

Horizontal 5-axis machining center

HTH-800 Series



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HTH-800 Series



- Double-wall and symmetrical structure design: Excellent rigidity and strength
The structure adopts double-wall and symmetrical structure. Furthermore, box-way has suitable heat treatment and precise grinding for excellent precision.
- B axis adopts roller gear cam driving and positioning pin design: Precision and stability improvement
Roller gear cam and positioning pin designs are able to enhance the anti-reverse capacity. In addition, full-circle hydraulic braking system provides outstanding rigidity and stabilization during machining.
- Machine efficiency improvement
Equipped with high power and high torque spindle to improve the removing rate of chips and decrease the cycle time. The latest generation of horizontal 5-axis machining center, HTH-800, has already achieved a 20% improvement in processing efficiency on nickel-base alloys machining.



Main specification

Note: S means single pallet

Item	HTH-800 (HTH-800S)
Spindle	6,000 rpm (Opt. 8,000 rpm)
Three axis	rapid traverse 10 m/min
	X/Y/Z axis travel 1,550/1,500/1,250(1,600)mm
	X/Y/Z axis adopts high rigid box-way
	X/Y/Z axis $\varnothing 50/\varnothing 50/\varnothing 63$ mm high precision ballscrew
A axis	Swivel degree $+60^{\circ} \sim -105^{\circ}$
	Min. index positioning 0.001°
	Rapid traverse 10 rpm
B axis	Rotary degree 360°
	Min. index positioning 0.001°
	Rapid traverse 5 rpm
ATC	Tool capacity 60 tools (opt. 90/120 tools)

CONTENTS

- 03 Basic structure
- 07 Interference diagram and machine size
- 09 Standard / optional accessories
- 10 Specifications

Basic structure

High rigid box-way structure

Travel

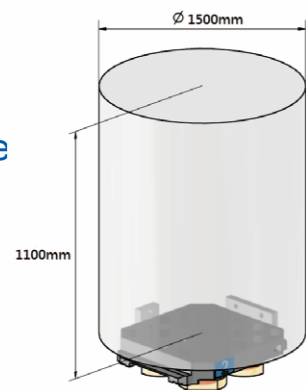
X/Y/Z axis 1,550/1,500/1,250(1,600) mm

Rapid traverse

X/Y/Z axis 10 m/min

Max. workpiece

Ø1,500 x H1,100



Tilting spindle(oil-air lubrication)

The maximum output torque of spindle is 1,084Nm. Furthermore, equipping with a gear transmission system to process precise machining in hard cutting materials and a spindle cooling system to avoid the thermal accumulation during machining.

Patent number: M520957

Roller gear cam type rotary table

B axis adopts roller gear cam and positioning pins to provide high precision and high rigidity clamping force.

Clamping torque : 16,500 Nm

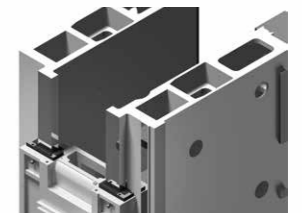
Driving torque : 8,550 Nm

Tool magazine and ATC system

Standard tool capacity is 60 tools. Capacity can be flexibly increased up to 120 tools as per the requirement.

Double-wall and symmetrical structure design

The column adopts double-wall structure design to increase the structure rigidity and to minimize possibilities of deformation caused by heat expansion.



Balancing system(General air)

