



Professional High-Speed Machine



Establishment in 1995, GENTIGER has become is the name equal to "High Speed Cutting Expert". Our company spirit, "Perfection, Efficiency, Specialization" is embedded in all GENTIGER machines, as we deliver comprehensive machines and services to our customers worldwide.



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# GT-105V

High Speed Double Column Machining Center

[www.gentiger.com.tw](http://www.gentiger.com.tw)

133951000711E

CE ISO 9001



# GT-105V

01 ◀ ▶ 02

How is the Gentiger GT-105V so different from other conventional machining centers?

*The Gentiger GT-105V is a large capacity, rugged machine that handles precision machining with higher efficiency than conventional machining centers.*

- ▷ Oil fluid separation design
- ▷ Built-in high speed spindle
- ▷ Tool magazine capacity: 16 tools
- ▷ Max. rapid feed rate: 30 m/min.
- ▷ Max. cutting feed rate: 20 m/min.
- ▷ Table area: 1100 x 600 mm
- ▷ X, Y, Z-axis travel: 1000 x 600 x 500 mm
- ▷ Siemens 840D/828D controller with high speed mill, NURBS interpolation function (optional: Fanuc, Heidenhain and Mitsubishi)

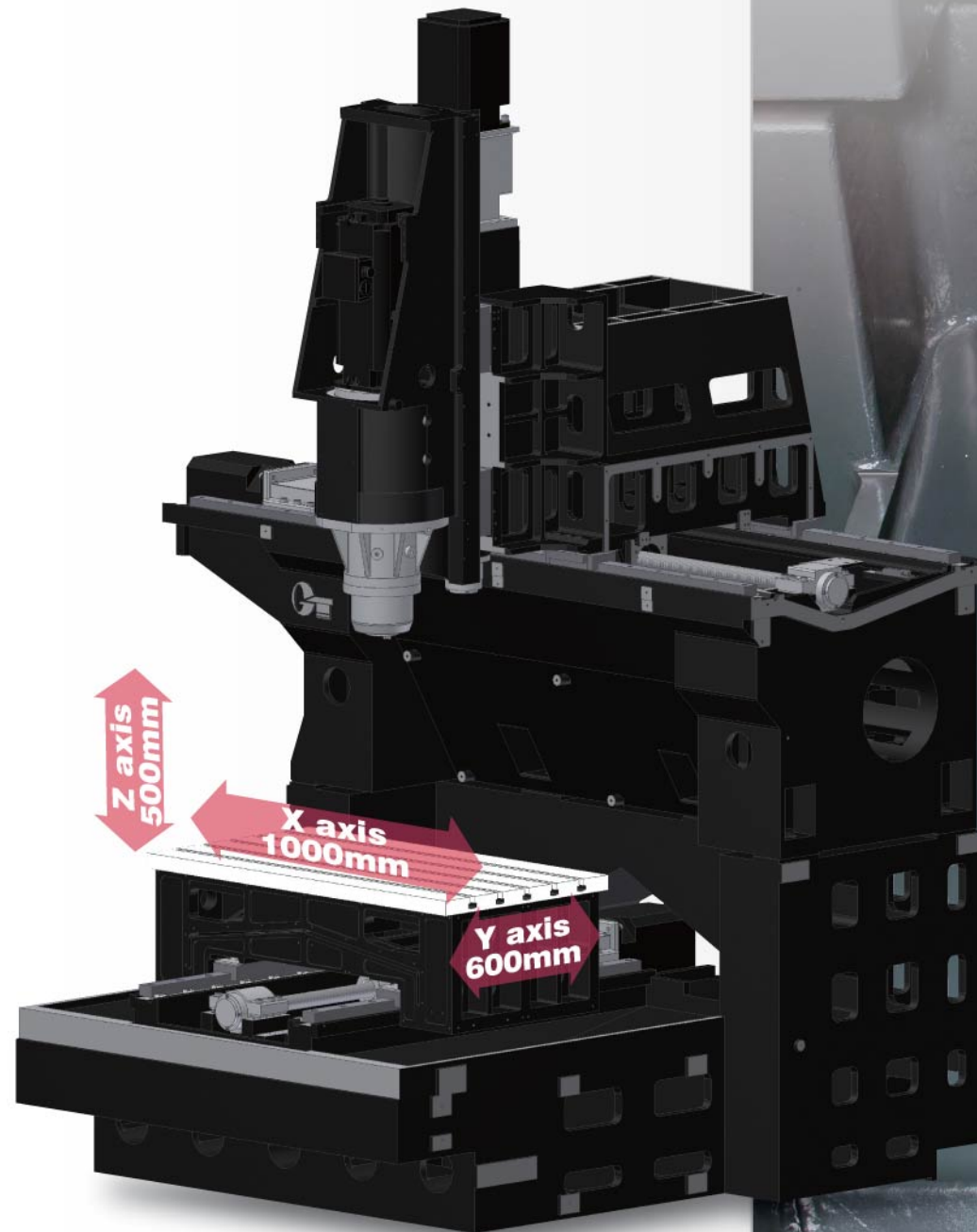




