





*The Climax of
Heavy Duty Machining*

The HG-1250 is made from high-grade cast iron. It features hardened and ground box ways in all axes, providing high rigidity and excellent precision.

The 2 speed geared headstock develops high torque at low rpm for heavy cutting. The 30 HP spindle motor makes 1093 Nm in low gear. The 6,000 rpm spindle is both air/oil mist lubricated and oil cooled for long life and thermal stability.

Large diameter, pre-tensioned ball-screws are directly coupled to oversized servo motors. The axis thrust bearings are automatically lubricated for maintenance free operation. High speed rapid traverse of 20 m/min reduces cycle time while linear scales in X,Y, and Z ensure the highest precision.

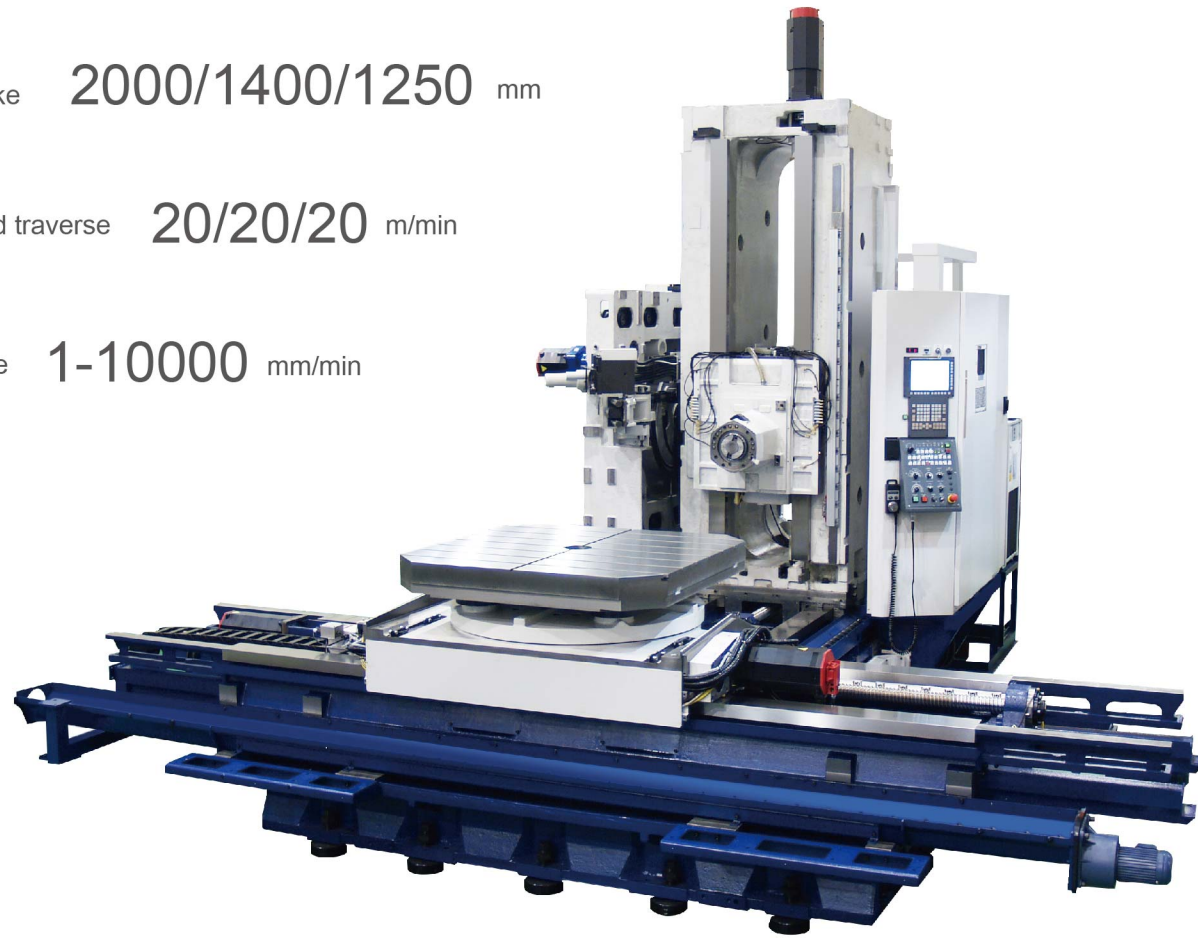
Other outstanding performance enhancing features include large capacity servo driven tool changers (60 std., 90/120 opt.), a full B-axis rotary table, chip conveyors, and coolant through the spindle.

