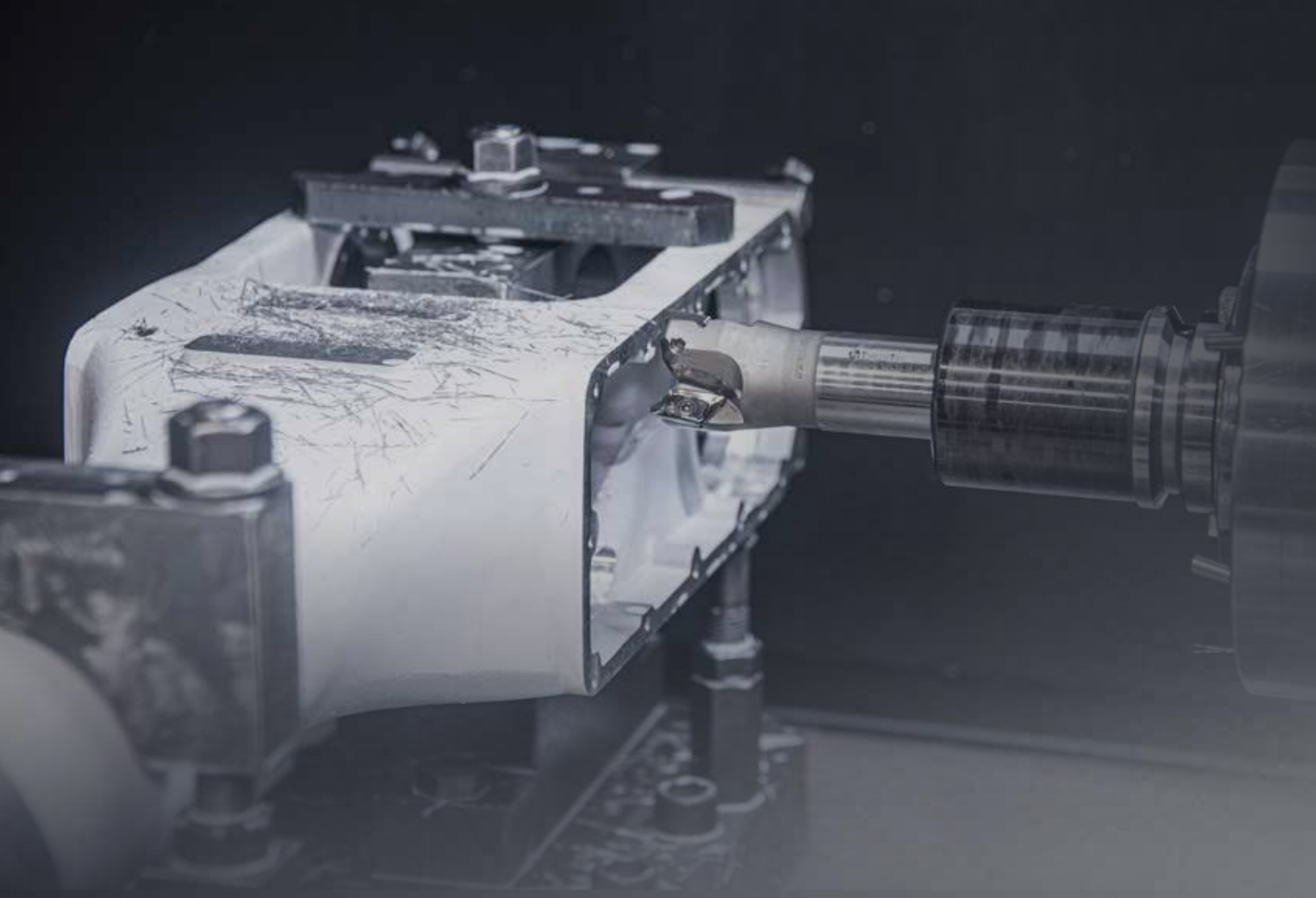
HS 4000 II/5000 II

High Speed & Productivity Horizontal Machining Center

WIA Machine Tools Next Generation Machining Center

WIA MACHINE TOOLS



Technical Leader

The horizontalmachining center is designed focus on achieving improvement in productivity compared to all other machine tools.

The **HS4000II/5000II** Series offer high-speed feeding system, high-speed spindle, and high-speed ATC and APC for reduction of non-cutting time to guarantee global leading level of productivity.

		HS4000 II	HS5000 II	HS5000/50 II
Pallet Size (L×W)	mm(in)	2-400×400 (2-15.7″×15.7″)	2-500×500 (2-19.7″×19.7″)	
Maximum Load Capacity	kg(lb)	2-400 (2-881.8)	2-500 (2-1,102)	2-1,000 (2-2,205)
Spindle Taper	-	BBT40 [HSK-A63]		BBT50 [HSK-A100]
Spindle Speed	r/min	15,000 [15,000 High-Torque] [20,000]		10,000 [15,000]
Spindle Power (Max./Cont.)	kW(HP)	30/18.5 (40/25) [37/22 (50/30)] [37/18.5 (50/25)]		45/25 (60/33.5) [37/30 (50/40)]
Number of Tools	EA	Ring : 40 [60] [Chain : 90, 120] [Matrix : 240]		Ring : 40 [Chain : 60, 90, 120]
Travel (X/Y/Z)	mm(in)	560/640/660 (22″/25.2″/26″)	730/730/880 (28.7″/28.7″/34.6″)	800/800/880 (31.5″/31.5″/34.6″)
Rapid Traverse Rate (X/Y/Z)	m/min	60/60/60		

[ ] : Option

HS 4000 II/5000 II

HMC with More Upgraded Quality & Performance

- Standard application of 15,000 rpm high-speed built-in spindle (HS5000/50 II: 10,000 rpm)
- Standard application of ball screws with central cooling on all axes and large Ø50 mm ball screws
- Equipped with rotary return type APC
- Equipped with high-speed ring-type magazine (40 tools)
- Achieves high-speed rapid feed capability (60 m/min)
- Equipped with FANUC 31i B Plus controller



01 BASIC **STRUCTURE**

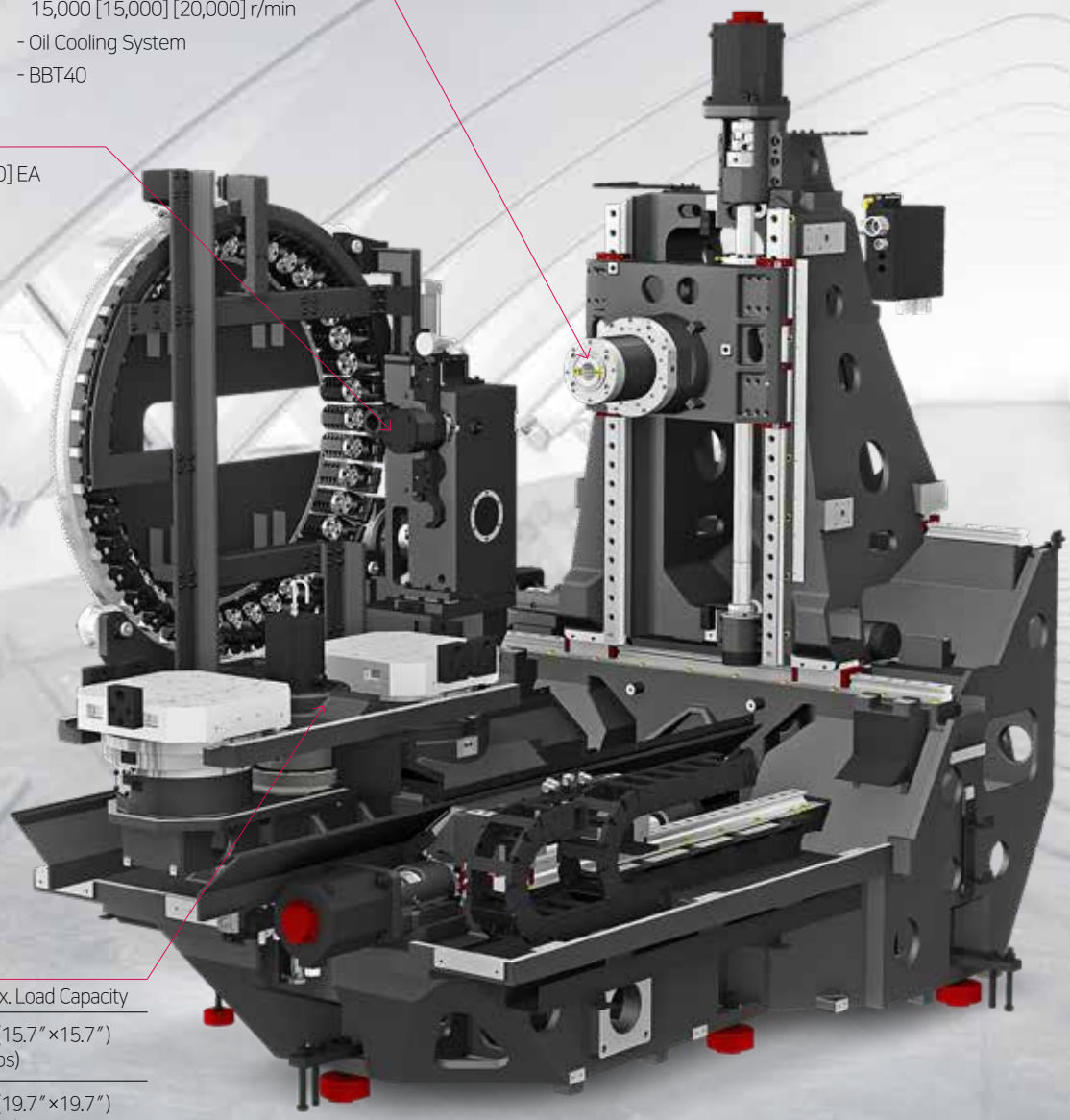
High Quality & Productivity Horizontal Machining Center

