

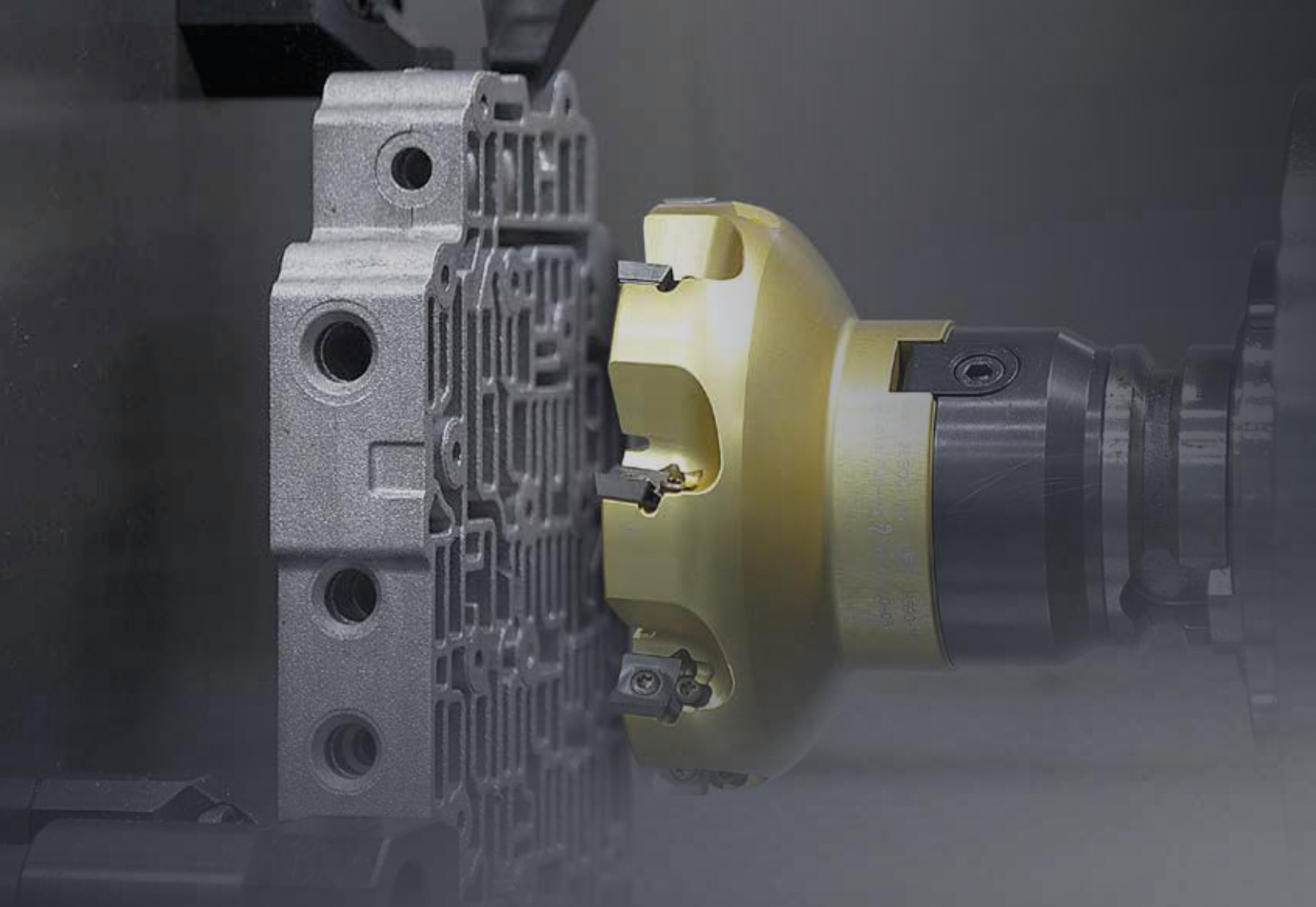
HS

6300 II/8000 II

Next-Generation High-speed Horizontal Machining Center

WIA Machine Tools Horizontal Machining Center

WIA MACHINE TOOLS



Technical Leader

Horizontal Machining Center HS6300/8000 II, designed by WIA machine tools with years of expertise and the latest technology, provides high speed, high performance and maximum productivity.

		HS6300 II	HS8000 II
Pallet Size (L×W)	mm(in)	2-630×630 (24.8"×24.8")	2-800×800 (31.5"×31.5")
Max. Load Capacity	kg(lb)	2-1,500 (3,307)	2-2,000 (4,409)
Spindle Taper	-	BBT50 [HSK-A100]	
Spindle Speed	r/min	10,000 [15,000] [6,000]	
Spindle Output (Max./Cont.)	kW(HP)	45/25 (60/33.5) [37/30 (50/40)] [55/30 (74/40)]	
No. of Tools	EA	40 [60, 90, 120, 150] [Matrix : 240 ~]	
Travel (X/Y/Z)	mm(in)	1,050/900/1,000 (41.3"/35.4"/39.4")	1,400/1,200/1,370 (55.1"/47.2"/53.9")
Rapid Traverse Rate (X/Y/Z)	m/min(ipm)	60/60/60 (2,362/2,362/2,362)	50/50/50 (1,969/1,969/1,969)

[] : Option

HS

6300 II/8000 II

Next Generation High Efficiency Machining Center

- High Rigidity Box-type Structure
- A symmetrical structure design with the center of gravity of Z-axis and transfer axis matching
- Easy chip disposal with direct chip discharging structure
- Best-in-class rapid traverse rate of 60m/min (2,362ipm)
- Machining of the largest workpiece in its class
- ATC design capable of attaching the largest tools in its class



01 BASIC STRUCTURE

High Quality & Productivity Horizontal Machining Center

ATC & Magazine

- No. of Tools : 40 [60/90/120/150] EA (MATRIX : 240 EA)
- Tool Selection Method : Fixed

High Precision Spindle

- Built-in Spindle : 10,000 r/min
- Oil Cooling System
- BBT50 [HSK-A100]

