

HIGH SPEED MILLING MACHINE



Gantry Structure Design

The best and rigid design by FEA (Finite Element Analysis) to optimize the gantry structure of the high rigidity and heavy loading for the machining stability.



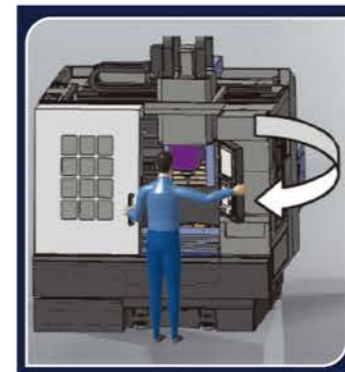
Automatic Tool Changer

Automatic tool magazine with 16 tools for various applications.



Automatic Tool Length Measurement

Measuring the tool automatically and automatic offset of tolerance during machining to ensure the accuracy.



New Controller Panel

Ergonomical panel design for more convenient and easier operation.



Oil Shroud

(for graphite machining)
(Opt.)

The self-developed oil shroud to efficiently seal the graphite dust for a better protection for the operator.



Oil Shroud Off

Oil Shroud On



Optional Spindles (Std./Opt.)

Different spec of spindles for customer choice and the customized Z axis design suitable for the chosen spindle to apply on the workpiece.



Disk Oil Skimmer (Opt.)

Efficiently remove the floating oil on coolant surface preventing the coolant from deterioration.



Oil Mist Blast (Opt.)

For more efficient and better metal surface cutting and to reduce the wear of tools.

Suction Device

(for graphite machining)
(Opt.)

Efficiently suck off the graphite dust for a better protection for the operator.



HM4030L

Linear Motor



HM6050L

Drive Type



HM43T



HM65T

Ball Screw Drive Type

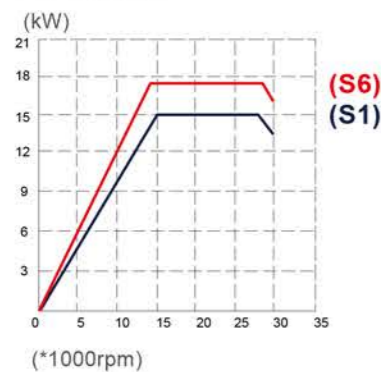


HM86T

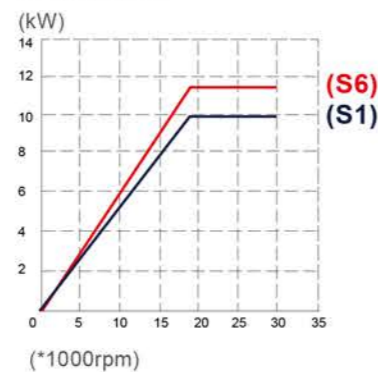
Built-In Motor

/ Motor Power Rating

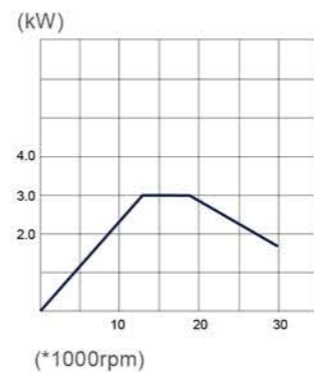
TH-150.1 (15kW)
Power-diagram



TH-120.2 (10kW)
Power-diagram



TH-100.4 (4kW)



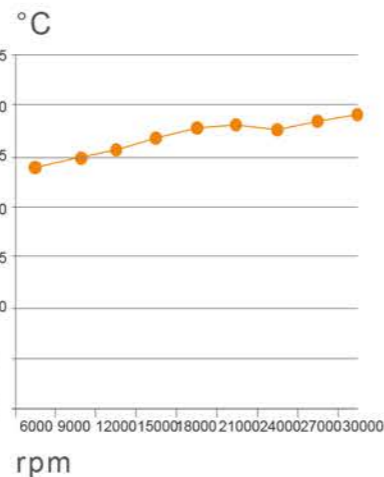
PMSM-Permanent Magnet Synchronous Motor (Opt.)

PMSM : smaller size, high torque at low ram, lower thermal emission for less thermal deformation, high and stable cutting accuracy, rapid reversed , suitable for more accurate surface cutting.

The Spindle Thermal Error Compensation



Compensation the difference of heat distortion through the spindle thermal detection to achieve the high accurate cutting.



Test Method : Thermal stability of PMSM spindle which reach equilibrium at short period. The temperature value is averagely temperature by recording the spindle speed per hour.