High Precision Spindle

- Built-in Spindle
  15,000 [15,000] [20,000] r/min
- Oil Cooling System
- BBT40

ATC & Magazine

- No. of Tools : 40 [60/90/120] EA
  (MATRIX : 240 EA)
- Ring Type Mazazine



APC & Pallet

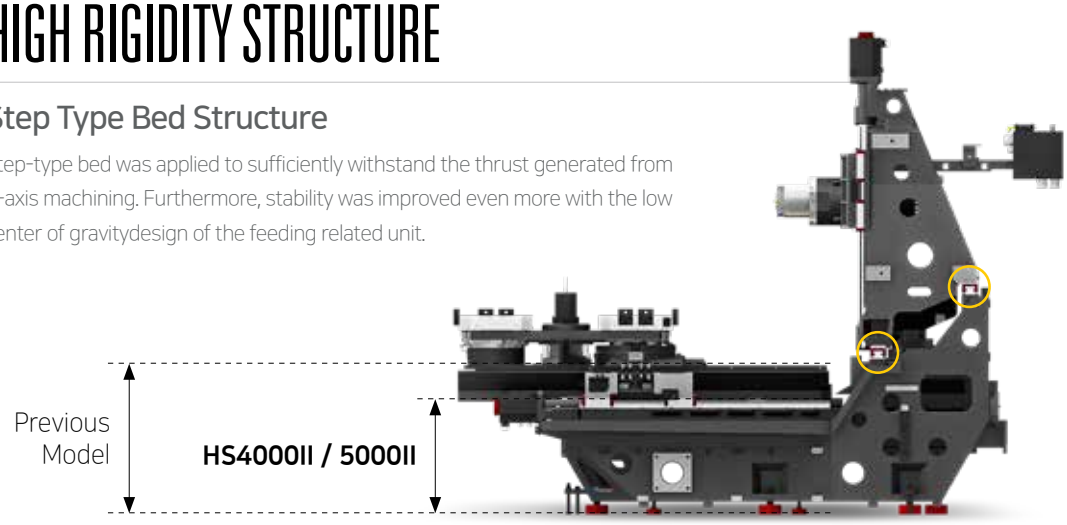
ITEM	Size (X×Y) / Max. Load Capacity
HS4000 II	400×400 mm (15.7″×15.7″) 400kg (881.8 lbs)
HS5000 II	500×500 mm (19.7″×19.7″) 500kg (1,102 lbs)
HS5000/50 II	500×500 mm (19.7″×19.7″) 1,000kg (2,205 lbs)

HIGH RIGIDITY, OPTIMAL MACHINING PERFORMANCE

HIGH RIGIDITY STRUCTURE

Step Type Bed Structure

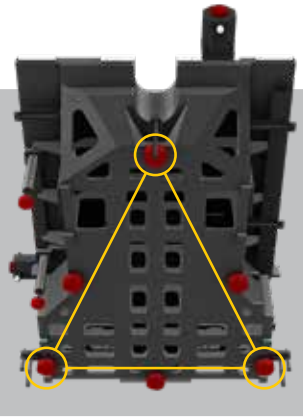
Step-type bed was applied to sufficiently withstand the thrust generated from Z-axis machining. Furthermore, stability was improved even more with the low center of gravitydesign of the feeding related unit.



3-POINT SUPPORT BED STRUCTURE

The HS4000 II/5000 II Series is thefirst series of the company to apply the three-point support bed which is a criteria for high-rigidity structure.

The three-point support bed is a structure that allows easy machiningas long as the three levels at the bottom of the bed are stabilized during initial setup, and such machining is only available with support from structural rigidity of the machine. Initial construction is especially not necessary during initial setup and this can minimize the equipment setup time which makes it every efficient for use of equipment.



ITEM	Floor Space (L×W×H)	Machine Weight
HS4000 II	2,475×3,966×2,621 mm	9,500 kg
HS5000 II	2,719×4,402×2,707 mm	11,500 kg
HS5000/50 II	3,061×4,962×2,974 mm	16,000 kg

02 HIGH-SPEED FEED

Highest Quality, High-speed Horizontal Machining Center





REDUCED NON-CUTTING TIME & IMPROVED FEED PRECISION

GUIDE WAY

High-speed Roller Type LM Guideway

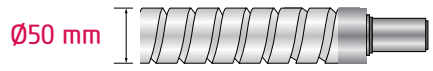
Roller bearing type LM guideways are applied to reduce non-cutting time and bring high rigidity.

Each axis is directly connected to a highly reliable digital servo motor to provide high rigidity and minimal thermal displacement.



Applying Large Diameter Ball Screw

Large diameter ball screw of Ø50mm offers improvement in rigidity and lifespan.



Application of Large Ball Screws with Central Cooling System



The HS4000 II/5000 II series, equipped with ball screws featuring a central cooling system on all axes, dramatically reduces thermal displacement in the feed axes caused by repetitive motion, delivering outstanding performance in high-precision machining.

Travel (X/Y/Z)

HS4000 II	HS5000 II	HS5000/50 II
560/640/660 mm (22″/25.2″/26″)	730/730/880 mm (28.7″/28.7″/34.6″)	800/800/880 mm (31.5″/31.5″/34.6″)

Rapid Traverse Rate (X/Y/Z)

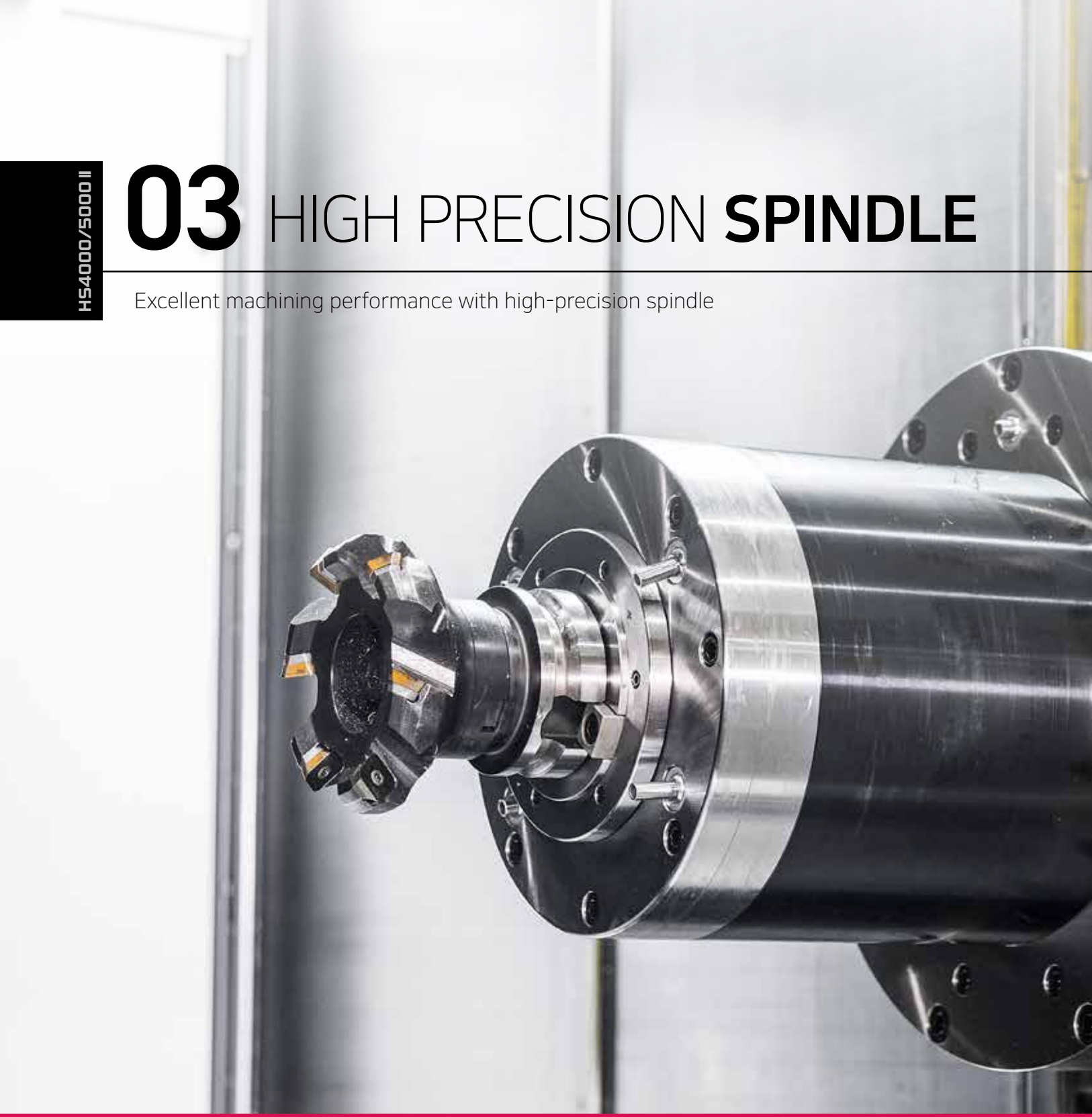
60/60/60 m/min

Acc./Deceleration Speed (X/Y/Z)

1.0/1.1/1.1 G (HS4000 II)

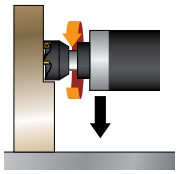
03 HIGH PRECISION **SPINDLE**

Excellent machining performance with high-precision spindle



The secret to maintaining high quality even during a long-term machining, starts with the performance of the spindle.

HS5000 II _ FACE MILL (Material : S45C (Carbon steel))



Tool dia.	**Ø125** mm
Cutting quantity	**788** cm^3/min
Spindle speed	**1,200** r/min
Rapid feed rate	**2,160** mm/min

HS4000II/5000II Series incorporated a high performance built-in spindle as a standard.
The built-in spindle, with the spindle and motor combined, exhibits superior performance during high speed rotations, minimizing vibration.



HIGH-SPEED, HIGH-POWER BUILT-IN SPINDLE

SPINDLE



Built-in Spindle

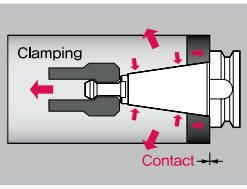
By using ultra precision class angular ball bearings, fast acc/deceleration of the main spindle is achieved. The spindle head is designed to minimize heat displacement therefore reducing heat generation and making it possible to maintain high accuracy.

Oil Cooling System.

Spindle temperature is controlled by the use of a spindle oil chiller.
This ensures consistent spindle temperature which minimizes thermal displacement.

Through Spindle Coolant (20/30/70 bar) OPTION

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



Dual contact Spindle

The Big Plus spindle system (BBT#40) provides dual contact between the spindle face and the flange face of the tool holder.

Spindle Specifications (HS4000 II | HS5000 II)

[ ] : Option

Speed (r/min)	**Power** (Max./Cont.)	**Torque** (Max./Cont.)	Spindle Taper
15,000 rpm	**30/18.5** kW (40/25 HP)	**230/119** N·m (169.6/87.8 lbf·ft)	BBT40 [HSK-A63]
[High Torque **15,000** rpm]	[**37/22** kW (50/30 HP)]	[**303/119** N·m (223.5/87.8 lbf·ft)]	
[**20,000** rpm]	[**37/18.5** kW (50/25 HP)]	[**221/79.6** N·m (163/58.7 lbf·ft)]	

Spindle Specifications (HS5000/50 II)

Speed (r/min)	**Power** (Max./Cont.)	**Torque** (Max./Cont.)	Spindle Taper
10,000 rpm	**45/25** kW (60/33.5 HP)	**623/305** N·m (459.5/225 lbf·ft)	BBT50 [HSK-A100]
[**15,000** rpm]	[**37/30** kW (50/40 HP)]	[**398/191** N·m (293.6/140.9 lbf·ft)]	

04 ATC & MAGAZINE

High Productivity Achieved with High Rigidity, Accuracy Machining



ATC Specifications

[ ] : Option

ITEM	Number of Tools	Max. Tool Length	Max. Tool Dia. (W.T/W.O)	Max. Tool Weight	Tool Shank
HS4000 II	Ring Type : **40** [**60**] EA [Chain Type : **90**, **120** EA]	**450** mm (17.7″)	**Ø75**/**170** mm (Ø3″/Ø6.7″)	**12** kg (26.5 lb)	BBT40 [HSK-A63]
HS5000 II		**500** mm (21.7″)			
HS5000/50 II	Ring Type : **40** EA [Chain Type : **60**, **90**, **120** EA]	**530** mm (20.9″)	**Ø125**/**Ø250** mm (Ø4.9″/Ø12.6″)	**15** kg (55 lb)	BBT50 [HSK-A100]



HIGH RIGIDITY, HIGH SPEED TOOL CHANGE SYSTEM

ATC & MAGAZINE



Ring Type Magazine

The HS4000 II/5000 II series has a ring type magazine as standard.
The ring type magazine makes less noise than the existing chain type and has faster rotation of the magazine, which contributes to reduced tool exchange time and improved productivity.

