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

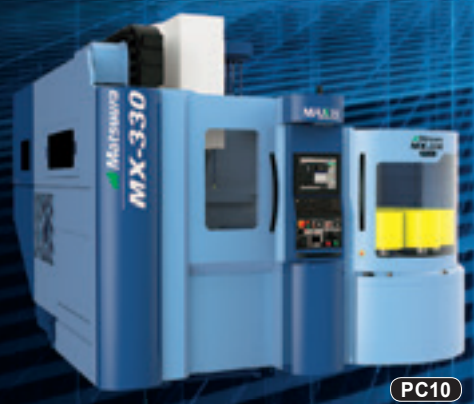
- ***Matsuura*** hand-built 5 axis quality; exceptional performance, low cost of ownership & assured residual value.
- Manned or Unmanned; ergonomic & dynamic design performance assures productivity.
- Equipped with the ***Matsuura G-Tech 31i***; touch screen with large display for operator comfort &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

MAXIA BT40 Spindle Line up

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.



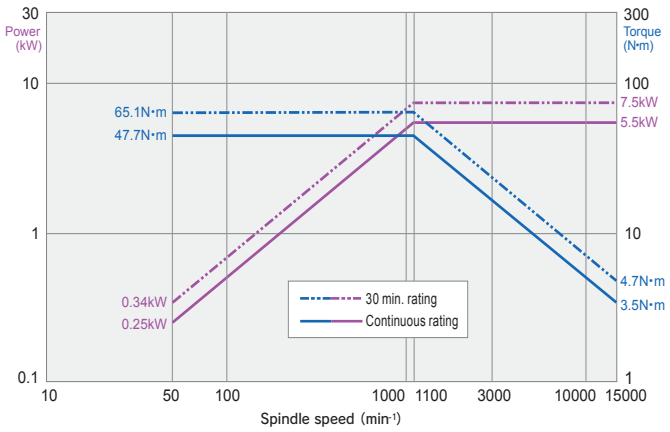
MAXIA
Innovation by Matsuura

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

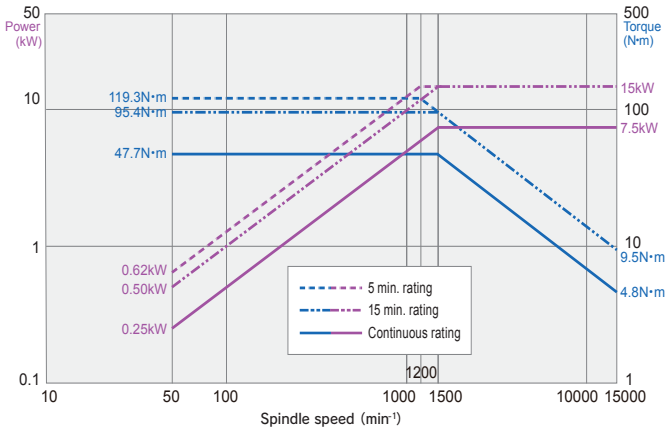
Three State of the Art MAXIA Spindle Lineup; Built upon 70 years of *Matsuura* excellence

- 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.

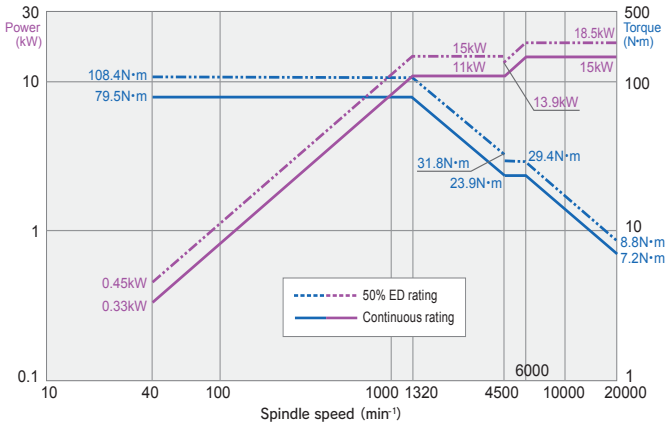
Standard 15000min^{-1} (5.5/7.5kW,65.1N·m)



