

KH

50G/63G

Robust Machining Center with Revolutionary Productivity

HYUNDAI WIA Horizontal Machining Center

Technical Leader

Horizontal Machining Center KH50G/63G designed by Hyundai WIA with years of expertise and the latest technology, features 2 Step geared spindle for highly rigid and accurate machining to maximize productivity.

		KH50G	KH63G
Pallet Size (L×W)	mm(in)	2-500×500 (2-19.7"×19.7")	2-630×630 (2-24.8"×24.8")
Max. Load Capacity	kg(lb)	2-800 (2-1,764)	2-1,000 (2-2,205)
Spindle Taper	-	BT50 [BBT50]	
Spindle Speed	r/min	4,500 [4,500] [8,000] [8,000]	4,500 [4,500] [8,000] [8,000] [4,500] [8,000]
Spindle Output	kW(HP)	18.5 (25) [22 (30)]	22 (30) [26 (35)] [22 (30)] [26 (35)]
No. of Tools	EA	40 [60, 90, 120]	
Travel (X/Y/Z)	mm(in)	760/705/650 (29.9"/27.8"/25.6")	950/825/760 (37.4"/32.5"/29.9")
Rapid Traverse Rate (X/Y/Z)	m/min(ipm)	20/20/20 (787/787/787 ipm)	

[] : Option ● SIEMENS

KH

50G/63G

Heavy Duty Cutting Horizontal Machining Center

- 2 Step Gear on Main Spindle for Heavy Duty Cutting
- Standard Oil Cooling System for High Precision
- Shuttle Type APC
- Box Guides on All Axes for Ultra Rigidity
- Air Semi-Rising Slideway on Z-axis
- 8-Face Contact Y-axis Guideway
- Specially Designed Columns that Minimizes Thermal Displacement
- Tool Magazine Capacity of up to 120 Tools (Opt.)



01 BASIC STRUCTURE

Revolutionized Productivity & High Performance – Horizontal Machining Center

ATC & Magazine

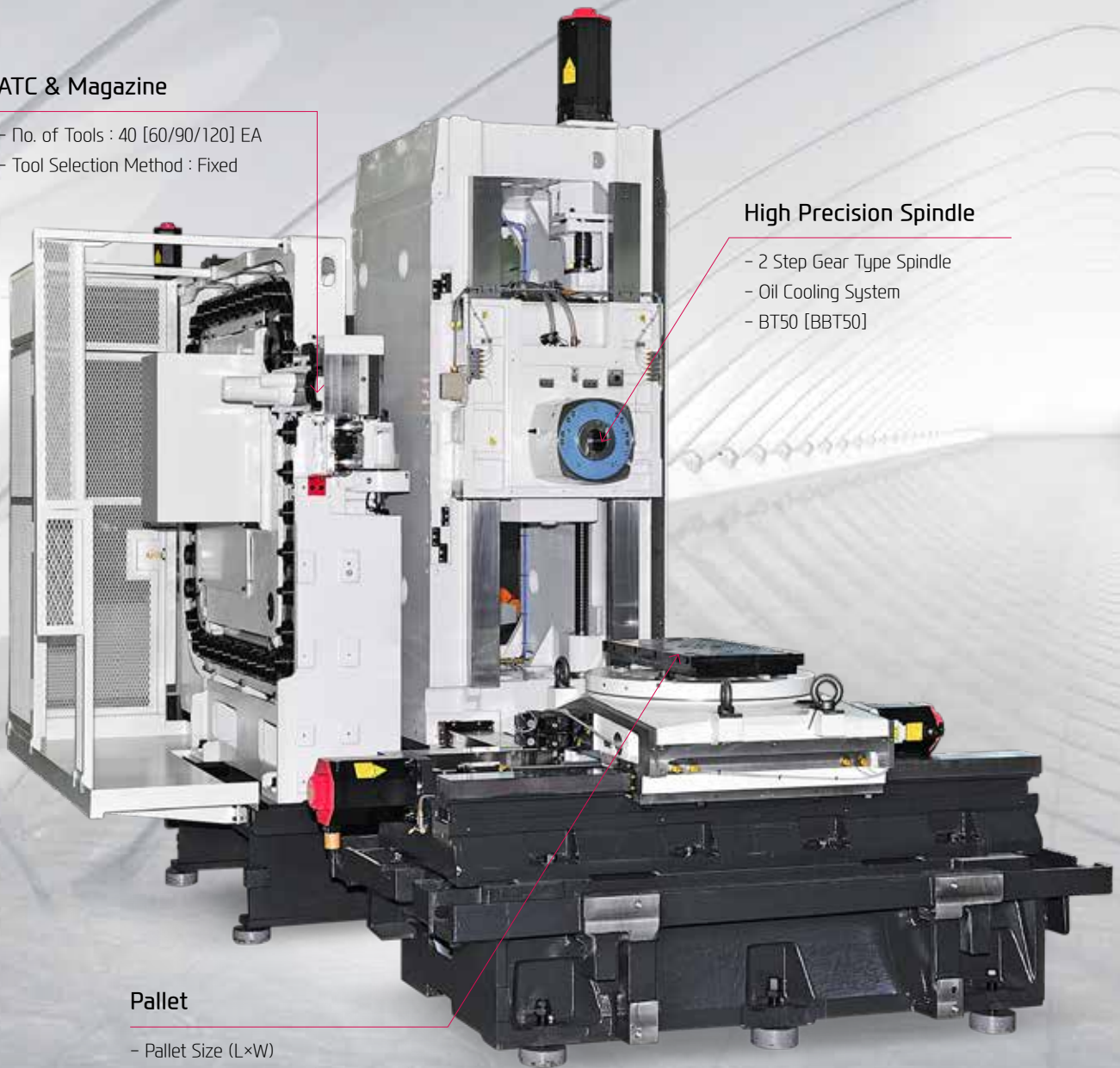
- No. of Tools : 40 [60/90/120] EA
- Tool Selection Method : Fixed

High Precision Spindle

- 2 Step Gear Type Spindle
- Oil Cooling System
- BT50 [BBT50]

Pallet

- Pallet Size (L×W)
KH50G : 500×500 mm (19.7"×19.7")
KH63G : 630×630 mm (24.8"×24.8")
- APC Type : Shuttle



HIGH RIGIDITY, HIGH PERFORMANCE

HIGH RIGIDITY STRUCTURE

“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.

Column Moving Structure

The Z-axis of the machine is designed with a moving column to prevent table sag. The moving column structure increases rigidity and reduces heat generation. Hence, it shows excellent performance in heavy duty cutting where accuracy and repeatability are maintained.



GUIDE WAY

Box Guideway for All Axes

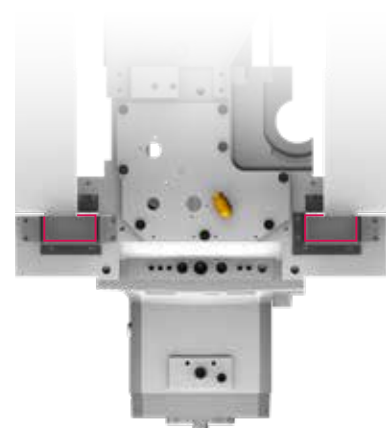
KH50G/63G is designed with box guideways which show great performance in offsetting vibration. Therefore, it is possible to efficiently machine difficult to cut materials into high precision products.

Air Semi-Rising Slide Way

By applying the air semi-rising slideways, the load on the Z-axis slideway is decreased. Therefore, positioning and repeatability accuracy can be maintained for a long time.

8-face Contact Y-axis Guideway

Spindle head contacts 8 faces of Y-axis guideway. This new method allows cutting forces generated by the spindle head to be absorbed by the Y-axis box guideways which improves heavy duty cutting ability, accuracy, and surface finish.



