

 **Matsuura**

5-Axis Vertical Machining Center

MX-330

MX-420 **PC10**

 **Matsuura**

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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.



PC10

MAXIA
Innovation by  Matsuura

Matsuura's Globally Best Selling "5-Axis + Multi-pallet" thoroughly covering all key customer needs

Series Further Evolved, on Ease of Use and Automation

Featuring the latest technological developments based on the Matsuura Slogan: "The Reason to be Chosen"

"Safe and Easy 5-Axis Machining"

MX Series X

A 5-axis entry-level machine with ease of use and automation features.

Matsuura hand-built 5-axis quality; exceptional performance, low cost of ownership & assured residual value.

Achieve stable machining accuracy while ensuring excellent operability, such as accessibility to the work envelope and ease of setup.

Advanced MIMS

Equipped with optimal functions developed based on real customer testimonials, addressing challenges of automated and unmanned operation.

Improve productivity and save on labor with safe and reliable extended unmanned operation.

The 5 Matsuura Intelligent Meisters



MX Series Line-up

1	<i>Productivity Meister</i> Automation	Improve Productivity in the face of Staffing Issues with Extended Unmanned Operation <ul style="list-style-type: none"> Extended unmanned operation support Simple & secure scheduling
2	<i>Operability Meister</i> Simple	Fuss-free Simple Operation, Increased Work Efficiency <ul style="list-style-type: none"> Intuitive operability Reduced operator's burden Visualized machine operation status
3	<i>Performance Meister</i> Accuracy	Show Consistent Excellent Performance, Increased Machining Efficiency <ul style="list-style-type: none"> Stabilization of machining accuracy Cycle time reduction Reduced machining error
4	<i>Reliability Meister</i> Secure	Reduction of Machine Downtime, Extended Stable Operation <ul style="list-style-type: none"> Reduced machine recovery time Reduced error-related downtime Resolved chip management issue
5	<i>ECO Meister</i> Environment	Power Saving, Reduced Environmental Burden & Operation Cost <ul style="list-style-type: none"> Reduced power consumption

1

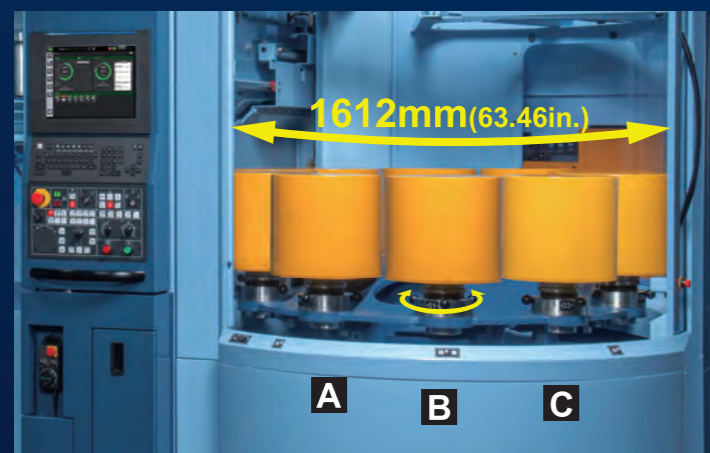
Productivity Meister

Automation

Improve Productivity in the face of Staffing Issues with Extended Unmanned Operation

Capable of 24 hours continuous operation - Simple automation

The **MX-330** comes in the form of a 10 pallet (CAPTO C6 compatible) & 90 tool option, offering superb profit enhancing lights out production while utilizing minimal floorspace.



PC10

(Floor pallet system)

Option

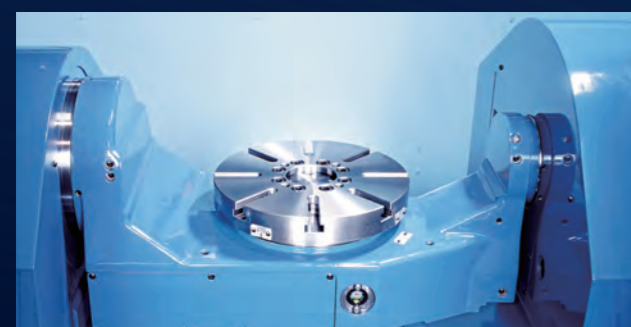
Workstation access allows the simultaneous set up of three pallets (A, B & C as shown).

*PC10 is standard for **MX-420**. Door opening width 2011mm (79.17in.).

Work station (rotary)

Option

Rotary mechanism shown in the B position increases efficiency by allowing set up at every 90 degrees.



Ø250mm table

Standard

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

* Table specification and **PC1** only available for **MX-330**.

PC1 (single pallet) CAPTO C6

Option

CAPTO C6 pallets excel at high-accuracy positioning and repeat accuracy. Pallets are the same as those on the **MAM72-35V**, allowing common use of fixtures.

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

Automation with a robot Interface for connection with external work transfer equipment.

▶ **Robot interface**

Option

Supports automation with a robot system. 2 types of "FOCAS+I/O" and "FOCASonly" available for various types of robots.

▶ **Automatic door**

Option

Automatically opens and closes the operator door.

* Not available for **MX-330 PC10** and **MX-420 PC10**.

▶ **Pressure supply system to fixtures**

Option

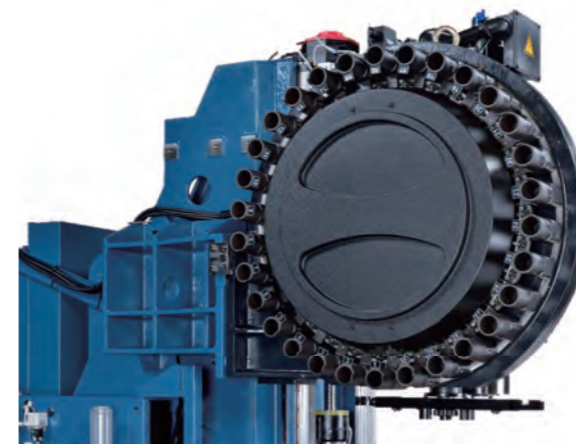
Equipped with pressure supply ports for through-pallet system fixtures. Supplies pressure to the auto clamping device and makes it possible to utilize an external workpiece transfer system.

* Requirements and restrictions differ depending on table/pallet, hydraulic pressure/pneumatic pressure/vacuum.

* Not available for **PC10** when work rotation system (manual) is selected.

30-tool drum magazine

Standard



60-tool chain magazine

Option

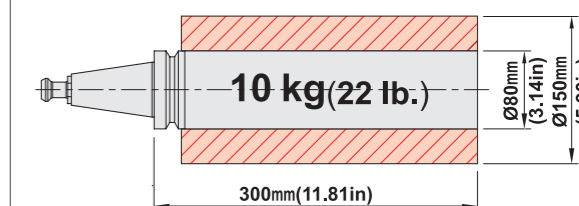


90-tool chain magazine

Option



Tool specification



Type of tool shank: JIS B 6339 40T

Max. tool diameter: Ø80mm (Ø3.14 in.) with adjacent tools

Ø150mm (Ø5.90 in.) without adjacent tools

* Storage pocket is limited for large diameter tools

Max. tool length : 300mm (11.81 in.)

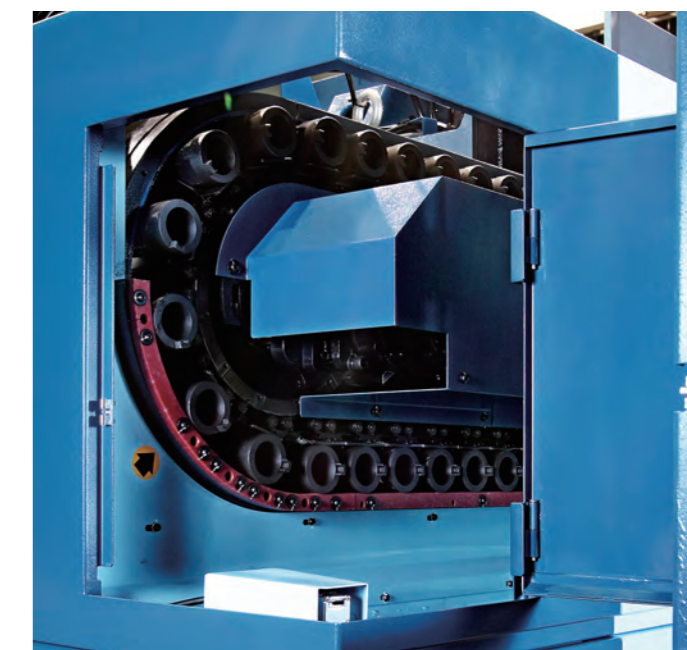
Max. tool mass : 10kg (22 lb.)