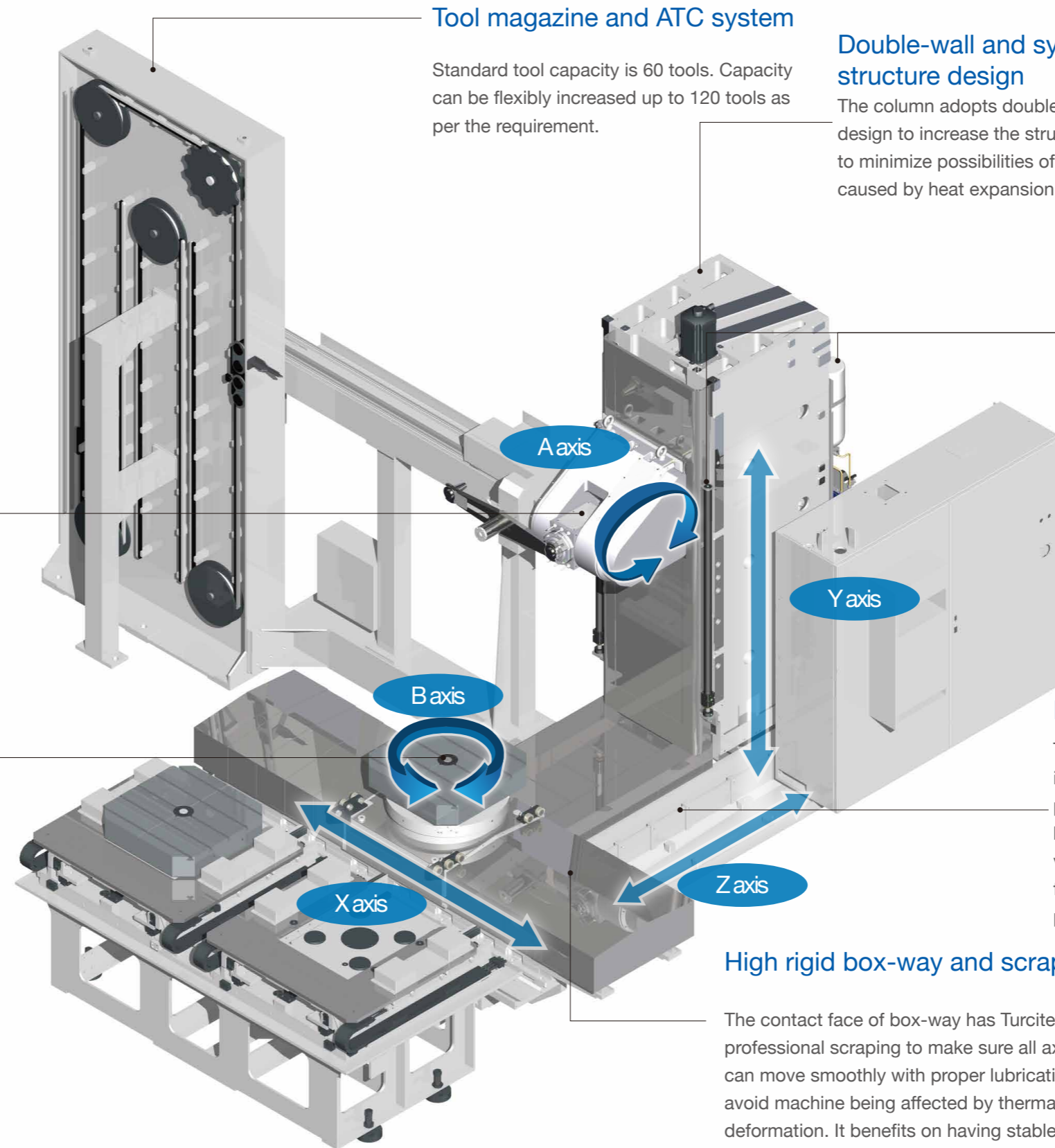
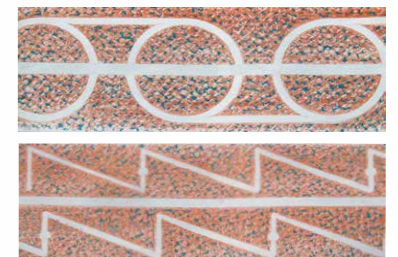
Due to the spindle motion will generate gravitation, acceleration, and inertia, all of these will influence the positioning and repetition accuracy. The spindle balancing system is able to eliminate these phenomenon and increase machining precision and speed.

Integrated machine bed design

The machine bed is designed with integrated high rigidity structure. By the processing of FEA (finite element analyze), it has the features of high rigidity, excellent vibration-absorbing, and hardly deformation for assuring high precision machining performances.

