

High-Speed Gantry Machine

HGM



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Certified to ISO 9001
(Quality Management System)
Certified to ISO 14001
(Environmental Management System)

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 **SHIN NIPPON KOKI**

Next generation in high-speed machines.

SNK has maximized feedrate and acceleration in ultra large-size machines.

Rapid Feedrates
60m/min
 (X, Y-axis)

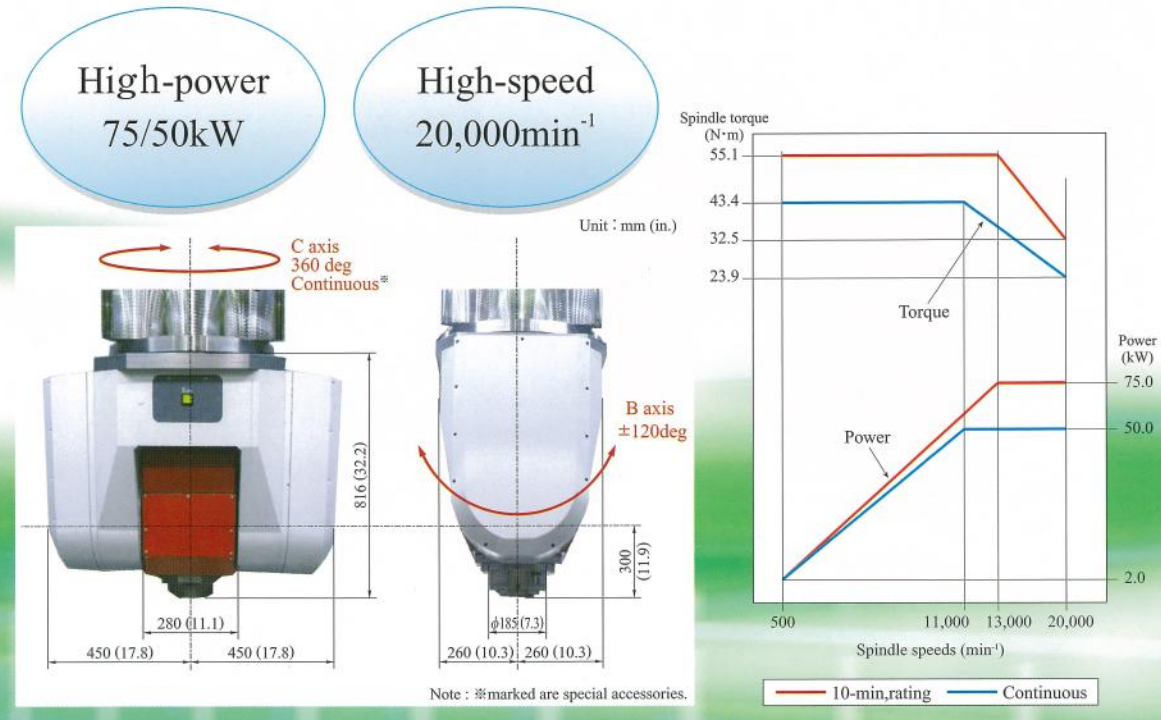
Rapid Feedrates
7,200deg/min
 (B, C-axis)



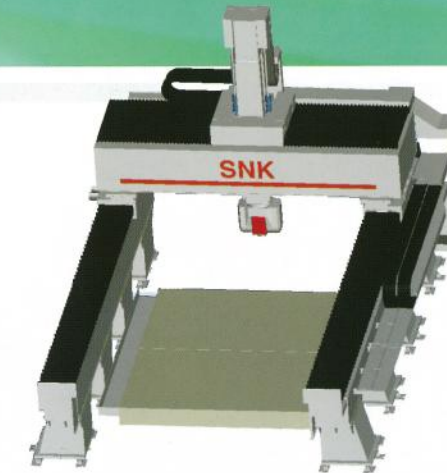
※Splash guard is optional special accessory.

Minimize cycle time by increasing feedrate.

