



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-HTA2500

5-Axis High Speed Double Column
Machining Center

www.gentiger.com.tw

CE ISO 9001

Responds to your
needs for high speed
and complex parts
machining



Packed with many outstanding features, the advanced GT-HTA 2500 5-axis machining center is designed for high speed and vibration free performance. This will dramatically reduce your machining time. With its rotating and tilting spindle head, the machine allows complex parts to be machined in only one setup.

- ▷ 5-axis machining center combining A, C-axis on spindle head 18,000 rpm high speed, built-in type spindle.
- ▷ Roller type linear guide ways on x, y, z-axis.
- ▷ Special double-column, high speed machine structure for high speed and heavy cutting.
- ▷ One-piece constructed columns feature extra high rigidity.
- ▷ Heidenhain optical scales on 3 axes.

High Speed . High Precision . High Efficiency



Advanced Structural Design Exhibits

Perfect Machine Rigidity

High Speed! Maximum Stability! Lifetime Accuracy!

These are the qualities that every operator demands and gets with the Gentiger GT-HTA 2500 5-Axis Machining Center. It's a high precision, multi-tasking machine, suitable for high precision machining.

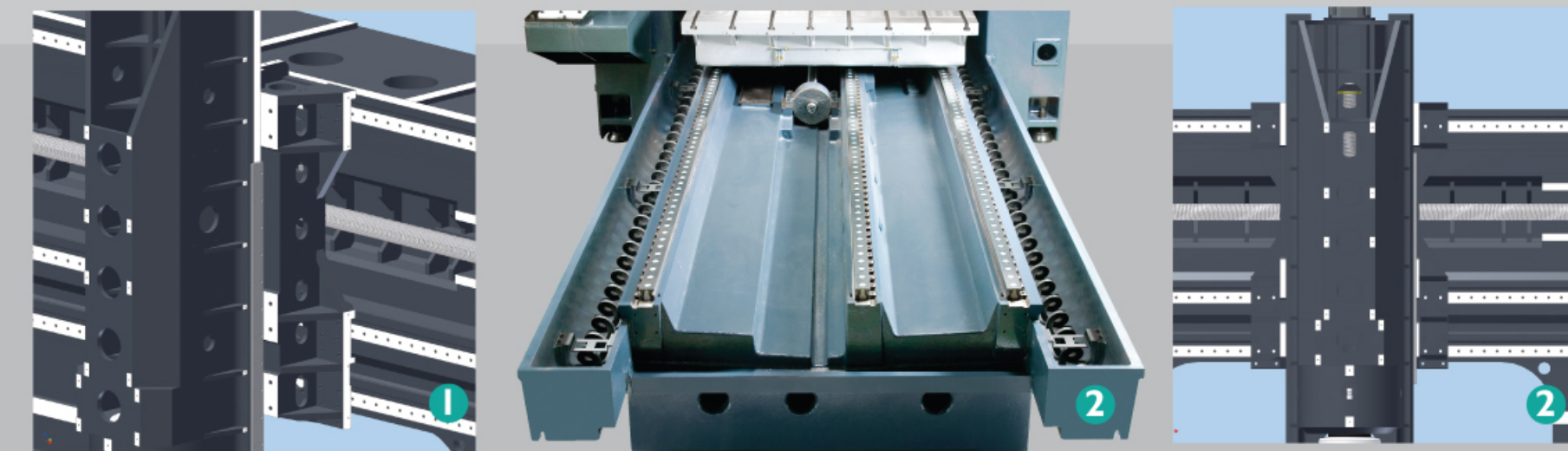
Heidenhain Optical Scales on 3 Axes

High accuracy ($\pm 3\mu\text{m}$)

High repeatability accuracy ($\leq 0.2\mu\text{m}$)

Pollution resistant (single field scanning)

Interfering signal-resistant (covered by full conductor)



