

 **Matsaura**

5-Axis Vertical Machining Center

MAM72-35V



PC32

MAXIA
Innovation by  Matsaura

Matsuura MAM72-35V

MAM72-35V. The flagship of Matsuura Advanced Manufacturing.

Proven, globally acclaimed platform for unmanned 5 axis production.

For over two decades the **MAM72-35V** has been synonymous with excellence in state of the art unmanned 5 axis production. Truly a global brand in itself and utilised in every industry where unmanned close tolerance prismatic machining and profit are key delivery requirements, the **MAM72-35V** enters a new era with an upgraded specification built on our heritage as technology pioneers of state of the art multi pallet 5 axis machining centres.





Direct Drive Linear Motors enhanced performance on B / C Axes.

Equipped with proven Direct Drive Linear Motors, high precision and accuracy are assured. Sustained longer tool life through the dynamic thrust & acceleration of the B / C axes offers consumable cost down performance.

Extending the range of possibilities with one-chucking.

The movement and range of B-axes has been extended 19 more degrees (106 → 125 degrees). Now, one-chucking covers a larger operational range.

Providing support for larger workpieces.

The workpiece height has been extended by 20% (60 mm). Support is now available for a maximum workpiece size of 350 mm (d) × 315 mm* (h) , 60 kg.

* Max. work size for tower pallet systems (PC32 and PC40) is limited depending on storage position.(See page 7)

Tailored Options from PC2 to Full Automation & Unmanned Running.

Maximum flexibility to match your workload – Twin, 32 and 40 pallet variants available – and up to 520 tools.

Designed Ergonomics for More Performance.

Ease of access to the spindle & workpiece has always been a design feature of the **MAM72-35V** – now more so through considered design. The NC interface is touchscreen – for faster, easier operation.

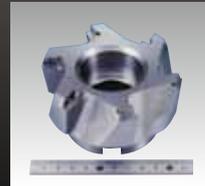
Proven history and capable of machining a vast spectrum of materials – including hardened steels, titanium, casts & aluminium.



Aerospace-related parts



Valve (aircraft parts)



Face Mill

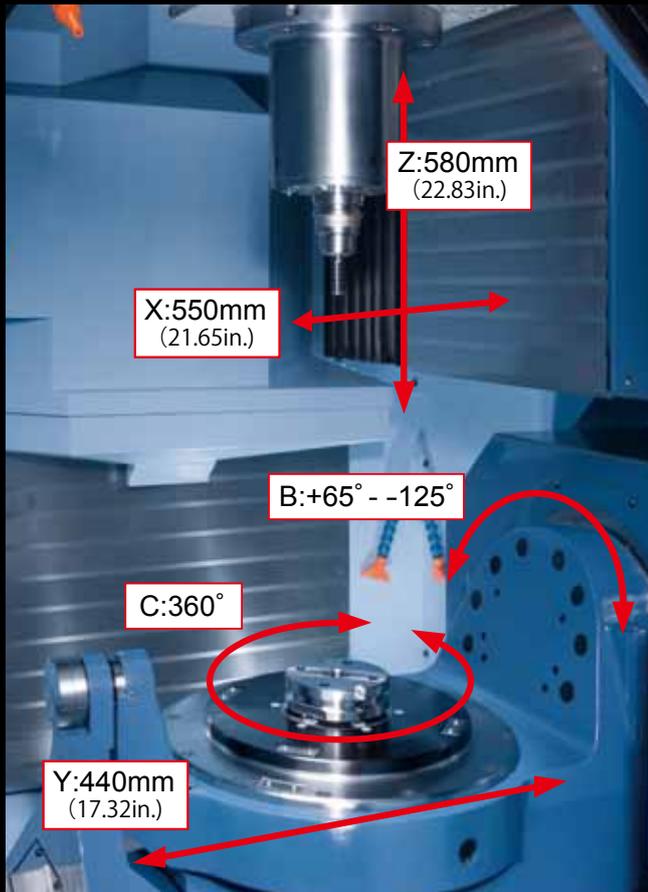


Camera Holder



Increased speed, enhanced rigidity Technology advances maximise flex

Enhanced specification for state of the art machining performance.



Optimising machining time.

Direct Drive Linear Motors on the B / C axes assure faster operation.

Utilising Direct Drive Linear Motors on the B / C axes delivers faster operation and a reduction in non-cutting time. Moving at 50min^{-1} and 100min^{-1} respectively, these gearless & robust axes perform without noise and are maintenance and lubrication free for life.

