



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-I 38V

High Speed Machining Center

139621000811E

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CE ISO 9001

HIGH SPEED MACHINING CENTER

Designed and Engineered to Provide
a **Competitive Edge** for Mold Makers

**Gentiger
GT-138V**

Look into the Exceptional Design from

- T-shaped machine structure for exceptional rigidity.
- One piece constructed column and beam.
- Compact construction, combined with ergonomical design, provides maximum convenience of operation.
- X and Y-axes are separately located.
- Extra powerful servomotor drive.
- 20m/min. rapid feedrate on 3 axes.
- 20m/min. cutting feedrate on 3 axes.
- Choice of high speed spindles - 10,000, 15,000 or 24,000 RPM.
- Extremely highly rigid construction makes the machine excellent for high speed machining.
- Heidenhain linear scales on 3 axes.



A High Speed Machining Center

Designed to Help Mold Makers Stay Competitive

When high speed and precise machining are your challenges, Gentiger has the solutions. Now with the Gentiger GT-138V High Speed Machining Center, you can get the speed accuracy and stability you've been looking for. The advanced T-shaped machine structure assures maximum rigidity and stability. The optimum structural design provides toughness and excellent vibration absorption. The result is long term accuracy under the high speed cutting conditions. The GT-138V features high positioning accuracy of 0.004/300mm and repeatability up to ± 0.003 mm, and the extra powerful servomotor drive will reduce considerable machining time, especially when machining large molds.

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How the Gentiger **GT-138V** Assures Lifetime Accuracy

Optimal Machine Structure

The GT-138V features a specially designed T-shaped machine structure for superior rigidity. The width of the column is the same as the base.

The table is independently installed on the base, and fully supported through the entire stroke, assuring maximum accuracy and dependability. Long term accuracy at high speed machining is assured.

Lifetime Accuracy

All cast iron structural parts are stress relieved and season treated for long term accuracy and long service life.

Three Axes Linear Guideways

The three axes are equipped with extra heavy duty roller-type linear guideways, ensuring superior dynamic accuracy and a long service life.

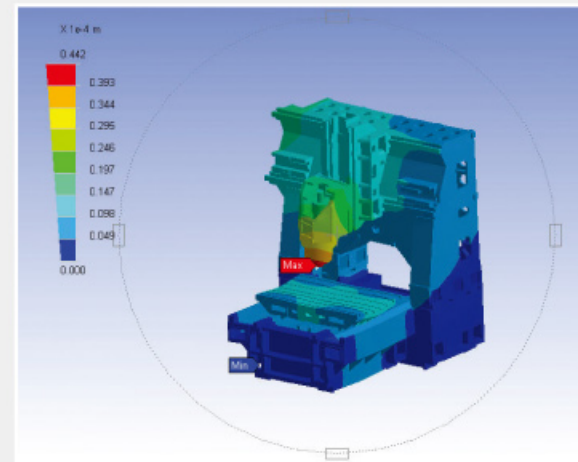
The extra powerful servomotor drive greatly reduces machining time for large molds while increasing profitability.