High rigid box-way and scraping

The contact face of box-way has Turcite-B with professional scraping to make sure all axes can move smoothly with proper lubrication and avoid machine being affected by thermal deformation. It benefits on having stable and excellent heavy duty machining performances.



Basic structure

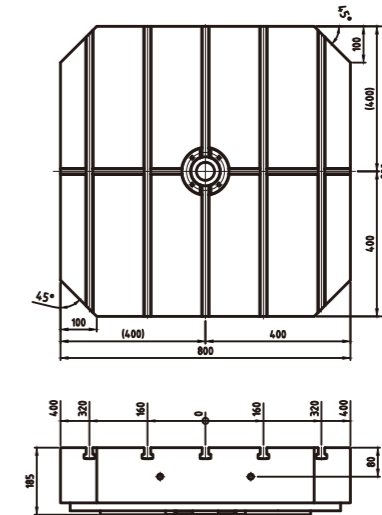
Tilting head and high torque spindle motor

Spindle taper	CAT-50 (Opt. HSK-A100、BBT50、DIN50)
Max. spindle speed	6,000 rpm (Opt. 8,000rpm)
Spindle output	30/36 kw
Spindle torque	774/1,084 Nm
Swivel speed	10 rpm
Swivel driving torque	3,200 Nm
Swivel degree	+60° ~ -105°



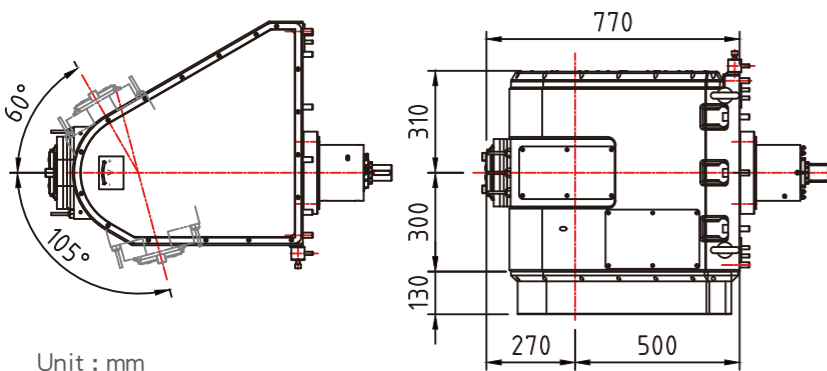
Table/ working area

Pallet size	800 x 800 mm
Max. workpiece height	1,100 mm
Max. pallet load	2,400 kg
Max. workpiece diameter	Ø1,500 mm



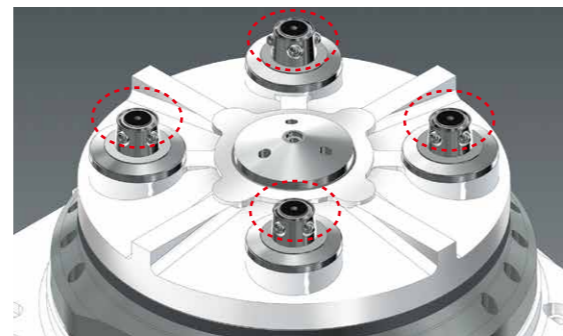
Tilting head size

Max width of head is 740mm and the tilting radius is 270mm, which is able to process inner holes machining.



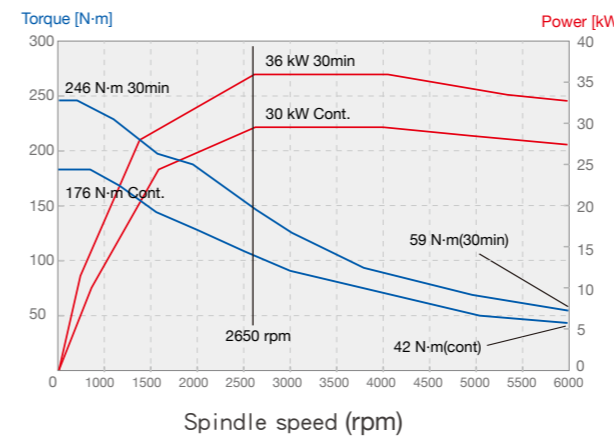
Taper positioning cylinder

Hydraulic pallet clamping provides excellent clamping force and positioning accuracy
Clamping force: 34,640 kg/four in a set

