

 **Matsura**

5-Axis Vertical Machining Center

# MX-330



**MAXIA**  
Innovation by  Matsura

# Matsuura MX-330

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

### Features

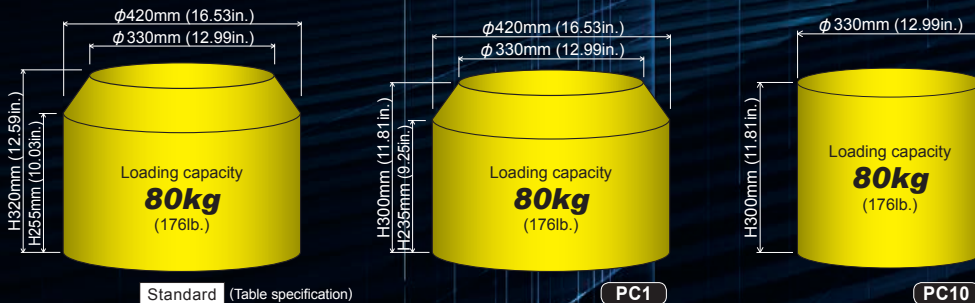
- **Matsuura** hand-built 5 axis quality; exceptional performance, low cost of ownership & assured residual value.
- Manned or Unmanned; ergonomic & dynamic design performance assures productivity.
- Equipped with the **Matsuura G-Tech 31i**; touch screen with large display for operator comfort & precise 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<sup>-1</sup> with 65.1N · m of torque is installed as standard. A high-power 15000min<sup>-1</sup> with 119.3N · m and a high-speed 20000 min<sup>-1</sup> 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.







PC10

**MAXIA**  
Innovation by  Matsuura

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

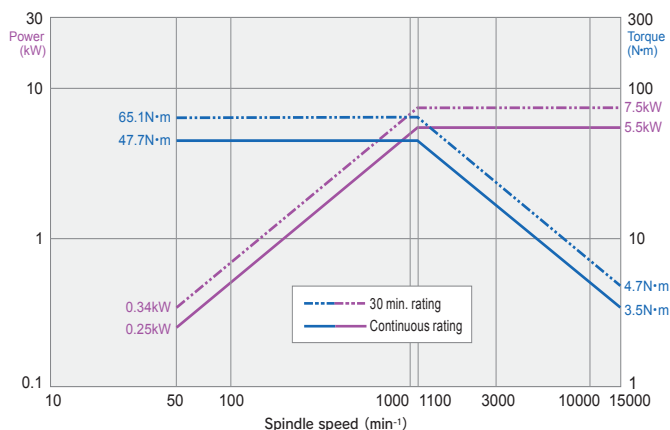
Three State of the Art **MAXIA** Spindle Lineup;  
Built upon 70 years of **Matsuura** excellence



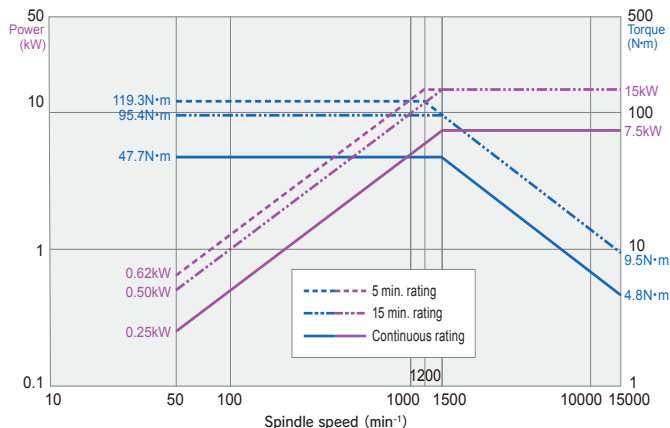
- In built reliability by superior design and sustained spindle performance from **Matsuura's** engineering heritage.
- From high speed aluminum machining to pre-hardened steels; the exceptional performance in all machining environments is assured. A 15000min<sup>-1</sup> with 65.1N·m of torque is installed as standard. A high-power 15000min<sup>-1</sup> with 119.3N·m and a high-speed 20000 min<sup>-1</sup> & 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.



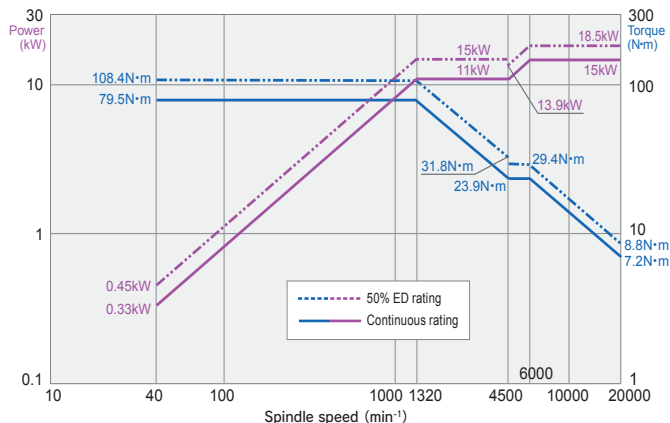
**Standard** 15000min<sup>-1</sup> (5.5 / 7.5kW, 65.1N·m)