Front Placement of the Magazine

Magazine installed at the side was installed at a location which is closest possible to the front door to improve material and tool exchange convenience.

Magazine Max Call Time (Ring Type 40 Tool)

Previous Machine	C-C	3.7 sec
HS4000 II	C-C **2.3** sec	30% reduction

Servo ATC

Servo motor is applied on the ATC to reduce tool change time.

Previous Machine	C-C	2.6 sec
HS4000 II	C-C **2.3** sec	11% reduction

Applicability of Large Tools

The HS4000 II/5000 II Series can apply larger tools compared to the previous model which improves machining capability.

Previous Machine	Max. Tool Dia.	Ø75/Ø140
HS4000 II	Max. Tool Dia. **Ø75/Ø170**	Ø30 Increase
Previous Machine	Max. Tool Weight	8 kg
HS4000 II	Max. Tool Weight **12** kg	4 kg Increase
Previous Machine	Max. Tool Length	350 mm
HS4000 II	Max. Tool Length **450** mm	100 mm Increase



05 APC

Improved rigidity and productivity through the application of rotary return type APC

APC & Pallet

[ ] : Option

ITEM	Pallet Size	Max. Load Capacity	Min. Indexing Angle	APC Type
HS4000 II	2-400×400 mm (2-15.7″×15.7″)	2-400 kg (2-882 lb)	1° [0.001°]	Rotary Turn
HS5000 II	2-500×500 mm (2-19.7″×19.7″)	2-500 kg (2-1,102 lb)		
HS5000/50 II		2-1,000 kg (2-2,205 lb)		



Touch-Type Magazine Operation Panel

- Operational Convenience: Manual/Automatic modes, Manual Interrupt, Emergency Stop
- Monitoring: Tool information display, Machine alarm display, Sensor operation status display
- Maintenance: Step operation, Magazine recovery function
- User Convenience: Standby position tool call function, Multi-language support

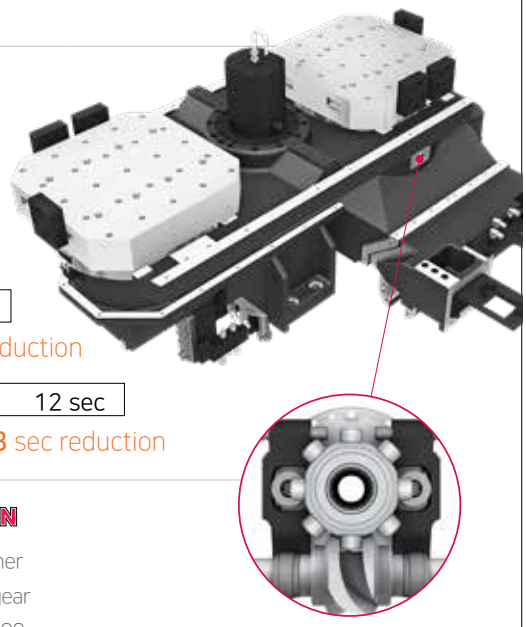


HIGH RIGIDITY, HIGH SPEED CHANGE SYSTEM

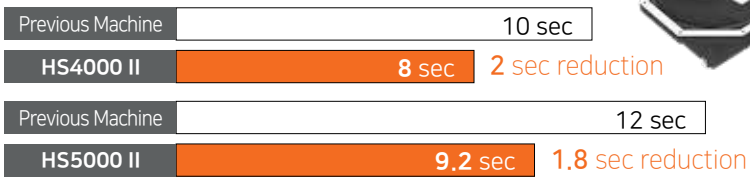
APC & PALLET

High Speed & Rigidity APC

The HS4000 II/5000 II Series contributes to improvement in productivity by reducing the APC exchange time and increasing rigidity compared to the previous model.



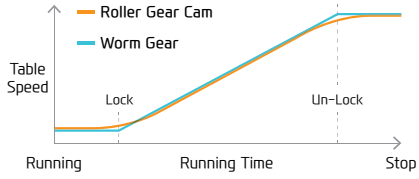
⊙ Reduced Pallet Exchange Time



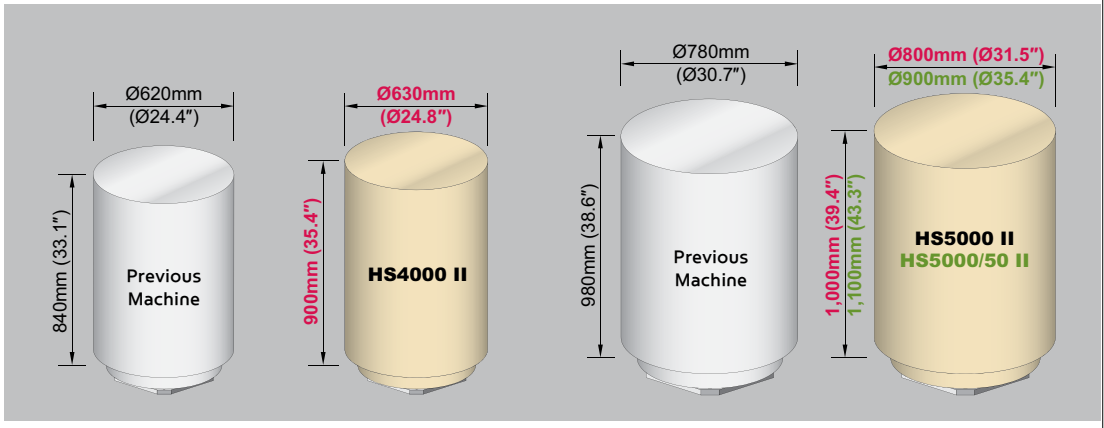
Roller Gear Cam Type 0.001 ° Pallet OPTION

The pallet rotation for the previous model of the company and other equipment from different manufacturers operated by the worm gear method but the 0.001 ° pallet which comes as an option for HS4000 II/5000 II Series operates by the roller gear cam method.

The roller gear cam method features less power loss from smooth movement along the cam curve, and it is more advantageous for high-speed rotation due to generating less friction from rotation of the roller rather than the gear.



⊙ Expand Max. Workpiece Size



06 USER CONVENIENCE

Various Devices for User Friendly

CHIP DISPOSAL SOLUTION & COOLANT UNIT



Chip Stack Prevention Coolant on the Upper Part of the Spindle (Std.)

Chip stack prevention coolant is applied as a standard on the upper part of the spindle to create a pleasant working environment.



Std. Coolant (Nozzle)



Shower Coolant (Opt.)



Gun Coolant (Opt.)



Air Gun (Opt.)



Direct Chip Discharge Structure

The structure was designed for the chip to fall directly to the center of the bed to improve chip discharge capability, and the lack of necessity for a separate internal screw conveyor fundamentally eliminated the chip trouble from the internal screw conveyor.



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	Rear/Side Direction Rear/Rear 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.		
※ 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 drum filter chip conveyor, prior consult with hyudai wia's sales person.

PRECISION SYSTEM



Linear Scale

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



Touch Sensor

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



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.

PERIPHERAL DEVICE



Oil-skimmer

Separated oil-skimmer and coolant tank to keep coolant free of tramp oils.



Grease Lubrication Device

Automatic grease lubrication eliminates the need for an oil skimmer and significantly reduces maintenance costs against oil lubrication.



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.

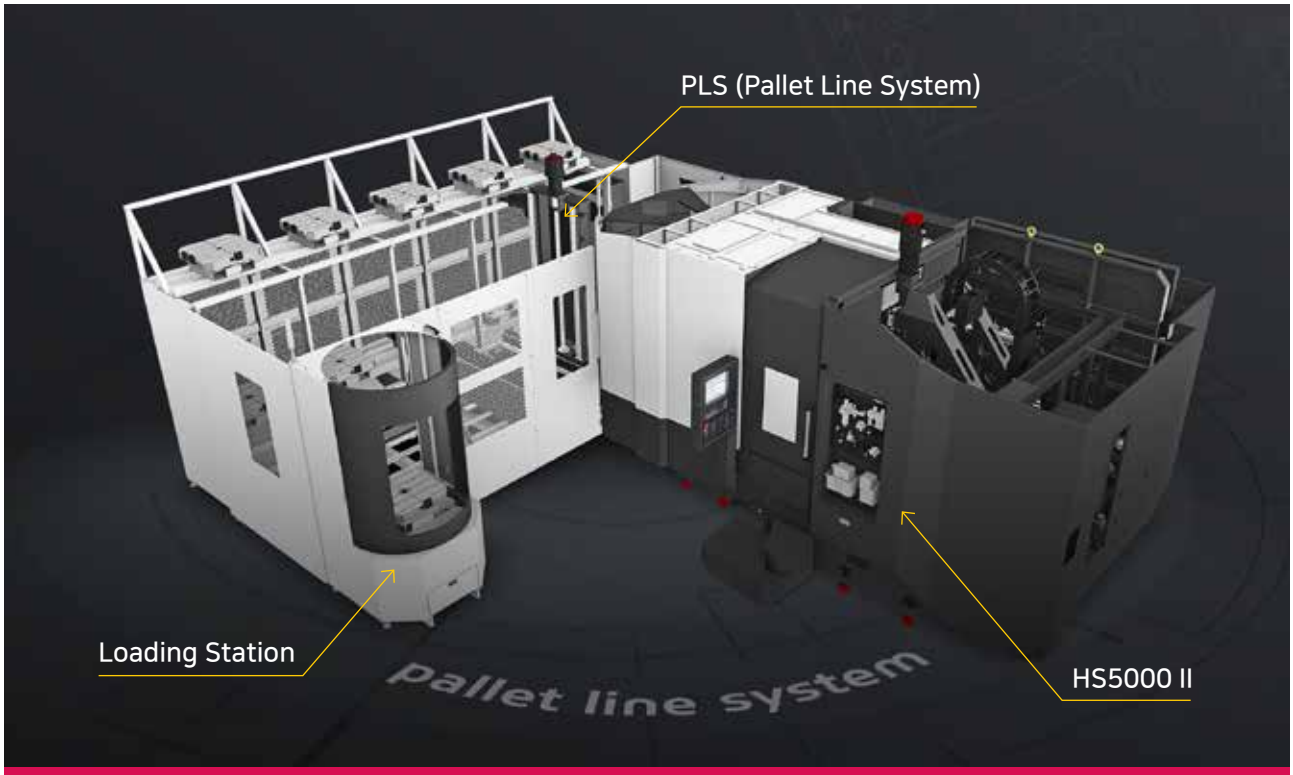


NC ROTRY TABLE & HYDRAULIC SUPPLY UNIT

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.