Simple & safe ATC access

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

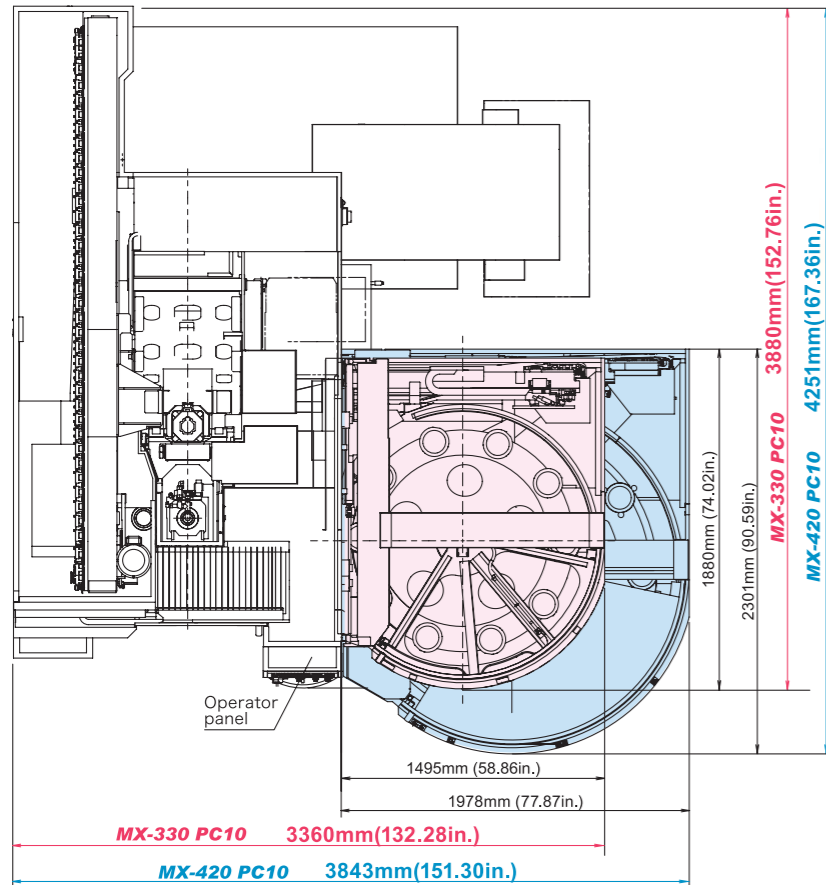


30-tool drum magazine

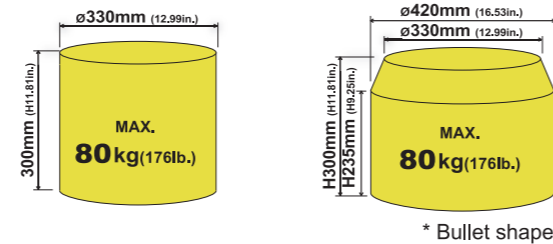


60-tool chain magazine

Two available models to fit diverse customer workpiece requirements.
Compact design saves valuable factory floor space.



5-Axis Vertical Machining Center **MX-330 PC10** 5-Axis Vertical Machining Center **MX-420 PC10**



Toward Full-spec. Automation
Smooth step-up from **MX-330 PC10** / **MX-420 PC10**

5-Axis Vertical Machining Center
MAM72-35V PC32
MAM72-42V PC32

- The **MAM72-35V/42V** has a large storing capacity with 32 pallets, for extended unmanned operation in variable part/variable production.
- The **MX-330/420** and our established **MAM72-35V/42V** 5-axis machines both utilize the same pallet (CAPTO C6), offering seamless interaction and deployment of pallets and fixtures between machines.

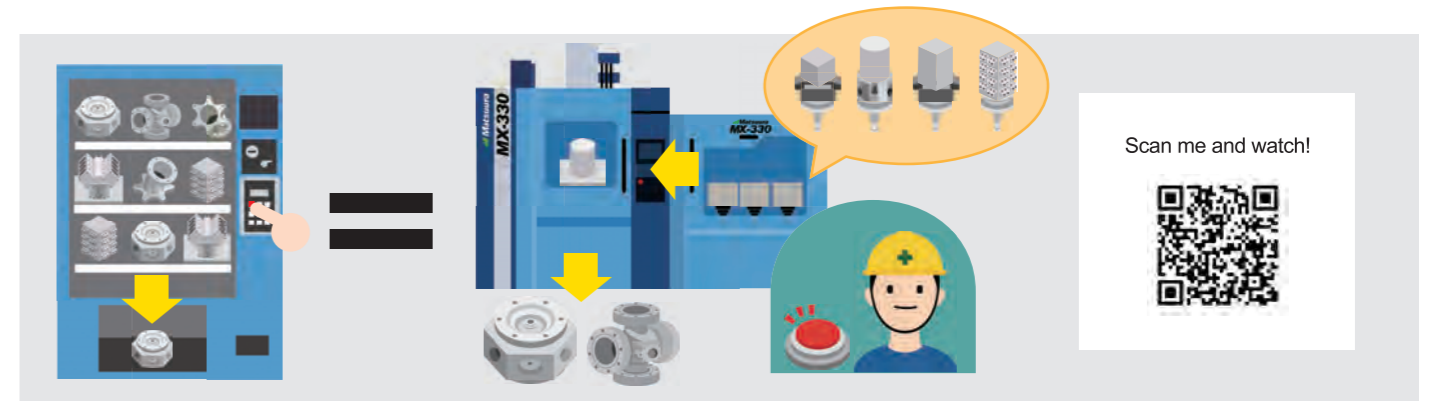
* Refer to **MAM72-35V/42V** Max. workpiece size and loading capacity.

* Photo shows **MAM72-35V PC32**

Matsuura Original Multi-pallet System Solution

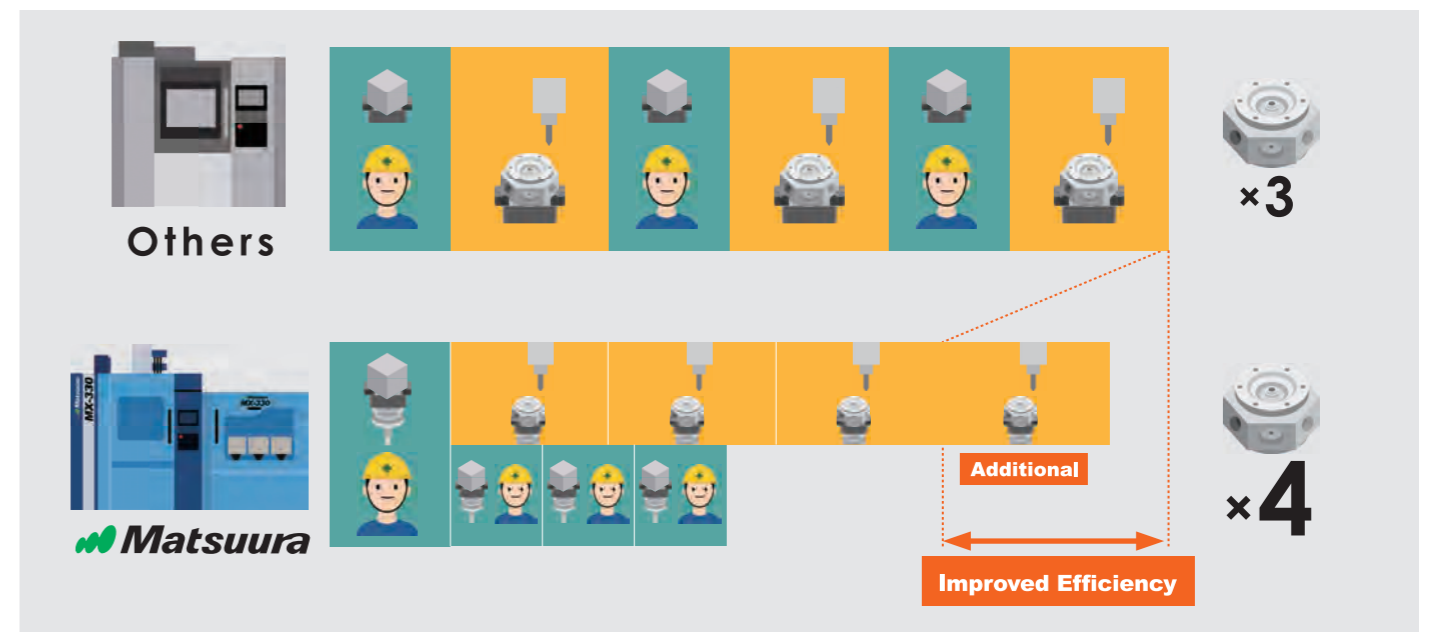
High-Mix, Low-Volume Production

Matsuura's class leading multi-pallet solutions allow you to leave fixtures for recurring jobs on specified pallets, enabling you to respond quickly to customer requests, producing the required parts as required – much "like a vending machine".



Maximize Operational Efficiency

The integrated work stations on Matsuura multi-pallet machines allow you to set work whilst the machine is producing parts, adding to the machines OEE and ROI. Once workpieces have been set in the pallet pool, the machine will automatically machine them in the order set.



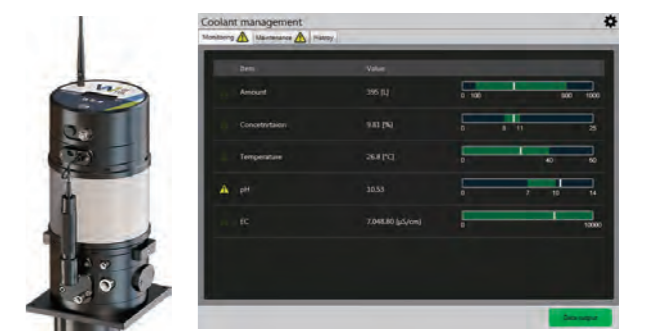
Coolant management system Option

NEW

Prevents production halts caused by coolant shortage and reduces coolant replenishment work by automatically monitoring the coolant condition (level, concentration, temperature, pH, electrical conductivity) to allow for extended unmanned operation.

Visualizing coolant conditions also helps you improve machined surface quality, tool wear, and reduce maintenance time.

- * Only available for water soluble coolant.
- * Industrial water arranged by customer.
- * The coolant management system requires the operation status monitoring option (one year data storage capacity expansion).



2 Operability Meister Simple

Fuss-free Simple Operation, Increased Work Efficiency

Intuitive Operability for Secure and Reliable Unmanned Operation

MiOS 4.0

Matsura integrated Operating System NEW

The newest update of the user interface, the first in 10 years, offers intuitive operability regardless of operator experience. The improved icon layout provides easier workflow, and the larger main screen improves visibility by displaying important information at all times.

The main screen displays all necessary information for automatic operation

Machining schedule, machining progress (start/end time display), tool life, machining program and tool management pre check are all displayed on the main screen. Machine status can be seen at a glance, facilitating secure and reliable unmanned operation.

