

PHENIX

5-AXIS MACHINING CENTER X SERIES



X Series

5-Axis Machining Center



FMC-1300XLG

5-Axis Machining Center

With outstanding high speed and high precision machining capabilities, FMC-1300XLG 5-Axis Machining Center has been highly recognized by customers. FMC-1300XLG is designed with a swiveling spindle head and equipped with a 15,000 rpm built-in type high speed spindle. In addition, the machine employs an embedded rotary table. Any complex workpiece can be accomplished with only a single setup.

Direct-Drive Spindle Head

Eliminate the use of the counter-balance weight for a conventional spindle head. FMC-1300XLG 5-Axis Machining Center is specially designed. It employs a big power motor to directly drive the spindle head for vertical movement, in combination with pneumatic counter-balance, which results in better flatness for machining.

Four Linear Ways on Base

The base is a massive structure, which is mounted with 4 roller type linear guideways. This combined with great span between linear ways, provides solid support for the table. Especially when performing high speed machining, the machine will exhibit extraordinary stability.



FMC-1300XLG

- **6 Blocks on Linear Ways on Column**

The column is fitted with 6 blocks that provide firm support for the spindle head. During high speed machining, the spindle head presents the highest stability.

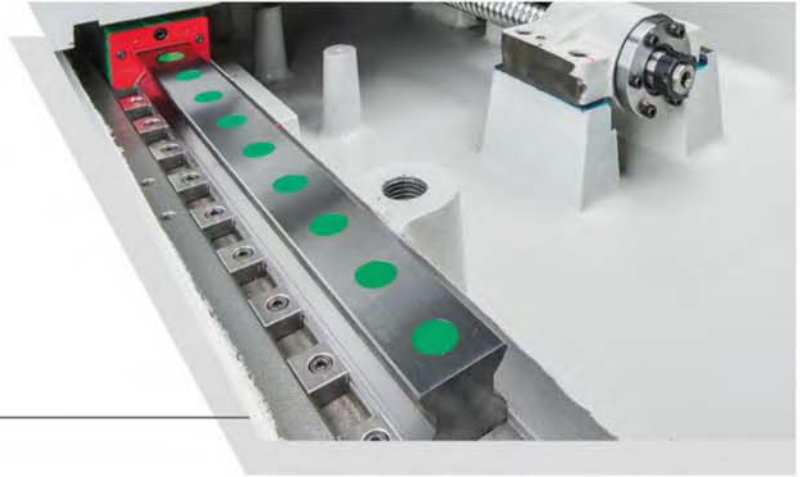
- **45 mm Oversized Ball Screw**

FMC-1300XLG employs high precision ball screws for axes transmission, leading to optimum motion control and accuracy.



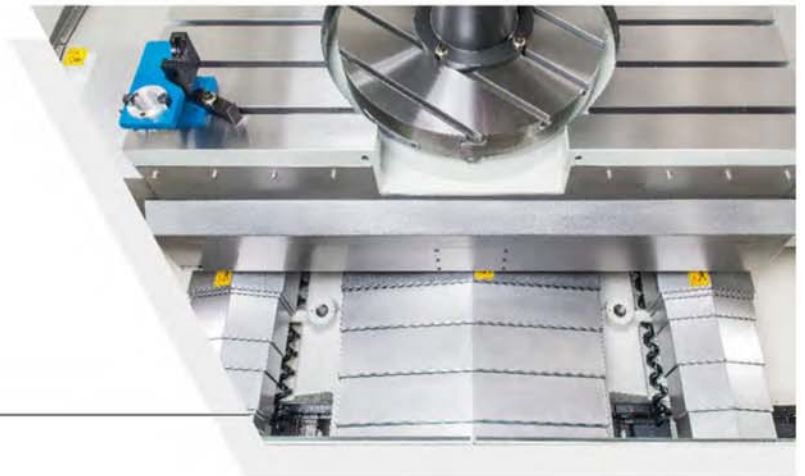
■ Roller Type Linear Guideways

The linear motion guideways feature low friction and are free from stick-and-slip problems. These characteristics are especially suitable for high speed 3D cutting and finishing. The quality of the workpiece surface is increased, and the need of the manual polishing of workpiece surface is minimized.



■ Double Chip Augers on BASE

The double chip augers deliver chips out of machine during cutting that prevent chips from depositing themselves in the machine. Another benefit is to save time and labor cost in chip removing by the operator.



