

HS SERIES

S-SERIES



# HS series

"Eco·eco<sup>®</sup>"  
Super Productive  
Horizontal Machining Center

HS500 · HS630



*High Level Advanced Machine  
Featuring High Productivity and*



# HS500

500mm  
(20")

(Photo includes optional equipment)

## High speed

- Spindle speed 12000min<sup>-1</sup>(rpm)
- Rapid traverse 45m/min.(1772ipm)
- Cutting feed rate 45m/min.(1772ipm)  
w/SHG-1

## Specifications

- X-axis travel 680mm(26.8")
- Y-axis travel 680mm(26.8")
- Z-axis travel 680mm(26.8")
- Spindle speed 35~12000min<sup>-1</sup>(rpm)
- Spindle taper 7/24 taper No.40
- Spindle motor 25/22kW(33/30HP)

## Accuracy

- Positioning accuracy ±0.002mm(0.00008")<sup>full stroke</sup>
- Repeatability ±0.001mm(0.00004")
- Table index accuracy ±1 sec.

# Performance

## Super Productive Horizontal Machining Center HS series

*Presenting total high efficiency machining by reducing the cutting time and reduction of non-cutting time. Productivity-oriented high level advanced machine.*



# HS630

□  
630mm  
(25")

(Photo includes optional equipment)

### High speed

- Spindle speed 10000min<sup>-1</sup>(rpm)
- Rapid traverse 45m/min.(1772ipm)
- Cutting feed rate 45m/min.(1772ipm)

w/SHG-1

### Specifications

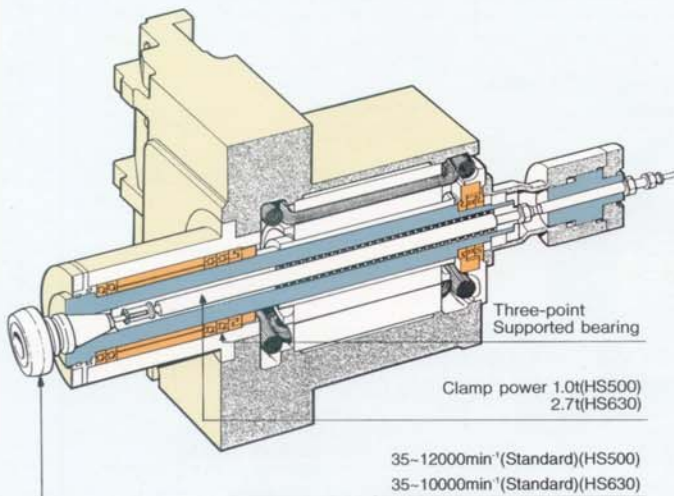
- X-axis travel 850mm(33.5")
- Y-axis travel 800mm(31.5")
- Z-axis travel 850mm(33.5")
- Spindle speed 35 ~ 10000min<sup>-1</sup>(rpm)
- Spindle taper 7/24 taper No.50
- Spindle motor 30/25kW(40/33HP)

### Accuracy

- Positioning accuracy ±0.003mm(0.00012")/full stroke
- Repeatability ±0.001mm(0.00004")
- Table index accuracy ±1 sec.

\*Accuracy data are the actual results obtained under static testing conditions in a temperature controlled environment per JIS-Standards.

# Hardware Features Supporting Powerful Cutting and High Reliability



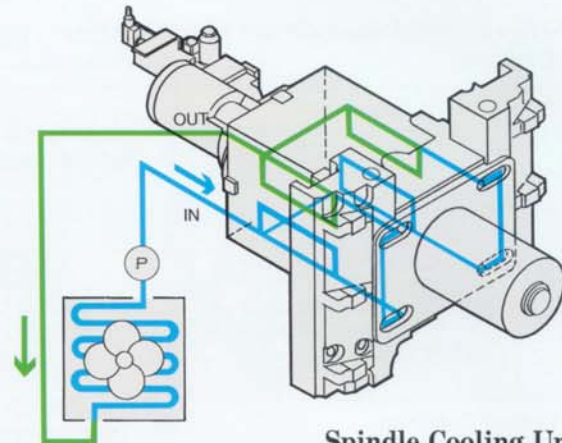
## Built-in motor provides high rigidity and high accuracy.