Large capacity memory (16GB) Option

To support high-mix low-volume production and extended operation, program capacity has been increased to 16GB. Enables management of larger programs without stress by increasing program transfer speed.

User friendly tool management screen

Equipped with tool life management as standard, the unmanned capability of the machine is enhanced.

- ▶ By creating tool lists you can check and search specific tool data.
- ▶ With the load / unload function you can store tool data on a temporary basis.

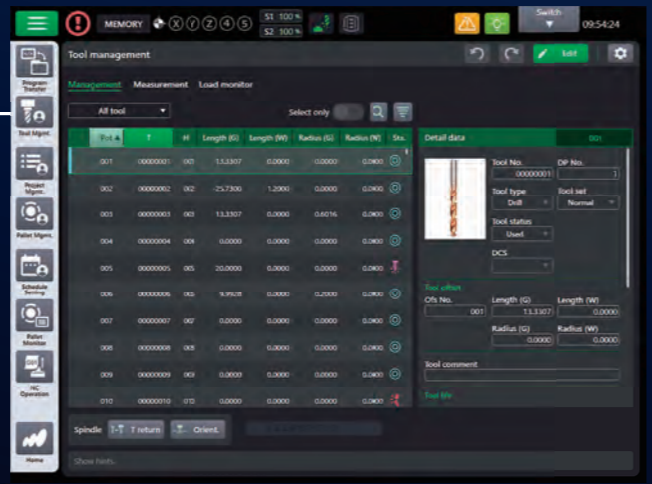
Tool pre-check function

- ▶ Confirms tools are available before machining begins.
- ▶ Prevents alarms and unplanned stops during unmanned operation.

* Only installed as standard with multi-pallet system



Home screen

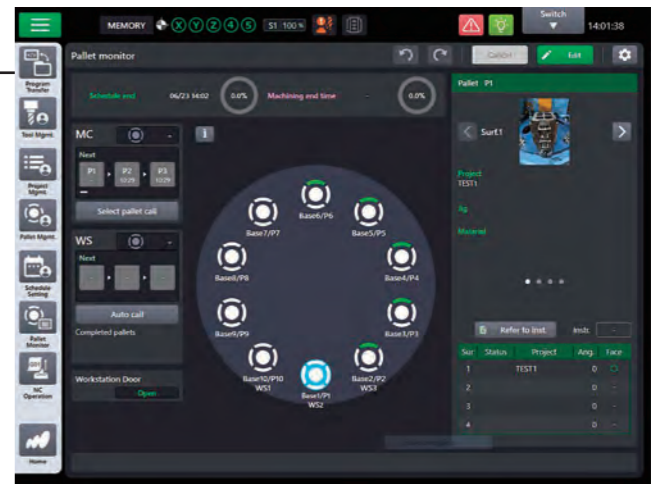


Tool management screen

Easy pallet management and scheduling

Continuous operation is made possible by setting all necessary information into the schedule table. Order or priority of machining can be easily changed to meet production requirements. Pallet reserve, interrupt, priority and repeat can be set for each pallet. Pallet management screen is designed for easy operation and flexible production.

- Scheduled operation** Machining operation according to schedule numbers
- Interrupt pallet** Prioritizes highlighted pallet number in production schedule
- Reserve pallet** Reserves pallets for when unmanned run time is allowed
- Continuous operation** Repeat machining operation when the machining on the specified pallet is completed
- End pallet setting** Finishing schedule operation when the machining on the specified pallet is completed

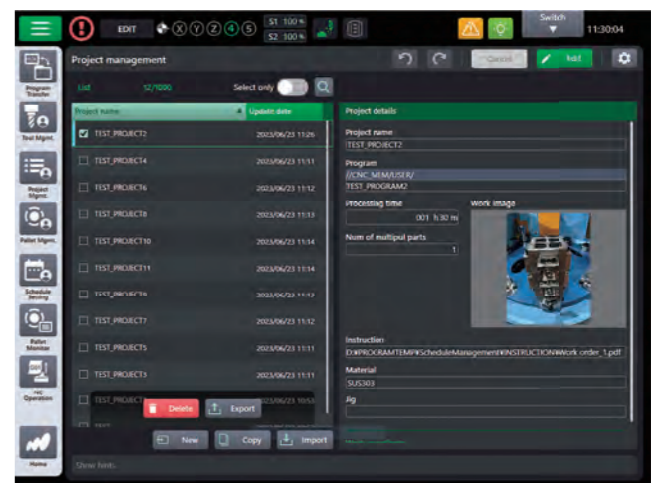


Pallet monitoring screen

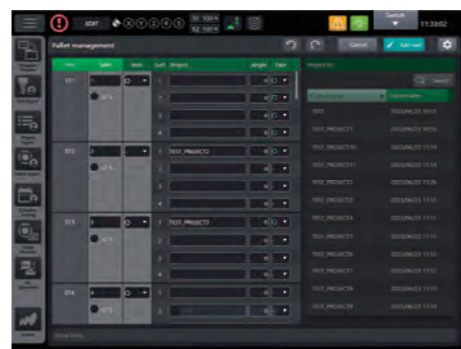
Project management function

Unitary control of machining data(machining program, material/fixture/image data, work coordinate data, setup instruction data) as project file (**up to 1000data**). Easy and secure data transfer between machines with data input/output function, preventing delivery delays due to machine setup time or machine stops caused by human errors in schedule setups. Enables easy and reliable night/weekend unmanned operation.

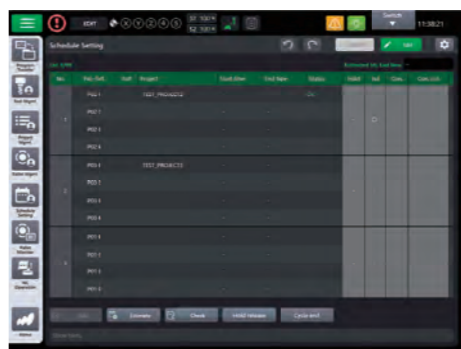
You can check the completion time of the work by displaying machining start and completion time. Easier schedule setting to meet the delivery of machined parts. Set up support function to send notifications in event of a program setting error and tool shortage, ensuring secure schedule operation with reduced setup error and operator burden.



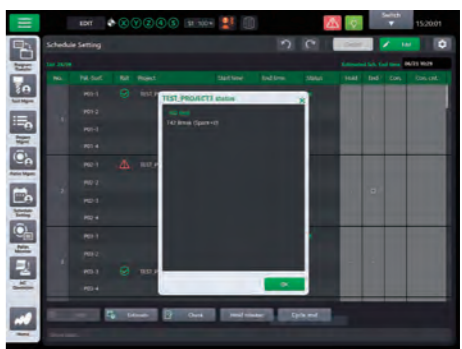
Project management screen



Pallet management screen



Schedule management screen (1)

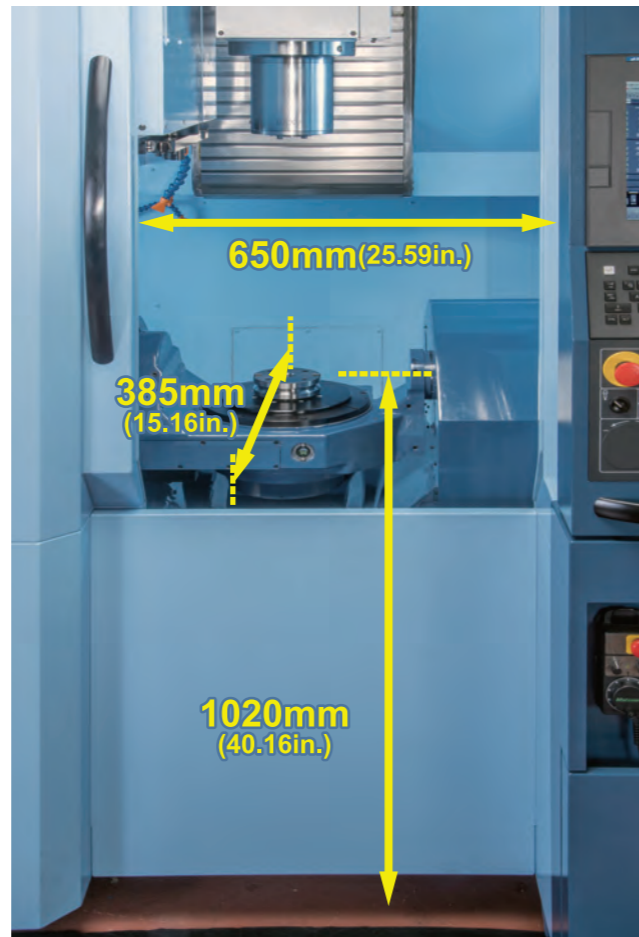
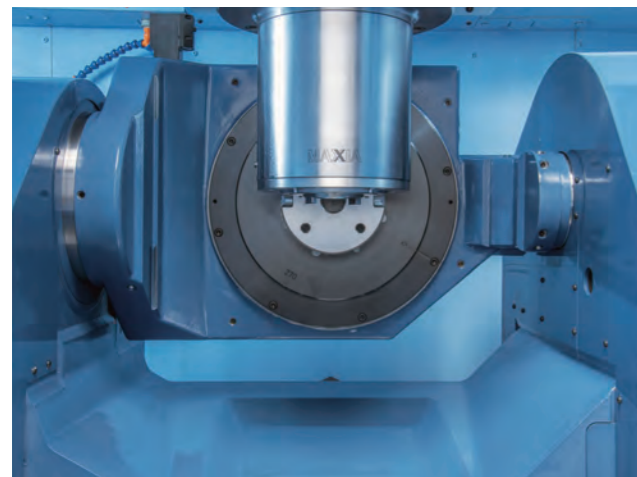


Schedule management screen (2)

Reduced Operator's Burden

Accessibility to workpiece and spindle

The main access door offers a generous 650mm (25.59in.) of opening width, sufficient for the maximum workpiece size 420mm (16.54in.) and facilitating safe, fast & smooth load / unload operations. The distance from the front face of the machine to the center of the pallet is 385mm (15.16in.), providing ergonomic access to the workpiece and spindle.



