

# EXSeries

Moving Column Versatile Vertical Machining Centers



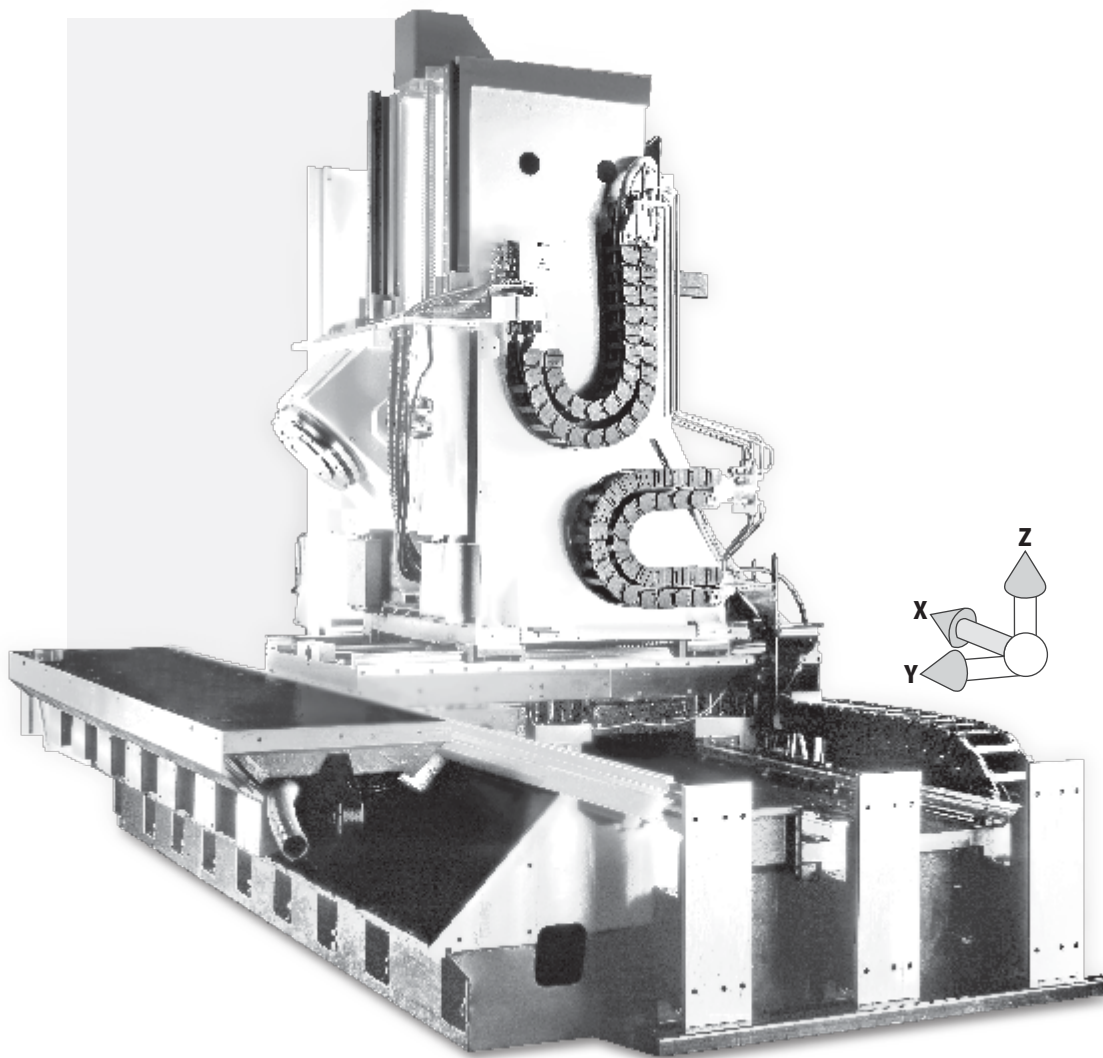
# EX Series

Moving Column Versatile Vertical Machining Center

## OVERVIEW

Machine tool performance and versatility contribute to the competitiveness of manufacturing companies. These machines are capable of machining work pieces with complex shapes along 3, 4 and 5 axis meeting high demand requirements of mechanical manufacturing sectors having applications from smaller complex parts till bigger heavy parts such as that of allied/aviation industries. Structurally having a very rigid architecture, equipped with linear guides EX Series has moving column with fixed table having an option of rotating table.