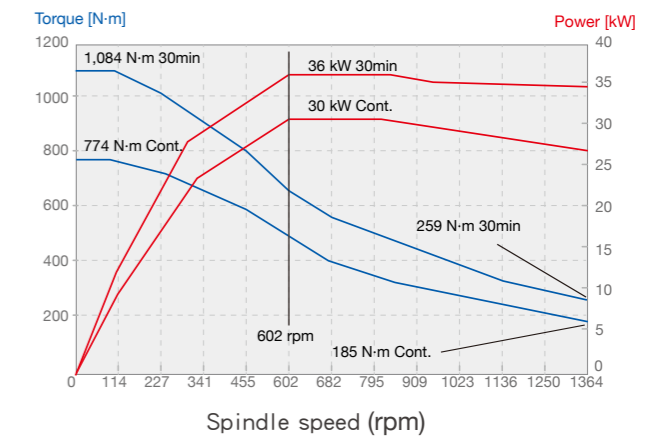


Spindle output and torque chart- 6,000 rpm

High winding (1:1)

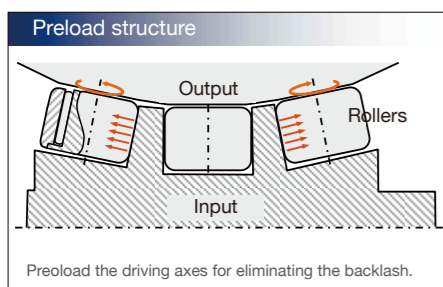


Low winding (4.4:1)



B-axis rotary pallet

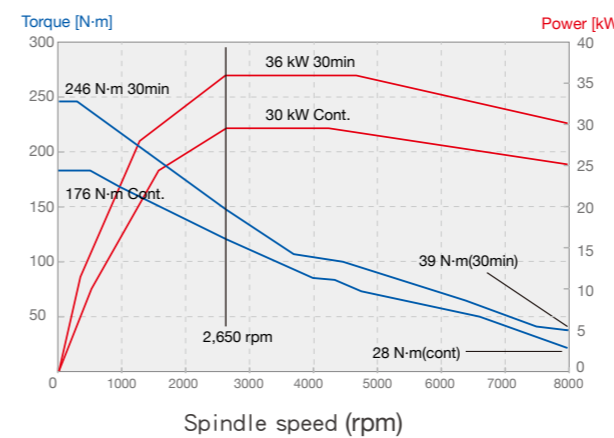
Because B-axis rotary pallet is driven by a roller gear cam with rolling contact between roller and cam, it can start at a lower torque. It is suitable for high speed rotation and high accuracy is guaranteed under long-term heavy duty cutting.



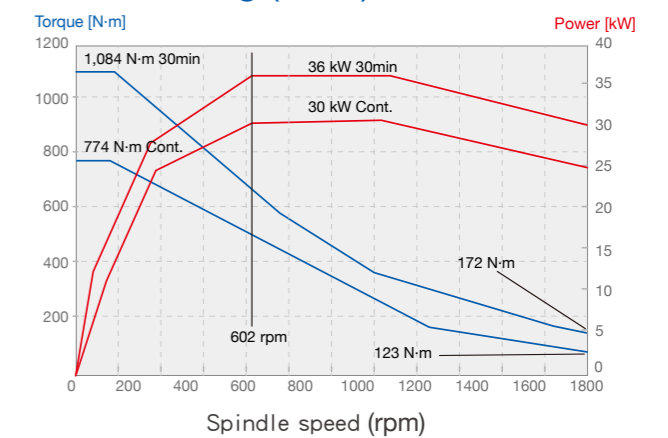
Preload the driving axes for eliminating the backlash.
Zero backlash | High positioning accuracy | Low wearing | High durability

Spindle output and torque chart- 8,000 rpm (Opt.)