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

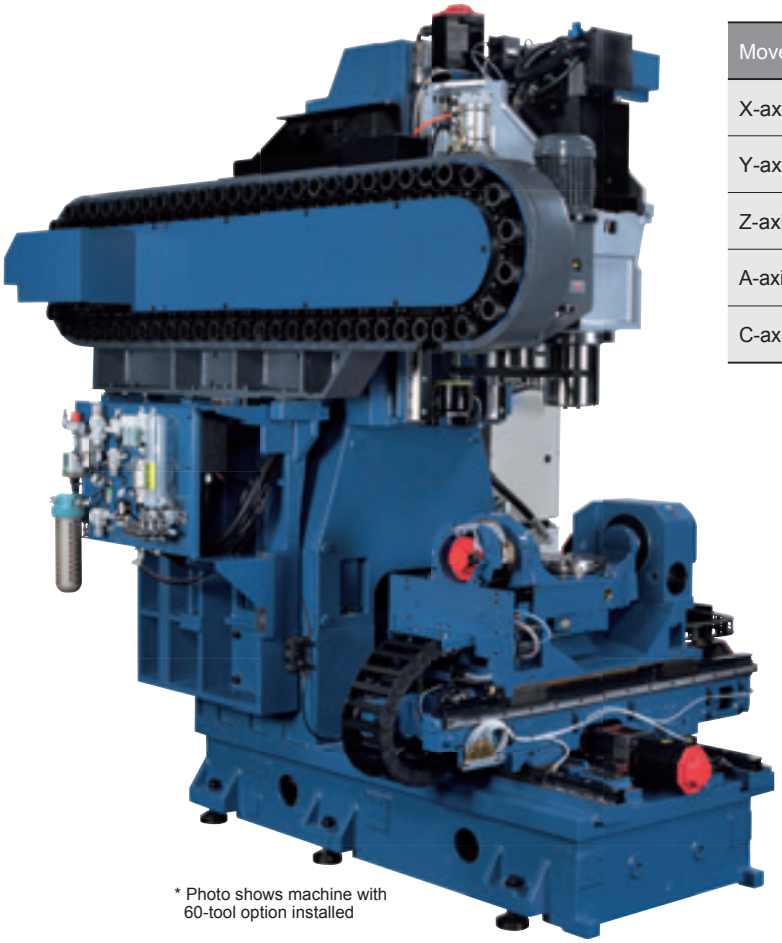


Option High-speed type spindle
20000min^{-1} (11/15,15/18.5kW,108.4N·m)



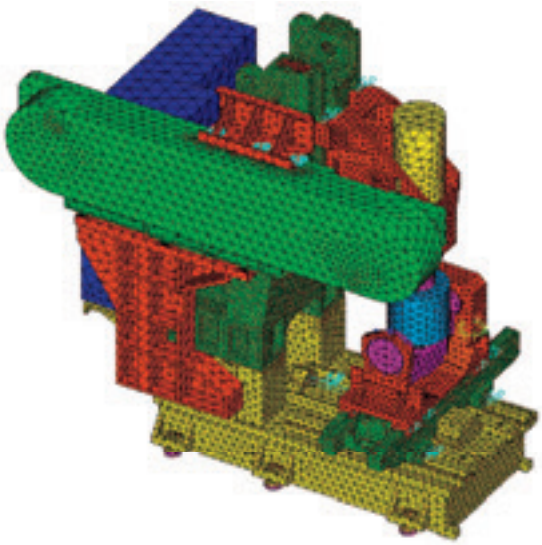
Classic ***Matsuura*** Machine Build; a Commitment to Engineering Excellence

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.

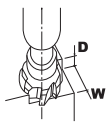
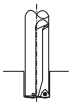
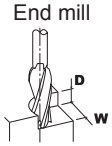
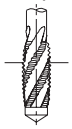


* Photo shows machine with 60-tool option installed

Movement and Ranges		
X-axis travel	mm (in.)	435 (17.13)
Y-axis travel	mm (in.)	465 (18.31)
Z-axis travel	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



■ Cutting test results **Option** (High-power type spindle BT40 15000min^{-1}, 119.3N・m)

	Part material	Tool size	Cutting width / Cutting depth	Spindle speed	Cutting feed rate	Cutting capacity		Part material	Tool size	Spindle speed	Cutting feed rate	Cutting capacity
Face mill 	Aluminum	Ø80mm (3.14) 3 blades	W=70mm (2.75) D=4mm (0.15)	5500 min^{-1}	5500 mm/min (216.53)	1540 cc/min	Drill 	Aluminum	Ø33mm (1.29)	1500 min^{-1}	450 mm/min (17.71)	385 cc/min
	Steel	Ø80mm (3.14) 5 blades	W=70mm (2.75) D=2.5mm (0.09)	1400 min^{-1}	2000 mm/min (78.74)	350 cc/min		Steel	Ø33mm (1.29)	1200 min^{-1}	200 mm/min (7.87)	171 cc/min
End mill 	Aluminum	Ø25mm (0.98) 2 blades	W=22mm (0.86) D=6mm (0.23)	15000 min^{-1}	8500 mm/min (334.64)	1122 cc/min	Tap 	Aluminum	M36 × P4.0	120 min^{-1}	480 mm/min (18.89)	
	Steel	Ø20mm (0.78) 4 blades	W=3mm (0.11) D=30mm (1.18)	5000 min^{-1}	4200 mm/min (165.35)	378 cc/min		Steel	M24 × P3.0	100 min^{-1}	300 mm/min (11.81)	