Test Conditions : Spindle dynamic balance holding tool no-load rotary test. Ambient temperature : 25°C Oil Chiller temperature : 24°C

The Comparison Of Spindle Heat Distortion

PMSM
Tolerance 0 ~ -2μm



Built - in Motor
Tolerance 0 ~ -15μm



The Exceptional Machining Accuracy Of PMSM

The heat distortion is within 5μm after working for 2 hours in 30,000 rmp by PMSM.

The Best Choice For Exceptional Machining Accuracy

Providing the options of linear motor drive and ball screw drive type for different requests of application customers.



Linear Motor Drive Type



Ball Screw Drive Type



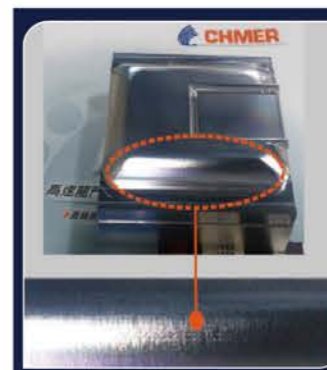
The Comparison Of The Workpieces

The linear motor drive can offer a more delicate surface and better finish.

Linear Motor Drive



Ball Screw Drive



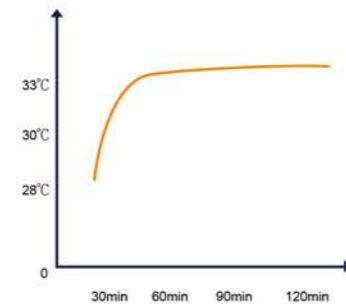
The Features of Linear Motor Drive

The new developed linear motor system by patented winding for high thrust has very smooth performances of acceleration and deceleration with heavy loading. Even in long processing time, the energy which is transformed to heat is very low for longer life.



Linear motor performance
Thrust up to 600N
The max thrust up to 1800N
(Modle : LD50100VICGHA2)

The trend of temperature change in continuous movement



The temperature rise test of 200N
(Modle : LC36C50AV1F0N0N)

Faster responses of acceleration and deceleration, better accuracy and finish for special shape machining with high resolution linear scales compared to ball screw type machines.

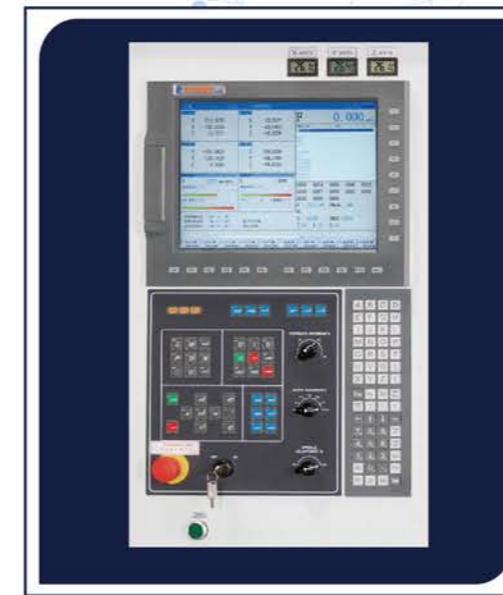
Equipped with the self-made linear motors on XYZ axes for no friction, no backlash, no conversion loss, no vibration, high response.

The Exclusive Controller

The Dedicated Controller of High Speed Milling Machine (GENTEC)

Ching Hung group invests and develops the dedicated controller of high speed milling machine including the reinforcement of software, more advanced hardware, the manufacture of higher quality to meet the needs of our customers.

- + Intel Atom over 1.83GHZ
- + 1GB Dynamic RAM (DRAM)
- + 2GB high capacity CF card
- + 15 inch full LCD screen
- + 1000 blocks NC program pre-read function
- + Servo diagnostic system
- + Network type servo drive system



The Peripheral Devices



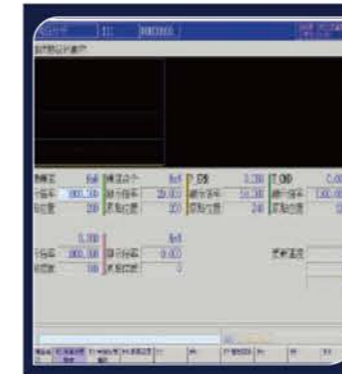
The Z axis Air-Pressure Balance Device (Linear Motor)

The self-developed Z axis air-pressure device with the lightweight and counterweight design provides faster response of Z axis for high machining stability.