Machine structure

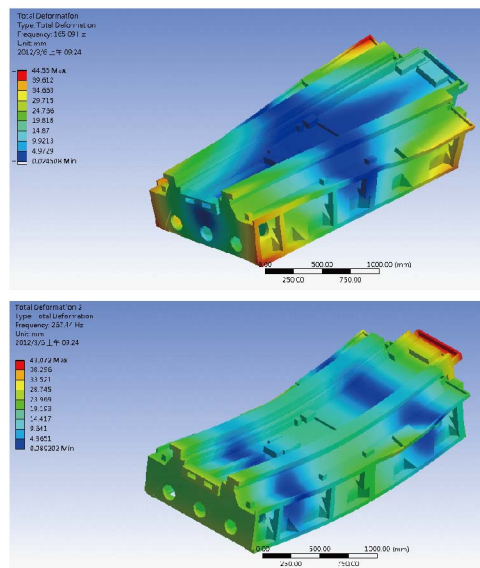
X/Y/Z axis stroke 2000/1400/1250 mm

X/Y/Z axis rapid traverse 20/20/20 m/min

Cutting feedrate 1-10000 mm/min

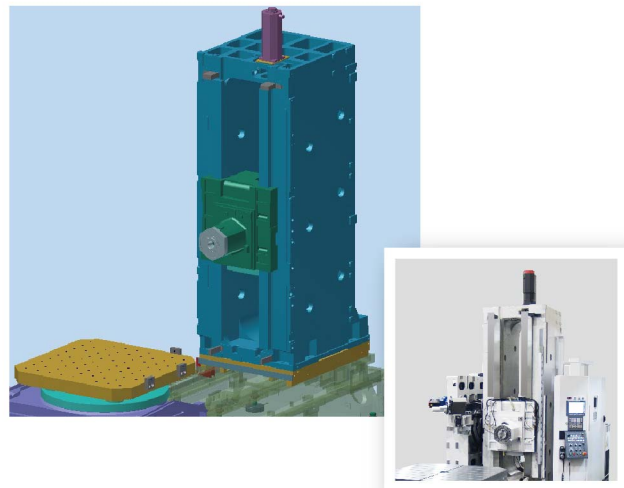


Finite Element Analysis



FEA is employed in the machine design to ensure structural integrity. The result is high rigidity, high accuracy, and excellent machine productivity.

Symmetrical column structure

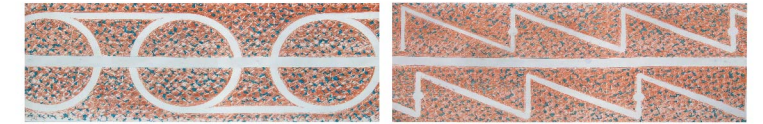


The column is symmetrical box type structure. Utilizing a double wall casting, the column has excellent rigidity to minimize deformation.

Scraping



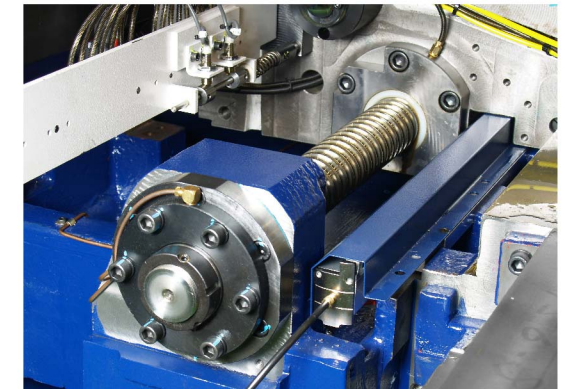
High precision scraping is carried out by skillful engineers to obtain the perfect lubrication with correct oil-film. The machine accuracy and the lifetime of slides are both raised accordingly.



High precision feeding units



All three linear axes employ rigid box ways. The ways are induction hardened and then finely ground to satisfy both heavy cutting and high accuracy demands.