Travel (X/Y/Z)

KH50G

760/705/650 mm (29.9"/27.8"/25.6")

KH63G

950/825/760 mm (37.4"/32.5"/29.9")

02 HIGH PRECISION SPINDLE

Excellent machining performance with high-precision spindle

Spindle Specifications

[] : Option

Model	Speed (rpm)	Motor (Max./Cont.)	Torque (Max./Cont.)	Controller
KH50G	4,500 r/min	18.5/15 kW (25/20 HP)	901/730 N·m (664.5/538.4 lbf·ft)	FANUC
	[4,500 r/min]	[22/15 kW (30/20 HP)]	[1,071/730 N·m (789.9/538.4 lbf·ft)]	
	[8,000 r/min]	[18.5/15 kW (25/20 HP)]	[657/532 N·m (484.6/392.4 lbf·ft)]	
	[8,000 r/min]	[22/15 kW (30/20 HP)]	[781/532 N·m (576/392.4 lbf·ft)]	
KH63G	4,500 r/min	22/18.5 kW (30/25 HP)	1,071/901 N·m (789.9/664.5 lbf·ft)	FANUC
	[4,500 r/min]	[26/18.5 kW (30/25 HP)]	[1,267/901 N·m (934.5/664.5 lbf·ft)]	
	[8,000 r/min]	[22/18.5 kW (30/25 HP)]	[781/657 N·m (576/484.6 lbf·ft)]	
	[8,000 r/min]	[26/18.5 kW (35/25 HP)]	[922/657 N·m (680/484.6)]	SIEMENS
[4,500 r/min]	[22.2/18.5 kW (30/25 HP)]	[1,390.3/1,202.5 N·m (1,025.4/886.9 lbf·ft)]		
	[8,000 r/min]	[22.2/18.5 kW (30/25 HP)]	[1,011.7/875 N·m (746.2/645.4 lbf·ft)]	

HIGH-PERFORMANCE, HIGH-PRECISION SPINDLE

SPINDLE

High Precision & High Rigidity Spindle

By using ultra precision class cylindrical roller-bearings, fast acceleration and deceleration of the main spindle is achieved. The spindle head is designed to minimize thermal displacement of the main spindle, and with the use of a hydraulic tool lock system the machining stability has been increased.

2-Step Geared Spindle

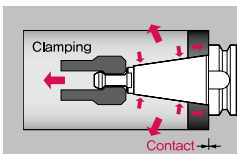
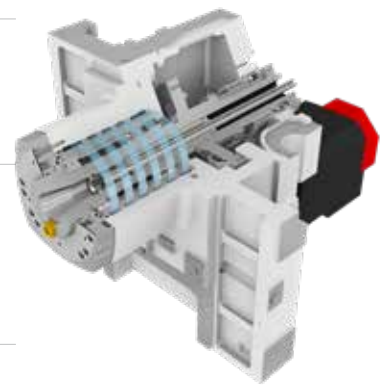
KH50G/63G is designed with a 2-step gear drive, which provides high torque at low rpm and stability at high rpm.

Spindle Cooling

The spindle cooling system minimizes thermal displacement which can happen during lengthy machining operations, and offers continued accuracy based on the thermal stability.

8 Nozzles Directing Coolant

8 nozzles on the spindle improve precision by providing coolant on the machining area where direction of injection can be adjusted.



Dual Contact Spindle

The Big Plus spindle system (BBT50) provides dual contact between the spindle face and the flange face of the tool holder.

- ❖ The increase in standard diameter improves stiffness and ATC repeatability, and Z-axis displacement is prevented which further extends tool life.

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.

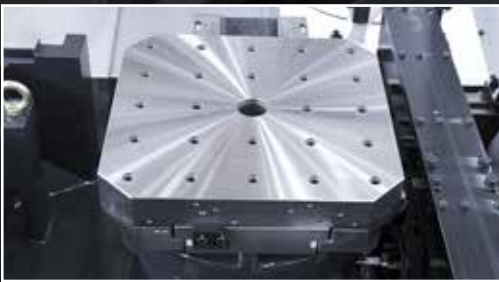


20 bar / 30 bar / 70 bar

03 APC & ATC

High Productivity Achieved with High Rigidity, Accuracy Machining

◎ Tap Pallet



◎ T-Slot Pallet **OPTION**



❖ The pallet in the photo above is a pallet with an optional center hole. Center hole is not applied as standard specification.

ATC & Magazine Specifications

[] : Option

Model	No. of Tools	Max. Tool Dia. (W.T/W.O)	Max. Tool Length	Max. Tool Weight
KH50G	40 [60, 90, 120] EA	Ø110/Ø245 mm (Ø4.3"/Ø9.6")	400 mm (15.7")	20 [35] kg (44 [77] lb)
KH63G			600 mm (23.6")	

APC & Pallet Specifications

Model	Pallet Size (L×W)	Max. Load Capacity	Min. Indexing Angle	APC Type
KH50G	500×500 mm (19.7"×19.7")	800 kg (1,764 lb)	1° [0.001°]	SHUTTLE
KH63G	630×630 mm (24.8"×24.8")	1,000 kg (2,205 lb)		

HIGH RIGIDITY, TOOL & PALLET CHANGE SYSTEM

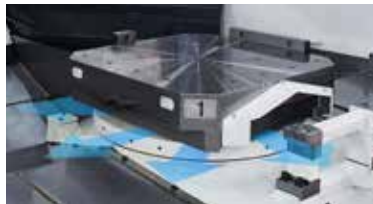
APC & PALLET

Shuttle Type APC

KH50G/63G 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.



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



Air Clearing System

During the pallet change cycle, strong air blasts from the taper cones on the machine table helps remove chips to provide clean surface for locating the pallet. This ensures high accuracy of pallet positioning and guarantees optimum rigidity.

ATC & MAGAZINE

KH50G/63G offers various tool magazines which expand the range of machining.

Also, fixed address tool selection method and 2 types of ATC cycles for heavy tools and standard tools increase convenience.



ATC Air Blow & Brush

Tool holders are automatically cleaned by an air blow and brush when they are placed in the standby position.



40 Tool **OPTION**



60 Tool **OPTION**



90 Tool **OPTION**



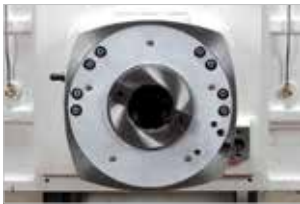
120 Tool **OPTION**



04 USER CONVENIENCE

Various Devices for User Friendly

CHIP DISPOSAL SOLUTION & COOLANT UNIT



Std. Coolant (Nozzle)



Gun Coolant (Opt.)



Air Gun (Opt.)



Spindle Cooling Unit

The cooling unit is installed within the side of the machine to minimize the installation area. The application of the inverter type, $\pm 0.1^\circ$, enables rapid and effective control of the spindle thermal displacement.

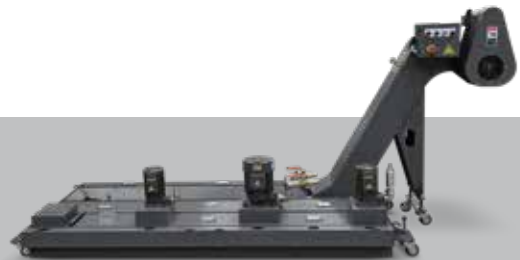


Interior Screw Chip Conveyor

Dual screw type chip conveyors are located at each side of the bed which makes it convenient to remove chips.

Chip Conveyor

Timely and effective disposal of chips will improve productivity as well as working environment.