# Optimized Double Column Structure

## The Best Possible Rigidity and Stability

- ▷ Superior rigid structure is constructed with FC-30 high quality cast iron. The width of the column is the same as the base.
- ▷ All cast iron is tempered and season-treated for over two months to thoroughly relieve internal stress.
- ▷ After coarse machining, cast iron is stored for over 30 days to further relieve stress before performing fine machining.
- ▷ Y-axis linear guide ways are independently mounted on the base. The workpiece moves only on the Y-axis without loading from the saddle on the X-axis.
- ▷ X-axis linear guide ways are independently mounted on the top of the column without the load of the workpiece.
- ▷ X, Y and Z-axis ball screws are directly connected to servo motors by couplings to prevent accumulated errors due to a belt transmission.
- ▷ Positioning accuracy: 0.003/300 mm (when linear scale is equipped)
- ▷ Repeatability:  $\pm 0.002$  mm (when linear scale is equipped)



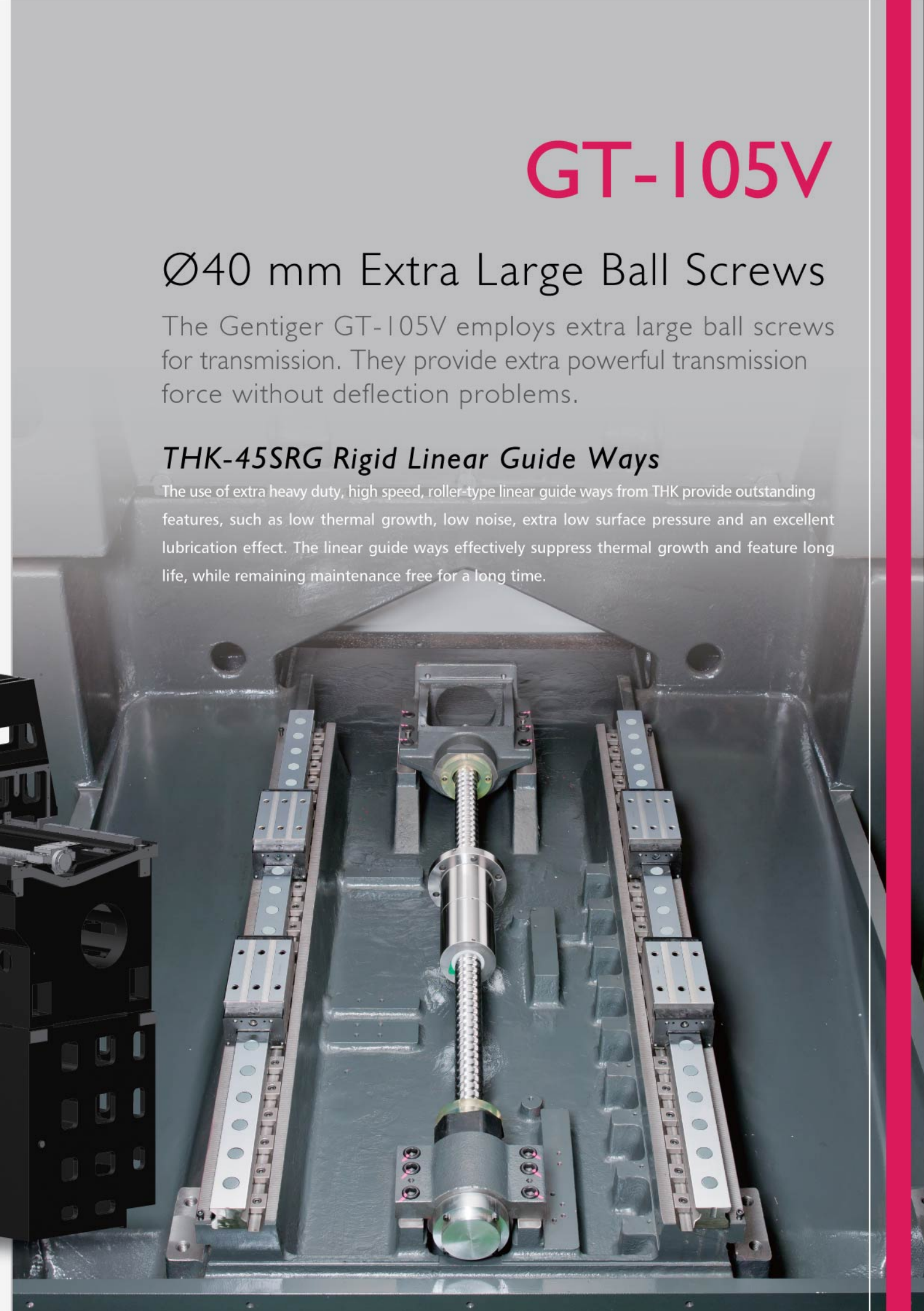
## GT-105V

### Ø40 mm Extra Large Ball Screws

The Gentiger GT-105V employs extra large ball screws for transmission. They provide extra powerful transmission force without deflection problems.