- High speed machining with very high metal removal rates
- Versatility and capacity to carry out the maximum range of jobs within the working envelope
- Very high precision of dynamic positioning and total mechanic and thermal stability of the structural parts.



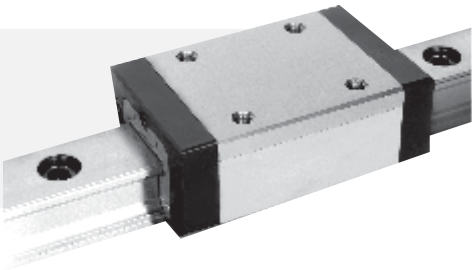
## STRUCTURE : RIGIDITY AND ACCURACY

- Moving column structure in Y & X-Axis, with fixed bed and fixed table. A saddle supporting milling spindle head moving in Z-Axis
- Structure made of Cast iron with a high mechanical performance which maximises structure rigidity and allows optimum harmonic stability
- Machine can be placed on foundation with weight equally distributed over fixing points enabling extreme rigidity and very high geometrical stability



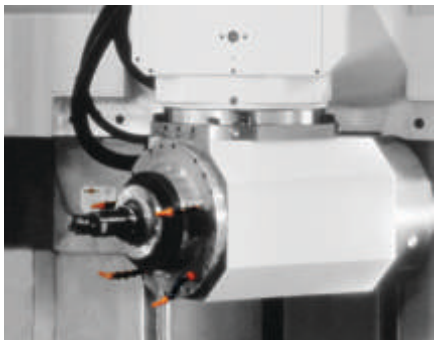
## LINEAR AXIS

- Lineal Motion Guideways (Roller Type) in all 3-Axis with rapid traverse rate up to 30 m/min.
- Preloaded ballscrews with integrated system of compensation for expansion



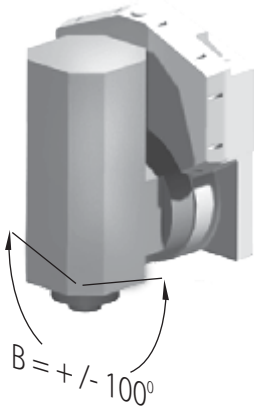
## HIGH PERFORMANCE SPINDLE

- EX Series machines are equipped with High Torque Spindle Motor & Fixed Head (F-Type) for high metal removal rates.
- Spindle is mounted on moving column which covers better table area for different application requirements.
- Being modular construction design EX Series machine can be equipped with N-Type (2-Position) or P-Type (Cont. servo axis) to match different demanding applications of 4 & 5 -Axis.

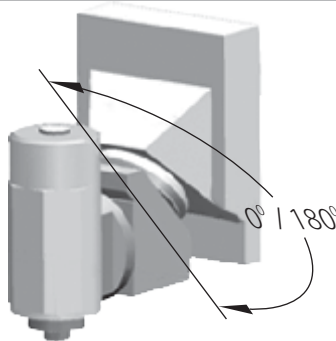


## POSSIBLE HEAD OPTION

P-TYPE HEAD (CONTINUOUS SERVO B-AXIS)	
<div>■ Resolution 0.001°</div> <div>■ Measure on Rotating Axis Through Absolute Rotating Encoder</div>	
B Axis	
Clearance B-Axis (Rotation / Y-Axis)	± 100°
Rotation Speed	17.5 rpm
Drive Torque (S1)	813 Nm
Clamping Torque	6000 Nm at 120 bar
Uncertainty (P)	16 sec
Repeatability (Ps Medium)	8 sec
Reversal U Medium	4 sec



N-TYPE HEAD (2-POSITION)	
<div>■ 2 - Positions only on Axis</div> <div>- Horizontal</div> <div>- Vertical</div> <div>■ Rotation of Position on 45° Plane</div> <div>■ High Torque Motor for Better Materiel Removal</div>	
Angle of Rotation for Position	0° / 180°

