

**KH**

**80G**

Robust Machining Center with Revolutionary Productivity

HYUNDAI WIA Heavy Duty Horizontal Machining Center

# Technical Leader

Resulting from years of experience, Hyundai WIA's KH80G features a 3 step geared spindle and rigid construction in order to deliver accurate machining and maximum productivity.

KH80G		
Pallet Size (L×W)	mm(in)	2-800×800 (2-31.5"×31.5")
Max. Load Capacity	kg(lb)	2-2,200 (2-4,850)
Spindle Taper	-	BT50 [BBT50] [HSK-A100]
Spindle Speed	r/min	4,500 [6,000]
Spindle Output	kW(HP)	26/22 (35/30) [26/22 (35/30)]
No. of Tools	EA	40 [80, 120]
Travel (X/Y/Z)	mm(in)	1,250/1,000/850 (49.2"/39.4"/33.5")
Rapid Traverse Rate (X/Y/Z)	m/min(ipm)	18/18/18 (709/709/709)

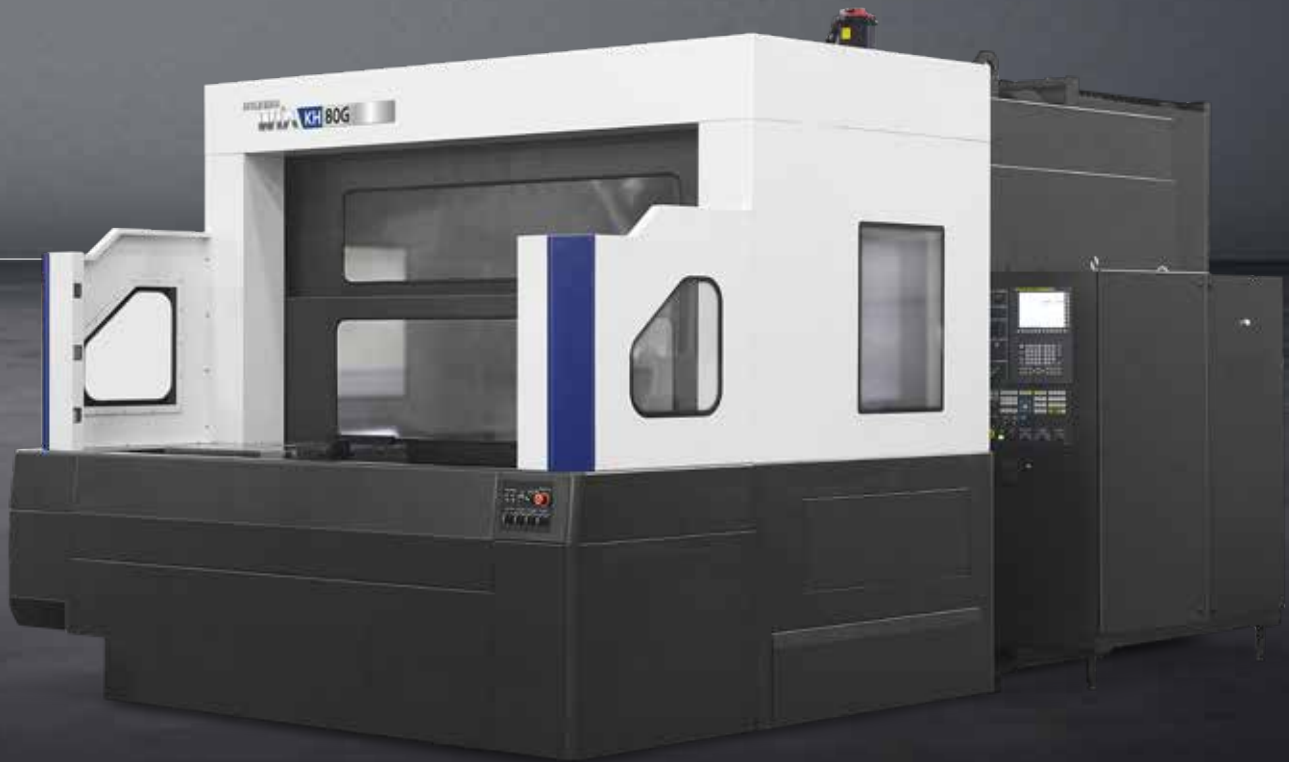
[ ] : Option

# KH

## 80G

Heavy Duty Cutting Horizontal Machining Center

- Best in Class Max. Work Size of  $\varnothing 1,150(\varnothing 45.3")$  &  $1,150\text{mm}(\varnothing 45.3")$  Height
- Dual Contact Spindle for High Rigidity (Option)
- 3 Step Gear Main Spindles for Powerful Cutting
- Through Spindle Coolant for High Accuracy
- Shuttle Type APC
- Optimized Guideways on Each Axis
- Specially Designed Columns that Minimize Thermal Displacement