### THK-45SRG Rigid Linear Guide Ways

The use of extra heavy duty, high speed, roller-type linear guide ways from THK provide outstanding features, such as low thermal growth, low noise, extra low surface pressure and an excellent lubrication effect. The linear guide ways effectively suppress thermal growth and feature long life, while remaining maintenance free for a long time.





# 15,000 / 24,000 rpm High Speed Spindle

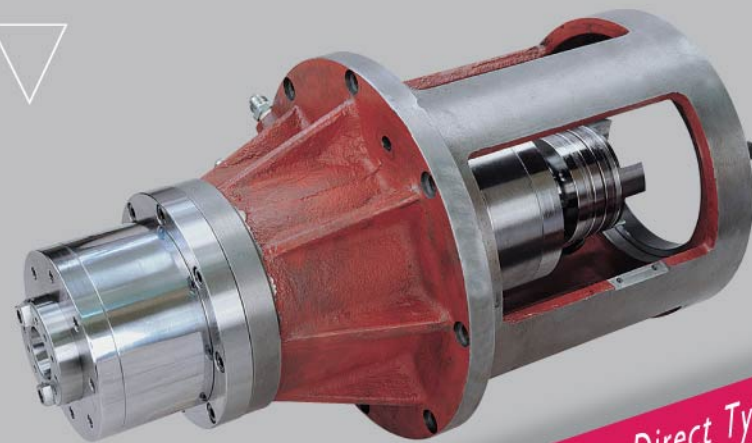
The high speed spindle contributes to efficient machining and a finer surface finish. The Gentiger GT-105V provides a 15,000 rpm direct-drive spindle a 24,000 rpm built-in spindle to choose from.

05 ◀ ▶ 06

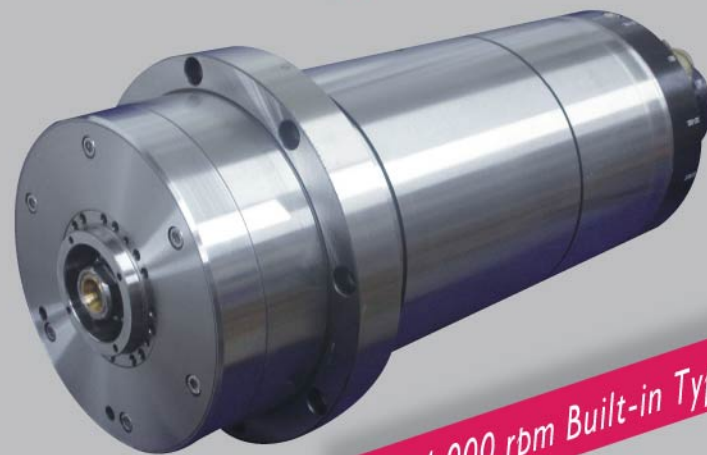
High precision, High rigidity, High power, Low vibration, No noise, Extends the life of tools



TYPE	T15	Y24B	S24B
Max. speed	15,000 rpm	24,000 rpm	24,000 rpm
Bearing lubrication	Grease / Oil air (opt.)	By oil air	By oil air
Spindle motor type	Direct drive type	Built-in type	Built-in type
Spindle motor	11 Kw	18 / 23 Kw	30 / 39 Kw
Spindle torque output	74 / 130 Nm	29 / 37 Nm	29.1 / 38.7 Nm
Tool shank type	BBT / BT 40	HSK-A63	HSK-A63
Inside dia. Of spindle bearing	Ø70 mm	Ø65 mm	Ø65 mm
Cutter needs to be dynamically balanced to	Within G2.5	Within G2.5	Within G2.5



15,000 rpm Direct Type Spindle



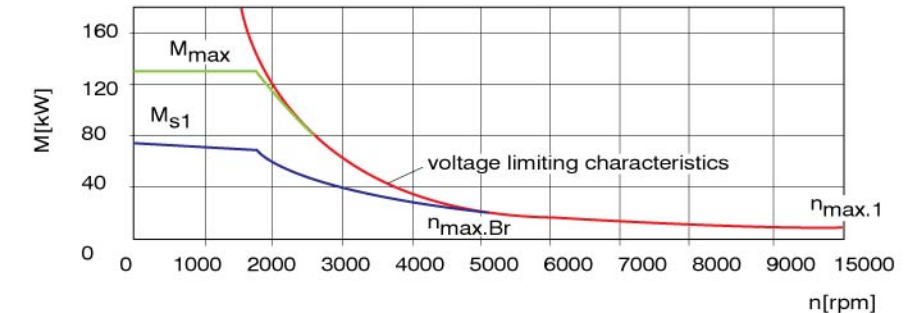
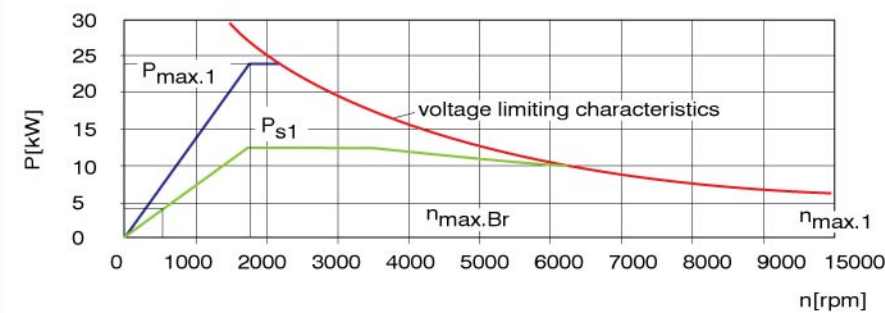
24,000 rpm Built-in Type Spindle