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

Automation & Unmanned Production Package Option

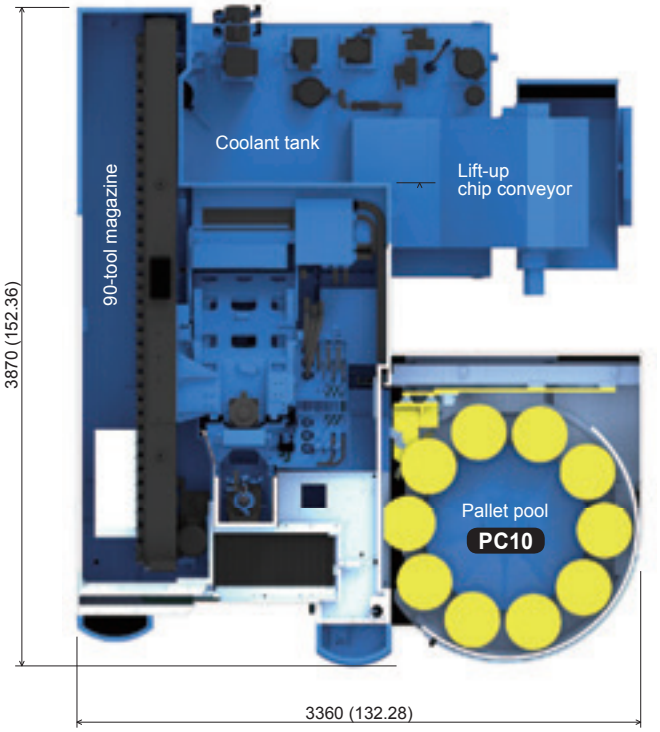
Matsuura's legendary unmanned running technology with the ***MX-330*** comes in the form of a 10 pallet (CAPTO C6 compatible) and 90 tool option; offering superb profit enhancing lights out production utilizing minimal floor space

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 Φ330 mm x H 300mm Max. workpiece size.

PC10



Item		Specifications
ATC		90tool
APC	Number of pallets	10 (Floor pallet system)
	Pallet type	CAPTO C6
	Max. workpiece size	ϕ330mm × H300mm (12.99 × 11.81 in.)
	Loading capacity	80kg (176 lb.)
Through-pallet coolant		3 ports (Max. 19.6 MPa) Option

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.

Robot interface + Automatic door

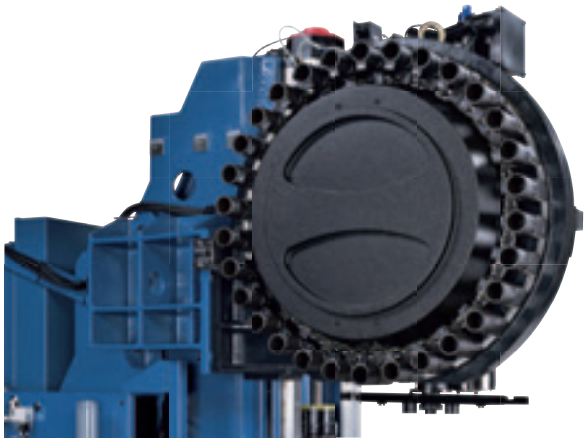
Option

Interface for connection with external workpiece transfer systems

Options; Tailored to Your Process

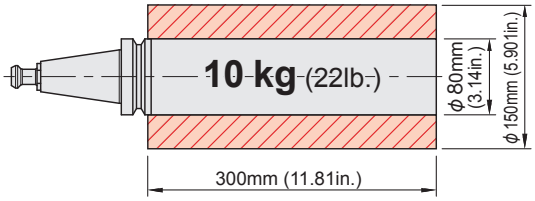
ATC

■ 30-tool drum magazine Standard



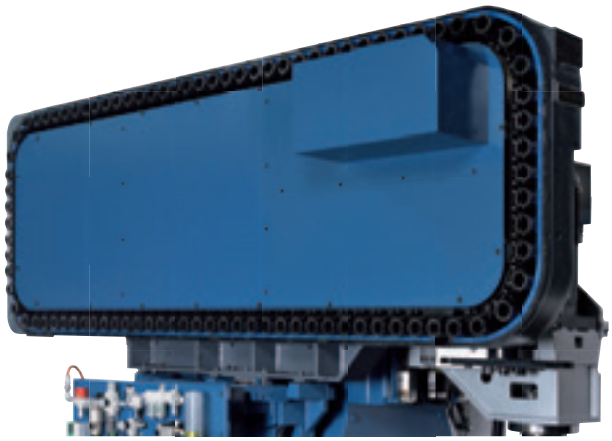
■ 60-tool chain magazine Option

■ Tool specification



Standard BT40 Option HSK-A63

■ 90-tool chain magazine Option



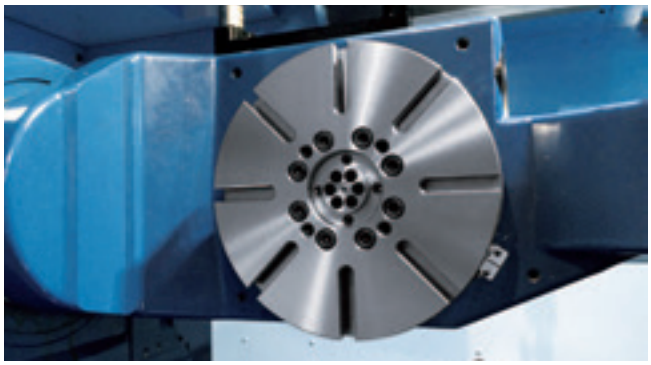
4th / 5th axis rotary table

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.