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

* For **MX-330** table specification, the distance from floor to table top surface is 1000mm (39.37in.).

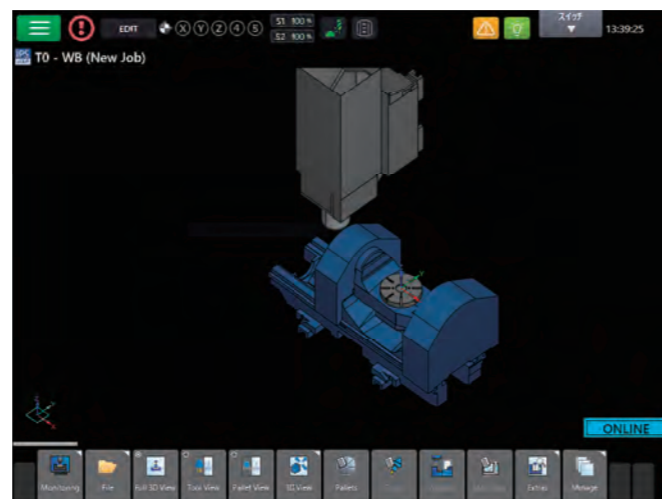
Intelligent Protection System

Collision prevention function Standard

The collision prevention function is developed specially 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.

- * With **Intelligent Protection System**, interference check is available during cutting simulation.
- * The **Intelligent Protection System** simulates your programming components (tools, workpiece, fixtures, etc.) that match the machine model, alerting you to any possible interference or collision before actual machining takes place.
- * Model editing tool for model creation on an external PC is available as an option. Model data of stock, tools, etc. can be created in a single software.

Previously required an external PC **Upgrade**
Now installed to the NC screen as standard



Visual Management for Machines

Operation status monitoring Standard

Machine availability and performance can be monitored to improve process planning.

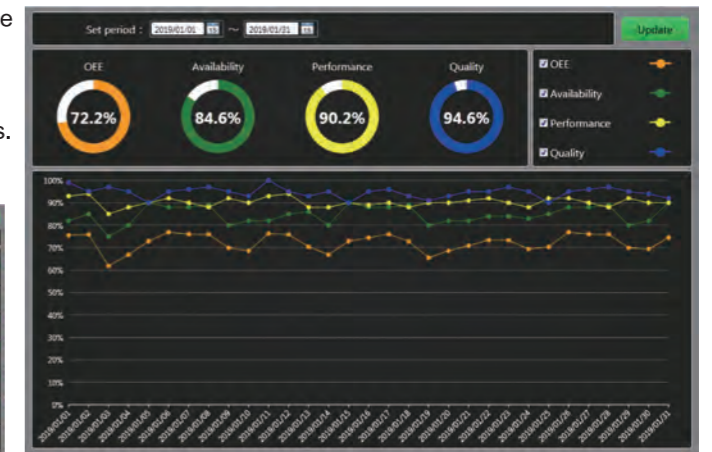
- ▶ Performance is monitored to check OEE.
- ▶ Data can be output to process data acquisition (PDA) systems.

* Overall equipment efficiency (OEE) = availability x performance x quality

* The storage period is one month. Upgrade to one year of data storage is optional.



Operational state display



Overall operation ratio display

Matsuura remote monitoring system Option

NEW

- ▶ Monitor the operating status of multiple machines, even while off site.
- ▶ Check machine operation history (machines can be displayed collectively or individually).
- ▶ Edit the pallet schedule, even when away from the machine.



Multiple machines operating status



Individual machine operating status

MTConnect/OPC UA Option

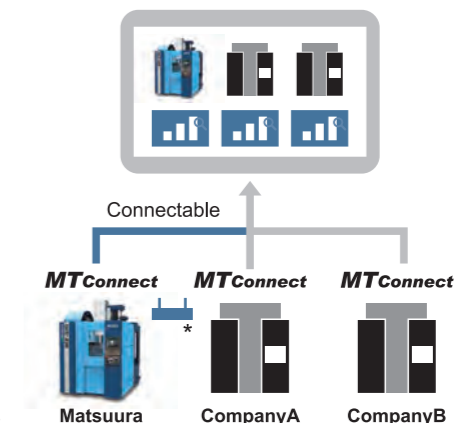
MTConnect/OPC UA is an open communication protocol for the manufacturing industry. MTConnect/OPC UA enables low-cost visualization and oversight of all CNC machines in a factory, regardless of the machine manufacturer. Benefits include;

- ▶ Optimization of production schedule
- ▶ Identify and utilize free machine time
- ▶ Early detection of abnormalities

* Support for both wireless and wired LANs

MTConnect compatible visualization system

NEW



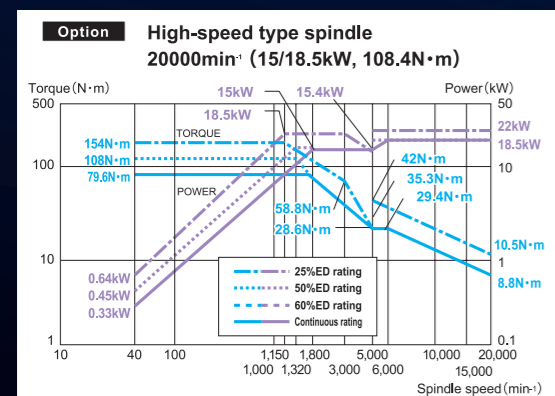
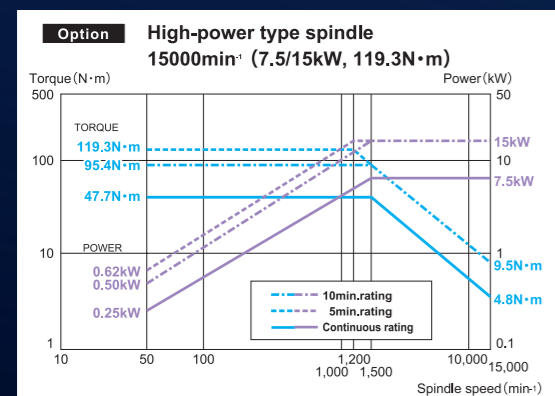
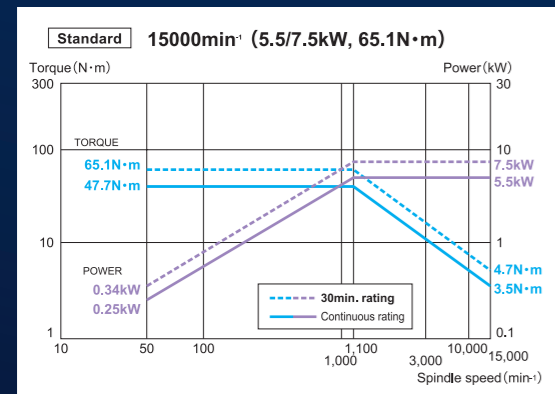
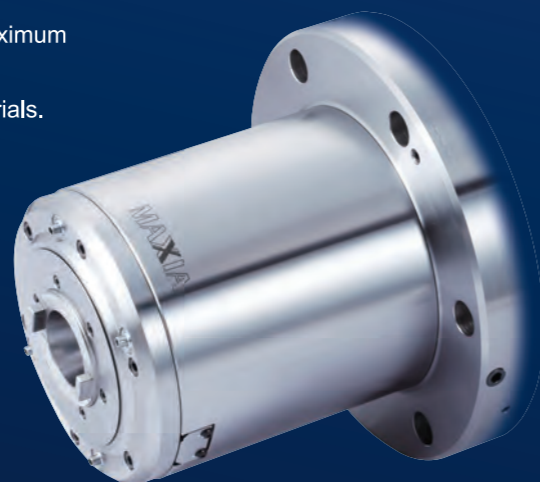
3

Performance Meister
Accuracy

Show Consistent Excellent Performance, Increased Machining Efficiency

High-rigidity, high-precision MAXIA BT40 Spindle

MAXIA Spindles - designed and built only by Matsuura, deliver maximum performance, accuracy and longevity of service for many, many years - even when continuously machining hard-to-cut materials. High torque, heavy duty and high speed are assured across the range of spindle options from Matsuura.



- ▶ Built-in reliability with superior design and sustained spindle performance drawn from Matsuura's lengthy engineering heritage
- ▶ From high - speed aluminum machining to pre-hardened steels; exceptional performance in all machining environments is assured.
- ▶ Matsuura controls every aspect of our 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
- ▶ 70mm diameter bearing with excellent balance of high speed rotation and reliability.

