

HS400

S-series

Horizontal Machining Center



New

HS400

“Eco·eco[®]”

Super Productive Horizontal Machining Center

**Improved High Speed Function
Machining Center Pursuing High Productivity**



"Eco·eco[®]" Super productive
Horizontal Machining Center

New **HS400**

Speeded-up functions reduce both cutting time and non-cutting time, thus realizing a short cycle time machining and a high speed machining.



Specifications

- | | |
|----------------------------|---------------------------------|
| • X/Y/Z-axis travel | 600/580/580mm(24/23/23") |
| • Rapid traverse | 50m/min(1970ipm) |
| • Cutting feedrate w/SHG-1 | 1~50000mm/min(0.04~1970ipm) |
| • Spindle speed | 35~12000min ⁻¹ (rpm) |
| • Spindle taper | 7/24 taper No.40 |
| • Spindle motor | 22/18.5kW(30/25HP) |

Accuracy

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

Hardware Features Supporting Powerful Cutting & High Reliability

High Speed

● Rapid traverse(X·Y·Z) 50m/min. (1968ipm)	
● Cutting feedrate(Max.) 50m/min.*1 (1968ipm)	
● ATC (C-C*2)	3.2sec.
● Sp. start-up (0→max.)	1.7sec.
● Sp.orientation (1000min ⁻¹ →0)	0.4sec.
● Table index 90° (Max.Loaded)	1.9sec.
● APC	5.9sec.


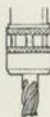



*1 w/SHG-1

*2 Conformed to MAS Standard.

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

Cutting capabilities

Unit:mm(inch), cc(ci)/min

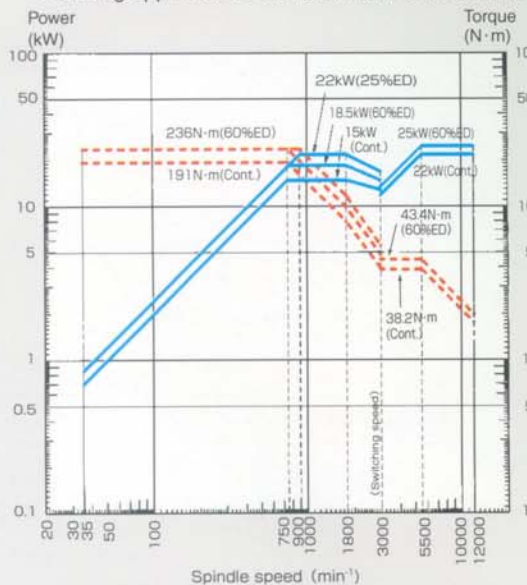
Cutter	Face Milling	End Milling	Drilling (Dia x Feed)	Tapping	
				Large(Steel)	Small(Alm.)
					
Material					
Steel (S50C)	702 cc (43)	555 cc (34)	φ40x0.3 (1-1/2x0.012)	M42x P4.5	—
Aluminum (A 5052)	3900 cc (238)	2700 cc (165)	—	—	M1.4x P0.3

Spindle power and speed diagram

12000min⁻¹(rpm) <Standard>

Spindle power and speed diagram

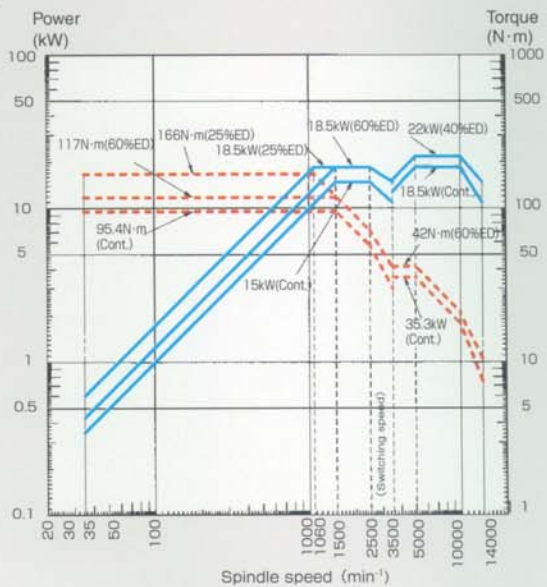
High torque (236N·m) provides a heavy-duty cutting even in a low speed range, thus covering a wide range of cutting applications from aluminum to steel materials.



