Industrial Zone - Iran Phone : +98 - 312 - 564 3322 / 564 3320, Fax : +98 - 312 - 5643321 Email : danesh@sanayemachineabzarsazi.ir www.sanayemachineabzarsazi.ir

#### THAILAND EVEREST MACHINE TECHNOLOGY CO. LTD.

(Exclusive Distributor for - Thailand) 25/4, Moo 12, T.Buengkhamphroi A. Lumlukka, Pathumathani 12150, Thailand Phone : +66 2152 7491 Ext : 4, Cell : +66 81 915 3280 Fax : +66 2152 7495 Email : jyoti@everest-mt.com | www.everest-mt.com

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#### SINGAPORE MDD ENTERPRISE

BLK 3025, Ubi Road 3; #04-129 Singapore-408653; Phone : +65 - 90681451 Email : mdd@mdd.com.sg

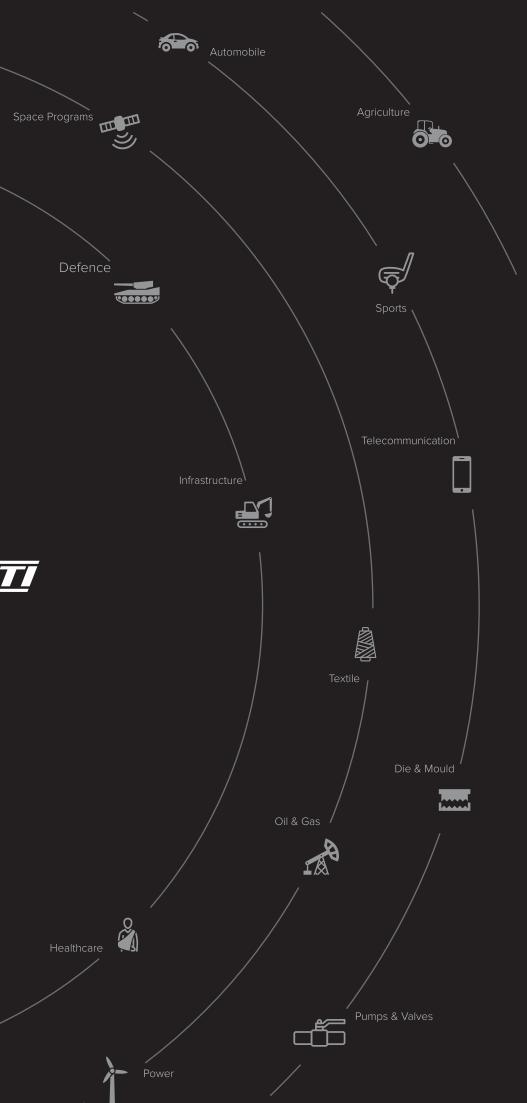




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jyoti.<mark>co.in</mark>

Regd.Works: Plot No.,G-506, Lodhika GIDC, Vill.-Metoda, Dist.-Rajkot - 360 021. Gujarat (India) T +91-2827-306100-101 F +91-2827-306141 E info@jyoti.co.in, sales@jyoti.co.in







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.