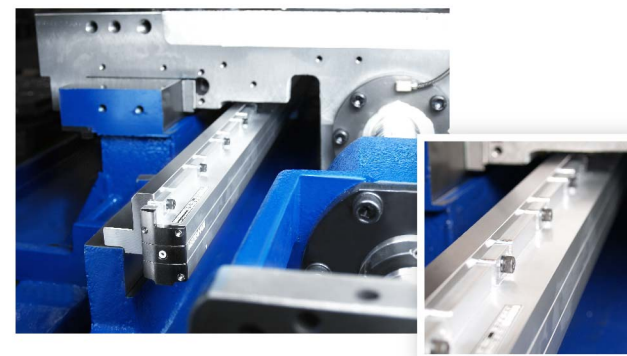
The preloaded ball screw reduces thermal distortion and ensures the machining performance and precision. Axis thrust bearings are auto lubricated.

Ergonomic design



The ergonomic design facilitates the operator in monitoring the production process during program editing. It reduces mistakes and improves the working efficiency.

Linear scale system



X/Y/Z axis adopts Heidenhain linear scale system for assuring the machining accuracy.

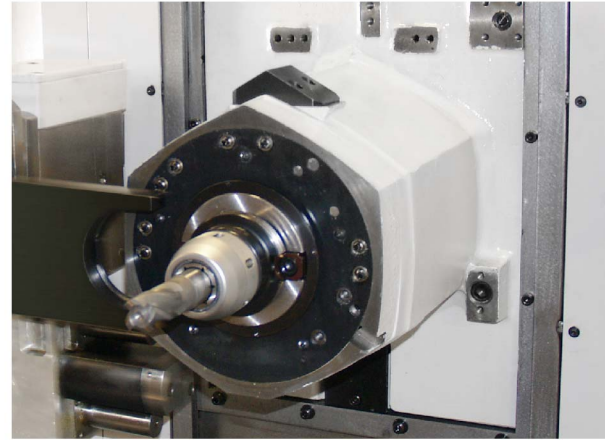
Spindle

Gear-box type spindle

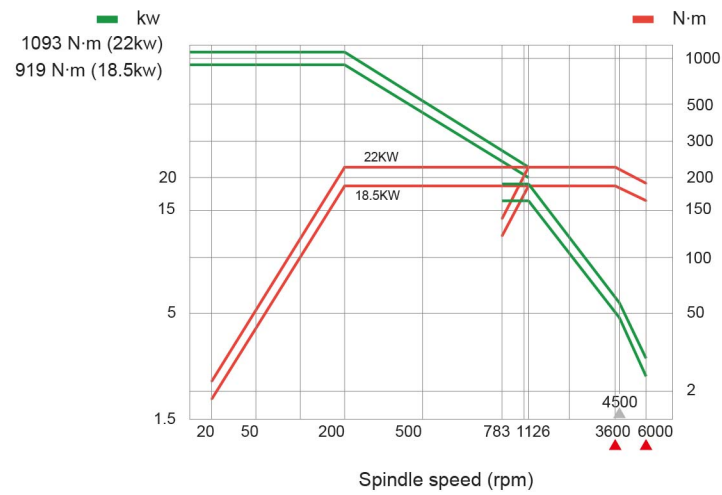
Standard **3600** rpm (Grease lubrication)

Optional **6000** rpm (Oil-mist lubrication)

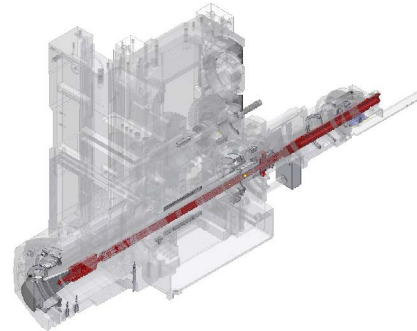
- Spindle cooler system is standard
- Coolant through spindle is available



Spindle output and torque chart

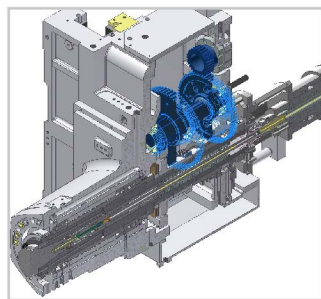


Coolant through spindle (C.T.S)



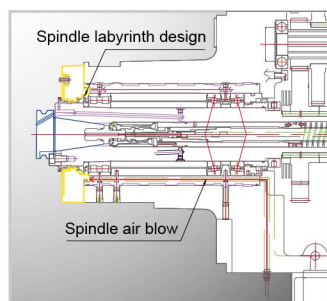
The coolant through spindle is standard. It improves machining speed and extends the tool life. Moreover, it allows efficient metal chip removal during deep hole machining and improves the workpieces' precision.