High winding (1:1)

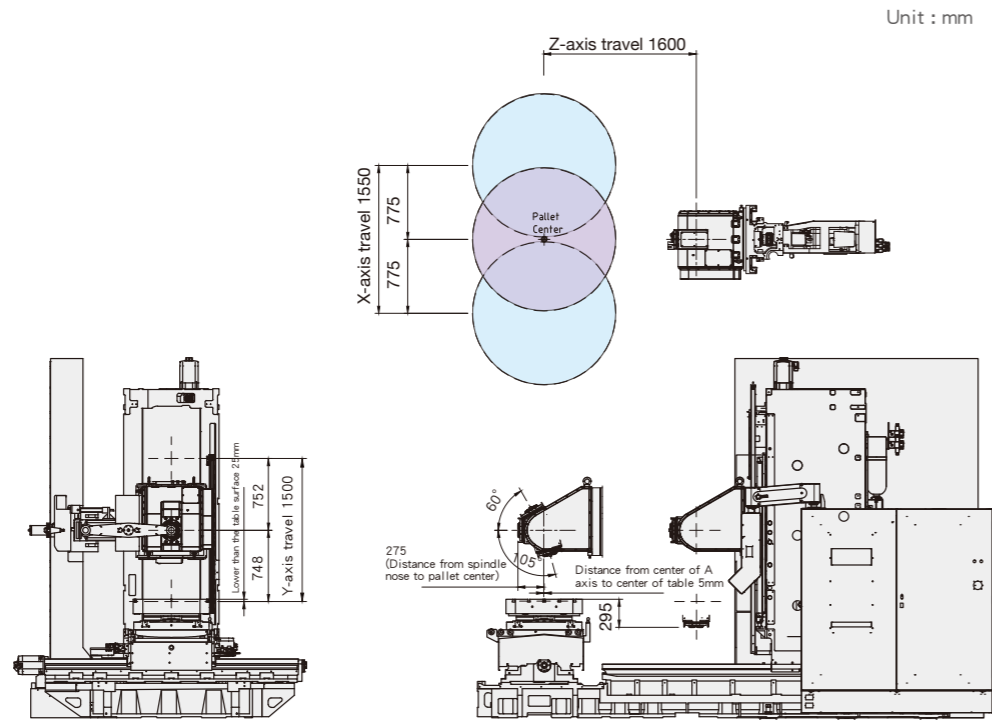


Low winding (4.4:1)