Three Axes Feedrates: 20m/min. rapid feedrate
20m/min. cutting feedrate

Positioning Accuracy: 0.004 / 300mm
Repeatability: ± 0.003 mm

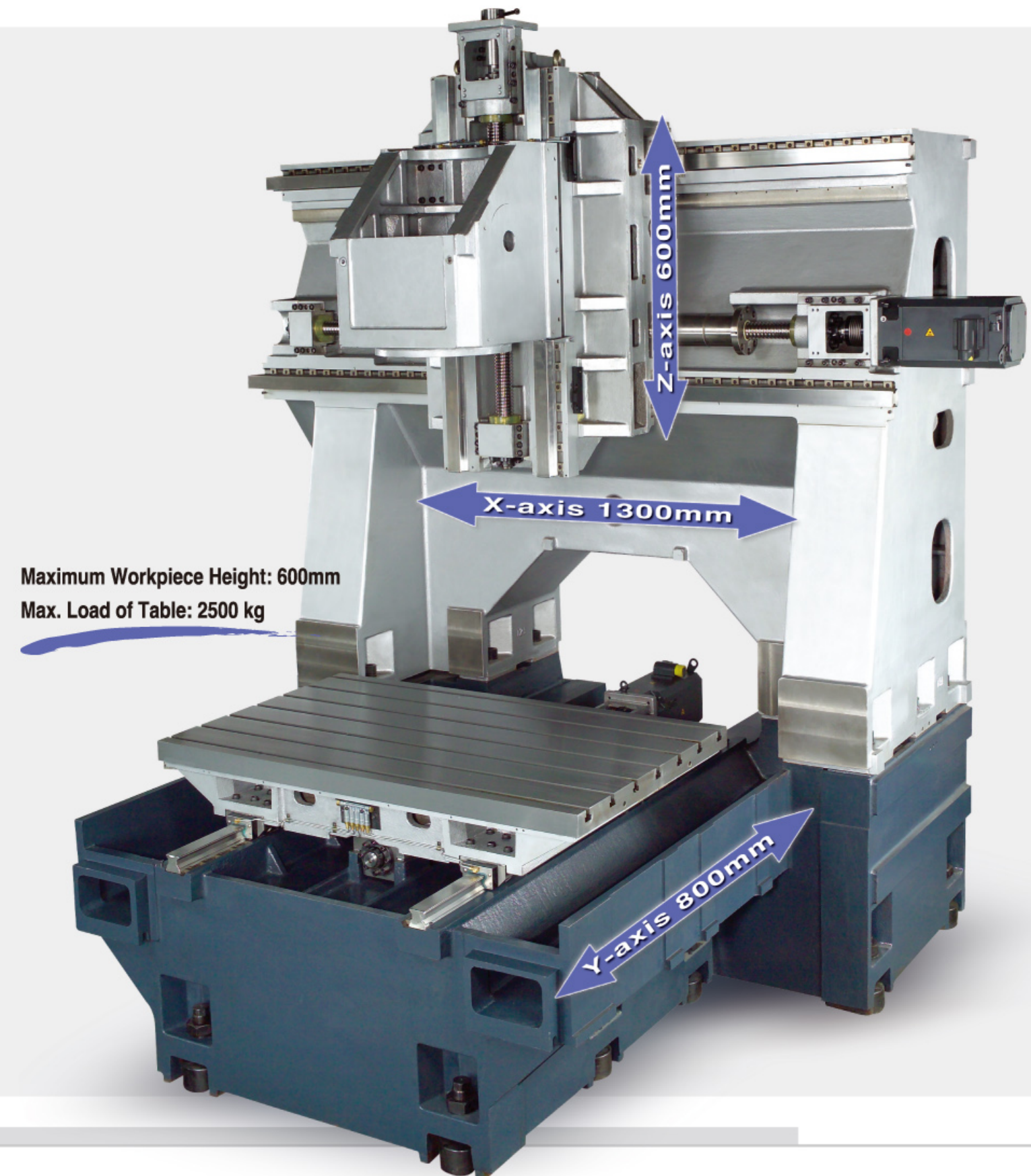
Cutter needs to be dynamically balanced to within G2.5.

The GT-138V is ruggedly constructed throughout. Its advanced T-shaped structure is combined with separated X and Y axes to meet today's demands for high speed and high precision machining.



Finite Element Analysis

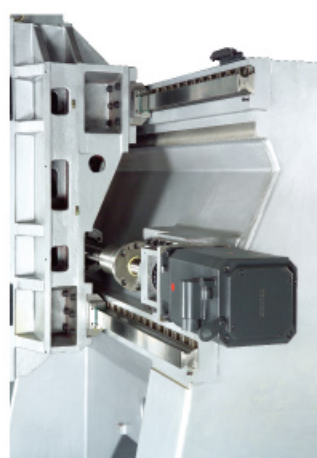
The major structural parts of Gentiger machining centers are analyzed by the advanced Finite Element Analysis (FEM) to simulate structural stress/strain conditions. This enables our engineers to design the optimal structure.



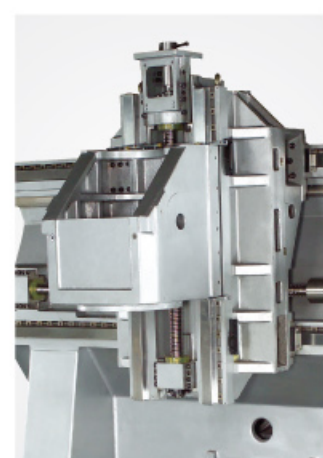


Performance Through Excellence

These Gentiger Quality Features Guarantee Increased Machining Performance



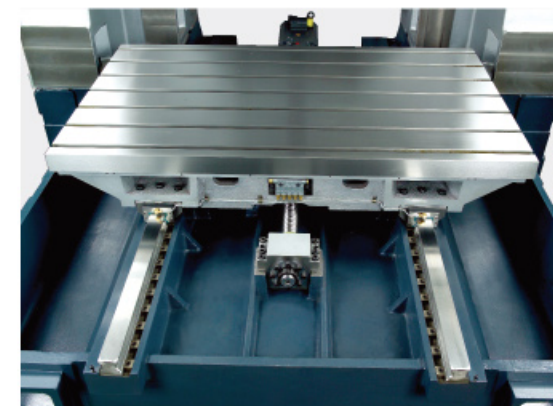
Powerful Drives on Three Axes
The three axes feeds are driven by powerful servomotors that greatly reduce machining time while upgrading efficiency.