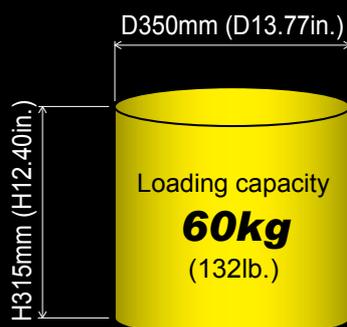
Extended B-Axis movement and range.

Increased by 19° to $+65^\circ \sim -125^\circ$, the B Axis movement and operational range offers new production possibilities, delivering more tool access to the cutting face of the component.

Compact B-Axis design delivers faster operations and increased capacity.

Changing the centre position of the tilted axis by designing a new B Axis structure, the new **MAM72-35V** is more compact yet can accommodate workpieces that are 60mm larger in Z.

Maximum workpiece size



* Max. work size for tower pallet systems (PC32 and PC40) is limited depending on storage position.(See page 7)



and sustained precision. ibility & profit.



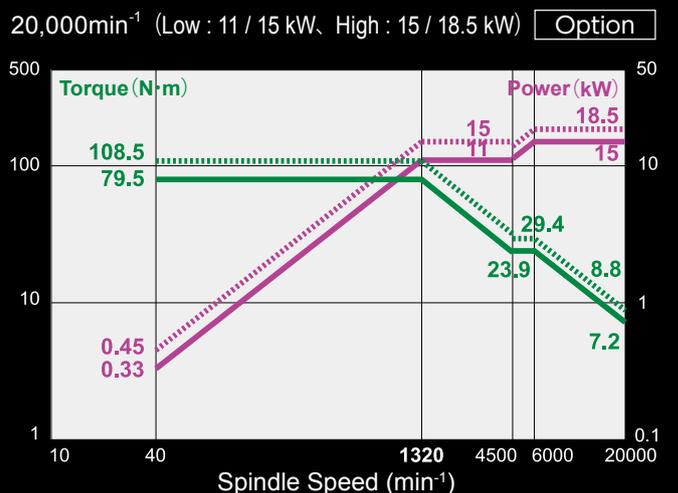
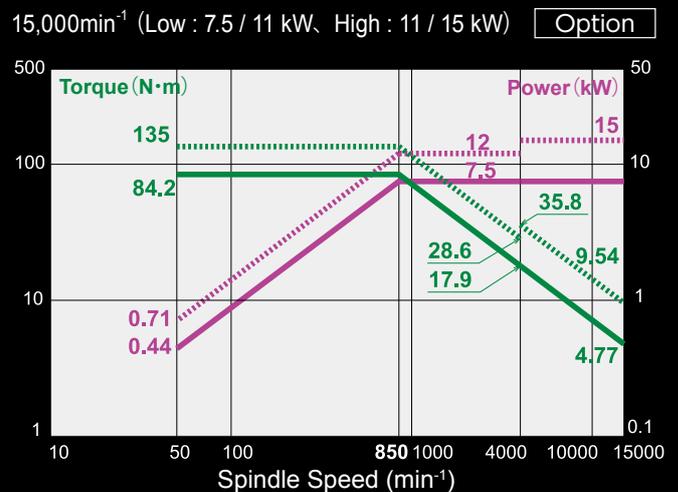
MAXIA Spindles from Matsuura –
the pioneers of High Speed Spindles.

Renowned the world over for their reliability, precision, rigidity & outstanding durability and performance, Maxia is the brand name for Matsuura spindles – the leading technology innovators for HSM spindles.

Equipped with a proven auto-grease
lubrication system.

Pursuing ever more reliable and maintenance free technologies, the proven auto-grease spindle lubrication system is a standard feature on Maxia Spindles – delivering maintenance free operation for life.

■ Spindle Motor Toque & Power Diagram



Across the production spectrum – from unmanned running, the **MAM72**



PC2

From 60 to 520 Tools – maximum choice and flexibility.

Upgrade your machine as your business grows.

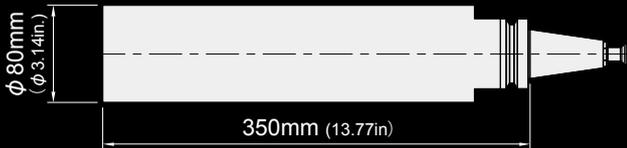
The standard chain ATC contains 60 tool place stations. Expandable retrofit options are available to enlarge the ATC from a Matrix 120 tools in steps of 40 up to a maximum of 520 tools.