■ Coolant Through Spindle(OPT)

The coolant through spindle device employs powerful cutting fluid that flow through the center of the spindle for cooling the cutting tool and the workpiece. This device not only helps to upgrade machining quality, but also extends the service life of the cutting tool.



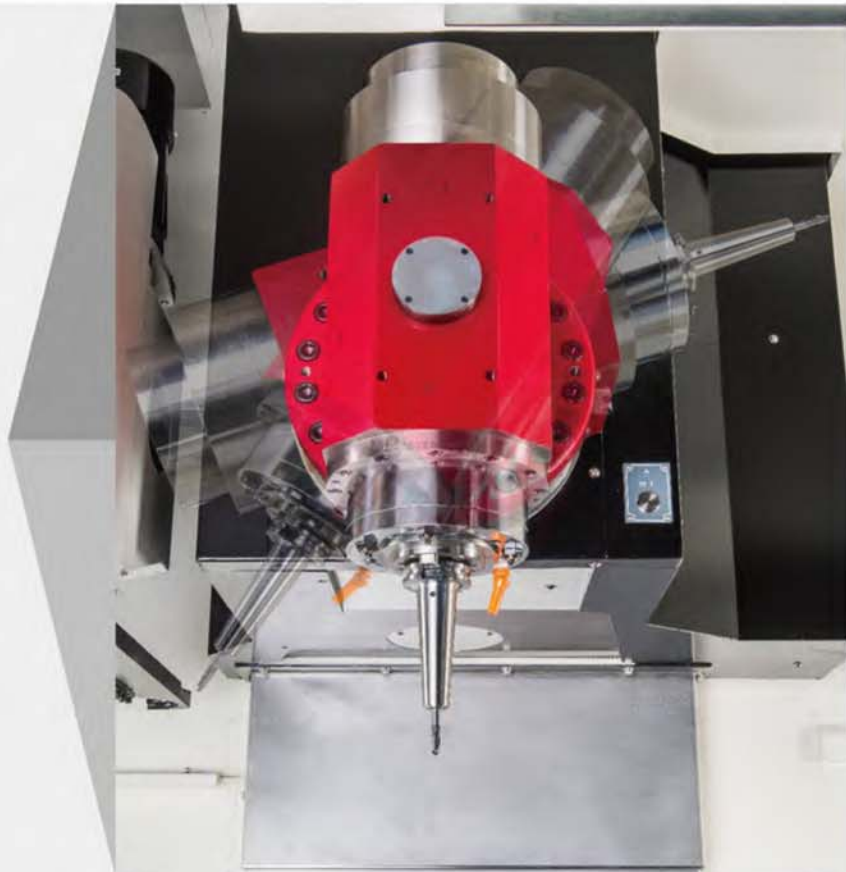
■ **15,000rpm Built-in Type Spindle**

- + FMC-1300XLG is equipped with a 15,000 rpm built-in type spindle with features of compact construction, light weight, low inertia, low vibration and low noise.
- + The spindle can resist long time high speed machining and achieves high machining accuracy and fine finish on workpiece surfaces.
- + Dramatic increase in machining efficiency.



■ **Swiveling Spindle Head (B-Axis)**

- + The swiveling spindle head is driven by an axial servo motor in combination with the use of an encoder, which allows indexing accuracy to reach 15 arc sec.
- + Worm shaft/worm gear transmission with high precision.
- + Swiveling angle of the spindle head is $\pm 120^\circ$.
- + Hydraulic clamping without vibration.





FMC-1300XLG

Rotary Table (C-Axis)

- + The rotary table is mounted in the rectangular table, making the machine suitable for machining various shapes of workpiece with space saving.
- + The rotary table is directly driven by a servo motor in combination with the use of an encoder, enabling indexing accuracy to reach ± 10 arc sec.
- + Minimum indexing degree is 0.001° .