Block Movement on Z-axis
When machining a thin workpiece, the spindle always provides high rigidity machining even when the spindle extremely approaches the table.



Column Fastened Securely
The columns are fastened securely to the base for added stability and outstanding vibration absorption capability during high speed machining. The fastening width between the column and the base is 900 mm.



Roller Type Linear Guideways on Three Axes

The three axes are equipped with high rigidity roller type linear guideways, making the machine ideal for high speed and heavy duty machining.



Automatic Tool Changer (ATC)

The standard loading capacity of the magazine is 20 tools. The ATC provides various tool shanks to choose from, such as BT-50, BT-40 and HSK-A63.



Chip Flushing Devices

The Gentiger GT-138V provides three devices for chip flushing, including coolant, air blast device and an optional oil mist device.

Spindle Cooler

The spindle cooler employs circulated oil/water as coolant to efficiently remove heat generated by the spindle. The cooler enables the spindle to keep at a constant temperature, resulting in added machining accuracy and long spindle life.



Air Conditioner for Electrical Cabinet

The air conditioner is applied for keeping the controller, motor drive and all electronic components operating at a constant temperature in a dust free environment. It helps to avoid malfunctions or power failures due to high temperature, resulting in long, continuous operations.



Caterpillar-type Chip Conveyor and Cart

The caterpillar-type chip conveyor effectively moves chips out of the machine to avoid potential faults caused by accumulated chips.

Various High Speed Spindles

A Guaranteed Performance for High Speed and High Precision Machining

T10

Direct Drive Spindle BT/BBT-50 Oil Circulated Cooling

- Maximum Spindle Speed: 10,000 RPM
- Bearing Lubrication: Grease
- Spindle Motor: 22 kw
- Spindle Torque: 172 / 320 Nm
- Spindle Taper: Ø90 mm
- High Precision Ceramic Bearings
- Cutter needs to be dynamically balanced to within G2.5

T15

Direct Drive Spindle BT/BBT-40 Oil Circulated Cooling

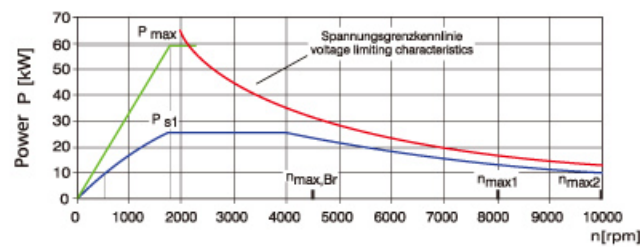
- Maximum Spindle Speed: 15,000 RPM
- Bearing Lubrication: Grease / Oil air (opt.)
- Spindle Motor: 11 kw
- Spindle Torque: 74 / 130 Nm
- Spindle Taper: Ø70 mm
- High Precision Ceramic Bearings
- Cutter needs to be dynamically balanced within G2.5

S24A

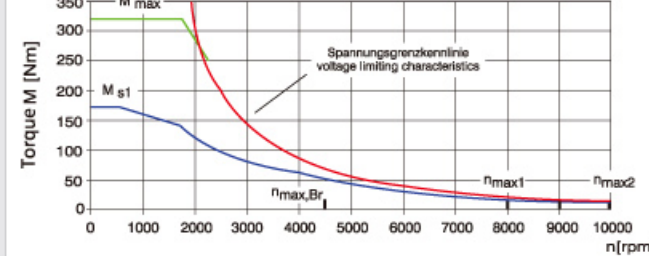
Built-in Type Spindle HSK-A63 Water Circulated Cooling on Spindle Oil Mist Lubrication on Bearings

- Built-in Type Motor: 39/30 kW
- High Rigidity, High Precision Ceramic Bearings
Inside Diameter of Bearings: Ø65 mm
- Maximum Spindle Speed: 24,000 rpm
- High Accuracy. High Rigidity. High Power.
- Cutter needs to be dynamically balanced within G2.5