# 01 BASIC STRUCTURE

Heavy Duty Cutting & Productivity Horizontal Machining Center

## High Precision Spindle

- 3 Step Gear Type Spindle  
4,5000 r/min [6,000 r/min]
- Oil Cooling System
- BT50 [BBT50] [HSK-A100]

## ATC & Magazine

- No. of Tools : 40 [80/120] EA
- Tool Selection Method : Fixed



## Pallet

- Pallet Size (L×W) : 800×800 mm (31.5"×31.5")
- APC Type : Shuttle



# HIGH RIGIDITY, HIGH PERFORMANCE

## HIGH RIGIDITY STRUCTURE

### Column Moving Structure

The column moving Z-axis enables precise machining of large-sized work and prevents overhang of table when loading or machining.

The column width of 860mm(33.9") provides precise machining at any condition. Also, the thermally symmetrical column structure minimizes thermal displacement.



### "T" Type Bed

The 'T' structure of the bed is designed with ample bed height and casting thickness to ensure the optimal level of rigidity.

**Floor Space (L×W)**

**5,510×3,270** (40 Tool) mm (216.9"×128.7")

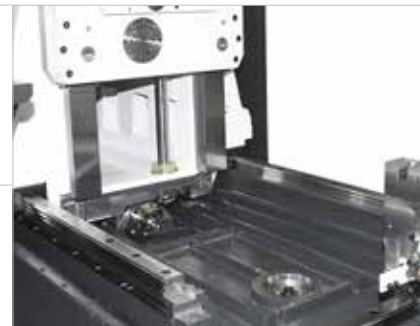
## GUIDE WAY

### Hybrid Type Slideways

KH80G applies 2 types of guideways. Sturdy box guideways on Y-axis for heavy loads, and LM Guideways on X/Z axis for better movement, providing ultimate travel ability.

### Oil & Air Lubrication

Guideways are lubricated with both oil and air. When compared to conventional oil-only lubrication systems, cooling speed is improved.



**Travel (X/Y/Z)**

**1,250/1,000/850** mm (49.2"/39.4"/33.5")

**Rapid Traverse Rate (X/Y/Z)**

**18/18/18** mm (709/709/709)



# 02 HIGH PRECISION SPINDLE

Excellent machining performance with high-precision spindle

## Spindle Specifications

[ ] : Option

Model	Speed (rpm)	Motor (Max./Cont.)	Torque (Max./Cont.)	Driving Method
FANUC	4,500 r/min	26/22 kW (35/30 HP)	1,500/1,275 N·m (1,106.3/940.4 lbf·ft)	3 Step Gear
	[6,000 r/min]	[26/22 kW (35/30 HP)]	[1,500/1,275 N·m (1,106.3/940.4 lbf·ft)]	



# HIGH-PERFORMANCE, HIGH-PRECISION SPINDLE

## SPINDLE

### High Rigidity Spindle

Main spindle diameter of 100mm(3.9") helps maintain reliability during heavy duty cutting, while the 3-point contact roller bearing as well as angular contact bearing provide high rigidity. Spindle oil cooling device is applied to minimize thermal displacement. this helps maintain precision during long hours of operation.

### 3 Step Geared Spindle

the KH80G is designed with a 3-step gear drive, which provides high torque at low rpm and stability at high rpm.



### Spindle Cooling

Spindle temperature can be controlled by the use of a spindle oil chiller. this ensures constant oil temperature and minimizes thermal displacement.

### Machining Capability

FACE MILL (Material : SM45C)	
Tool Diameter	Ø153 mm (Ø6.02")
Spindle Speed (rpm)	300 r/min
Feed Rate	770 mm/min (30.3 ipm)
Cutting Width	150 mm
Cutting Depth	6 mm
Chip Quantity	700 cc/min

DRILL (소재 : S45C)	
Tool Diameter	Ø60 mm (Ø2.36")
Spindle Speed (rpm)	133 r/min
Feed Rate	50 mm/min (1.96 ipm)
Chip Quantity	180 cc/min

TAP (소재 : S45C)	
Tool Diameter	M52×P5.0
Spindle Speed (rpm)	43 r/min
Feed Rate	215 mm/min (9.46 ipm)

❖ The above result might be different by types of processing circumstances.

## THROUGH SPINDLE COOLANT OPTION

Through Spindle Coolant is exceedingly useful when drilling deep holes. It helps increase the lifetime of the tool, while decreasing cycle time.



