Matsuura

5-Axis Vertical Machining Center

MX-330

MAXIA
Innovation by Matsuura

Matsuura MX-330

Introducing the *MX-330* the latest addition to our market leading entry level 5 axis machine series

Features

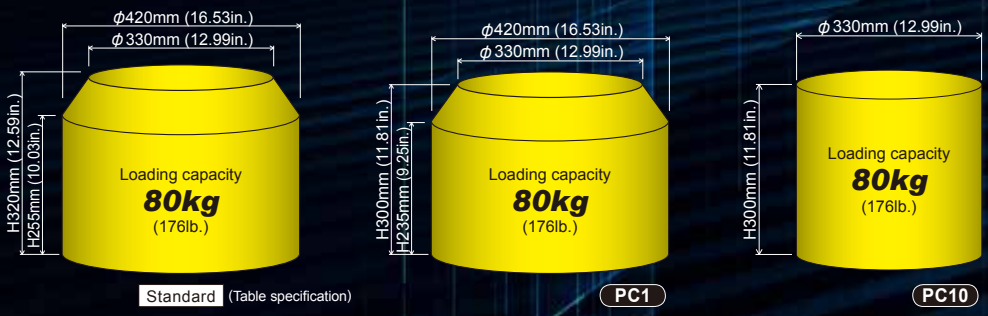
- ***Matsuura*** hand-built 5 axis quality; exceptional performance, low cost of ownership & assured residual value.
- Manned or Unmanned; ergonomic & dynamic design performance assures productivity.
- Equipped with the ***Matsuura G-Tech 31i***; touch screen with large display for operator comfort & precise control.

MAXIA BT40 Spindle Lineup

From high speed aluminum machining to pre-hardened steels; the MAXIA spindle options offered with the ***MX-330*** are the pinnacle of 70 years of prestigious ***Matsuura*** spindle technology. A 15000min^{-1} with 65.1N·m of torque is installed as standard. A high-power 15000min^{-1} with 119.3N·m and a high-speed 20000 min^{-1} with 108.4N·m are available as options.

Automation & Unmanned Package Option

Matsuura's legendary unmanned running technology with the ***MX-330*** comes in the form of a 10 pallet (CAPTO C6 compatible) & 90 tool option; offering superb profit enhancing lights out production utilizing minimal floorspace.



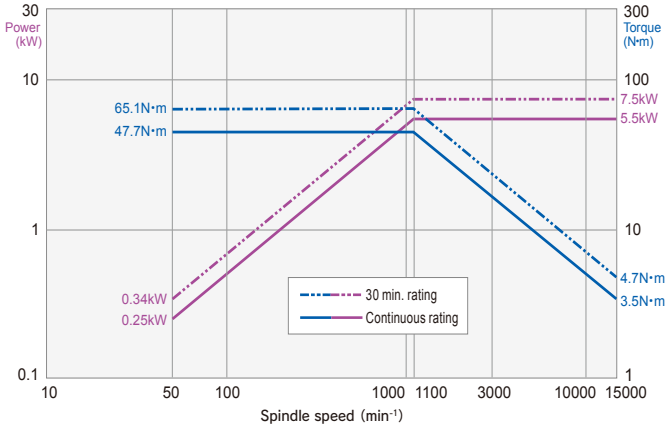
MAXIA
Innovation by Matsuura

MAXIA BT40 Spindles; The Industry Standard, Designed and Developed by *Matsuura* – the pioneers of highly rigid CNC Spindle Technology

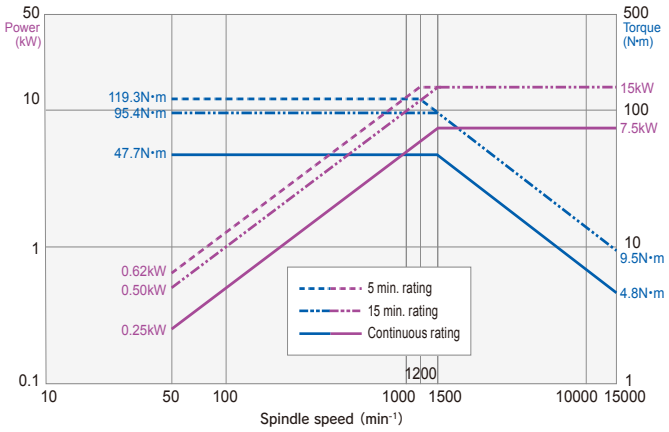
Three State of the Art MAXIA Spindle Lineup; Built upon 70 years of *Matsuura* excellence

- In built reliability by superior design and sustained spindle performance from ***Matsuura***'s engineering heritage.
- From high speed aluminum machining to pre-hardened steels; the exceptional performance in all machining environments is assured. A 15000min^{-1} with 65.1N·m of torque is installed as standard. A high-power 15000min^{-1} with 119.3N·m and a high-speed 20000 min^{-1} & 108.4N·m are available as options.
- ***Matsuura*** control every aspect of our MAXIA Spindles creation; from design concept, to precision in-house component manufacture, to clean room assembly, to rigorous testing, to final installation & commission. Quality assurance & sustained Spindle performance – every time.
- Maintenance free Spindle technology; grease lubricated, low noise, environmentally friendly.

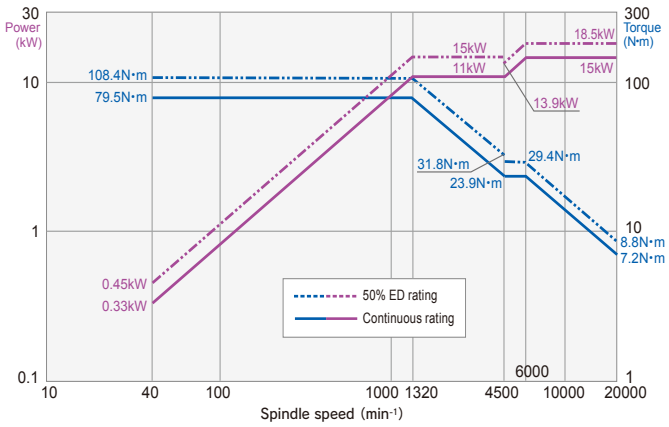
Standard 15000min^{-1} (5.5 / 7.5kW, 65.1N·m)



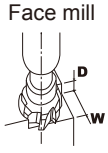
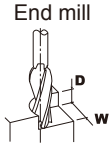
Option High-power type spindle
15000min^{-1} (7.5 / 15kW, 119.3N·m)



