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Gentiger Machinery Industrial Co., Ltd.

# GT-H2517F

Gantry Type  
5 Axis High Speed Machining Center



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CE ISO 9001



# Gantry Type Structure GT-H2517F

## A Competitive Edge In Mold Machining

Gentiger **GT-2517F**, a gantry type, 5-axis high-speed machining center, is designed and built specifically for high speed mold machining. This machine features a massive U shaped base in combination with the new generation of gantry-type structure. In addition, the machine comes equipped with a world-renowned two-axis swiveling head, allowing the machine to fully satisfy the rigorous requirements for speed, efficiency and surface finish in mold machining.



### Outstanding Machine Features:

- The gantry type structure fully exhibits ultra high stability in 5-axis, high speed machining.
- "U" shaped base is one-piece fabricated for maximum stability and rigidity.
- With 5 axes simultaneous machining, intricately shaped parts can be machined with only one setup.
- X-axis feed is driven by a specially designed rotating nut.
- Trapezoidal-type cross beam dramatically increases loading capacity.
- Highly rigid "U" shaped double side-wall features optimal force-flow distribution.
- Equipped with high rigidity, swiveling head to present exceptional machining accuracy.
- 24,000 rpm, HSK-A63 built-in type spindle.
- X, Z-axis are driven by twin servo systems.
- Roller type linear guide ways on X, Y, Z-axis.
- X,Y,Z-axis are equipped with linear scales, providing closed loop controls.
- Positioning accuracy: 0.003 mm / 300 mm (ISO-230-2)
- Repeatability accuracy:  $\pm 0.003$  mm (ISO-230-2)



# Gantry Type Structure

The design of the gantry structure together with B/C axis swiveling head is able to fully meet the high efficiency requirements of machining on 5 axes. Any complex part can be efficiently machined with only one setup, thus ensuring high machining accuracy. With the gantry-type structure, the workpiece is fixed, and therefore its weight does not cause extra load on any linear axis.

## Gantry Type 5-axis Machining Center Your No. 1 Choice in Mold Machining High Speed! High Precision! Stable!



### Exquisite Machining Capabilities

- For machining of aerospace, automotive and large parts, optimal surface finishes and shortened machining time can be obtained.