Use of a large diameter spindle and built-in motor provides high rigidity, free from vibration for high accuracy. (Ambient temperature tuning type spindle cooling unit is built in as standard equipment.)



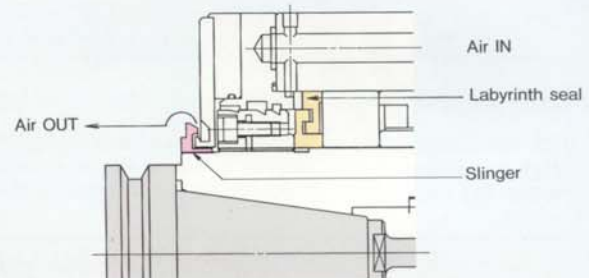
## Comfortable work environment and wide space

The top and front integrated door on the operator side prevents water drips from falling during a checking, and keeps the machining area light.



## Spindle Cooling Unit

The spindle head is lubricated by an oil-air lubrication system. A large capacity spindle lubricant cooling unit, helps to minimize thermal distortion in spite of a large diameter spindle.



## Spindle Bearing Protection

A slinger and a labyrinth seal are used to prevent fine chips and coolant from entering the spindle bearing. Further, a pneumatic dust preventive mechanism provides dual protection.



**Three-point supported bed to ensure heavy-duty cutting**  
T-shaped box structure bed provides high rigidity.

**SEIKI-ATAC10 \***  
**New Y, Z Axis Thermal Distortion Compensator**  
 <PAT P.>

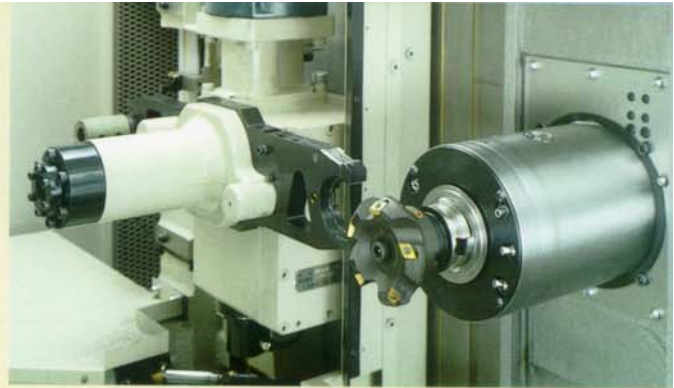
This AI (Artificial Intelligence) thermal distortion compensating function eliminates thermal influence caused during operation and maintains the machining conditions to high accuracy.

- It judges totally the thermal distortion of mechanical sections affected by a temperature change, and compensates the Y axis and Z axis respectively.
- In cooperation with the spindle cooling unit, it maintains high accuracy.
- The compensating function works immediately after power on, thus shortening warm up time substantially.
- Operates in Manual or Automatic, without operator intervention.
- The AI control with the know-how attained through conventional thermal distortion compensator further improves the reliability.

\* A : Artificial Intelligence  
 T : Thermal Distortion  
 A : Accuracy  
 C : Control  
 10 : within  $\pm 10\mu\text{m}(\pm 0.0004")$



**High Accuracy High Rigidity Double Anchor Support**  
 The use of large diameter pretensioned ball screw prevents thermal distortion. Furthermore, the double anchor support and direct coupled ball screw and servomotor ensure high rigidity.

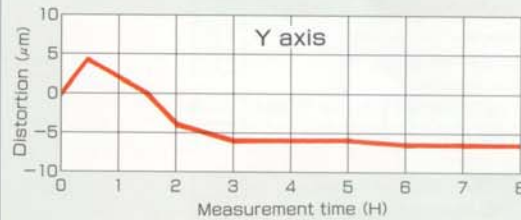


**Improved Reliability**  
 (Endurance test equivalent to over 10 years of operation)

- 1 million times ATC endurance test
- 1 million times tool lock endurance test
- 1 million times table indexing test
- 70 thousand times APC endurance test

