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- Product specifications and dimensions are subject to change without prior notice.
- The photos may show optional accessories.

This product is subject to all applicable export control laws and regulations

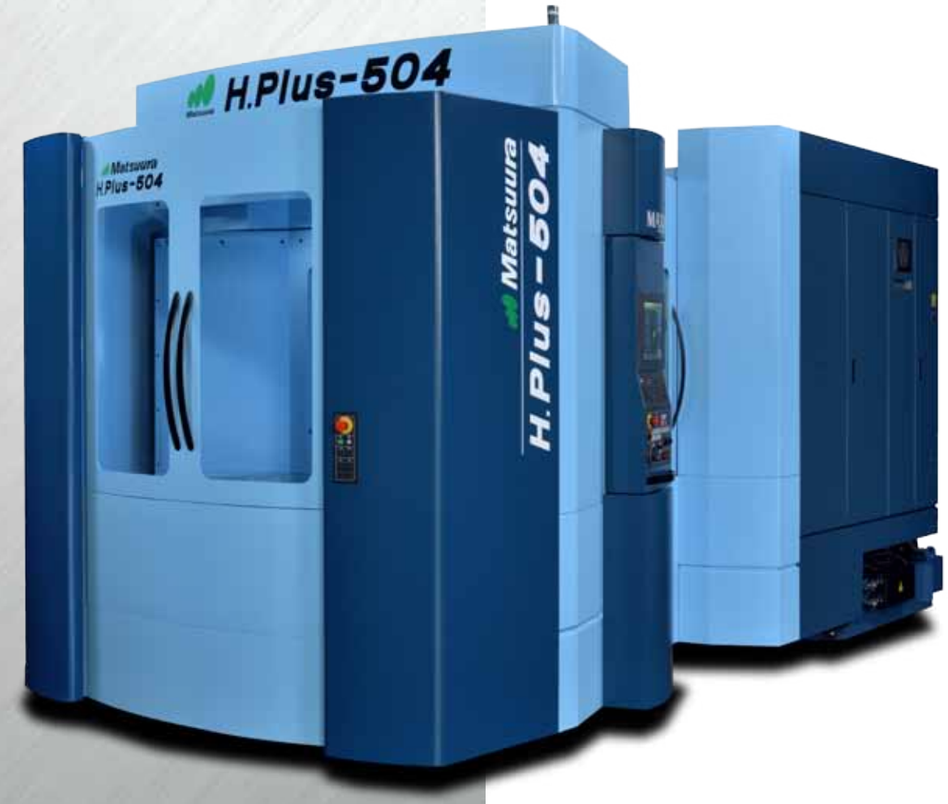
VEGETABLE OIL INK

FT-E1.0 201611 2000 BS

Matsuura

Horizontal Machining Center

H.Plus-504



MAXIA
Innovation by Matsuura

Matsuura H.Plus-504

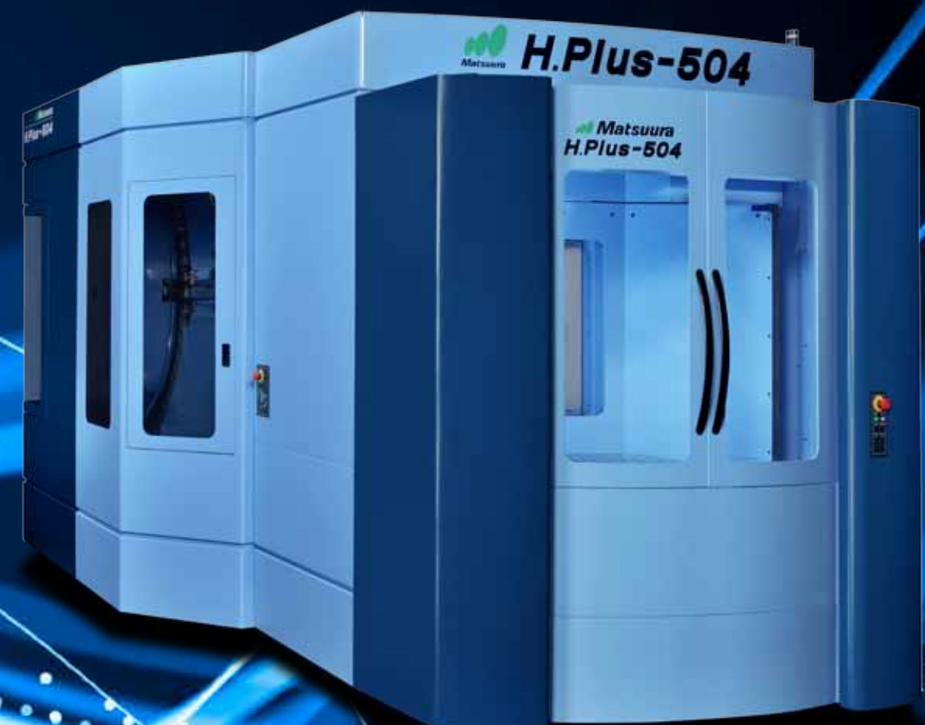
Twin 500mm pallets and the largest working envelope in its class