Pallet

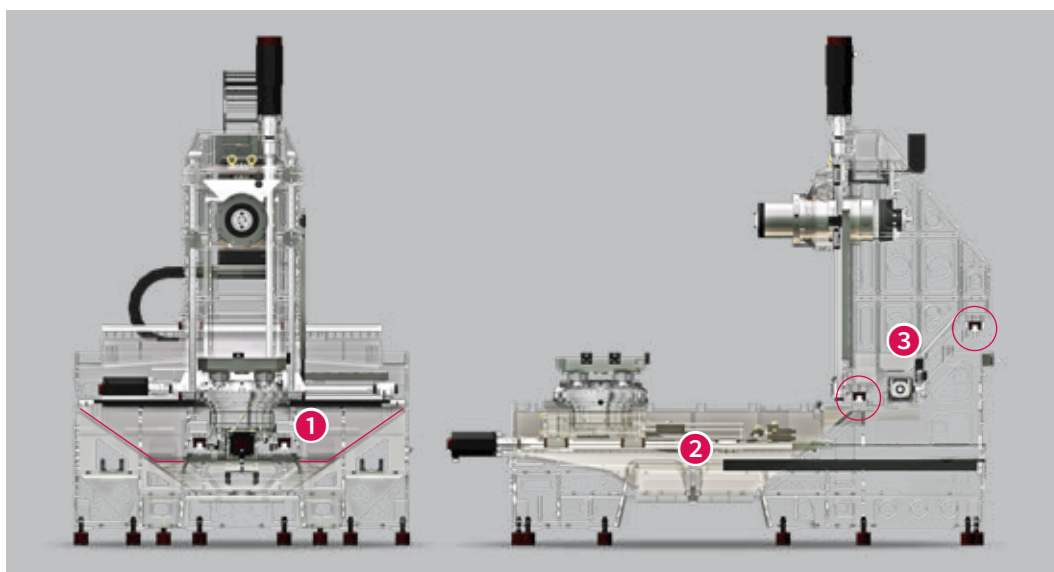
- Pallet Size (X/Y)
HS6300 II : 630×630 mm (24.8"×24.8")
HS8000 II : 800×800 mm (31.5"×31.5")
- Air Clearing System



15" Large Monitor Applied

The HS6300/8000 II 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.

HIGH RIGIDITY BOX-TYPE STRUCTURE



① Highly Rigid Box-type Bed

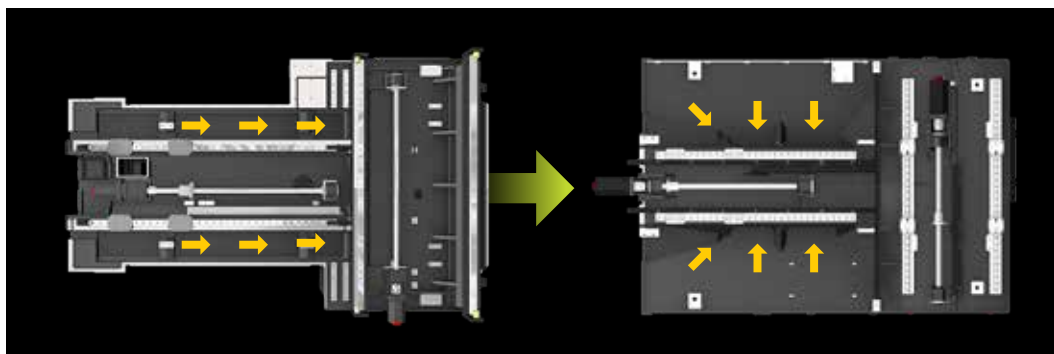
Unlike the previous reverse T-shaped structures, HS6300/8000 II has a horizontally symmetrical design with the Z-axis transfer system at the center of the material. In particular, a boxed bed design with extremely high rigidity not only secured the structural stability but also improved vibration absorption, enabling ample medium cutting and excellent illumination for machining with a symmetrical structure on the Z-axis.

② Changed Chip Disposal Structure

Designed to directly drop chips onto the chip conveyor, HS6300/8000 II enables seamless chip disposal even during mass chip generation. (Chip processing capability has been greatly improved compared to the screw-type chip conveyor in existing machines.)

③ Step Type Bed Structure

It is designed to minimize the load occurring at the front. Also, travel stability is increased by column weight optimization.



<Reversed 'T' Type Bed>

<HS6300 II 'Box' Type Bed>

02 HIGH-SPEED FEED

Highest Quality, High-speed Horizontal Machining Center



High-Speed Roller Type Guideway

Linear roller 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.



Large Ball Screw

The increased diameters of all ball screws allow for high accuracy even during heavy duty machining.



Linear Scale **OPTION**

Linear scales on all axis providing high precision positioning accuracy and compensates for ball screw thermal displacement ensuring extremely precise machining.

In addition, the absolute type linear scale is installed in close proximity to the ball screw of each axis.

Travel (X/Y/Z) HS6300 II

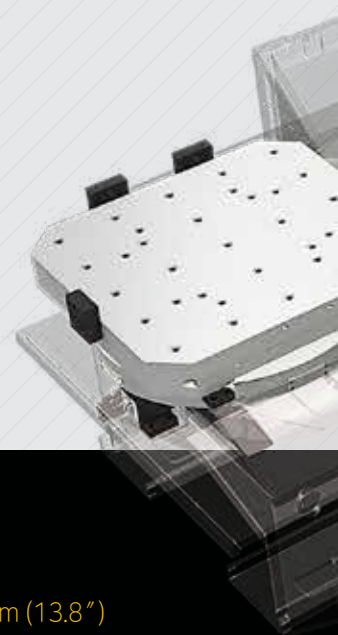
1,050/900/1,000 mm
(41.3"/35.4"/39.4")

Travel (X/Y/Z) HS8000 II

1,400/1,200/1,370 mm
(55.1"/47.2"/53.9")

◎ HS8000 II Expansion of Transfer Distance

X-axis	1,050 mm (41.3")	1,400 mm (55.1")	350 mm (13.8")
Y-axis	875 mm (34.4")	1,200 mm (47.2")	325 mm UP (12.8")
Z-axis	875 mm (34.4")	1,370 mm (53.9")	495 mm UP (19.5")
Previous model		HS8000 II	



Basic Structure

**HIGH-PRECISION
& HIGH-SPEED**

Y-Axis
X-Axis
Z-Axis

Rapid Traverse Rate (X/Y/Z) HS6300 II

60/60/60 m/min
(2,362/2,362/2,362 ipm)

Distance from Table Top to Sp. Center

75 mm (3")

Rapid Traverse Rate (X/Y/Z) HS8000 II

50/50/50 m/min
(1,968/1,968/1,968 ipm)

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.