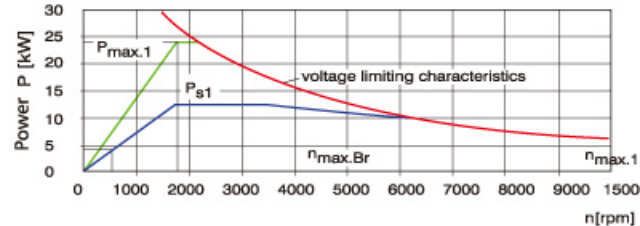
■ Spindle Speed / Power Diagram



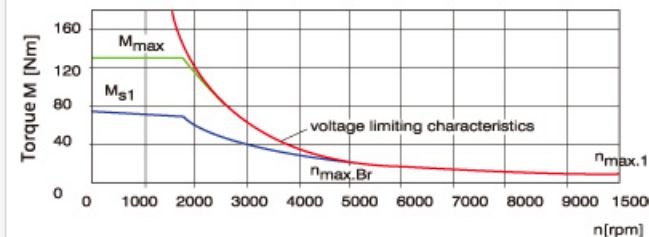
■ Spindle Speed / Torque Diagram



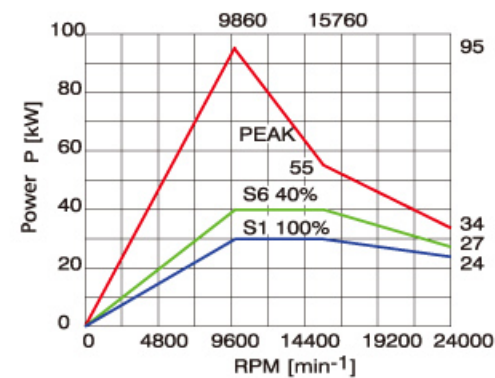
■ Spindle Speed / Power Diagram



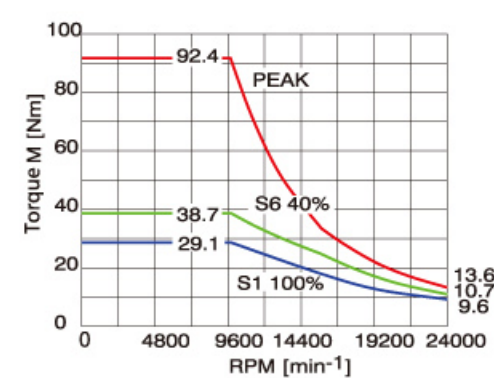
■ Spindle Speed / Torque Diagram



■ Spindle Speed / Power Diagram



■ Spindle Speed / Torque Diagram



Machining Time: 5 hours

Main Machining Conditions