**Option** High-power type spindle  
15000min<sup>-1</sup> (7.5 / 15kW, 119.3N·m)



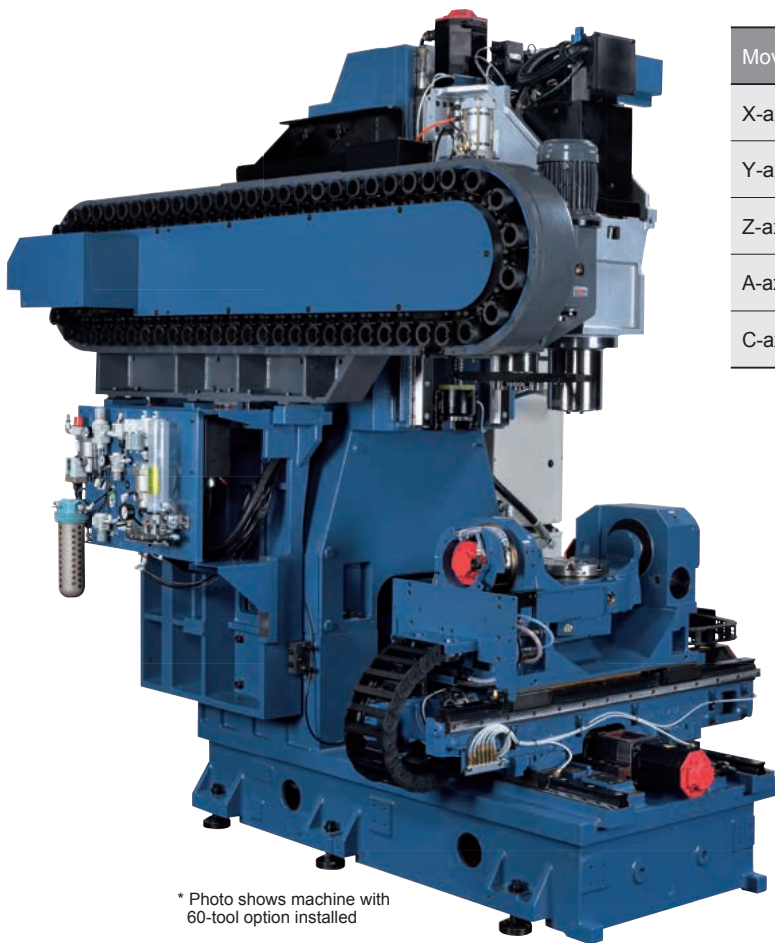
**Option** High-speed type spindle  
20000min<sup>-1</sup> (11 / 15, 15 / 18.5kW, 108.4N·m)





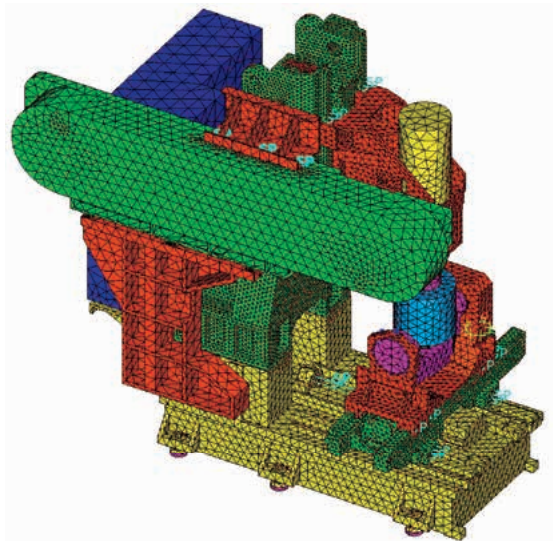
# Classic *Matsuura* Machine Build; a Commitment to Engineering Excellence

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 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



## ■ Cutting test results **Option** (High-power type spindle BT40 15000min<sup>-1</sup>, 119.3N·m)

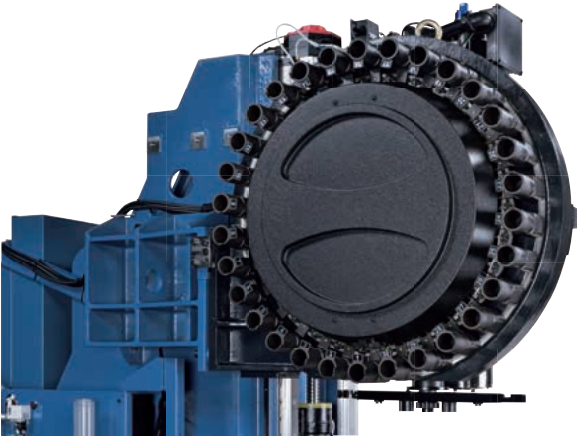
	Part material	Tool size	Cutting width Cutting depth	Spindle speed	Cutting feed rate	Cutting capacity		Part material	Tool size	Spindle speed	Cutting feed rate	Cutting capacity
 Face mill	Aluminum	Ø80mm (3.14) 3 blades	W=70mm (2.75) D=4mm (0.15)	5500 min <sup>-1</sup>	5500 mm/min (216.53)	1540 cc/min	 Drill	Aluminum	Ø33mm (1.29)	1500 min <sup>-1</sup>	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 <sup>-1</sup>	2000 mm/min (78.74)	350 cc/min		Steel	Ø33mm (1.29)	1200 min <sup>-1</sup>	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 <sup>-1</sup>	8500 mm/min (334.64)	1122 cc/min	 Tap	Aluminum	M36 × P4.0	120 min <sup>-1</sup>	480 mm/min (18.89)	
	Steel	Ø20mm (0.78) 4 blades	W=3mm (0.11) D=30mm (1.18)	5000 min <sup>-1</sup>	4200 mm/min (165.35)	378 cc/min		Steel	M24 × P3.0	100 min <sup>-1</sup>	300 mm/min (11.81)	