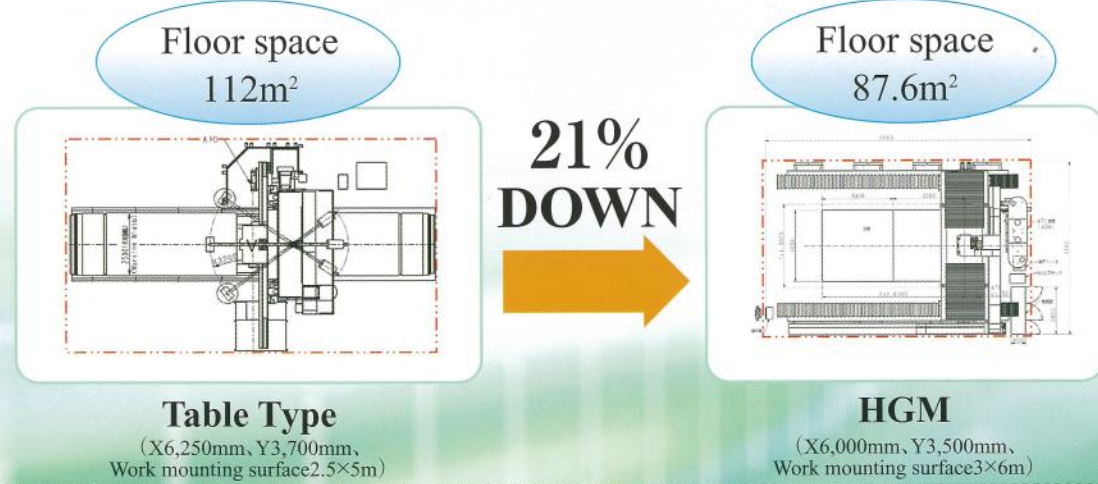
High-power and High-speed Spindle



Advantages of gantry configuration.



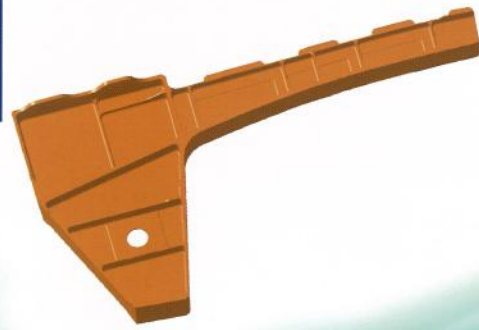
Smaller installation area than table type machine.



Sample Work Pieces

The HGM is ideal for a wide variety of parts like large-size aluminum components for aircraft and semi-finishing of dies and molds.

Aerospace Parts



Aerospace Parts



Train body structure



Semi-finishing of dies and molds



SNK committed to ecology

SNK works on ecology issues from the aspects of "device and function of the machine" and "energy-conserving machine".
The synergistic effects of these two aspects reduce operation costs.

Energy conserving · Environmental measures

Equipment

Energy-saving type hydraulic solenoid valve

LED indication light
(spot light, Three-lamp indication light)

ATC hydraulic unitless

Function

Inverter controlled oil temperature regulator
for cooling spindle

Improving productivity by high-feedrate machining. (example)

Note: Improving range may vary as per conditions.



Workpiece material : A7075(Aluminum)
Dimension : 2,300×500×80mm



Conventional machine

Spindle speed : 6,000 min⁻¹
Rapid Feedrate : 20 m/min
Feedrate : 10 m/min
FANUC AI contour control

Machining time **619** minutes

Machining time
**64%
DOWN**



HGM

Spindle speed : 20,000 min⁻¹
Rapid Feedrate : 60 m/min
Feedrate : 30 m/min
DCS-VII Aero edition

Machining time **222** minutes

Energy conserving machining concept of SNK



Ecology

Economy

Main Specifications

Spec. items		Unit	HGM-2500	HGM-3000	HGM-3500
Effective distance between columns (with splash guard)		mm(in.)	3,800 (149.6)	4,300 (169.3)	4,800 (189.0)
Distance from floor plate top to spindle end		mm(in.)	100 to 1,100 (3.9 to 43.3) [option: 100 to 1,600 (3.9 to 62.9)]		
Distance from floor plate top to B axis tilting center		mm(in.)	400 to 1,400 (15.7 to 55.1) [option: 400 to 1,900 (15.7 to 74.8)]		
Spindle	Spindle motor (10-min.rating/continuous)	kW(HP)	75/50 (100/70)		
	Spindle speed range	min ⁻¹	500 to 20,000		
	Spindle nose (nominal size, No.)		HSK-A63		
	Distance from floor plate top to B axis tilting center	mm(in.)	300		
Travels	Spindle head longitudinal	X axis	6,500 (255.9) (can extend as option)		
	Spindle head transverse	Y axis	2,500 (98.4)	3,000 (118.1)	3,500 (137.7)
	Ram vertical	Z axis	1,000 (39.3) [option: 1,500 (59.0)]		
	Spindle head tilt	B axis	±120		
	Spindle head swivel	C axis	±360 [option: continuous]		
Feedrates	Rapid feedrates	X, Y-axis	60 (2,400)		
		Z axis	30 (1,200)		
		B, C-axis	7,200		
	Feedrates	X, Y, Z-axis	1 to 30,000 (0.03 to 1,200)		
		B, C-axis	1 to 7,200		
Acceleration		G	0.3		
CNC system			DCS-VII (FANUC 31i-B5 base)		