Hinge	Chip Type : Roughing chip, long chip, chip complex	Material : SS41, 45C, Cast Steel	Left Direction
	Highly efficient when disposing a lot of chips. Capable of handling stringy chips..		
Scraper	Chip Type : Finely broken chip blown out	Material : cast Iron, Nonferrous	
	Convenient for shortly cut chips.		
❖ Screw	Chip Type : The lower portion of micro-chips	Material : Steel, Casting	
	Compresses and ejects chips to reduce chip trouble.		
❖ Drum Filter	Chip Type : Powder, micro chip	Material : AL	
	Advantageous in precision, as the chips do not flow in to the coolant nozzle.		

❖ When ordering a screw or drum filter chip conveyor, prior consult with hyundai wia's sales person.

6PPL

6PPL contains 5 buffer stations and a setup station as standard. Compared to conventional machines that feature APC (2 Pallets), 6PPL runs automatically for longer time. Also, machining various products is possible under a scheduled operation.



PRECISION SYSTEM



Linear Scale

Linear scales increase positioning accuracy and reduce distortion caused by thermal growth, thus ensuring a more accurate finished part



TLM (Laser & Touch)

Tool lengths and diameters can be set automatically using the optional tool setter. This can also be used to monitor attrition and detect broken tools.



Touch Sensor

Workpiece coordinate values can be set automatically using the optional spindle probe.



APC Safety Sensor & Control Panel

Safety Sensors on APC covers detect the presence of operators near APC. When a contact is detected on the beam, APC Automatically stops. This helps establish a safe work environment.

Also, additional control panel is provided for APC operating.



NC ROTARY TABLE & HYDRAULIC SUPPLY UNIT

Various shapes of products can be processed when using NC Rotary Table. In addition, 100 bar of high pressure hydraulic unit for the fixture increases the tightening power of the teeth.

05 HYUNDAI WIA FANUC – SMART PLUS

The Compatible All-round Control



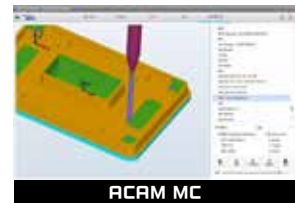
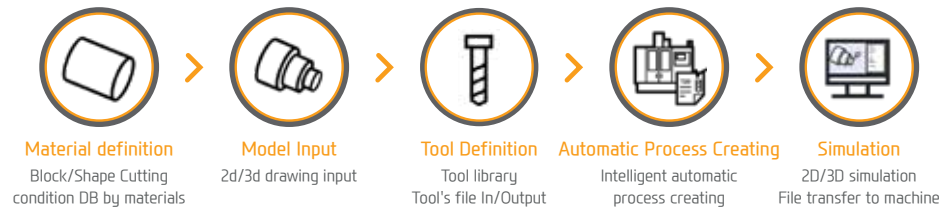
15" Touch-type Monitor as a standard

Smart Machine Control	Fast Cycle Time Technology
Conversational Program	Fine Surface Technology
i-HMI	SmartGuide-i
AI Contour Control	Machining-aid Function
Smooth Tolerance Control	AICC-2 (200 blocks)
JERK Control	0.1 μ m command and specify tolerance
Machining Condition Selection	Diminished vibration by controlling acceleration speed
Machining Quality Control Function	Designated machining level based on speed & quality
Part Program Storage	Smooth Tolerance+ integrated support
No. of Registerable Programs	5120M (2MB)
	1000 EA

ACAM (Automatic CAM)

Cloud-based automatic CAM S/W that automatically creates NC programs only by inputting drawing files

Cloud-based Intelligent Programming



MMS (Machine Monitoring System)



1. MMS Cloud

A cloud server-based equipment monitoring system for collecting and analyzing facility operation data.

2. MMS Edge

A client server-based tool monitoring system for collection/analysis of facility operation data. (Compatible with client MES / ERP interface)

SMART CNC (FANUC SMART PLUS)



1. Dialogue Program (Smart Guide-i)

This software offers the maximum user convenience through dialogue manipulation from setup to processing. This includes writing processing programs and simulation checks.

2. LAUNCHER

This software offers shortcuts for quick access to specialized features and frequently used features.

SPECIFICATIONS

Standard & Optional

Spindle		KH50G	KH63G
4,500rpm (18.5kW [25HP])	FANUC	●	-
4,500rpm (22kW [30HP])	FANUC	○	●
4,500rpm (26kW [35HP])	FANUC	-	○
4,500rpm (22.2kW [30HP])	SIEMENS	-	○
8,000rpm (22.2kW [30HP])	SIEMENS	-	○
8,000rpm (18.5kW [25HP])	FANUC	○	-
8,000rpm (22kW [30HP])	FANUC	○	○
8,000rpm (26kW [35HP])	FANUC	-	○
Spindle Cooling System		●	●
ATC			
ATC Extension	40	●	●
	60	○	○
	90	○	○
	120	○	○
Tool Shank Type	BT50	●	●
	BBT50	○	○
	CAT50/BCV50	○	○
Heavy Weight Tool	20kg (44lb)	●	●
	35kg (77lb)	○	○
U-Center	D'andrea	○	○
Pull Stud	45°	○	○
	60°	○	○
	90°	●	●
		○	○
Servo Motor Magazine		○	○
Table & Column			
APC	Shuttle	●	●
Tap Type Pallet		●	●
T-Slot Pallet		○	○
Std. Table	1°	●	●
B Axis NC Table	0.001°	○	○
Coolant System			
Std. Coolant (Nozzle)		●	●
Through spindle coolant*	20 bar	○	○
	30 bar	○	○
	70 bar	○	○
Shower Coolant		○	○
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)		☆	☆
Chip Disposal			
Coolant Tank	400 ℓ (105.7 gal)	●	●
Cabin Screw Chip Conveyor		●	●
Chip Conveyor (Hinge/Scraper)	Left(Front)	○	○
	Left(Rear)	○	○
Special Chip Conveyor (Drum Filter)		☆	☆
Chip Wagon	Standard (180 ℓ [47.5 gal])	○	○
	Swing (200 ℓ [52.8 gal])	○	○
	Large Swing (290 ℓ [76.6 gal])	○	○
	Large Size (330 ℓ [87.2 gal])	○	○
	Customized	☆	☆
Safety Device			
Total Splash Guard		●	●
APC Splash Guard		○	○
ETC			
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		KH50G	KH63G
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	○	○
Multi Tool Counter	6 EA	☆	☆
	9 EA	☆	☆
Electric Circuit Breaker		○	○
AVR (Auto Voltage Regulator)		☆	☆
Transformer	35kVA	○	○
Auto Power Off		○	○
Back up Module for Black out		○	○
Back up Module for Black out - Extension (FANUC : PFB-R/C)		☆	☆
Mesuring Device			
Air Zero	TACO	☆	☆
	SMC	☆	☆
Work Measuring Device		○	○
TLM (Marposh/Renishaw/Blum)	Touch	○	○
	Laser	○	○
Tool Broken Detective Device		○	○
Linear Scale	X/Y/Z Axis	○	○
Rotary Scale	B Axis	○	○
Pallet Close Confirmation Device		○	○
Coolant Level Sensor (Only for Chip Conveyor, Bladder Type)		☆	☆
Environment			
Air Conditioner		○	○
Dehumidifier		○	○
Oil Mist Collector		☆	☆
Oil Skimmer (Only for Chip Conveyor)		○	○
MQL (Minimal Quantity Lubrication)		☆	☆
Fixture & Automation			
Sub O/P		☆	☆
Control of Additional Axis	1Axis / Pallet	☆	☆
External M Code 4ea		○	○
Automation Interface		☆	☆
I/O Extension (In & Out)	16Contact	☆	☆
	32Contact	☆	☆
PPL (6PPL)		○	○
Hyd. Device			
Std. Hyd. Unit	45bar/60 ℓ (16.9 gal)	●	●
Center Type Hyd. Supply Unit (Upper)	2x4(8Port)	○	○
Manual Coupler	2x2(4Port)	☆	☆
Auto Coupler		☆	☆
Hyd. Unit for Fixture	45bar	☆	☆
	70bar	☆	☆
	100bar	☆	☆
	Customized	☆	☆
S/W			
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		● (F31i-B : ☆)	● (F31i-B : ☆)
Smart S/W		☆	☆