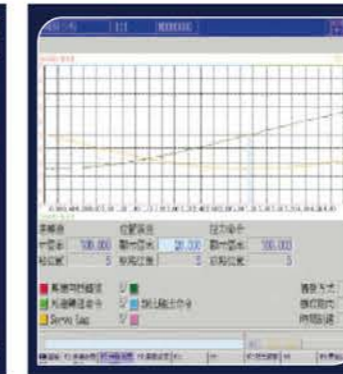
The Temperatures Of Each Axis

Obtaining the temperatures of XYZ axes in real time.



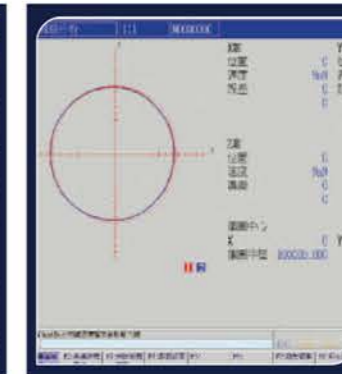
Servo Diagnostic System

Built-in the controller for the information of the feed rate accuracy and coordination of XYZ axes to ensure the stability of operating system.



Data Monitoring Page

For checking the NC program the positions and speeds of each axis, spindle rpm, horse power moving speed of each axis while machining.



Simulation NC Path Function

The operator can easily make sure all the cutting paths are correct through the simulation diagram before starting machining.



Modular Circuit Design

More convenient to maintain and replace with less time and difficulty.



The Oil Mist Collector(opt.)

Reducing the oil mist left in the machining area for better machining results.



The Visual Monitoring Device(opt.)

Seeing the actual machining status through the Intelligent Information Management Center(opt.) and APP software (opt.) by the visual monitoring device.



Patented cooling system(opt.)

In House multifunction cooling system is equipped to have a consistent temperature control on spindle, Linear motor, and casting body enhancing the stability and accuracy while machining. Moreover a smaller footprint and lower operating cost are extremely beneficial for users.

CHMER Exclusive M2M (Machine to Machine) System

Multiple layers function to provide the instant information of single or multi-machine for users leading the high speed milling machine to an intelligent machining era!

The Intelligent Information Management Center (opt.)

Having the functions of management, data collection and analysis by building up CHMER intelligent information management center through the information server, including 4 main functions of the instant Kanban information of multi-machine, FTP for uploading and downloading cutting programs, MES and the machining history, which are most needed by customers.



Excellent Quality

Every CHMER high speed milling machine is inspected by the strictest quality control for the excellence and stability.



Laser Compensation

Ensure the positioning precision through fully laser compensations.



Spindle Run-Out Inspection

Measuring each point of the spindle by high accurate detection rod to ensure the machining stability and accuracy.



Ball Bar Test

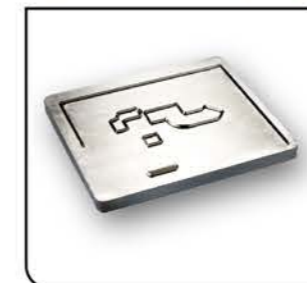
Ensuring the roundness and the servo coordination of XY axes for better smoothness and dimensional accuracy.

Samples



Copper Electrode

Tool : flat end mill of 6mm,
ball end mill of 5R,3R,2R
Total time : 310min



Die Cutting mold

Area : 65x70mm
Total time : 72min



Plastic Injection Steel Mold NAK80

Tool : flat end mill of 6mm ,D10R1 and
ball end mill of 5R,3R,2R,1R
Total time : 420min