24,000 rpm Built-in Type Spindle  
Position sensor (Optional)

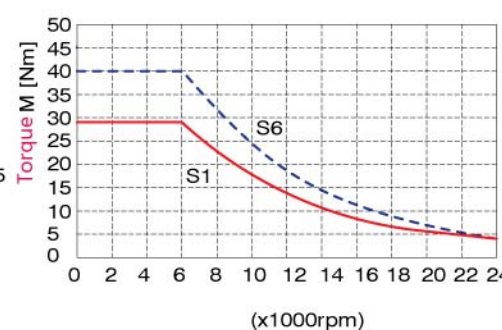
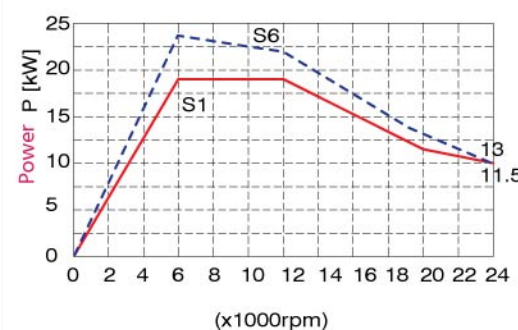
## Power Diagram / Spindle Torque

### T15

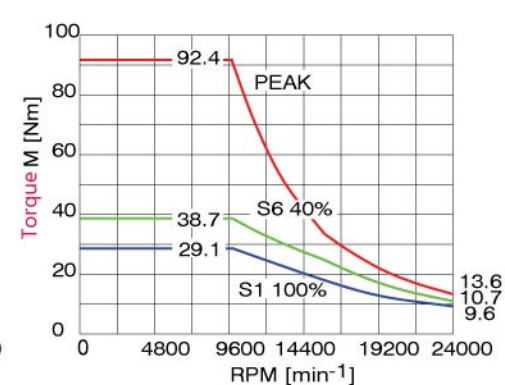
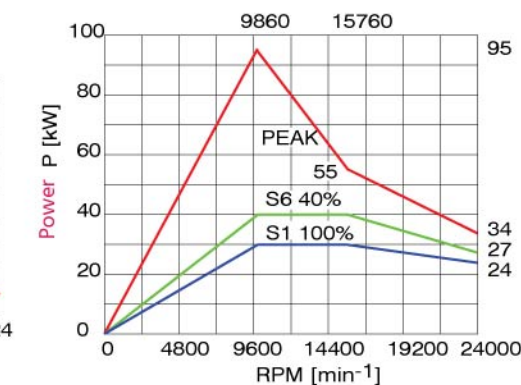