Option High-speed type spindle
20000min^{-1} (11 / 15, 15 / 18.5kW, 108.4N·m)



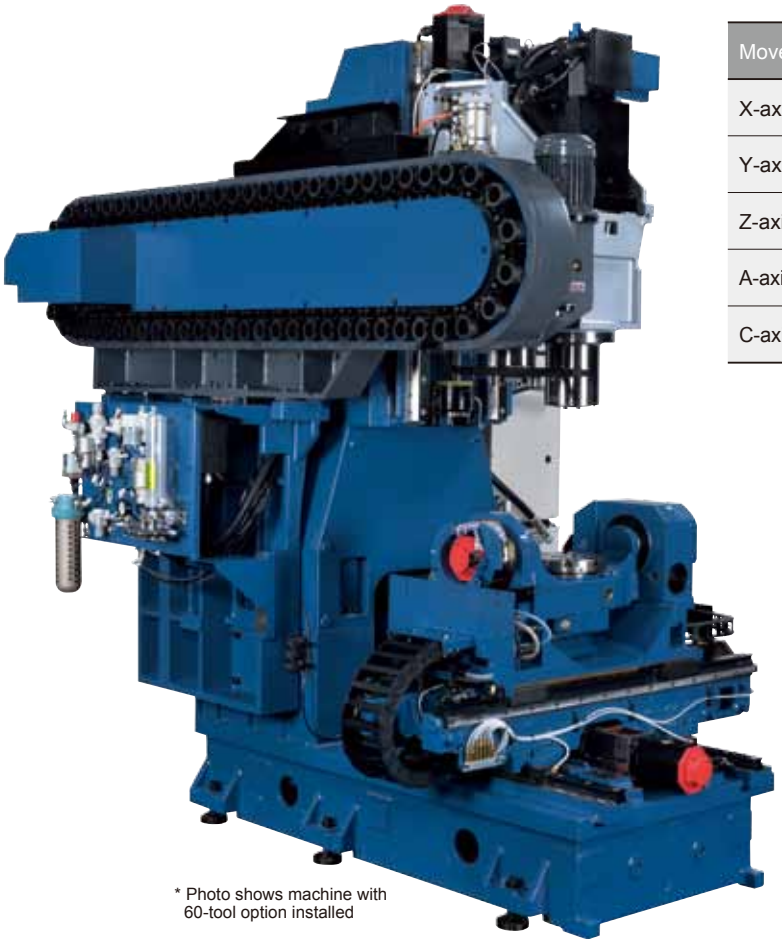
■ Cutting test results

		STD		OP			
		#40 15,000min^{-1} (5.5/7.5kW,65.1Nm) Auto grease lubrication		#40 15,000min^{-1} (5.5/7.5kW,119.3Nm) Auto grease lubrication		#40 20,000min^{-1} (15/18.5kW,108.5Nm) Auto grease lubrication	
Part material		Aluminum	Steel	Aluminum	Steel	Aluminum	Steel
Face mill 	Cutting width Cutting depth	W=70mm(2.75) D=3mm(0.11)	W=70mm(2.75) D=2mm(0.07)	W=70mm(2.75) D=4mm(0.15)	W=70mm(2.75) D=2.5mm(0.09)	W=70mm(2.75) D=4mm(0.15)	W=70mm(2.75) D=2mm(0.07)
	Spindle speed	5,500min^{-1}	1,100min^{-1}	5,500min^{-1}	1,400min^{-1}	5,500min^{-1}	1,320min^{-1}
	Cutting feed rate	3,500mm/min (137.79)	1,400mm/min (55.11)	5,500mm/min (216.53)	2,000mm/min (78.74)	8,000mm/min (314.96)	2,600mm/min (102.36)
	Cutting capacity	735cc/min	196cc/min	1,540cc/min	350cc/min	2,240cc/min	364cc/min
End mill 	Cutting width Cutting depth	W=22mm(0.86) D=6mm(0.23)	W=2mm(0.07) D=30mm(1.18)	W=22mm(0.86) D=6mm(0.23)	W=3mm(0.11) D=30mm(1.18)	W=22mm(0.86) D=6mm(0.23)	W=3mm(0.11) D=30mm(1.18)
	Spindle speed	15,000min^{-1}	5,000min^{-1}	15,000min^{-1}	5,000min^{-1}	20,000min^{-1}	5,000min^{-1}
	Cutting feed rate	4,500mm/min (177.16)	3,200mm/min (125.98)	8,500mm/min (334.64)	4,200mm/min (165.35)	11,000mm/min (433.07)	5,000mm/min (196.85)
	Cutting capacity	594cc/min	192cc/min	1,122cc/min	378cc/min	1,452cc/min	450cc/min

* The above data is based on actual cases. Depending on conditions, actual results may differ.

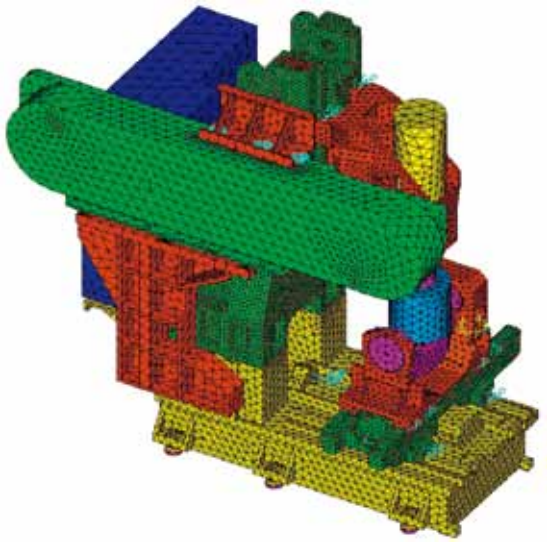
Classic ***Matsuura*** Machine Build; a Commitment to Engineering Excellence

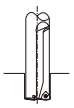
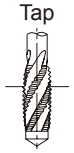
Machining any material for sustained periods of time to incredible accuracy requires the most rigid & tested machining structure. Designed with FEM analysis utilizing many decades of ***Matsuura*** machine know-how & heritage, the ***MX-330*** is the 5 axis platform for the precise creation of small components, where quality and sustained performance is a pre-requisite.