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

# Options; Tailored to Your Process

## ATC

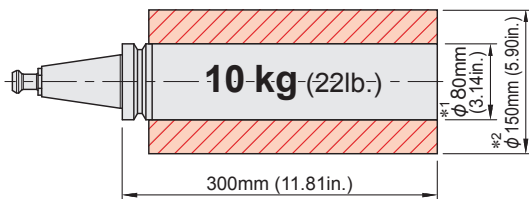
■ 30-tool drum magazine  Standard



■ 60-tool chain magazine  Option



■ Tool specification

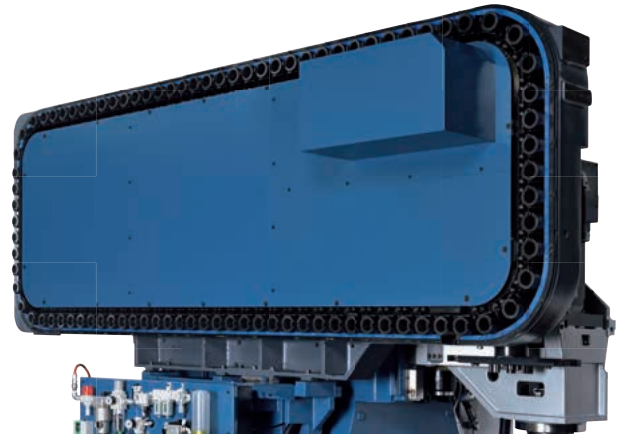


Standard BT40  Option HSK-A63

\*1 With adjacent tools

\*2 Without adjacent tools

■ 90-tool chain magazine  Option

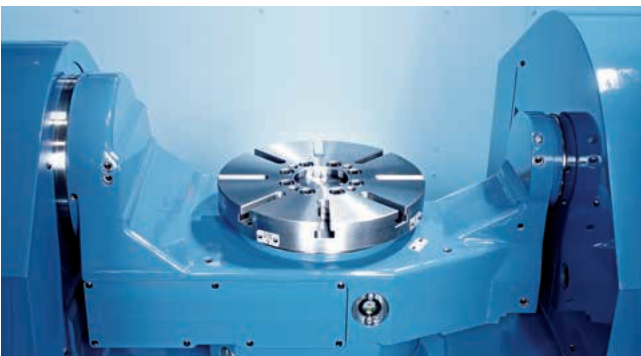


## 4<sup>th</sup> / 5<sup>th</sup> axis rotary table

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

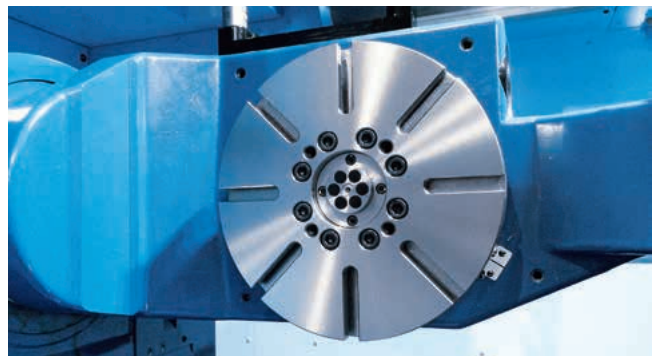
■  $\phi$ 250mm table  Standard

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



■ 6-port through-table  Option

(Max. supply pressure 19.6MPa)



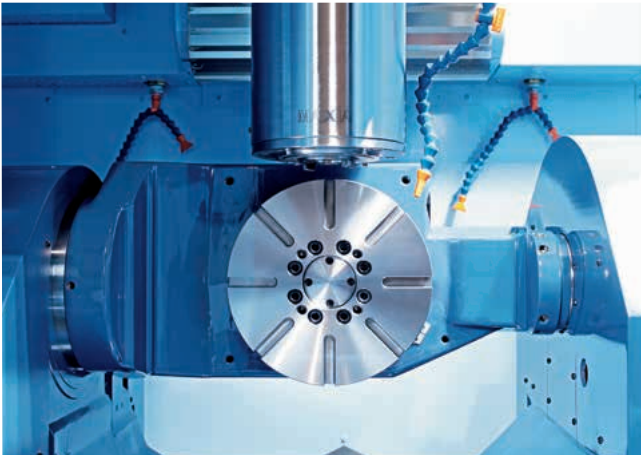
※ Refer to MX-330 Max. workpiece size and loading capacity



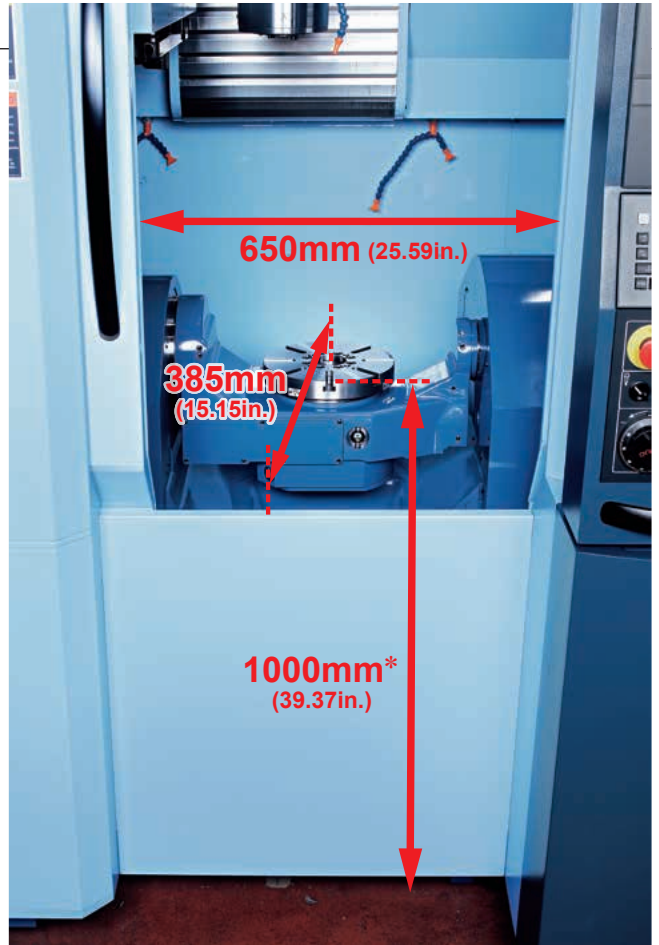
# Excellent Access to the Machining Enclosure

## 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.



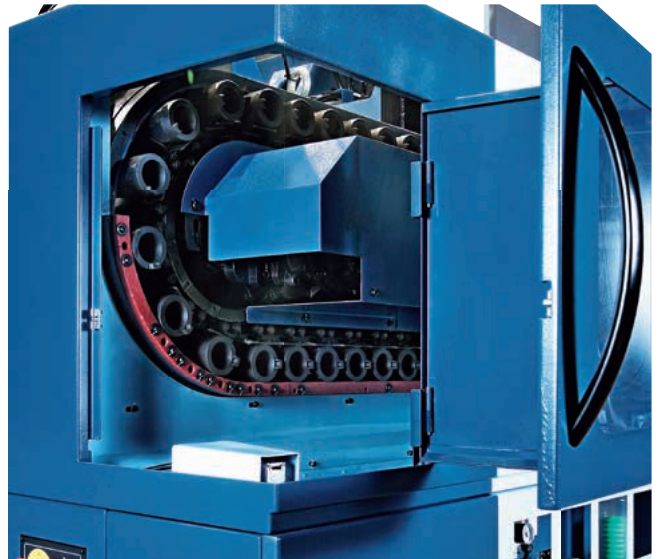
\*Pallet specification is 1020mm (40.15in.)