Versatile by design; a machine for all duties-from one off prototypes to fully automated production

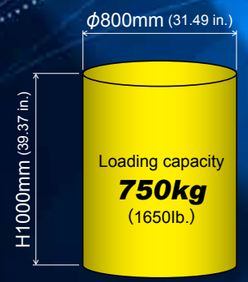
The "***H.Plus series***" has been reputed to be a highly productive horizontal machining center with high speed, high rigidity and high precision.
Inheriting these fundamental capabilities, this new model featuring upgraded specifications has joined the lineup.

Features

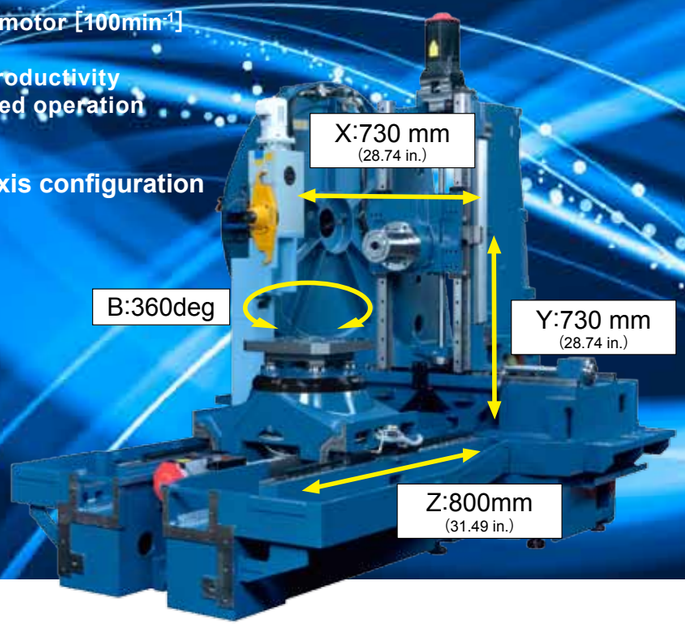
- Maximum workpiece size; ϕ800mm x H1000mm and 750kg per pallet
- Renowned MAXIA BT40 Spindle Line up
- Rotary indexing table with a Direct-Drive motor [100min^{-1}]
- ADC (Automatic Acc. & Dec. control) and DCS (Dynamic Clamp System) increase productivity
- Expandable to handle prolonged unmanned operation



Maximum workpiece size



Axis configuration

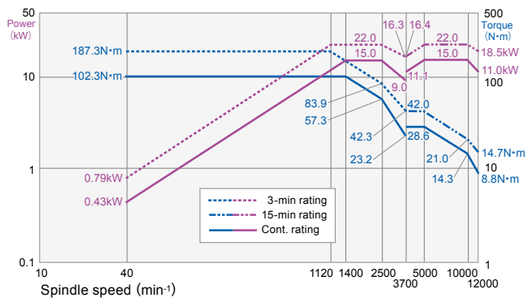


MAXIA
Innovation by Matsuura

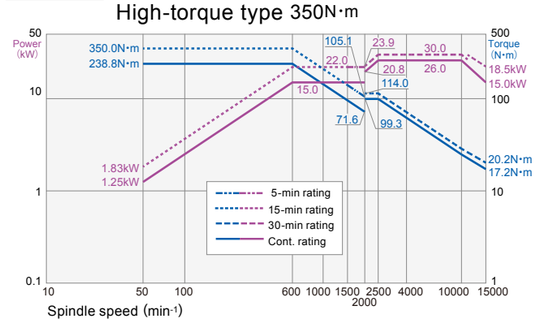
MAXIA Spindle ; Renowned for High Rigidity, High Torque and High Speed Delivering All-Round Performance, from Aluminium to Difficult-to-Cut Materials".