* Photo shows machine with 60-tool option installed

Movement and Ranges		
X-axis stroke	mm (in.)	435 (17.13)
Y-axis stroke	mm (in.)	465 (18.31)
Z-axis stroke	mm (in.)	560 (22.05)
A-axis rotation angle (rotation on the X axis)	deg	-125 ～ +10
C-axis rotation angle (rotation on the Z axis)	deg	360



		STD		OP			
		#40 15,000min^{-1} (5.5/7.5kW,65.1Nm) Auto grease lubrication		#40 15,000min^{-1} (5.5/7.5kW,119.3Nm) Auto grease lubrication		#40 20,000min^{-1} (15/18.5kW,108.5Nm) Auto grease lubrication	
Part material		Aluminum	Steel	Aluminum	Steel	Aluminum	Steel
Drill 	Tool size	Φ27mm (1.06)	Φ27mm (1.06)	Φ27mm (1.06)	Φ33mm (1.29)	Φ30mm (1.18)	Φ27mm (1.06)
	Spindle speed	1,500min^{-1}	1,500min^{-1}	1,500min^{-1}	1,200min^{-1}	1,800min^{-1}	1,500min^{-1}
	Cutting feed rate	500mm/min (19.68)	240mm/min (9.44)	450mm/min (17.71)	200mm/min (7.87)	700mm/min (27.55)	320mm/min (12.59)
	Cutting capacity	286cc/min	137cc/min	385cc/min	171cc/min	495cc/min	183cc/min
Tap 	Tool size	M30xP3.5	M20xP2.5	M36xP4.0	M24xP3.0	M30xP3.5	M24xP3.0
	Spindle speed	120min^{-1}	100min^{-1}	120min^{-1}	100min^{-1}	120min^{-1}	100min^{-1}
	Cutting feed rate	420mm/min (16.53)	250mm/min (9.84)	480mm/min (18.89)	300mm/min (11.81)	480mm/min (18.89)	300mm/min (11.81)

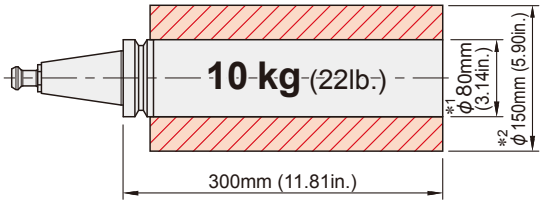
Options; Tailored to Your Process

ATC

■ 30-tool drum magazine Standard

■ 60-tool chain magazine Option

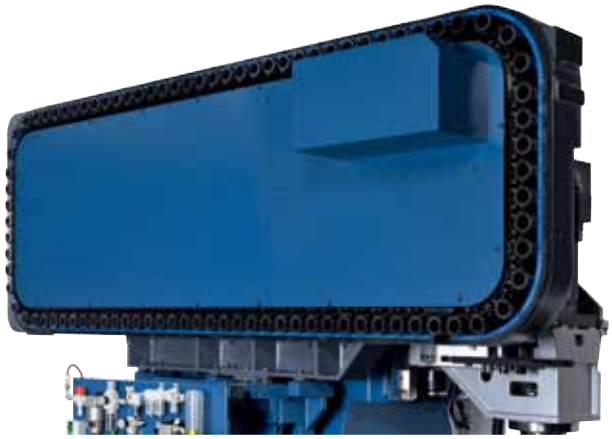
■ Tool specification



Standard BT40 Option HSK-A63

*1 With adjacent tools
*2 Without adjacent tools

■ 90-tool chain magazine Option



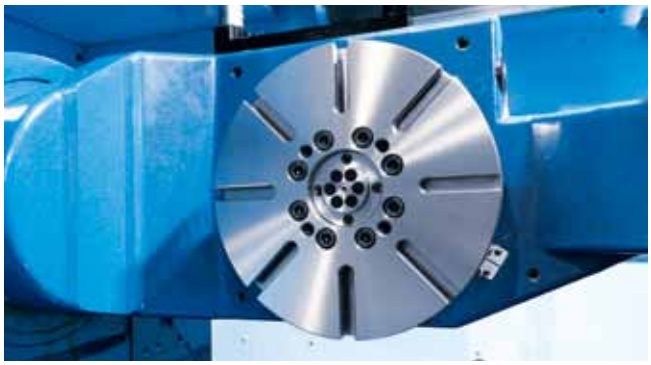
4th / 5th axis rotary table

As with all machines in the ***MX*** Series, a proven, high performance trunnion table is utilized on the ***MX-330***.

■ ϕ250mm table Standard

Fixtures used with ***MAM72-35V*** can be mounted.

■ 6-port through-table Option
(Max. supply pressure 19.6MPa)