Spindle with gear box



The two speed geared spindle is designed using precisely ground angular gears. The torque is multiplied through the transmission producing 1093 Nm for heavy cutting. The gearbox is both force lubricated and oil cooled.

Spindle structure



The spindle employs precision angular thrust ball bearings. The bearings are air/oil mist lubricated to extend spindle life. To prevent contamination, the spindle is constantly air purged and utilizes a double labyrinth seal in the spindle nose.

The large capacity spindle oil chiller provides synchronous temperature control to prevent spindle thermal distortion.

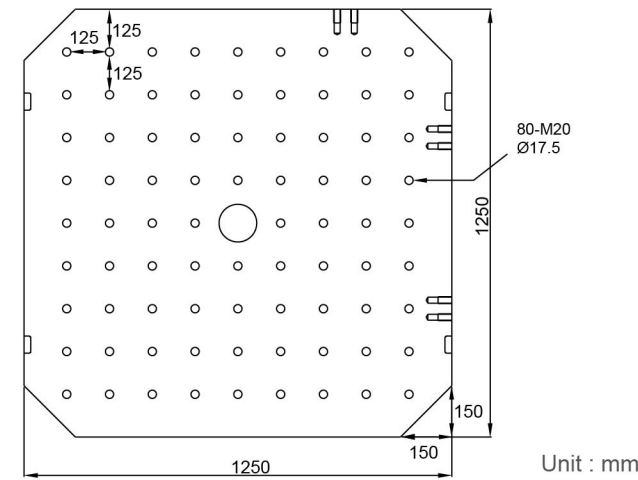
Pallet



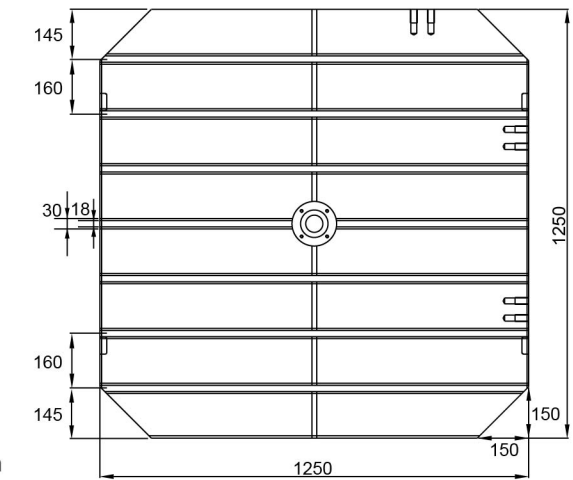
Fine ground table surface with excellent flatness

Pallet size	1250×1250 mm
Max. workpiece size	Ø1970×H1500 mm
Max. pallet load	4000 kg