## Power Diagram / Spindle Torque

### Y24B



### S24B

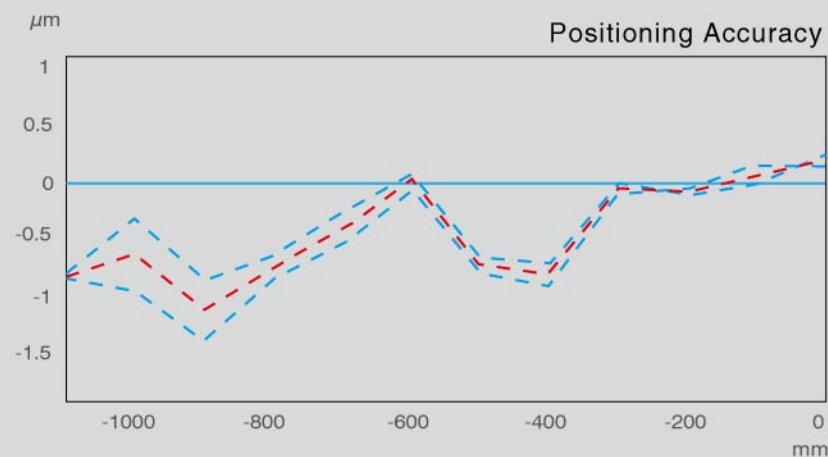




# Cutting Test Report

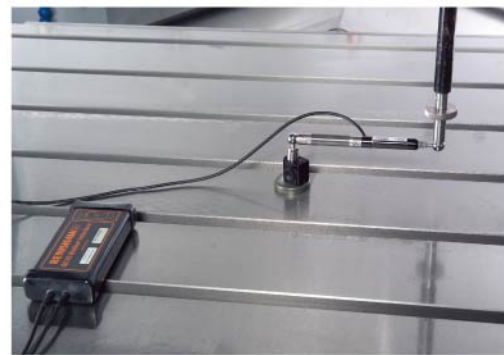
## Accuracy Inspection by Laser

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



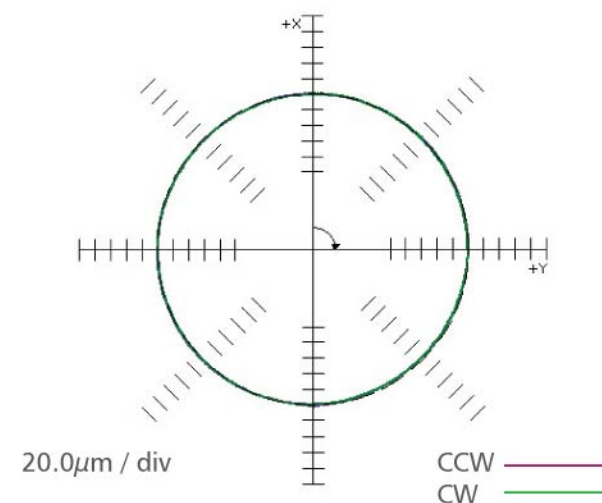
## Ball Bar Circulating Accuracy Inspection

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



## Positioning and Repeatability Accuracy GT-105V

Control	SIEMENS / FANUC / HEIDENHAIN / MITSUBISHI
Positioning Accuracy	0.003 / 300mm
Repeatability	±0.002mm



# Perfectly Suited for High Speed, Precision Cutting

The Gentiger GT-105V is well suited for 3C, automotive, die and mold, aerospace and precision parts industries. Whatever high precision machining is required, this machine is your best choice.

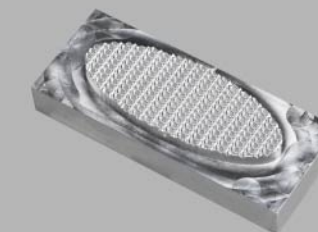
Workpiece: IRREGULAR SHAPE  
Controller: SIEMENS 840D  
Workpiece Size: 100 x 100 x 55 / mm  
Material: NAK80 / HRC42  
Type of Tool: R5 / R1  
Machining Time: 4 H 49 M

Workpiece: SHARP EDGE  
Controller: SIEMENS 840D  
Workpiece Size: 100 x 100 x 120 / mm  
Material: AL6061  
Type of Tool: R5 / R4  
Machining Time: 47 M

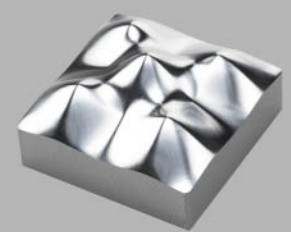
Workpiece: GOLF CLUB HEAD  
Controller: SIEMENS 840D  
Workpiece Size: 155 x 155 x 85 / mm  
Material: AL6061  
Type of Tool: R4 / R1  
Machining Time: 1 H 5 M



Workpiece: WRENCH MOLD  
Controller: SIEMENS 840D  
Workpiece Size: 290 x 70 x 40 / mm  
Material: NAK80 / HRC42  
Type of Tool: R4 / R0.5  
Machining Time: 2 H 24 M



Workpiece: REFLECTION PAD  
Controller: SIEMENS 840D  
Workpiece Size: 98 x 40 x 20 / mm  
Material: NAK80 / HRC42  
Type of Tool: R1 / R0.4  
Machining Time: 1 H 23 M



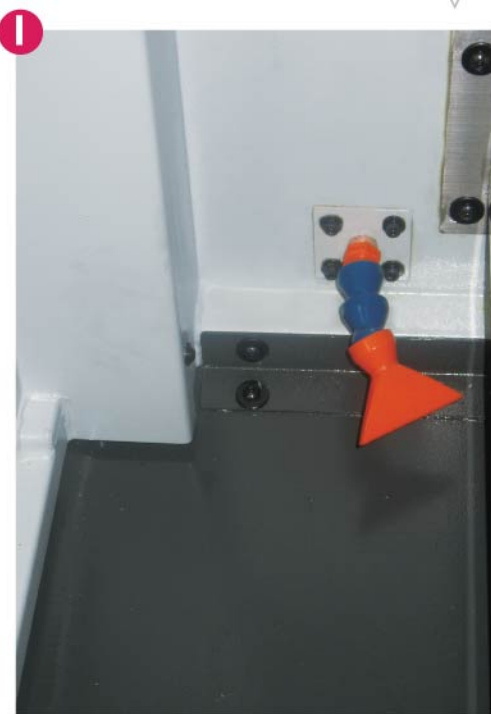
Workpiece: IRREGULAR SHAPE  
Controller: SIEMENS 840D  
Workpiece Size: 60 x 60 x 350 / mm  
Material: NAK80 / HRC42  
Type of Tool: R5 / R2  
Machining Time: 51 M



# Outstanding Design Concept With Robust Structure, Offering Extremely Stable Platform For High Speed Cutting

## 1. Effective Flood System

Powerful flood system for flushing chips with several additional nozzles and coolant system. Utilization of independent pump ensures efficient cooling of workpieces and chip flushing during machining.



## 2. Collective Lubrication System

The lubricators of spindle bearings oil-mist lubrication, linear guideway and ballscrews of each axis, oil-mist cooling pump (optional) are aggregated at one place for easy adjustment and maintenance.