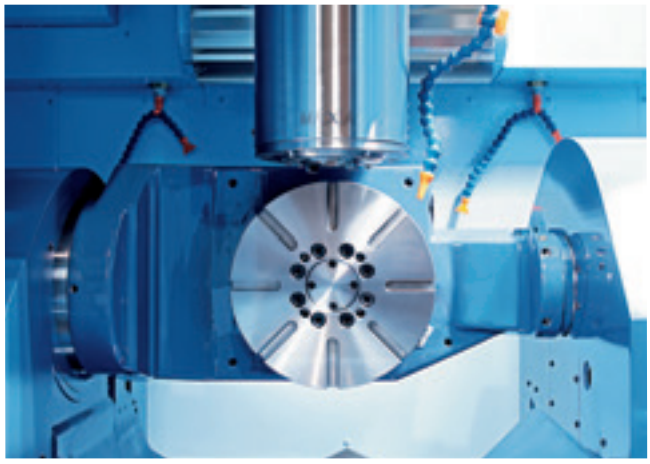
■ 6-port through-table coolant Option
(Max. supply pressure 19.6MPa)



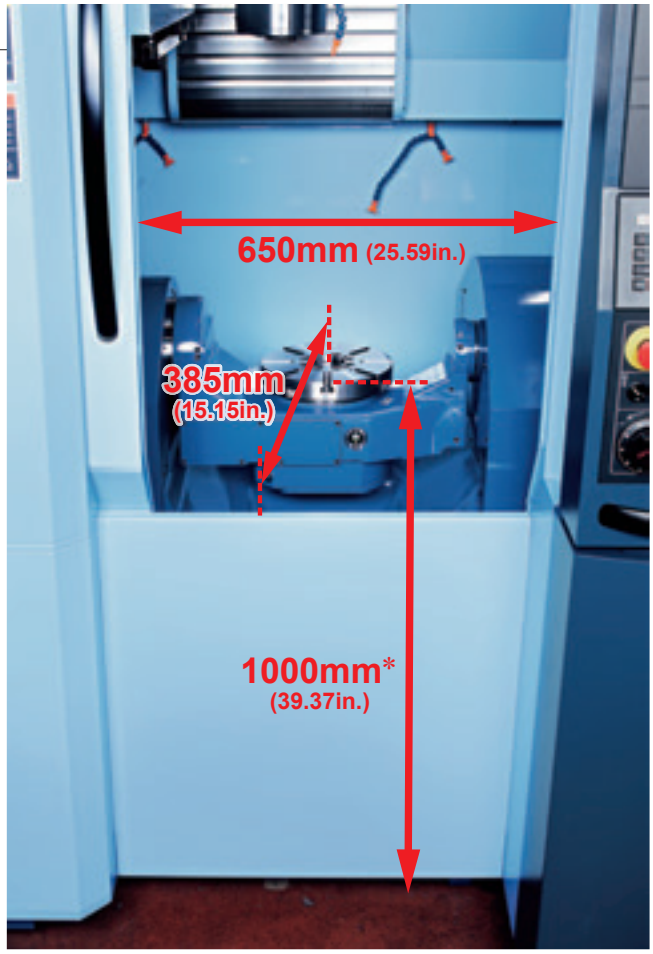
Excellent Access to the Machining Enclosure

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.

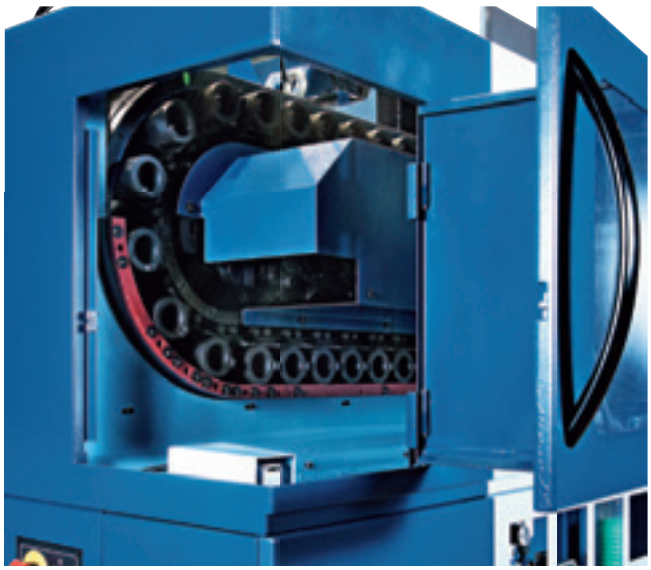


*Pallet specification is 1020mm (40.15in.)