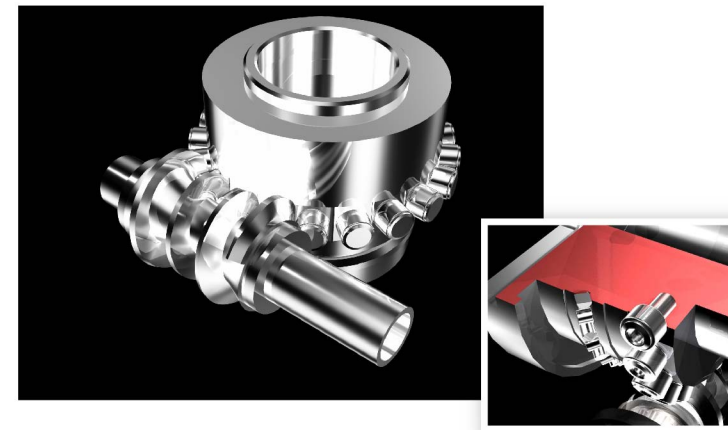
The size of tapped holes type pallet



The size of T-slots type pallet

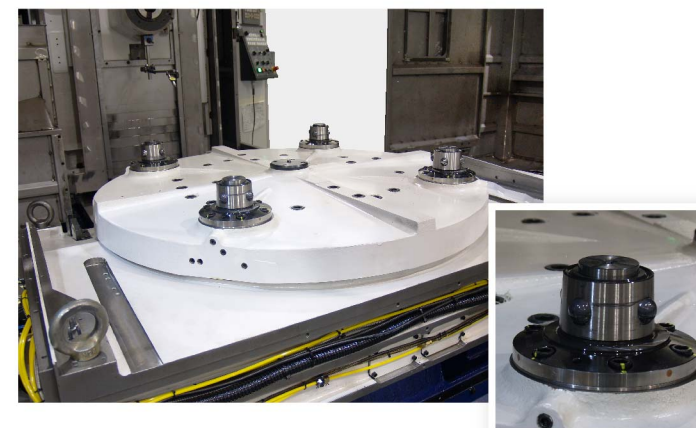


B axis cam type transmission device



Cam type transmission device has the advantages of zero-backlash, accurate deceleration, and high rigidity. In addition, compare with the traditional worm gear and wheel, its high speed positioning is two times faster. Furthermore, it performs well in both heavy duty machining as well as complicated workpieces.