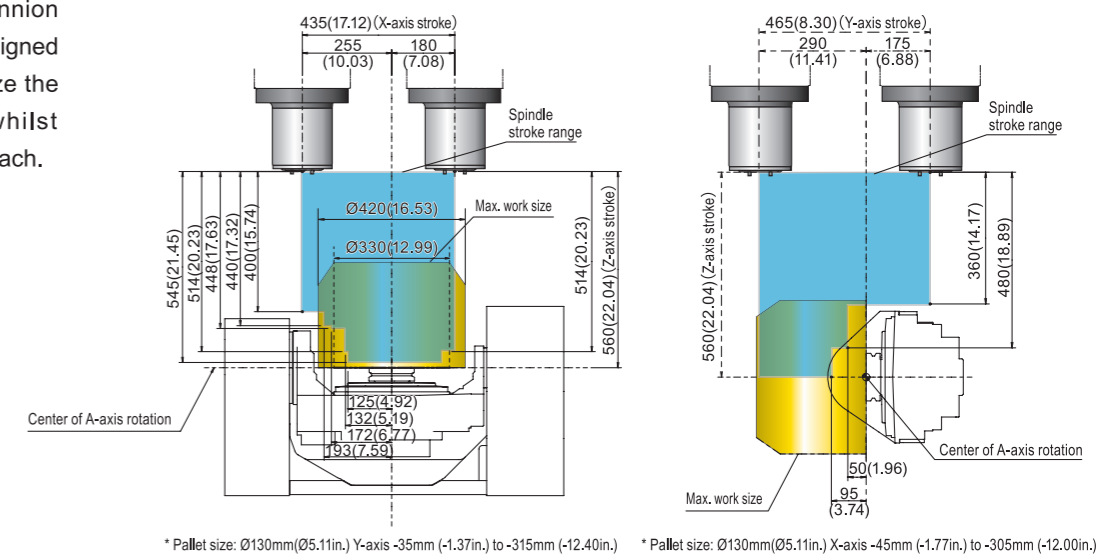
Machining test results

BT#40 15000min ⁻¹ (7.5/15kW, 119.3N·m)						BT#40 20000min ⁻¹ (15/18.5kW, 108.4N·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	A5052	Ø80mm (3,14) 3blades	W=70mm (2.75) D=4mm (0.15)	5,500 min ⁻¹	5,500 mm/min (216.53)	1,540 cc/min	Face mill	A5052	Ø80mm (3,14) 3blades	W=70mm (2.75) D=4mm (0.15)	5,500 min ⁻¹	9,000 mm/min (354.33)	2,520 cc/min
	S45C	Ø80mm (3,14) 5blades	W=70mm (2.75) D=2.5mm (0.09)	1,400 min ⁻¹	2,000 mm/min (78.74)	350 cc/min		S45C	Ø80mm (3,14) 5blades	W=70mm (2.75) D=2mm (0.07)	1,320 min ⁻¹	2,600 mm/min (102.36)	364 cc/min
End mill	A5052	Ø25mm (0.98) 2blades	W=22mm (0.86) D=6mm (0.23)	15,000 min ⁻¹	8,500 mm/min (334.94)	1,122 cc/min	End mill	A5052	Ø25mm (0.98) 2blades	W=22mm (0.86) D=6mm (0.23)	20,000 min ⁻¹	13,000 mm/min (511.81)	1,716 cc/min
	S45C	Ø20mm (0.79) 4blades	W=30mm (1.18) D=30mm (1.18)	5,000 min ⁻¹	4,200 mm/min (165.35)	378 cc/min		S45C	Ø20mm (0.79) 4blades	W=30mm (1.18) D=30mm (1.18)	5,000 min ⁻¹	5,000 mm/min (196.85)	450 cc/min
U Drill	A5052	Ø33mm (1.29)		1,500 min ⁻¹	450 mm/min (17.71)	385 cc/min	U Drill	A5052	Ø30mm (1.18)		1,800 min ⁻¹	700 mm/min (27.55)	495 cc/min
	S45C	Ø33mm (1.29)		1,200 min ⁻¹	200 mm/min (7.87)	171 cc/min		S45C	Ø27mm (1.06)		1,500 min ⁻¹	320 mm/min (12.59)	183 cc/min
Tap	A5052	M36x P4,0		120 min ⁻¹	480 mm/min (18.89)	—	Tap	A5052	M36x P4,0		120 min ⁻¹	480 mm/min (18.89)	—
	S45C	M24x P3,0		100 min ⁻¹	300 mm/min (11.81)	—		S45C	M24x P3,0		100 min ⁻¹	300 mm/min (11.81)	—

Lower costs, fewer set-ups, and eliminate accumulated load errors with 5-axis machining

Specially designed 4th-/5th-axis table. The headstock & trunnion configuration have been designed in such a way as to minimize the possibility of collision, whilst maximizing tool access & reach.

Spindle Stroke Diagram (Pallet specification)

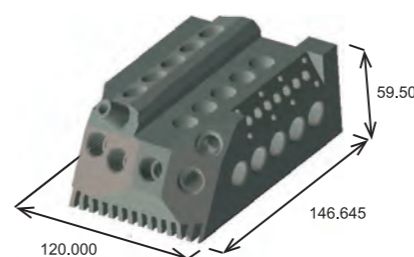


Productivity improvement via cycle time reduction; acceleration of machine movement

Upgrade

The newly-designed **MX-330/420** achieved a cycle time reduction of 7% (compared to conventional model) by improving the 4/5 axis rapid traverse rate to 20/40min⁻¹ (conventional 17/33min⁻¹) and machine movement performance.

Fig. Cycle time comparison



[Material] Aluminum (147x120x60mm)[5.78x4.72x2.36in.]
[Number of tools] 12 tools
[Spindle speed] 2,000~15,000min⁻¹

Cycle time	Conventional	New-designed
4/5 axis indexing	50min 09sec	46min 32sec
Simultaneous 5 axis	33min 21sec	30min 56sec
Total	83min 30sec	77min 28sec

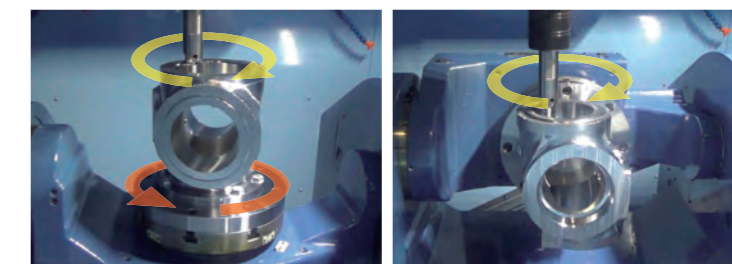
* Data is not intended to guarantee the performance.

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 tip. Since turning and machining can now be done in one, no additional setup time is required for the turning process.



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

* Orbit machining

Thermal displacement compensation

The displacement compensation monitors the temperature of major machine components – such as the spindle, ball screws, bed or column – automatically calculates the amount of compensation, and feeds it back to the NC controller.

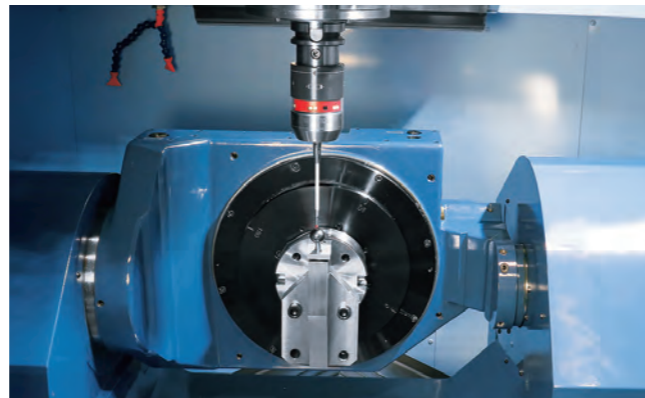
* The feed axis thermal displacement compensation can be used on the machine without scale feedback specification.

eZ-5
Advanced 5-axis error measurement and correction Option

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.

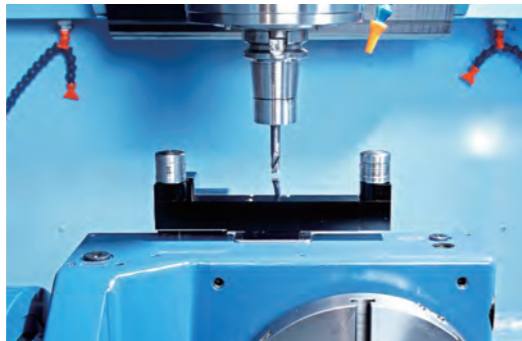


Stable machining accuracy is obtained by combining three kinds of thermal displacement compensation: spindle, environment, and feed axes(X/Y/Z).



Tool breakage detection Option

Achieve higher accuracy and accuracy stability by improving measurement accuracy and reducing measurement error. Mechanical type and laser type (Renishaw and Blum) are available.



Renishaw

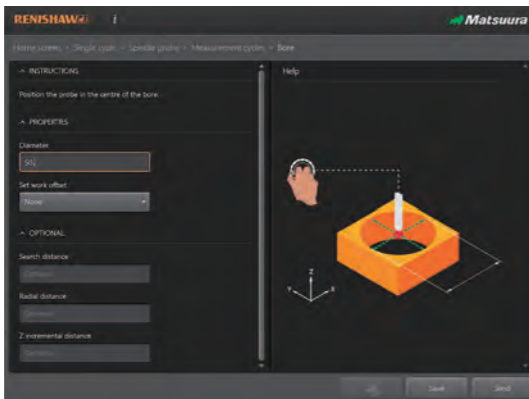


Blum

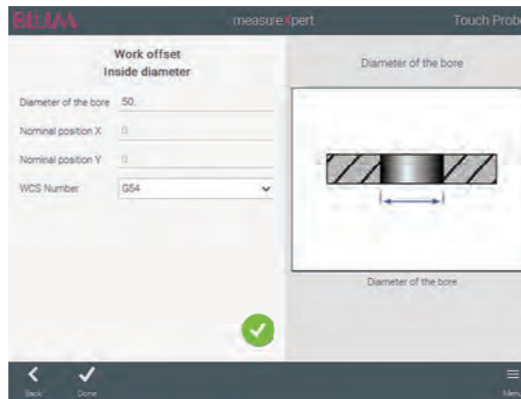
Automatic measurement (interactive) Option

Intuitive and user-friendly input support screens to guide operators through the process of automatic measurement and part setup.

* Automatic measurement (interactive) is available only when Blum macro or Renishaw macro is selected.