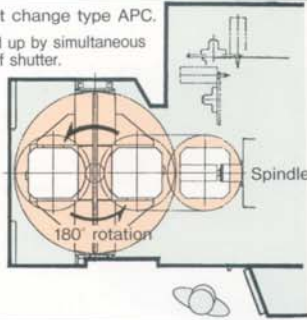
**HS500 Spindle Thermal Distortion**

**Test conditions** Test bar : 150mm(6") end  
 Coolant : None  
 Spindle speed : 12000min<sup>-1</sup>(rpm)  
 Spindle cooling unit: ON  
 Y, Z Thermal distortion compensator : ON



\* Accuracy data are the actual results obtained under static testing conditions in a temperature controlled environment per JIS-Standards.

Direct change type APC.  
 Speed up by simultaneous turn of shutter.



**Rotary type APC**

Floor space saving rotary type APC with smooth mechanical operation, allows pallet change in a moment.



**Manual pallet rotation**

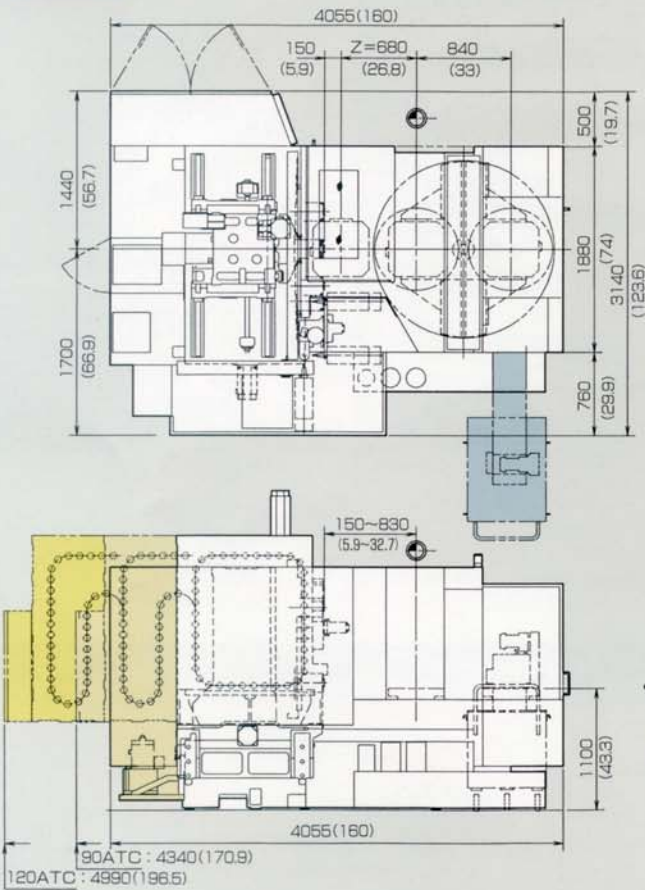
360° manual pallet rotation for easy set-up and access to all pallet faces.



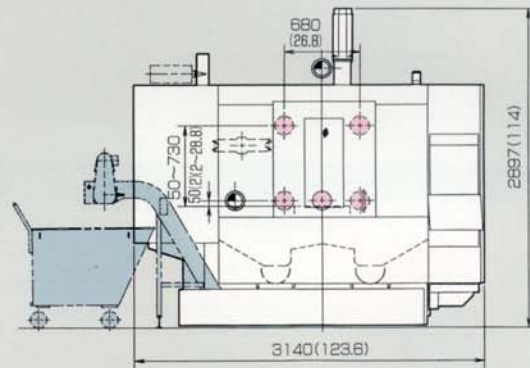
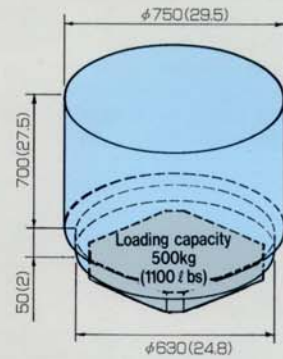
# External Dimensions, Floor Plan, and Table Dimensions