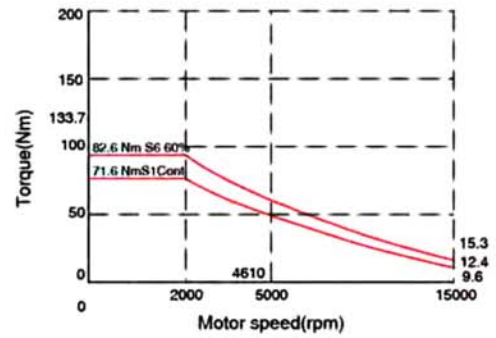
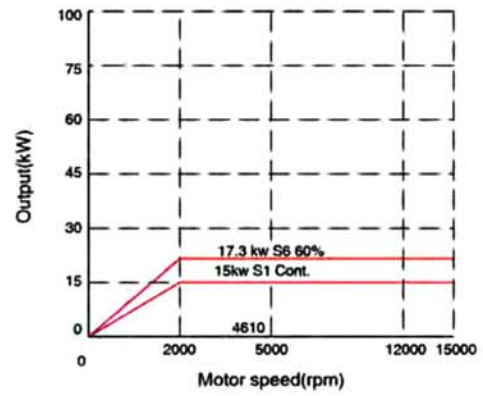


■ Servo Driven 24 Tools ATC

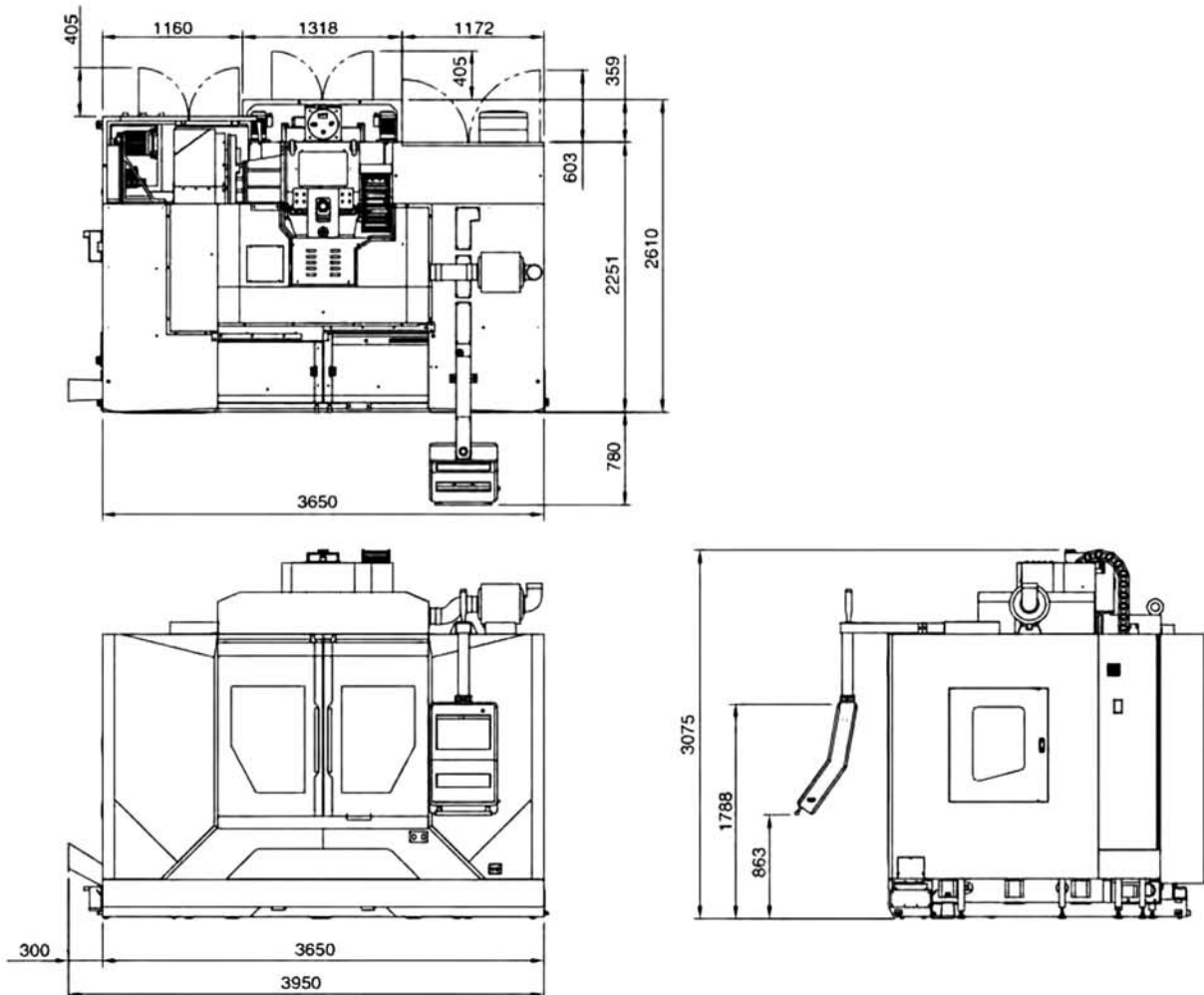


■ Spindle Torque Diagram

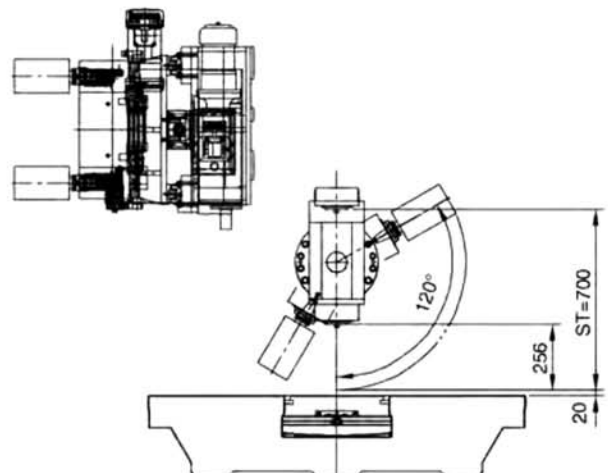