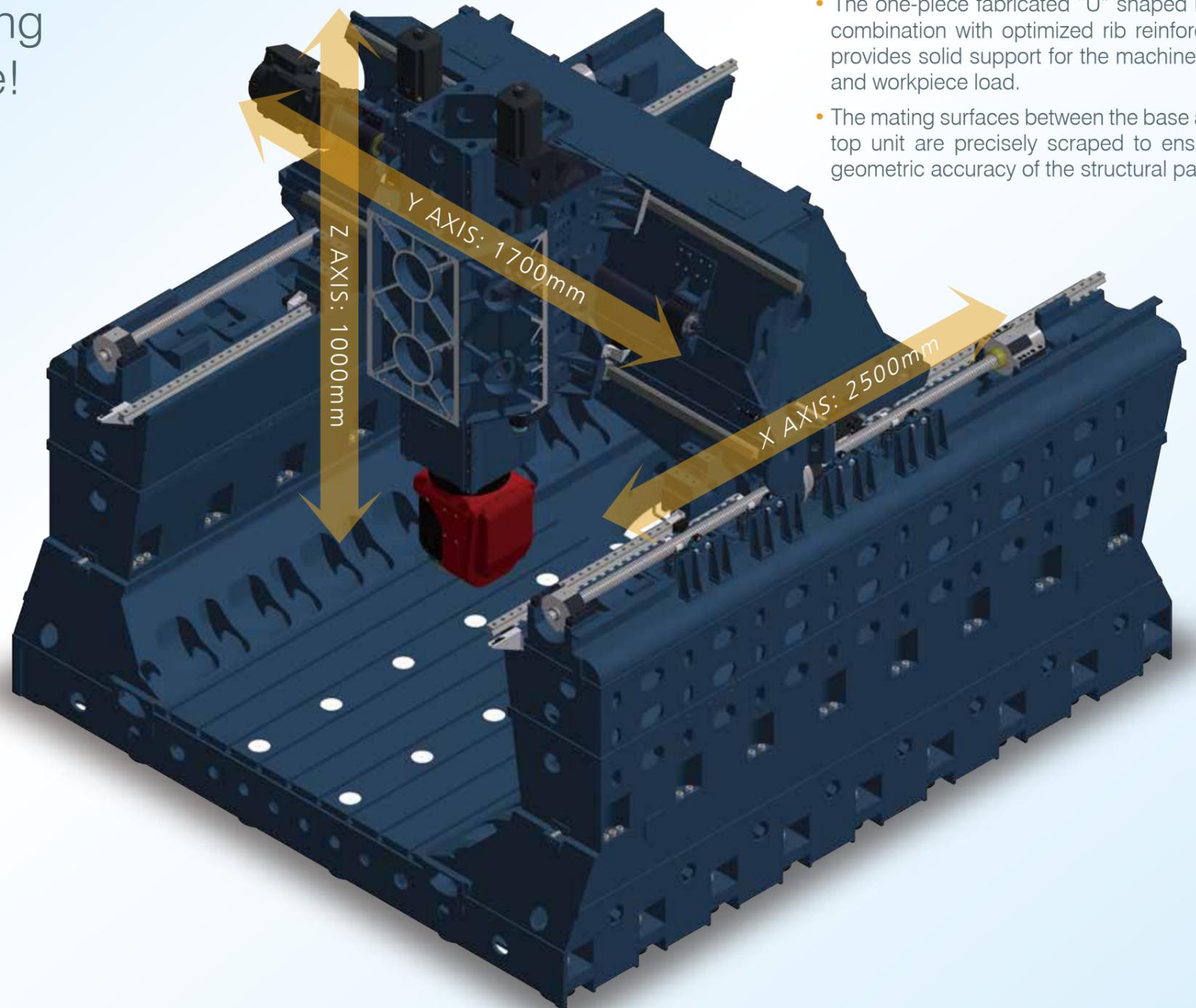


### Sensitive Dynamic Response

- Machining on an area with multiple points is fast and smooth, that effectively shortens machining time.

### Massive Base

- The one-piece fabricated “U” shaped base in combination with optimized rib reinforcement provides solid support for the machine weight and workpiece load.
- The mating surfaces between the base and the top unit are precisely scraped to ensure the geometric accuracy of the structural parts.





# Highly Rigid B/C-Axis Swiveling Head

Gentiger **GT-2517F**, gantry type 5-axis high speed machining center employs the ultra-high rigid swiveling head, allowing 5-axis simultaneous machining. The unique spindle head provides extremely high precision and high efficiency machining, and can prevent affection on machining accuracy due to repetitive clamping / unclamping of workpiece.

## Unique Positioning Accuracy B Axis $\pm 8''$ / C Axis $\pm 8''$

B/C-axis employs pneumatic clamping combined with the use of absolute encoders, allowing for extra high positioning accuracy of  $\pm 8''$  on B-axis and  $\pm 8''$  on C-axis.

### Twin Motor/ Twin Screw on Z Axis

- Z-axis feed is driven by twin servomotors that directly drive twin ball screws. Compared with a single motor drive, it provides faster response for high speed machining.

### Four Linear Ways on Z Axis

- Z-axis slideways are mounted with 4 heavy-duty roller type linear guideways, providing solid support for the spindle head. The 4 linear ways are deployed at the front and backside of the spindle head, enabling the spindle head to exhibit the highest stability during cutting.

### One-piece Constructed

#### Twin Arm on B-axis

- The twin arms on B-axis are one-piece constructed to eliminate affection on geometric accuracy even when an accidental collision occurs.

### Swiveling Speed 180 Degree / Sec.

- The spindle head is a unique design with extra high swiveling speed which is up to 180-degree per second so as to fully meet high-speed machining and high productivity requirements.

### Convenient Maintenance

- In case there is a B-axis clamping failure or motor malfunction occurs, the parts replacement will not affect the geometric accuracy. Additionally, the maintenance job can be accomplished at the customer's plant.

## Swiveling Head Specifications

### B-AXIS

Rated torque	340 Nm
Clamping method	Hydraulic
Swiveling angle	$\pm 110^\circ$
Positioning accuracy	$\pm 8''$

### C-AXIS

Rated torque	725 Nm
Clamping method	Hydraulic
Swiveling angle	$\pm 270^\circ$
Positioning accuracy	$\pm 8''$