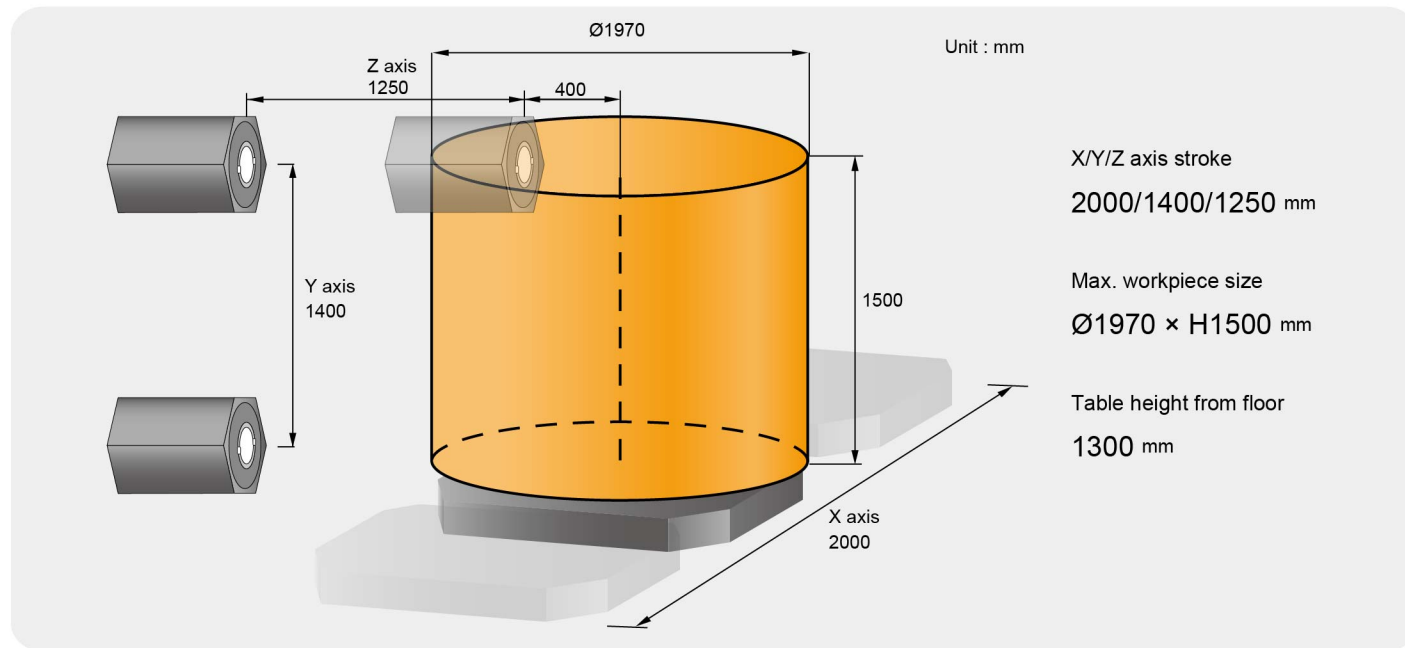
B axis positioning and clamping device



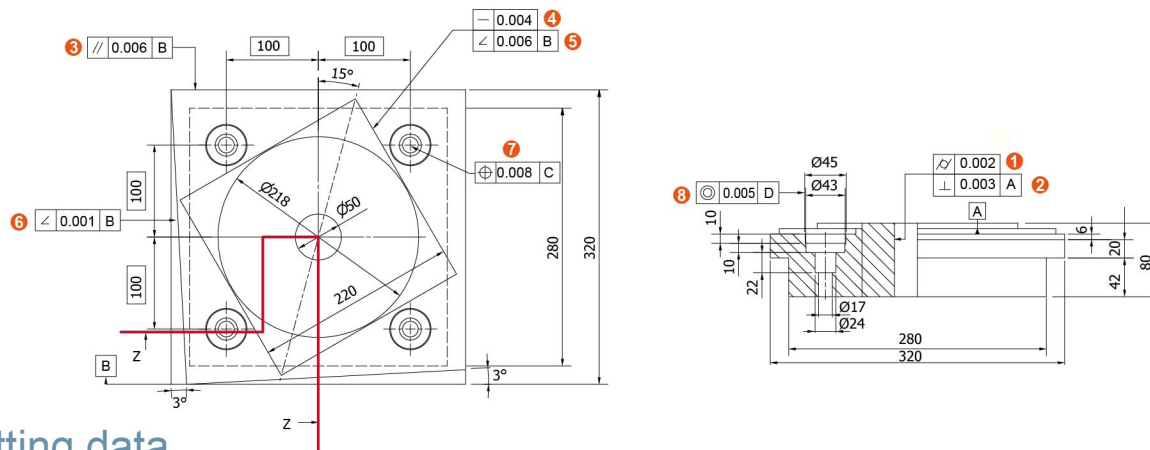
The full B axis utilizes a high pressure brake system for heavy cutting. Minimum positioning increment is 0.001 degrees.

The pallet is clamped to the B axis with four locking cones, achieving 25.7 tons of clamping force. Excellent performance and stability is achieved.

Working area



Standard block measurement



Cutting data

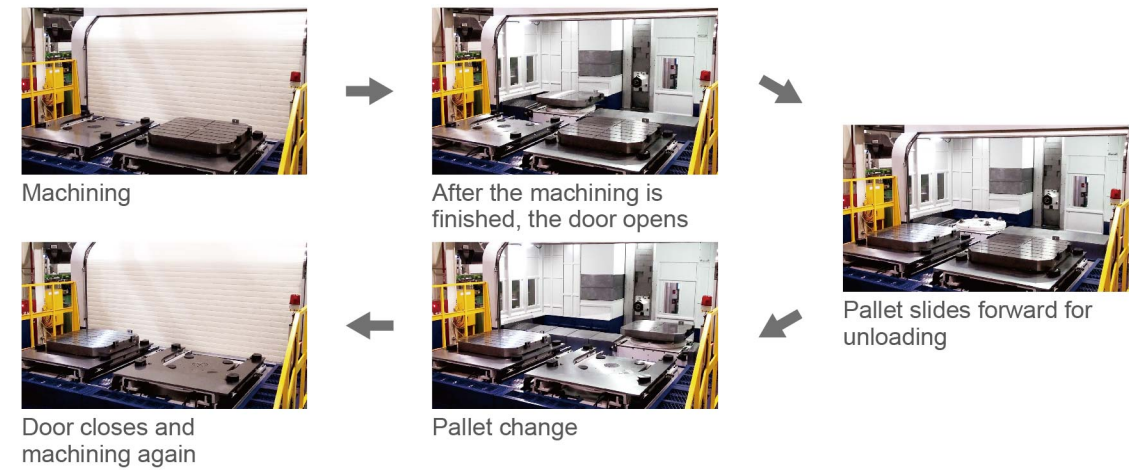
Item	Testing items	ISO10791-7	HG-1250	Testing items	
Central hole	① Cylindricity	0.015	0.004	Positioning accuracy	mm 0.005
	② Concentricity of A datum and central hole	0.015	0.004	Repeatability accuracy	mm 0.003
Square	③ Parallel of B datum with opposite face	0.02	0.01		
Rhombus	④ Exact straightness of four sides	0.015	0.005		
	⑤ Angle precision of 75° slant for B datum	0.02	0.008		
Slant	⑥ Angle precision for B datum	0.02	0.006		
Four bores	⑦ Position of four bores to central hole C	0.05	0.02		
	⑧ Concentricity of small diameter to big	0.02	0.008		

© Accuracy data are the actual results obtained under static conditions in a temperature controlled environment per jis-standard.