1. 6 Blocks on Z-axis

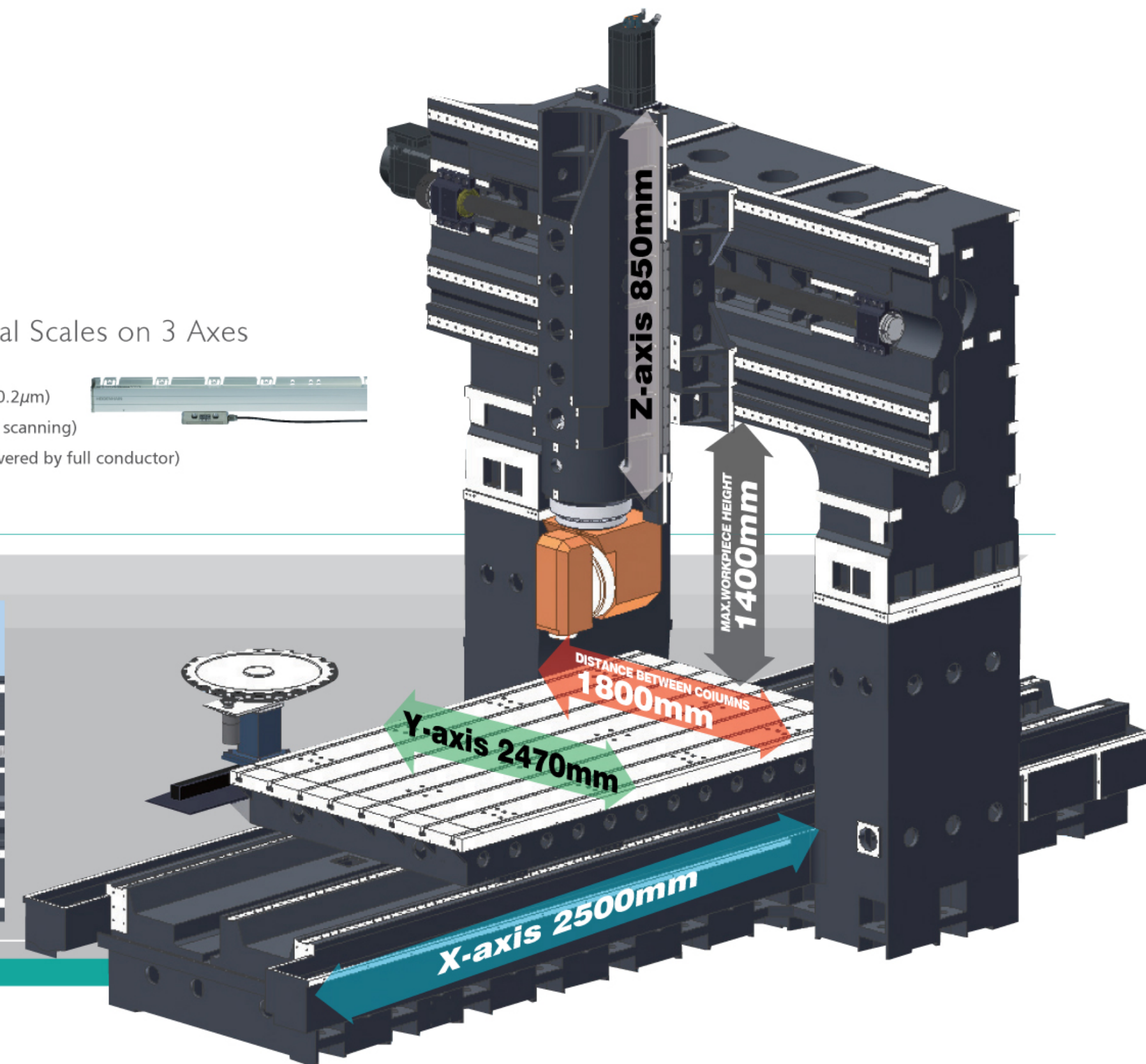
Slideways are mounted with two heavy duty roller type linear guide ways with great span between ways. Each linear guide way employs three blocks to upgrade rigidity on Z-axis and features maximum stability during heavy cutting.

2. Three Linear Guide Ways on X, Y-axis

X, Y-axis is mounted with three heavy-duty roller type linear guide ways with greater span between ways. This provides solid support for table. Another benefit is the table can accommodate heavier loads without deformation.

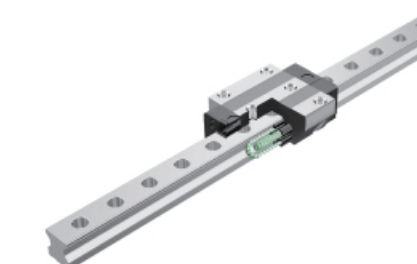
Chip Augers

There is one chip auger each equipped at side of base, delivering chips to a chip conveyor for easy removal.



Rigid Roller Type Linear Guide Way

Mounted with the SRG highly rigid roller type linear guide ways combined with the use of a roller retainer. These special linear guide ways feature low friction coefficient, smooth movement and maintenance-free performance for long periods of operation.



Optional Structural Design

- ▷ Double column structure features ultra-high stability in high speed machining.
- ▷ The table is independently installed on the base and fully supported by 3 roller-type linear guide ways through the entire stroke, assuring maximum accuracy and dependability.

One-piece Constructed Columns

The specially designed double-column, high speed machine structure combined with one-piece constructed column fully exhibit structural rigidity and stability during heavy cutting.

Three Axes Linear Guide Ways

- ▷ Roller type linear guide ways on three axes feature higher feed rate, resist heavier loads and ensure superior dynamic accuracy and long service life.
- ▷ X,Y-axis is equipped with 3 linear guide ways for superior rigidity.

Servo Motor Drives on 3 Axes

Three axes are driven by powerful servo motors. Their power can reduce machining time for large molds and increase profitability.

Deformation Free

All casting parts are stress relieved and treated for lifetime accuracy without any deformation.

High Accuracy

- ▷ Positioning accuracy: 0.003 / 300 mm
- ▷ Repeatability: ± 0.003 mm
- ▷ Three axes are equipped with Heidenhain optical scales.

Three Axes Feed Rates

- ▷ Rapid feed rate: 20 / 15 / 20 m/min.
- ▷ Cutting feed rate: 20 / 15 / 20 m/min.