60-tools Chain Magazine

Tool Dimensions.

<with adjacent tools> Max. Tool Mass 10kg (22lb.)



<without adjacent tools> Max. Tool Mass 10kg (22lb.)



PC32

Integrated pallet stoker and conveyor system – designed to minimise required floorspace.

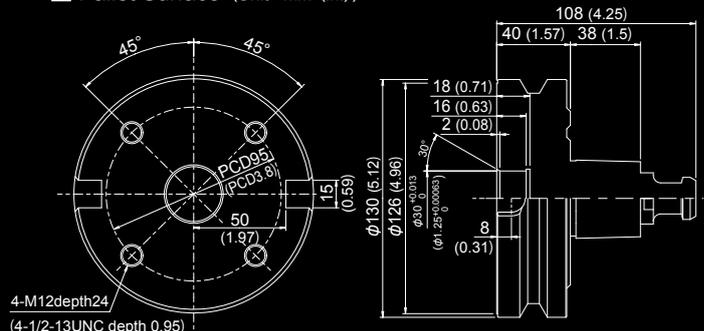
Matrix Magazine

Compact pallets offer generous worksize with CAPTO precision.

The $\phi 130\text{mm}$ diameter pallets effortlessly accommodate workpieces of $\phi 350 \times \text{H}300$ ($\phi 13.77 \times \text{H}11.81$) and utilise the standard high precision CAPTO interface.



■ Pallet Surface (Unit: mm (in.))



From one offs to low volume to full lights - **35V** is the machine for all seasons.

Pallet magazine options to suit your workload and business growth.

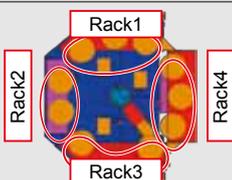
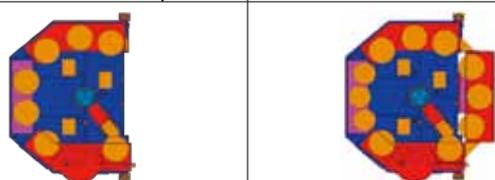
From twin pallet, to 32 and 40 vertical stockers to full FMS.

Through all of its incarnations the **MAM72-35V** has always been renowned for its integrated multi pallet technology and groundbreaking, profit making unmanned running. Now there is also a twin pallet variant to cater for companies engaged in low production one offs and short production runs. The reversed 32 and 40 pallet stockers with integrated robot loading / unloading are of course available, as is the option of integrating the **MAM72-35V** into a multi machine FMS.

* In case of storing the pallets on the top stacker, workpieces of H315mm are acceptable.