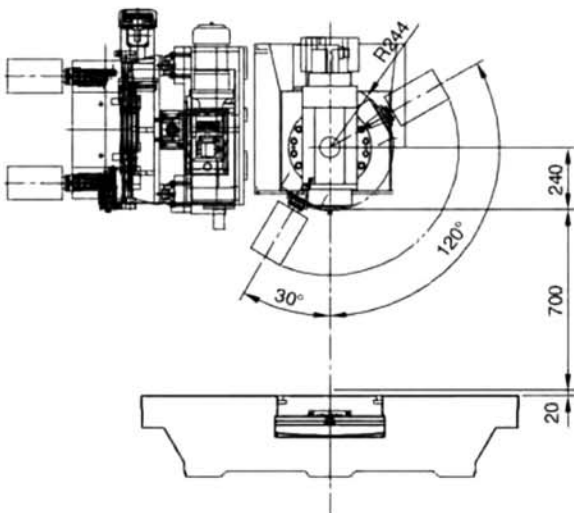
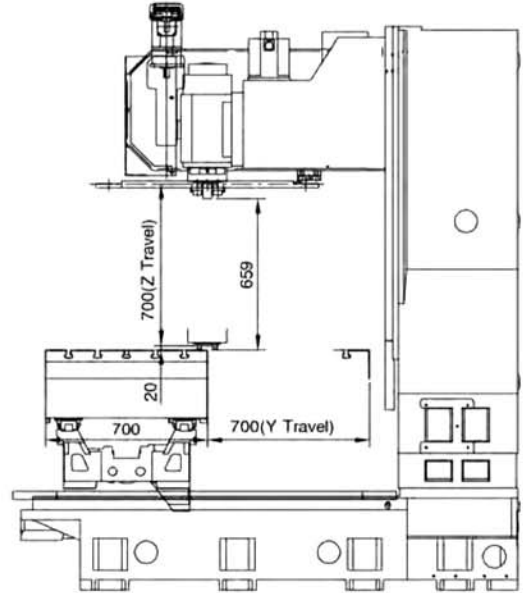
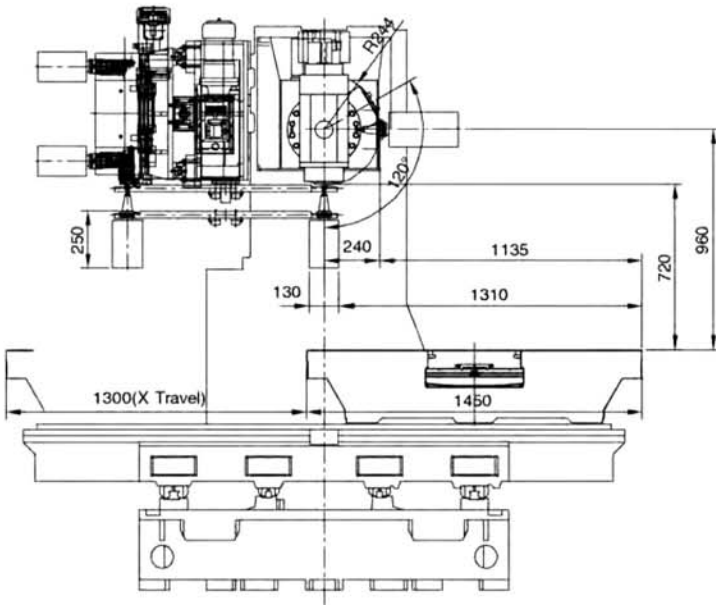
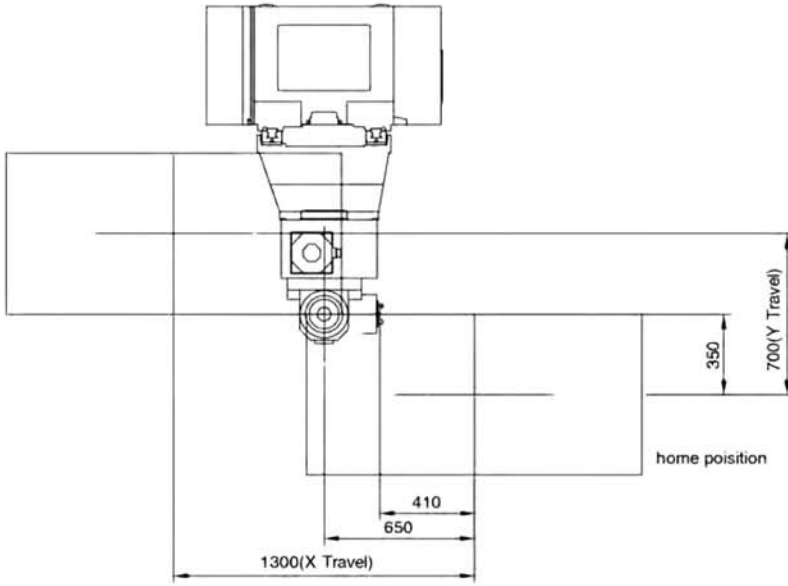
Motor Type : E+A mW16/17-8