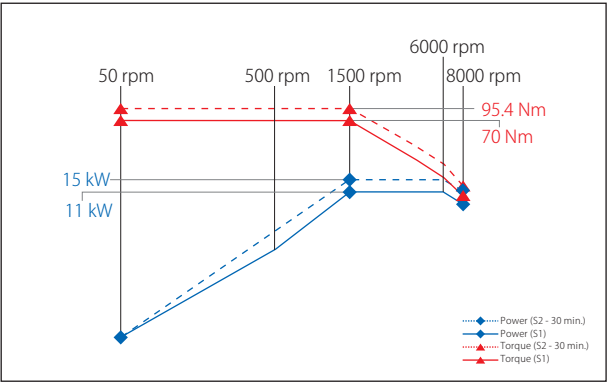


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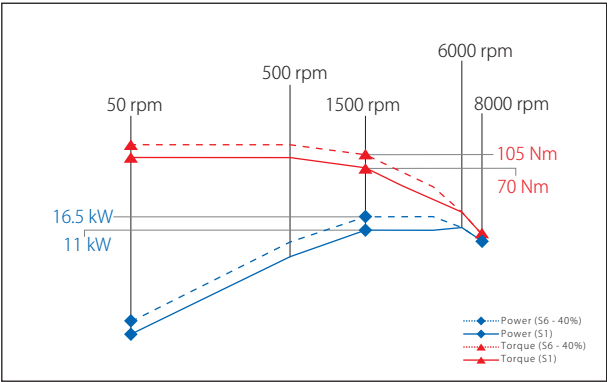
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## POWER TORQUE DIAGRAM

15 / 11 kW, 8000 rpm (Fanuc)



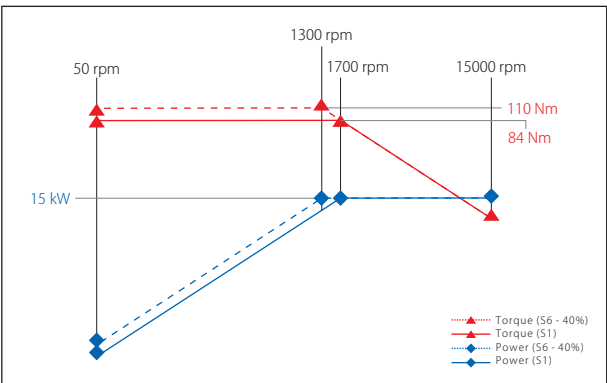
16.5 / 11 kW, 8000 rpm (Siemens)



## ELECTROSPINDLE 15000 rpm (Opt.)

- Air Wall for Spindle Air-Tightness
- Spindle Cooling System
- Mechanical Clamping
- Tool Hydraulic Unclamping
- Air/Oil Bearings Lubrication
- Option : Coolant Through Center

Tool Taper	HSK 63-A
Rotation Speed	15000 rpm
Spindle Motor Power S1	15 kW
Spindle Maximum Torque	110 Nm
Characteristic Speed	1300 rpm



## WORKING TABLE

Wide machine table is within the base casting making it fixed type enabling it to have higher load carrying capacity. Machine table has an option of arrangement of Horizontal Rotary motion within the table