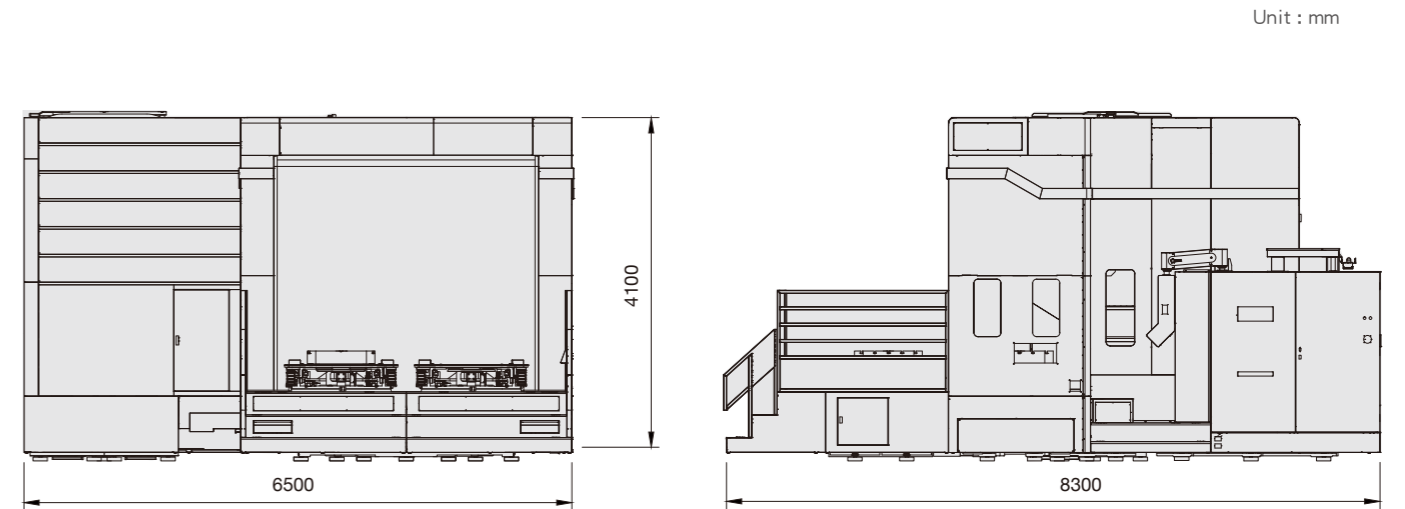


Interference diagram and machine size

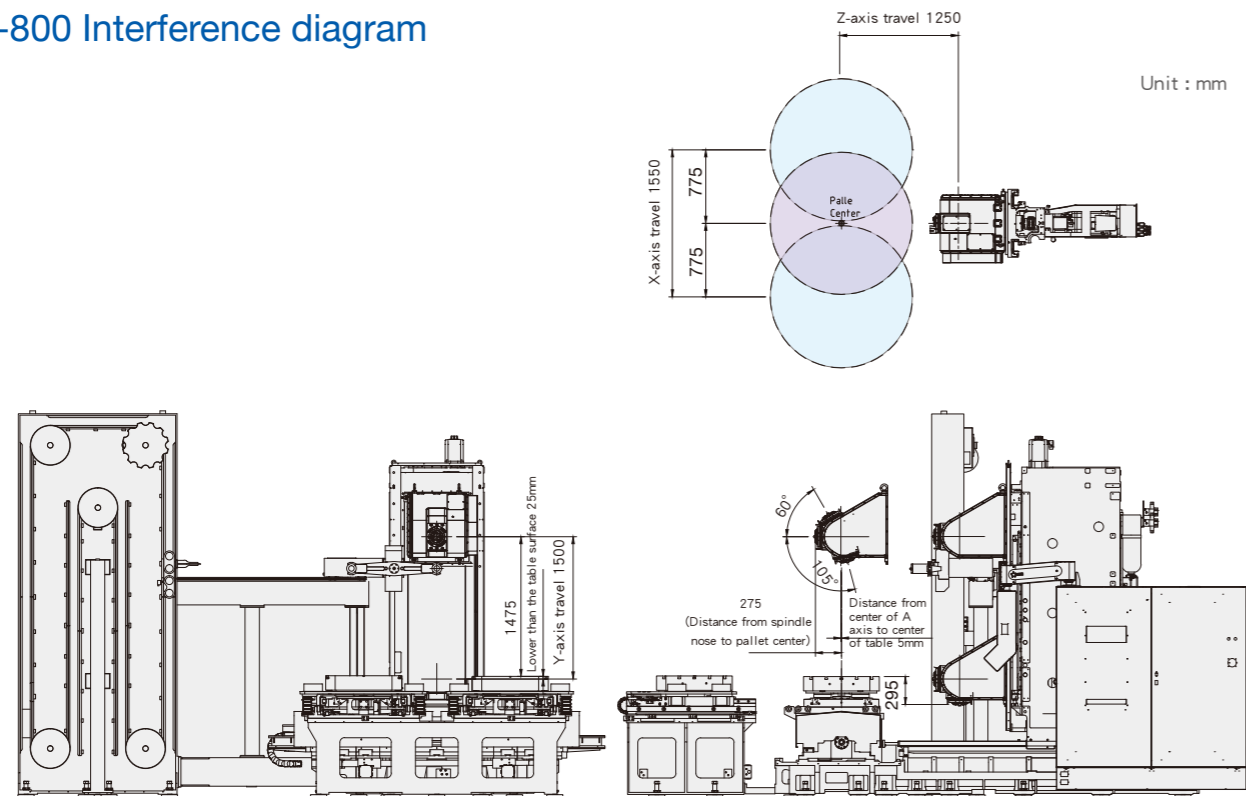
HTH-800S Interference diagram (Single pallet)



Machine size (HTH-800)



HTH-800 Interference diagram



Accessories

Tool measurement system (opt.)