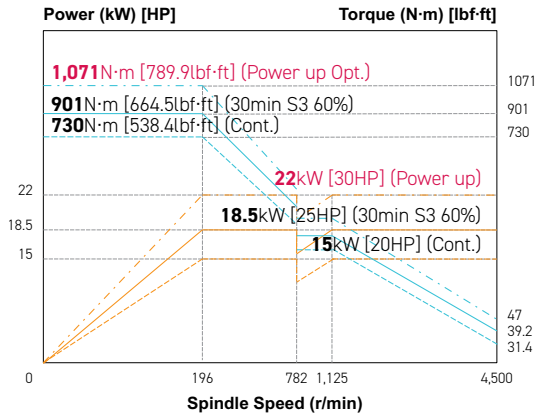
Through Spindle Coolant* : Please check the filter types with sales representative.

Specifications are subject to change without notice for improvement. / Please refer to the S/W catalog (iRIS) for details by S/W product.

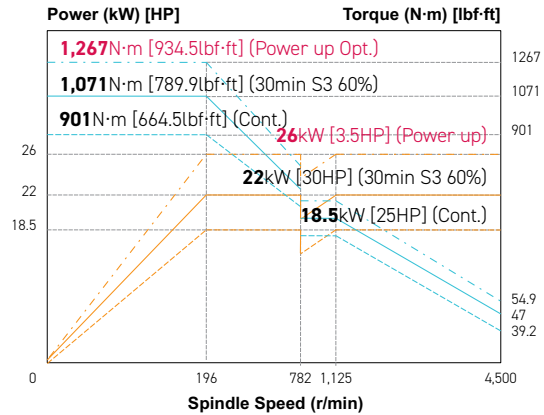
SPECIFICATIONS

Spindle Output/Torque Diagram

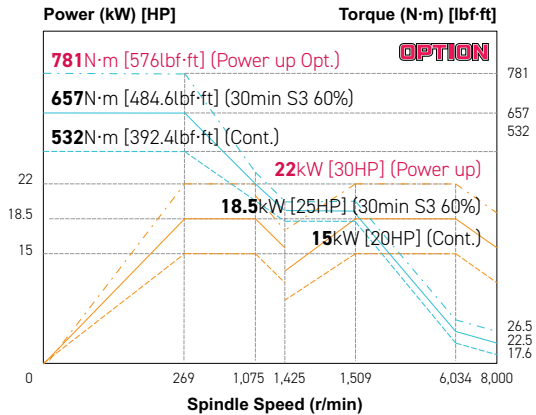
KH50G - 4,500rpm (FANUC)



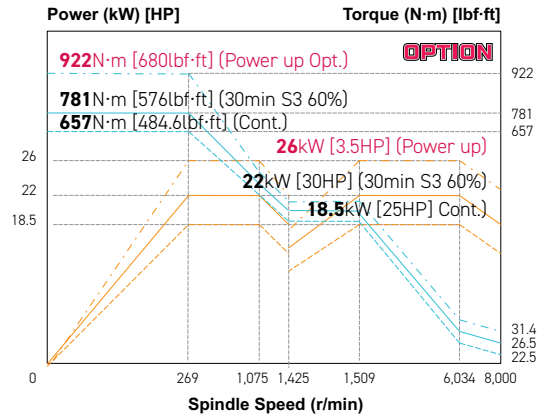
KH63G - 4,500rpm (FANUC)



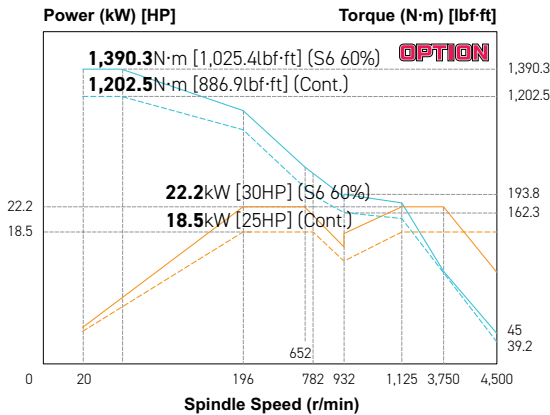
KH50G - 8,000rpm (FANUC)



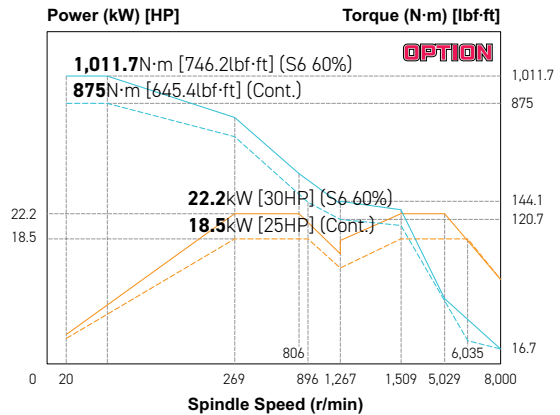
KH63G - 8,000rpm (FANUC)



KH63G - 4,500rpm (SIEMENS)



KH63G - 8,000rpm (SIEMENS)

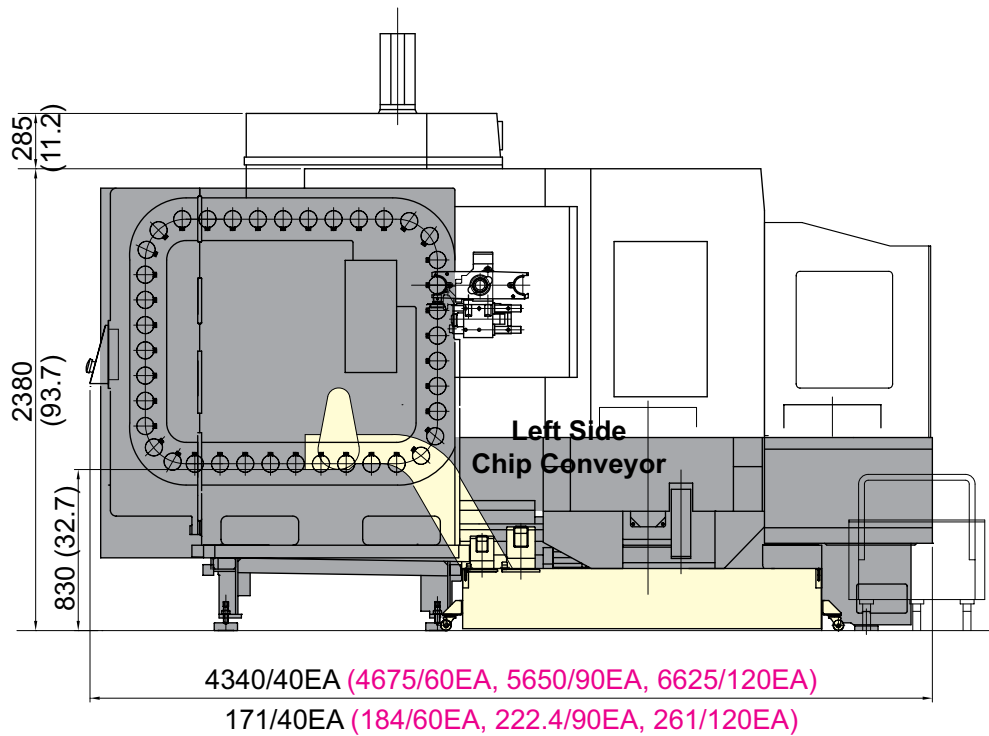
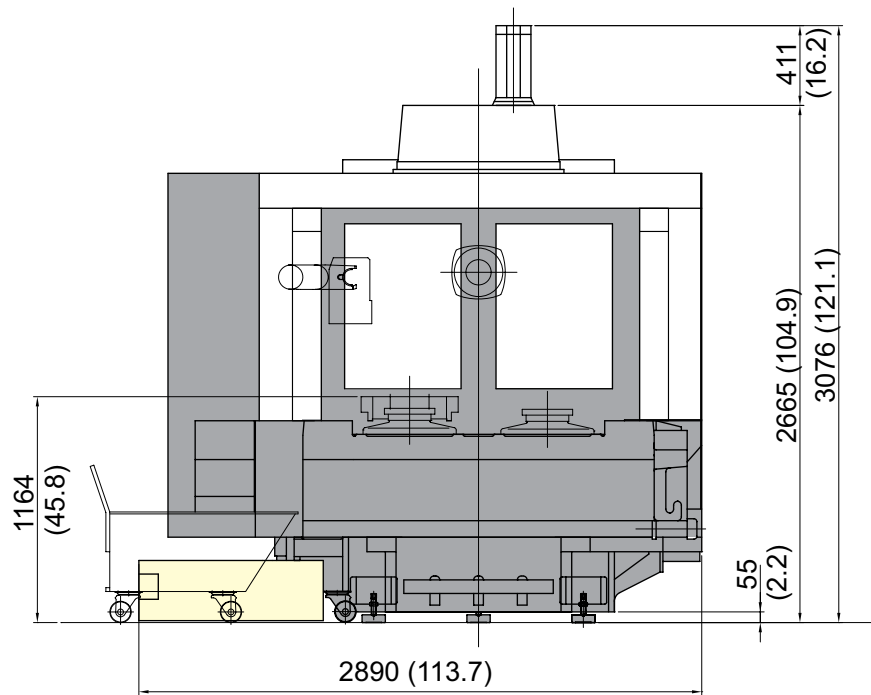