Simple & Safe ATC Access

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

Standard 30-tool drum magazine

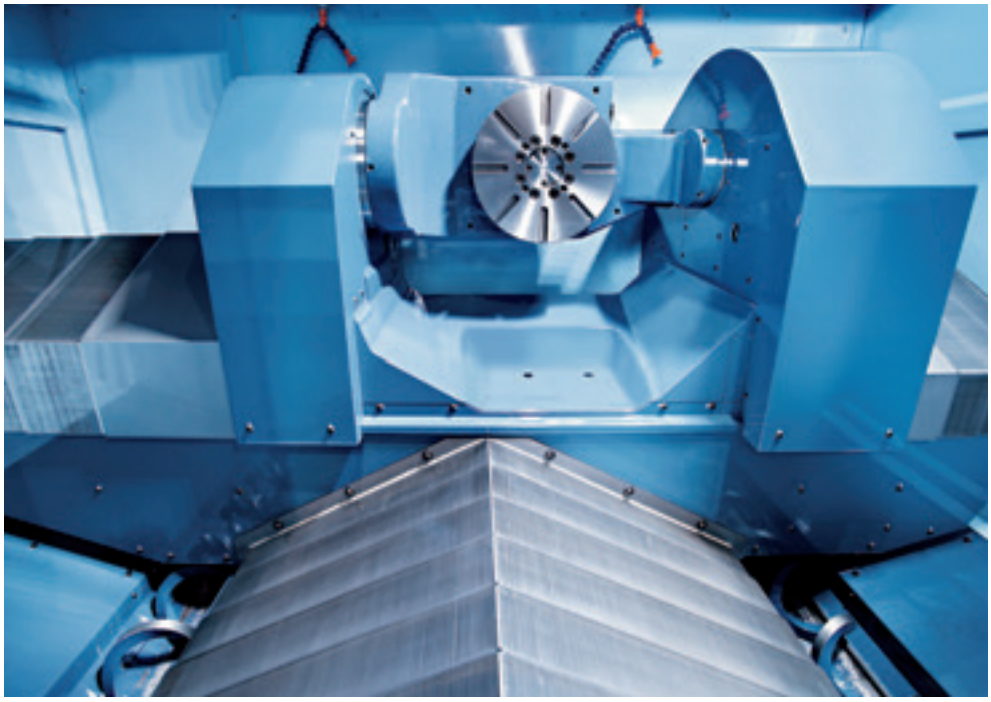


Option 60-tool chain magazine

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

Option Chip bucket

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

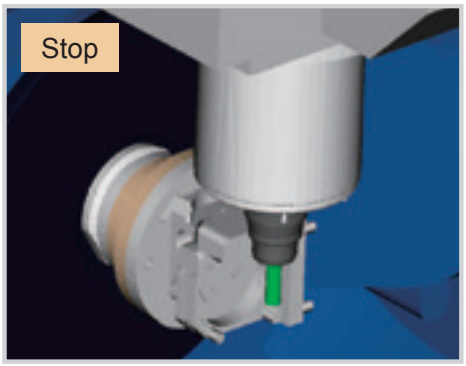
- Icons required for operation, setup and maintenance are displayed on screen.
- Screen icons required for each task - "Operation", "Setup", "Maintenance" - are displayed.
- Screen switching response time is improved by 50% compared to conventional panels.
- USB thumb drives and CF cards are also supported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

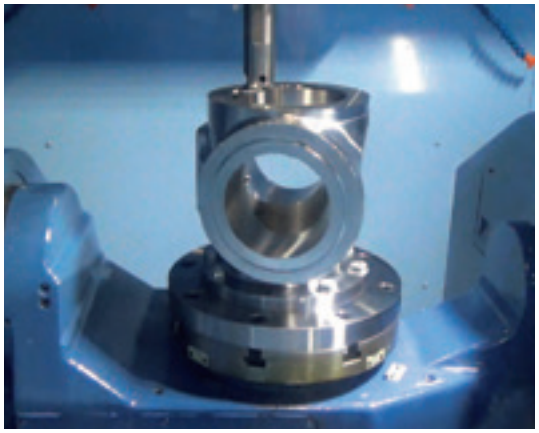
* Prepare a PC on your side. Contact ***Matsuura*** for PC requirements.

Synchro Tip + Orbit machining Option

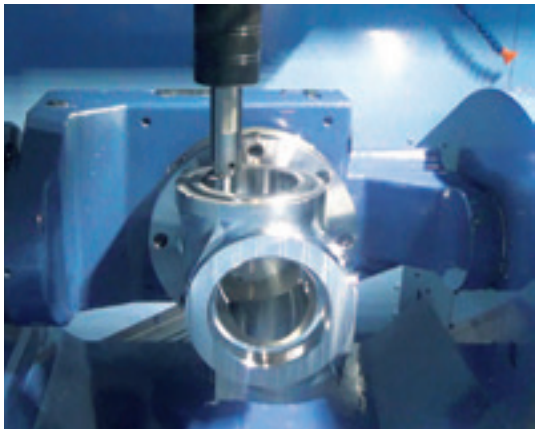
Patent No. 5883535

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 without removing the workpiece. The high accuracy of the machine is maintained through quick and simple operations.

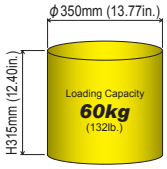
* eZ-5 requires a separately available NC option to add macro variables.

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

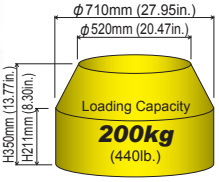


		MAM72-35V
Travel (X / Y / Z)	mm (in.)	550 / 440 / 580 (21.65 / 17.32 / 22.83)
Travel (B / C)	deg	-125 ~ +65 / 360
Working surface	mm (in.)	ϕ130 (ϕ5.11)
Max. workpiece size	mm (in.)	ϕ350 x H315 (ϕ13.77 x H12.40)
Loading capacity	kg (lb.)	60 (132)
Spindle speed	min^{-1}	12000 : BT40 Standard 15000 / 20000 : BT40 Option
Rapid traverse rate (X / Y / Z)	m/min (ipm)	60 / 60 / 60 (2.36 / 2.36 / 2.36)
Rapid traverse rate (B / C)	min^{-1}	50 / 100
Tool storage capacity		60 : BT40 Standard 120 / 160 / 200 / 240 / 280 / 320 : BT40 360 / 400 / 440 / 480 / 520 : BT40 Option
Pallet storage capacity		2 Standard 32: Tower pallet system 40: Tower pallet system Option
NC system		Matsuura G-Tech 31i