HS6300/8000 II 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.

In addition, HS6300/8000 II will realize the best-in-class acceleration and deceleration time of the spindle, contributing to improved productivity. By improving the acceleration performance of the spindle motor compared to competition models, it has shortened the time to reach the RPM necessary for machining, and the tool exchange time has been greatly improved by minimizing the spindle motor down time

◎ Spindle Acceleration (0 → 10,000 rpm)

Previous model	7 sec
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HS6300 II	3.4 sec	3.6 sec reduction
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High performance spindle of HS6300/8000 II, developed in consideration of even high quality performance and productivity, This is the main feature of HS6300/8000 II.

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.

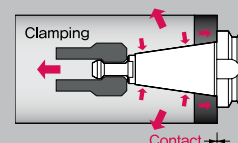
Through Spindle Coolant (20/30/70 bar) **OPTION**

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

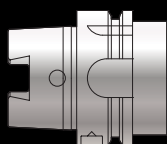
The Big Plus spindle system (BBT#50) provides dual contact between the spindle face and the flange face of the tool holder.



Spindle Specifications

[] : Option

Speed (rpm)	Motor (Max./Cont.)	Torque (Max./Cont.)	Type
10,000 rpm	45/25 kW (60/33.5 HP)	623/305 N·m (459.5/225 lbf·ft)	Built-in
[15,000 rpm]	[37/30 kW (50/40 HP)]	[398/191 N·m (293.6/140.9 lbf·ft)]	
[6,000 rpm]	[55/30 kW (74/40 HP)]	[807/353 N·m (595.2/260.4 lbf·ft)]	



HSK Tool Holder **OPTION**

HSK tool holder is utilized for precise positioning with less expansion in the spindle taper during high speed rotation. This ensures an excellent level of precision for high precision machining.

04 APC & PALLET

Productivity improvement through servo motor drive type APC

APC & Pallet Specifications

Model	Pallet Size	Max. Load Capacity	Min. Indexing Angle	APC Type
HS6300 II	2 - 630×630 mm (24.8"×24.8")	2 - 1,500 kg (3,307 lb)	1° [0.001°]	Direct Turn
HS8000 II	2 - 800×800 mm (31.5"×31.5")	2 - 2,000 kg (4,409 lb)	1° [0.001°]	

HIGH RIGIDITY & HIGH SPEED PALLET EXCHANGE SYSTEM

APC

High Speed APC

HS6300/8000 II provides a lift rotary type APC (automatic pallet changer) as standard. The loading station pallet can be rotated and locked in 90° increments for convenient loading/unloading of workpieces.

APC Change Time **12 SEC** (Vacant)

Previous Machine 16 sec

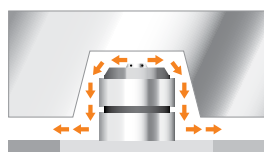
HS6300 II **12 sec** 4 sec reduction



PALLET

High Precision Pallet

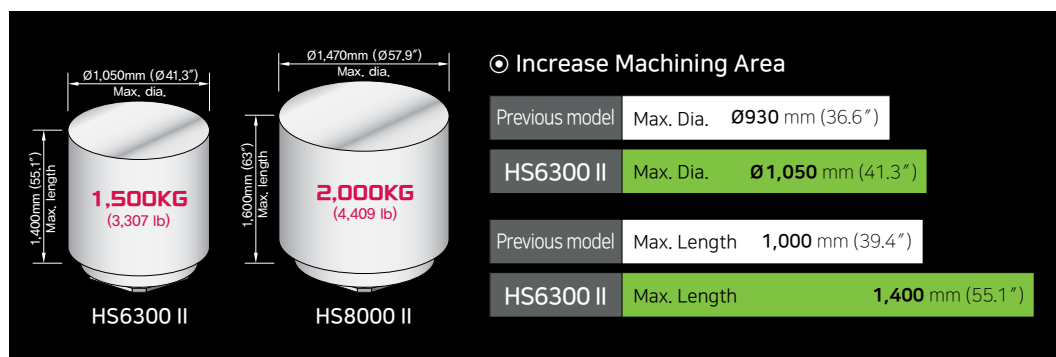
Inside the cones, there are clamping devices for powerful clamping of pallets which is suitable for heavy duty cutting. 1° (0.001° Opt.) index table is applied with high precision curvic coupling for accurate indexing.



Air Clearing System

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

Largest Workpiece Machining



05 ATC & MAGAZINE

High Productivity Achieved with High Rigidity, Accuracy Machining

ATC & Magazine Specifications <Largest tool size and weight in its class : Std.>

[] : Option

Model	No. of Tools	Max. Tool Dia. (W.T/W.O)	Max. Tool Length	Max. Tool Weight
HS6300/8000 II	40 [60, 90, 120, 150] EA	Ø135/Ø320 mm (Ø5.3"/Ø12.6")	630 mm (24.8")	30 kg (66.1 lb)

※ No. of Tools - Matrix Magazine : 240 EA (Option)

HIGH RIGIDITY, TOOL CHANGE SYSTEM

ATC & MAGAZINE

High Speed Servo Motor ATC

The tool magazine holds 40 tools as standard and up to 150 tools as an option depending on the model.

Servo control, fixed address tool selection method and a separate magazine control panel enhance user convenience. The twin arm ATC provides fast and reliable tool change to reduce non-cutting time.