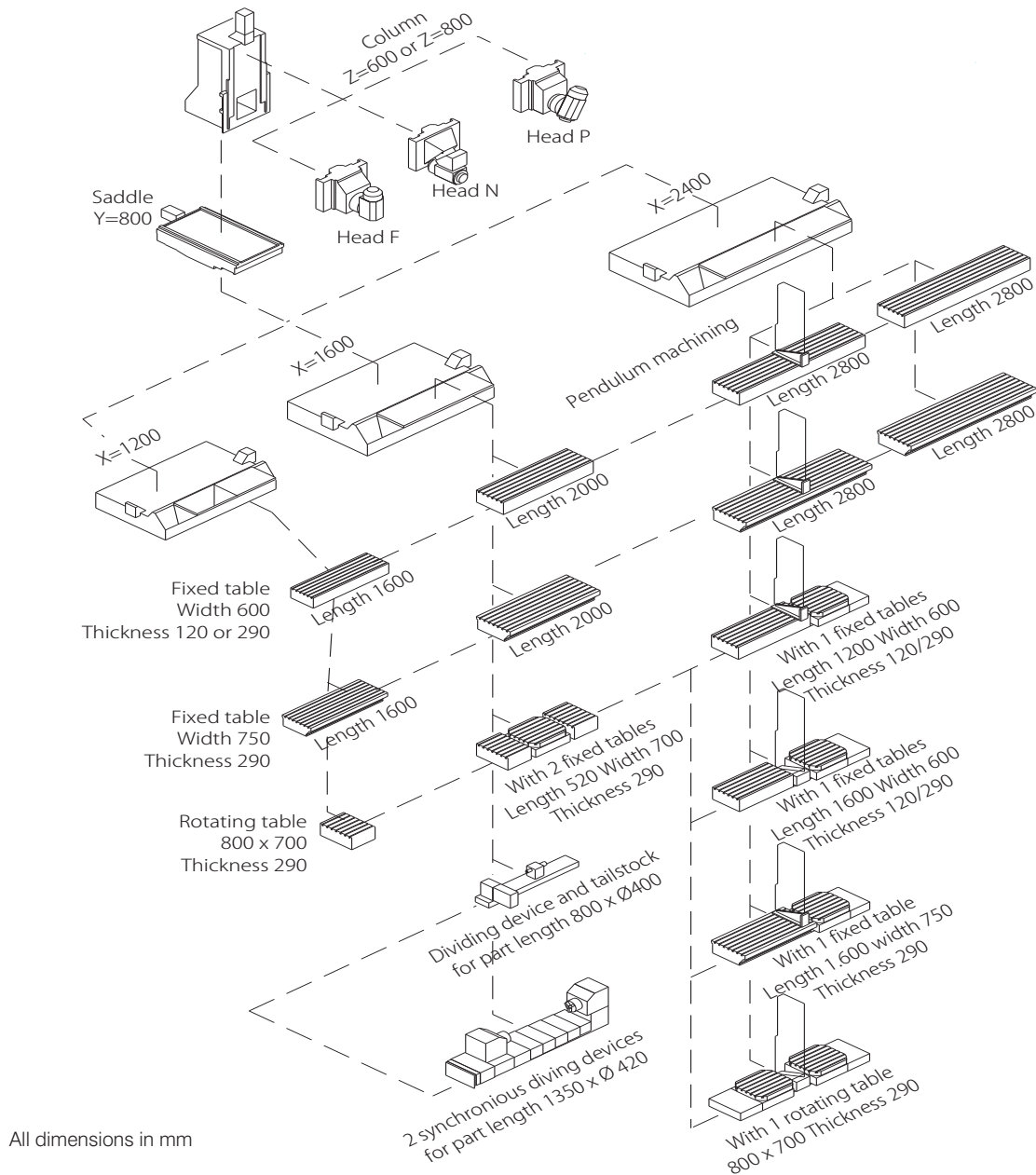


## ROTARY TABLE OPTIONS

Different size separate Horizontal Type Rotary Tables from small to big size diameter can be mounted on fixed table thanks to wide machine working area

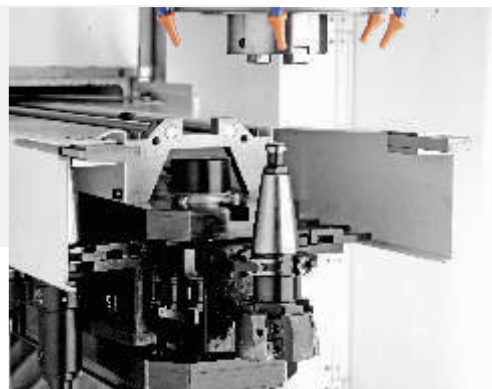


## MODULAR CONSTRUCTION - CHOOSE YOUR OPTIONS



## AUTOMATIC TOOL CHANGER

- 20 Tool Drum Type ATC with BT 40 / BT 50 taper for feasibility of tool changing for Fixed Head
- 40 or 60 tool ATC option with HSK 63A taper for Fixed Head
- 36 tool chain type ATC with HSK 63A taper for « N » and « P » type head.