Renishaw

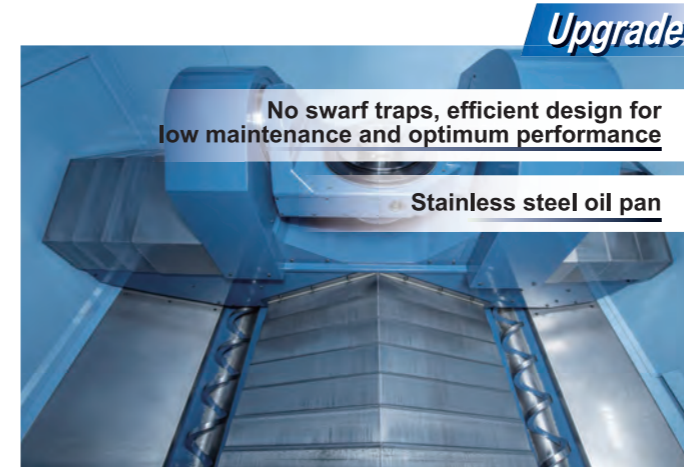


Blum

Reduction of Machine Downtime, Extended Stable Operation

Reliable chip removal

Steep angle gradients on telescopic guard covers & internal surfaces & powerful coolant wash system facilitate the rapid dispatch of chips and swarf from the machining enclosure, delivering maintenance-free extended machining. For environments where vast amounts of metal removal take place, the options below are available.



No swarf traps, efficient design for low maintenance and optimum performance

Stainless steel oil pan

Chip-flush coolant Standard

Spiral chip conveyor Option

* Equipped as standard for MX-420 PC10.



Lift-up chip conveyor (side disposal) Option

Chip bucket Option

Sludge collection Option Patent No. 7233145

NEW

90% or more of the sludge in the tank is automatically collected. Reduced running costs by extending tool and coolant life, cleaner work environment by eliminating decay and unpleasant odor of coolant, and reduced time spent cleaning by improving maintenance intervals.

* Only available for casting & aluminum sludge.
* Only available for water soluble coolant.



5min

60min

Power Saving, Reduced Environmental Burden & Operation Cost

Equipped with a function that reduces power consumption during idling and reduces environmental loading. Contributes to reducing CO₂ emissions.

- ▶ Power off function
- ▶ Lighting inside machine (LED) & Main screen turn-off function
- ▶ Auto power off function
- ▶ ECO drive function
- ▶ ECO mode

MX-330 Specification / Equipment

Standard Machine Specifications

Movement and Range		
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	[deg]	-125 - +10
C-axis rotation angle	[deg]	360
Table		
Working surface	[mm (in.)]	Ø250 (Ø9.84)
Loading capacity	[kg (lb.)]	80 (176)
Max. workpiece size	[mm (in.)]	Ø330xH320 (Ø12.99xH12.59) Ø420xH320 (Ø16.53xH12.59) (with restrictions)
Spindle		
Spindle speed	[min ⁻¹]	50 - 15000 (auto grease lubrication)
Spindle speed change command		S5 digits direct command
Spindle taper		7/24 taper BT40 (BT double face contact)
Spindle bearing inner diameter	[mm (in.)]	Ø70 (Ø2.75)
Max. spindle torque	[N·m]	65.1/1100min ⁻¹
Feed rate		
Rapid traverse rate X/Y/Z	[mm(in.)/min]	40000/40000/40000 (1574.8)
A/C	[min ⁻¹]	20/40
Feedrate X/Y/Z	[mm(in.)/min]	1-40000/1-40000/1-40000 (0.03-1574.8)
A/C	[min ⁻¹]	20/40
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 (with adjacent tools)	[mm (in.)]	Ø80 (Ø3.14)
(without adjacent tools)	[mm (in.)]	Ø150 (Ø5.90) Storage pocket is limited for large diameter tools

List of Fittings

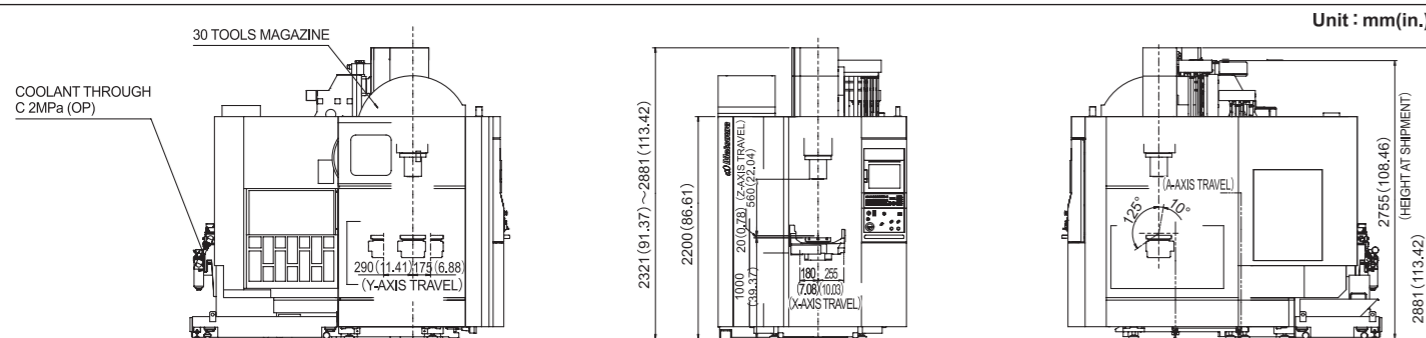
Spindle		
15000min ⁻¹ (BT40 auto grease lubrication)		○
15000min ⁻¹ Power Up (BT40 auto grease lubrication)		▲
Spindle motor output	kW	7.5/15
Max. spindle torque	N·m	119
20000min ⁻¹ (BT40 auto grease lubrication)		▲
Spindle motor output	kW	15/18.5
Max. spindle torque	N·m	108
20000min ⁻¹ (BT40 Oil-air lubrication)		▲
Spindle motor output	kW	15/18.5
Max. spindle torque	N·m	108
Tool Storage Capacity		
30 tools (drum type, memory random)		○
60 tools (chain type, memory random)		▲
90 tools (chain type, memory random)		▲
Table		
Ø250mm		○
Pallet Changer System		
PC1 (single pallet system) *1		▲
PC10 (floor pallet system) *2		▲
Work rotation system (manual) for PC10		▲
High Accuracy Control		
Scale feedback (X,Y,Z) Heidenhain		▲
Feed axis thermal displacement compensation		▲
Environmental thermal displacement compensation (15000min ⁻¹ spindle)		▲
Environmental thermal displacement compensation (20000min ⁻¹ spindle)		▲
Coolant		
Coolant unit		○
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		▲
Coolant flow checker		▲
Mist separator unit (without fire damper)		▲
Mist separator unit (with fire damper)		▲
Coolant temperature controller with tank 100L		▲
Coolant temperature controller with tank 200L		▲
Spindle coolant pump capacity		▲
Coolant management system (water soluble)		▲
In-Process Measurement, Tool Breakage Detection		
I.p.measure/auto.centering(Renishaw, Matsuura macro or Renishaw macro)		▲
I.p.measure/auto.centering(Renishaw macro only)		▲

Max. tool length	[mm (in.)]	300 (11.81)
Max. tool mass	[kg (lb.)]	10 (22)
Methods 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%
Power supply frequency	[Hz]	Transformer is required for the voltage except above 50/60±1
Tank Capacity		
Coolant tank capacity	[L]	350
Oil cooler tank capacity	[L]	14 (total capacity: 16) 7 (total capacity: 9)(20000min ⁻¹ option)
Machine Size		
Machine weight	[kg]	6300 (30T, Non-PC) 9750 (90T, PC10)
NC System		
Control system		Matsuura G-Tech 31 ¹
Standard Accessories		
AD-TAP function		Spindle thermal displacement compensation system
IPC function		MIMS (Matsuura Intelligent Meister System)
Auto grease supply unit for feed axes		Intelligent Protection System
M-code counter (20 kinds)		Integrating spindle run hour meter
Service tools and tool box		Integrating auto run hour meter
Machine color paint		Operation status monitoring (Operating data storage period: 1 month)
Leveling bolts, leveling plates		Submicron command
Scale feedback A/C		* 2 years spindle warranty