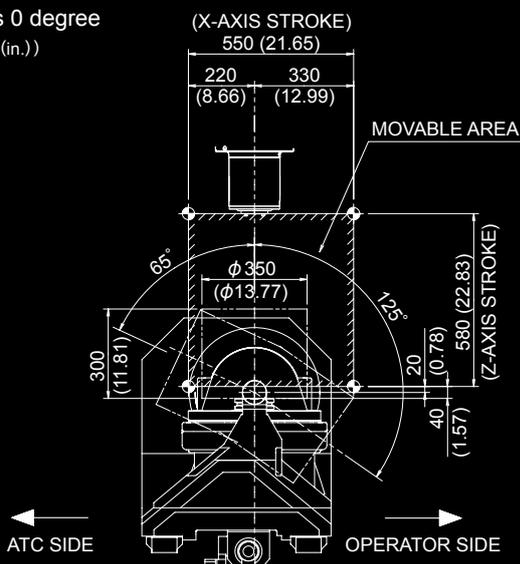


Tower Pallet

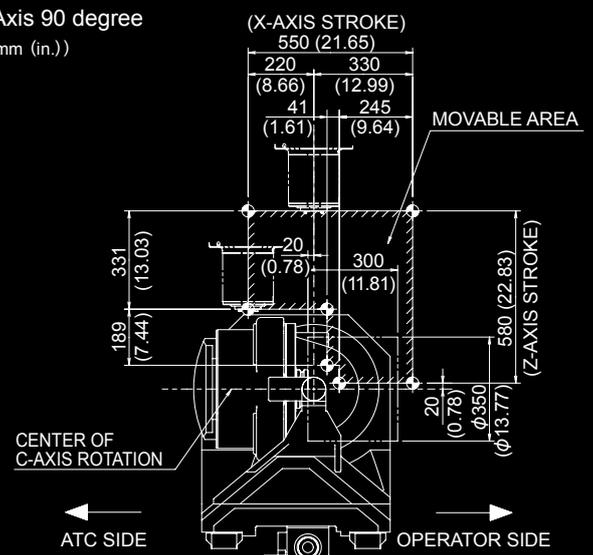
Pallet	PC32				PC40			
	Rack1	Rack2	Rack3	Rack4	Rack1	Rack2	Rack3	Rack4
	15	10	7		15	15	7	3
Workpiece Size	D350 H300 mm				D350 H300 mm	D300 H300 mm	D350 H300 mm	
	60kg				60kg			
								

32 and 40 Pallet Diagram.

■ B-Axis 0 degree
(Unit : mm (in.))



■ B-Axis 90 degree
(Unit : mm (in.))



Operator comfort by ergonomic des

Operator-friendly working environment

Workpiece and spindle accessibility

Although the **MAM72-35** is by its very design the ultimate machine tool for unmanned production, there is an obvious need to accommodate operator set up & maintenance access to the working enclosure and spindle. A larger access door and shorter distance to the working enclosure pallet and to the spindle place operator comfort at the core of the new design.



Making 5-axes operation easier

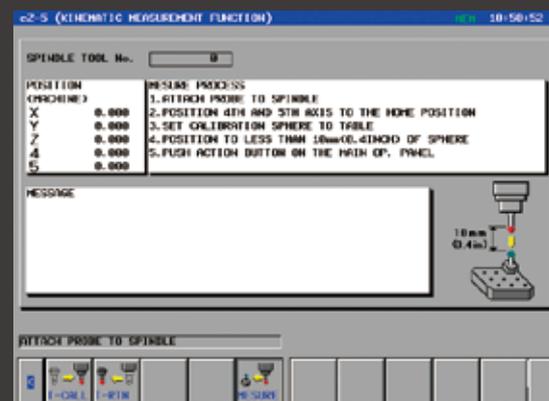
Control panel equipped with a large screen touch panel

Our machining center is equipped with a new operating system that features a 15 inch touch panel. Complex 5-axes system operation is now interactive and can be performed more smoothly.



eZ-5 – sustained precision for ultimate performance. Option

As with all Matsuura machines, exceptional high standards of accuracy across the range are an accepted standard feature. For bespoke companies seeking micron tolerance performance over prolonged production runs Matsuura offers eZ-5 as an option – eliminating geometric errors. eZ-5 utilises a touch probe and correction ball to ascertain performance measurements in just three minutes, without having to remove the workpiece.



MIMS

Matsuura Intelligent Meister System

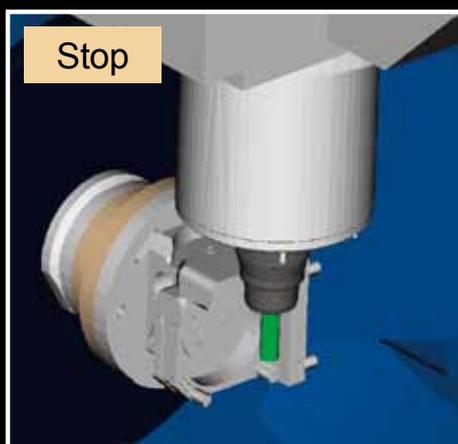
OEM Matsuura interface to maximise rapid operation and usability.

Environment	Eco Meister	Accuracy	Thermal Meister
	Power Saving		Stable Accuracy
Simple	Operability Meister	Secure	Reliability Meister
	Fuss-free Simple Operation		Machine Downtime Reduction
	<ul style="list-style-type: none"> ■ Power cut-off function ■ Energy-saving devices installed 		<ul style="list-style-type: none"> ■ Spindle thermal displacement compensation ■ X/Y/Z thermal displacement compensation
	<ul style="list-style-type: none"> ■ Tool setup support ■ Workpiece setup support 		<ul style="list-style-type: none"> ■ Preventive maintenance support functions ■ Machine restoration support functions ■ Electronic manual ■ E-mailing function

Intelligent Protection System Standard

Ultra Safe Collision Protection

The Intelligent Protection System provides Matsuura's proprietary anti-collision function that prevents machinery collision resulting from programming mistakes at the time of automatic operation and human errors while the machine is under manual control or during workpiece setup time.