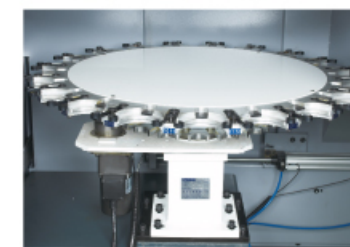
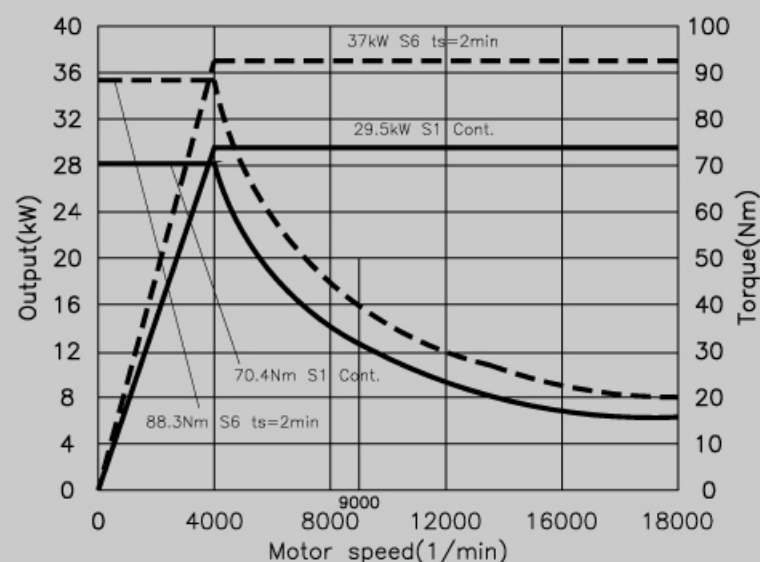
18,000 rpm High Speed Built-in Spindle

Helps mold makers boost efficiency and surface finish

18,000 rpm Built-in Type Spindle

- ▷ Spindle taper HSK A63
- ▷ Spindle drive 29.5 / 37 Kw
- ▷ Spindle torque output 70.3 / 88.3 Nm
- ▷ Oil air lubrication

Spindle Power and Torque Diagram



Disk Type Magazine (standard equipment)

The loading capacity of magazine is 24 tools.



Caterpillar Chip Conveyor

The chip conveyor efficiently delivers chips out of the machine. It eliminates machine problems caused by chips deposits.



1.

Air Conditioner for Electronic Cabinet

With the use of the air conditioner, the controller, motor driver and electronic components may maintain a constant temperature at all times. This also eliminates trouble or machine down-time caused by high temperature during long operations.



2.

High Quality Electronic Components

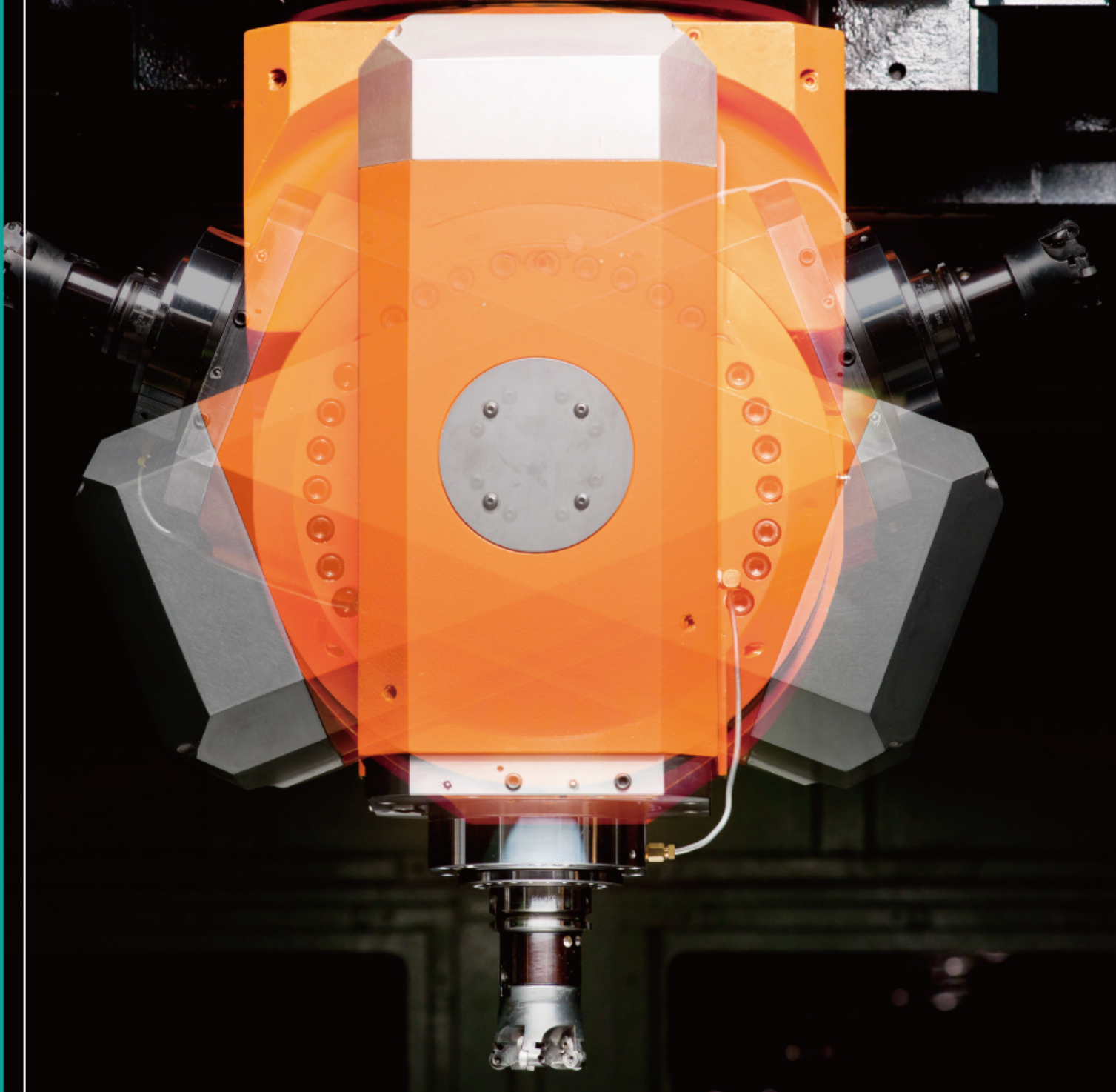
The control circuit in the electrical cabinet consists of high quality electronic components that feature excellent stability and long service life.