**HS500**

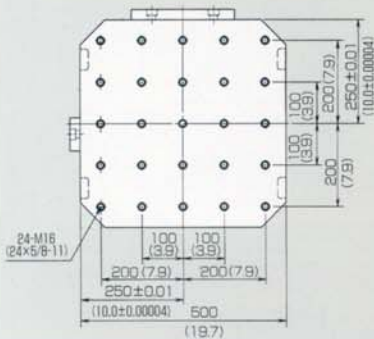
unit: mm(inch)



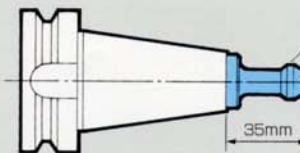
**Machining capacity**



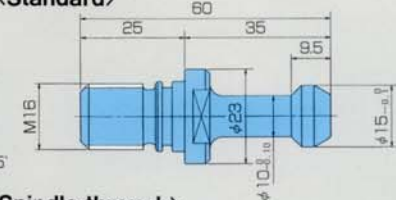
**Table dimensions**



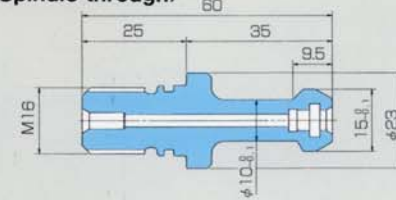
**Type of pull-stud  
MAS BT40 45°**



**<Standard>**

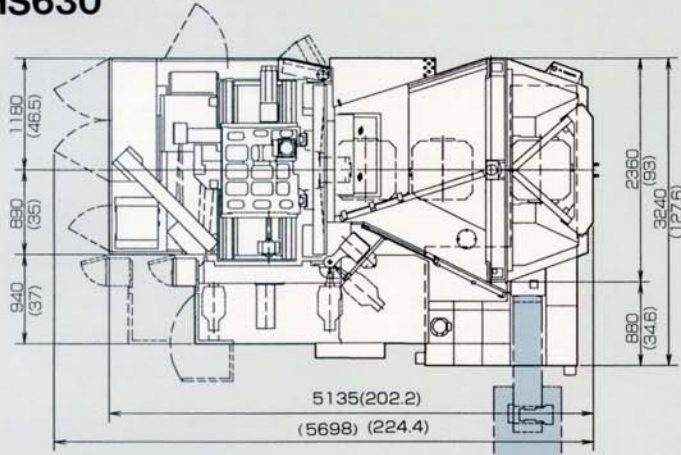


**<Spindle-through>**

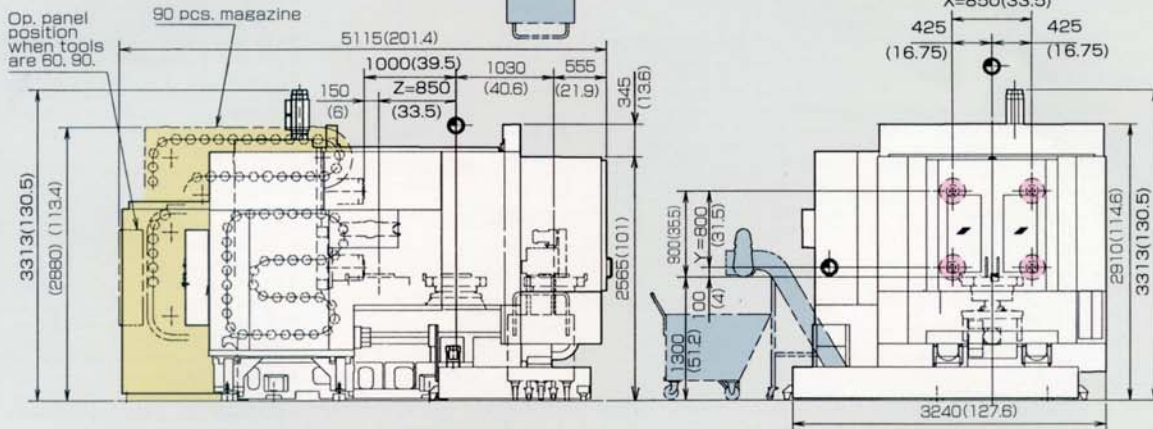
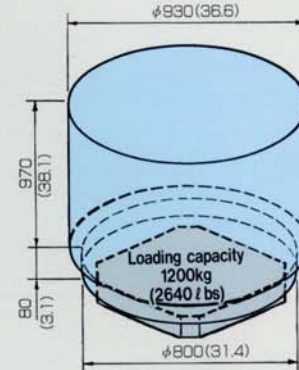