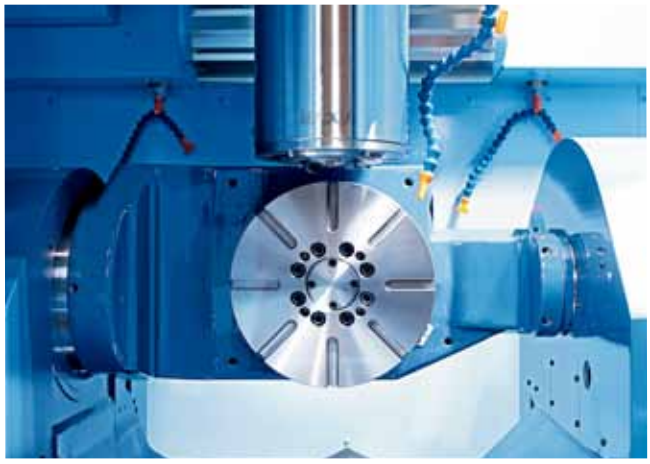


※ Refer to MX-330 Max. workpiece size and loading capacity

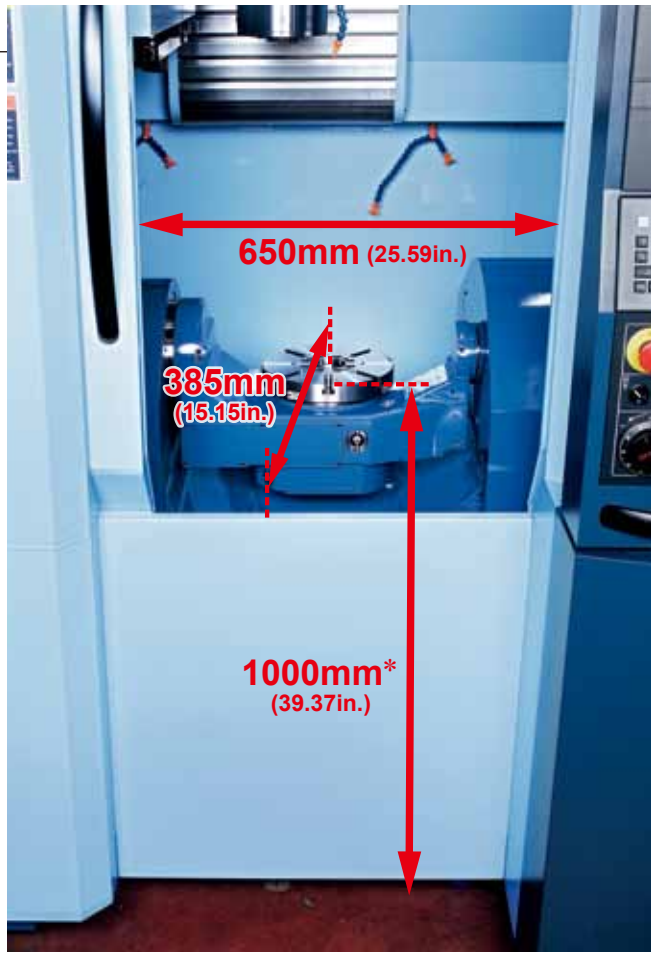
Excellent Access to the Machining Enclosure

Accessibility to workpiece and spindle

Operator comfort and efficiency is at the heart of the ***MX-330*** design. The main access door offers a generous 650mm of opening width, facilitating safe, fast & smooth load / unload operations. The distance from the front face of the machine to the center of the table is 385 mm, securing ergonomic access to the workpiece and spindle.



Minimal interference between the spindle head & table, offering excellent workpiece access to the cutting tool.

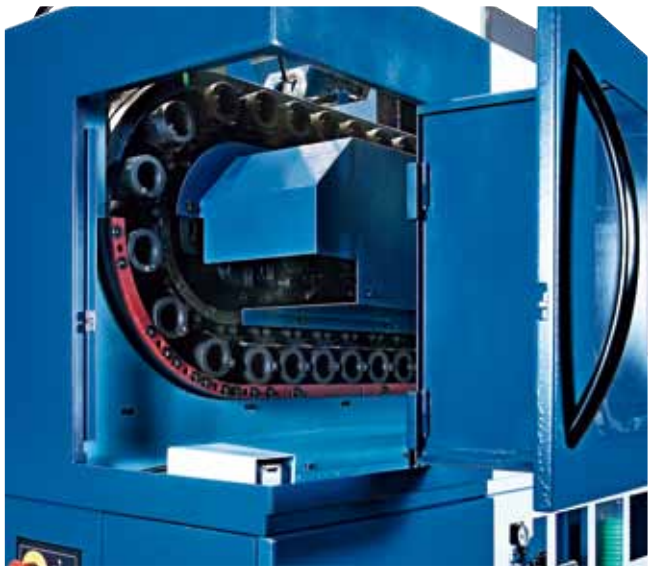


*Pallet specification is 1020mm (40.15in.)

Simple & Safe ATC Access

ATC door offers ample space & visibility for tool set up & maintenance operations.

Standard 30-tool drum magazine



Option 60-tool chain magazine

Automation & Unmanned Production Package Option

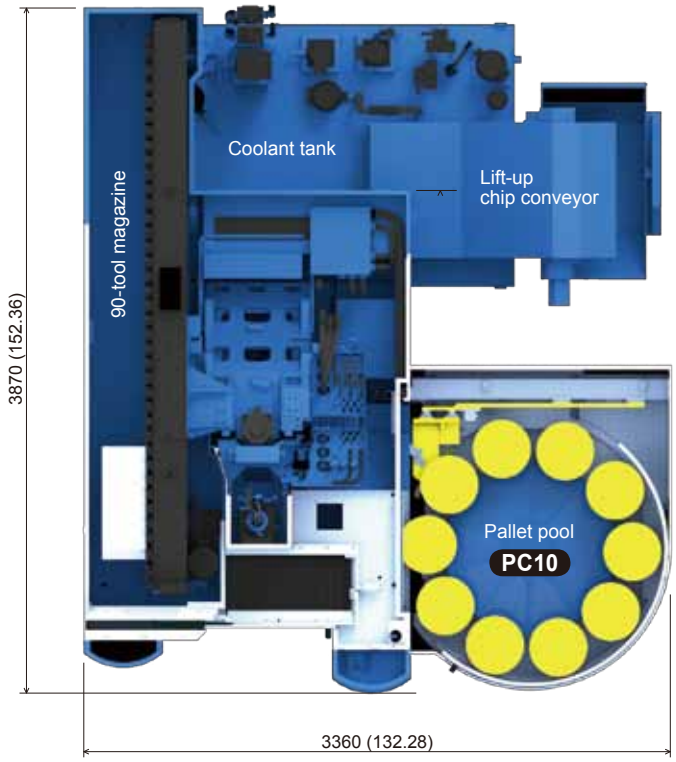
Matsuura's legendary unmanned running technology with the ***MX-330*** comes in the form of a 10 pallet (CAPTO C6 compatible) and 90 tool option; offering superb profit enhancing lights out production utilizing minimal floor space

Automation Package

Option

Pioneers of reliable unmanned production, the 10 pallet, 90 tool specification of the ***MX-330*** is carefully weighted to offer maximum return on investment. Each of the 10 pallets can accommodate ϕ 330 mm x H 300mm Max. workpiece size.

PC10

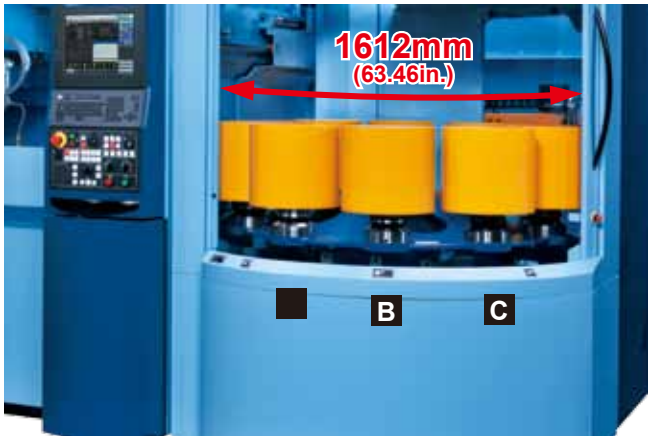


Item		Specifications
ATC		90tool
APC	Number of pallets	10 (Floor pallet system)
	Pallet type	CAPTO C6
Through-pallet		3 ports (Max. 19.6 MPa) Option

Work station

Standard

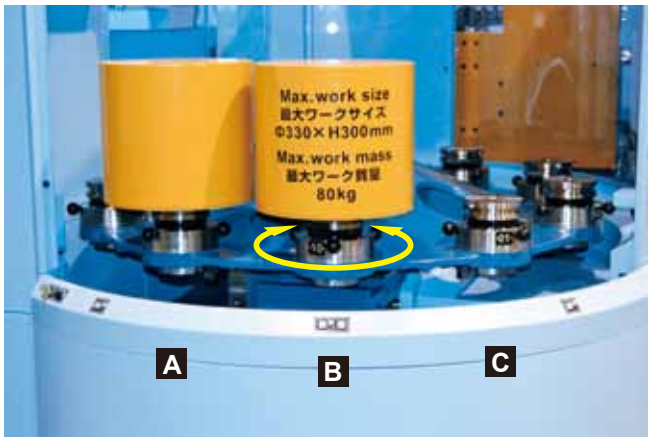
Work station access allows the set up of three pallets (A, B & C as shown) simultaneously.