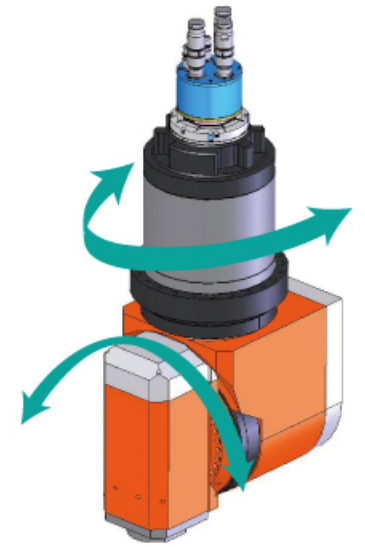
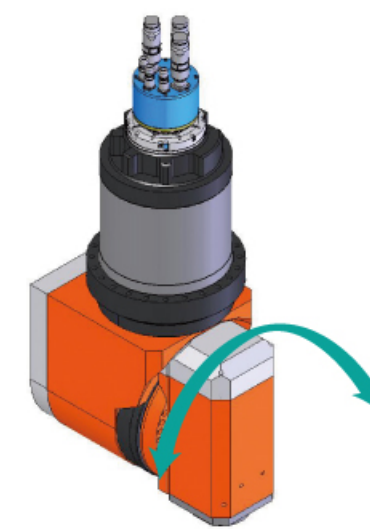
3.

Automatic Lubricator

This lubricator automatically delivers lubrication oil to Y, Z-axis ball screws (X-axis is grease lubricated) and three axes linear ways.



The A, C-axis combined in a spindle head allows the machine to perform multi-tasking. As a result, you get unsurpassed productivity with the accuracy you require.



Rotating and Tilting Spindle Head

- ▷ Increase efficiency
- ▷ Reduce downtime

- ▷ Higher precision
- ▷ More flexibility

A & C-Axis

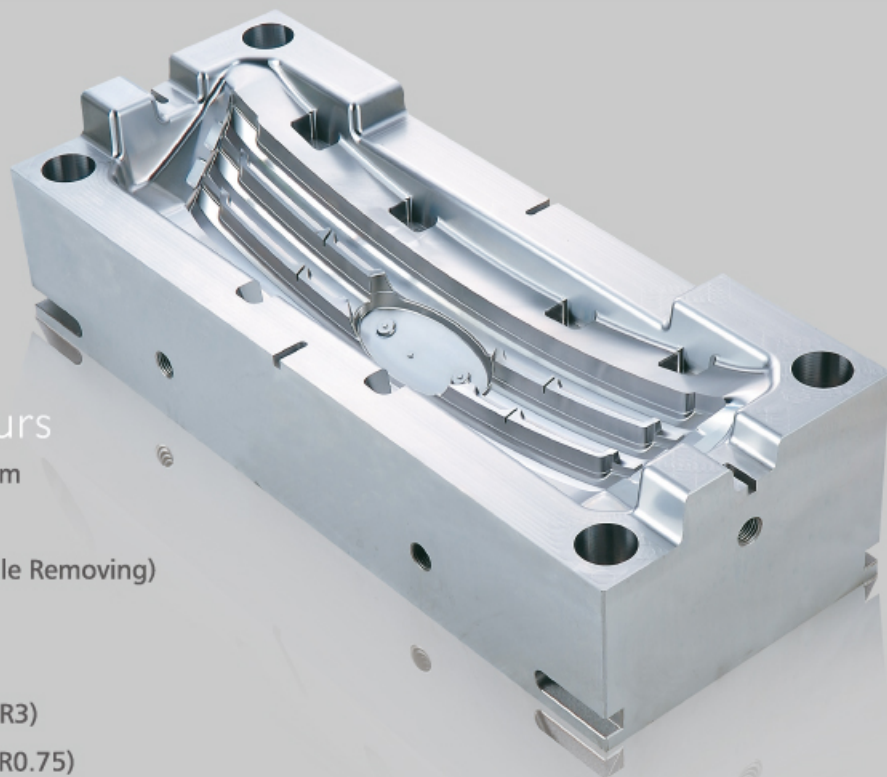
The machine employs an advanced swiveling head, which can rotate $\pm 220^\circ$ and tilt $\pm 115^\circ$. It makes the machine capable of machining complex parts in one setup.