14000min⁻¹(rpm) <Option>

Quick start-up spindle 1.7 sec.

Immediate start-up time up to 14000min⁻¹(rpm), 1.7sec, suitable for high speed machining.

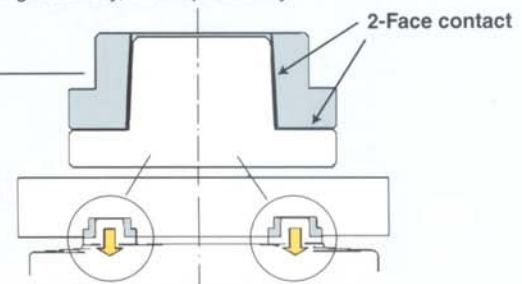


2-face Contact Pallet Solid Clamper < PAT.pending >

<Clamp force:17000kgf> A solid lock mechanism generates a strong clamping force durable to a large thrust load even in the machining with the Y axis in maximum stroke position.



Taper cone clampers are arranged at four places under the pallet, and the pallet is clamped with two faces of a 1/10 taper and a plain. The 1/10 taper face provides a solidlocking and retains a strong clamping state. It ensures cutting rigidity, positioning accuracy, and repeatability.



2-face contact taper cone pallet clammer

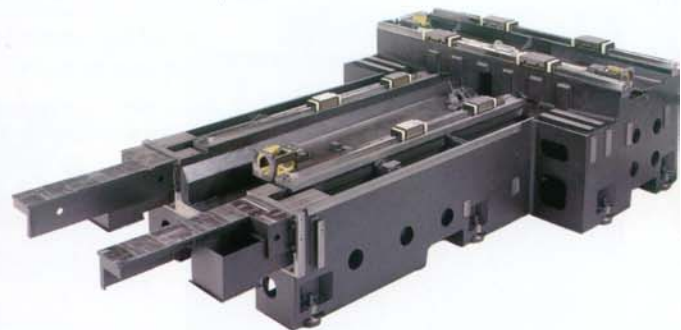
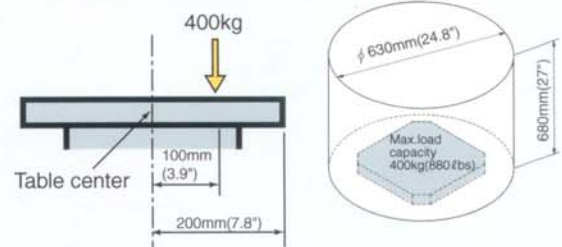
Table Load Capacity 400kg(880 l bs)

The table is supported by large diameter roller bearings. These support the moment-force due to a shift in center of gravity of the workpiece during table indexing. The table can support a moment-force in the order of 40 kgf·m.



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.

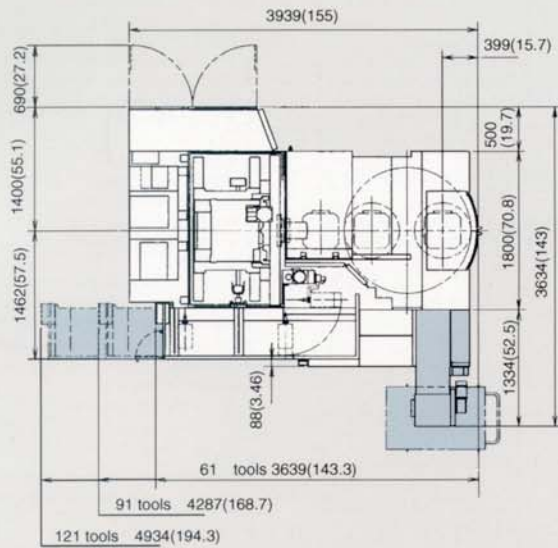
Work size : ϕ 630mm(24.8")x680mm(27")



Solid one piece bed to ensure heavy-duty cutting
T-shaped box structure bed provides high rigidity.