Work station (rotary)

Option

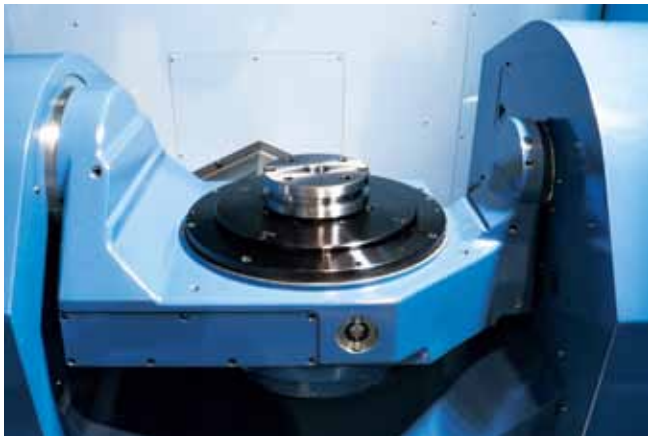
Rotary mechanism provided in the B position increases setup efficiency. Setup is possible by turning 90 degrees.



PC1 (single pallet) CAPTO C6

Option

CAPTO C6, which excels at high-accuracy positioning and repeat accuracy, is adopted.
Pallets are the same as for ***MAM72-35V*** allowing common use of fixtures.



Three-port pressure supply system to fixtures

Option

Equipped with pressure supply ports for through-pallet-system fixtures.
Supports pressures of up to 19.6 MPa.

Automation with a robot

Robot interface + Automatic door

Option

Interface for connection with external workpiece transfer systems

Toward Full-Spec. Automation
Smooth step-up from *MX-330* possible

5-Axis Vertical Machining Center

MAM72-35V

The ***MX-330*** and our established ***MAM72-35V*** 5 axis machines both utilize CAPTO C6 pallets, offering seamless interaction and deployment of pallets and fixtures between both machines

※ Refer to MAM72-35V Max. workpiece size and loading capacity

Operating Convenience Allowing Even Beginners to Use it With Confidence

MIMS
Matsuura Intelligent Meister System

Combining Craftsmanship, Skill and Ingenuity

Matsuura's original interface with uncompromising pursuit of usability

Environment

Eco Meister

Eco mode

Power savings

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

Simple

Operability Meister

Hassle-free, simple operation

- Tool setup support
- Workpiece setup support

Accuracy

Thermal Meister

Stable accuracy

- Spindle thermal displacement compensation
- Environmental thermal displacement compensation Option

Secure

Reliability Meister

Reduced machine downtime

- Preventive maintenance support function
- Machine recovery support function
- Electronic manual function
- E-mail transmission function

New Operation Panel

Matsuura G-Tech 31i

Equipped with a large 15-inch touch screen display, the ***Matsuura G-Tech 31i*** offers genuine ergonomic comfort & sustained operator performance

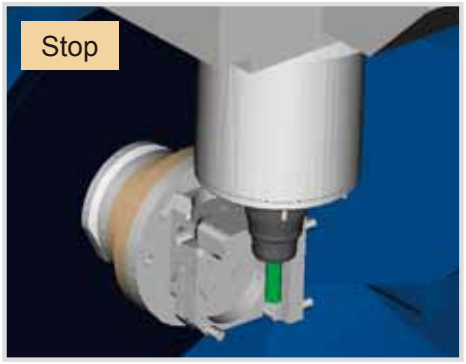
- Icons required for operation, setup and maintenance are displayed on screen.
- Screen icons required for each task - "Operation", "Setup", "Maintenance" - are displayed.
- Screen switching response time is improved by 50% compared to conventional panels.
- USB thumb drives and CF cards are also supported for data input/output.
- Customization is possible according to tasks to be performed.

Program management

Tool offset

Electronic manual display

Intelligent Protection System Option



Manual / Automatic operation Simultaneous 5-axis machining

This collision protection function is developed solely by ***Matsuura***. It prevents machine collisions due to programming errors in automatic operation, and also prevents human error in advance during manual operation and workpiece setup.

■ On-line link with PC

PC　　Machining center

* ***The Intelligent Protection System*** simulates your programmed components (tools, workpiece, fixtures, etc.) that match the machine model, alerting you to any possible interference or collision before actual machining takes place.

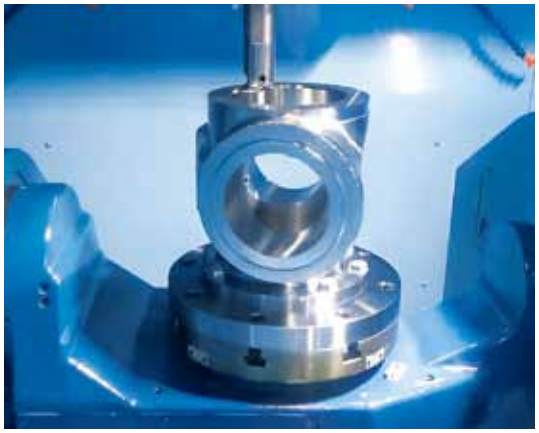
* Prepare a PC on your side. Contact ***Matsuura*** for PC requirements.