Please contact us for inquiry about the machine with Y-axis stroke more than 3500mm.

Accessories

Standard Accessories

- Slideway covers (X, Y-axis)
- Scale feed back (B, C-axis)
- Spot light (Under crossrail)
- Spindle speed meter
- Spindle load meter
- Machine foundation parts
- Maintenance and inspection handtools
- Portable type manual handle operation panel with coordinate display
- Transformer

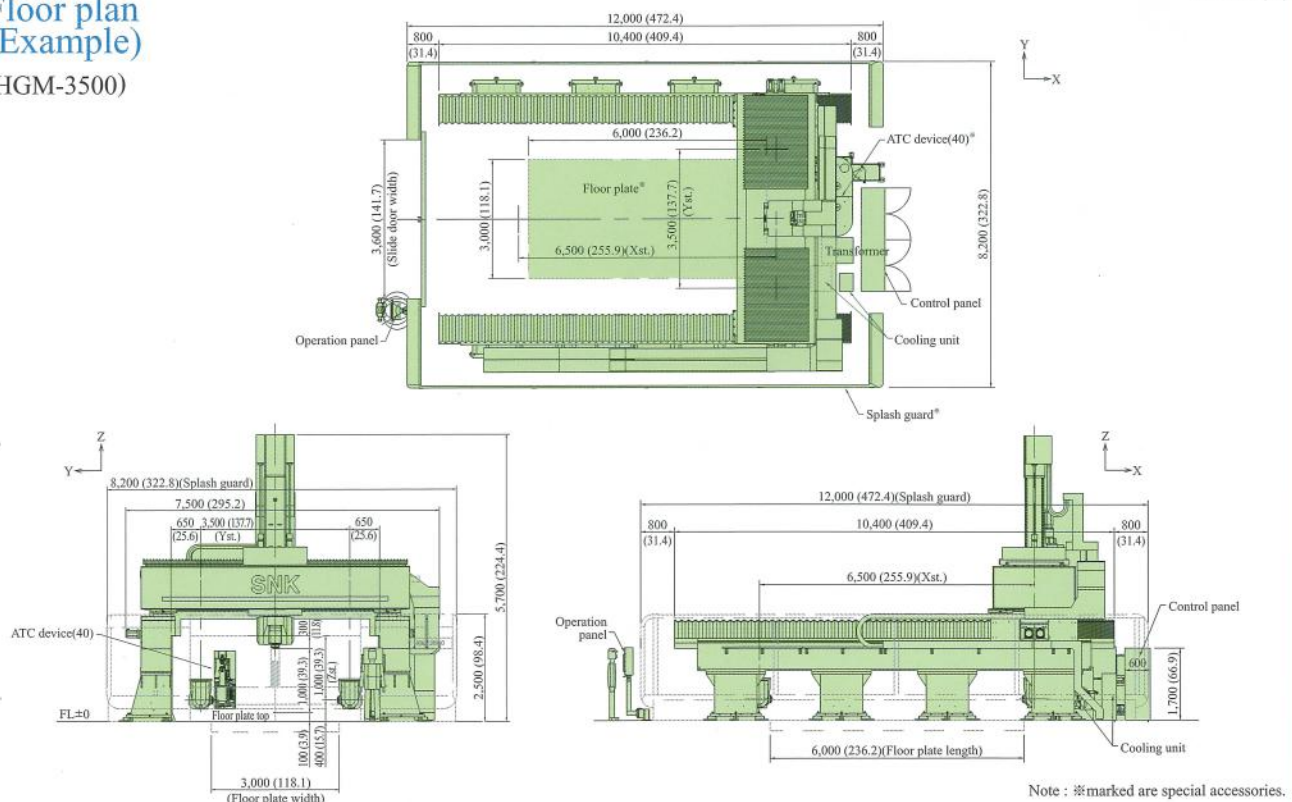
Special Accessories

- ATC tool storage capacity (total: 40 or 60)
- Floor plate
- Chip-conveyor (2-conveyor type)
- Coolant tank (Effective: 1,000 L(264gal))
- Mist Coolant device
- Three-lamp flashing light
- Splash guard
- Roof cover (with special specification of splash guard)
- Automatic measuring function
- Automatic alignment function
- Automatic tool length measuring function (laser type #1/touch type)
- Tool breakage detecting function (laser type_1/touch type)
- Scale feedback system (for X, Y and Z-axis)
- Spindle through coolant
- Air blow device
- Spindle overload prevent function
- Spindle length compensation for temperature
- Spatial compensation function
- Special software for index machining
 - Voluntary surface machining software
 - Tool position compensating software
 - Automatic index data measuring function
- Intelligent Precision Control

※The laser system can measure the tool diameter.

Floor plan (Example) (HGM-3500)

Unit : mm (in.)



CNC DCS-VII (FANUC Series 31i-B5 base)

Basic Specifications

Controlled axes	5 axes (X, Y, Z, B, C)	
Simultaneously controlled axes	Positioning (rapid traverse)	5 axes
	Linear interpolation	5 axes
	Circulation interpolation	2 axes
Max. programmable dimension	Linear axes	± 99999.999 mm (± 3937.0078")
	Rotary axes	± 99999.999 deg
Least input increment	Linear axes	0.001 mm (0.0001")
	Rotary axes	0.001 deg
● HRV control	● Plane selection (G17 to G19)	
● Interlock	● Rotary axis roll-over	
● Machine lock	● Coordinate system setting (G92)	
● Emergency stop	● Manual absolute on and off	
● Stored stroke check 1	● Programmable data input (G10)	
● Mirror image	● Programmable parameter input	
● Follow-up	● Sub program call (10 folds nested)	
● Automatic operation (Memory/MDI/DNC)	● Circular interpolation by R programming	
● Program number search	● Auxiliary function (M code)	
● Sequence number search	● Auxiliary function lock	
● Wrong operation prevention	● Tool function (T code)	
● Buffer register	● Tool offset memory A	
● Dry run	● Tool length offset (G43, G44, G49)	
● Single block	● Tool length measurement	
● Manual continuous feed (JOG)	● Backlash compensation for each rapid traverse and cutting feed	