External Dimensions · Floor Plan and Table Dimensions

Unit:mm(inch)



Machining capacity

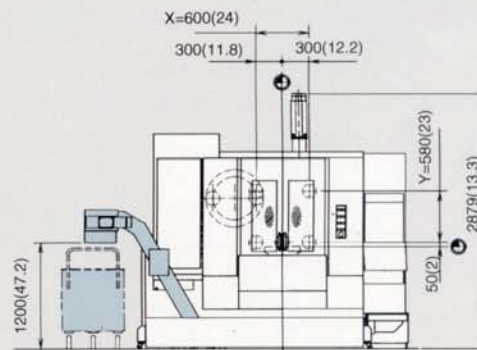
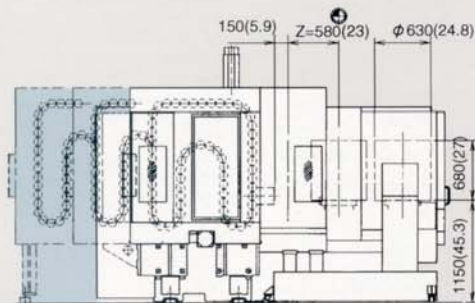
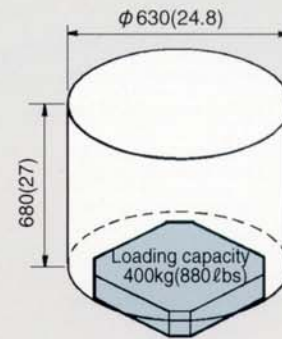
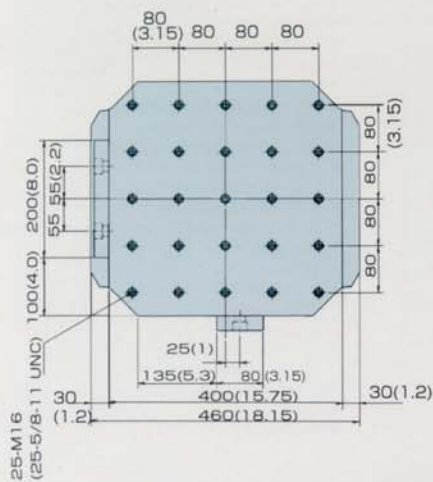
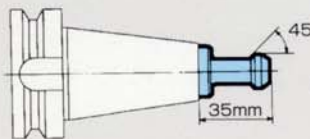