20 bar / 30 bar / 70 bar

# 03 APC & ATC

High Productivity Achieved with High Rigidity, Accuracy Machining

## ATC & Magazine Specifications

[ ] : Option

Model	No. of Tools	Max. Tool Dia. (W.T/W.O)	Max. Tool Length	Max. Tool Weight
KH80G	40 [80, 120] EA	Ø130/Ø260 mm (Ø4.3"/Ø9.6")	500 mm (19.7")	27 kg (59.5 lb)

## APC & Pallet Specifications

Model	Pallet Size (L×W)	Max. Load Capacity	Min. Indexing Angle	APC Type
KH80G	800×800 mm (31.5"×31.5")	2,200 kg (4,850 lb)	1° [0.001°]	SHUTTLE



# HIGH RIGIDITY, TOOL & PALLET CHANGE SYSTEM

## APC & PALLET

### Shuttle Type APC

the KH80G is equipped with a shuttle type APC (Automatic Pallet Changer) as standard. The pallet can be rotated in the loading station for quick and easy load/unload of machined parts.

### Pallet

Powerful clamping by clamping plate is suitable for heavy duty cutting. Precise indexing is possible with 1° index table which applies high precision couplings.

**B Axis Index Angle Std. : 1° [Opt. : 0.001°]**



## ATC & MAGAZINE

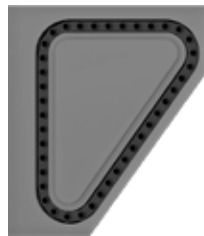
KH80G offers various tool magazines which expand the range of machining. Also, fixed address tool selection method increases convenience.

### ATC

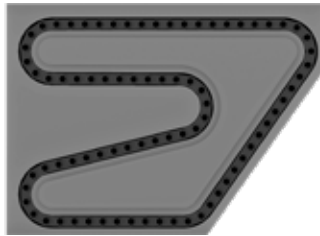
tool change time has been shortened to 3.5s (t-t) and this helps reduce non-cutting time. 2 types of AtC cycles for standard tools (15kg [33lb]) and heavy tools(27kg [59.5lb]) increase convenience.



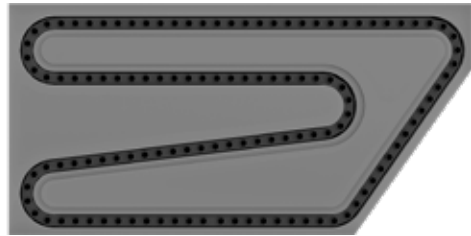
40 Tool



80 Tool **OPTION**



120 Tool **OPTION**



Machine Dimensions According to Magazine Selection

40 Tool	80 Tool	120 Tool
5,510 mm (216.9")	6,700 mm (263.8")	8,125 mm (319.9")

# SPECIFICATIONS

## Standard & Optional

Spindle		KH80G
4,500rpm (26kW [35HP])	FANUC	●
6,000rpm (26kW [35HP])	FANUC	○
Spindle Cooling System		●
<b>ATC</b>		
ATC Extension	40	●
	60	-
	80	○
	90	-
	120	○
Tool Shank Type	BT50	●
	BBT50	○
	CAT50/BCV50	○
	HSK-A100	○
Heavy Weight Tool	27kg (59.5lb)	●
	35kg (77.2lb)	-
U-Center	D'andrea	☆
Pull Stud	45°	●
	60°	-
	90°	-
Servo Motor Magazine		●
<b>Table &amp; Column</b>		
APC	Shuttle	●
Tap Type Pallet		●
T-Slot Pallet		○
Std. Table	1°	●
B Axis NC Table	0.001°	○
<b>Coolant System</b>		
Std. Coolant (Nozzle)		●
Bed Flushing Coolant		●
Through spindle coolant*	6bar	○
	20 bar	○
	30 bar, 20 ℓ (5.3 gal)	○
	70 bar, 15 ℓ (3.9 gal)	☆
	70 bar, 30 ℓ (7.9 gal)	○
Shower Coolant		○
APC Chip Cleaning		-
Gun Coolant		○
Side Oil Hole Coolant		☆
Air Gun		○
Cutting Air Blow		☆
Tool Measuring Air Blow (Only for TLM)		○
Air Blow for Automation		☆
Thru MQL Device (Without MQL)		☆
Coolant Chiller		☆
Power Coolant System (For Automation)		☆
<b>Chip Disposal</b>		
Coolant Tank	400 ℓ (110.57 gal)	●
Cabin Screw Chip Conveyor		●
Chip Conveyor (Hinge/Scraper)	Left (Front)	○
	Left (Rear)	○
Magnetic Scraper Chip Conveyor(Side/Rear)		-
Special Chip Conveyor (Drum Filter)		☆
Chip Wagon	Standard (180 ℓ [47.5 gal])	○
	Swing (200 ℓ [52.8 gal])	○
	Large Size (330 ℓ [87.2 gal])	○
	Customized	☆
<b>Safety Device</b>		
Total Splash Guard		●
APC Splash Guard		○
<b>ETC</b>		
Tool Box		●
Customized Color	Need for Munsel No.	☆
CAD&CAM Software		☆
Air Lift Slide Method	Z Axis	●