● Manual reference position return	● Smooth backlash compensation	
● Reference position setting without dog	● Number of registerable programs (total: 63)	
● Nano interpolation	● Part program editing	
● Positioning (G00)	● Program protect	
● Exact stop mode (G61)	● Extended part program editing	
● Cutting mode (G64)	● Status display	
● Exact stop (G09)	● Clock function	
● Linear interpolation (G01)	● Current position display	
● Circular interpolation (Multi-quadrant is possible) (G02, G03)	● Program comment display (Program name 31 characters)	
● Dwell (per second) (G04)	● Parameter setting and display	
● Skip (G31)	● Alarm display	
● Reference position return/check (G27 to G29)	● Alarm history display	
● 2nd reference position return (G30)	● Operation message history display	
● Rapid traverse rate	● Operation history display	
● Rapid traverse override (F0, 25%, 50%, 100%)	● Actual cutting feedrate display	
● Feed per minute (mm/min.)	● Tangential speed constant control	
● Tangential speed constant control	● Servo setting screen	
● Cutting feedrate clamp	● Spindle setting screen	
● Automatic acceleration/deceleration	● Servo waveform display	
● Rapid traverse bell-shaped acceleration/deceleration	● Multi-language display (English)	
● Feedrate override (0 to 200% (per every 10%))	● Data protection key (1 type)	
● Override cancel	● Erase CRT screen display	
● Linear ACC/DEC after cutting feed interpolation	● Parameter set supporting screen	
● Tape code (EIA/ISO automatic recognition)	● Help function	
● Label skip	● Self-diagnosis function	
● Parity check	● Memory card input/output	
● Control in/out	● Screen hard copy	
● Optional block skip (total: 1)	● Embedded Ethernet	
● Program file name (32 characters)	● Status output signal	
● Sequence number (N8-digit)	● Servo motor control (FANUC AC servo motor and servo amplifier)	
● Absolute/incremental programming (G90, G91)	● Machine interface (DI/DO)	
● Decimal point programming/pocket calculator type decimal point programming	● PMC system	
● Input unit 10 time multiply		
SNK standard optional functions		
● Stroke limit check before move		
● Stored pitch error compensation		
● Interpolation type pitch error compensation		
● Program restart		
● Manual handle feed		
● Handle interruption		
● External deceleration		
● Bell-shaped acceleration/deceleration after cutting feed interpolation		
● AI contour control II		
● High-speed processing		
● Optional block skip	Total: 9	
● Automatic corner override	G62	
● Workpiece coordinate system	G52 to G59	
● Workpiece coordinate system preset	G92.1	

