MAXIA



MAM72-70V



M 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

▶ Unrivalled Large Capacity Productivity

- **▶** Enhanced Operability
 - ► Automated and Unmanned 5 axis Production



New Addition to the MAM72* Series - delivering Matsuura's legendary 5 axis performance in an all new larger capacity design

*1: MAM (Matsuura Advanced Manufacturing)

Extended unmanned operation+ variable-part, variable-volume

production

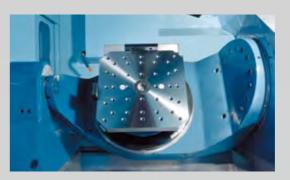
Responding to the requirements and demands of our global customer base, Matsuura Machinery Corporation introduces the MAM72-70V - a new high speed, large capacity 5-axis vertical machining center. Following the worldwide success of the MAM72-63V, many customers have been seeking a higher capacity solution from Matsuura, matching and exceeding the enviable characteristics of reliability, productivity and accuracy of the MAM72-63V. The MAM72 series (with many thousands of machines in successful global operation since their debut in 1991) originated the concept of the tower pallet system and remains unrivalled in the market place, nor challenged in ROI performance.

MAM72-70V Seven Key Features



Newly Developed 4th-/5th-axis Table

Rapid traverse rate (4th-/5th- axis): 50/100 min-1



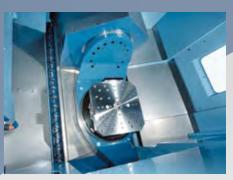
Excellent Accessibility

Improved accessibility to workpiece and spindle



Centralized arrangement of maintenance equipment, stainless steel covers installed





ATC Tool Magazine/ APC Pallet System PP10.11

Multi-pallet systems (PC6, PC18) are included in the lineup of options.

A matrix magazine capable of holding a maximum of 530 tools is also available.

MAXIA Spindle

tandard: 15000 min⁻¹

High-output (350 N⋅m) and high-speed (20000 min⁻¹) types available as an option

Improved Operability PP12.13

Ergonomically designed for ease of operation.

5-Axis Vertical Machining Center

Designed to maximise process efficiency

MAXIA

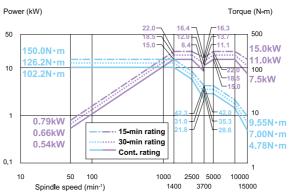
High speed, unerring accuracy and longevity of sustained performance are assured with our proven 4th / 5th axis design

- ▶ A DD drive system is employed for the 5th-axis unit.
- ▶ The 4th-axis unit with a new roller gear drive ensures high speed (50 rpm), high rigidity, and high precision (zero backlash).
- ▶ High-resolution scale feedback system provided as standard.

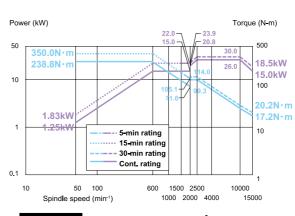


[4th-/5th-axis specifications]

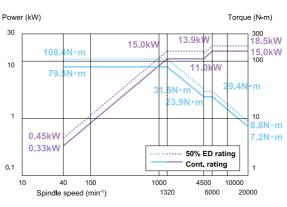
	4th axis (tilting axis)	5th axis (rotating axis)
Drive system	Roller gear	DD
Feed rate	50min ⁻¹	100min ⁻¹
Allowable cutting torque	3964N·m	620N⋅m
Brake torque	4147N·m	3619N·m



Standard BT40 15000min⁻¹ / 150N·m



Option BT40 15000min⁻¹/350N·m



Option BT40 20000min⁻¹

The heart of the machine; the MAXIA spindle line up assures machining excellence in any industry sector, cutting any material

- Matsuura MAXIA Spindles; The pinnacle of the art.
- ▶ Exceptional accuracy, rigidity and quietness, and able to handle a wide range of materials from difficult-to-cut materials to aluminum.
- ▶ All Matsuura MAXIA Spindles are hand-built inhouse by seasoned Matsuura Engineers. Our strict adherence to our own QA system is why MAXIA spindles are globally renowned for longevity of performance and sustained accuracy.
- Maintenance-free grease-lubricated spindles have low rotation noise and are very environmentally friendly.
- ▶ A spindle bearing inner diameter of 80 mm ensures high rigidity (at 15000 min⁻¹).