## 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

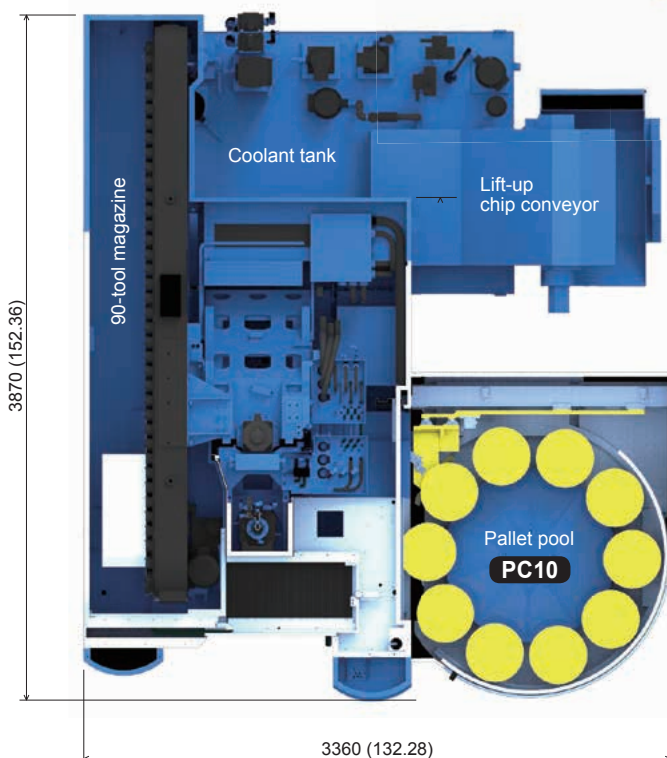
# Automation & Unmanned Production Package Option

**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  $\phi$  330 mm x H 300mm Max. workpiece size.



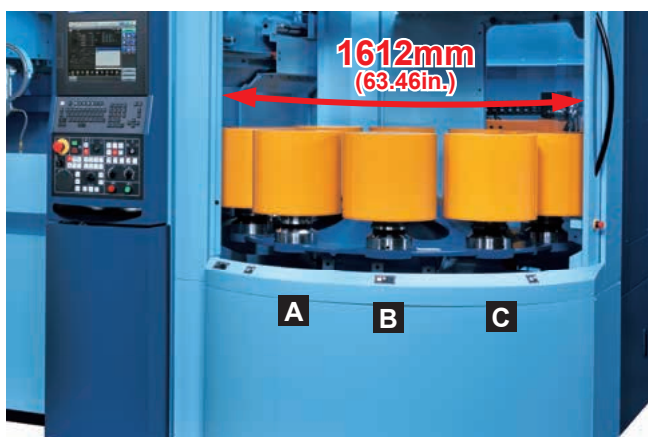
Item		Specifications
ATC		90tool
APC	Number of pallets	10 (Floor pallet system)
	Pallet type	CAPTO C6
Through-pallet		3 ports (Max. 19.6 MPa) Option



## Work station

Standard

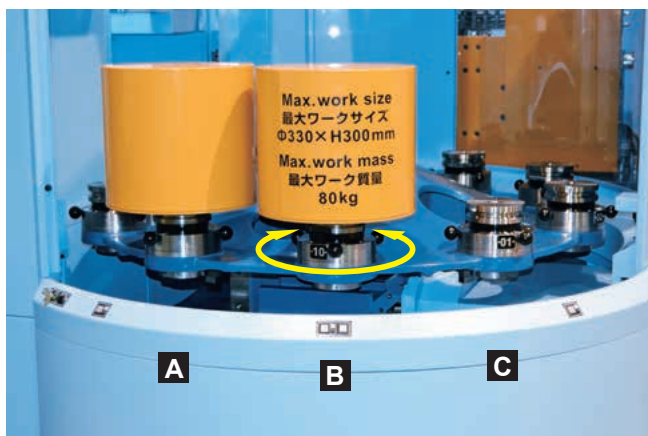
Work station access allows the set up of three pallets (A, B & C as shown) simultaneously.



## Work station (rotary)

Option

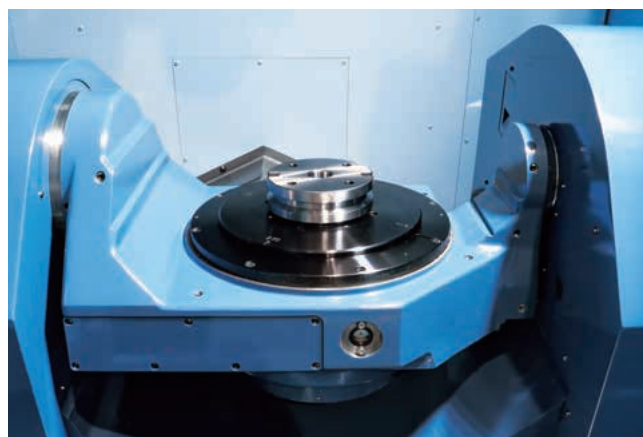
Rotary mechanism provided in the B position increases setup efficiency. Setup is possible by turning 90 degrees.