● Custom macro	G65 to G67
● Custom macro common variables	Total: 600
● Coordinate system rotation	G68, G69
● 3-dimensional Coordinate system conversion	
● Programmable mirror image	G50.1, G51.1
● Program format for FANUC Series 15	
● Macro executor	
● Spindle serial output	S5 digit
● Spindle orientation	
● Spindle output switching function	
● Tool offset pairs	Total: 99
● Cutter or tool nose radius compensation	G40 to G42
● Part program storage size (256 Kbyte)	
● Number of registerable programs expansion	Total: 500
● Run hour and parts count display	
● Multi-language display	Japanese
● RS-232C Ch1	
● External data input	
● Power mate CNC manager	
● Axis synchronous control	
● Tandem disturbance elimination control	
● High-speed HRV 3function	
● Jerk control	
● Pole position detection function	
● Software for USB function	
Additional functions	
<input type="checkbox"/> Dual position feedback	For scale feedback
<input type="checkbox"/> Linear scale with absolute address reference mark	For scale feedback
<input type="checkbox"/> Tool center point control	
<input type="checkbox"/> 3-dimensional manual feed	
<input type="checkbox"/> Inch/metric conversion	G20, G21
<input type="checkbox"/> Stored stroke check 2, 3	G22, G23
<input type="checkbox"/> 3rd/4th reference position return	G30
<input type="checkbox"/> Sequence number comparison and stop	
<input type="checkbox"/> Helical interpolation	G02, G03
<input type="checkbox"/> High-speed skip	
<input type="checkbox"/> NURBS interpolation	
<input type="checkbox"/> Smooth interpolation	
<input type="checkbox"/> One-digit F code feed	
<input type="checkbox"/> Inverse time feed	G93
<input type="checkbox"/> Single direction positioning	G60
<input type="checkbox"/> Addition of workpiece coordinate system pairs	Total: 48 or 300 pairs
<input type="checkbox"/> Scaling	
<input type="checkbox"/> Canned cycle drilling	For rigid tap
<input type="checkbox"/> Rigid tap	
<input type="checkbox"/> Rigid tap return	
<input type="checkbox"/> Tool offset pairs	Total: 200, 499 or 999
<input type="checkbox"/> Tool offset memory	B or C
<input type="checkbox"/> Tool offset	
<input type="checkbox"/> 3-dimensional cutter compensation	
<input type="checkbox"/> 3-dimensional circular interpolation	
<input type="checkbox"/> 3-dimensional tool compensation	
<input type="checkbox"/> Tool life management	
<input type="checkbox"/> Part program storage size	512KB/1MB/2MB
<input type="checkbox"/> Graphic function	
<input type="checkbox"/> Number of registerable programs expansion 2	
<input type="checkbox"/> Key and program encryption	
<input type="checkbox"/> FOCAS 1/2 Libraries	
<input type="checkbox"/> RS-232C Ch2	
<input type="checkbox"/> RS-232C Interface expansion of receiving buffer	
<input type="checkbox"/> Axis control by PMC	
<input type="checkbox"/> Tool posture control	
<input type="checkbox"/> Nano smoothing	
<input type="checkbox"/> Optional chamfering corner R	
<input type="checkbox"/> Work setting error compensation	
<input type="checkbox"/> Manual handle feed 2unit/3unit	For manual handle 2 unit/3 unit
<input type="checkbox"/> Polar coordinate command	
<input type="checkbox"/> Tool length compensation in tool axis direction	
<input type="checkbox"/> 3-dimensional error compensation	
<input type="checkbox"/> 3-dimensional rotation error compensation	
<input type="checkbox"/> 3-dimensional machine position compensation	
<input type="checkbox"/> Tool direction thermal displacement compensation function	
<input type="checkbox"/> Multi-language display	Chinese/Chinese (simplified characters)