● : Standard ○ : Option ☆ : Prior Consultation - : non applicable

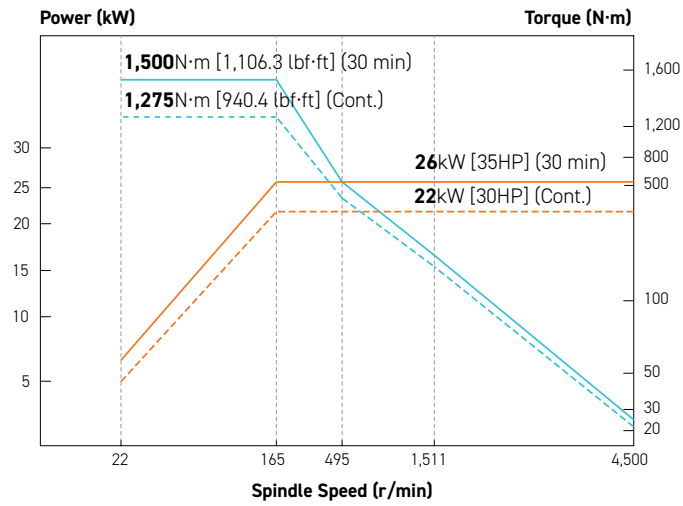
Electric Device		KH80G
Call Light	1 Color : ●	●
Call Light & Buzzer	3 Color : ● ● ● B	○
Work Light		●
Electric Cabinet Light		○
Remote MPG		●
3 Axis MPG		○
Work Counter	Digital	○
Total Counter	Digital	○
Tool Counter	Digital	○
Electric Circuit Breaker		○
AVR (Auto Voltage Regulator)		☆
Transformer	70kVA	○
Auto Power Off		○
Back up Module for Black out		○
<b>Measuring Device</b>		
Air Zero	TACO	☆
	SMC	☆
Work Measuring Device		○
TLM (Marposs/Renishaw/Blum)	Touch	○
	Laser	○
Tool Broken Detecting Device		○
Linear Scale	X/Y/Z Axis	○
Rotary Scale	B Axis	○
Pallet Close Confirmation Device		-
Coolant Level Sensor (Only for Chip Conveyor, Bladder Type)		☆
<b>Environment</b>		
Air Conditioner		○
Dehumidifier		○
Oil Mist Collector		☆
Oil Skimmer (Only for Chip Conveyor)		○
MQL (Minimal Quantity Lubrication)		☆
<b>Fixture &amp; Automation</b>		
Auto Door	Std.	-
	High Speed	-
Auto Shutter (Only for Automatic System)		-
Sub O/P		☆
Control of Additional Axis	1Axis	☆
	2Axis	-
External M Code 4ea		○
Automation Interface		☆
I/O Extension (In & Out)	16Contact	☆
	32Contact	☆
PPL (6PPL)		○
<b>Hyd. Device</b>		
Std. Hyd. Unit	45bar, 60 ℓ (16.9 gal)	-
	50bar, 60 ℓ (16.9 gal)	-
	70 bar, 100 ℓ (26.4 gal)	●
Center Type		-
Hyd. Supply Unit (Upper)	2x4(8Port)	-
Manual Coupler	2x2(4Port)	☆
Auto Coupler		-
Hyd. Unit for Fixture	45bar (653psi)	○
	70bar (1,015psi)	○
	100bar (1,450 psi)	☆
	Customized	☆
<b>S/W</b>		
Automatic CAM (HW-ACAM)		-
Dialogue Program (HW-DPRO)		○
DNC software (HW-eDNC)		○
Machine Monitoring System (HW-MMS Cloud)		☆
Machine Monitoring System (Customer Installation : HW-MMS Edge)		☆
Smart Guide-i : FANUC		☆
Smart S/W		☆

Through Spindle Coolant\* : Please check the filter types with sales representative.  
Specifications are subject to change without notice for improvement.