## 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	<b>Eco Meister</b>	Accuracy	<b>Thermal Meister</b>
	Eco mode		Stable accuracy
Simple	Power savings	Secure	<input type="checkbox"/> Spindle thermal displacement compensation <input type="checkbox"/> Environmental thermal displacement compensation <b>Option</b>
	<input type="checkbox"/> Power cut-off function <input type="checkbox"/> Energy-saving devices installed <input type="checkbox"/> Eco-operation		<b>Reliability Meister</b>
	<b>Operability Meister</b>		Reduced machine downtime
	Hassle-free, simple operation		<input type="checkbox"/> Preventive maintenance support function <input type="checkbox"/> Machine recovery support function <input type="checkbox"/> Electronic manual function <input type="checkbox"/> E-mail transmission function
	<input type="checkbox"/> Tool setup support <input type="checkbox"/> Workpiece setup support		

### New Operation Panel

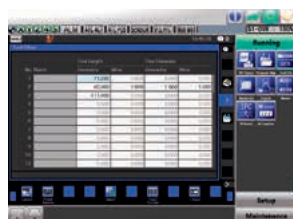
**Matsuura G-Tech 31i**

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

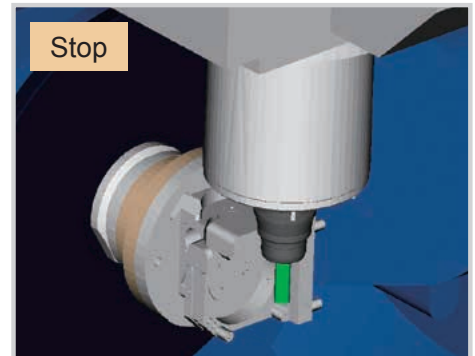




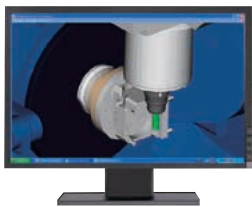
# Intelligent Protection System Option

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

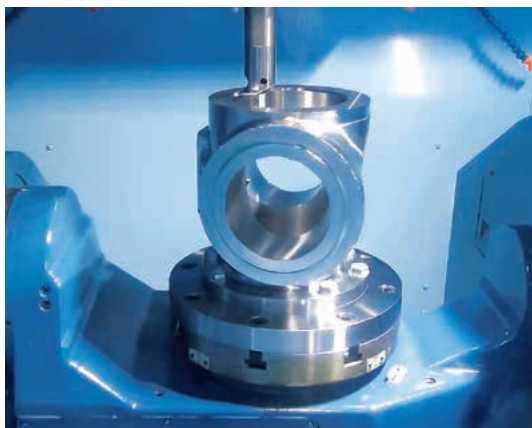
\* **The Intelligent Protection System** simulates your programmed components (tools, workpiece, fixtures, etc.) that match the machine model, alerting you to any possible interference or collision before actual machining takes place.

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

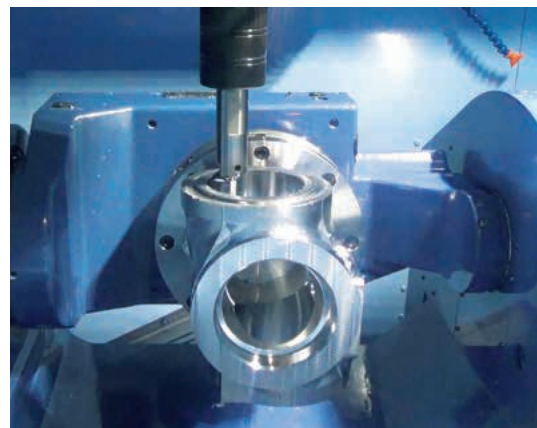
# Synchro Tip + Orbit machining Option Patent No. 5883535

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.

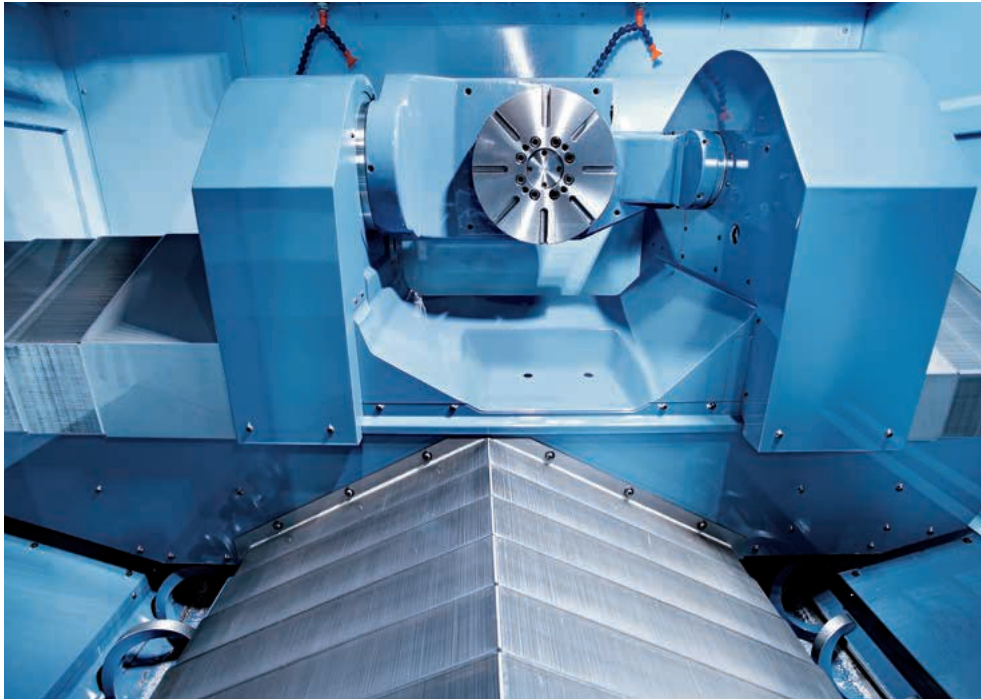
\* eZ-5 requires a separately available NC option to add macro variables.