SPECIFICATIONS

External Dimensions

unit : mm(in)

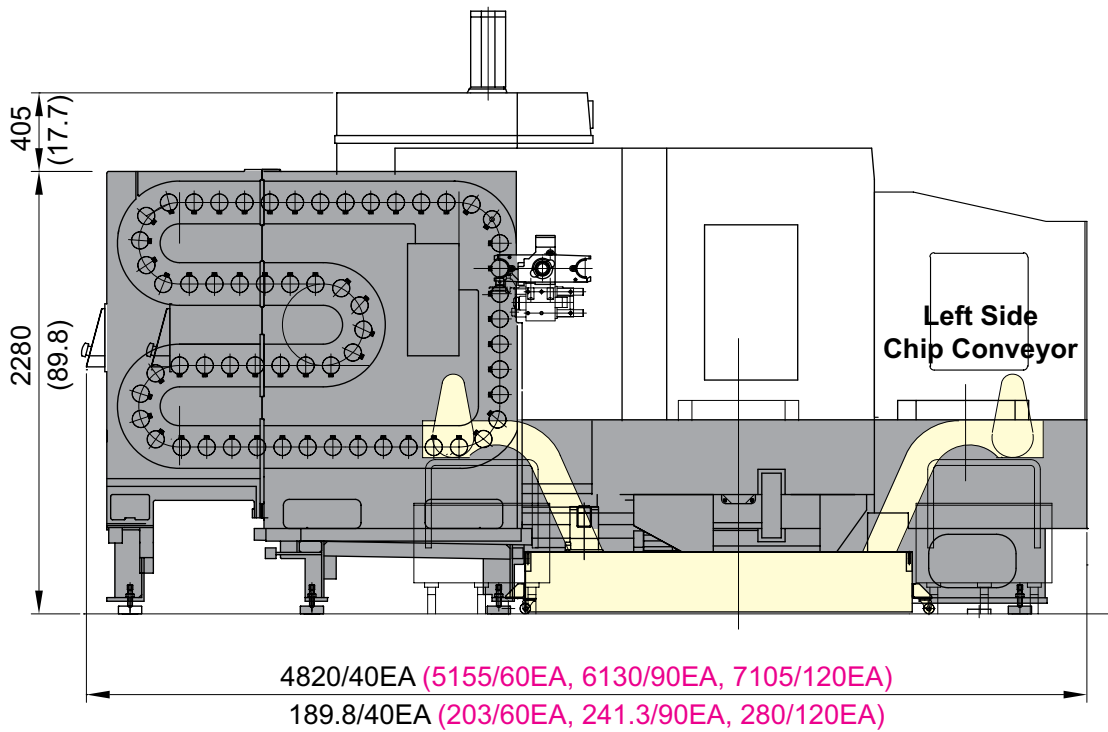
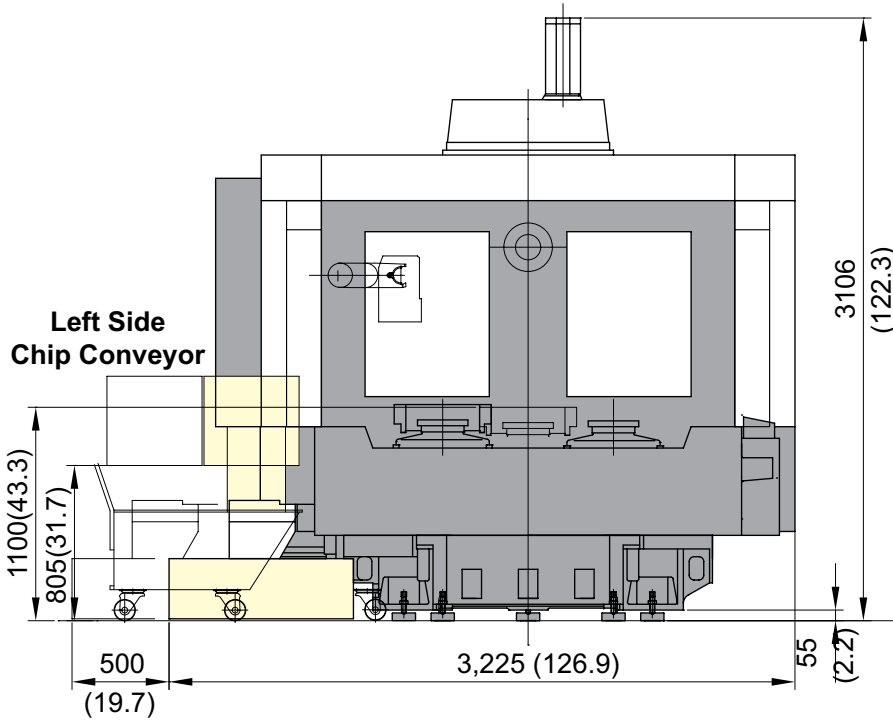
KH50G



External Dimensions

unit : mm(in)