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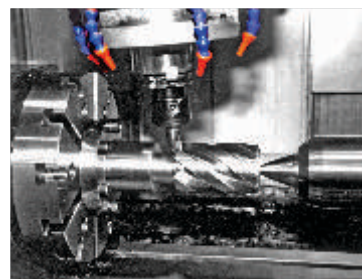
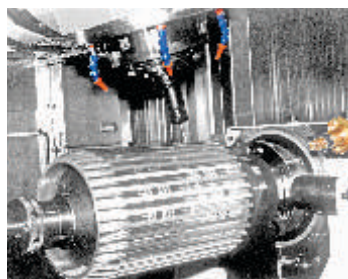
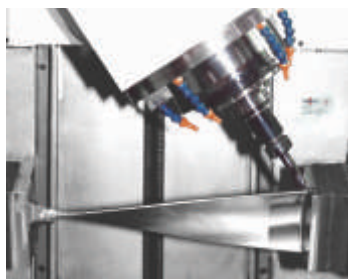
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## ENVIRONMENT - ERGONOMICS

- Evacuation channels for chips equipped with washing device
- Tool magazine outside of working area
- Complete safeguard ensuring a safety of the machine, the operator and environment
- Very large accessibility to the table and the work piece loading from top and side of the machine thanks to a large opening of doors and possibility to load with lifting equipment
- Flexible swivel movement of the operator panel considering TPM concept



## WIDE RANGE OF APPLICATIONS





## TECHNICAL SPECIFICATION

Table		EX-F 1280	EX-F 1680	EX-F 2480
Table Area	mm	1600 x 800	2000 x 800	2800 x 800
T-Slot Dimension	mm	7 x 18 x 100	7 x 18 x 100	7 x 18 x 100
Distance from Floor to Table	mm	1000	1000	1000
Max. Load on Table	kgf	2500	3500	4500
<b>Capacity</b>				
X-Axis Travel	mm	1200	1600	2400
Y-Axis Travel	mm	800	800	800
Z-Axis Travel	mm	800	800	800
Dist. From Spindle Face to Table Top	mm	150 - 950	150 - 950	150 - 950
<b>Main Spindle</b>				
Spindle Motor Speed	rpm	8000	8000	8000
Spindle Motor Power - Fanuc	kW	15 / 11	15 / 11	15 / 11
Spindle Motor Power - Siemens	kW	16.5 / 11	16.5 / 11	16.5 / 11
Front Bearing Bore Dia.	mm	70	70	70
Spindle Nose		BT 40	BT 40	BT 40
<b>Feed</b>				
Rapid Traverse (X, Y & Z Axis)	m/min	30	30	30
Cutting Feed	m/min	10	10	10
<b>Automatic Tool Changer</b>				
No. of Tools		20	20	20
Max. Tool Dia. (Adj. Empty)	mm	125	125	125
Max. Tool Dia. (All)	mm	80	80	80
Max. Tool Weight	kg	7	7	7
Max. Tool Length	mm	250	250	250
<b>Accuracy</b> (as per VDI / DGQ 3441)				
Without Glass Scale				
Positioning uncertainty(P)	mm	0.020	0.020	0.020
Repeatability (Ps medium)	mm	0.008	0.008	0.008
With Glass Scale				
Positioning uncertainty (P)	mm	0.010	0.010	0.010
Repeatability (Ps Medium)	mm	0.005	0.005	0.005
<b>Other Data</b>				
Machine Weight (Approx.)	kg	17000	18000	21000
Machine Dimensions (Approx.) :				
Length	mm	6085	6445	7285
Width	mm	5460	5460	5460
Height	mm	3600	3600	3600

### STANDARD FEATURES

- The CNC System offered FANUC Oi MF or SIEMENS 828D
- AC Spindle Drive & AC Servo Axis Drive
- L.M. Guide ways (Roller Type)
- Auto & Manual Coolant System
- Centralized & Programmable Lubrication
- Laser Calibrated Axis for High Precise Positioning Accuracy and Repeatability
- Electricals with Quality Devices & Panel with A.C.
- Work Light

### PRODUCTIVITY IMPROVING OPTIONS

- N-Type Head, P-Type Head
- Rotating Table-in-Table (700 X 800 mm)
- BT 50, 6000 rpm High Torque Spindle for F-Type Head
- High Speed Spindle 15000 / 18000 rpm
- HSK 63A Spindle Taper
- Chip Conveyor
- Coolant Through Spindle
- 36 / 40 / 60 Tool ATC with Relative Taper
- Gear-Box with F-Type Head
- Linear Glass Scale on all Axis
- Tool Probe & Job Probe
- Flood Coolant System
- 4<sup>th</sup> & 5<sup>th</sup> Axis Option
- Tool Life Management
- Manual Guide i (Fanuc)
- Easy SMS System (Siemens)
- Fully Toolled up Solutions to Meet the Customer Needs

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



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