MAXIA BT40 Spindle – Select from Three Types

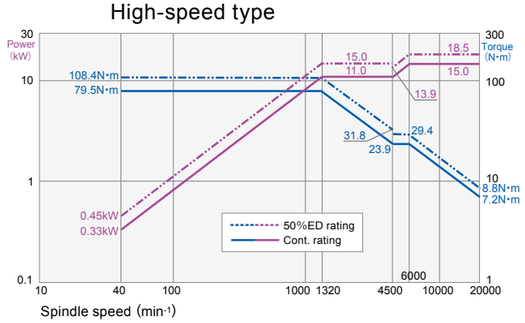
Standard BT40 12000min^{-1}



Option BT40 15000min^{-1}
High-torque type 350N·m



Option BT40 20000min^{-1}
High-speed type





Every aspect of the spindles design, manufacture & testing are carried out in house at ***Matsuura***.

■Cutting test results 〈BT40 15000min^{-1} (High-torque type 350N·m)〉 Option

(in.)

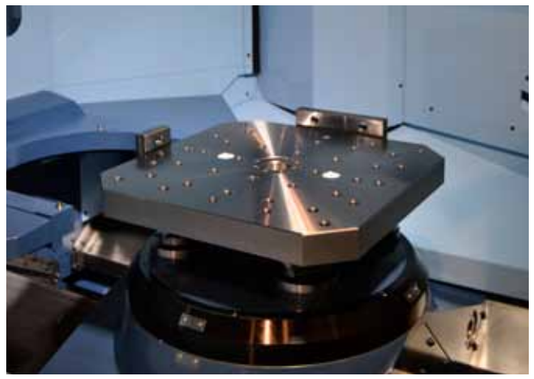
	Workpiece material	Tool details	Cutting width / Cutting depth	Spindle speed	Cutting feed rate	Cutting capacity		Workpiece material	Tool details	Spindle speed	Cutting feed rate	Cutting capacity
Face mill	Aluminum	Ø80mm (Ø3.14) 3-flute	W=70mm (2.75) D=5mm (0.19)	5500 min^{-1}	11000 mm/min (433.07)	3850 cc/min	Drill	Aluminum	Ø35mm (Ø1.37)	1500 min^{-1}	800 mm/min (31.49)	769 cc/min
	Steel	Ø80mm (Ø3.14) 5-flute	W=70mm (2.75) D=3mm (0.11)	1120 min^{-1}	3000 mm/min (118.11)	630 cc/min		Steel	Ø35mm (Ø1.37)	1300 min^{-1}	330 mm/min (12.99)	317 cc/min
End mill	Aluminum	Ø25mm (Ø0.98) 2-flute	W=22mm (0.86) D=10mm (0.39)	10000 min^{-1}	10000 mm/min (393.70)	2200 cc/min	Tap	Aluminum	M42 × P4.5	100 min^{-1}	450 mm/min (17.71)	
	Steel	Ø20mm (Ø0.78) 4-flute	W=3mm (0.11) D=35mm (1.37)	5500 min^{-1}	6500 mm/min (255.90)	683 cc/min		Steel	M42 × P4.5	100 min^{-1}	450 mm/min (17.71)	

* The data above are examples of actual results. Under different conditions, it may not be possible to achieve the data stated in this catalog.

Standard Feature ; Direct Drive Rotary Indexing Table.

Rotary Table Indexing Utilizing a DD Motor

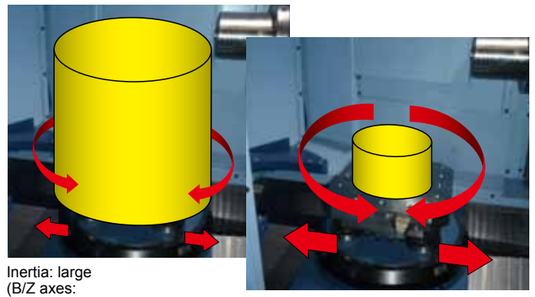
The Direct Drive motor **(100 min^{-1})** delivers high speed operation with unerring acceleration and precision. The non-contact design is low noise and maintenance free.