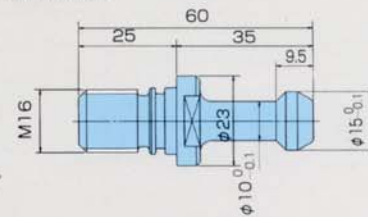
Table dimensions



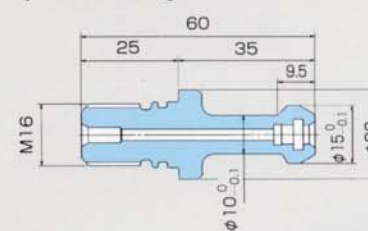
Type of pull-stud MAS BT 40 45°



< Standard >



< Spindle-through >



HS400 Specifications

Item	Unit	HS400	
		(#40)	
Travel	Spindle head longitudinal X axis	mm(inch)	600(24)
	Spindle head vertical Y axis	mm(inch)	580(23)
	Table cross Z axis	mm(inch)	580(23)
	Table top to spindle center	mm(inch)	50-630(2-25)
	Table center to spindle nose	mm(inch)	150-730(6-29)
	Floor level to table top	mm(inch)	1150
Table	Size		400x400(15.75x15.75)
	Max. loading capacity	kg(ℓ bs)	400(880)
	Surface configuration		M16(5/8)x25Places
	Min.index angle	degree	1
Spindle	Spindle speed	min ⁻¹ (rpm)	35-12000
	Spindle change ranges	step	Stepless
	Spindle nose		7/24 taper No.40
	Bearing inside diameter	mm(inch)	75(3)
Feedrate	Rapid traverse	m/min(ipm)	50(1970)
	Cutting feedrate w/SHG-1	mm/min(ipm)	1-50000(0.04-1970)
	Jog feedrate	mm/min(ipm)	0-5000(0-200)
ATC	Tool shank		BT/CAT/DIN 40
	Pull-stud	degrees	45
	Tool strage capacity	pcs	61
	Max.tool diameter(w /adjacent tools)	mm(inch)	95(3.7)
	Max.tool diameter(without adjacent tools)	mm(inch)	160(6.3)
	Max. tool lenth	mm(inch)	300(11.8)
	Max.tool weight	kg(ℓ bs)	12(26.4)
	Tool selection system		Fixed address random access (Address change available)
APC	Number of pallets		2
	Pallet change system		Rotary type
Motors	For spindle drive	kW(HP)	22/18.5(30/25)
	For servo (X/Y/Z)	kW(HP)	4.6(6)/4.8(6.4)/4.4(6)
	For hydraulic pump	kW(HP)	2.2(3)
	For lubrication pump	kW(HP)	0.017(1/50)
	For coolant pump	kW(HP)	0.4(1/2)
	For spindle cooler	kW(HP)	0.6(3/4)
	For table indexing	kW(HP)	0.4(1/2)
Power sources required	Electric power	kVA	57
	Power supply voltage	V	200 ~ 220 ± 10%
	Power supply frequency	Hz	50 or 60 ± 1
	Air pressure	MPa(kg/cm ²)	0.5(70psi)
	Air flow rate	N ℓ (gal)/min	500(132)
Tank capacity	Hydraulic unit tank	ℓ (gal)	20(5.2)
	Lubrication oil tank	ℓ (gal)	2(1/2)
	Coolant tank	ℓ (gal)	500(132)
Weight		kg(ℓbs)	11800(26000)

*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 61 tools
- APC pallet 2pcs.
- Chip flow jet coolant
- Flood coolant device
- Jet coolant device
- Totally enclosed splash cover
- Operator side door interlock
- Totally enclosed ATC guard
- ATC door interlock
- Totally enclosed APC guard
- APC door interlock
- Pallet fit confirmation
- Portable manual pulse generator
- Spindle load meter on screen
- Spindle/feedrate override
- Call light
- Electric leakage detection breaker
- Spindle cooling unit device
- Y-Z axes thermal displacement offset(ATAC10)
- Machining completion pre-call/Work counter/Run hoursdisplay on screen
- Work light
- Leveling block
- Spanners and wrenches

Optional Accessories

- Scale feedback system
- ATC 91/121 tools
120/180/240/360 tools(Matrix)
- Different type pull stud
- NC table
- Chip conveyor
- Magnet rooler conveyor
- Spiral chip conveyor 2pcs.
- Oil skimmer
- Chip wagon w/rollers
- Air blow for cutting point
- Sp. 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 sp. speed meter
- Separate type sp. load meter
- Work counter 6 digit(Separete type)
- Run hour meter(Separete type)
- Weekly timer
- Additional call light
- Call buzzer
- Melody horn
- Automatic power cut-off device
- Portable type tape reader
- SEIKI DON FD(Handy type)
- W-setter
- UTS basic function
- Tool breakage detection
- Automatic tool length & tool breakage detection
- Auto centering
- Auto measuring
- On the machine measuring
- Measuring master gauge
- Cleaning tool for measuring
- Coolant fluid temperature control device
(Room temperature following type)
- Hyd.oil temperature control device
- Safety regulations
- Transforme