# Rapid Metal Removal Requires Ultra Efficient Chip Flow & Swarf Clearance

## Smooth and Efficient Swarf management – by Design

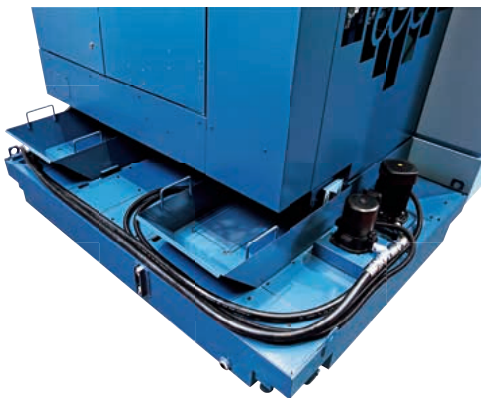
Steep angle gradients on telescopic guard covers & internal surfaces & powerful coolant wash system facilitate the rapid despatch of chips and swarf from the machining enclosure, delivering maintenance free extended machining without the need for manual intervention. For environments where vast amounts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



**Standard** Chip-flush coolant

**Option** Spiral chip conveyor

**Standard** Chip-flow coolant



**Standard** Coolant tank



**Option** Lift-up chip conveyor (back disposal)

**Option** Chip bucket



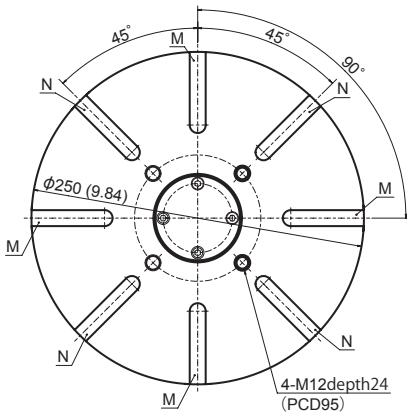
**Option** Lift-up chip conveyor (side disposal)

**Option** Chip bucket

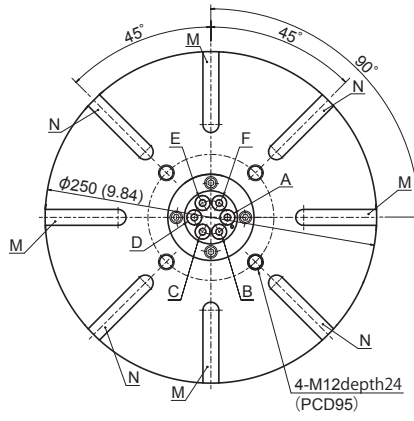


Top view Unit: mm (in.)

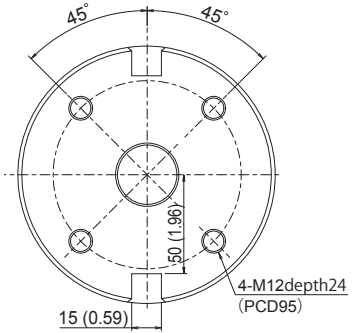
Table top view **Standard**



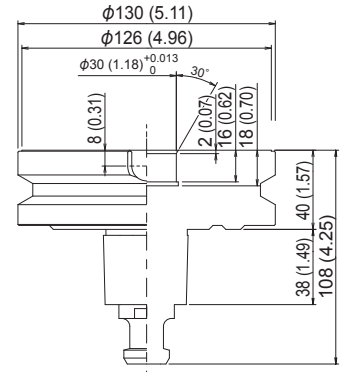
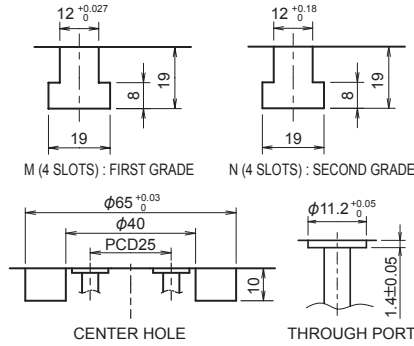
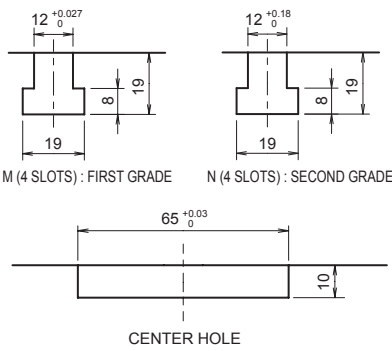
With through-table **Option**



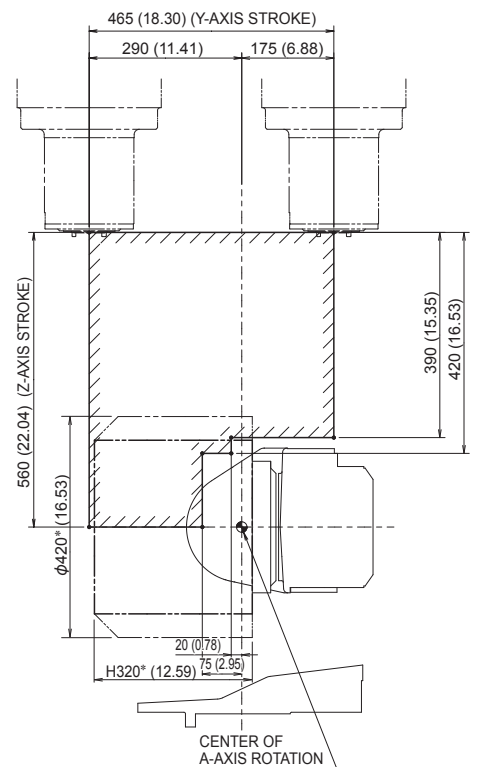
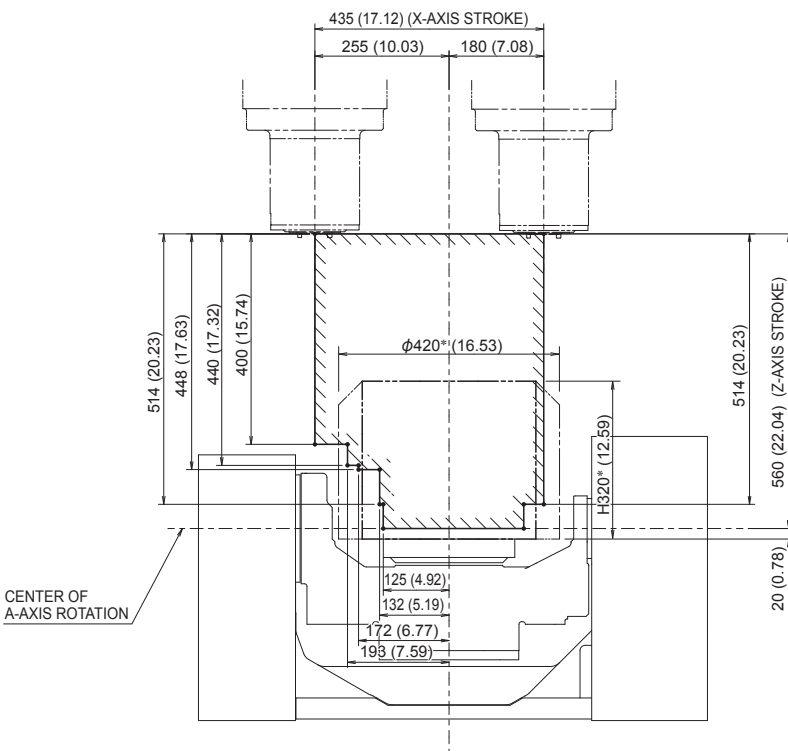
Pallet top view **Option**