KH63G

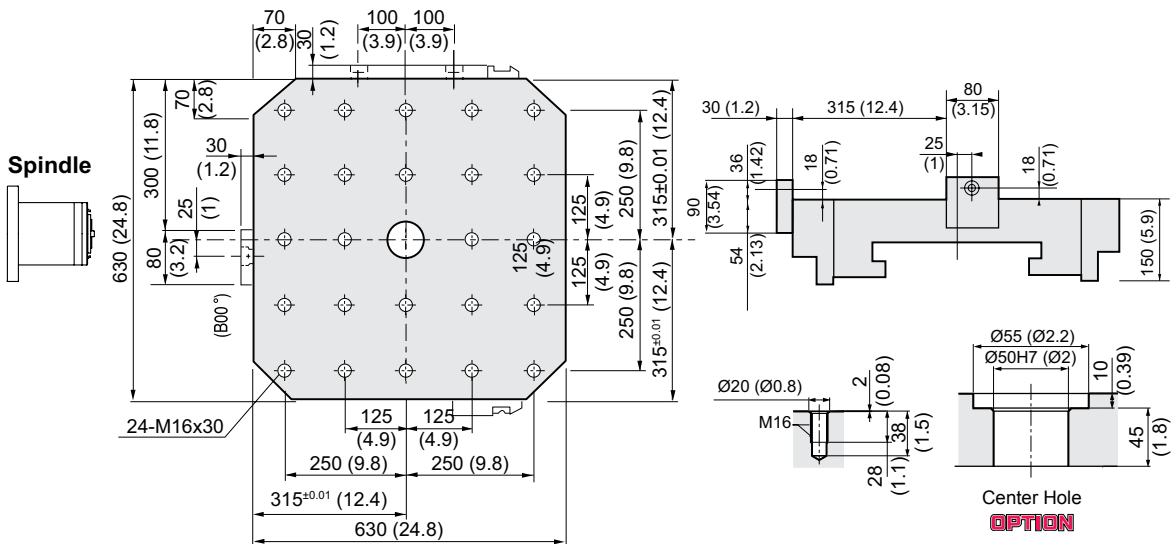
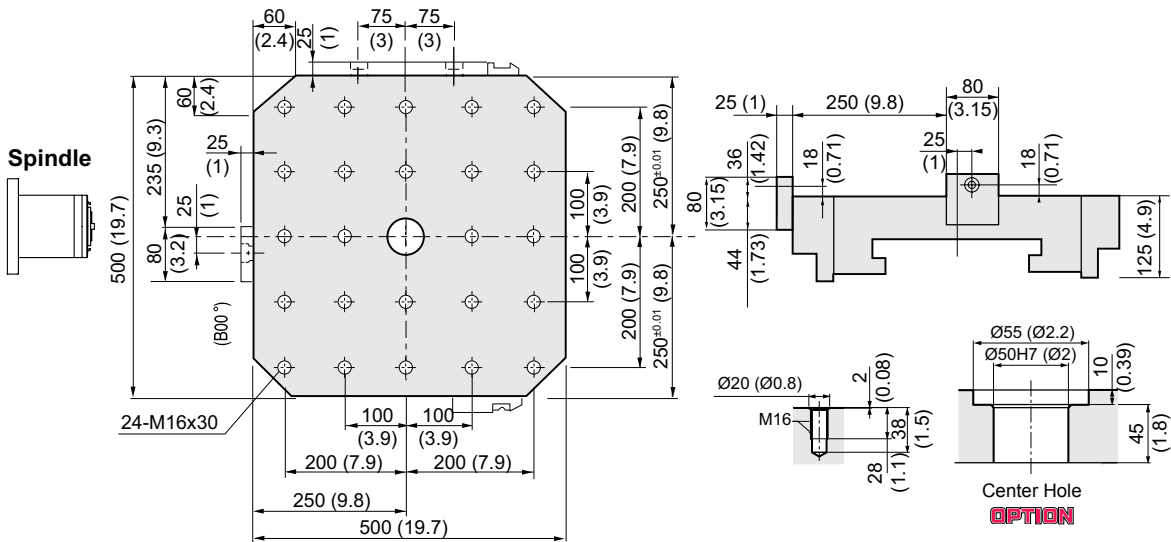


SPECIFICATIONS

Table Dimensions

unit : mm(in)

KH50G

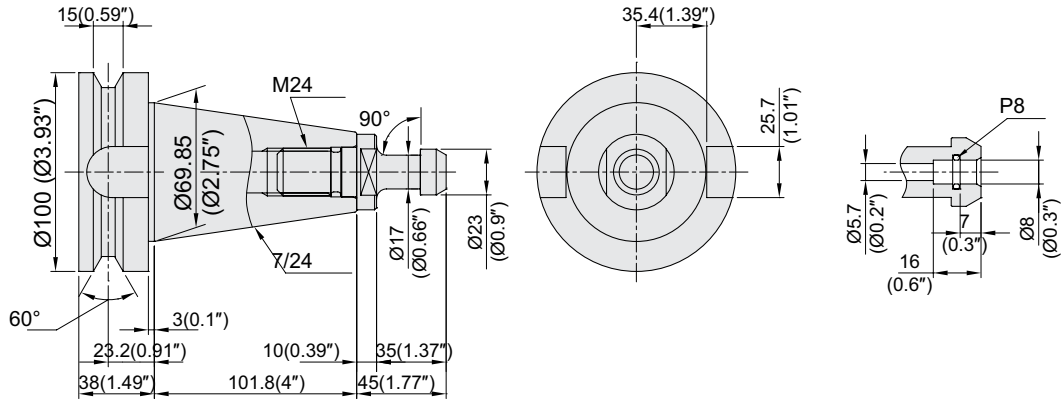


SPECIFICATIONS

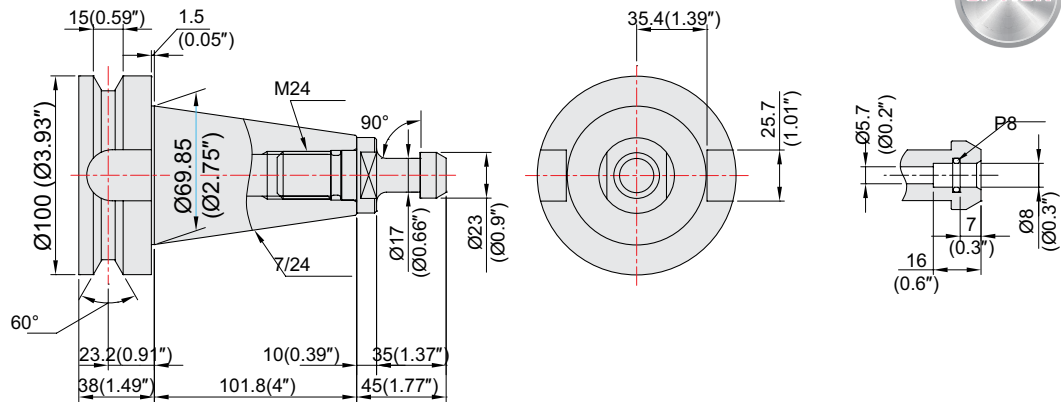
Tool Shank

unit : mm(in)

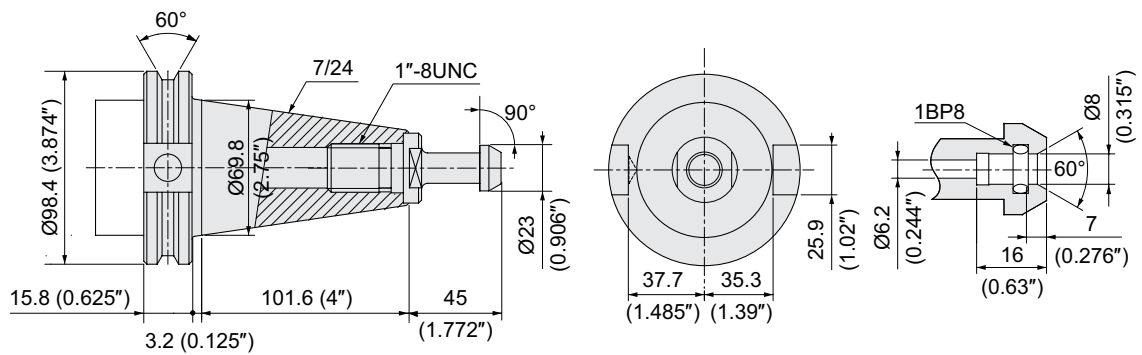
BT50



BBT50, BIG PLUS



CAT-50



PULL STUD DEGREE : 90° (Std.) / 45°, 60° (Opt)