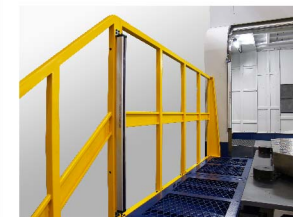
Mechanical high speed performances		Cutting abilities			Material : S45C	
Item	HG-1250	Item	Face milling Ø160×11	Drilling Ø50	Tapping	
Rapid traverse (X/Y/Z)	20 m/min					
Cutting feedrate (Max.)	10 m/min	Cutting capacity (cc/min)	557	110	M48×P5	Rcl 1/4
ATC (C-C)	30 sec.	Cutting width × depth (mm)	110×8	Ø50×70		
		Spindle speed (min ⁻¹)	320	160	66	78
		Cutting feedrate (mm/min)	633	56		

APC - Automatic pallet changer (Optional)

The process of pallet changing



Safety light curtain device



APC pallet and ladder design provides the best safety protection for the operator during loading and unloading the workpiece. The light curtain safety device is available for detecting the safety area, avoiding careless operator activity, and providing a safe environment for the operator.

90 degrees pallet design



Pallets are driven by servo transmission devices. Each pallet allows 90 degrees rotation for facilitating the operator in loading and unloading workpieces and achieving the goal of rapid workpiece change.