Auto. 5-axis precision measurement (opt.)



Chip compactor (opt.)



Energy-saving oil-mist collector (opt.) Workpiece measurement system(opt.)



Standard / optional accessories

Standard/ optional accessories

Standard optional

		●	○
Spindle	6,000 rpm Tilting spindle	●	
	8,000 rpm Tilting spindle		○
A-axis	0.001° Indexing (with linear scale)	●	
B-axis	0.001° Indexing (with linear scale)	●	
Tool holder	CAT50	●	
	HSK-A100		○
	BBT50		○
	DIN50		○
C.T.S. pump	20bar	●	
	40bar		○
	70bar		○
Cooling system	Spindle cooling system	●	
	Oil temperature controlling system		○
	Coolant temperature controlling system		○
	Deceleration device cooling system	●	
Tool magazine	60T	●	
	90T		○
	120T		○
APC system	Single pallet (HTH-800S)	●	
	Two pallets (HTH-800)		○
Linear scale	Heidenhain level-5μ	●	
	Heidenhain level-3μ		○
Chip conveyor	Scarper type conveyor	●	
	magnetic scarper type conveyor		○
	Hinge type conveyor		○
	Integrated conveyor		○
Warming light	Tri-color light	●	
Others	Renishaw RMP60 workpiece measurement system		○
	BLUM tool detecting system		○
	Air-blow	●	
	Air gun	●	
	Coolant gun		○
	Auto. power-off system		○
	Oil-mist collector		○
	Oil skimmer		○
	Automatic 5 axes precision measurement & calibration		○
	Chip compactor		○

Specifications

Item	Specification	Unit	HTH-800 (Two pallets)	HTH-800S (single pallet)
Travel	X/Y/Z axis travel	mm	1,550 / 1,500 / 1,250	1,550 / 1,500 / 1,600
	Distance from spindle center to pallet surface	mm	-25~1,475	
	Distance from spindle nose to pallet surface(A=90°)	mm	-295~1,205	
	Distance from spindle center to pallet center(A=0°)	mm	-5~1,245	-5~1,595
	Distance from pallet to floor	mm	1,290	
Pallet	Pallet size (LxW)	mm	800 x 800	
	Max. size of jig & fixture (diameter X height)	mm	Ø1,500 x H1,100	
	Max. load of pallet	kg	2,400 x 2	2,400
	T-slot (size x amounts)	mm	18 x 5	
A-axis	Swivel degree	deg	+60° ~ -105°	
	Speed	rpm	10	
	Min. index degree	deg	0.001°	
B-axis	Spindle taper	deg	360	
	Speed	rpm	5	
	Min. index degree	deg	0.001	
Spindle	Spindle taper		7/24 Taper No.50	
	Spindle speed	rpm	6,000 (Opt. 8,000)	
	Bearing lubrication method		Oil-air lubrication	
	Motor power	kW	30/36	
Feeding	Rapid traverse	m/min	10	
	Cutting feedrate	mm/min	1~5,000	
ATC	Toolshank specifications		CAT-50	
	Amounts of tool magazine	pc	60 (Opt. 90/120)	
	Max tool diameter	mm	Ø120	
	Max. tool diameter (w/o adjacent tool)	mm	Ø250	
	Max. tool length	mm	610	
	Max. tool weight	kg	25	
	Tool selection method		fixed	
APC	APC method		motion type	
	Pallet amounts		2	
Machine size	Width x Depth x Height	mm	6,500 x 8,300 x 4,100	5,500x8,200x4,100
	Machine weight	kg	30,000	25,000
Controlling system	SIEMENS 840Dsl			

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