A-Axis

- ▷ Tilting angle: $\pm 115^\circ$
- ▷ Drive: Direct-drive motor
- ▷ Speed: 30-40 rpm
- ▷ Max. torque: 800 Nm
- ▷ Positioning (indexing) accuracy: ± 10 sec.
- ▷ Repeatability: ± 7 sec.
- ▷ Equipped with angle encoders

C-Axis

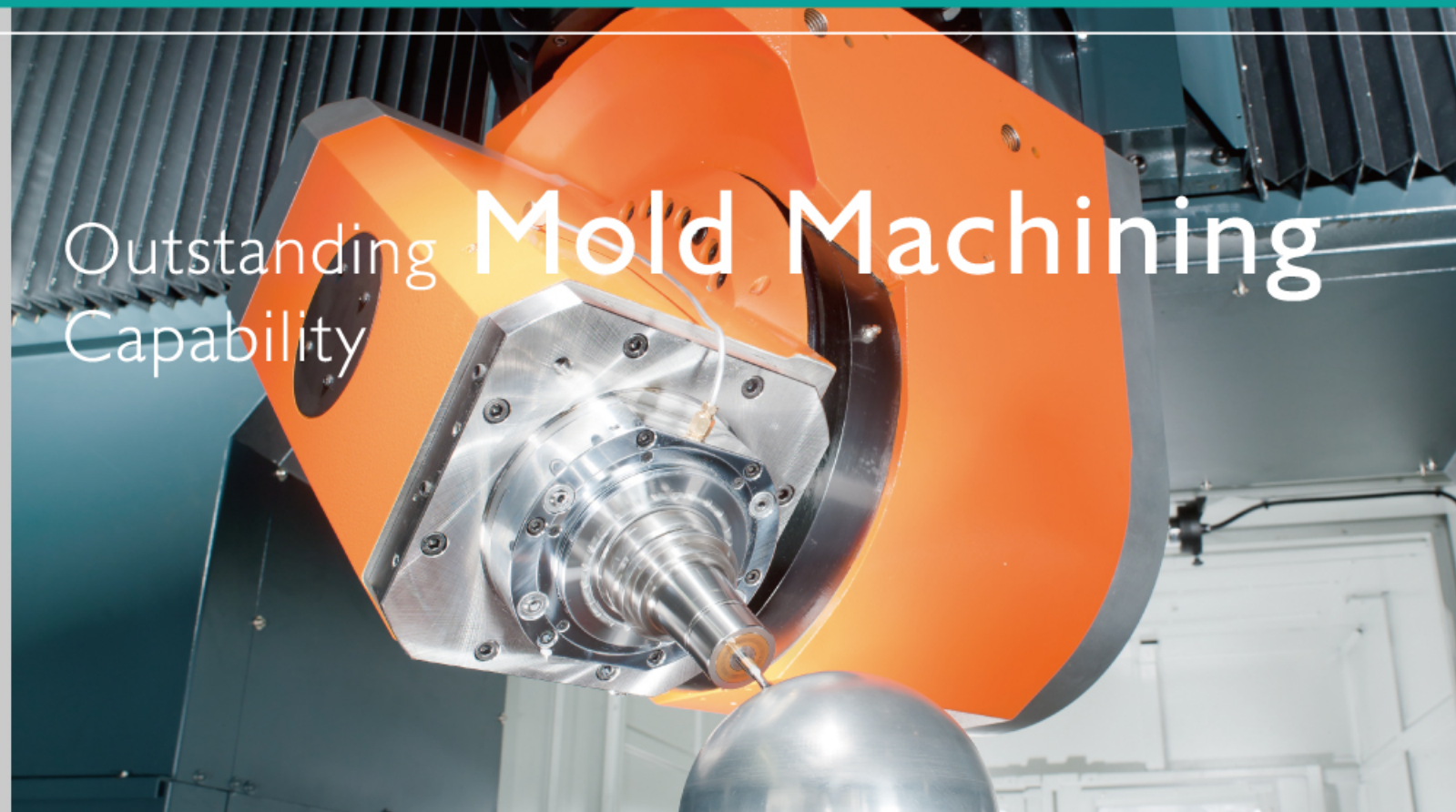
- ▷ Rotating angle: $\pm 220^\circ$
- ▷ Drive: Direct-drive motor
- ▷ Speed: 30-40 rpm
- ▷ Max. torque: 800 Nm
- ▷ Positioning (indexing) accuracy: ± 10 sec.
- ▷ Repeatability: ± 7 sec.
- ▷ Equipped with angle encoders



Machining Time: 22 hours

- ▷ Workpiece Size: 1250 x 500 x 500 mm
- ▷ Material: P5 (HRC32)
- ▷ Tool: R3 (Fine finishing) / R0.75 (Angle Removing)
- ▷ Spindle Speed: 10,000 rpm (R3)
16,000 rpm (R0.75)
- ▷ Cutting Feedrate: F1,800 mm / min (R3)
F1,000 mm / min (R0.75)
- ▷ Angle Removing Time: 10 hours