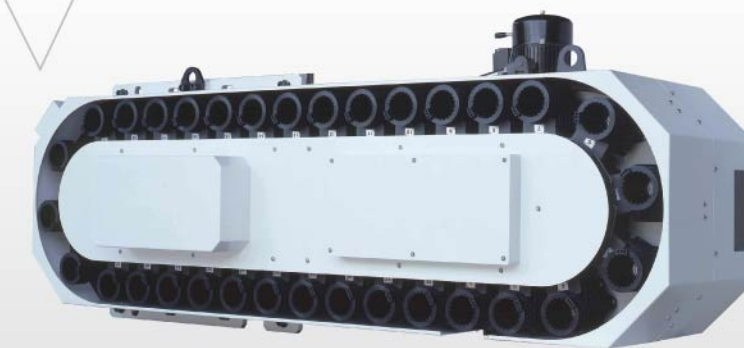
## 3. Air Conditioner

With the use of air conditioner, the controller, motor driver and electronic components may maintain a constant temperature, this eliminates trouble or machine down-time caused by high temperature for lengthy operations.



## 4. Caterpillar type chip conveyor and cart (options)

Effectively moves the chips out from machine to avoid potential faults caused by accumulated chips.

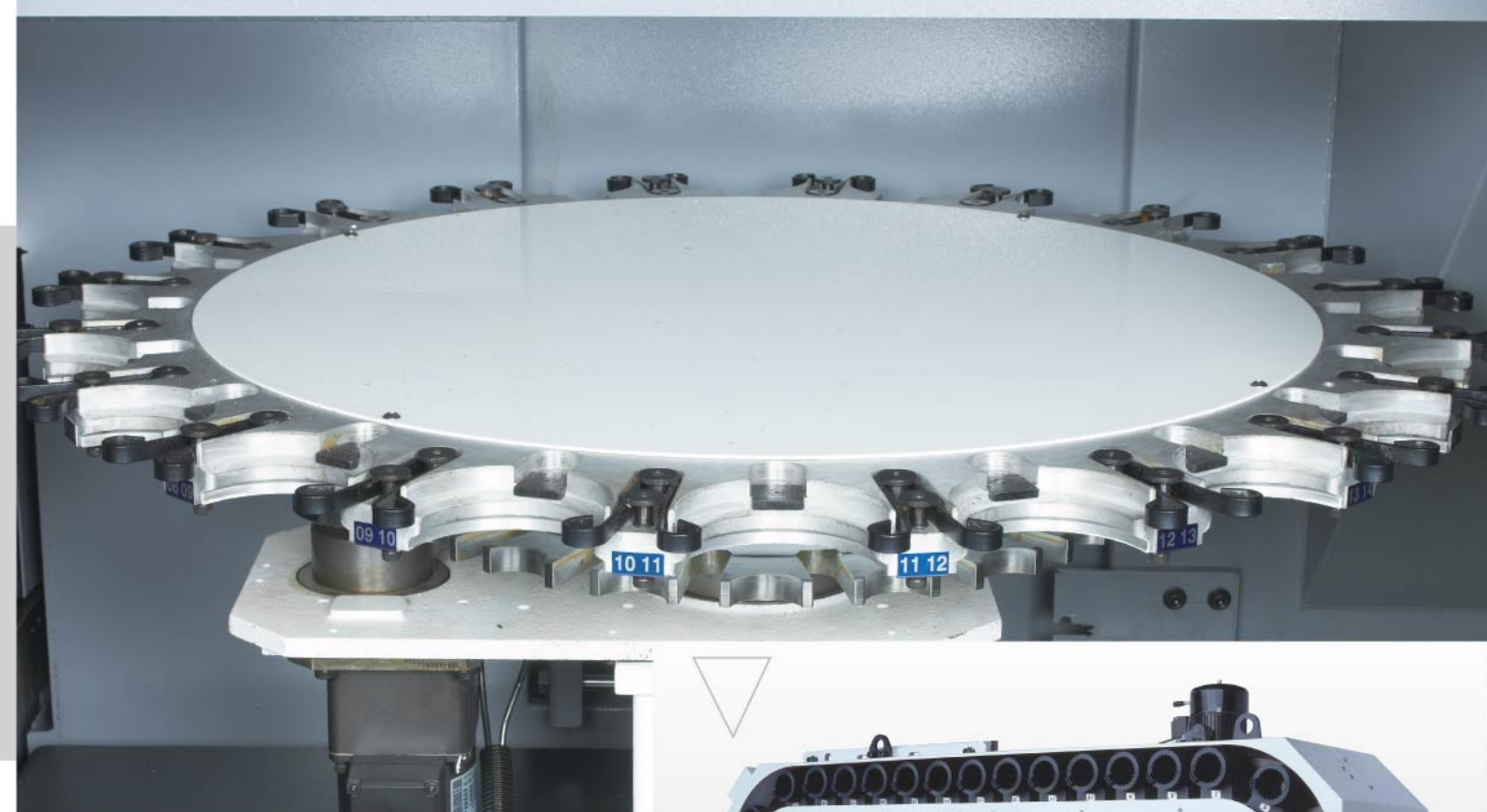


## Tool Magazine

The disk type magazine is driven by a Genova intermittent mechanism for tool change. It employs a spring clamping mechanism to clamp tools securely when the tool disk is rotating. Standard loading capacity of the magazine is 16 tools (40 tools magazine is optional)

## Cooler

High efficiency spindle cooling system effectively uses circulating oil / water to remove the heat produced from spindle rotation. This will keep the spindle operation consistently under room temperature to elongate the life of spindle and to increase machining accuracy.