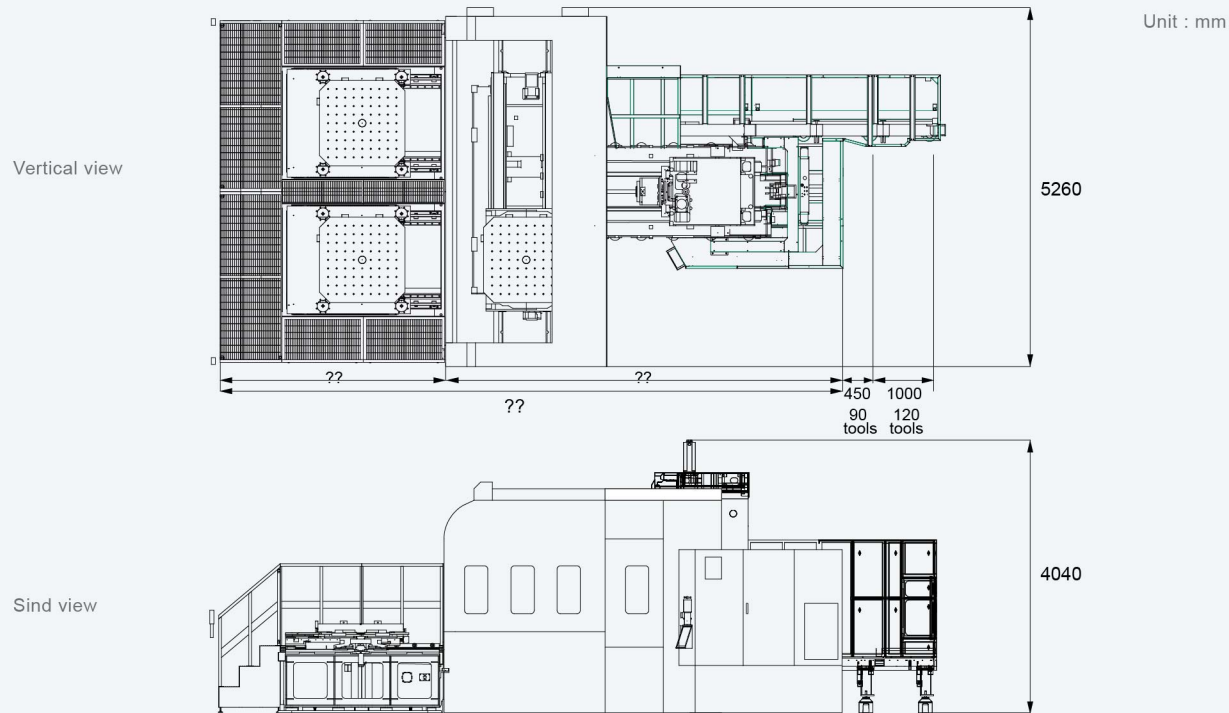


HG-1250

Item	Specification	Unit	HG-1250
Table	Table size (L×M)	mm	1250×1250
	Max. loading capacity	kg	4000
	Table height from floor	mm	1300
	Max. workpiece dimension (Diameter×height)	mm	∅1970×H1500
Spindle	B axis min. indexing increment	deg	0.001°
	Spindle taper		7/24 Taper No.50
Stroke	Spindle speed	rpm	3600 (Opt. 6000)
	X/Y/Z axis stroke	mm	2000/1400/1250
	Spindle center to table	mm	0-1400
Feed	Spindle nose to table	mm	400-1650
	X/Y/Z axis rapid traverse	m/min	20
ATC	Cutting feedrate	m/min	1-10000
	Tool shank		BT-50
Motor	Tool capacity	pc	60 (Opt. 90/120)
	Max. tool diameter	mm	∅125
	Max. tool diameter (w/o adjacent tool)	mm	∅250
	Max. tool length	mm	610
	Max. tool weight	kg	25
Controller	Spindle motor (50%ED)	kw	22/18.5
	X/Y/Z axis servo motor	kw	6/6/6
Machine size	Coolant motor	kw	0.55×1/1.1×2
	L×W×H	mm	0000 ×5260×4040
	Weight	kg	40850

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Machine dimensions



Standard Optional

Stroke

- X axis long stroke 2000 mm
- Y axis long stroke 1400 mm
- Z axis long stroke 1250 mm

Box way

- Airfloat design
- Oil hydraulic design

X axis optical linear scale

- Accuracy ±5 μm
- Accuracy ±3 μm

Y axis optical linear scale

- Accuracy ±5 μm
- Accuracy ±3 μm

Z axis optical linear scale

- Accuracy ±5 μm
- Accuracy ±3 μm

Chip auger

- X axis direction×2
- Z axis direction×2

Others

- Rapid traverse 20 m/min
- Cutting feedrate 10 m/min

B axis

- 0.001 degree
- Rotary scale ±2.5"
- Rotary scale ±5"
- Pallet size 1250 mm×1250 mm
- T-slot - 7×18H7
- M20×80
- Brake 50 kg/cm² hydraulic
- Loading 4000 kg

Spindle

- Grease 3500 rpm
- Oil-mist 6000 rpm
- Coolant through spindle 15 bar
- Coolant through spindle 35 bar
- Coolant through spindle 70 bar
- Circle type coolant device×8
- Labyrinth air blow
- 2-step machinery type
- 90 degree pull stud
- 60 degree pull stud
- 45 degree pull stud
- Spindle cooler

ATC (Automatic tool changer)

- BT
- CAT
- DIN
- Automatic tool cleaning

Tool magazine

- 60 tools
- 90 tools
- 120 tools
- Max. tool weight 25 kg
- Servo motor driven
- Max. tool length 610 mm
- Max. tool diameter ∅125 mm
- Max. tool diameter w/o adjacent tool ∅250 mm

Automatic pallet changer (APC)

- Fixed type APC
- Automatic four index APC
- APC side guards

Chip conveyor

- Scrape type
- Drum type with filter
- Chain type
- Magnet scraper conveyor

Accessories

- Hydraulic tank cooling system
- Coolant tank cooling system
- Oil skimmer
- Overhead coolant device
- Coolant gun
- Air gun
- APC safety light curtains device

Your best partner for metal-cutting total solutions



Tongtai emphasizes providing an excellent investment strategy to our clients with high cost-performance ratio. We give our customers supreme machine performance with reasonable prices.

Our management team and the members of all five of its departments will ceaselessly search for innovative solutions for your processing needs. All your sales and after sales concerns will be satisfied! That means, when you purchase our machines, the service never stops!

Our company slogan "Trust & Technology" is always backed with passion for our product improvements and responsibility for our service to you.

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