SPECIFICATIONS

Specifications

[] : Option

ITEM		KH50G	
PALLET	Pallet Size	mm(in)	500×500 (19.7"×19.7")
	Maximum Load Capacity	kg(lb)	2~800 (2~1,764)
	Maximum Working Size	mm(in)	Ø900×H780 (Ø35.4"×H30.7")
	Min. Indexing Angle	deg	1° [0.001°]
SPINDLE	Spindle Taper	-	BT50 [BBT50] [CAT50] [BCV50]
	Spindle Speed	r/min	4,500 [4,500] [8,000] [8,000]
	Spindle Motor Output (Max./Cont.)	kW(HP)	18.5/15 (25/20) [22/15 (30/20)] [18.5/15 (25/20)] [22/15 (30/20)]
	Spindle Torque (Max./Cont.)	N·m(lbf·ft)	901/730 (664.5/538.4) [1,071/730 (789.9/538.4)] [657/532 (484.6/392.4)] [781/532 (576/392.4)]
	Spindle Driving Method	-	2 STEP GEAR
FEED	Travel (X/Y/Z axis)	mm(in)	760/705/650 (29.9"/27.8"/25.6")
	Distance from Table Top to Sp. Center	mm(in)	0~705 (0"~27.8")
	Distance from Table Center to Sp. Nose	mm(in)	135~785 (5.3"~30.9")
	Rapid Traverse Rate (X/Y/Z)	m/min(ipm)	20/20/20 (787/787/787)
	Slide Type	-	BOX GUIDE
ATC	Number of Tools	EA	40 [60, 90, 120]
	Tool Shank	-	BT50 [BBT50] [CAT50] [BCV50]
	Max. Tool Dia. (W.T/W.O)	mm(in)	Ø110/Ø245 (Ø4.3"/Ø9.6")
	Max. Tool Length	mm(in)	400 (15.7")
	Max. Tool Weight	kg(lb)	20 (44) [35 (77)]
	Tool Selection Method	-	FIXED ADDRESS
	Tool Change Time	T-T	sec
C-C		sec	11
APC	No. of Pallet	EA	2 [6]
	Pallet Change Time	sec	26
	APC Type	-	SHUTTLE
TANK CAPACITY	Coolant Tank	ℓ (gal)	400 (105.7)
	Lubricating Tank	ℓ (gal)	3 (0.8)
	Hyd. Tank Unit	ℓ (gal)	60 (15.9)
POWER SUPPLY	Air Consumption (0.5MPa)	ℓ /min(gal/min)	300 (79.2)
	Electric Power Supply	KVA	33
	Thickness of Power Cable	mm ²	Over 25
	Voltage	V/Hz	220/60 (200/50*)
MACHINE	Floor Space (L×W)	mm(in)	3,530×4,815 (139"×189.6")
	Height	mm(in)	3,076 (121.1")
	Weight	kg(lb)	12,000 (26,455)
PC	Controller	-	FANUC 31i-B [HYPONDAI WIA FANUC i Series-Smart Plus]

*) 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.

SPECIFICATIONS

Specifications

[] : Option

ITEM		KH63G	
PALLET	Pallet Size	mm(in)	630×630 (24.8"×24.8")
	Maximum Load Capacity	kg(lb)	2-1,000 (2-2,205)
	Maximum Working Size	mm(in)	Ø1,120×H875 (Ø44.1"×H34.4")
	Min. Indexing Angle	deg	1° [0.001°]
SPINDLE	Spindle Taper	-	BT50 [BBT50] [CAT50] [BCV50]
	Spindle Speed	r/min	4,500 [4,500] [8,000] [8,000] [4,500] [8,000]
	Spindle Motor Output (Max./Cont.)	kW(HP)	22/18.5 (30/25) [26/18.5 (35/25)] [22/18.5 (30/25)] [26/18.5 (35/25)] [22.2/18.5 (30/25)] [22.2/18.5 (30/25)]
	Spindle Torque (Max./Cont.)	N·m(lbf·ft)	1,071/901 (789.9/664.5) [1,267/901 (934.5/664.5)] [781/657 (576/484.6)] [922/657 (680/484.6)] [1,390.3/1,202.5 (1,025.4/886.9)] [1,011.7/875 (746.2/645.4)]
	Spindle Driving Method	-	2 STEP GEAR
FEED	Travel (X/Y/Z axis)	mm(in)	950/825/760 (37.4"/32.5"/29.9")
	Distance from Table Top to Sp. Center	mm(in)	0~825 (0"~32.5")
	Distance from Table Center to Sp. Nose	mm(in)	175~935 (6.9"~36.8")
	Rapid Traverse Rate (X/Y/Z)	m/min(ipm)	20/20/20 (787/787/787)
	Slide Type	-	BOX GUIDE
ATC	Number of Tools	EA	40 [60, 90, 120]
	Tool Shank	-	BT50 [BBT50] [CAT50] [BCV50]
	Max. Tool Dia. (W.T/W.O)	mm(in)	Ø110/Ø245 (Ø4.3"/Ø9.6")
	Max. Tool Length	mm(in)	600 (23.6")
	Max. Tool Weight	kg(lb)	20 (44) [35 (77)]
	Tool Selection Method	-	FIXED ADDRESS
	Tool Change Time	T-T	sec
C-C		sec	11
APC	No. of Pallet	EA	2 [6]
	Pallet Change Time	sec	26
	APC Type	-	SHUTTLE
TANK CAPACITY	Coolant Tank	ℓ (gal)	400 (105.7)
	Lubricating Tank	ℓ (gal)	3 (0.8)
	Hyd. Tank Unit	ℓ (gal)	60 (15.9)
POWER SUPPLY	Air Consumption (0.5MPa)	ℓ /min(gal/min)	300 (79.2)
	Electric Power Supply	KVA	36
	Thickness of Power Cable	mm ²	Over 25
	Voltage	V/Hz	220/60 (200/50*)
MACHINE	Floor Space (L×W)	mm(in)	3,530×5,320 (139"×209.4")
	Height	mm(in)	3,106 (122.3")
	Weight	kg(lb)	14,000 (30,865)
NC	Controller	-	FANUC 31i-B [HYUNDAI WIA FANUC i Series-Smart Plus] [SIEMENS 840D sl]

*) 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	
Nano 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.

CONTROLLER

HYUNDAI WIA FANUC i Series – SMART PLUS

[] : 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 : 1 deg [0.001] deg
Least input increment	X, Y, Z axes : 0.001 mm (0.0001 inch) B axis : 1 deg [0.001] deg
Inch / Metric conversion	
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	15 inch LCD unit (with Touch Panel)
Feedback	Absolute motor feedback
Stored stroke check 1	Over travel
Stored stroke check 2, 3	
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 Stored limit check before move
Single block	
Search function	Program Number / Sequence Number
Handle interruption	
Interpolation functions	
Nano interpolation	
Positioning	G00
Linear interpolation	G01
Circular 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, G30 Ref. position check, G27
Single direction positioning	G60
Thread synchronous cutting	G33
Helical interpolation	Circular + Linear 2 axes (Max.)
Feed function / Acc. & Dec. control	
Manual feed	Rapid traverse Jog : 0~2,000mm/min (79 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	1%, 25%, 50%, 100%
Override cancel	
Feed per minute	G94
Feed per revolution	G95
Cylindrical interpolation	G07.1
Inverse time feed	G93
Look-ahead block	200 blocks (AI APC)
Program input	
Tape Code	EIA / ISO
Optional block skip	9 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 ~ #199, #500 ~ #999
Programmable mirror image	G51.1, G50.1
G code preventing buffering	G4.1
Optional chamfering corner R	