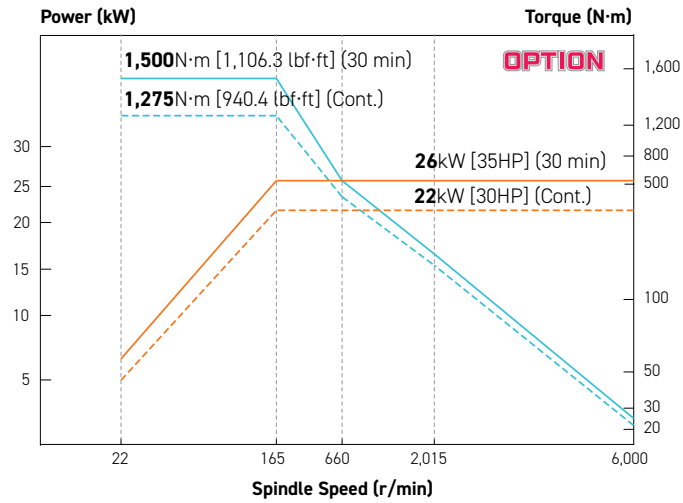
# SPECIFICATIONS

## Spindle Output/Torque Diagram

### FANUC 4,500rpm



### FANUC 6,000rpm



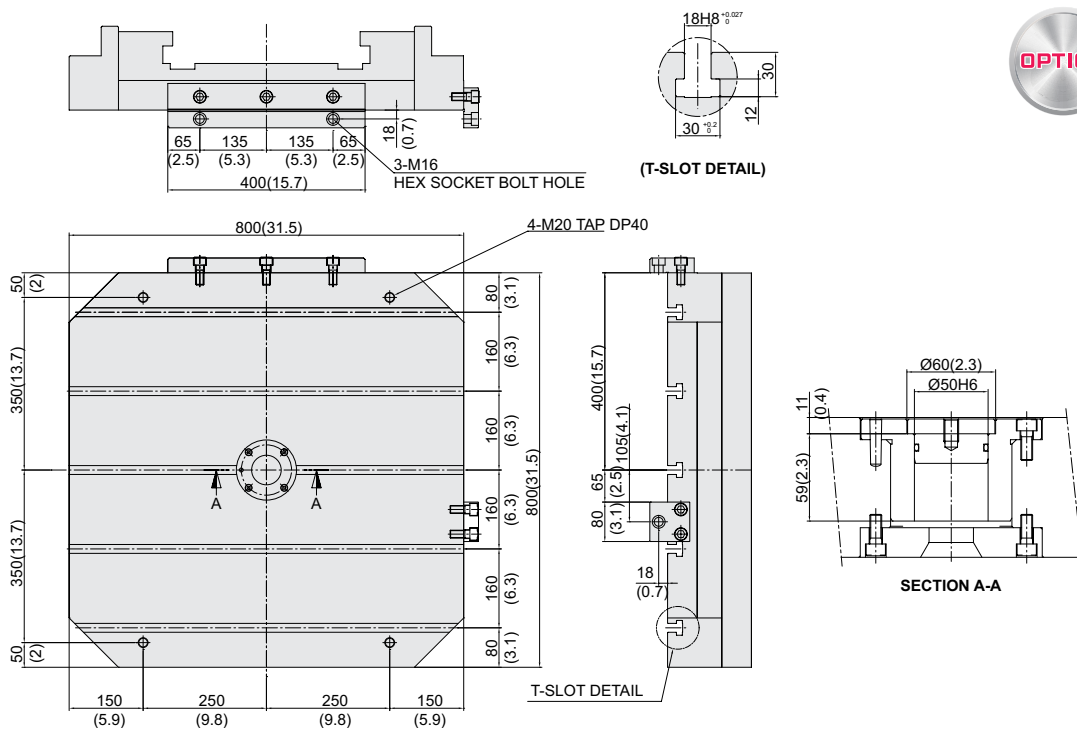
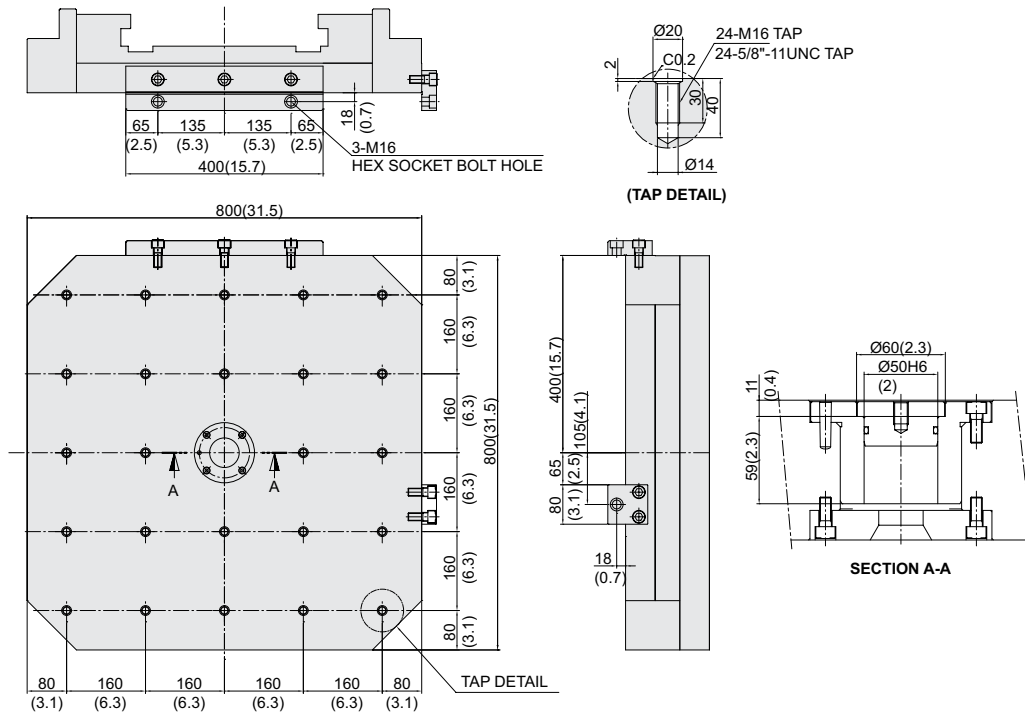