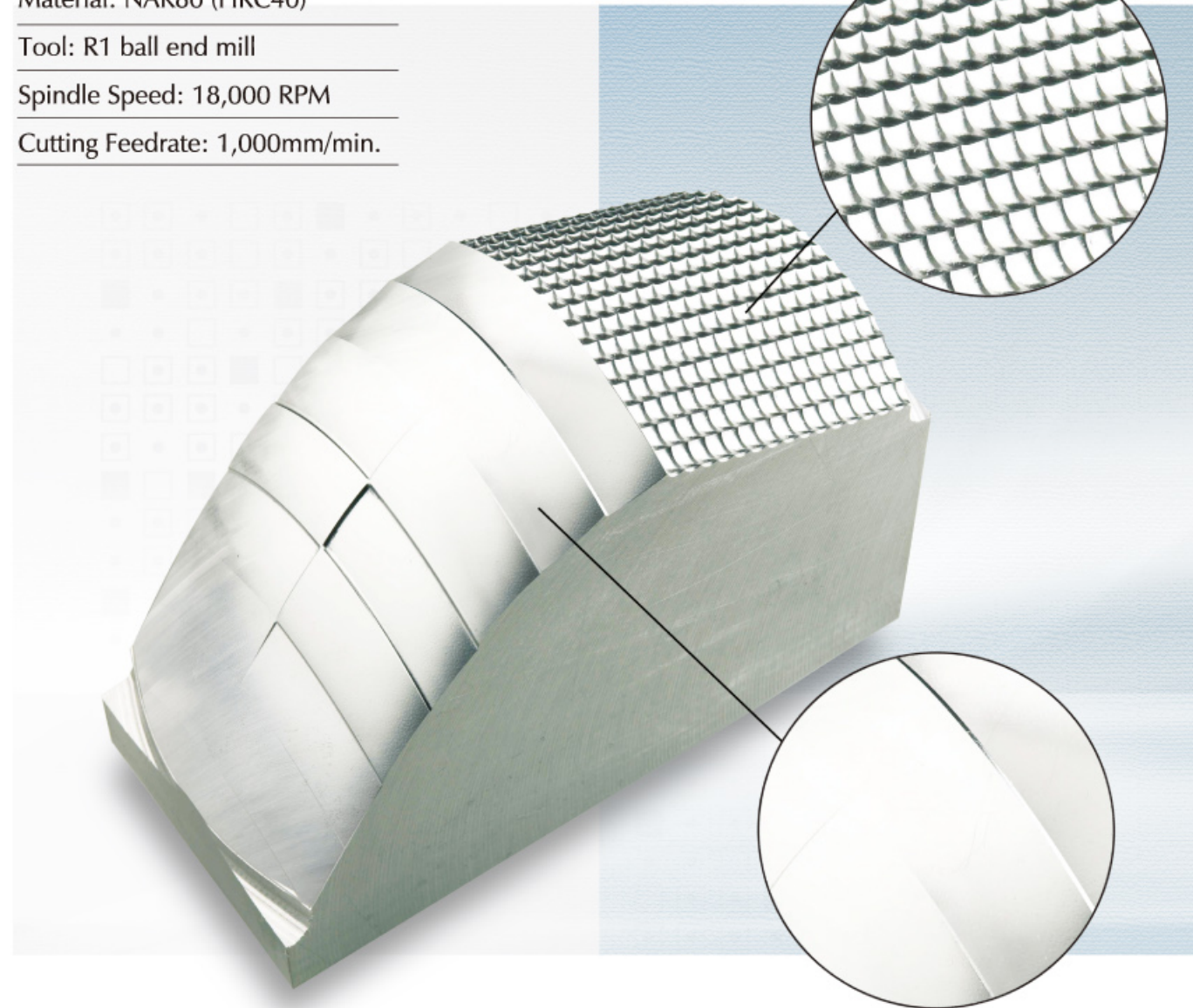
Workpiece Sizes: 76x166x124mm

Material: NAK80 (HRC40)

Tool: R1 ball end mill

Spindle Speed: 18,000 RPM

Cutting Feedrate: 1,000mm/min.



Outstanding **Mold Machining** Capability

Machining Time: 22 hours

Main Machining Conditions

Workpiece Sizes: 1250 x 500 x 500 mm

Material: P5 (HRC32)

Tool: R3 (Fine finishing)

R0.75 (Angle Removing)

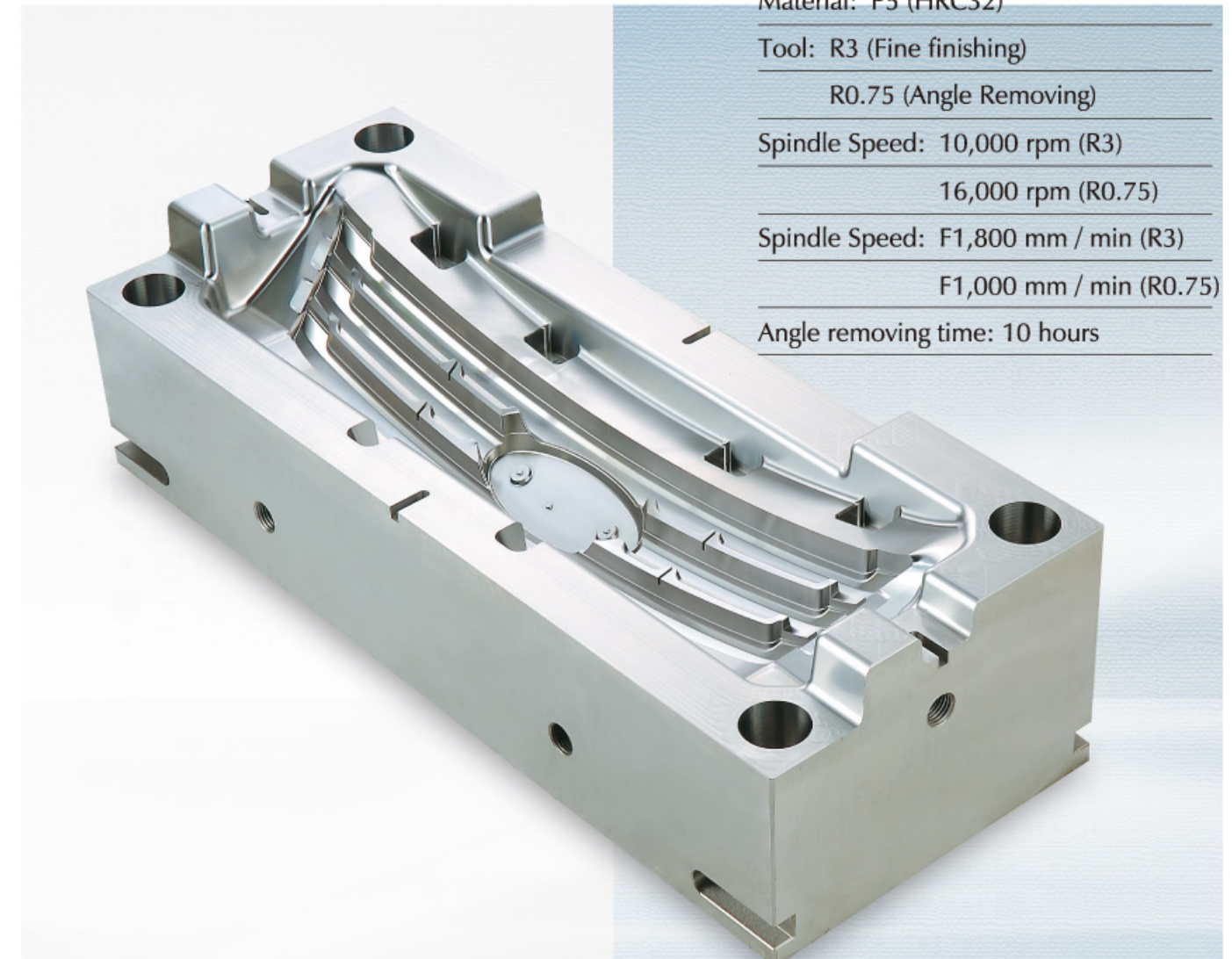
Spindle Speed: 10,000 rpm (R3)