07 AUTOMATION SYSTEM

Automation System for User Friendly

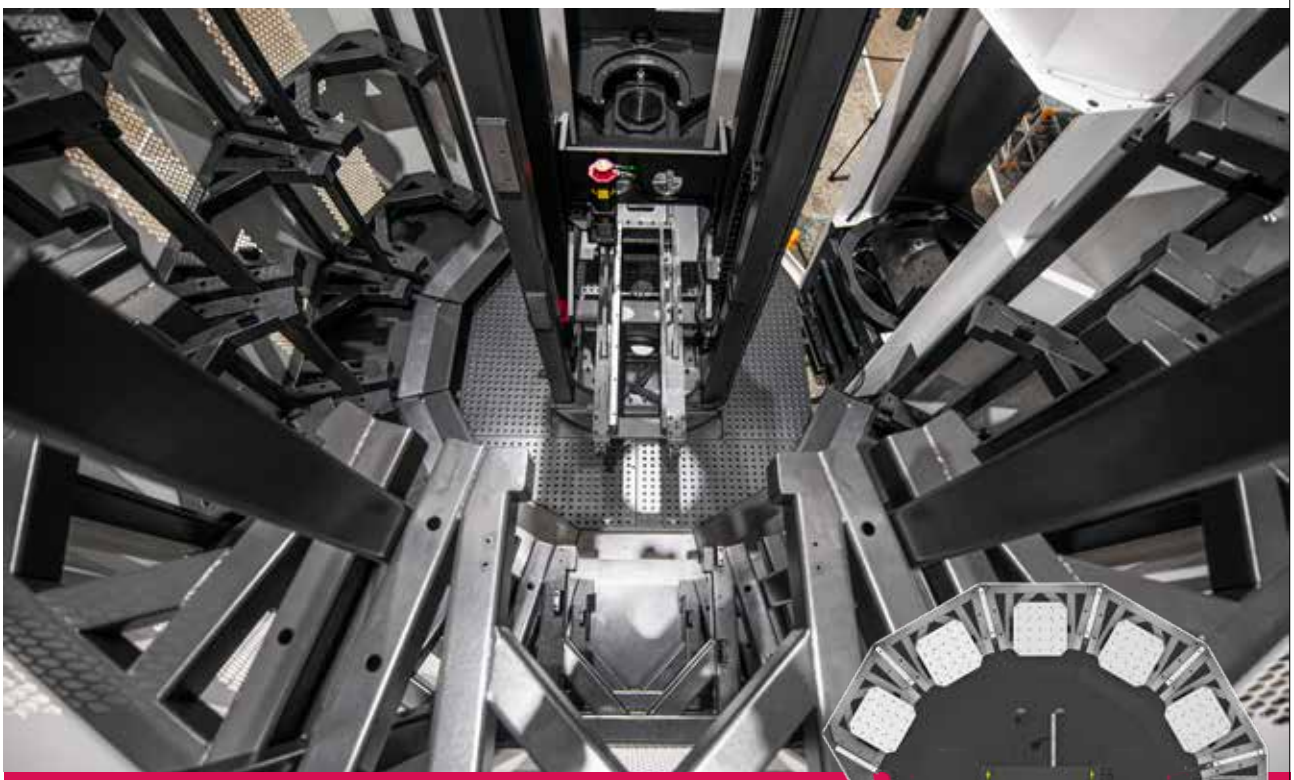


PLS (Pallet Line System)

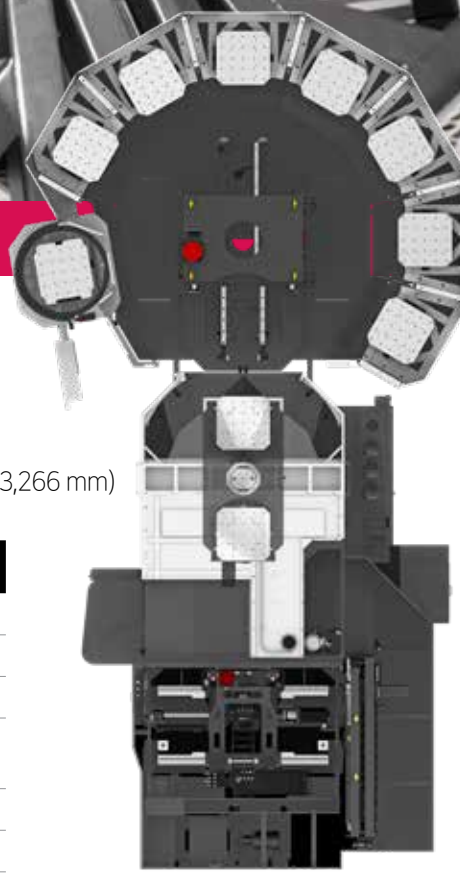
WIA Machine Tools PLS is High level of Automation System with Multi-level Pallet Rack

WIA machine tools PLS is an unmanned automation system for horizontal machining centers with two-storied pallet stackers to achieve a reasonable installation area.
Especially, it contributes to productivity improvement by easy and efficient system operation to flexibly respond to changes in production volume.

ITEM		HS4000 II	HS5000 II	HS5000/50 II
Pallet Size (L×W)	mm (in)	400×400 (15.7″×15.7″)	500×500 (19.7″×19.7″)	
Max. Load Capacity	kg (lb)	400 (882)	500 (1,102)	800 (1763.7)
Max. Machining Dia.	mm (in)	Ø630 (24.8″)	Ø800 (31.5″)	Ø900 (35.4″)
Max. Machining Height	mm (in)	900 (35.4″)	1,000 (39.4″)	1,100 (43.3″)
No. of Pallet	EA	12~72		
No. of Loading Station	EA	1~4		
No. of Machine Tools	EA	1~7		



MPS (Multi Pallet System)



- Increased Operation Time & Utilization Rate
- Reduced Initial Investmemt Costs Compared to Single Machine
- PALLEX Operating S/W
- Compact installation area compared to other companies (4,375×3,266 mm)

ITEM		MPS500
Pallet Size (L×W)	mm (in)	500×500 (19.7″×19.7″)
Max. Load Capacity	kg (lb)	700 (1,543) - Pallet included
Max. Machining Dia.	mm (in)	Ø800 (Ø31.5″)
Max. Machining Height	mm (in)	700 (27.6″)
No. of Pallet	EA	21 (7×3 Level)
Rotation Speed	min^{-1}	9
Lifting/Poking Speed	m/min	15/15

04 FANUC - SMART PLUS

The Compatible All-round Control

FANUC 31i-B Plus

This is the core model of FANUC CNC with the performance of the world highest level.
With abundant functions and high-speed, highly-accurate and high-quality machining technology, it is the most suitable for a high-grade and machining center.



15″ Touch Screen Monitor Applied

- Control axis : 4 axis (X, Y, Z, B)
- Simultaneously controlled axis : 3 axis [Max. 4 axis]
- Part program storage size : 4 Mbyte (10240m)
- No. of registerable programs : 1,000 EA
- Tool offset pairs : 400 pairs
- Look-ahead block : 1,000 block
- Conversational auto program : Smart Guide i

The HS4000 II/5000 II Series has a 15″ large monitor for enhanced visibility.

In particular, we can create more convenient use conditions by improving the operating environment such as program setup and simulation through a large screen.



Convenience is increased when inputting and outputting program. The USB port is available in addition to the former input output methods such as CF memort card and LAN.

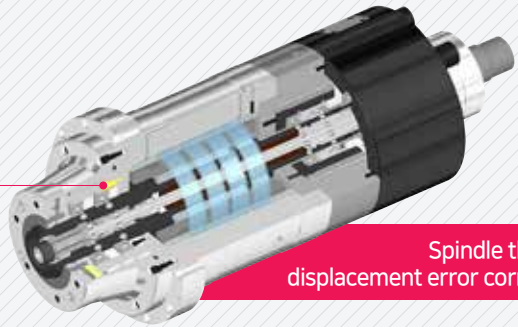
8Ch. Thermal displacement compensation OPTION





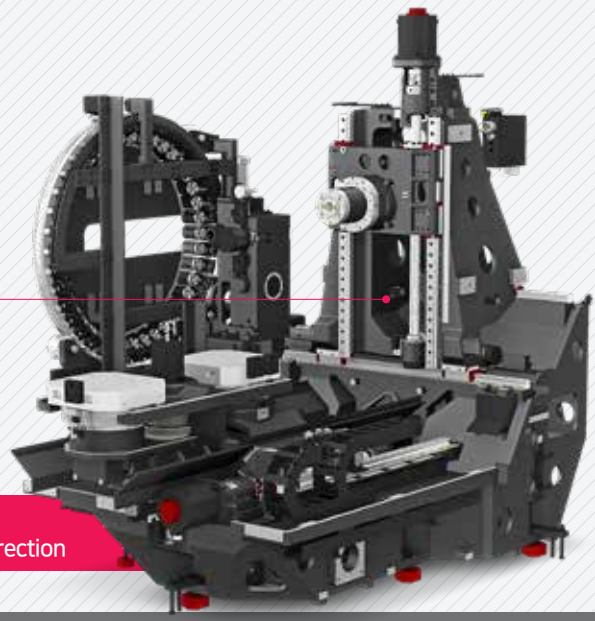
Control Software

Thermal Sensor



Spindle thermal displacement error correction

Thermal Sensor

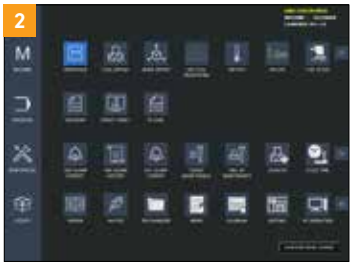


Structure thermal displacement error correction

Machine tools generate thermal displacement due to heat during machining.
WIA machine tools detect thermal changes through thermal sensors installed on the main thermal sources of the machine.
In addition, a thermal displacement compensation device that predicts the amount of thermal displacement according to the amount of thermal change and provides a command to the motor with a compensated value to maintain consistent precision is provided as an option.