# Optional Equipment



1. Automatic workpiece measurement system
2. CTS coolant through spindle device
3. Oil fluid separator
4. Automatic tool length measurement system (laser type)
5. Automatic tool length measurement device (mechanical type)

## 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; easy to learn and operate.



SIEMENS 840D / 828D  
CONTROL  
(Standard Equipment)



FANUC 18iMB / 31iMB  
HPCC CONTROL  
(Optional Equipment)



HEIDENHAIN iTNC 530  
CONTROL  
(Optional Equipment)



MITSUBISHI M70 / M700  
CONTROL  
(Optional Equipment)



## Ethernet Support Function

The machining programs can be managed by a PC with instant editing; then programs are transferred through Ethernet to the machine. This function will save operation time.



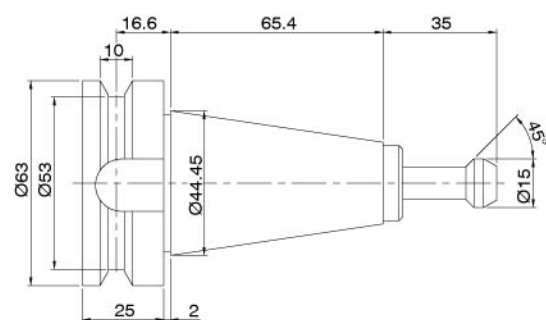


# Minimum Footprint

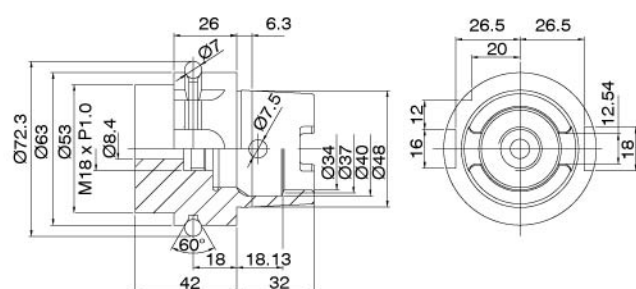
# Maximum Working Area

## ► Tool Shank Diagram

BT-40

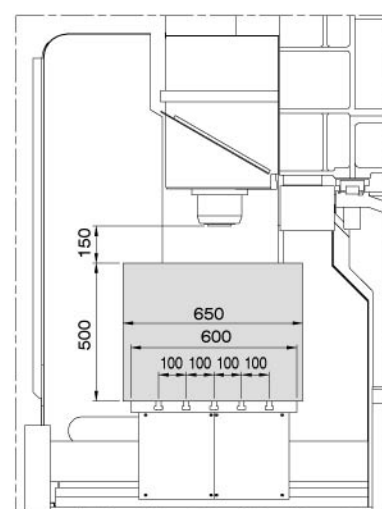


HSK-A63

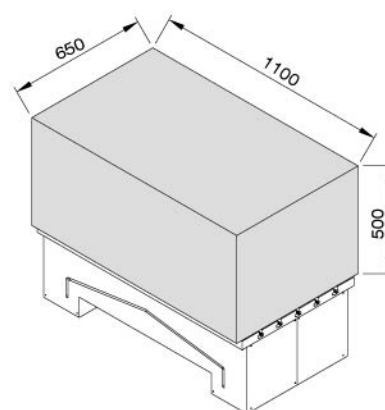


## ► Workpiece Drawings

Unit : mm

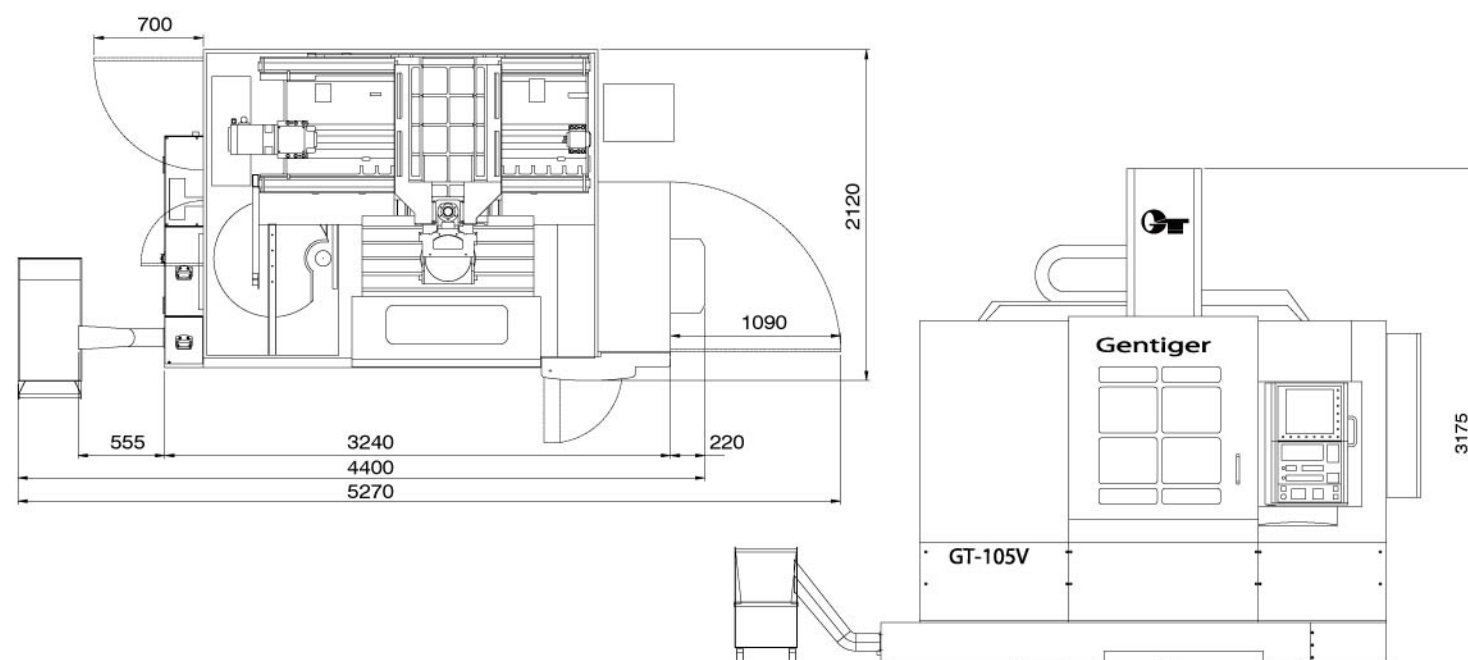


Average load= 1000kg



## ► Dimensional Drawing of Machine

Unit : mm



## GT-105V

Model	T15	Y24B	S24B
Inner dia. of spindle bearing	Ø70	Ø65	Ø65
Max. spindle speed	15,000 rpm	24,000 rpm	24,000 rpm
Spindle taper	BBT / BT-40	HSK-A63	HSK-A63
Spindle motor	11 kW	18 / 23 kW	30 / 39 kW
Bearing lubrication	Grease / Oil-air (opt.)	Oil-air	Oil-air
Spindle cooling	Oil-cooling	Water-cooling	Water-cooling
Distance from spindle center to machine front		700 mm	
Table area		1100 x 550 mm	
T-slot		18 x 5 x 100 mm	
Height of table from ground		850 mm	
Max. load of table (Average load)		1000 kg	