Manual/Automatic operation supported Simultaneous 5-axis machining support

* The above shows a concept image.

On-line Link with PC



PC

* The above shows a concept image.

Machining center

* **Intelligent Protection System** simulates your programmed component alerting the user to any interference or collision before any actual machining takes place.
 * Requires end-user PC—consult Matsuura for full specifications.

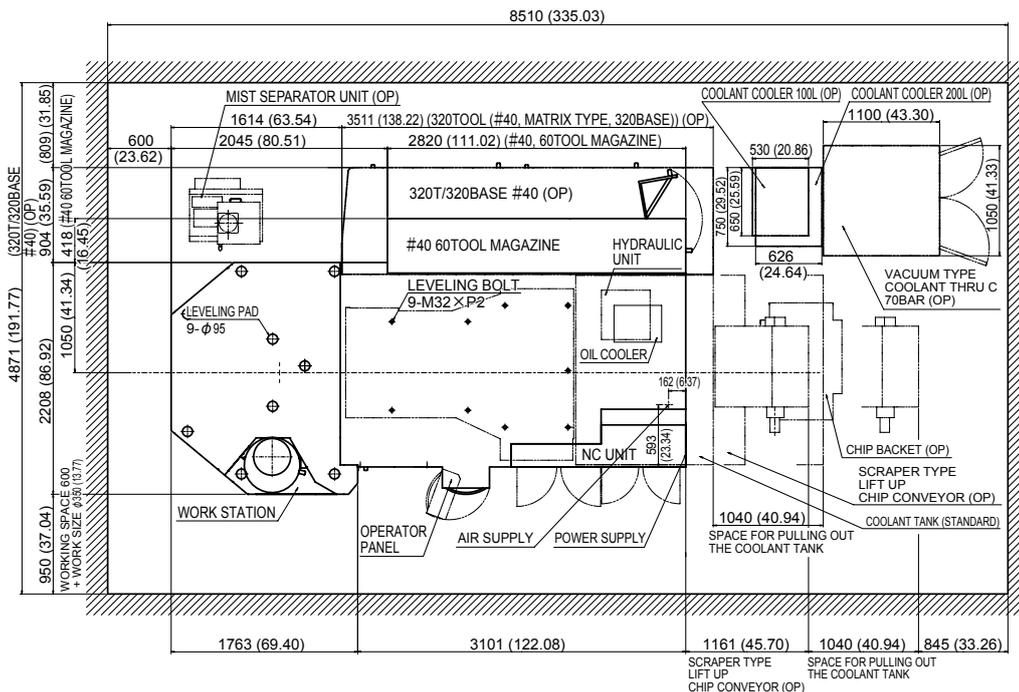
Standard Machine Specifications

■ Movement and Range		
X-Axis Travel	mm (in.)	550 (21.65)
Y-Axis Travel	mm (in.)	440 (17.32)
Z-Axis Travel	mm (in.)	580 (22.83)
B-Axis Rotation Angle	deg	+65 ~ -125
C-Axis Rotation Angle	deg	360
■ Pallet		
Working Surface	mm (in.)	φ 130 (φ 5.11)
Loading Capacity	kg (lb.)	60 (132)
Max. Workpiece Size	mm (in.)	φ 350 × H315 (φ 13.77 × H12.40)
■ Spindle		
Spindle Speed	min ⁻¹	40 - 12,000 (Grease Lubrication)
Spindle Speed Change Command		S5-digit Direct Command
Spindle Taper		7 / 24 taper #40 (BT dual contact type)
Spindle Bearing Inner Diameter	mm (in.)	φ 80 (φ 3.14)
Spindle Drive Motor	kW	AC 7.5 / 11 (Continuous / 30min)
Max. Spindle Motor Torque	N·m	167 / 630min ⁻¹
■ Feed Rate		
Rapid Traverse Rate X / Y / Z	mm/min	60000 / 60000 / 60000
B / C	min ⁻¹	50 / 100
■ Automatic Tool Changer		
Type of Tool Shank		JIS B 6339 tool shank 40T
Pullstud		JIS B 6339 pullstud 40P
Tool Storage Capacity	pcs.	60 (chain 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.)	350 (13.77)
Max. Tool Mass	kg (lb.)	10 (22)
Methods of Tool Selection		Memory random selection, Bidirectional magazine rotation
Tool Changing Time	sec	1.1 (Tool to Tool) 5.9 (Chip to Chip)