Synchro Tip + Orbit machining Option

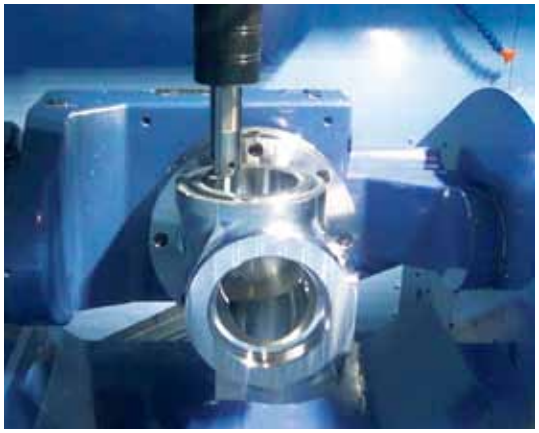
Patent No. 5883535

Simple turning function combining orbit machining and C-axis rotation

Turning processes can also be performed on this machining center by using a synchro chip. Since turning and machining can now be done in one process no additional setup time is required for the turning process.



* ***Synchro Tip*** (Orbit machining + C-axis rotation)



* Orbit function

eZ-5 Option

Advanced 5-axis error measurement and correction

Geometric error correction is essential for multi-axis machine tools. eZ-5 completes measurement, using a touch probe and calibration sphere, in a mere 3 minutes. The high accuracy of the machine is maintained through quick and simple operations.

* eZ-5 requires a separately available NC option to add macro variables.

Rapid Metal Removal Requires Ultra Efficient Chip Flow & Swarf Clearance

Smooth and Efficient Swarf management – by Design

Steep angle gradients on telescopic guard covers & internal surfaces & powerful coolant wash system facilitate the rapid despatch of chips and swarf from the machining enclosure, delivering maintenance free extended machining without the need for manual intervention. For environments where vast amounts of metal removal take place, the options below are available.

Standard Chip-flush coolant

Standard Chip-flow coolant

Option Spiral chip conveyor

Standard Coolant tank

Option Lift-up chip conveyor (back disposal)

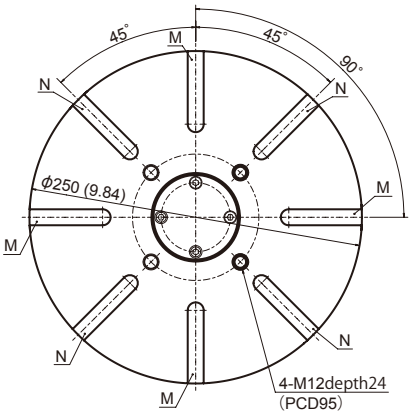
Option Chip bucket

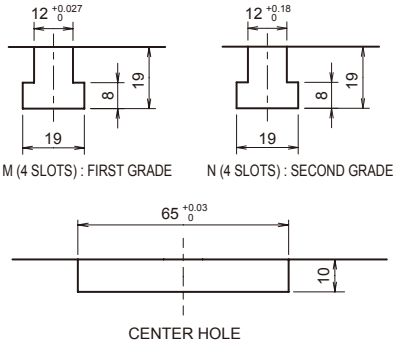
Option Lift-up chip conveyor (side disposal)

Option Chip bucket

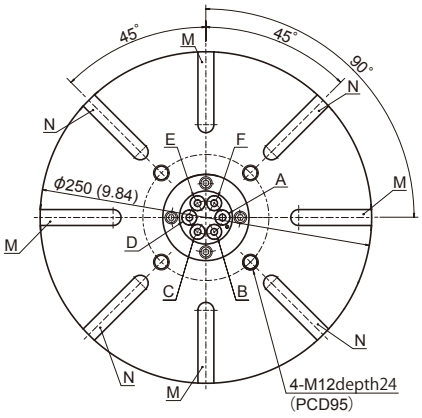
Top view Unit: mm (in.)

Table top view **Standard**

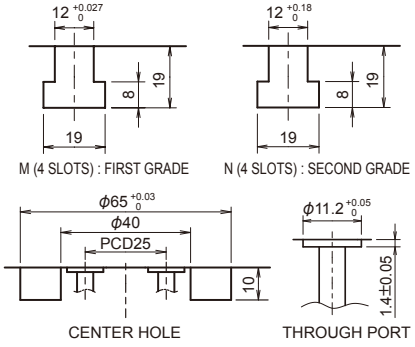




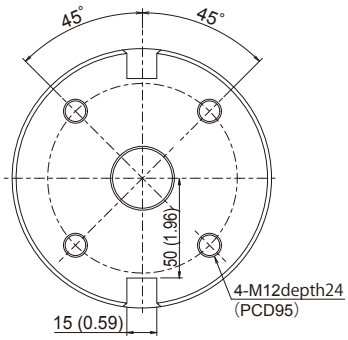
With through-table **Option**

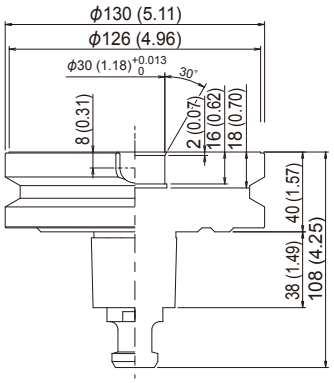


* A-F is a Port Number
(PCD25)