Graphite Electrode

Tool : flat end mill of 10mm
Total time : 85min



Graphite Electrode

Tool : flat end mill of 6mm
ball end mill of 6mm
Total time : 180min



Graphite Electrode

Tool : flat end mill of 6mm
ball end mill of 2R
Total time : 320min



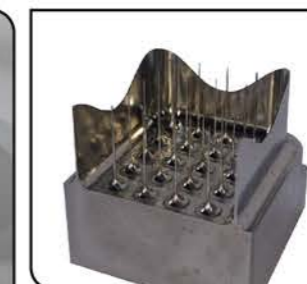
Workpiece Material AL6061

Tool : Φ10R1 Bull End Mill
Φ4R2 Bull End Mill
Working : 282min



Workpiece Material AL6061

Tool : Φ10 End Mill
Φ4R2 Bull End Mill
Working : 440min



Workpiece Material SKD61

Tool : Φ10 Bull End Mill
Φ4R2 Bull End Mill
Working : 427min



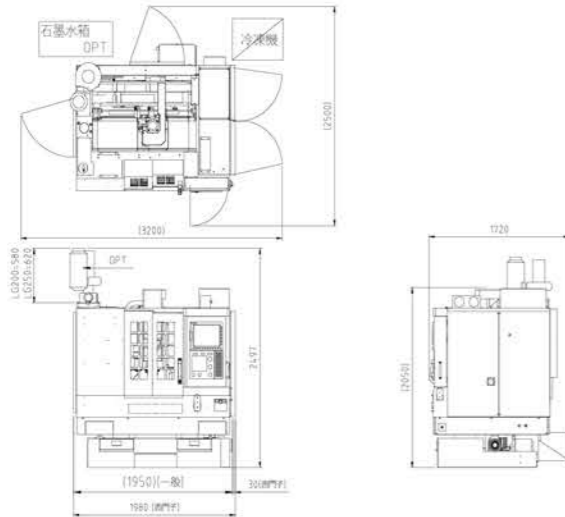
Workpiece Material SKD61

Tool : Φ6R3 Bull End Mill
Φ4R2 Bull End Mill
Working : 132min

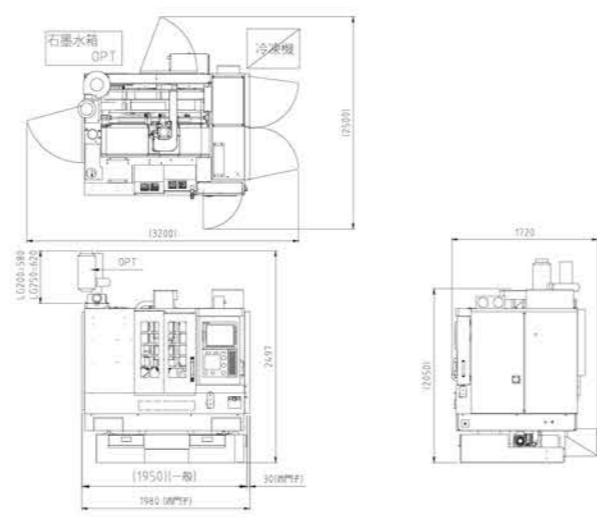


Layout

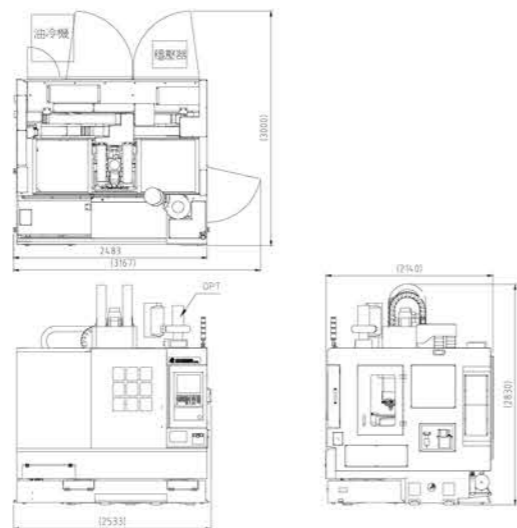
HM43(G)T



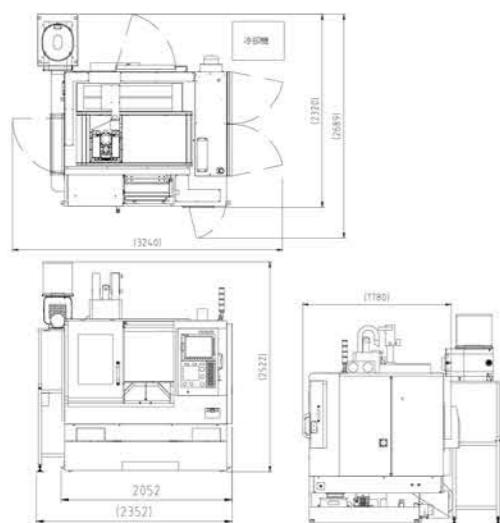
HM65(G)T



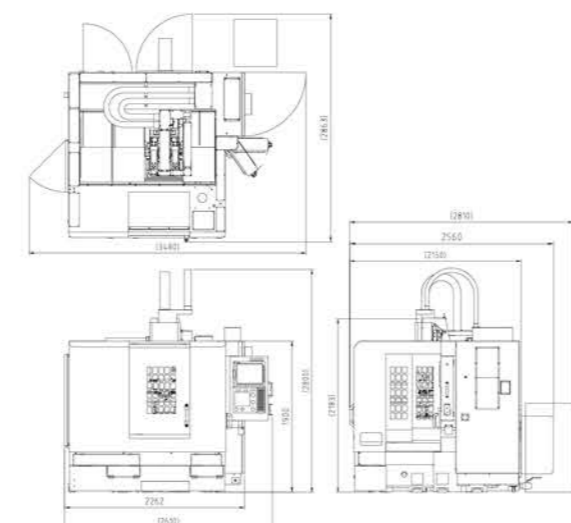
HM86(G)T



HM4030L



HM6050L



Specification

Models	Unit	HM43(G)T	HM65(G)T	HM86(G)T	HM4030L	HM6050L
Spindle rpm	rpm			8000-30000		
Spindle taper	-	HSK E32	HSK E40	HSK E50	HSK E32	HSK E40
Spindle motor(S1/S6)	kW	3/5	10/11.5	15/17	3/5	10/11.5
Table dimension	mm	500x400	540x650	850x600	500x400	550x650
T-slot	mm	16x4x100	14x5x90	16x5x100	16x4x100	14x5x100
Max.loading of table	Kg	200	300	500	120	300
Travel(XxYxZ)	mm	400x300x200	500x600x300	800x600x400	400x300x200	500x620x300
Distance from table surface to spindle nose	mm	150-300	140-440	160-560	150-350	220-520
Work feed	m/min	10	10	10	10	10
Rapid traverse(X,Y,Z)	m/min	15	18	30	X:36 Y:42	42
Total power consumption	kVA	15	25	35	15	25
Net weight	Kg	2680	4300	7500	2750	3900

G for adopting with the option of graphite cutting.
The max diameter of tool collect : 16mm(HSK E32) /40mm(HSK E40) / 50mm(HSK E50)

Optional Accessories

	HM43(G)T	HM65(G)T	HM86(G)T	HM4030L	HM6050L