◎ Improved Tool Change time (C-C)

Previous model	7.0 sec
HS6300 II	4.9 sec

2.1 sec reduction



Max. Tool Dia. / Length

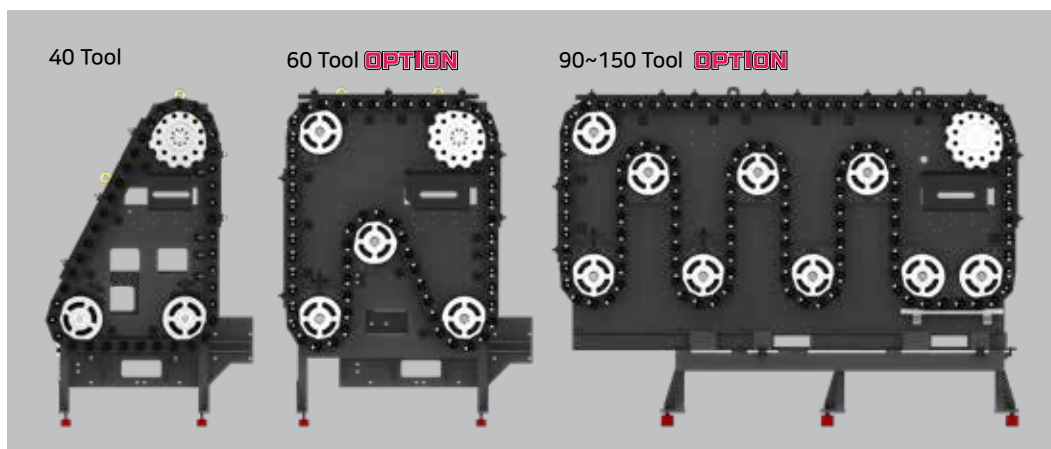
Ø320/630 mm

Max. Tool Weight

30 kg (40 ~ 150 Tool)



Expand Tool Selection



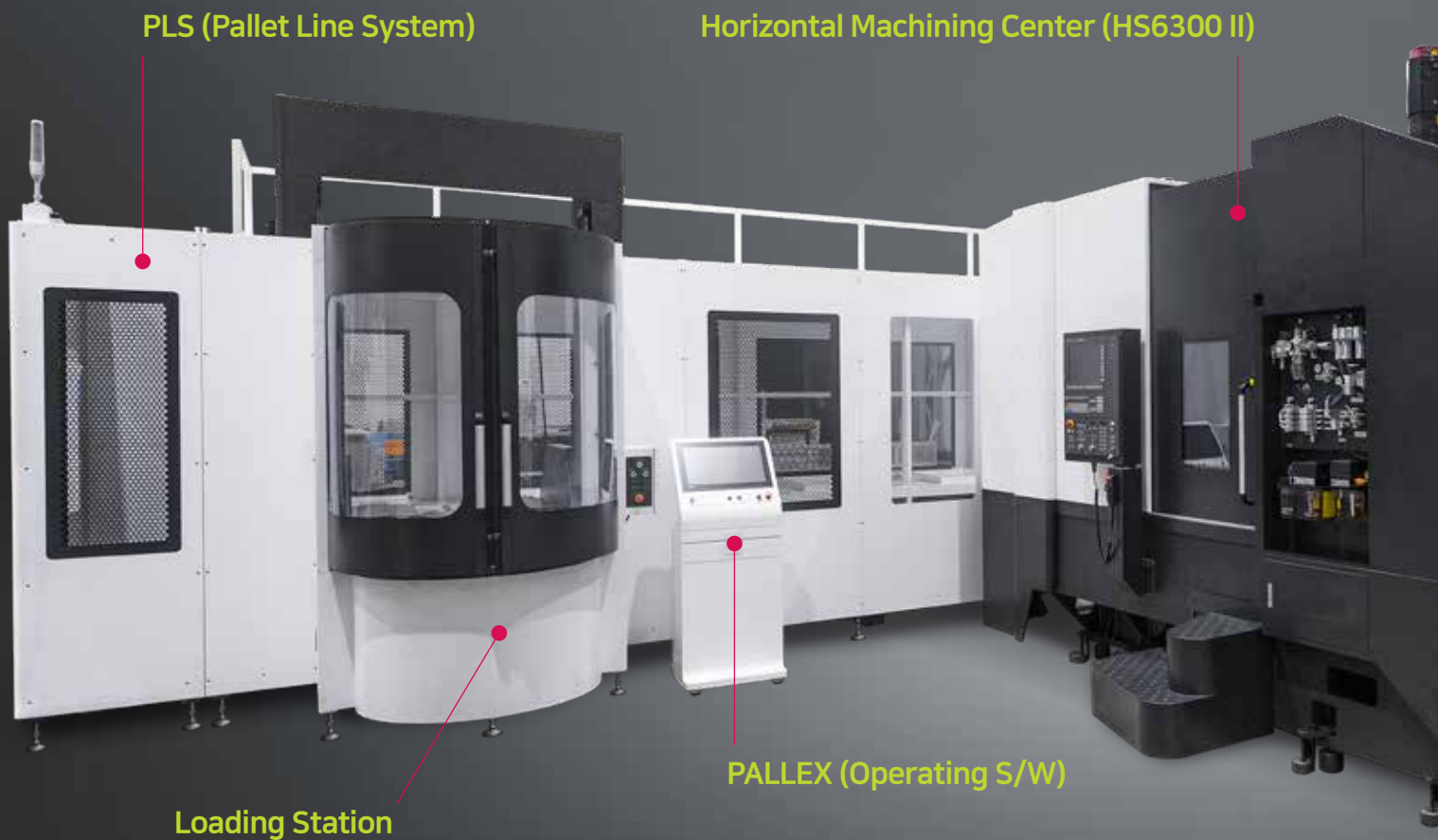
※ Matrix Magazine : 240 Tool (When PLS is Applied)

06 AUTOMATION SYSTEM

Automatic Solutions to Improve Productivity

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.