# SPECIFICATIONS

## Table Dimensions

unit : mm(in)



# SPECIFICATIONS

## Specifications

[ ] : Option

ITEM		KH80G	
PALLET	Pallet Size	mm(in)	2-800×800 (2-31.5"×31.5")
	Maximum Load Capacity	kg(lb)	2-2,200 (2-4,850)
	Maximum Working Size	mm(in)	Ø1,150×H1,150 (Ø45.3"×H45.3")
	Min. Indexing Angle	deg	1° [0.001°]
SPINDLE	Spindle Taper	-	BT50 [BBT50] [HSK-A100]
	Spindle RPM	r/min	4,500 [6,000]
	Spindle Motor Output (Max./Cont.)	kW(HP)	26/22 (35/30) [26/22 (35/30)]
	Spindle Torque (Max./Cont.)	N·m(lbf·ft)	1,500/1,275 (1,106.3/940.4) [1,500/1,275 (1,106.3/940.4)]
	Spindle Driving Method	-	GEAR
FEED	Travel (X/Y/Z axis)	mm(in)	1,250/1,000/850 (49.2"/39.4"/33.5")
	Distance from Table Top to Sp. Center	mm(in)	50 ~ 1,050 (2"~41.3")
	Distance from Table Center to Sp. Nose	mm(in)	250 ~ 1,100 ( 9.8"~43.3")
	Rapid Traverse Rate (X/Y/Z)	m/min(ipm)	18/18/18 (709/709/709)
	Slide Type	-	X,Z Axis : LM GUIDE, Y Axis : BOX GUIDE
ATC	Number of Tools	EA	40 [80, 120]
	Tool Shank	-	BT50 [BBT50] [HSK-A100]
	Max. Tool Dia. (W.T/W.O)	mm(in)	Ø130/Ø260 (Ø4.3"/Ø9.6")
	Max. Tool Length	mm(in)	500 (19.7")
	Max. Tool Weight	kg(lb)	27 (59.5)
	Tool Selection Method	-	FIXED ADDRESS
	Tool Change Time	T-T	sec
C-C		sec	9.5
APC	No. of Pallet	EA	2 [6]
	Pallet Change Time	sec	28
	APC Type	-	SHUTTLE
TANK CAPACITY	Coolant Tank	ℓ(gal)	400 (105.7)
	Lubricating Tank	ℓ(gal)	3 (0.8) (2ea)
	Hyd. Tank Unit	ℓ(gal)	100 (23.7)
POWER SUPPLY	Air Consumption (0.5MPa)	ℓ/min(gal/min)	670 (177)
	Electric Power Supply	KVA	56
	Thickness of Power Cable	Sq	Over 25
	Voltage	V/Hz	220/60 (200/50*)
MACHINE	Floor Space (L×W)	mm(in)	5,510×3,270 (216.9"×128.7") (40 Tool)
	Height	mm(in)	3,233 (127.3")
	Weight	kg(lb)	21,500 (47,399)
PC	Controller	-	FANUC 31i-B

\*) Using 50Hz voltage instead of 60Hz may lower the output of motors. (excluding servo motors and inverter motors)  
Specifications are subject to change without notice for improvement.