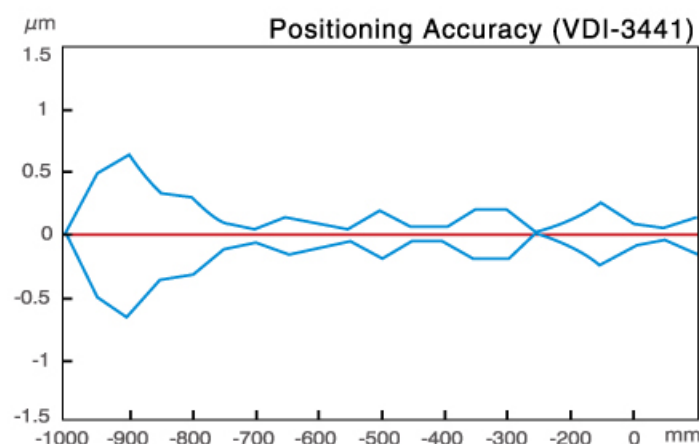
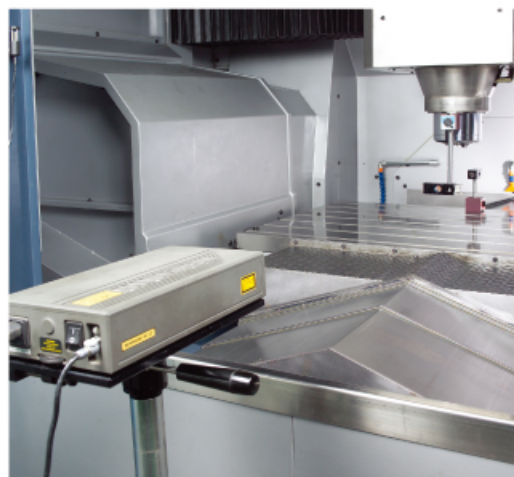
Outstanding **Mold Machining**
Capability



Superior Quality Control

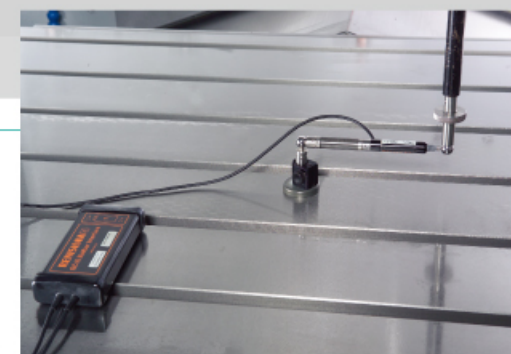
Accuracy Inspection by Laser

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



Ball Bar Circulating Accuracy Inspection

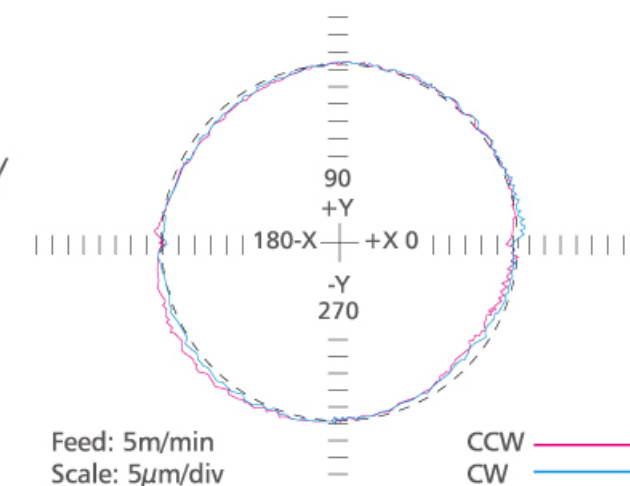
A high precision Renishaw ball bar tester is used for inspecting servo accuracy and geometric errors between two axes, thereby ensuring outstanding circularity accuracy.



Positioning and Repeatability Accuracy

GT-HTA 2500

Control	SIEMENS / HEIDENHAIN
Positioning Accuracy	0.003 / 300mm
Repeatability	±0.003mm



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 CONTROL
(Standard Equipment)



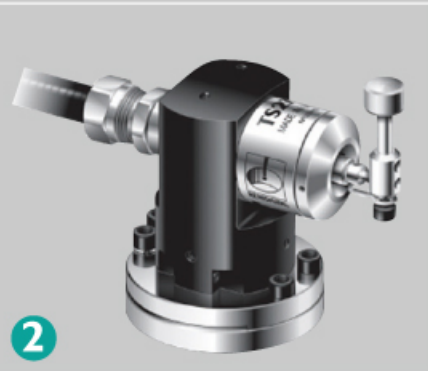
HEIDENHAIN iTNC 530 CONTROL
(Optional Equipment)

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.