16,000 rpm (R0.75)

Spindle Speed: F1,800 mm / min (R3)

F1,000 mm / min (R0.75)

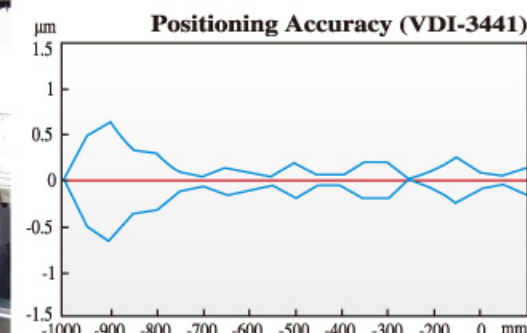
Angle removing time: 10 hours



Superior **Quality** Control

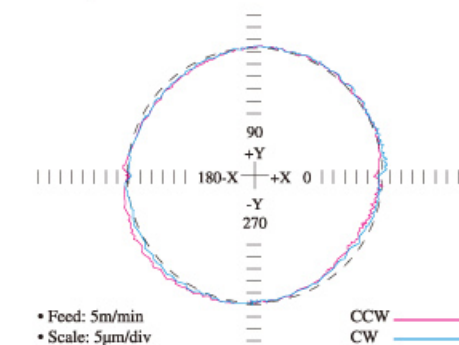
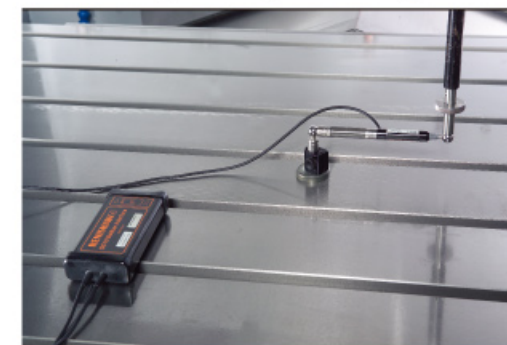
Accuracy Inspection by Laser

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



Ball Bar Circularity Accuracy Inspection

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



Positioning and Repeatability Accuracy

| Model | Control | POSITIONING ACCURACY | REPEATABILITY |
|---------|---|----------------------|---------------|
| GT-138V | SIEMENS / FANUC / HEIDENHAIN / MITSUBISHI | 0.004/300mm | ±0.003mm |

Various Advanced Controls to Choose from

The Gentiger machining center provides a choice of various advanced controls. Each control permits high speed milling and NURBS curved surface machining functions and is 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 the programs are transferred through ethernet to the machine. This function will save preparation time.



Optional Equipment



Oil Mist Cooling System



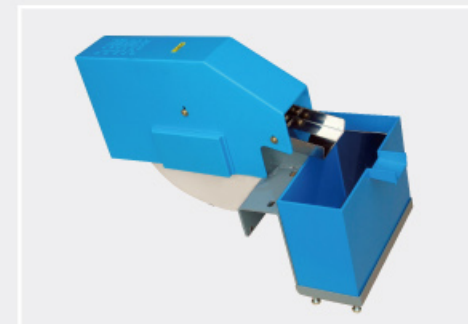
Automatic Tool Length Measurement System (Laser Type)



Automatic Tool Length Measurement System (Mechanical Type)