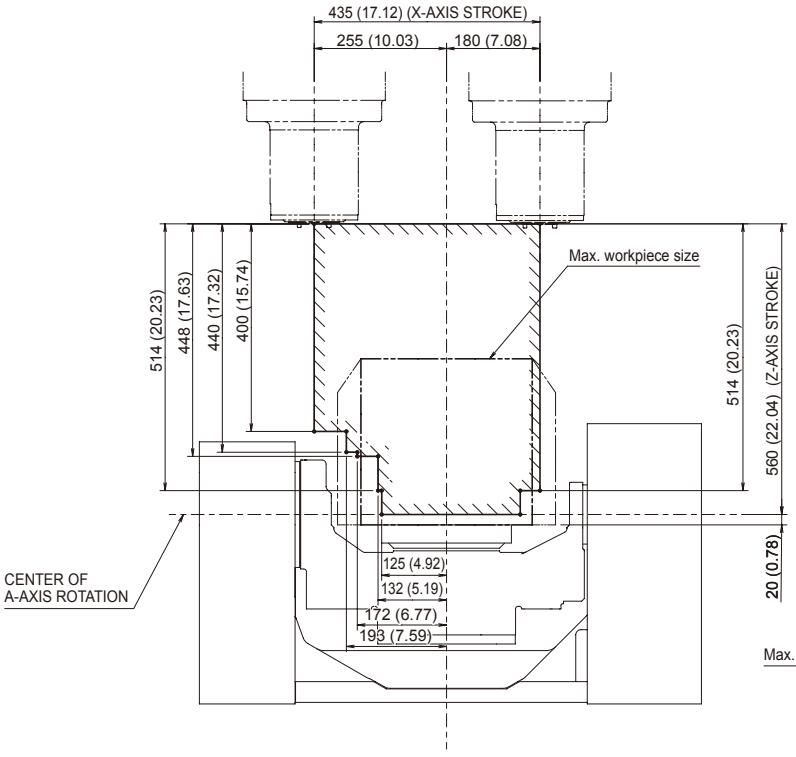


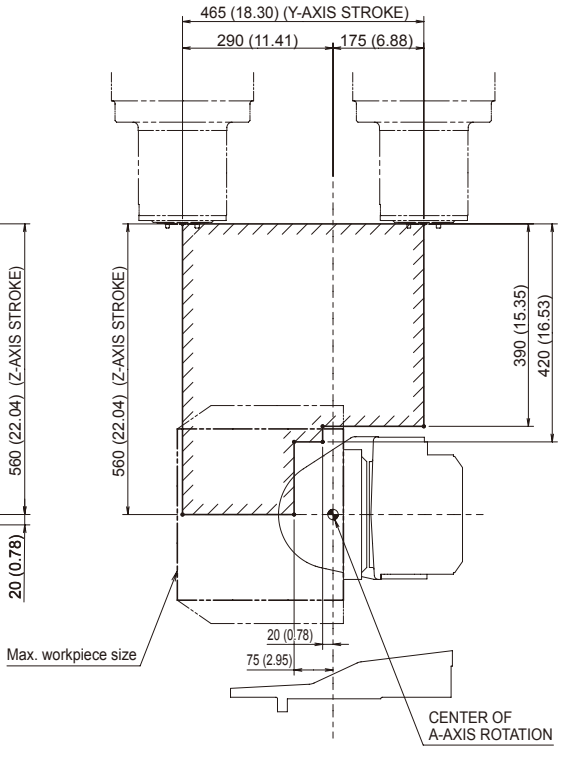
Pallet top view **Option**





Stroke diagram Unit: mm (in.) **Standard**





Standard Machine Specifcations

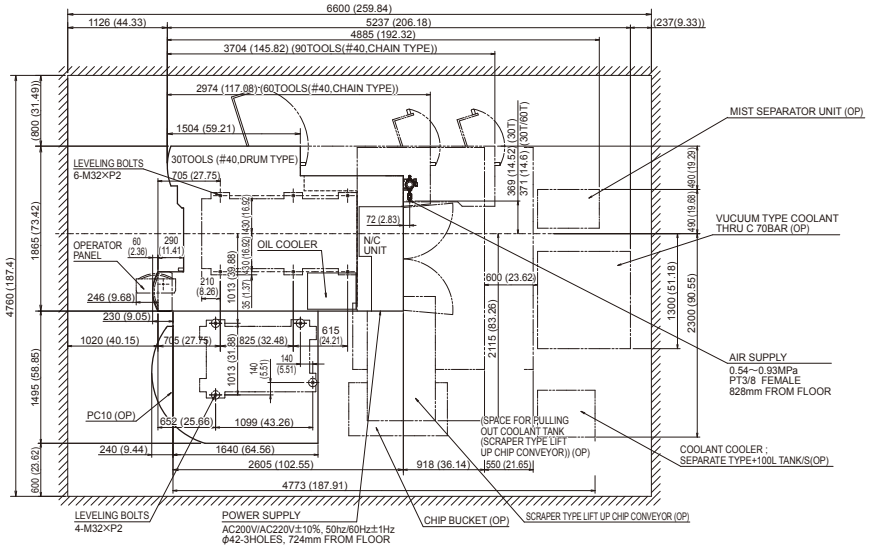
■ Movement and Ranges		
X-axis stroke	mm (in.)	435 (17.13)
Y-axis stroke	mm (in.)	465 (18.31)
Z-axis stroke	mm (in.)	560 (22.05)
A-axis rotation angle	deg	-125 ～ +10
C-axis rotation angle	deg	360
■ Table		
Working surface	mm (in.)	φ250 (φ9.84)
Loading capacity	kg (lb.)	80 (176)
Max. workpiece size	mm (in.)	φ330×H320 (φ12.99×H12.59) φ420×H320 (φ16.53×H12.59) (with restrictions)
■ Spindle		
Spindle speed	min^{-1}	50 ～ 15000 (auto grease lubrication)
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.)	φ70 (φ2.75)
Spindle motor output	kW	AC5.5/7.5
Max. spindle torque	N･m	65.1
■ Feedrate		
Rapid traverse rate X / Y / Z	mm/min (ipm)	40000 (1574.8)
A / C	min^{-1}	17 / 33
Feedrate X / Y / Z	mm/min (ipm)	1 ～ 40000 (0.03 ～ 1574.8)
A / C	min^{-1}	17 / 33
■ Automatic Tool Changer		
Type of tool shank	—	JIS B 6339 tool shank 40T
Pullstud	—	JIS B 6339 pullstud 40P
Tool storage capacity	tools	30 (Drum magazine)
Max. tool diameter	mm (in.)	φ80 (φ3.14) (With adjacent tools) φ150 (φ5.90) (Without adjacent tools)
Max. tool length	mm (in.)	300 (11.81)
Max. tool mass	kg (lb.)	10 (22.05)
Method of tool selection	—	Memory random system

■ Power Sources		
Electrical power supply (STD)	kVA	31 (Depends on the options provided)
Electrical power supply (PC10)	kVA	35 (Depends on the options provided)
Power supply voltage	V	AC 200 / 220±10% Transformer required for the voltage except adove
Power supply frequency	Hz	50 / 60±1
■ Tank Capacity		
Coolant tank capacity	L	350
Oil cooler tank capacity	L	14 (Total capacity: 16)
■ Machine Size		
Machine weight (STD)	kg (lb.)	6300 (13860)
Machine weight (PC10)	kg (lb.)	9750 (21450)
■ NC System		
Control system	—	Matsuura G-Tech 31i

■ Standard Accessories	
01. Total splash guard	02. ATC magazine guard
03. ATC auto door	04. Spindle oil cooler
05. Auto grease supply unit for feed axes	06. Scale feedback (A/C axis)
07. Coolant unit	08. Chip flush
09. Chip flow	10. Work light
11. Synchronized tapping function	12. ***AD-TAP*** function
13. ***IPC*** function	14. Spindle overload protection function
15. M-code counter (9 kinds)	16. Spindle thermal displacement compensation system
17. Software tool for memory card program operation & editing	
18. ***MIMS*** (Matsuura Intelligent Meister System)	19. Integrating spindle run hour meter
20. Integrating auto run hour meter	21. Service tools and tool box
22. Machine color paint	23. Leveling bolts, leveling plates
24. Electronic manual	25. E-mailing function
26. Fault diagnosis function	