■ Automatic Pallet Changer		
Number of Pallets		2
■ Power Sources		
Power Capacity	KVA	56 (PC2 / 60ATC) 63 (PC32 / 320ATC)
Voltage	V	AC 200 / 220 ± 10%
Frequency	Hz	50 / 60 ± 1
Required Air Volume	NL/min	370 (PC2 / 60ATC) 450 (PC32 / 320ATC)
■ Tank Capacity		
Hydraulic Oil Tank Capacity	L	40
Coolant Tank Capacity	L	400
Oil Cooler Tank Capacity	L	10
■ Machine Size		
Machine weight(PC2/60ATC)	kg (lb.)	12300 (27060)
Machine weight(PC32/320ATC)	kg (lb.)	15900 (35980)
■ NC System		
Control System		Matsura G-Tech 31i
■ Standard Accessories		
01. Total Splash Guard		02. Synchronized Tapping
03. AD-TAP Function		04. IPC Function
05. Spindle Oil Cooler		06. Coolant System
07. Chip Flow		08. Chip Flush
09. Spindle Overload Protection		10. 9 sorts of M-code Counters
11. Work Light		12. Standard Mechanical Tool and Tool Box
13. Machine Color Paint		14. Scale Feedback for B/C
15. Auto Grease Supply Unit for Feed Axes		16. ATC Auto Door
17. DD Motor for B/C		18. Intelligent Protection System
21. Levelling Pads and Bolts		
20. Matsura Intelligent Meister System (MIMS)		
* 2 years spindle warranty		

Floor Plan Unit : mm (in.)

PC32 **PC40**



Add another option to perform even longer operation cycles without operator oversight.

Our chip flush is a standard feature that blows air to get rid of chips and swarf. An additional option is also available which uses a spiral chip conveyor and lift conveyor to dispose of large quantities of chips and swarf efficiently.