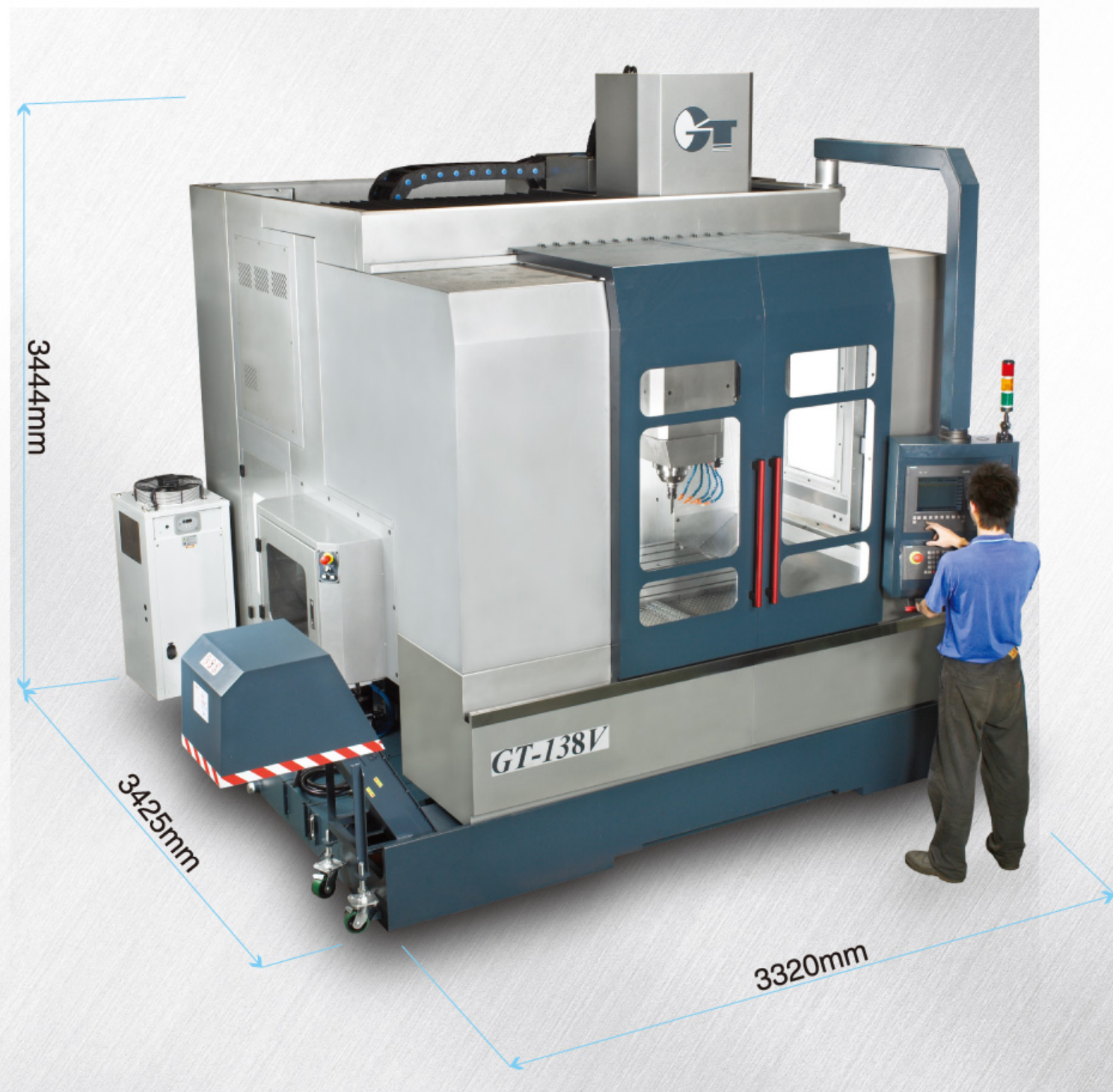
Automatic Parts Measurement Device



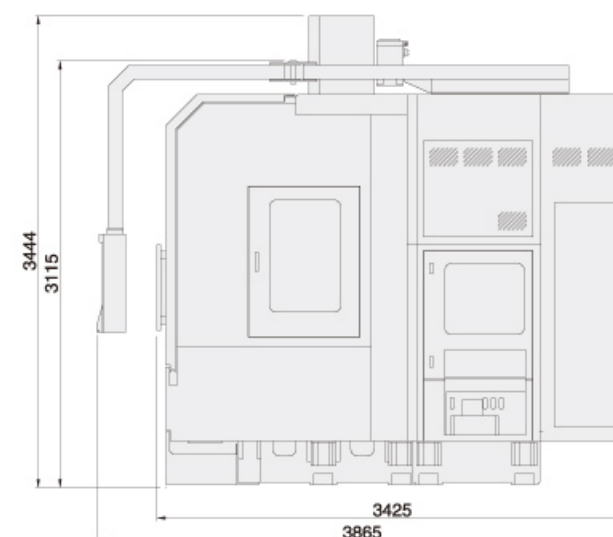
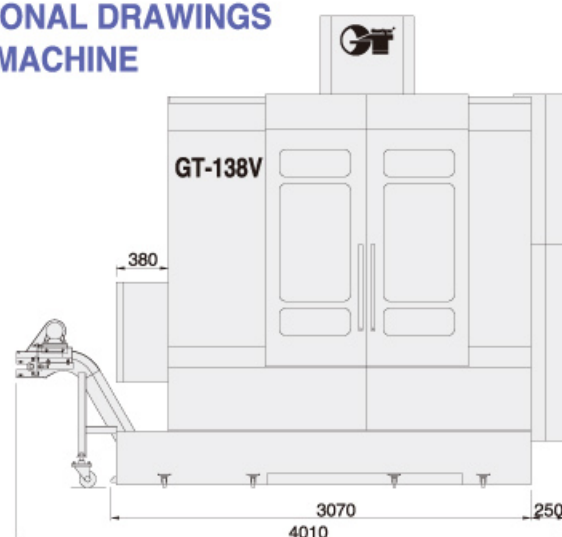
Oil Skimmer



Chip Augers at Both Sides of Table



DIMENSIONAL DRAWINGS OF THE MACHINE



Gentiger GT-138V SPECIFICATIONS

| MODEL | T10 | T15 | S24A |
|---|-----------------------------|--------------------------|----------------|
| Max. Spindle Speed | 10,000 rpm | 15,000 rpm | 24,000 rpm |
| Spindle Taper | BT/BBT-50 | BT/BBT-40 | HSK-A63 |
| Spindle motor | 22 kw | 11 kw | 39 / 30 kw |
| Spindle Torque | 172 / 320 Nm | 74 / 130 Nm | 29.1 / 38.7 Nm |
| Inner dia. of spindle bearing | Ø90 | Ø70 | Ø65 |
| Bearing lubrication | Grease | Grease / Oil mist (opt.) | Oil mist |
| Spindle cooling | Oil cooling | Oil cooling | Water cooling |
| Distance from spindle nose to table surface | 300 ~ 900 mm / 200 ~ 800 mm | | |
| Table area | 1400 x 850 mm | | |
| T-slot | 18 x 7 x 125 mm | | |
| Height of table from ground | 900 mm | | |
| Max. load of table (average load) | 2500 kg | | |
| Travel of X, Y, Z-axis | 1300 x 800 x 600 mm | | |
| Distance from spindle center to machine front | 1200 mm | | |
| Cutting feedrate | 20 m/min | | |
| Rapid feedrate | 20 m/min | | |
| ATC tool specification | BT/BBT-50 | BT/BBT-40 | HSK-A63 |
| ATC capacity | 20 | 20 | 20 |
| Max. tool length | 300 mm | 300 mm | 300 mm |
| Max. tool weight | 15 kg | 8 kg | 8 kg |