Program input	
Polar coordinate command	G15, G16
Canned cycle	G73, G74, G76, G80 ~ G89
Scaling	G50, G51
Coordinate system rotation	G68, G69
Conversational Program	SmartGuide-i
Auxiliary function / Spindle speed function	
Level-up M Code	Multi / Bypass M code
Spindle speed function	S & S digit, Binary output
Spindle override	0% ~ 150% (10% Unit)
Spindle orientation	M19
Retraction for rigid tapping	
FSSB high speed rigid tapping	
Tool function / Tool compensation	
Tool function	Max. T8 digit
Tool life management	
Tool offset pairs	400 pairs
Tool nose / radius compensation	G40, G41, G42
Tool length offset	G43, G44, G49
Tool offset memory C	Tool geometry and wear (Cutter and tool length)
Tool length measurement	Z axis Input C
Editing function	
Part program storage size	5,120m (2MB)
No. of registerable programs	1,000 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 & Operation	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 24 languages
Display language switching	Selection of 5 optional Languages
LCD Screen Saver	Screen saver
Option	
Fast ethernet	Needed option board
Data server	Needed option board
Protection of data at 8 levels	
Additional Axis	
Manual handle feed	2/3 units #100 ~ #199, #500 ~ #999, #98000 ~ #98499
Add. Workpiece	Max. 300 pairs (G54.1 P1 ~ P300)
AICC II	400 blocks ☆

Figures in inch are converted from metric values.

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

CONTROLLER

SIEMENS 840D SL

[] : Option ☆ Needed technical consultation

Controlled axis / Display / Accuracy Compensation	
Control axes	4 axes (X1, Y1, Z1, B1)
Simultaneously controlled axes	Max. 4 axes
Least setting Unit	X, Y, Z axes : 0.001 mm (0.0001 inch), B axis : 1 deg [0.001 deg]
Least input increment	X, Y, Z axes : 0.001 mm (0.0001 inch), B axis : 1 deg [0.001 deg]
Inch / Metric changeover	G70 (inch) / G71 (metric)
Interlock	All axes / Each axis
Machine lock	All axes
Backlash compensation	
Pitch error compensation	
Feedforward control (Torque control)	
LCD / MDI	10 inch color LCD
Keyboard	ABCD Type
Stored stroke check	Over travel
Operation	
Automatic operation (Memory)	
MDI operation	
Program restart	
Program check function	Dry run / Program check / Machine lock
Single block	
Block search	Block search
Reposition	
Working area limit	Working area limitations
Interpolation functions	
Positioning	G00
Linear interpolation	G01
Circular interpolation	Circular Interpolation CW (G02) Circular Interpolation CCW (G03)
Exact position stop	Single block exact stop (G09) Exact stop G60 (G601, G602, G603)
Dwell	Dwell (G04)
Reference position return	Return to reference point Return to 2nd reference point
Helical interpolation	
Spline interpolation	Non-uniform rational B splines
Feed function / Acc. & Dec. control	
	Rapid traverse
Manual feed	Jog Manual handle Reference position return
Cutting Feed command	Direct input F code
Feedrate override	0 ~ 120%
Rapid traverse override	1%, 25%, 50%, 100%
Feed per minute	G94
Feed per revolution	G95
Program input	
ISO correspondence	G291(ISO)/G290 (ISO G Code system-A)
Optional block skip	8 ea (0~7)
Program stop / end	G90 / G91
Absolute / Incremental program	M00, M01 / M02, M30
Maximum command unit	± 999,999,999 mm, ± 99,999,9999 inch
Plane selection	X-Y : G17, X-Z : G18, Y-Z : G19 G54 ~ G57, G505~G549
Workpiece coordinate system	G500 (Basic frame - setable zero offset) G53 (Work offset non modal) G153 (basic frame non modal)
Sub program call	16 folds nested
G code preventing buffering	STOPRE
Drilling/Milling cycle	with programing support
User cycle	

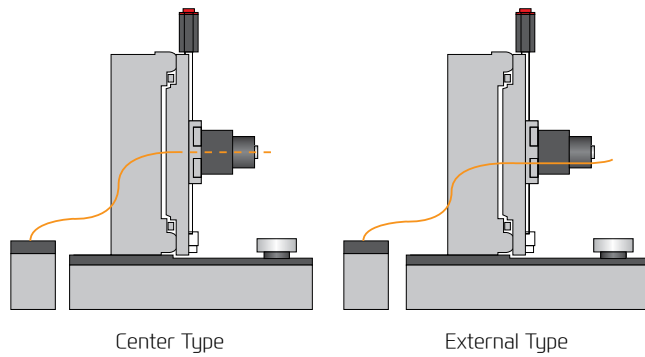
Auxiliary function / Spindle speed function	
Auxiliary function	M Code 4 digit
Spindle speed function	S Code 5 digit
Spindle override	0% ~ 120%
Spindle orientation	SPOS
Rigid tapping	
Automatic mode Interchange	Spindle / Axis mode
Constant surface speed control	G96, G97
Spindle speed limitation	LIMS
Tool function / Tool compensation	
Tool function	Tool number & Tool name
Tool life management	
Tools in tool list	600 ea
Cutting Edges in tool list	1,500 ea
Tool radius compensation	ISO (G40, G41, G42)
Geometry / Wear compensation	
Tool management function	
Editing function	
Part program storage size	10MB
External Storage devices	USB
Background editing	
Extended part program editing	Copy, move and change of NC program
Memory card program edit	
Data input / output & Interface	
I/O interface	USB memory interface Embedded Ethernet memory interface
Screenshot	
Setting, display and diagnosis	
Self-diagnosis function	
History display & Operation	Alarm & Operator message & Operation
Run hour / Parts count display	
Actual cutting feedrate display	
Display of spindle speed / T code	
Graphic display	
Operating monitor screen	Spindle / Servo load etc.
Multi language display	Support 7 languages Chinese, English, French, German, Italian, Korean, Spanish
LCD Screen Saver	Screen saver & Motion sensing
Option	
ShopMill	Machining step programming for milling
3D simulation	
Real time simulation	
Compressor (Improving machining quality)	Compcad / Compcurv (Cycle 832)
Look-ahead block	3,000 block (With Mdynamics)
Measurement of tool length	
Built-in PC	Industrial PC (IPC427E)
Multi language display	☆ 20 Support languages : Inquiry need

HYUNDAI WIA ECO SYSTEM

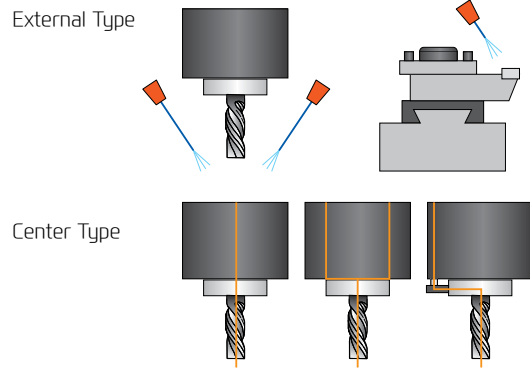
MQL (Minimal Quantity Lubrication)

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.



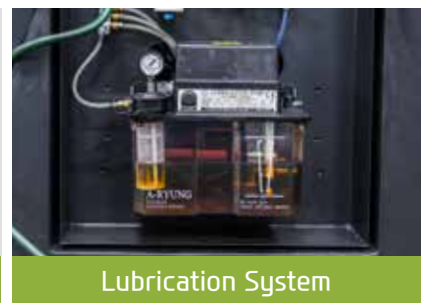
Oil Skimmer

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



KH63G
Movie



You Tube HYUNDAI WIA MT

www.youtube.com/HYUNDAIWIAMT

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