MX Series; Full Range

5-Axis Vertical Machining Center

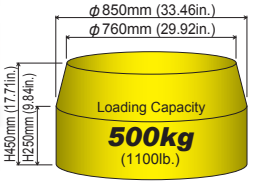
MX-520



* With restrictions

5-Axis Vertical Machining Center

MX-850

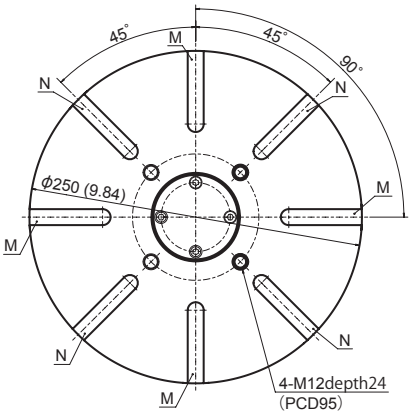


* With restrictions

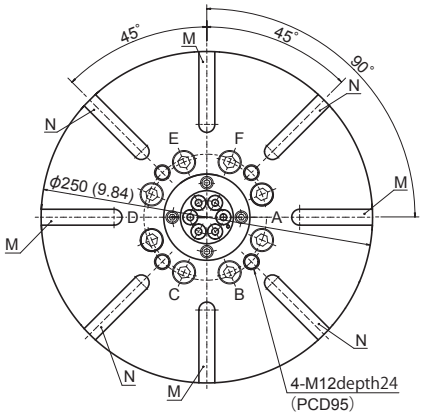
		MX-520	MX-850
Travel (X / Y / Z)	mm (in.)	630 / 560 / 510 (24.80 / 22.04 / 20.07)	900 / 780 / 650 (35.43 / 30.70 / 25.59)
Travel (B / C)	deg	-125 ~ +10 / 360	-125 ~ +30 / 360
Working surface	mm (in.)	ϕ300 (ϕ11.81) Standard ϕ500 (ϕ19.68) ϕ300 (ϕ11.81) + Flat Table Option	ϕ500 (ϕ19.68) Standard ϕ700 (ϕ27.55) ϕ500 (ϕ19.68) + Flat Table Option
Max. workpiece size	mm (in.)	ϕ520 x H350 (ϕ20.47 x H13.77) ϕ710 x H350 (ϕ27.95 x H13.77) With restrictions	ϕ760 x H450 (ϕ29.92 x H17.71) ϕ850 x H450 (ϕ33.46 x H17.71) With restrictions
Loading capacity	kg (lb.)	200 (440)	500 (1100)
Spindle speed	min^{-1}	12000 : BT40 Standard 12000 (high torque type): BT40 20000 : BT40 Option	12000 : BT40 Standard 15000 : BT40 20000 : BT40 Option
Rapid traverse rate (X / Y / Z)	m/min (ipm)	40 / 40 / 40 (1.57 / 1.57 / 1.57)	
Rapid traverse rate (A / C)	min^{-1}	17 / 33	
Tool storage capacity		60 : BT40 Standard 90 : BT40 Option	
NC system		Matsuura G-Tech 31i	

Top view Unit: mm (in.)

Table top view

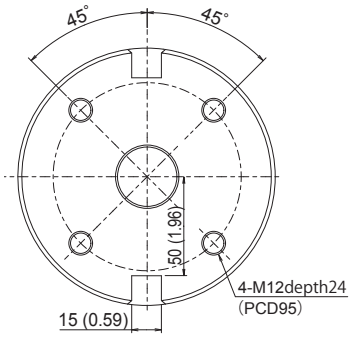


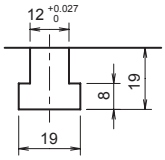
With through-table coolant holes **Option**



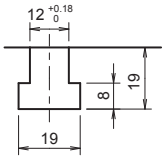
* A-F is a Port Number (PCD25)