# HS630

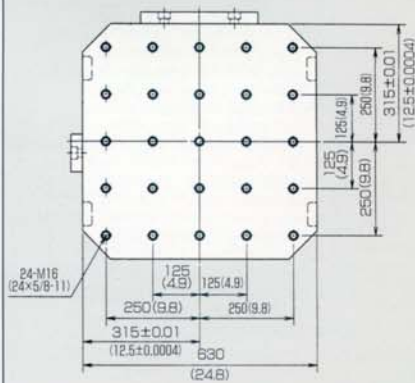
Unit : mm(inch)



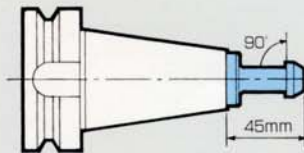
## Machining capacity



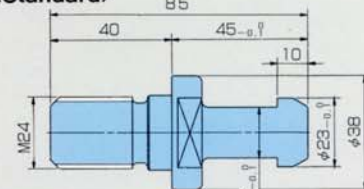
## Table dimensions



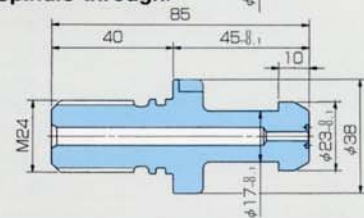
## Type of pull-stud No. 50 taper 90° (ISO 0°)



### <Standard>



### <Spindle-through>



# SPECIFICATIONS

Items	Unit	HS500		HS630	
		(# 40)		(# 50)	(# 40)
<b>Travel</b>					
Spindle head longitudinal (X-axis)	mm(inch)	680(26.8)		850(33.5)	
Spindle head vertical (Y-axis)	mm(inch)	680(26.8)		800(31.5)	
Table cross (Z-axis)	mm(inch)	680(26.8)		850(33.5)	
Table top to spindle center	mm(inch)	50~730(2~28.8)		100~900(4~35.5)	
Table center to spindle nose	mm(inch)	150~830(5.9~32.7)		150~1000(6~39.5)	
Floor level to table top	mm(inch)	1100(43.3)		1300(51.2)	
<b>Table</b>					
Size	mm(inch)	500×500(20×20)		630×630(25×25)	
Loading capacity	kg(ℓ bs)	500(1100)		1200(2640)	
Surface configuration	mm(inch)	M16(5/8)×25 places		M16(5/8)×25 places	
Minimum index angle	degree	1		1	
<b>Spindle</b>					
Spindle speed	min <sup>-1</sup> (rpm)	35~12000		35~10000	35~12000
Spindle speed ranges	step	2 (Electric)		2 (Electric)	2 (Electric)
Spindle nose	—	7/24 taper No.40		7/24 taper No.50	7/24 taper No.40
Bearing inside diameter	mm(inch)	75(3)		110(4.3)	75(3)
<b>Feedrate</b>					
Rapid traverse	m(inch)/min	45(1772)		45(1772)	
Cutting feedrate w/SHG-1	m(inch)/min	0.001~45(0.04~1772)		0.001~45(0.04~1772)	
Jog feedrate	mm(inch)/min	0~5000(0~200)		0~5000(0~200)	
<b>ATC</b>					
Tool shank	—	BT/CAT/DIN 40	BT/CAT/DIN 50	BT/CAT/DIN 40	
Pull-stud	degree	45	90	45	
Tool storage capacity	pcs	40	40	40	
Max. tool diameter (with adjacent tools)	mm(inch)	95(3.7)	125(4.9)	95(3.7)	
Max. tool diameter (without adjacent tools)	mm(inch)	160(6.3)	245(9.6)	160(6.3)	
Max. tool length	mm(inch)	400(15.7)	500(19.7)	400(15.7)	
Max. tool weight	kg(ℓ bs)	10(22)	25/15(55/33)*1	10(22)	
Tool selection system		Fixed address random access	Fixed address random access		
<b>APC</b>					
Number of pallets		2		2	
Pallet change system		Rotary type		Rotary type	
<b>Motors</b>					
For spindle drive (50%ED/cont.)	kW(HP)	25/22(33/30)	30/25(40/33)	25/22(33/30)	
For servo	kW(HP)	XZ = 4.4(6) Y = 5.3(7)	XZ = 5.3(7) Y = 7.3(10)		
For hydraulic pump	kW(HP)	2.2(3)	2.2(3)		
For lubrication pump	W(HP)	17(1/50)	17(1/50)×2		
For coolant pump	W(HP)	400(1/2)	400(1/2)		
For spindle cooler	W(HP)	400(1/2)	400(1/2)		
For table indexing	kW(HP)	0.9(1.2)	1.0(1.3)		
<b>Power sources required</b>					
Electric power	kVA	45		45	
Power supply voltage	V	200/220±10%		200/220±10%	
Power supply frequency	Hz	50/60±2%		50/60±2%	
Air pressure	MPa(kgf/cm <sup>2</sup> )	0.5(70psi)		0.5(70psi)	
Air flow rate	ℓ (gal)/min(ANR)	500(132gal)		500(132gal)	
<b>Tank capacity</b>					
Hydraulic unit tank	ℓ (gal)	10(2.6)		10(2.6)	
Lubrication oil tank	ℓ (gal)	2(1/2)		4.2(1.1)+2(1/2)	
Coolant tank	ℓ (gal)	500(132)		850(224)	
Weight	kg(ℓ bs)	10500(23100)		15000(33000)	