Matrix ATC



PLS (Pallet Line System)

ITEM		HS6300 II
Pallet Size	mm(in)	Ø630 (Ø24.8")
Max. Load Capacity	kg(lb)	1,500 (3,307)
Max. Machining Dia.	-	Ø1,050 (Ø41.3")
Max. Machining Length	mm(in)	1,350 (53.1")
No. of Pallet	EA	10~72 [☆81]
No. of Loading Station	EA	1~4
No. of Machine Tools	EA	1~7 [☆10]

[☆] : Prior consultation needed

MATRIX ATC

No. of Tools	EA	240
Driving Method	-	Servo
Tool Selection Method	-	Fixed
Max. Tool Dia.	mm(in)	Ø135/Ø320 (Ø5.3"/Ø12.6")
Max. Tool Length	mm(in)	630 (24.8")
Max. Tool Weight	kg(lb)	30 (66.1)

SPECIFICATIONS

Standard & Optional

Spindle		HS6300 II	HS8000 II
10,000rpm (45/25kW)	Built-In	●	●
15,000rpm (37/30kW)	Built-In	○	○
6,000rpm (55/30kW)	Built-In	○	○
Spindle Cooling System		●	●
ATC			
ATC Extension	40	●	●
	60	○	○
	90	○	○
	120	○	○
	150	○	○
	240 (MatrixX)	○	○
Tool Shank Type	BBT50	●	●
	HSK-A100	○	○
	BCV50	○	○
Tool Weight	30kg	●	●
U-Center	D'andrea	☆	☆
Pull Stud	45°	●	●
Servo Motor Magazine		●	●
Table, APC & Pallet			
APC	Rotary Turn	●	●
Tap Type Pallet		●	●
T-Slot Pallet		○	○
B Axis Table	1°	●	●
	0.001°	○	○
Coolant System			
Std. Coolant (Nozzle)		●	●
Bed Flushing Coolant		●	●
*1) Through Spindle Coolant	20bar	○	○
	30bar, 20 ℓ (5.3 gel)	○	○
	70bar, 15 ℓ (4 gel)	○	○
	70bar, 20 ℓ (5.3 gel)	○	○
	70bar, 30 ℓ (7.9 gel)	○	○
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	680 ℓ (180 gal)	●	●
Chip Conveyor (Hinge/Scraper)	Left / *1) Rear	○	○
Chip Conveyor (Magnetic)	Left / *1) Rear	○	○
Chip Conveyor (Mesh Drum)	Left / *1) 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		☆	☆

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

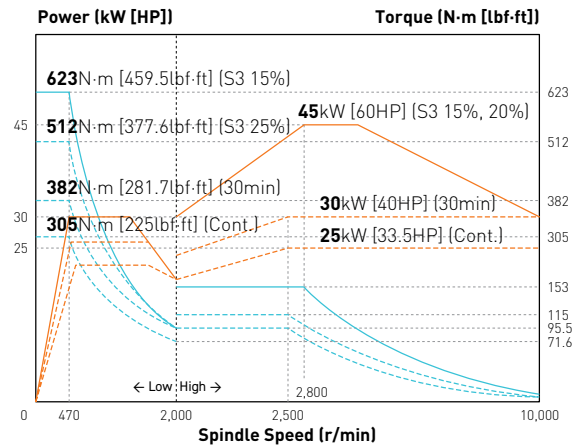
Safety Device		HS6300 II	HS8000 II
Total Splash Guard		●	●
Electric Device			
Call Light	1 Color : ■	●	●
Call Light & Buzzer	3 Color : ■ ■ ■ B	○	○
Work Light		●	●
Electric Cabinet Light		○	○
Remote MPG		●	●
3 Axis MPG		○	○
Work Counter	Digital	○	○
Total Counter	Digital	○	○
Tool Counter	Digital	○	○
Multi Tool Counter	6 EA	☆	☆
	9 EA	☆	☆
Electric Circuit Breaker		○	○
AVR (Auto Voltage Regulator)		☆	☆
Transformer	65kVA	○	○
Auto Power Off		○	○
Back up Module for Black out		○	○
Measuring Device			
Air Zero	TACO	○	○
	SMC	○	○
Work Measuring Device		○	○
TLM	Touch	○	○
(Marposs/Renishaw/Blum)	Laser	○	○
Tool Broken Detective Device		☆	☆
Linear Scale	X/Y/Z 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			
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	☆	☆
6PPL		○	○
PLS		○	○
Hyd. Device			
Std. Hyd. Unit	70bar/45 ℓ (11.8 gal)	●	●
Center Type Hyd. Supply Unit (Upper)	2×2 (4P)	☆	☆
	2×4 (8P)	☆	☆
	2×8 (16P)	☆	☆
Center Type Hyd. Supply Unit (Lower)	6P (Standby Pallet)	☆	☆
	2×6 (12P)	-	-
	45bar	☆	☆
Hyd. Unit for Fixture	70bar	☆	☆
	100bar	☆	☆
	Customized	☆	☆
ETC			
Tool Box		●	●
Customized Color	Need for Munsell No.	☆	☆
CAD&CAM Software		☆	☆

*1) Through Spindle Coolant : Please check the filter types with sales representative. *2) Chip Conveyor : When ordering a rear chip conveyor, prior consult with hyundai wia's sales person.
Specifications are subject to change without notice for improvement.