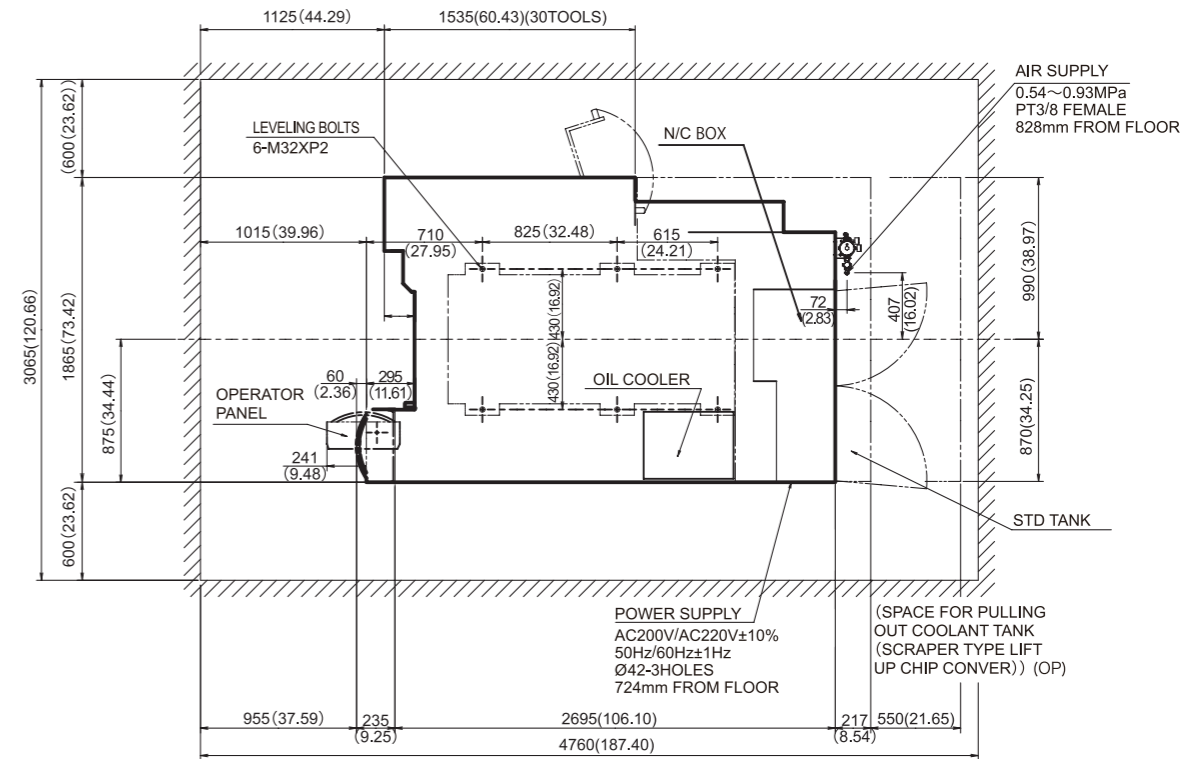
	○: Standard	▲: Option
I.p.measure/auto.centering(Blum, Matsuura macro or Blum macro)		▲
I.p.measure/auto.centering(Blum macro only)		▲
Broken tool detection (mechanical, Metrol)		▲
Broken tool detection (laser, Renishaw)		▲
Broken tool detection (laser, Blum)		▲
Broken tool detection in ATC (Metrol, 30/60/90tools)		▲
Safety Device		
Automatic fire extinguisher		▲
Chip Removal		
Chip flush	○	
Spiral chip conveyor		▲
Scraper type lift-up chip conveyor (incl. drum filter) rear disposal		▲
Scraper type lift-up chip conveyor (incl. drum filter) side disposal		▲
Chip bucket		▲
Air blow for chip swarf removal		▲
Workpiece cleaning gun (machine side)		▲
Sludge collection		▲
Operation/Maintenance Support		
Work light	○	
Add optional block skip switch 2-9	○	
Tool No.8 digits	○	
Tool pre-check function	○	
Additional eight M function	○	
Spindle load monitoring function		▲
Weekly timer		▲
3 color signal light (red,yellow,green from top)		▲
AC100V outlet 3A		▲
External manual pulse generator		▲
eZ-5 (with calibration sphere)		▲
eZ-5 (without calibration sphere)		▲
Pressure supply system for fixtures		▲
Rotary wiper (air supply system)		▲
Rotary wiper (electrical system)		▲
Automation operator door		▲
Robot interface		▲
Operation status monitoring (storage capacity expansion: 1 year)		▲
Matsuura remote monitoring system		▲
Machine information output: MT connect/OPC UA		▲
Processing Support		
Synchro tip + Orbit function		▲
Optional Packages		
High-speed, high-precision package		▲
5-axis package		▲
High-speed, high-precision 5-axis package		▲

*1 Max. workpiece size for PC1: Ø420xH300mm (Ø16.53xH11.81in.)
*2 Max. workpiece size for PC10: Ø330 x H300mm (Ø12.99xH11.81in.)

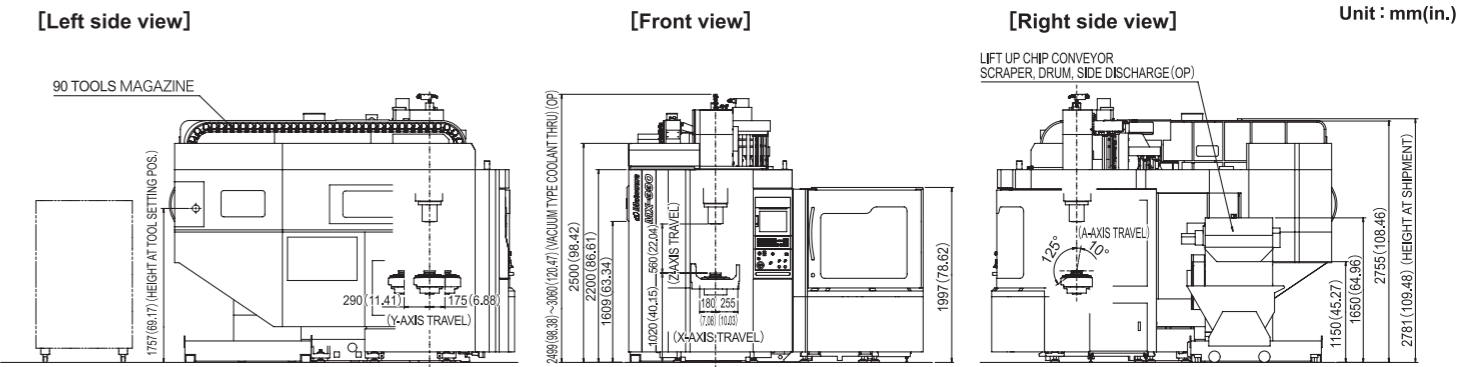
MX-330 External view



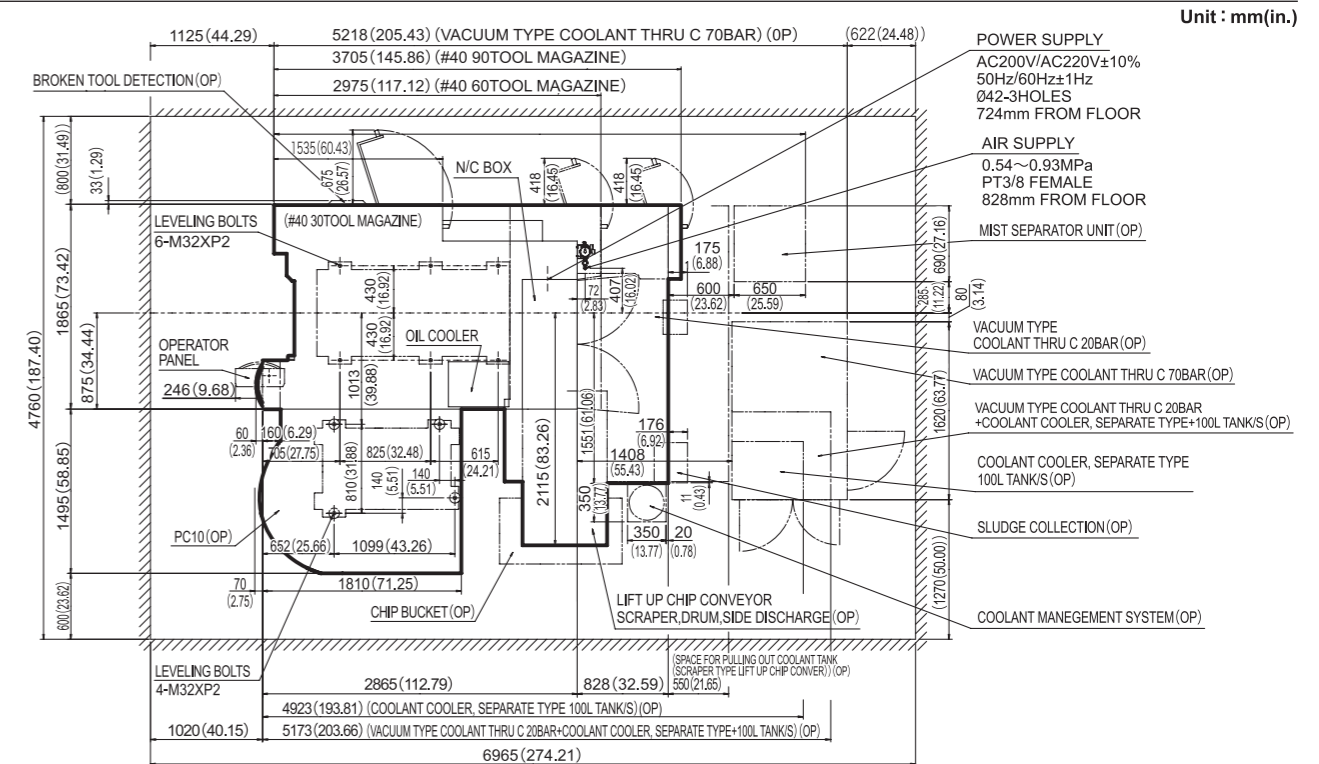
MX-330 Floor plan



MX-330 PC10 External view



MX-330 PC10 Floor plan



MX-420 Specification / Equipment

Standard Machine Specifications

Movement and Range		
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	[deg]	-125 - +10
C-axis rotation angle	[deg]	360
Pallet		
Working surface	[mm (in.)]	Ø130 (Ø5.11)
Loading capacity	[kg (lb.)]	80 (176)
Max. workpiece size	[mm (in.)]	Ø330xH300 (Ø12.99xH11.81) Ø420xH300 (Ø16.53xH11.81) (with restrictions)
Spindle		
Spindle speed	[min ⁻¹]	50 - 15000 (auto grease lubrication)
Spindle speed change command		S5 digits direct command
Spindle taper		7/24 taper BT40 (BT double face contact)
Spindle bearing inner diameter	[mm (in.)]	Ø70 (Ø2.75)
Max. spindle torque	[N·m]	65.1/1100min ⁻¹
Feed rate		
Rapid traverse rate X/Y/Z	[mm(in.)/min]	40000/40000/40000 (1574.8)
A/C	[min ⁻¹]	20/40
Feedrate X/Y/Z	[mm(in.)/min]	1-40000/1-40000/1-40000 (0.03-1574.8)
A/C	[min ⁻¹]	20/40
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 (with adjacent tools)	[mm (in.)]	Ø80 (Ø3.14)