Travel for X, Y and Z axis		1000 x 600 x 500 mm	
Distance from table surface to spindle nose		150-650 mm	
Rapid feedrate		30 m / min	
Cutting feedrate		20 m / min	
ATC tool system	BBT / BT-40	HSK-A63	HSK-A63
Magazine capacity		16 Tools (opt.: 20 / 24 / 40 Tools)	
Max. tool length		250 mm	
Max. tool weight		8 kg	
Motor of tool magazine		60 W	
X, Y & Z axis servo motors		X-5.7 kw, Y-5.7 kw, Z-5.7 kw	
Air pressure requirement		7 kgf / cm <sup>2</sup>	
Air conditioner		750 W / 550 W	
Spindle cooler	1950 W	2650W	2650 W
Chip conveyor		180 W	
Automatic lubricator (slide ways)		150 W	
Coolant motor		750 W	
Chip flush motor		1580 W	
Total power	35 KVA	41 KVA	40 KVA
Coolant tank		180 liter	
Packing dimensions		4030 x 2300 x 3580 mm	
Net weight		8,600 kg	
Gross weight		9,600 kg	

▷ SIEMENS control is standard. HEIDENHAIN and FANUC control are optional.

▷ Above specifications are subject to change without prior notice.

## STANDARD ACCESSORIES

- ▷ Coolant Tank
- ▷ Work lamp
- ▷ Toolbox
- ▷ Chip flush motor
- ▷ Coolant motor
- ▷ Coolant system
- ▷ Spindle air blow system
- ▷ Chip air blow device
- ▷ Y-axis telescopic covers
- ▷ Air conditioner for electrical cabinet
- ▷ MPG
- ▷ M30 work end indication light
- ▷ Spindle cooling system
- ▷ Full enclosed splash guard
- ▷ Leveling bolts and pads
- ▷ Central control lubricator
- ▷ Operation and maintenance manuals
- ▷ Screw type chip conveyor and cart
- ▷ Network function
- ▷ Spindle temperature compensation system

## OPTIONAL ACCESSORIES

- ▷ Coolant through spindle system
- ▷ Oil skimmer
- ▷ Oil-mist cooling system
- ▷ X, Y and Z axis optical scale
- ▷ Caterpillar chip conveyor and cart
- ▷ Auto tooling measurement