\* A-F is a Port Number (PCD25)



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



\*Max. workpiece size

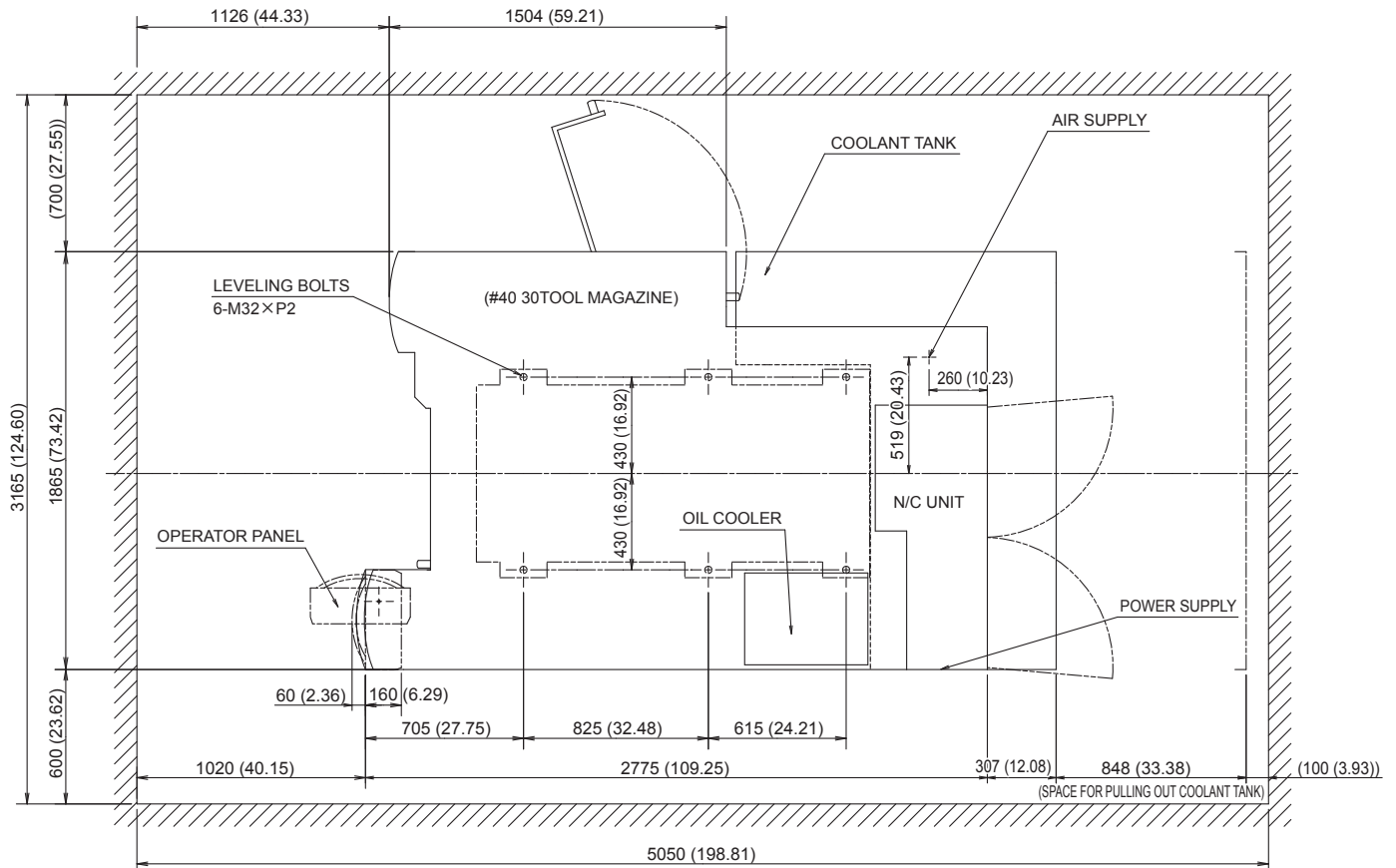
## Standard Machine Specifications

■ 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.)	φ 250 (φ 9.84)
Loading capacity	kg (lb.)	80 (176)
Max. workpiece size	mm (in.)	φ 330×H320 (φ 12.99×H12.59) φ 420×H320 (φ 16.53×H12.59) (with restrictions)
■ Spindle		
Spindle speed	min <sup>-1</sup>	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.)	φ 70 (φ 2.75)
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 <sup>-1</sup>	17 / 33
Feedrate X / Y / Z	mm/min (ipm)	1 ~ 40000 (0.03 ~ 1574.8)
A / C	min <sup>-1</sup>	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.)	φ 80 (φ 3.14) (With adjacent tools) φ 150 (φ 5.90) (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 above
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	kg (lb.)	6300 (13860)
■ NC System		
Control system	—	<b>Matsura G-Tech 31i</b>
■ 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. <b>AD-TAP</b> function	
13. <b>IPC</b> 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. <b>MIMS</b> (Matsura 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