ADC (Automatic Acc. & Dec. Control)

Automatic Acceleration & Deceleration Control Function

A function that automatically tunes the B-/Z-axis acceleration and deceleration according to the workpiece inertia is adopted (implemented during ATC operation). **It reduces indexing time by up to 35%.**



Inertia: large
(B/Z axes:
normal acceleration/deceleration)

Inertia: small
(B/Z axes:
optimal acceleration/deceleration)

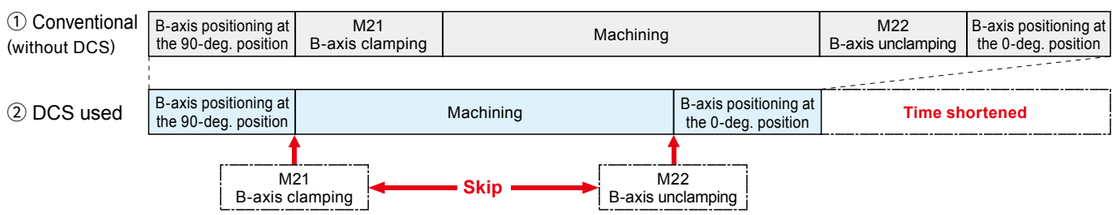
DCS (Dynamic Clamp System)

The key to shorter indexing times is the table clamping/unclamping time.
Matsuura's DCS function is the world's first revolutionary clamping system. The load level applied to the DD motor is monitored, and the table is clamped only when the load level has exceeded the setting value. The table remains unclamped even during machining as long as the load level is within the preset load range.

■ Within the preset load range ⇒ Machining with the table unclamped
(M21 and M22 skipped for light machining)

■ Load range exceeding the setting value ⇒ Machining with the table clamped
(M21 and M22 not skipped for heavy machining)

■ Light machining



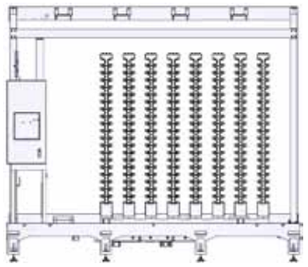
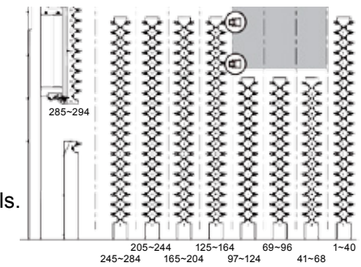
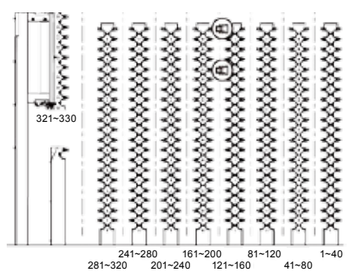
ATC & APC; Flexible and Expandable Tool & Pallet Storage Solutions for Maximum Performance and Unmanned Operation.

Matrix Magazines — Option

Tooling options; Matrix tool-changers with 240, 294 or 330 tool storage places are available – supporting multi-product variable quantity production, prolonged unmanned operation, high speed machining and relentless metal removal rates.



Matrix Magazine

Basic type	Capacity up to 240 tools (120 / 150 / 180 / 210 / 240)	
High-speed type (Servo driven)	Capacity up to 294 tools (164 / 204 / 244 / 294) ・By optimizing the tool rack arrangement, the next tool waiting time can be shortened by up to 34%, compared with existing models.	
Large-capacity type (Servo driven)	Capacity up to 330 tools (120 / 160 / 200 / 240 / 280 / 330) ・The servo drive system achieves increased speed compared to the basic type. Even larger capacity of tools can be stored.	

60-tool Drum Magazine — Standard

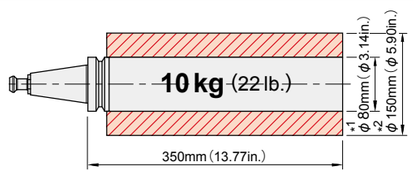
A proven & reliable 60 tool station ATC magazine (drum type) is the standard for the new ***H.Plus-504***.
MIMS functionality assures rapid & smooth tool set-up.



The ATC front door provides easy access for maintenance.



Max. tool size



*1 with adjacent tools
*2 without adjacent tools

PC6 Floor Pallet System — Option



Pressure Supply for Fixtures – Feature* — Option

A through pallet pressure supply feature as an option is available on the ***H.Plus-504***.