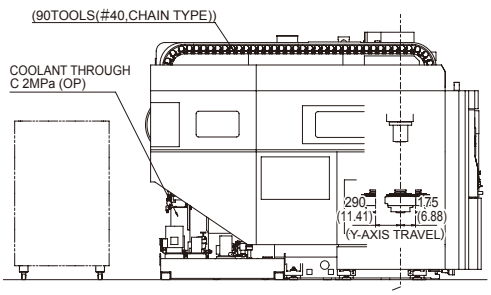
* 2 years spindle warranty

Floor plan Unit: mm (in.) PC10

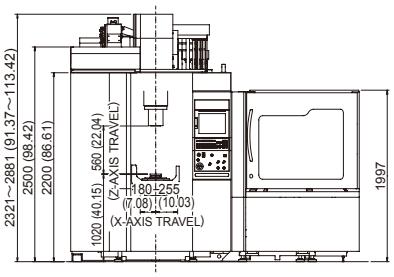


External view Unit: mm (in.) PC10

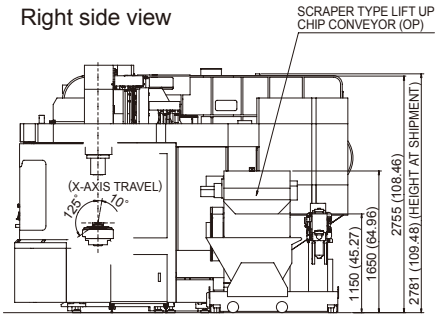
Left side view



Front view



Right side view



List of Fittings

○: Standard ▲: Option

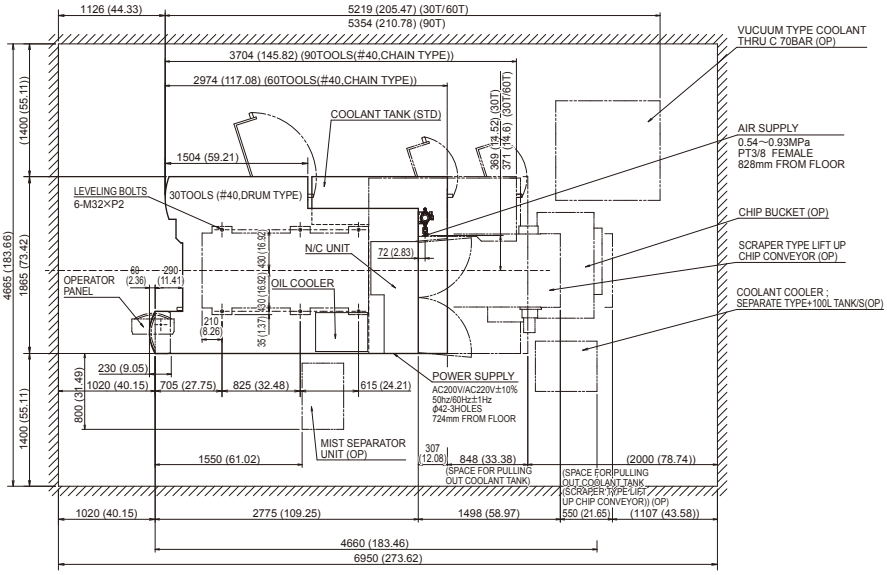
■ Spindle			
15000min^{-1} (BT40 auto grease lubrication)			○
15000min^{-1} (BT40 auto grease lubrication)			▲
Spindle motor output	kW	Low: 7.5 / 15、High: 7.5 / 15	
Max. spindle torque	N·m	119.3	
20,000min^{-1} (BT40 auto grease lubrication)			▲
Spindle motor output	kW	Low: 11 / 15、High: 15 / 18.5	
Max. spindle torque	N·m	108.4	
■ Tool Storage Capacity			
30 tool (Drum magazine)			○
60 tool (Chain magazine)			▲
90 tool (Chain magazine)			▲
■ Number of Pallets			
1 (Single pallet) ＊1			▲
10 (Floor pallet system) ＊2			▲
■ Automation Package			
Automation package (PC10 , 90tools , Spiral)			▲
■ High Accuracy Control			
Scale feedback X-/Y-/Z-axis			▲
Environmental thermal displacement compensation (15000min^{-1}spindle)			▲
Environmental thermal displacement compensation (20000min^{-1}spindle)			▲
■ Coolant			
Vacuum type coolant through A 7MPa			▲
Vacuum type coolant through A 14MPa			▲
Vacuum type coolant through B 7MPa			▲
Vacuum type coolant through B 14MPa			▲
Vacuum type coolant through C 2MPa			▲
Vacuum type coolant through C 7MPa			▲
Mist separator (without fire damper/ with fire damper)			▲
Mist separator retrofitting			▲
Coolant temperature controller with tank 100L			▲
■ Automatic Measurement, Tool Breakage Detection			
Automatic measurement / automatic alignment (optical , RENISHOW)			▲
Automatic measurement / automatic alignment (optical , BLUM)			▲
Tool breakage / full automatic tool length measurement (laser , BLUM)			▲
Tool breakage / full automatic tool length measurement (laser , RENISHOW)			▲
External tool breakage (30tools , contact)			▲
External tool breakage (60tools , contact)			▲
External tool breakage (90tools , contact)			▲

＊1 Max. workpiece size : ϕ420×H300(mm)
＊2 Max. workpiece size : ϕ330×H300(mm)

■ Chip Removal	
Chip bucket	▲
Spiral chip conveyor	▲
Lift-up chip conveyor (scraper)	▲
Air blow for chip removal	▲
Workpiece cleaning gun (machine side)	▲
■ Operation/Maintenance Support	
Intelligent Protection System	▲
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	▲
eZ-5 (with calibration sphere)	▲
eZ-5 (without calibration sphere)	▲
Pressure supply system for fixtures	▲
Rotary wiper (Air)	▲
Rotary wiper (Electric)	▲
OP auto door	▲
Robot interface + auto door	▲
Robot + auto door	▲
■ Optional Package	
High-speed, high-precision package	▲
5-axis package	▲
High-speed, high-precision 5-axis package	▲

■ Tool breakage / full automatic tool length measurement (laser) Option

Floor plan Unit: mm (in.) Standard



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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

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