Pallet top view **Option**

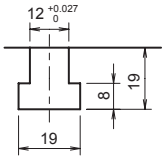




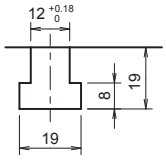
M (4 SLOTS) : FIRST GRADE



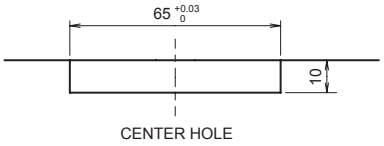
N (4 SLOTS) : SECOND GRADE



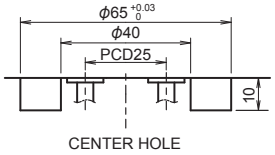
M (4 SLOTS) : FIRST GRADE



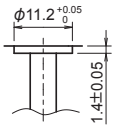
N (4 SLOTS) : SECOND GRADE



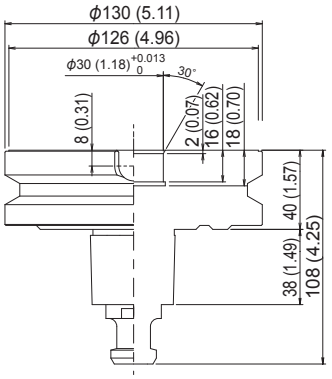
CENTER HOLE



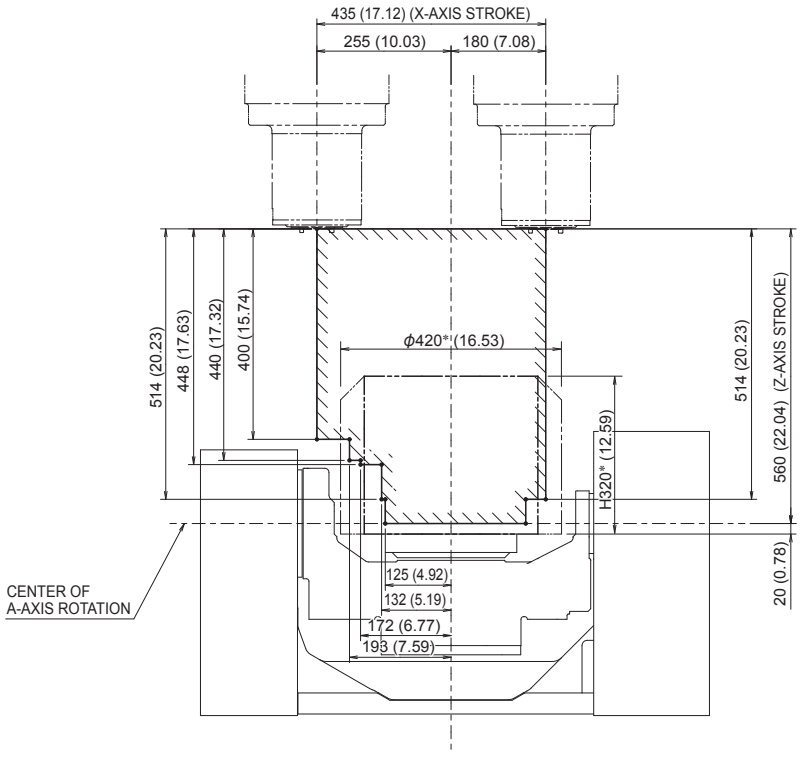
CENTER HOLE

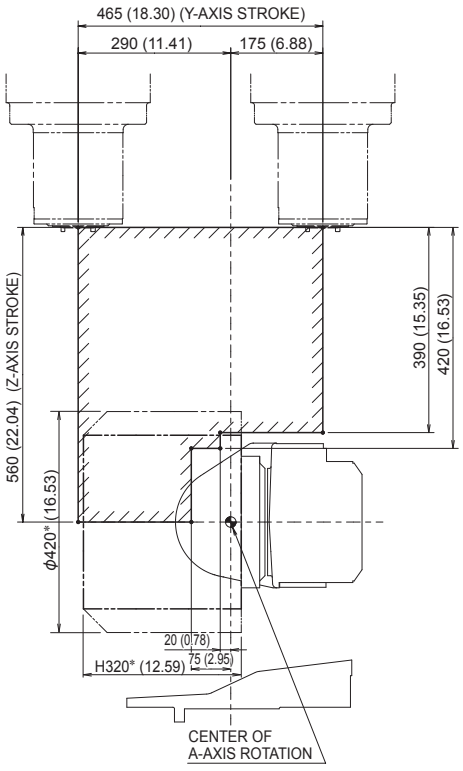


H-H (2 : 1)



Stroke diagram Unit: mm (in.)