*Please note; if the through pallet pressure supply feature is selected as an option the supply source, solenoid valves, pressure switches, gap sensors, joints and hoses are not supplied as standard.

	Number of ports	Pressure(MPa)
Work station side	8 ports	Max.19.6
Machine side	4 ports	Max.19.6

Work Station Automatic Indexing Function — Option

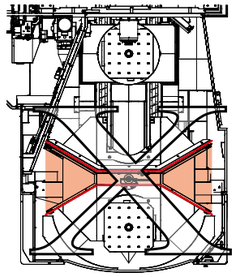
Indexing time	5.5 sec./ 180deg.
Least programmable increments	0.001 deg.
Drive system	Servomotor & reduction gear

* A robot interface is required for control from an external transfer system.

Better by Design ; Unique X and W Machine Structure.

X-type APC Door

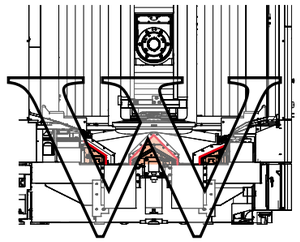
The APC door that partitions the work station and machining area has been upgraded from the conventional I type to an X type. This prevents chips that are generated in large quantities from accumulating inside the machining area.

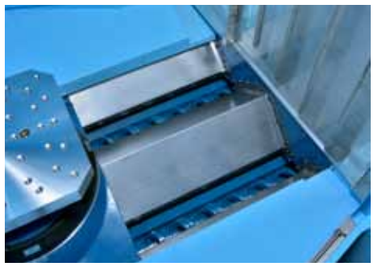




W-type Slide Cover

The steep incline of the machines internal structure matching the slide covers delivers swift and efficient removal of swarf and chips from the machining enclosure.

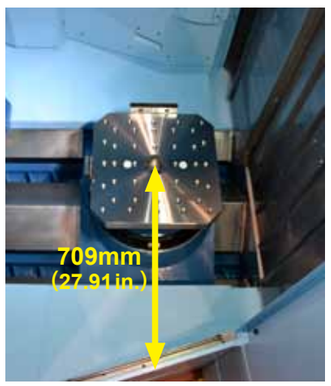


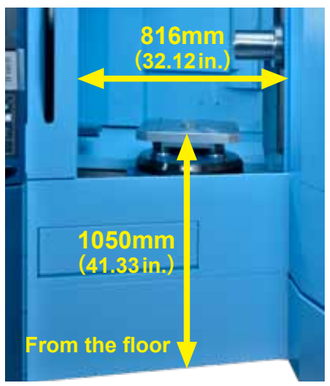


Designed for Optimized Performance

Operator door opens to 816mm (32.12in). The distance from the door to the pallet centre is 709mm (27.91in). Operator comfort and production efficiency of man & machine are optimized.

From the operator door to the pallet center	709mm (27.91in.)
Operator door opening width	816mm (32.12in.)
From the floor to the pallet top surface	1050mm (41.33in.)





MIMS with New Features for Safety and Security of Machining

MIMS Matsuura Intelligent Meister System

Digitized Meister knowledge, skills and ingenuity
Matsuura's unique interface to maximize rapid operation and usability

Environment

Eco Meister
Power saving
- Power cut-off function
- Energy-saving devices installed

Accuracy

Thermal Meister
Stable accuracy
- Spindle thermal displacement compensation
- X/Y/Z thermal displacement compensation
- Environmental thermal displacement compensation

Simple

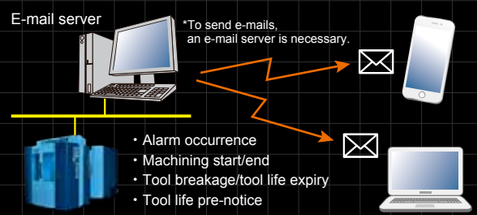
Operability Meister
Fuss-free simple operation
- Tool setup support
- Workpiece setup support

Secure

Reliability Meister
Machine downtime reduction
- Preventive maintenance support
- Failure cause analysis
- Electronic manuals
- E-mail function

E-mail function

At the occurrence of an alarm during operation, an e-mail message to notify the alarm can automatically be sent to the registered e-mail addresses. The operating status or machining progress status notification is also possible.



A maximum of 10 e-mail addresses can be set for each notification item.

Electronic manuals

Electronic manuals can be viewed on the main operation panel. Search features and bookmarks ensure quick access to the information you are looking for.