| Motor of tool magazine | 60 W | 60 W | 60 W |
| X, Y, Z-axis servomotors | 7.5 kw | | |
| Air pressure required | 7 kgf / cm ² | | |
| Air conditioner | 750 W / 550 W | | |
| Spindle cooler | 1,950 W | 1,950 W | 2,650 W |
| Automatic lubricator (slideways) | 150 W | | |
| Coolant motor | 750 W | | |
| Chip flush conveyor | 1580 W | | |
| Total power consumption (Max.) | 45 KVA | 45 KVA | 50 KVA |
| Coolant tank capacity | 420 Liter | | |
| Packing dimensions (LxWxH) | 382 x 382 x 385 cm | | |
| Net weight | 15,210 kg | | |
| Gross weight | 18,000 kg | | |

• All specifications, design and characteristics shown in this catalogue are subject to change without prior notice.
 • Above specifications are based on Simens control. Heidenhain and Fanuc control are available.

STANDARD ACCESSORIES

- Coolant tank
- Work lamp
- Coolant motor
- Coolant system
- Spindle air blow system
- Chip air blow device
- Air conditioner for electrical cabinet
- MPG
- Spindle cooler
- Work end indication light
- Spindle cooling system
- Coolant gun
- Caterpillar chip conveyor and cart
- Central control lubricator
- Operation and maintenance manual
- Leveling bolts and pads
- Fully enclosed splash guard
- Heidenhain linear scales on 3 axes

OPTIONAL ACCESSORIES

- Oil skimmer
- Oil mist cooling system
- Auto tool measurement system
- Auto part measurement system
- Chip auger on both sides of table