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 (HS4000 II | HS5000 II)

● : Standard ○ : Option ☆ : Prior Consultation - : Non Applicable

Spindle		HS4000 II	HS5000 II
15,000rpm (30kW)		●	●
15,000rpm (37kW) - High Torque		○	○
20,000rpm (37kW)		○	○
Spindle Cooling System		●	●
ATC			
ATC Extension	40 (Ring)	●	●
	60 (Ring)	○	○
	90/120 (Chain)	○	○
	240 (Matrix)	☆	☆
Tool Shank Type	BBT40	●	●
	HSK-A63	○	○
	BCV40	○	○
Tool Weight	12KG	●	●
Table, APC & Pallet			
APC	Rotary Turn	●	●
Tap Type Pallet		●	●
T-Slot Pallet		○	○
B Axis Table	1°	●	●
	0.001°	○	○
Coolant System			
Std. Coolant (Nozzle)		●	●
*Through Spindle Coolant	20bar	○	○
	30bar	○	○
	70bar	○	○
Bed Flushing Coolant		●	●
Shower Coolant		○	○
Gun Coolant		○	○
Air Gun		○	○
Cutting Air Blow		○	○
Tool Measuring Air Blow (Only for TLM)		○	○
Air Blow for Automation		☆	☆
Thru MQL Device (Without MQL)		☆	☆
Coolant chiller (Sub tank)		☆	☆
Power Coolant System (For Automation)		☆	☆
Chip Disposal			
Coolant Tank	600 ℓ (158.5 gal)	●	●
Chip Conveyor (Hinge/Scraper)	Rear (Right)	○	○
	Rear (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	☆	☆
S/W			
Dialogue Program (W-DPRO)		○	○
DNC software (W-eDNC)		○	○
Smart Guide-i : FANUC		●	●
Smart S/W		☆	☆

Electric Device		HS4000 II	HS5000 II
Call Light	1 Color : ■	●	●
Call Light & Buzzer	3 Color : ■■■B	○	○
Work Light (LED)		●	●
Electric Cabinet Light		○	○
Remote MPG		●	●
3 Axis MPG		○	○
Work Counter	Digital	○	○
Total Counter	Digital	○	○
Tool Counter	Digital	○	○
Multi Tool Counter	6EA/9EA	☆	☆
Electric Circuit Breaker		○	○
AVR (Auto Voltage Regulator)		☆	☆
Transformer	60kVA	○	○
Auto Power Off		○	○
Back up Module for Black out		○	○
Measuring Device			
Air Zero	TACO	○	○
	SMC	○	○
Work Measuring Device		☆	☆
TLM	Touch/Laser	○	○
Tool Broken Detective Device		☆	☆
Linear Scale	X/Y/Z Axis	○	○
Environment			
Air Conditioner		○	○
Dehumidifier		○	○
Oil Mist Collector		☆	☆
MQL (Minimal Quantity Lubrication)		☆	☆
Fixture & Automation			
Auto Door		○	○
Sub O/P		☆	☆
External M Code 4ea		○	○
Automation Interface		☆	☆
I/O Extension (In & Out)	16/32 Contact	☆	☆
6PPL / PLS		☆	☆
Hyd. Device			
Std. Hyd. Unit	65bar/45 ℓ (11.8 gal)	●	●
Center Type Hyd. Supply Unit (Upper)	2×3 (6P)	☆	☆
	2×4 (8P)	☆	☆
	2×6 (12P)	☆	☆
	2×8 (16P)	☆	☆
Center Type Hyd. Supply Unit (Lower)	2×6 (12P)-0.001°	-	-
Hyd. Unit for Fixture	45bar	☆	☆
	70bar	☆	☆
	100bar	☆	☆
	Customized	☆	☆
ETC			
Tool Box		●	●
Customized Color	Need for Munsel No.	☆	☆
CAD&CAM Software		☆	☆
Thermal displacement compensation		○	○

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

Specifications are subject to change without notice for improvement.

SPECIFICATIONS

Standard & Optional (HS5000/50 II)

● : Standard ○ : Option ☆ : Prior Consultation - : Non Applicable

Spindle		HS5000/50 II
10,000rpm (45kW)		●
15,000rpm (37kW)		○
Spindle Cooling System		○
ATC		
ATC Extension	40 (Ring)	●
	60/90/120 (Chain)	○
	240 (Matrix)	☆
Tool Shank Type	BBT50	●
	HSK-A100	○
	BCV50	○
Tool Weight	25KG	●
Table, APC & Pallet		
APC	Rotary Turn	●
Tap Type Pallet		●
T-Slot Pallet		○
B Axis Table	1°	●
	0.001°	○
Coolant System		
Std. Coolant (Nozzle)		●
*Through Spindle Coolant	20bar	○
	30bar	○
	70bar	○
Bed Flushing Coolant		●
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 (Sub tank)		☆
Power Coolant System (For Automation)		☆
Chip Disposal		
Coolant Tank	600 ℓ (158.5 gal)	●
Chip Conveyor (Hinge/Scraper)	Rear (Right)	○
	Rear (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	☆
S/W		
Dialogue Program (W-DPRO)		○
DNC software (W-eDNC)		○
Smart Guide-i : FANUC		●
Smart S/W		☆

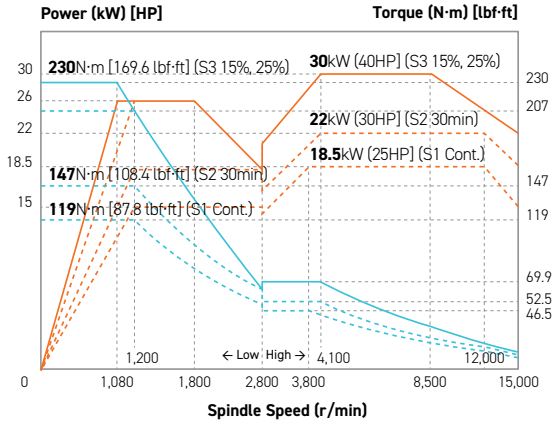
Electric Device		HS5000/50 II
Call Light	1 Color : ■	●
Call Light & Buzzer	3 Color : ■■■B	○
Work Light (LED)		●
Electric Cabinet Light		○
Remote MPG		●
3 Axis MPG		○
Work Counter	Digital	○
Total Counter	Digital	○
Tool Counter	Digital	○
Multi Tool Counter	6EA/9EA	☆
Electric Circuit Breaker		○
AVR (Auto Voltage Regulator)		☆
Transformer	65kVA	○
Auto Power Off		○
Back up Module for Black out		○
Measuring Device		
Air Zero	TACO	○
	SMC	○
Work Measuring Device		☆
TLM	Touch/Laser	○
Tool Broken Detective Device		☆
Linear Scale	X/Y/Z Axis	○
Environment		
Air Conditioner		○
Dehumidifier		○
Oil Mist Collector		☆
MQL (Minimal Quantity Lubrication)		☆
Fixture & Automation		
Auto Door		○
Sub O/P		☆
External M Code 4ea		○
Automation Interface		☆
I/O Extension (In & Out)	16/32 Contact	☆
6PPL / PLS		☆
Hyd. Device		
Std. Hyd. Unit	65bar/45 ℓ (11.8 gal)	●
Center Type Hyd. Supply Unit (Upper)	2×3 (6P)	☆
	2×4 (8P)	☆
	2×6 (12P)	☆
	2×8 (16P)	☆
Center Type Hyd. Supply Unit (Lower)	2×6 (12P)-0.001°	-
Hyd. Unit for Fixture	45bar	☆
	70bar	☆
	100bar	☆
	Customized	☆
ETC		
Tool Box		●
Customized Color	Need for Munsel No.	☆
CAD&CAM Software		☆
Thermal displacement compensation		○

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

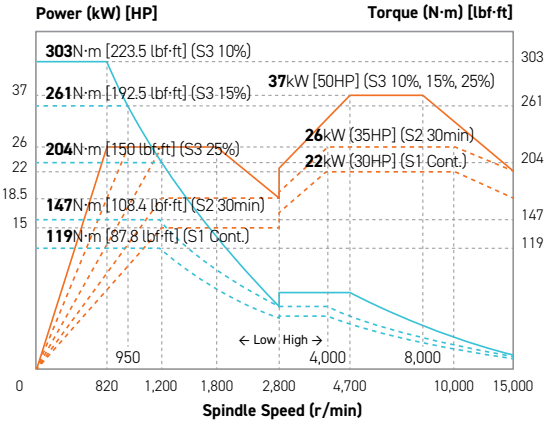
SPECIFICATIONS

Spindle Output/Torque Diagram

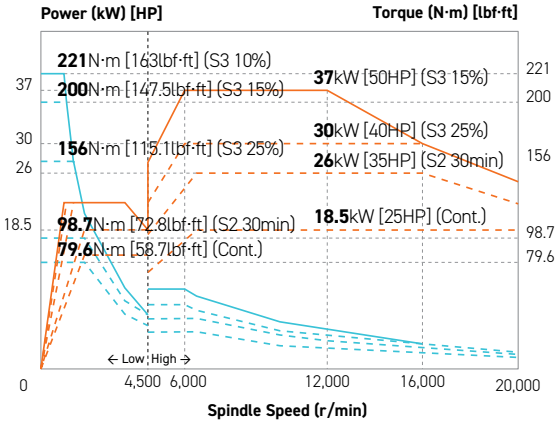
HS4000 II | HS5000 II
15,000rpm



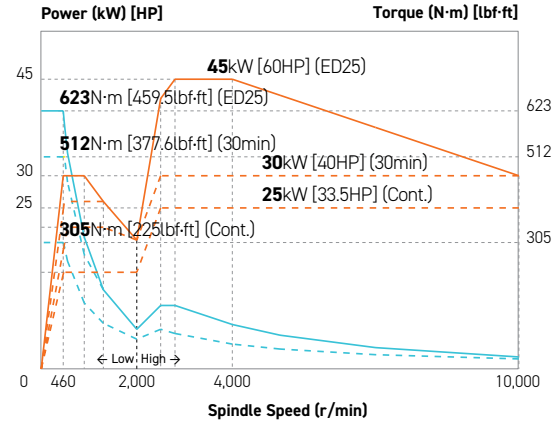
HS4000 II | HS5000 II
15,000rpm (High-Torque)