15-inch touch panel screen adopted

The machine is equipped with a new operating system that features a 15-inch touch panel. Icons required for operation, setup and maintenance are displayed on the screen. Screen display can be switched by single-tapping, and can be customized as needed.



Standard Machine Specifcations

■ Movement and Ranges		
X-axis stroke	mm (in.)	730 (28.74)
Y-axis stroke	mm (in.)	730 (28.74)
Z-axis stroke	mm (in.)	800 (31.49)
B-axis rotation angle	deg	360
■ Pallet		
Working surface	mm (in.)	500×500 (19.68 x 19.68)
Loading capacity	kg (lb.)	750 (1650)
Max. workpiece size	mm (in.)	ø800×H1000 (ø31.49 x H39.37)
■ Spindle		
Spindle speed	min^{-1}	12000
Spindle speed change command	–	S5 digits direct command
Type of spindle taper hole	–	7 / 24 taper #40 (BT double contact type)
Spindle bearing inner diameter	mm (in.)	80 (3.14)
Spindle motor output	kW	AC 15 / 22 (low-speed coil: cont. / 3 min) AC 15 / 22 (high-speed coil: cont. / 15 min)
Max. spindle torque	N·m	187.3 / 1120min^{-1}
■ Feed Rate		
Rapid traverse rate X / Y / Z	mm/min (ipm)	60000 / 60000 / 60000 (2362.20 / 2362.20 / 2362.20)
B	min^{-1}	100
■ Automatic Tool Changer		
Type of tool shank	–	JIS B 6339 tool shank 40T
Pull stud	–	JIS B 6339 pull stud 40P
Tool storage capacity	tools	60 (Drum magazine)
Max. tool diameter	mm (in.)	80 (3.14) (with adjacent tools) 150 (5.90) (without adjacent tools)
Max. tool length	mm (in.)	350 (13.77)
Max. tool mass	kg (lb.)	10 (22) (Total tool weight: 300 kg or less, max. eccentric load: 50 kg or less)
Method of tool selection	–	Fixed address system
Tool change arm	–	W-grip type

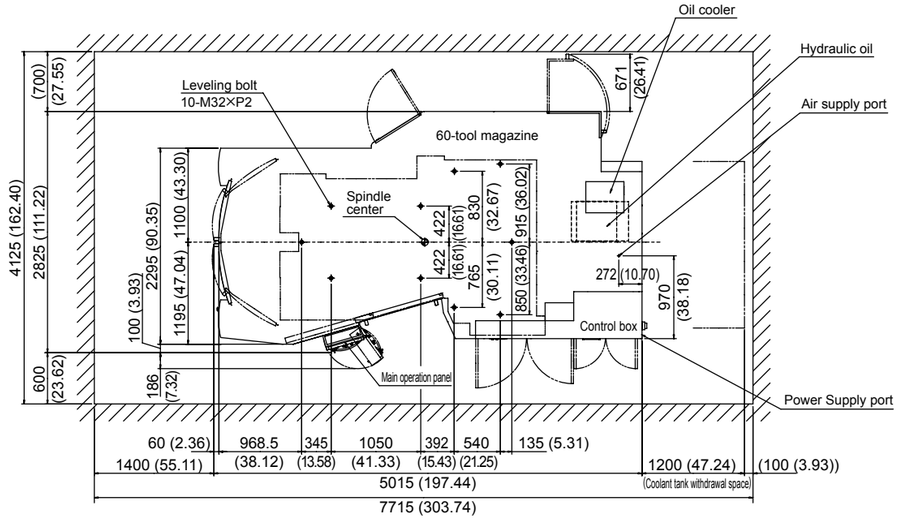
■ Automatic Pallet Changer		
Number of pallets	pallets	2
■ Power Sources		
Electrical power supply	kVA	67
Power supply voltage	V	AC 200 / 220±10%
Power supply frequency	Hz	50 / 60±1
Compressed air supply	MPa	0.54-0.93
■ Tank Capacity		
Hydraulic oil tank	L	40
■ NC System		
Control system	–	***Matsuura G-Tech 31i***

■ Standard Accessories

01. Total splash guard	02. ATC magazine guard
03. ATC auto door	04. Pallet magazine safety guard
05. Pallet loading station	06. Safety guard for loading station (with interlock)
07. Spindle oil cooler	08. Auto grease supply unit for feed axes
09. Coolant unit	10. Chip flush
11. Swarf back disposal	12. Work light
13. Synchronized tapping function	14. ***AD-TAP*** function
15. ***IPC*** function	16. Feed axis collision prevention (software OT)
17. Spindle overload protection function	18. M-code counter (9 kinds)
19. Software tool for memory card program operation & editing	
20. ***MIMS*** (Matsuura Intelligent Meister System)	21. Integrating spindle run hour meter
22. Integrating auto run hour meter	23. Service tools and tool box
24. Machine color paint	25. Leveling bolts, leveling plates

* 2 years spindle warranty

Floor Plan Unit : mm (in.)