Lift-up Chip Conveyor **Option**

List of Fittings

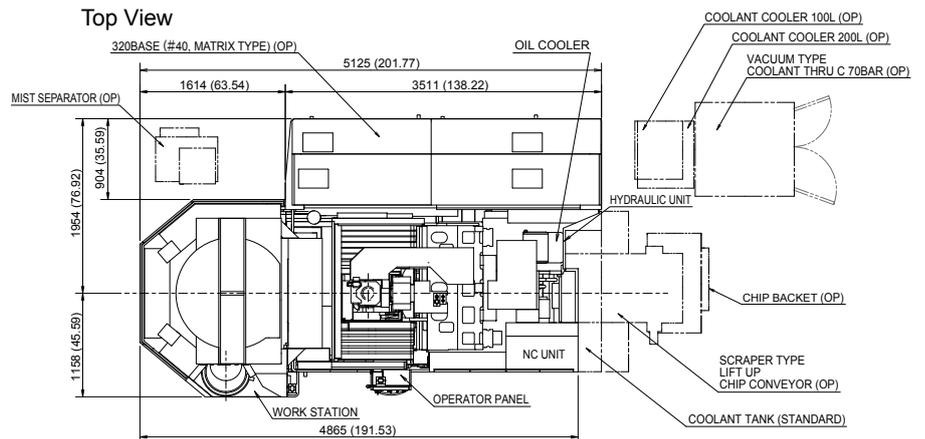
○ : Standard ▲ : Option

■ Spindle		
12,000min ⁻¹ (BT40 Grease Lubrication)		○
15,000min ⁻¹ (BT40 Grease Lubrication)		
Spindle motor output	kW	Low : 7.5 / 11、High : 11 / 15 ▲
Spindle max. torque	N·m	135 (850min ⁻¹)
20,000min ⁻¹ (BT40 Grease Lubrication)		
Spindle motor output	kW	Low : 11 / 15、High : 15 / 18.5 ▲
Spindle max. torque	N·m	108.4
■ ATC		
60 tools (Chain Magazine)		○
120 / 160 / 200 / 240 / 280 / 320 tools (based on 320-tool Matrix Magazine)		▲
360 / 400 / 440 / 480 / 520 tools (based on 520-tool Matrix Magazine)		▲
■ High-precision Control		
Scale Feedback X/Y (HEIDENHAIN)		▲
Scale Feedback X/Y/Z (HEIDENHAIN)		▲
■ APC		
PC2		○
PC32 (Tower Pallet System)		▲
PC40 (Tower Pallet System)		▲
■ Coolant		
Coolant Tank		○
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 (without Fire Damper)		▲
Mist Separator (with Fire Damper)		▲
Coolant Temperature Controller with 100-liter Tank (installed separately); small 100L		▲
Coolant Temperature Controller with 200-liter Tank (installed separately); large 200L		▲
■ Automatic Measurement, Tool Breakage Detection		
Automatic Measurement / Automatic Alignment (Optical)		▲
Tool Breakage / Full Automatic Tool Length Measurement (Touch)		▲
Tool Breakage / Full Automatic Tool Length Measurement (Laser)		▲
Automatic Measurement (Optical) & Tool Breakage (Touch)		▲
Automatic Measurement (Optical) & Tool Breakage (Laser)		▲
External Tool Breakage Detection System (for Chain Magazine, Touch)		▲
External Tool Breakage Detection System (for Matrix Magazine, Touch)		▲
■ Safety Device		
Matsuura Safety Specifications		○
Automatic Fire Extinguisher		▲
■ Reliability Meister Plus		
Reliability Meister Plus TYPE A		▲
Reliability Meister Plus TYPE B		▲

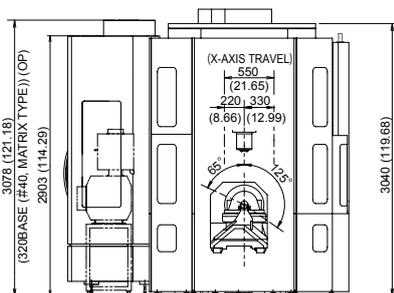
■ Swarf Management	
Total Splash Guard	○
ATC Auto Door	○
Spiral Chip Conveyor	▲
Lift-Up Conveyor (scraper, drum, Spiral, Aqueous)	▲
Chip Removal Air Blow	▲
Chip Bucket	▲
Workpiece Cleaning Gun (Main unit side)	▲
External Nozzle 20BAR (with spindle through)	▲
External Nozzle 70BAR (with spindle through)	▲
■ Control / Maintenance Support	
AD-TAP Function	○
IPC Function	○
Work Light	○
MIMS	○
Intelligent Protection System	
Feed Axis Auto Lubricator	○
Eight additional M functions	▲
Spindle Load Monitoring Function	▲
Weekly Timer	▲
3-Color Signal Light (red, yellow, green from top)	▲
Movable Manual Pulse Generator	▲
Optional Block Skip 2 ~ 9	▲
Tool Pre-Check Function	▲
Rotary Wiper (air type)	▲
Rotary Wiper (electric type)	▲
Semi Dry Unit	▲
100 VAC outlet (3A)	▲
eZ-5 (with Calibration Sphere)	▲
eZ-5 (without Calibration Sphere)	▲
Pressure Supply System for Fixtures	▲
■ Processing Support	
Tail Stock	▲
Tool ID System Balluf Format-A	▲
Tool ID System Balluf Format-B	▲
Tool ID System Balluf Format-C	▲
Tool IC System	▲
■ Optional Package	
High-speed, High-precision Package	▲
5-Axis Package	▲
High-speed, High-precision / 5-Axis Package	▲
Value Package	▲
TRUE PATH	▲
Machine module	▲

External View Unit : mm (in.)

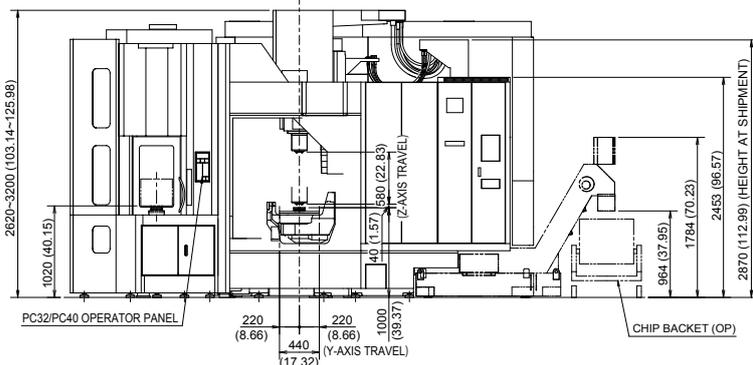
PC32 **PC40**



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.



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