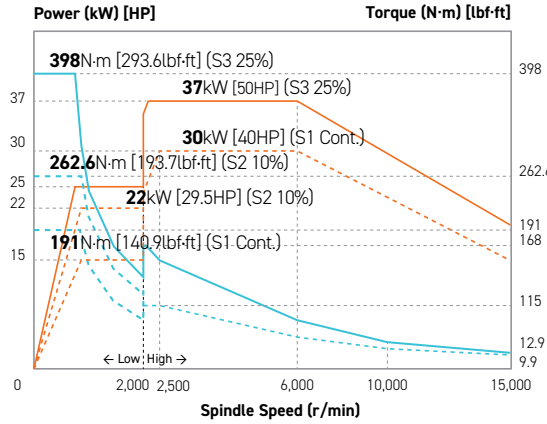
HS4000 II | HS5000 II
20,000rpm



HS5000/50 II
10,000rpm

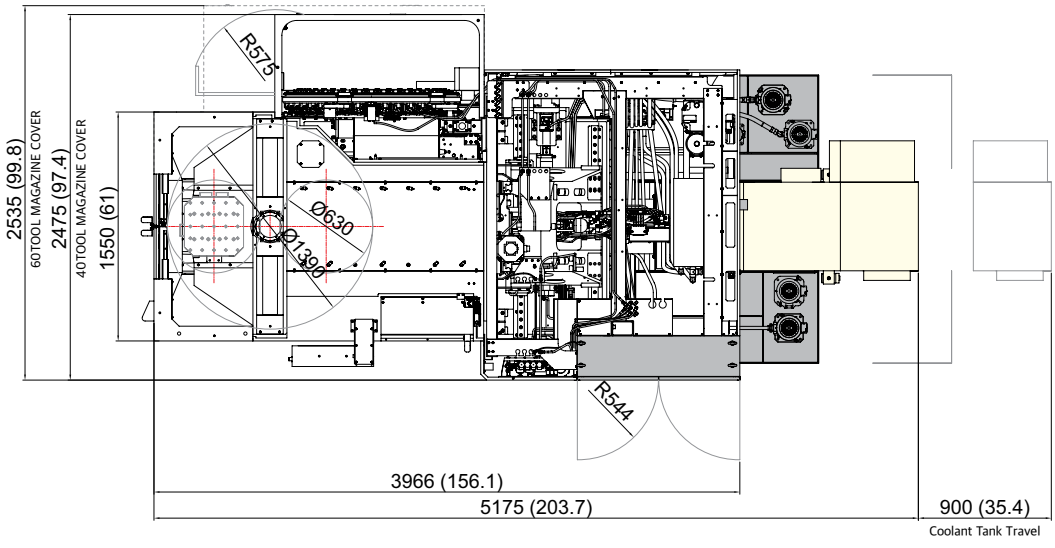


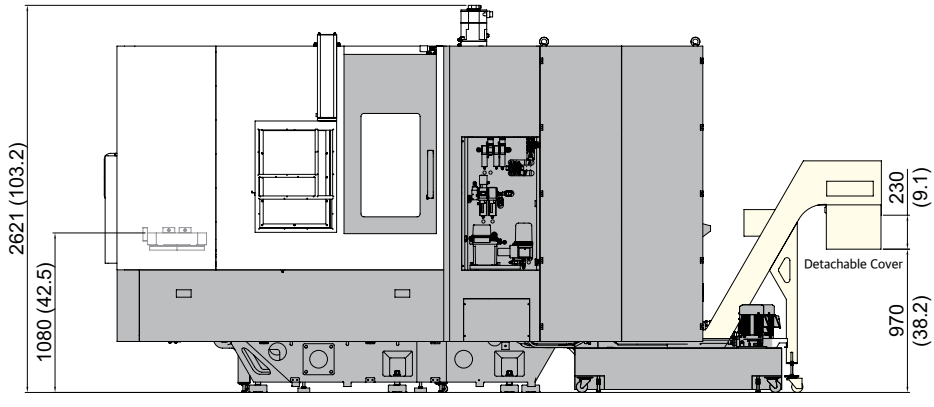
HS5000/50 II
15,000rpm



External Dimensions (HS4000 II)

unit : mm(in)

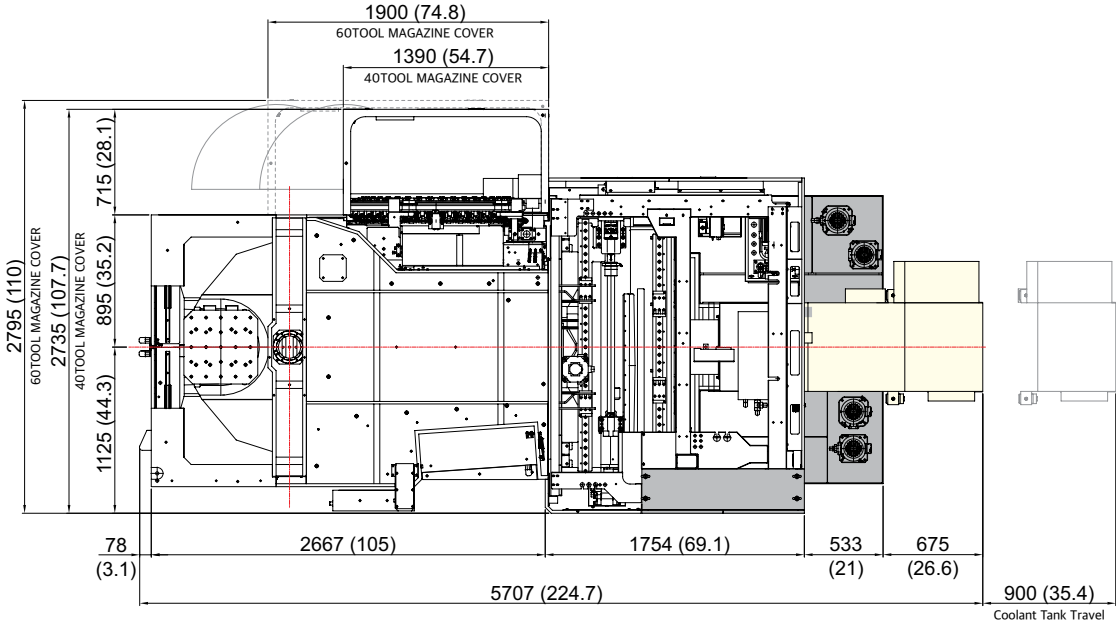




SPECIFICATIONS

External Dimensions (HS5000 II | HS5000/50 II)

unit : mm(in)



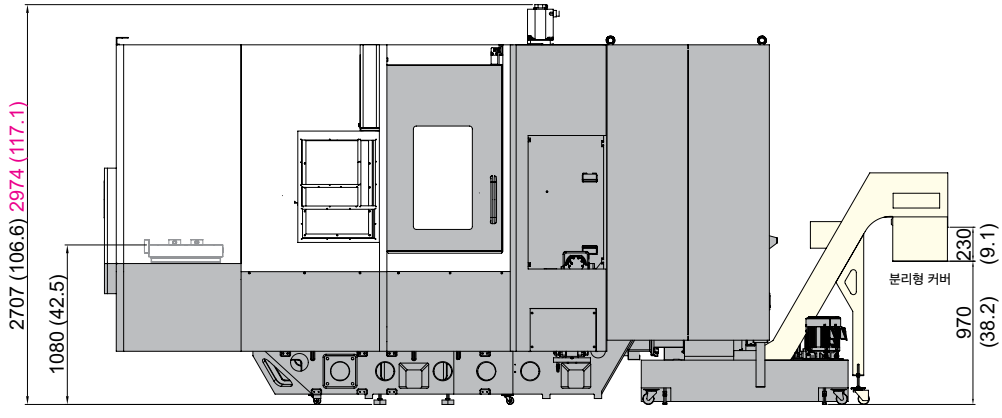
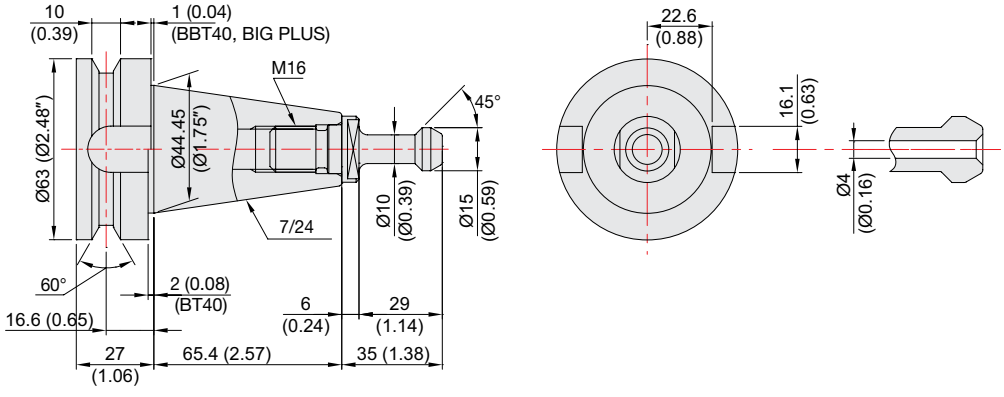


Table Dimensions (HS4000 II | HS5000 II)

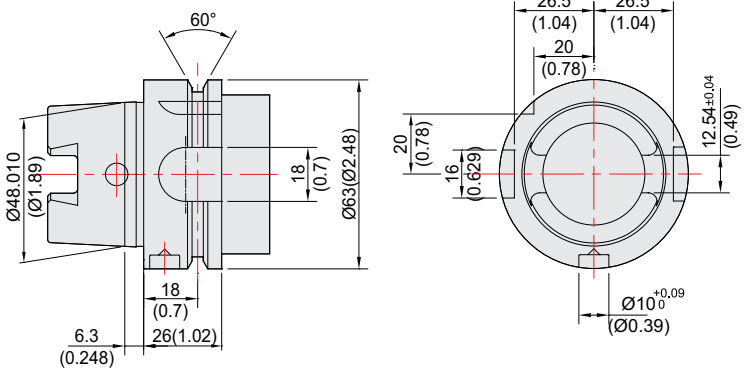
unit : mm(in)

BT40/BBT40, BIG PLUS

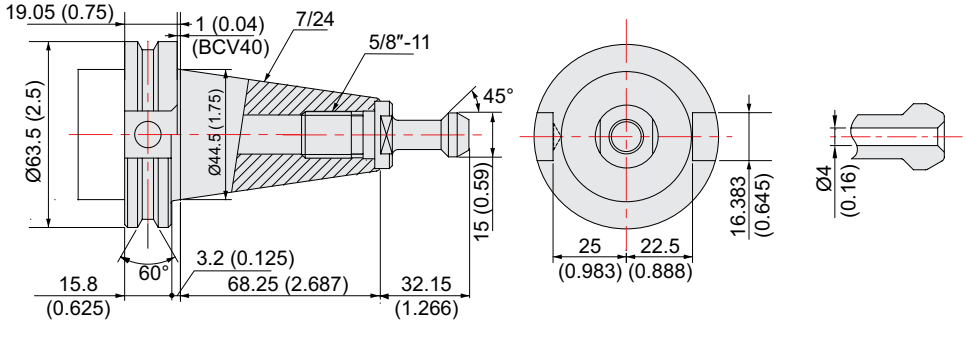


HSK A-63

OPTION



CAT40/BCV40

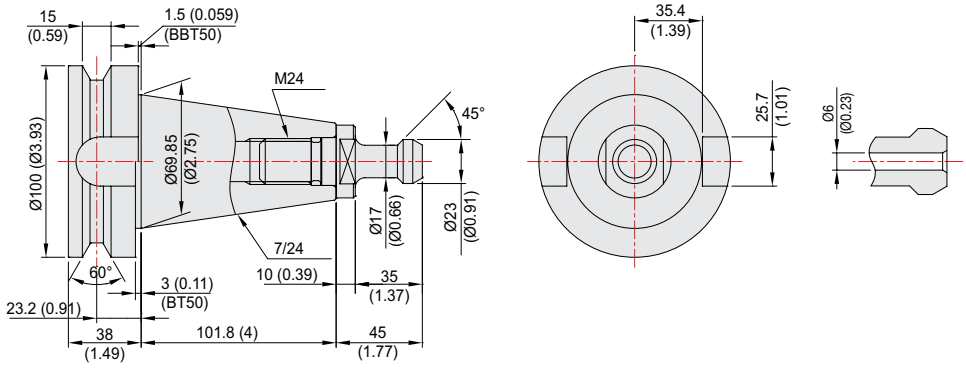


SPECIFICATIONS

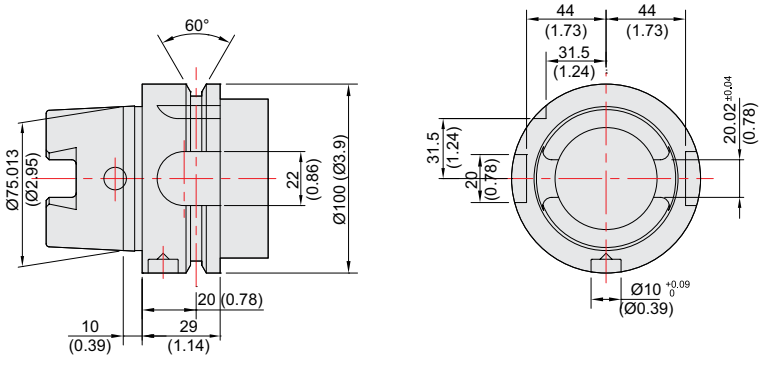
Table Dimensions (HS5000/50 II)

unit : mm(in)