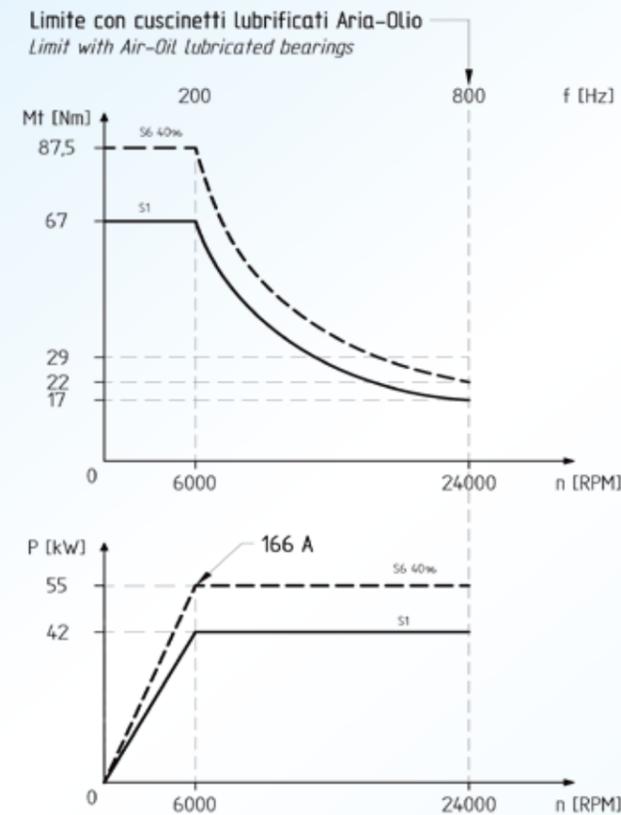


# Built-in Type Spindle



## Spindle Features

- Max. spindle speed: 24,000 rpm
- Spindle motor: 55 KW
- Spindle torque output: 87.5 Nm
- Bearing lubrication: Oil-air
- Inside diameter of spindle bearing: Ø70 mm
- High precision ceramic bearing
- Cutter balance should be calibrated to within G2.5



# Ethernet Support Function

The machining programs can be managed by a PC with instant editing then transferred through Ethernet to the machine. This function will save operation time. Besides, with the use of automatic power off function and automatic tool length measurements, etc, the machine can achieve an automated operation.



## Various Advanced CNC Controls to Choose From

The Gentiger machining center provides a choice of various advanced CNC controls. Each control permits high-speed milling and NURBS curved surface machining functions, and is easy to learn and operate.



### Rotating Nut Transmission

- X-axis feed is transmitted through a specially designed rotating nut. The nut is driven by a servomotor for rotation while the ball screw is kept stationary.
- This design feature not only can prevent the ball screw runs out during rotating, but also makes feed motion response faster.



### Coolant Through Ball Screws

The ball screws on X,Y-axis are designed with a through-cooling system, that effectively suppresses thermal growth and thermal displacement on the ball screws. This feature in turn ensures feed smoothness and positioning accuracy on three axes.

### Three Axes Grease Lubrication

The linear guideways on X,Y,Z-axis are lubricated by grease with upgraded lubrication effect, making feed motions smoother.



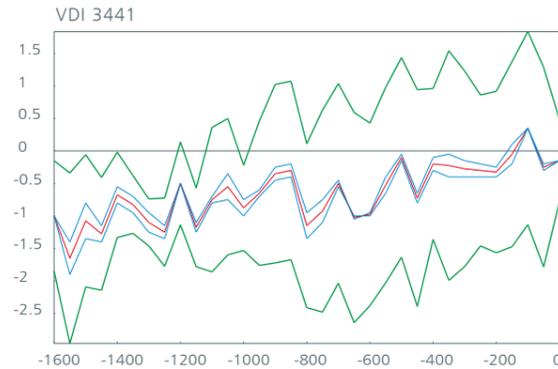
Heidenhain TNC 640 control

# Superior Quality Control



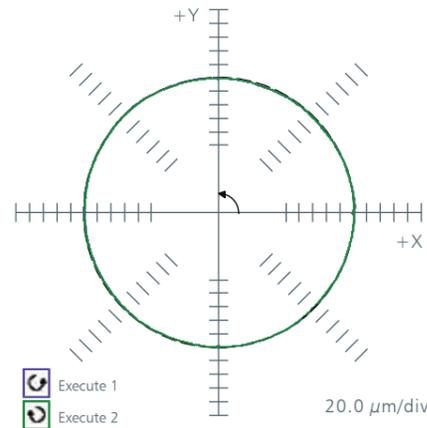
## Accuracy Inspection By Laser

The high-tech Renishaw laser unit is applied for inspecting linear positioning accuracy, pitch error and backlash, etc.



## Ball Bar Circulating Accuracy Inspection

A high precision Renishaw ball bar tester is used for inspecting servo accuracy and geometric errors between two axes, thereby ensuring outstanding circularity accuracy.