Optional Equipment



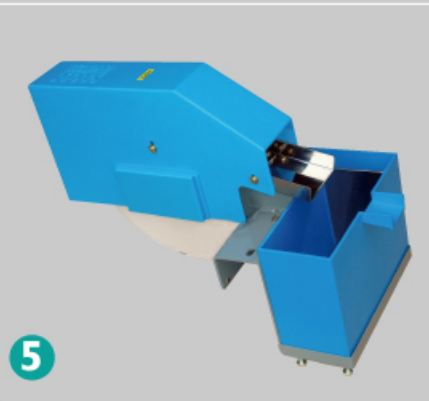
1. Automatic Tool Length Measurement System (Laser Type)
2. Automatic Tool Length Measurement System (Mechanical Type)



3. Automatic parts Measurement Device

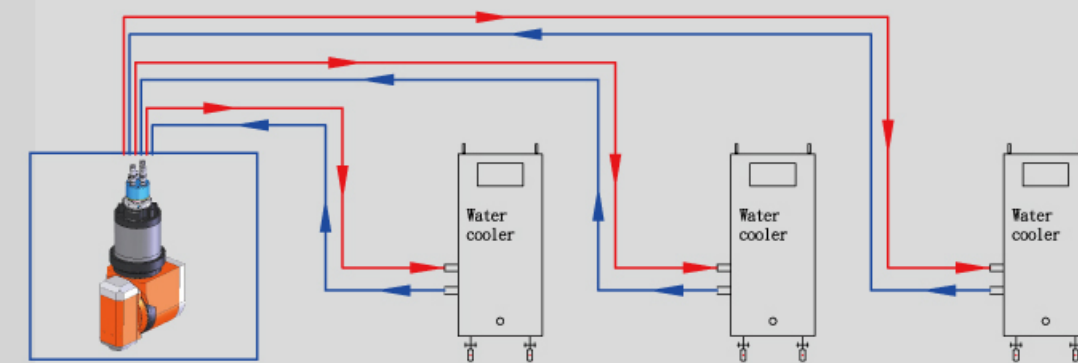


4. CTS Coolant Through Spindle Device

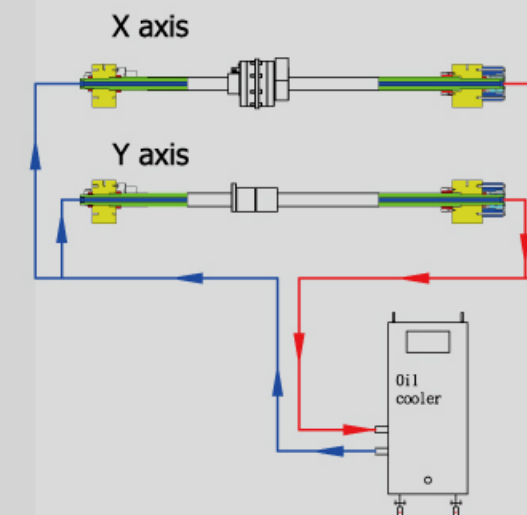


5. Oil skimmer

High Precision Performer



A-axis, C-axis, Spindle cooler
The spindle, A & C axis employ an independent cooler for circulated water cooling, minimizing thermal growth while axes are running. It also greatly extends service life for the axes above.

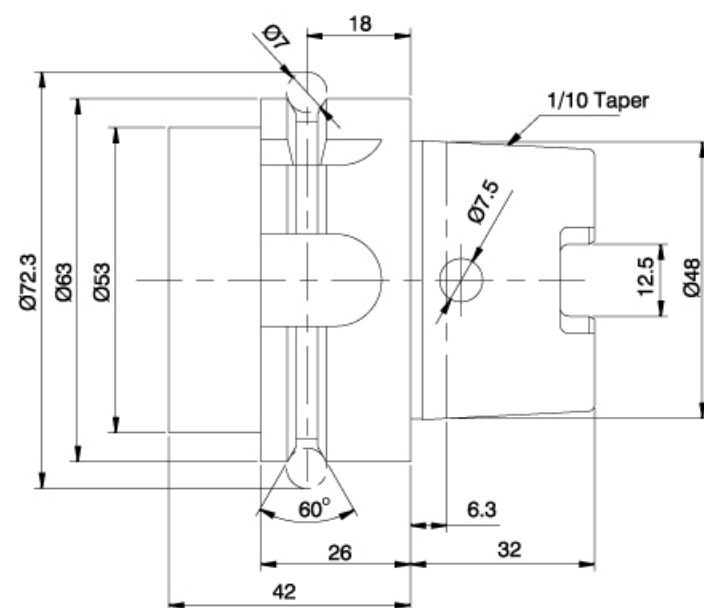


Coolant Through Ball Screw On X-axis (standard), On Y-axis (optional)

- ▷ The ball screws employ an independent cooler for circulated oil cooling. This prevents ball screw deformation, while providing smooth feed motion and high positioning accuracy.
- ▷ Coolant through ball screws on X, Y-axis prevent ball screw deformation, while assuring smooth feed motions and high positioning accuracy.