BT50/BBT50, BIG PLUS

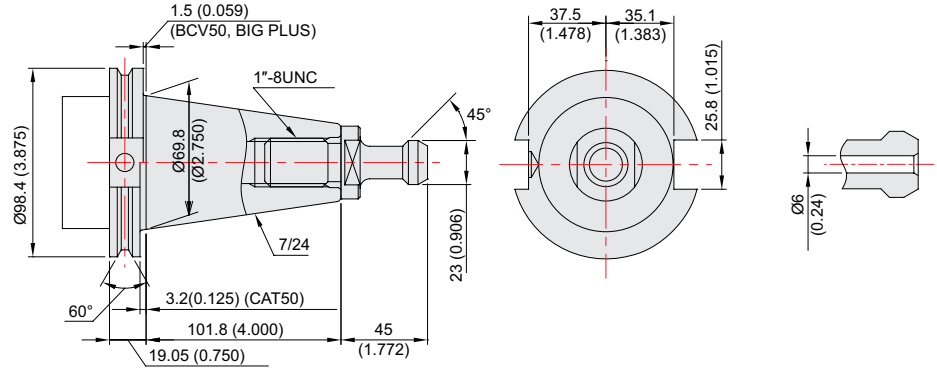


HSK A-100



OPTION

CAT50/BCV50

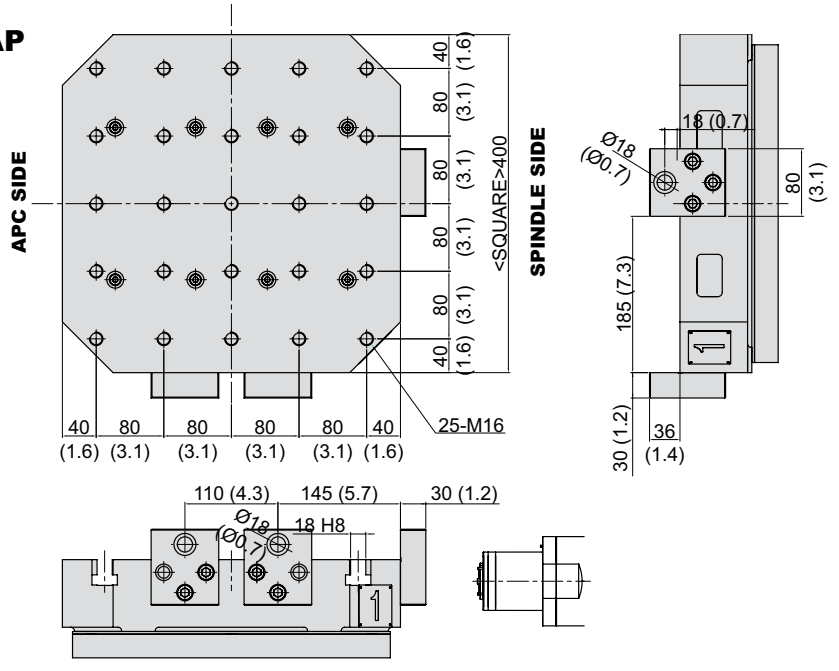


SPECIFICATIONS

Table Dimensions (HS4000 II)

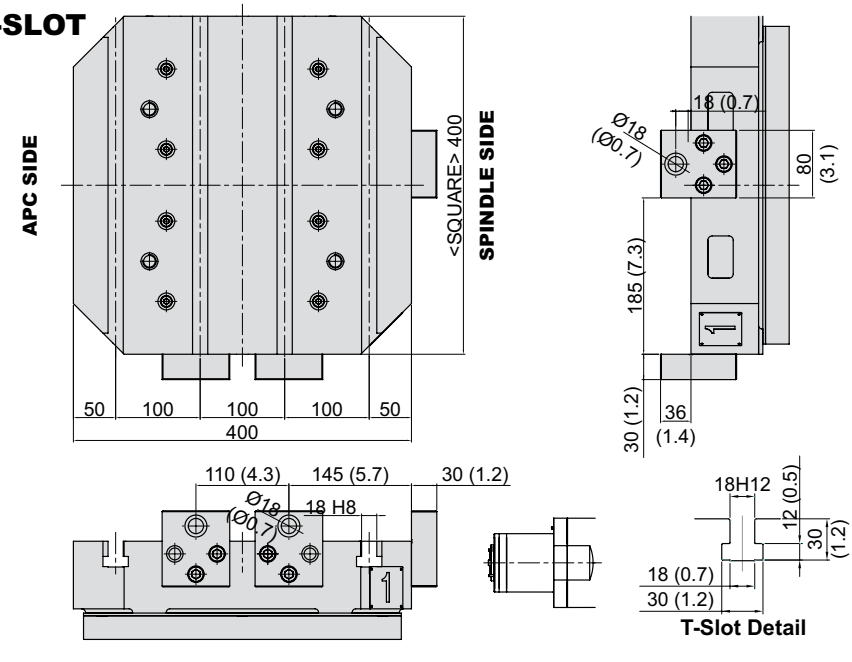
unit : mm(in)

TAP



T-SLOT

OPTION

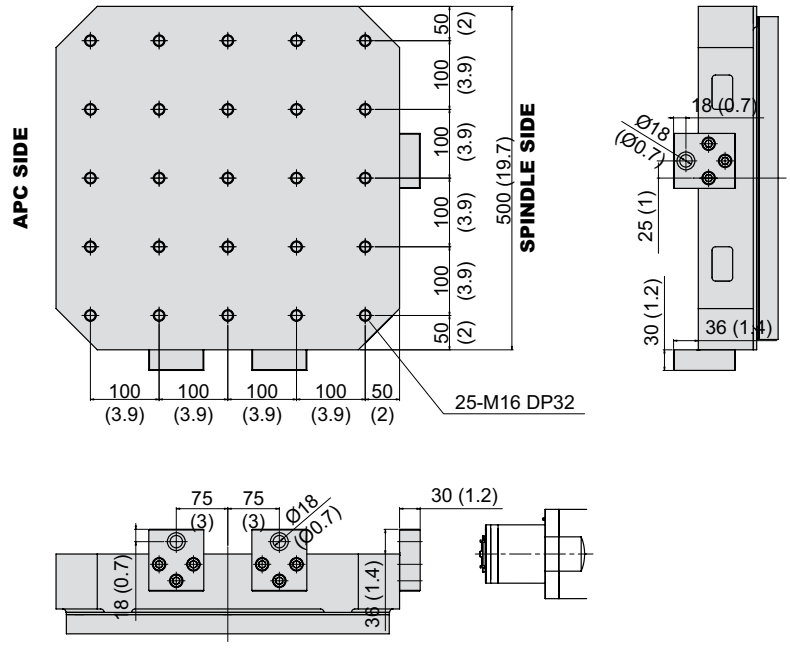


SPECIFICATIONS

Table Dimensions (HS5000 II | HS5000/50 II)

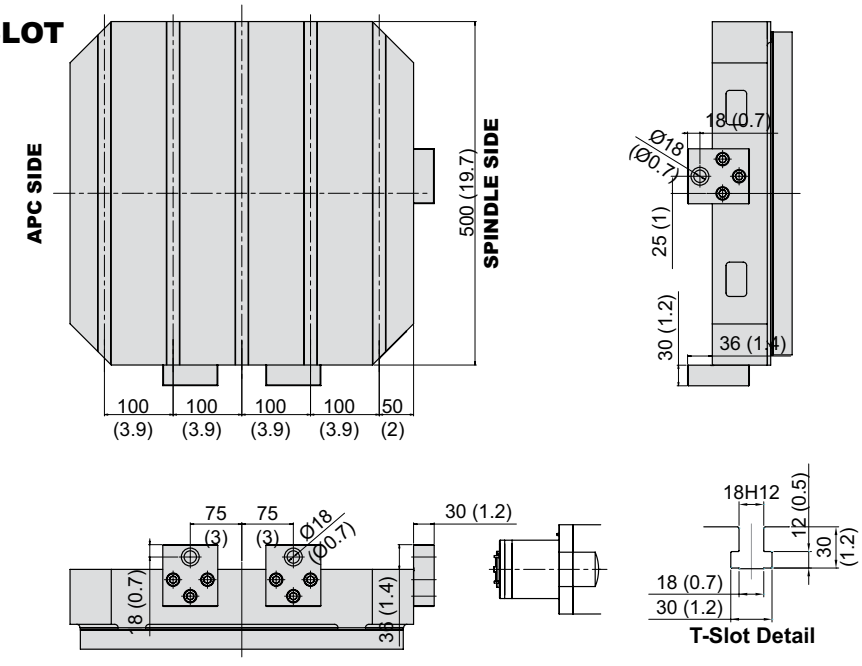
unit : mm(in)