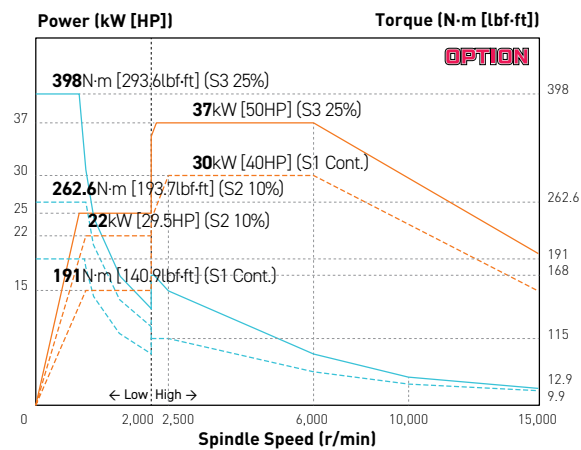
SPECIFICATIONS

Spindle Output/Torque Diagram

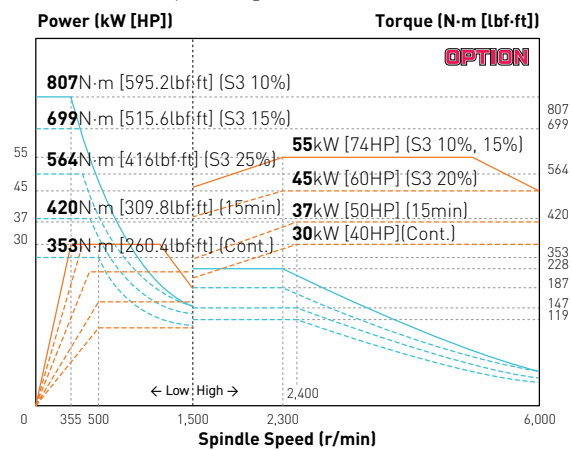
Built-in 10,000rpm



Built-in 15,000rpm



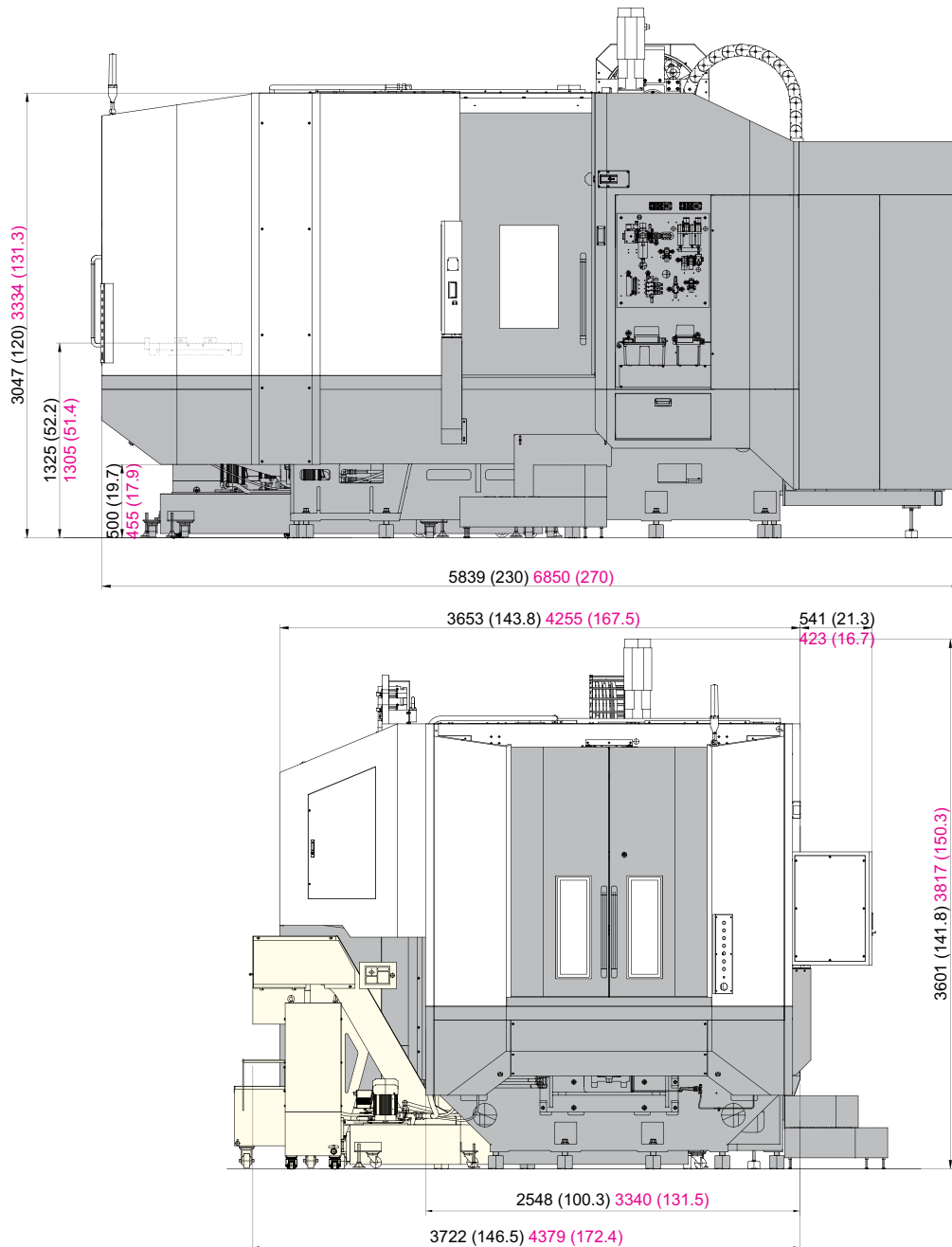
Built-in 6,000rpm



SPECIFICATIONS

External Dimensions (HS6300 II | HS8000 II)

unit : mm(in)



Machine length

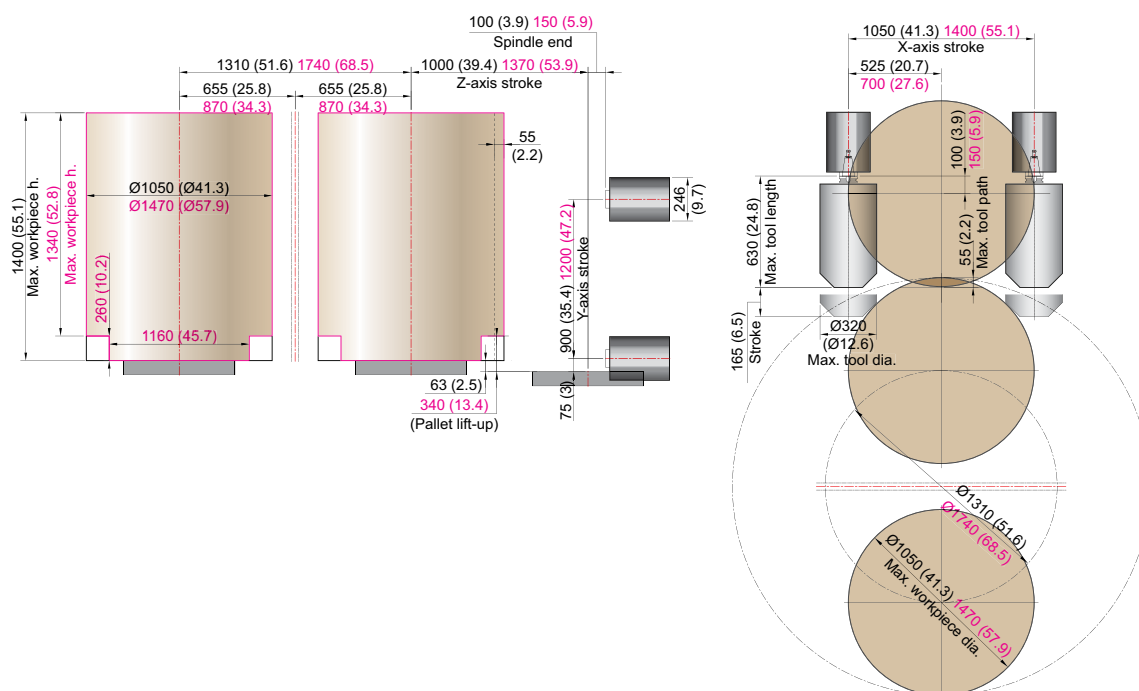
Magazine	40EA	60EA	90EA	120EA	150EA	240EA
HS6300 II	5,839 (230")	5,839 (230")	6,105 (240.4")	7,240 (285")	8,135 (320.3")	9,443.5 (371.8")
HS8000 II	6,850 (270")	6,850 (270")	7,160 (281.9")	8,295 (326.6")	9,295 (365.9")	10,500 (413.4")