# CONTROLLER

## FANUC 31i-B

[ ] : Option ☆ Needed technical consultation

Controlled axis / Display / Accuracy compensation	
Control axes	3 axes (X, Y, Z) 4 axes (X, Y, Z, B)
Simultaneously controlled axes	3 axes [Max. 4 axes]
Least setting Unit	X, Y, Z axes : 0.001 mm (0.0001 inch) B axis : 0.001 deg
Least input increment	X, Y, Z axes : 0.001 mm (0.0001 inch) B axis : 0.001 deg
Inch / Metric conversion	G20 / G21
High response vector control	
Interlock	All axes / Each axis
Machine lock	All axes
Backlash compensation	± 0 ~ 9999 pulses (Rapid traverse / Cutting feed)
Position switch	
LCD / MDI	10.4 inch color LCD
Feedback	Absolute motor feedback
Stored stroke check 1	Over travel
Stored pitch error compensation	
Operation	
Automatic operation (Memory)	
MDI operation	
DNC operation	Needed DNC software / CF card
Program restart	
Wrong operation prevention	
Program check function	Dry run, Program check Z axis Machine lock, Stroke check before move
Single block	
Search function	Program Number / Sequence Number
Interpolation functions	
Pano interpolation	
Positioning	G00
Linear interpolation	G01
Cylindrical interpolation	G02, G03
Exact stop mode	Single : G09, Continuous : G61
Dwell	G04, 0 ~ 9999.9999 sec
Skip	G31
Reference position return	1st reference, G28 2nd reference, G27 Ref. position check, G30
Thread synchronous cutting	G33
Helical interpolation	Circular + Linear interpolation 2 axes(max.)
Feed function / Acc. & Dec. control	
Manual feed	Rapid traverse Jog : 0~5,000mm/min (197 ipm) Manual handle : x1, x10, x100 pulses Reference position return
Cutting feed command	Direct input F code
Feedrate override	0 ~ 200% (10% Unit)
Rapid traverse override	F0% (F1%), F25%, F50%, F100%
Override cancel	
Feed per minute	G94
Feed per revolution	G95
Look-ahead block	40 Block 200 Block (Mold)
Program input	
Tape Code	EIA / ISO
Optional block skip	1 ea
Absolute / Incremental program	G90 / G91
Program stop / end	M00, M01 / M02, M30
Maximum command unit	± 999,999.999 mm (± 99,999.9999 inch)
Plane selection	X-Y, G17 / Z-X, G18 / Y-Z, G19
Workpiece coordinate system	G52, G53, 48 pairs (G54.1 P1 ~ 48)
Manual absolute	Fixed ON
Programmable data input	G10
Sub program call	10 folds nested
Custom macro	#100 ~ #149, #500 ~ #549
G code system	A
Programmable mirror image	G51.1, G50.1
G code preventing buffering	G4.1
Including Chamfering / Corner R	
Canned cycle	G73, G74, G76, G80 ~ G89
Coordinate rotation	G68, G69

Auxiliary function / Spindle speed function	
Auxiliary function	M 4 digit
Level-up M Code	Multi / Bypass M code
Spindle speed command	S 5 digit , Binary output
Spindle override	0% ~ 150% (10% Unit)
Spindle orientation	M19
FSSB high speed rigid tapping	
Tool function / Tool compensation	
Tool function	Max. T 8 digit
Tool life management	256 pairs ☆
Tool offset pairs	64 pairs
Tool nose radius compensation	G40, G41, G42
Tool nose length compensation	G43, G44, G49
Tool offset memory C	Tool length, diameter, abrasion(length, diameter)
Tool length measurement	Z axis Input C
Editing function	
Part program storage size	640m (256KB)
No. of registerable programs	500 EA
Program protect	
Background editing	
Extended part program editing	Copy, move and change of NC program
Memory card program edit	
Data input / output & Interface	
I/O interface	CF card, USB memory Embedded Ethernet interface
Screen hard copy	
External message	
External key input	
External workpiece number search	
Automatic data backup	
Setting, display and diagnosis	
Self-diagnosis function	
History display	Alarm & Operator message & Operation
Run hour / Parts count display	
Maintenance information	
Actual cutting feedrate display	
Display of spindle speed / T code	
Graphic display	
Operating monitor screen	Spindle / Servo load etc.
Power consumption monitoring	Spindle & Servo
Spindle / Servo setting screen	
Multi language display	Support 20 languages
Display language switching	Selection of 5 optional Languages
LCD Screen Saver	Screen saver
Processing select	Speed/rigidity setting
Option	
Additional optional block skip	9 ea ☆
Fast ethernet	Needed option board
Data server	Needed option board
Protection of data at 8 levels	
Sub Spindle control	
Polar coordinate command	G15, G16
Polar coordinate interpolation	G12.1, G13.1
Cylindrical interpolation	G07.1
One-way positioning	G60
Stored stroke check 2, 3	
Inverse-time feed	G93
Scaling	G50, G51
Manual guide i	Conversational auto program
Handle interrupt	
Manual handle feed	2/3 units
Additional custom macro variables	#100~#199, #500~#999 #100~#199, #500~#999, #98000~#98499
Retraction for rigid tapping	
Tool management function	
Tool offset number	Max. 2000 pair ☆
Program storage capacity	512KB ~ 8MB ☆
Program registration number	Max. 4000 ea ☆
Additional work coordinate	Max. 300 pair (G54.1 P1 ~ P300)
AICC II	200 block 400 / 600 / 1000 block ☆

Figures in inch are converted from metric values.

The FANUC controller specifications are subject to change based on the policy of company CNC supplying.