List of Fittings

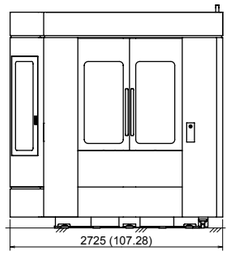
○: Standard ▲: Option

■ Spindle			
12000min^{-1} (BT40 grease lubrication)			○
15000min^{-1} (BT40 auto grease lubrication)			
Spindle motor output	kW	Low: 15/22、High: 26/30	▲
Max. spindle torque	N·m	350	
20000min^{-1} (BT40 auto grease lubrication)			
Spindle motor output	kW	Low: 11/15、High: 15/18.5	▲
Max. spindle torque	N·m	108.4	
■ ATC			
60 tools (Drum magazine)			○
120 / 150 / 180 / 210 / 240 tools (Matrix magazine, 240-tool base)			▲
164 / 204 / 244 / 294 tools (Matrix magazine, 294-tool base)			▲
120 / 160 / 200 / 240 / 280 / 330 tools (Matrix magazine, 330-tool base)			▲
■ APC			
PC2			○
PC6 (Floor pallet system)			▲
■ High Accuracy Control			
Scale feedback X-/Y-/Z-axis			▲
■ Coolant			
Vacuum type coolant through A 7MPa			▲
Vacuum type coolant through B 7MPa			▲
Vacuum type coolant through C 2MPa			▲
Vacuum type coolant through C 7MPa			▲
Coolant flow checker			▲
Ceiling shower coolant			▲
Ceiling shower coolant retrofiting			▲
Mist separator (without fire damper)			▲
Mist separator (with fire damper)			▲
Mist separator retrofitting			▲
Coolant temperature controller with tank 100L			▲
Coolant temperature controller with tank 200L			▲

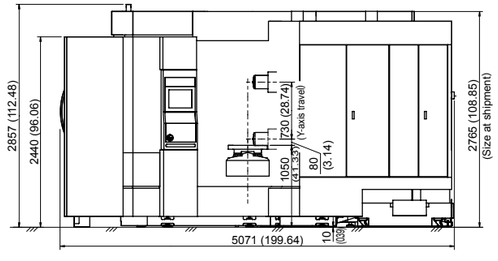
■ Automatic Measurement, Tool Breakage Detection	
Automatic measurement / automatic alignment (optical)	▲
Tool breakage / full automatic tool length measurement (contact)	▲
Tool breakage / full automatic tool length measurement (laser)	▲
External tool breakage (60tools , contact)	▲
External tool breakage (Matrix magazine, contact)	▲
■ Chip Removal	
Chip bucket	▲
Spiral chip conveyor	▲
2 MPa external nozzle (with through-spindle coolant)	▲
7 Mpa external nozzle (with through-spindle coolant)	▲
Lift-up chip conveyor (scraper, drum, spiral, water-based)	▲
Air blow for chip removal	▲
Workpiece cleaning gun(machine side)	▲
Workpiece cleaning gun(APC side)	▲
■ Operation/Maintenance Support	
Reliability Meister Plus Type A (with PC)	▲
Reliability Meister Plus Type B (without PC)	▲
Additional eight M functions	▲
Spindle load monitoring function	▲
Weekly timer	▲
3-color signal light (red, yellow, green from top)	▲
Optional block skip addition 2 to 9	▲
External manual pulse generator	▲
Pressure supply system for fixtures	▲
Rotary wiper (Air)	▲
Rotary wiper (Electric)	▲
Robot interface	▲
FASTEMS interface	▲
■ Optional Package	
High-speed, high-precision package	▲
Value package	▲

External View Unit : mm (in.)

Front View



Right side view



Pallet Top View Unit : mm (in.)