\*1 Normally use 15kg(33ℓ bs), When registered to NC unit, possible to use 25kg(55ℓ bs).

\* Accuracy and cutting data may vary depending on machining condition, tools, material, and room temperature. These are not guaranteed numbers.

※ Specifications are subject to change for improvement without notice.

## Standard Accessories

- ATC, 40 tools
- APC, pallet 2 pcs.
- Chip flow jet coolant
- Flood coolant device
- Jet coolant device
- Totally enclosed splash cover
- Totally enclosed APC guard
- Operator side door interlock
- Totally enclosed ATC guard
- ATC door interlock
- APC door interlock with limit switch
- Pallet fit confirmation (HS500 Only)
- Portable manual pulse generator
- Spindle load meter on screen
- Spindle/feedrate override
- Call light
- Electric leakage detection breaker
- Spindle cooling unit device
- Y-Z-axis thermal displacement offset (ATAC 10)
- Machining completion pre-call/  
Work counter/Run hour display on screen
- Work light
- Leveling block
- Spanners and wrenches

## Optional Accessories

- Scale feedback
- High speed spindle
- ATC expansion with totally enclosed guard
- Different type pull stud
- NC table
- Chip conveyor left type
- Magnet roller conveyor
- Spiral chip conveyor, 2 pcs.
- Oil skimmer
- Chip wagon w/rollers
- Air blow for cutting point
- Spindle through air blow
- Flood coolant (Mid. high pressure type)
- Gun coolant
- Oil hole coolant
- Sp. through coolant
- Coolant filtration device
- Oil mist
- Mist collector
- Key-switch for door interlock effect/not effect
- Additional pallet
- Additional pull stud
- Separate type spindle speed meter
- Separate type spindle load meter
- Work counter 6 digit (Separate type)
- Run hour meter (Separate type)
- Weekly timer
- Additional call light
- Call buzzer
- Melody horn
- Automatic power cut-off device
- Portable type tape reader
- SEIKI DON FD type (Handy type)
- W-setter
- UTS basic function
- Tool breakage detection
- Automatic tool length & tool breakage detection
- UTS Auto. centering
- Renishaw auto. centering
- Renishaw auto. measuring
- Renishaw on the machine measuring
- Measuring master gauge
- Cleaning tool for measuring
- Coolant fluid temperature control device
- Hyd. oil temperature control device
- Safety regulations
- Transformer