※ 240 Tool : Matrix Type

HS6300/8000 II
Horizontal Machining Center

$$\begin{array}{r} 18 \\ + \\ 19 \end{array}$$

unit : mm(in)



Technical drawing of the top view of a machine bed. The drawing shows a large circular base with three smaller circular features. Dimensions are given in millimeters and inches. Key dimensions include: overall width 2100 (82.7), overall height 1310 (51.6), distance between centers 1000 (39.4), and various mounting hole dimensions. A central circular feature is labeled "Ø 1050 (Ø 41.3) Max. workpiece dia.".

Technical drawing of a mechanical part, showing top and side views with dimensions in mm and inches.

Top View Dimensions:

- Overall width: 1316 (51.8)
- Distance from left edge to centerline: 740 (29.1)
- Distance from centerline to right edge: 299 (11.8)
- Distance between mounting holes: 1400 (55.1)
- Distance from centerline to mounting hole center: 700 (27.6)
- Mounting hole diameter: $\varnothing 1740$ (68.5)
- Distance from centerline to mounting hole edge: 50 (2)

Side View Dimensions:

- Overall height: 535 (21.1)
- Distance from top edge to centerline: 535 (21.1)
- Distance from centerline to bottom edge: 287 (11.3)
- Distance from top edge to mounting hole center: 558 (22)
- Distance from centerline to mounting hole center: 891 (35.1)
- Distance from centerline to bottom edge: 1903 (74.9)

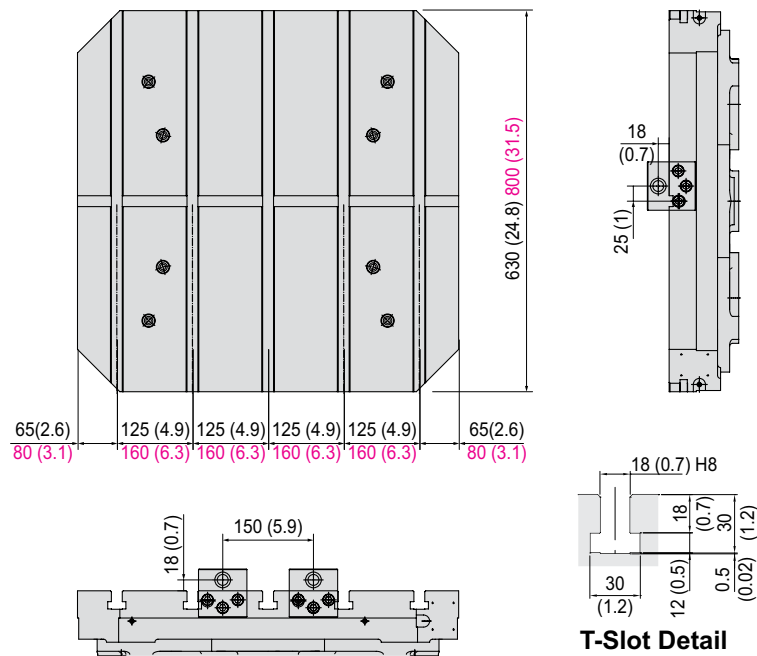
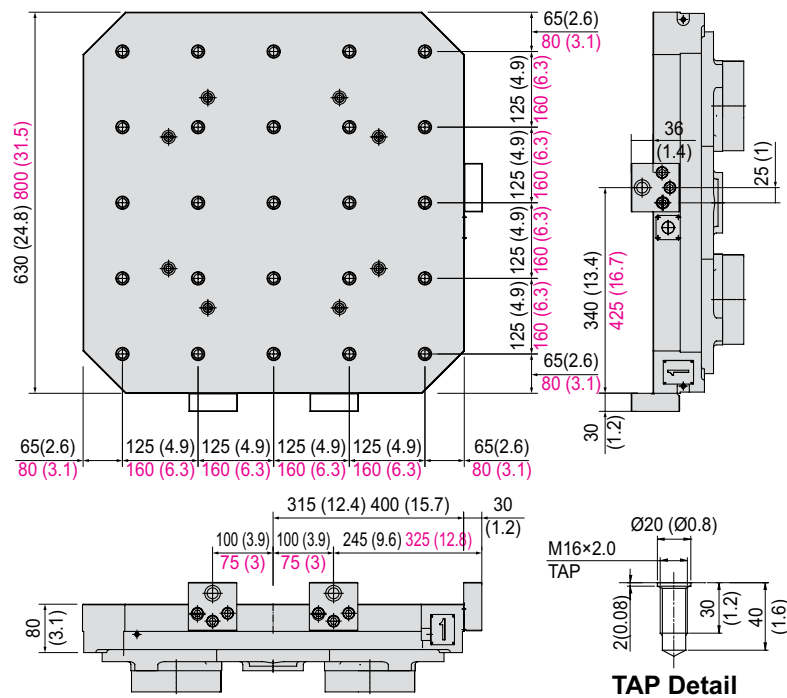
Internal Features:

- Internal hole diameter: $\varnothing 1470$ (57.9)
- Label: Max. workpiece dia.