*Max. workpiece size

Standard Machine Specifcations

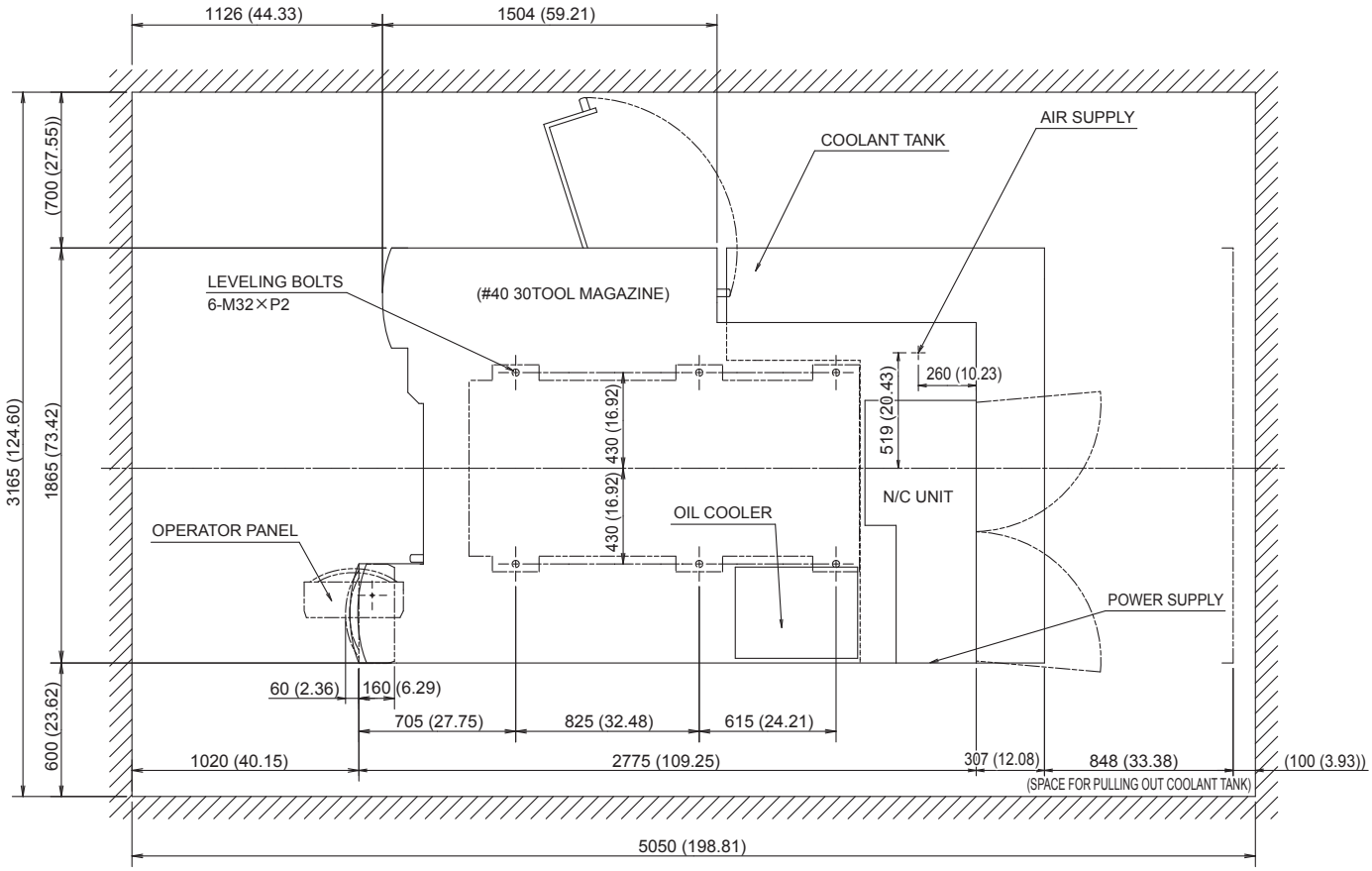
■ Movement and Ranges		
X-axis stroke	mm (in.)	435 (17.13)
Y-axis stroke	mm (in.)	465 (18.31)
Z-axis stroke	mm (in.)	560 (22.05)
A-axis rotation angle	deg	-125 ～ +10
C-axis rotation angle	deg	360
■ Table		
Working surface	mm (in.)	ϕ250 (ϕ9.84)
Loading capacity	kg (lb.)	80 (176)
Max. workpiece size	mm (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	kVA	31 (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	4 (Total capacity: 6)
■ Machine Size		
Machine weight	kg (lb.)	6300 (13860)
■ 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.)



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)			▲
10 (Floor pallet system)*			▲
■ 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)			▲
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)			▲

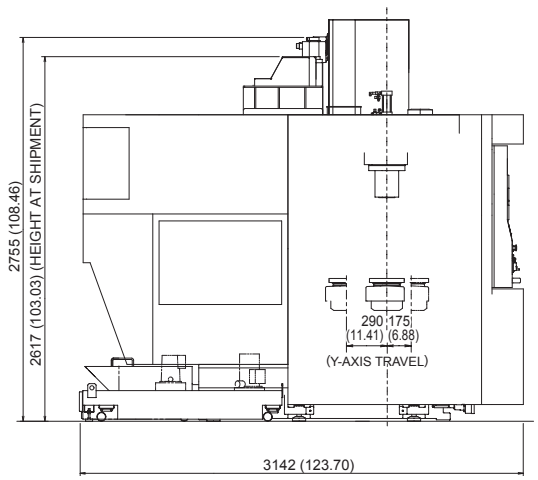
*Max. workpiece size : ϕ330× H300(mm)

■ 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	▲

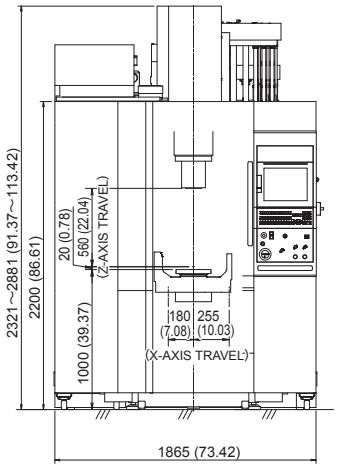
■ Tool breakage detector (laser) Option

External view Unit: mm (in.)

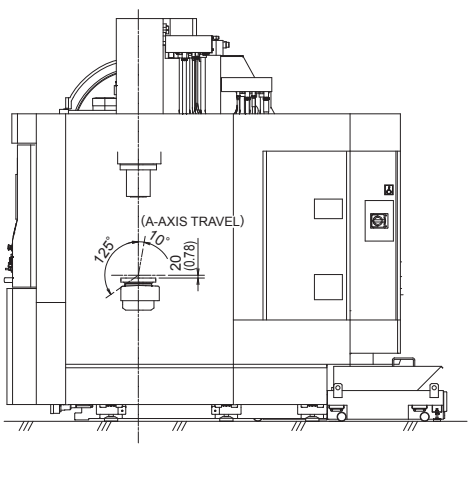
Left side view



Front view



Right side view



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

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