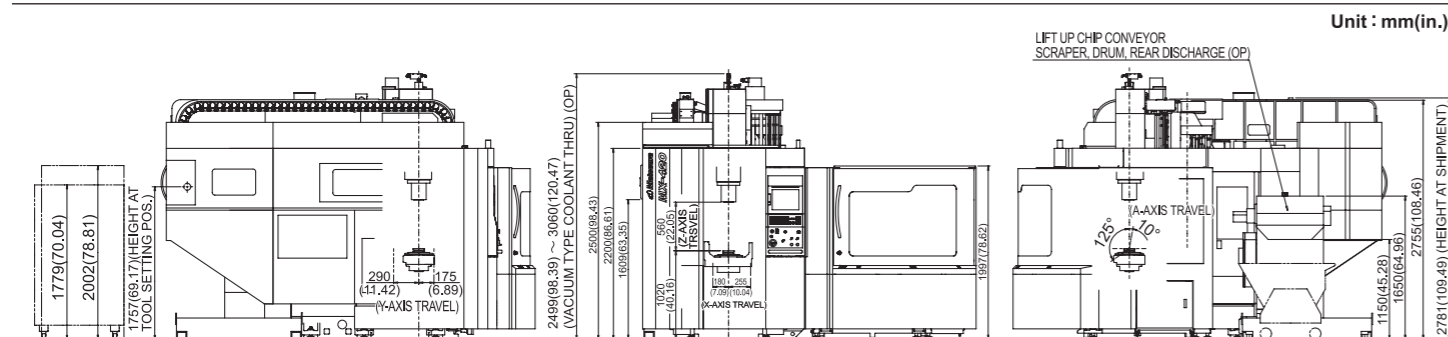
(without adjacent tools)	[mm (in.)]	Ø150 (Ø5.90) Storage pocket is limited for large diameter tools
Max. tool length	[mm (in.)]	300 (11.81)
Max. tool mass	[kg (lb.)]	10 (22)
Methods of tool selection		Memory random system
Power Sources		
Electrical power supply	[kVA]	35 (depends on the options provided)
Power supply voltage	[V]	AC 200/220±10%
Power supply frequency	[Hz]	50/60±1
Transformer is required for the voltage except above		
Tank Capacity		
Coolant tank capacity	[L]	350
Oil cooler tank capacity	[L]	14 (total capacity: 16) 7 (total capacity: 9)(2000min ⁻¹ option)
Machine Size		
Machine weight	[kg]	10490 (90T, PC10)
NC System		
Control system		Matsura G-Tech 31 ⁺
Standard Accessories		
AD-TAP function		Spindle thermal displacement compensation system
IPC function		MIMS (Matsura Intelligent Meister System)
Auto grease supply unit for feed axes		Intelligent Protection System
Spiral chip conveyor		Integrating spindle run hour meter
M-code counter (20kinds)		Integrating auto run hour meter
Service tools and tool box		Operation status monitoring (Operating data storage period: 1 month)
Machine color paint		Tool pre-check function
Leveling bolts, leveling plates		Submicron command
Scale feedback A/C		* 2 years spindle warranty

List of Fittings

Spindle		
15000min ⁻¹ (BT40 auto grease lubrication)		○
15000min ⁻¹ Power Up (BT40 auto grease lubrication)		▲
Spindle motor output	[kW]	7.5/15
Max. spindle torque	[N·m]	119
20000min ⁻¹ (BT40 auto grease lubrication)		▲
Spindle motor output	[kW]	15/18.5
Max. spindle torque	[N·m]	108
20000min ⁻¹ (BT40 Oil-air lubrication)		▲
Spindle motor output	[kW]	15/18.5
Max. spindle torque	[N·m]	108
Tool Storage Capacity		
30 tools (drum type, memory random)		○
60 tools (chain type, memory random)		▲
90 tools (chain type, memory random)		▲
Pallet Changer System		
PC10 (floor pallet system)		○
Work rotation system (manual) for PC10		▲
High Accuracy Control		
Scale feedback (X,Y,Z) Heidenhain		▲
Feed axis thermal displacement compensation		▲
Environmental thermal displacement compensation (15000min ⁻¹ spindle)		▲
Environmental thermal displacement compensation (20000min ⁻¹ spindle)		▲
Coolant		
Coolant unit		○
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		▲
Coolant flow checker		▲
Mist separator unit (without fire damper)		▲
Mist separator unit (with fire damper)		▲
Coolant temperature controller with tank 100L		▲
Coolant temperature controller with tank 200L		▲
Spindle coolant pump capacity		▲
Coolant management system (water soluble)		▲
In-Process Measurement, Tool Breakage Detection		
I.p.measure/auto.centering (Renishaw, Matsura macro or Renishaw macro)		▲
I.p.measure/auto.centering (Renishaw macro only)		▲
I.p.measure/auto.centering (Blum, Matsura macro or Blum macro)		▲

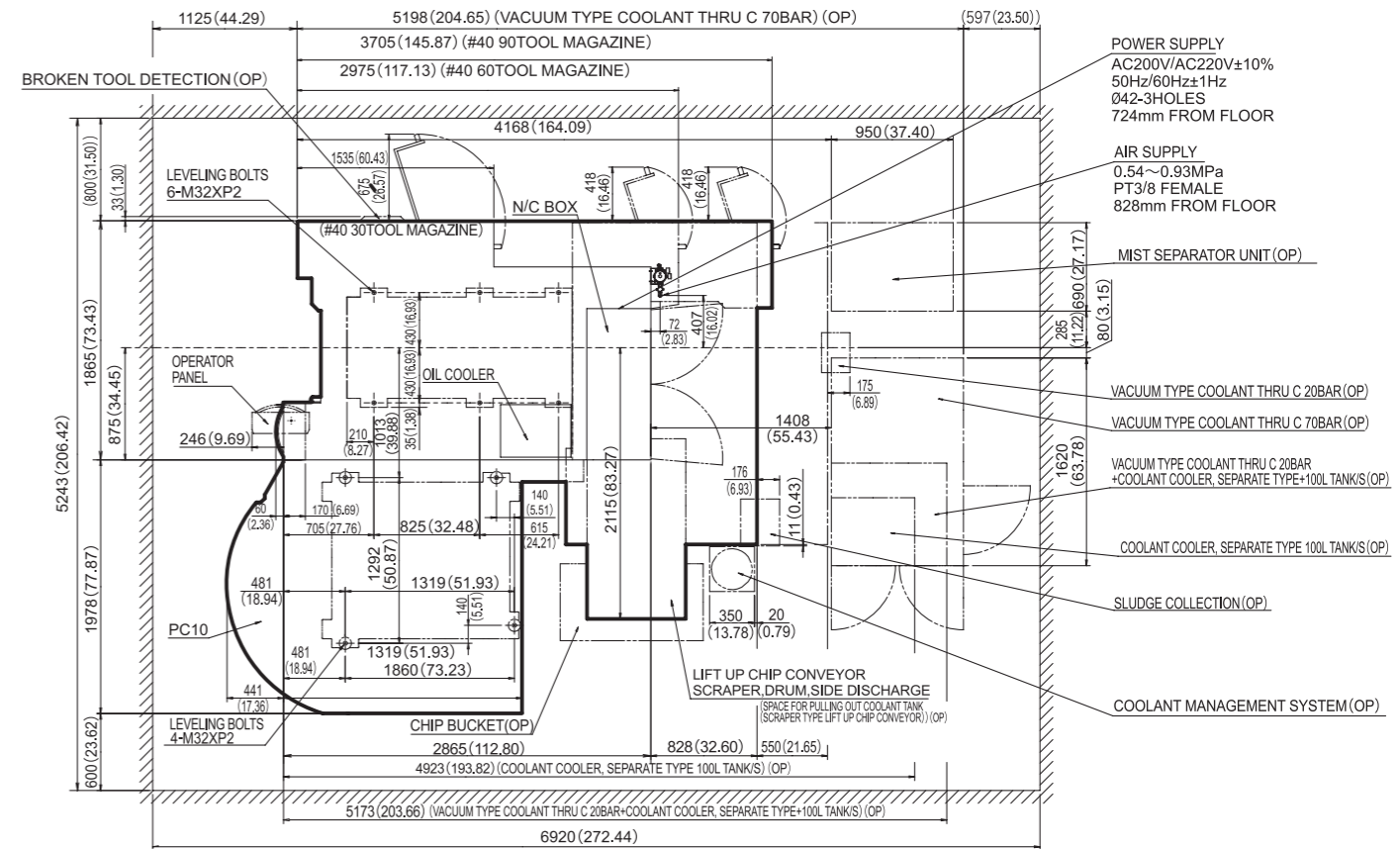
Safety Device		
Automatic fire extinguisher		▲
Chip Removal		
Chip flush		○
Spiral chip conveyor		○
Scraper type lift-up chip conveyor (incl. drum filter) rear disposal		▲
Scraper type lift-up chip conveyor (incl. drum filter) side disposal		▲
Chip bucket		▲
Air blow for chip swarf removal		▲
Workpiece cleaning gun (machine side)		▲
Sludge collection		▲
Operation/Maintenance Support		
Work light		○
Add optional block skip switch 2-9		○
Tool No.8 digits		○
Tool pre-check function		○
Additional eight M function		▲
Spindle load monitoring function		▲
Weekly timer		▲
3 color signal light (red,yellow,green from top)		▲
AC100V outlet 3A		▲
External manual pulse generator		▲
eZ-5 (with calibration sphere)		▲
eZ-5 (without calibration sphere)		▲
Pressure supply system for fixtures		▲
Rotary wiper (air supply system)		▲
Rotary wiper (electrical system)		▲
Robot interface		▲
Operation status monitoring (storage capacity expansion: 1 year)		▲
Matsura remote monitoring system		▲
Machine information output: MT connect/OPC UA		▲
Processing Support		
Synchro tip + Orbit function		▲
Optional Packages		
High-speed, high-precision package		▲
5-axis package		▲
High-speed, high-precision 5-axis package		▲

MX-420 PC10 External view



MX-420 PC10 Floor plan

Unit: mm(in.)



Top view

Unit: mm(in.)