# MOVEMENT FOR BETTER TOMORROW



## ECO FRIENDLY

Protect the environment for all humanity and generation to come

**01**

**Achieve  
carbon  
neutrality**

- Develop Net-zero Roadmap
- Heighten carbon emissions management
- Achieve carbon neutrality goals

**02**

**Boost  
resource  
circulation**

- Detail plans to reduce environmental impact
- Gradually reduce pollutant emissions
- Build eco-friendly supply chain

**03**

**Establish  
environmental  
management  
framework**

- Set up environmental management process
- Assess business impact of climate change risks

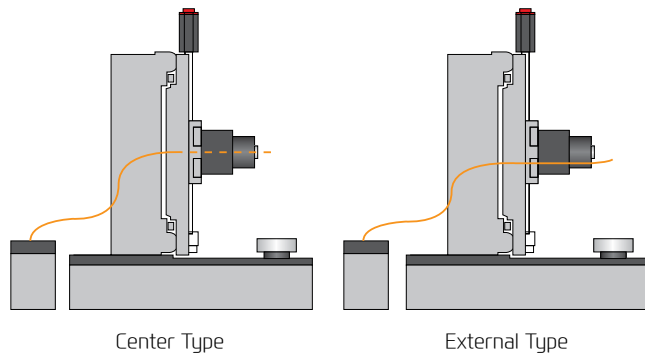


# HYUNDAI WIA ECO SYSTEM

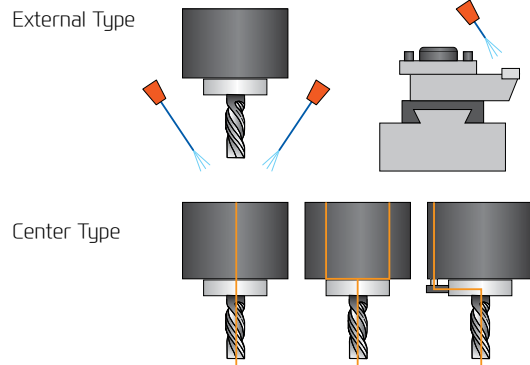
## MQL (Minimal Quantity Lubrication)

The goal of this system is to spray only the amount of lubricant required to prevent heat and chip build up at the cutting tool or work piece face.

### Example of Machining Center Application



### Example of Etc.



Oil Skimmer

An oil skimmer can increase coolant and tool life by removing tramp oil contaminants.



Mist Collector

Mist Collector reduces the amount of smoke and oil mist in the air. This helps build a safe and comfortable working environment and improve durability.



Lubrication System

By applying lubricant only when the machines axis are moving lubrication consumption is reduced by compared to standard systems.

# HYUNDAI WIA ENERGY SAVING

## HW-ESS (HYUNDAI WIA Energy Saving System)

HYUNDAI WIA Machine tool provides the optimum power saving function that can easily save energy with an intuitive user interface.



1. **Machine-ready power saving function** : Put all servo motors and other motors into sleep mode when no control or operation is done for a set time
2. **Work light auto-off function** : The work light is turned off automatically when no control or operation is done for a set time
3. **Chip conveyor auto power saving** : Operation/non operation time (timer) can be set to save energy
4. **Auto Power-off** : Auto power off after ending the an operation after a period of time
5. **Eco function** : Machine ready sleep mode can be activated/de-activated from the controller panel
6. **Power consumption monitor** : Real time power consumption can be monitored through the OP screen





**You Tube** HYUNDAI WIA MT

[www.youtube.com/HYUNDAIWIAMT](http://www.youtube.com/HYUNDAIWIAMT)

## EXPERIENCE THE NEW TECHNOLOGY

With its top-quality HYUNDAI WIA machine tool creates a new and better world.



<http://machine.hyundai-wia.com>

HYUNDAI WIA Machine Tools  
Global Links

### HEADQUARTER

**Changwon Technical Center/R&D Center/Factory** 153, Jeongdong-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do, Korea TEL : +82 55 280 9114 FAX : +82 55 282 9114

**Overseas Sales Team /R&D Center** 37, Cheoldobangmulgwan-ro, Uiwang-si, Gyeonggi-do, Korea TEL : +82 31 8090 2539

### OVERSEAS OFFICES

**HYUNDAI WIA Machine America corp.** 450 Commerce Blvd, Carlstadt, NJ 07072, USA TEL : +1-201-987-7298

**HYUNDAI WIA Europe GmbH** Alexander-Fleming-Ring 57, 65428 Rüsselsheim Germany TEL : +49-0-6142-9256-0

**HYUNDAI WIA Machine Tools China** 2-3F, Bldg6, No.1535 Hongmei Road, Xuhui District, Shanghai, China TEL : +86-21-6427-9885

**India Branch Office** #4/169, 1st Floor, LOTTE BLDG, Rajiv Gandhi Salai, (OMR), Kandanchavadi, Chennai - 600096, Tamilnadu, India TEL : +91-76-0490-3348