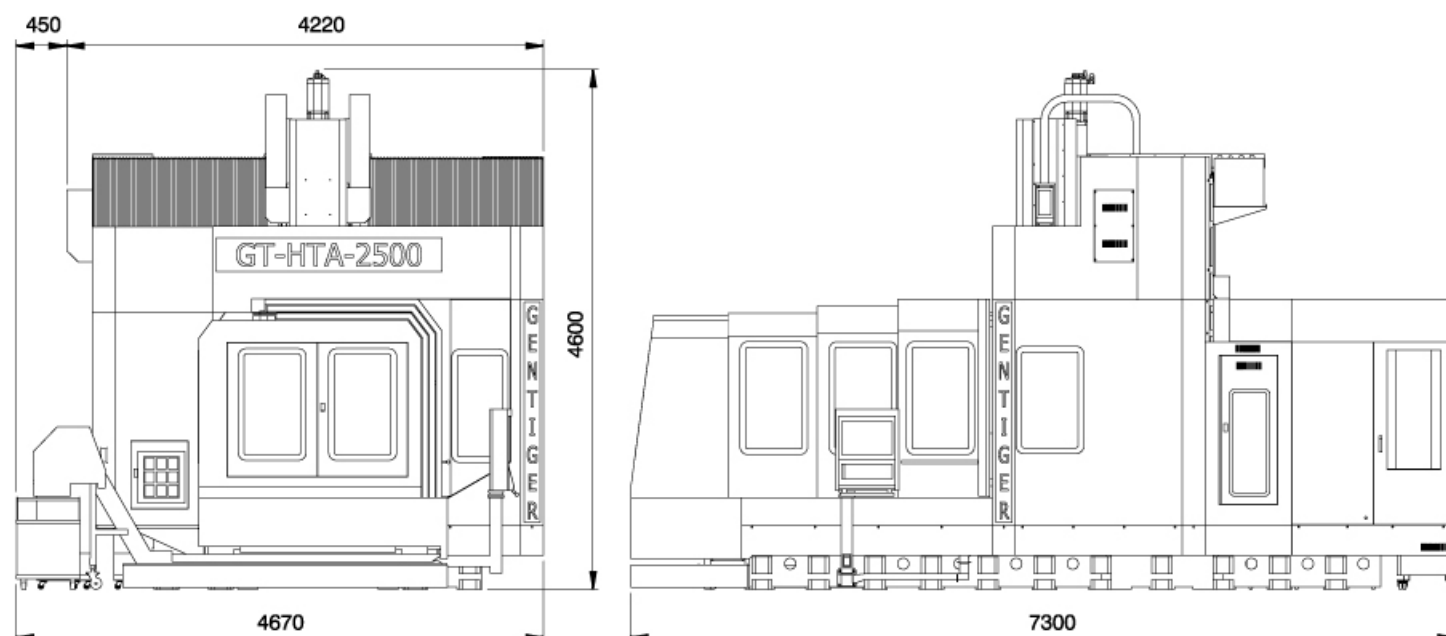
Outstanding Mold Machining Capability

► HSK A63 Tool Shank Diagram



- ▷ Tool shank specifications: HSK A63
- ▷ Max. tool length: 250 mm
- ▷ Max. tool diameter: Ø 90 mm
- ▷ Max. tool weight: 6 kg

► Dimensional Drawings Of The Machine



GT-HTA 2500

Model	
Travel (X / Y / Z)	2500 x 2470 x 850 mm
Cutting feedrate	20 / 15 / 20 m/min
Rapid feedrate	20 / 15 / 20 m/min
Table area	2800 x 1600 mm
T-slot	22 / 210 x 8 mm
Height of table from ground	980 mm
Distance from spindle nose to table surface	100 ~ 950 mm
Max. Load of table (average load)	10,000 kg
Max. Spindle speed	18,000 RPM
Type of spindle motor	Built-in
Bearing lubrication	Oil-Air
Spindle cooling	Water-cooling
Spindle taper	HSK-A63
Spindle motor	29.5 kw
Spindle torque	70.4 Nm
Spindle bearing Ins.diameter	Ø70 mm
ATC capacity	24 tools
ATC tool system	HSK-A63
Max. Tool diameter	Ø90 mm
Max. Tool length	250 mm
Max. Tool weight	6 kg
Motor of tool magazine	60 W
Controller	HEIDENHAIN
Servo motor for 3 axes	21.99 / 25 / 14.66 kw
Air pressure requirements	7 kg/cm ²
Air conditioner	750 W
Spindle cooler	1.45 kw
Automatic Lubricator (slideways)	150 W
Coolant motor	2 kw
Chip flush motor	2 kw
Total power consumption (Max.)	105 kw
Coolant tank capacity	1,170 Liter
Machine dimensions	7300 x 4670 x 4600 mm
Machine net weight	40000kg

▷ Above specifications are subject to change without prior notice.

STANDARD ACCESSORIES

- ▷ Coolant Tank
- ▷ Work lamp
- ▷ Tool box
- ▷ Coolant pump
- ▷ Coolant system
- ▷ Spindle cone air blast
- ▷ Air conditioner for electrical cabinet
- ▷ M.P.G.
- ▷ Pilot lamp
- ▷ Spindle thermo compensation function
- ▷ Caterpillar type chip conveyor and chip cart
- ▷ Central lubrication system
- ▷ Operation and maintenance manuals
- ▷ Leveling bolts and blocks
- ▷ Two chip augers beside work table
- ▷ Ethernet socket
- ▷ X,Y,Z axes optical scale
- ▷ A , C axes angle encoders

OPTIONAL ACCESSORIES

- ▷ Oil skimmer
- ▷ Automatic tool length measurement
- ▷ Automatic workpiece measurement
- ▷ Coolant through spindle