# GT-H2517F

MODEL	GT-2517F (5 AXIS)		GT-2517F (3 AXIS)		UNIT
AXIS:	X	Y	Z		mm
3 axes travel	2,500	1,700	1,000 / 800(Opt.)		mm
Cutting feed rate	20	20	20		m/min
Rapid traverse rate	20	20	20		m/min
Table area	2,500 x 1,780				mm
T-slot	22				mm
Height of table from ground	420				mm
Distance from table surface to spindle nose	120~1,120 320~1,120 (Opt.)	250~1,250			mm
Max. load of table (average load)	12,000				kg
Max. spindle speed	24,000				RPM
Spindle type	Built-in type				
Bearing lubrication	Oil-air				
Spindle cooling	Water cooling				
Spindle taper	HSK-A63				
Spindle motor power	55	25 / 33			kw
Spindle torque	87.5	Low speed:72.6/95.8 High speed:35.8/47.3			Nm
Spindle bearing inside diameter	Ø70				mm
ATC capacity	24				tools
ATC tool system	HSK-A63				
Max. tool diameter	70 (100 without adjacent tool)				mm
Max. tool length	300				mm
Max. tool weight	7				kg
Magazine drive motor	60				w
Controller	Heidenhain				
Air pressure requirement	7				kg/cm <sup>2</sup>
Air conditioner for electrical cabinet	750 x 2				w
Spindle cooler	3,450				w
Automatic lubrication on all slideways	150				w
Coolant motor	2,600				w
Chip flush motor	2,050				w
Machine dimension	6,800 x 5,950 x 4,810				mm

## STANDARD ACCESSORIES

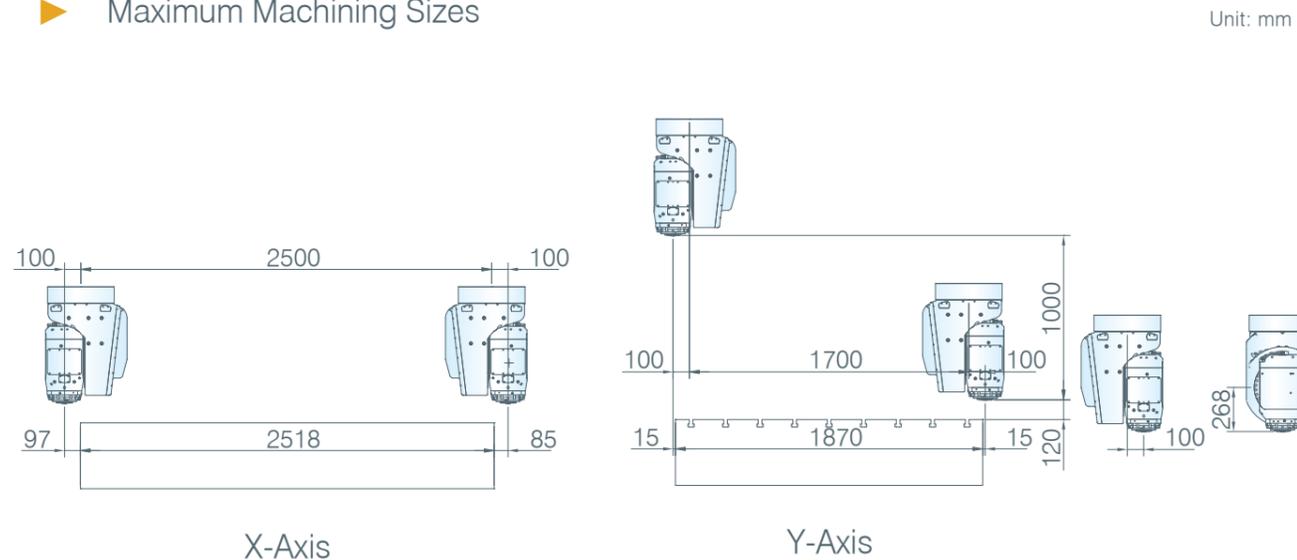
- Coolant system
- Work lamp
- Tool box
- Spindle air blow system
- Chip air blow device
- Air conditioner for electrical cabinet
- MPG
- Work end indication light
- Semi-enclosed splash guard
- Central control lubricator
- Operation and maintenance manual
- Leveling bolts and pads
- Internet function
- 3 axes optical scales
- Chain type chip conveyor

## OPTIONAL ACCESSORIES

- Oil skimmer
- Automatic tool length measurement system (Standard on GT-H2517F 5-axis)
- Automatic parts measurement device (Standard on GT J2517F 5-axis)
- Coolant through spindle device
- Transformer
- Chain type tool magazine

▶ All specifications, design and characteristics shown in this catalogue are subject to change without prior notice.

## ▶ Maximum Machining Sizes



## ▶ Dimensional Drawings of Machine