SPECIFICATIONS

Table Dimensions (HS6300 II | HS8000 II)

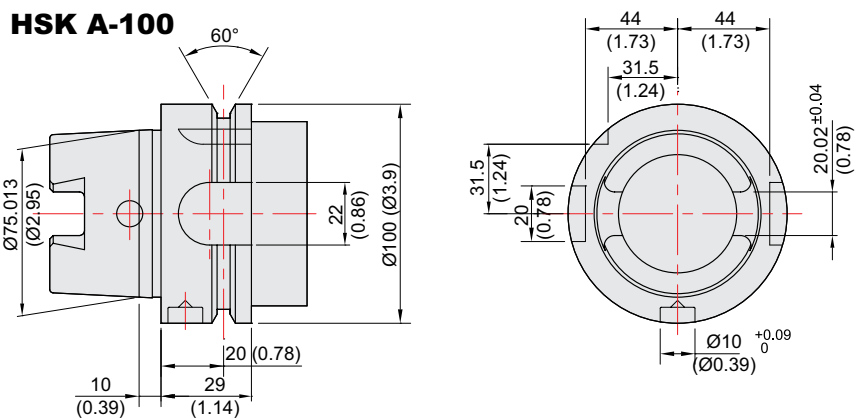
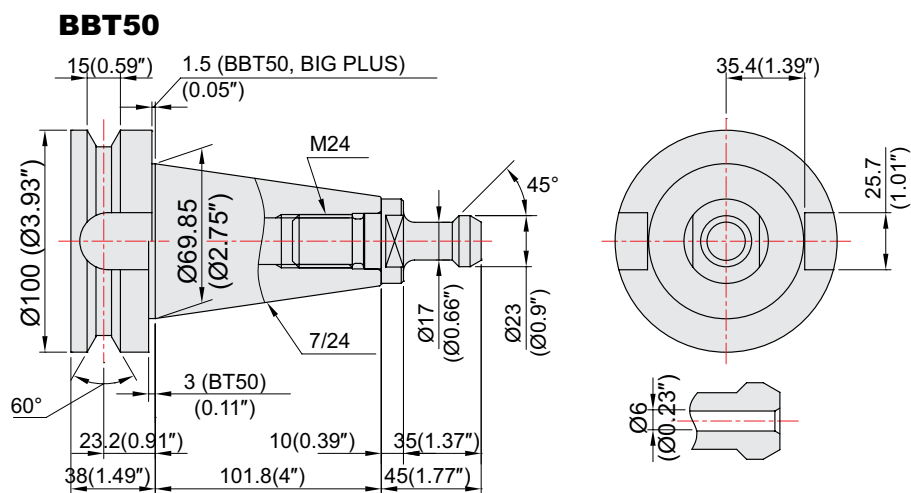
unit : mm(in)



SPECIFICATIONS

Tool Shank

unit : mm(in)



SPECIFICATIONS

Specifications

[] : Option

ITEM			HS6300 II	HS8000 II
PALLET	Pallet Size (L×W)	mm(in)	2 - 630×630 (24.8"×24.8")	2 - 800×800 (31.5"×31.5")
	Maximum Load Capacity	kgf(lbf)	2 - 1,500 (3,307)	2 - 2,000 (4,409)
	Maximum Working Size	mm(in)	Ø1,050×H1,400 (Ø41.3"×H55.1")	Ø1,470×H1,600 (Ø57.9"×H63")
	Min. Indexing Angle	deg	1° [0.001°]	
SPINDLE	Spindle Taper	-	BBT50 [HSK-A100]	
	Spindle RPM	r/min	10,000 [15,000] [6,000]	
	Spindle Motor Output (Max./Cont.)	kW(HP)	45/25 (60/33.5) [37/30 (50/40)] [55/30 (74/40)]	
	Spindle Torque (Max./Cont.)	N·m(lbf·ft)	623/305 (459.5/225) [398/191 (293.6/140.9)] [807/353 (595.2/260.4)]	
	Spindle Driving Method	-	BUILT-IN	
FEED	Travel (X/Y/Z axis)	mm(in)	1,050/900/1,000 (41.3"/35.4"/39.4")	1,400/1,200/1,370 (55.1"/47.2"/53.9")
	Distance from Table Top to Sp. Center	mm(in)	75 ~ 975 (3"/38.4")	75 ~ 1,275 (3"/50.2")
	Distance from Table Center to Sp. Nose	mm(in)	100 ~ 1,100 (3.9"/43.3")	150 ~ 1,520 (5.9"/59.8")
	Rapid Traverse Rate (X/Y/Z)	m/min(ipm)	60/60/60 (2,362/2,362/2,362)	50/50/50 (1,969/1,969/1,969)
	Slide Type	-	ROLLER GUIDE	
ATC	Number of Tools	EA	40 [60, 90, 120, 150] [Matrix : Over 240]	
	Tool Shank	-	BBT50 [HSK-A100]	
	Max. Tool Dia. (W.T/W.O.)	mm(in)	Ø135/Ø320 (Ø5.3"/Ø12.6")	
	Max. Tool Length	mm(in)	630 (24.8")	
	Max. Tool Weight	kg(lb)	30 (66.1)	
	Tool Selection Method	-	FIXED ADDRESS	
	Tool Change Time	C-C sec	4.9	5.4
APC	No. of Pallet	EA	2	
	APC Type	-	DIRECT TURN	
	Pallet Change Time (Vacant)	sec	* 12	* 16
TANK CAPACITY	Coolant Tank	ℓ (gal)	680 (179.6)	
	Lubricating Tank	ℓ (gal)	4 (1.06)	
	Hyd. Tank Unit	ℓ (gal)	45 (11.9)	
POWER SUPPLY	Air Consumption (0.5MPa)	ℓ /min(gal/min)	450 (118.9)	
	Electric Power Supply	kVA	59	57
	Thickness of Power Cable	mm ²	Over 50	
	Voltage	V/Hz	220/60 (200/50*)	
MACHINE	Floor Space (L×W)	mm(in)	3,722×5,839 (146.5"×229.9") (40 Tool)	4,379×6,850 (172.4"×269.7") (40 Tool)
	Height	mm(in)	3,601 (141.8")	3,817 (150.3")
	Weight	kg(lb)	19,000 (41,888)	27,000 (59,525)
NC	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, Stroke 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
Cylindrical 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 : Z7
Thread synchronous cutting	G33
Helical interpolation	Circular + Linear interpolation 2 axis(max.)

Feed function / Acc. & Dec. control

	Rapid traverse
Manual feed	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
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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/rigidity 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
Cylindrical 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 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 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 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.

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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

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