TAP



T-SLOT

OPTION



SPECIFICATIONS

Specifications

[ ] : Option

ITEM				HS4000 II	HS5000 II
PALLET	Pallet Size (L×W)		mm(in)	2 - 400×400 (2-15.7″×15.7″)	2-500×500 (2-19.7″×19.7″)
	Maximum Load Capacity		kgf(lbf)	2 - 400 (2 - 882)	2 - 500 (2 - 1,102)
	Maximum Workpiece Size		mm(in)	Ø630×H900 (24.8″×H35.4″)	Ø800×H1,000 (Ø31.5″×H39.4″)
	Min. Indexing Angle		deg	1° [0.001°]	
SPINDLE	Spindle Taper		-	BBT40 [HSK-A63]	
	Spindle RPM		r/min	15,000 [15,000 High-Torque] [20,000]	
	Spindle Motor Output (Max./Cont.)		kW(HP)	30/18.5 (40/25) [37/22 (50/30)] [37/18.5 (50/25)]	
	Spindle Torque (Max./Cont.)		N·m(lbf·ft)	230/119 (169.6/87.8) [303/119 (223.5/87.8)] [221/79.6 (163/58.7)]	
	Spindle Driving Method		-	Built-in	
FEED	Travel (X/Y/Z axis)		mm(in)	560/640/660 (22″/25.2″/26″)	730/730/880 (28.7″/28.7″/34.6″)
	Distance from Table Top to Sp. Center		mm(in)	80 ~ 720 (3.1″ ~ 28.3″)	80 ~ 810 (3.1″ ~ 31.9″)
	Rapid Traverse Rate (X/Y/Z)		m/min(ipm)	60/60/60 (2,362/2,362/2,362)	
	Slide Type		-	Roller Guide	
ATC	Number of Tools		EA	Ring Type : 40 [60] [Chain Type : 90, 120] [Matrix : 240]	
	Tool Shank		-	BBT40 [HSK-A63]	
	Max. Tool Dia. (W.T/W.O)		mm(in)	Ø75/Ø170 (Ø3″/Ø6.7″)	
	Max. Tool Length		mm(in)	450 (17.7″)	550 (21.7″)
	Max. Tool Weight		kg(lb)	12 (26.5)	
	Tool Selection Method		-	Ring Type : Random [Chain Type : Fixed]	
	Tool Change Time	T-T	sec	0.9	
		C-C	sec	2.3	2.6
APC	No. of Pallet		ea	2	
	APC Type		-	Direct Turn	
	Pallet Change Time (Vacant)		sec	* 8.0	* 9.2
TANK CAPACITY	Coolant Tank		ℓ (gal)	600 (158.5)	
	Lubricating Tank		ℓ (gal)	0.7 (0.2)	
	Hyd. Tank Unit		ℓ (gal)	20 (5.3)	
POWER SUPPLY	Air Consumption (0.5MPa		ℓ /min(gal/min)	500 (132.1)	
	Electric Power Supply		KVA	46.4 [49.4]	
	Thickness of Power Cable		mm^2	Over 35	
	Voltage		V/Hz	220/60 (200/50*)	
MACHINE	Floor Space (L×W)		mm(in)	2,475×3,966 (97.4″×156.1″)	2,719×4,402 (107″×173.3″)
	Height		mm(in)	2,621 (103.2″)	2,707 (106.6″)
	Weight		kg(lb)	9,500 (20,944)	11,500 (25,353)
CNC	Controller		-	FANUC 31i-B [FANUC i Series - Smart Plus]	

* APC changing time can vary depending on the weight of work piece.
*) 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				HS5000/50 II
PALLET	Pallet Size (L×W)		mm(in)	2-500×500 (2-19.7″×19.7″)
	Maximum Load Capacity		kgf(lbf)	2 - 1,000 (2 - 2,205)
	Maximum Workpiece Size		mm(in)	Ø900×H1,100 (Ø35.4″×H43.3″)
	Min. Indexing Angle		deg	1° [0.001°]
SPINDLE	Spindle Taper		-	BBT50 [HSK-A100]
	Spindle RPM		r/min	10,000 [15,000]
	Spindle Motor Output (Max./Cont.)		kW(HP)	45/25 (60/33.5) [37/30 (50/40)]
	Spindle Torque (Max./Cont.)		N·m(lbf·ft)	623/305 (459.5/225) [398/191 (293.6/140.9)]
	Spindle Driving Method		-	BUILT IN
FEED	Travel (X/Y/Z axis)		mm(in)	800/800/880 (31.5″/31.5″/34.6″)
	Distance from Table Top to Sp. Center		mm(in)	100 ~ 810 (3.9″ ~ 31.9″)
	Rapid Traverse Rate (X/Y/Z)		m/min(ipm)	60/60/60 (2,362/2,362/2,362)
	Slide Type		-	ROLLER GUIDE
ATC	Number of Tools		EA	Ring Type : 40 [Chain Type : 60, 90, 120] [Matrix : 240]
	Tool Shank		-	BBT50 [HSK-A100]
	Max. Tool Dia. (W.T/W.O)		mm(in)	Ø125/Ø320 (Ø4.9″/Ø12.6″)
	Max. Tool Length		mm(in)	530 (20.9″)
	Max. Tool Weight		kg(lb)	25 (55)
	Tool Selection Method		-	Ring Type : Random [Chain Type : Fixed]
	Tool Change Time	T-T	sec	2.0
		C-C	sec	4.0
APC	No. of Pallet		ea	2
	APC Type		-	ROTARY TURN
	Pallet Change Time (Vacant)		sec	* 10
TANK CAPACITY	Coolant Tank		ℓ (gal)	600 (158.5)
	Lubricating Tank		ℓ (gal)	1.8/0.7 (0.5/0.2) : GREASE
	Hyd. Tank Unit		ℓ (gal)	20 (5.3)
POWER SUPPLY	Air Consumption (0.5MPa		ℓ /min(gal/min)	500 (132.1)
	Electric Power Supply		KVA	53.2
	Thickness of Power Cable		mm^2	Over 50
	Voltage		V/Hz	220/60 (200/50*)
MACHINE	Floor Space (L×W)		mm(in)	3,061×4,962 (120.5″×195.4″)
	Height		mm(in)	2,974 (117.1″)
	Weight		kg(lb)	16,000 (35,274)
CNC	Controller		-	FANUC 31i-B [FANUC i Series - Smart Plus]

* APC changing time can vary depending on the weight of work piece.
*) 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 Plus

[ ] : Option ☆ Needed technical consultation

Controlled axis / Display / Accuracy Compensation	
Control axis	4 axis (X, Y, Z, B)
Simultaneously controlled axis	3 axis [Max. 4 axis]
Least setting Unit	X, Y, Z axis : 0.001 mm (0.0001 inch)
	B axis : 1 deg [0.001] deg
Least input increment	X, Y, Z axis : 0.001 mm (0.0001 inch)
	B axis : 1 deg [0.001] deg
Inch / Metric conversion	G20 / G21
High response vector control	
Interlock	All axis / Each axis
Machine lock	All axis
Backlash compensation	± 0 ~ 9999 pulses (Rapid traverse / Cutting feed)
Position switch	
LCD / MDI	15″ color LCD with Touch screen
Feedback	Absolute motor feedback
Stored stroke check 1	Over travel
Stored stroke check 2, 3	
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, Stroek check before move
Single block	
Search function	Program Number / Sequence Number
Retraction for rigid tapping	
Manual guide i	Smart Guide i
Interpolation functions	
Nano interpolation	
Positioning	G00
Linear interpolation	G01
Cylinderical interpolation	G02, G03
Exact stop mode	Single : G09, Continuous : G61
One-way positioning	G60
Inverse-time feed	G93
Dwell	G04, 0 ~ 9999.9999 sec
Skip	G31
Reference position return	1st reference : G28
	2, 3, 4 reference : G30 P2, P3, P4
	Ref. position check : 27
Thread synchronous cutting	G33
Helical interpolation	Circular + Linear interpolation 2 axis(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	1,000 Block
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 ~ P48)
Manual absolute	Fixed ON
Programmable data input	G10
Sub program call	10 folds nested
Custom macro	#100~#199, #500~#599, #98000~#98499
Programmable mirror image	G51.1, G50.1

Controlled axis / Display / Accuracy Compensation	
Polar coordinate command	G15, G16
Do not look ahead function	G4.1
Including Chamfering / Corner R	
Canned cycle	G73, G74, G76, G80 ~ G89
Coordinate rotation	G68, G69
Scaling	G50, G51
Auxiliary function / Spindle speed function	
Auxiliary function	M 4 digit
Level-up M Code	Multi / By-Pass
Spindle speed command	S 5 digit , Binary output
Spindle override	50% ~ 120% (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	400 pairs
Tool nose radius compensation	G40, G41, G42
Tool nose length compensation	G43, G44, G49
Tool offset memory C	Tool length, diameter, abrasion (Length/Dia.)
Tool length measurement	Z axis Input C
Editing function	
Part program storage size	10240m (4MB)
No. of registerable programs	1,000 ea
Program protect	
Background editing	
Extended part program editing	
Memory card program edit	Copy, move and change of NC program
Protection of data at 8 levels	
Data input / output & Interface	
I/O interface	Memory card, USB memory interface
	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	
Power consumption monitoring	Spindle & Servo
Multi language display	Support 25 languages
Display language switching	Selection of 5 optional Languages
LCD Screen Saver	Screen saver
Macro Excutor	Custom software 8MB (WIA Screen)☆
Processing select	Speed/ridigity setting

Option	
Fast ethernet	Needed option board
Data server	Needed option board (1GB, 2G, 4GB)
Sub Spindle control	☆
Polar coordinate interpolation	G12.1, G13.1
Cylinderical interpolation	G07.1
Manual handle feed	2/3 units
Tool offset number	Max. 2,000 pair
Program storage capacity	~ 8 MByte
Program registration number	Max. 4,000 ea
Additional work coordinate	300 pair (G54.1 P1 ~ P300)

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

FANUC i Series - Smart Plus

[ ] : Option ☆ Needed technical consultation

Controlled axis / Display / Accuracy Compensation	
Control axis	3 axis (X, Y, Z)
	[4 axis (X, Y, Z, A)] [5 axis (X, Y, Z, A, C)]
Simultaneously controlled axis	3 axis [Max. 4 axis]
Least setting Unit	X, Y, Z axis : 0.001 mm (0.0001 inch)
	B axis : 1 deg [0.001] deg
Least input increment	X, Y, Z axis : 0.001 mm (0.0001 inch)
	B axis : 1 deg [0.001] deg
Inch / Metric conversion	
High response vector control	
Interlock	All axis / Each axis
Machine lock	All axis
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 axe 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 axis (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	Smart Guide-i
Auxiliary function / Spindle speed function	
Level-up M Code	Multi / Bypass M code
Spindle speed function	S & 5 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 axe 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
Addition of custom macro	#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.

GLOBAL NETWORK



WIA MACHINE TOOLS

Headquarter / R&D Center	106, Yongji-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do, Republic of Korea	**TEL** : +82 55 225 9999
Overseas Sales Team	13, Iljik-ro 12beon-gil, Gwangmyeong-si, Gyeonggi-do, Republic of Korea	**TEL** : +82 55 225 9645

OVERSEAS OFFICES

America corp.	450 Commerce Blvd, Carlstadt, NJ 07072, USA	**TEL** : +1-201-987-7298
Europe GmbH	Alexander-Fleming-Ring 57, 65428 Russelsheim Germany	**TEL** : +49-0-6142-9256-0
China	Company No.16 Fenghuang Road, Fenghuang Town, Zhangjiagang City, Jiangsu Province, China	**TEL** : +86-21-6427-9885
CIS Branch Office	050051, Kazakhstan, Almaty, Elebekova street 10, B.3 Office no. 103	**TEL** : +7-727-355-7133
India Branch Office	#4/169, 1st Floor, LOTTE BLDG, Rajiv Gandhi Salai, (OMR), Kandanchavadi, Chennai - 600096, Tamilnadu, India	**TEL** : +91-76-0490-3348

WIA MACHINE TOOLS

home page facebook youtube instagram linkedin

2025-12 003.016 ENG