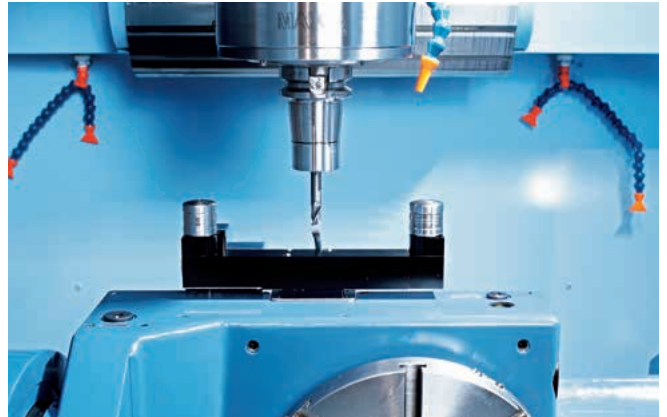
○ : Standard ▲ : Option

<b>■ Spindle</b>		
15000min <sup>-1</sup> (BT40 auto grease lubrication)		○
15000min <sup>-1</sup> (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 <sup>-1</sup> (BT40 auto grease lubrication)		
Spindle motor output	kW	Low: 11 / 15、High: 15 / 18.5
Max. spindle torque	N·m	108.4
<b>■ Tool Storage Capacity</b>		
30 tool (Drum magazine)		○
60 tool (Chain magazine)		▲
90 tool (Chain magazine)		▲
<b>■ Number of Pallets</b>		
1 (Single pallet) *1		▲
10 (Floor pallet system) *2		▲
<b>■ Automation Package</b>		
Automation package (PC10 , 90tools , Spiral)		▲
<b>■ High Accuracy Control</b>		
Scale feedback X-/Y-/Z-axis		▲
Environmental thermal displacement compensation (15000min <sup>-1</sup> spindle)		▲
Environmental thermal displacement compensation (20000min <sup>-1</sup> spindle)		▲
<b>■ Coolant</b>		
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		▲
<b>■ Automatic Measurement, Tool Breakage Detection</b>		
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)

<b>■ Chip Removal</b>	
Chip bucket	▲
Spiral chip conveyor	▲
Lift-up chip conveyor (scraper)	▲
Air blow for chip removal	▲
Workpiece cleaning gun (machine side)	▲
<b>■ Operation/Maintenance Support</b>	
<b>Intelligent Protection System</b>	
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	▲
<b>■ Optional Package</b>	
High-speed, high-precision package	▲
5-axis package	▲
High-speed, high-precision 5-axis package	▲

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

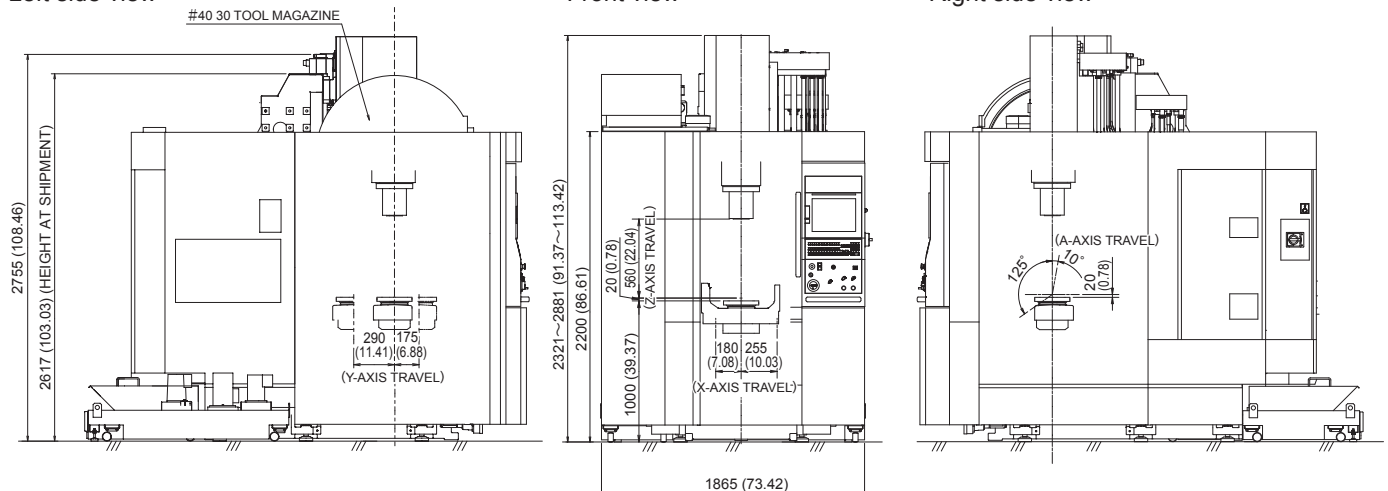


## External view Unit: mm (in.) Standard

Left side view

Front view

Right side view





# Matsuura

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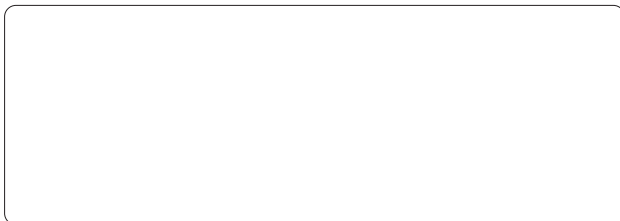
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- Product specifications and dimensions are subject to change without prior notice.
  - The photos may show optional accessories.



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