■ FMC-1300XLG Floor Plan



FMC-1300XLG Processing Range



Specifications

Model	Unit	FMC-1300XLG
X-axis travel	mm	1300
Y-axis travel	mm	700
Z-axis travel	mm	700
Spindle nose to table surface(vertical)	mm	20~720
Spindle center to table surface (horizontal)	mm	260~960
Spindle center to column surface (guideway surface)		770
Table		
T-Slot (Q'ty X W X Dist.)	mm	5X18X125
Table size	mm	700X1450
Max. table load	kgs	1000
Spindle speed	rpm	15000
Built-in type spindle		
Spindle motor	kw	15/19.4
Torque output of spindle motor		71.6/92.6
Spindle hole	mm	70
Spindle nose taper		BBT40
Swiveling Spindle Head (B-axis)		
Transmission		Worm shaft/worm gear
Speed ratio		1:120
Swiveling angle	deg	± 120
Max. speed	rpm	16.6
Min. indexing angle		0.001
Rotary Table (C-axis)		
Transmission		DD
Table diameter	mm	630
Center hole diameter	mm	60
Speed		50
Min. indexing angle	rpm	0.001
Axes Feed		
Rapid traverse rate (X, Y, Z-axis)	M/min	30/30/24
Cutting feed rate	mm/min	10000
Tool Magazine		
Magazine type		Arm type
Tool storage capacity		24(32/40)
Max. tool diameter	mm	80
Max. tool length	mm	250
Max. tool weight	kg	7
Accuracy		
Positioning accuracy (X, Y, Z-axis)	mm	0.005 / 300
Positioning accuracy (rotary table on B, C-axis)	sec	14"/14"
Repeatability accuracy (X, Y, Z-axis)	mm	0.003
Repeatability accuracy (rotary table on B, C-axis)	sec	10"/8"
Others		
Machine weight	kg	10000
Machine height	mm	3300
Space occupied	mm	4670x3400

• The manufacturer reserves the right to modify the design, specifications, mechanisms...etc. to improve the performance of the machine without prior notice. All the specifications shown above are just for reference.



FMC-1300XLG

Standard Accessories

- Rigid tapping
- RJ-45 interface
- Automatic lubrication system
- Work light
- Auto power off
- Air conditioner for electrical cabinet
- Double chip augers on base
- Scraper type chip conveyer
- Spindle oil cooler
- B, C-axis encoders
- Coolant jets around spindle
- Screw type chip conveyer
- Remote handwheel

Optional Accessories

- Linear scale
- Automatic tool measuring device
- Workpiece coordinate measuring device
- Coolant through spindle
- Chain type chip conveyer
- High pressure coolant flush device on base
- Transformer



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