Built-in Spindle					
HSK E32/30000rpm(Grease) 3~5kW	●	-	-	●	-
HSK E32/36000rpm(Oil mist) 3~5kW	○	-	-	○	-
HSK E40/30000rpm(Grease) 10~11.5kW	-	●	-	○	●
HSK E40/36000rpm(Oil mist) 10~11.5kW	-	○	-	-	○
HSK E40/30000rpm(Grease) 10~11.5kW (Vector)	-	○	-	-	○
HSK E50/36000rpm(Oil mist) 15~17kW (Vector)	-	○	●	-	○
HSK E32/40000rpm(Oil mist) 15kW (Magnet Vector)	○	○	-	○	○
HSK E40/30000rpm(Grease) 20kW (Magnet Vector)	-	○	-	-	○
High precision temperature control system	●	●	●	●	●
Chiller for spindle	●	●	●	●	●
Tool Magazine Capacity					
ATC Automatic tool changer(16tools)	●	●	●	●	●
Automatic tool length measurement	●	●	●	●	●
Laser control NT	○	○	○	○	○
System Controller					
GENTEC M3HN(3 axis network)	●	●	●	●	●
GENTEC M4HN(4 axis network)	○	○	○	○	○
GENTEC M5HN(5 axis network)	○	○	○	○	○
SIEMEN S828D	○	○	○	○	○
SIEMEN S840D	○	○	○	○	○
Cutting Process					
Cutting air blast	●	●	●	●	●
Graphite cutting device(oil shroud or suction)	○	○	○	○	○
Oil mist blast	○	○	○	○	○
Oil mist collector	○	○	○	●	●
Disk oil skimmer	○	○	○	○	○
Operational Support					
MPG(manual pulse generator)hand wheel	●	●	●	●	●
Ethernet card	●	●	●	●	●
X,Y,Zaxis linear scale	○	○	○	○	○
4th&5th axis synchronous control	-	○	○	○	○
Others					
Power supply air conditioner	●	●	●	●	●
3-color machine signal tower light	●	●	●	●	●
Work lamp	●	●	●	●	●
Tool kit	●	●	●	●	●
1GB DRAM (1G)GENTEC	●	●	●	●	●
2GB high capacity CFcard (2G)GENTEC	●	●	●	●	●
Tool holder	○	○	○	○	○
Tool collect	○	○	○	○	○
Pneumatic freezing dryer	○	○	○	○	○
Automatic voltage regulator	○	○	○	○	○
Intelligent Information Management Center	○	○	○	○	○
Patented cooling system	○	○	○	○	○
Visual monitoring device	○	○	○	○	○

The manufacturer reserves the right to modify the design for specific ations,mechanisms,...etc.
To improve the performance of the machine without notice.