■ Machining test results (BT40 15000min⁻¹ 150N·m)

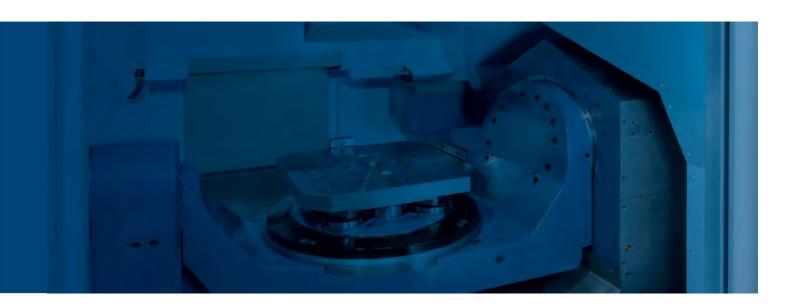
	Workpiece material	Tool details	Cutting width & depth	Spindle speed	Cutting feed rate	Cutting capacity
Facemill	Aluminum	Ø80mm 3-flute	W=70mm D=5mm	5500 min-1	8000 mm/min	2800 cc/min
w	Steel	Ø80mm 9-flute	W=70mm D=3mm	1120 min-1	3000 mm/min	630 cc/min
Endmi ll	Aluminum	Ø25mm 2-flute	W=22mm D=8.5mm	10000 min-1	10000 mm/min	1870 cc/min
W	Steel	Ø20mm 4-flute	W=3mm D=35mm	5500 min-1	5500 mm/min	578 cc/min

	Workpiece material	Tool details	Spindle speed	Cutting feed rate	Cutting capacity
Drill	Aluminum	Ø35mm	1500 min-1	700 mm/min	673 cc/min
	Steel	Ø35mm	1300 min-1	330 mm/min	317 cc/min
Tap	Aluminum	M36 ×P4.0	100 min-1	400 mm/min	I
	Steel	M30 ×P3.5	100 min-1	350 mm/min	-

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

5-Axis Vertical Machining Center

Ergonomically designed for maximum working efficiency and comfort



Unfettered access to the machining enclosure assures comfort during set-up / maintenance

- ▶ The operator door opens 720 mm wide, which facilitates workpiece setup and maintenance work.
- ▶ Good access to the workpiece and spindle: distance from machine front (oil pan edge) to pallet center: 620 mm, that to spindle center: 90 mm.
- ▶ The height from the floor to the pallet top is 1080mm, enhancing the operator experience when working on set-ups.





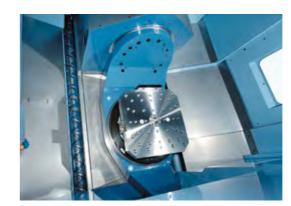
① Operator door opening width	720mm
② Distance from machine front to pallet center	620mm
③ Distance from machine front to spindle center	90mm
④ Height from floor to pallet top	1080mm

A designed working environment is a productive one

- ▶ Ease of maintenance is assured by arranging equipment that needs regular maintenance close to the operator.
- ▶ Efficient chip removal and evacuation from the machining enclosure. Precision stainless steel telescopic covers are installed inside the machine to allow smooth chip flow and fall-away. The transfer capacity of the spiral conveyor is designed to

be higher than the machines metal removal rate achieved by machining performance.

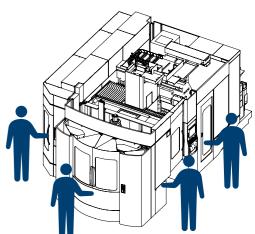
- ▶ The tool magazine is equipped with an access door for ease of maintenance.
- ▶ All access points required by the operator are within close proximity with each other to minimise operator movement and maximise their efficiency.



Stainless steel cover / Spiral chip conveyor



90-tool magazine maintenance door





Centralized layout of maintenance devices

5-Axis Vertical Machining Center

Matsuura unmanned automation; the route to higher machine utilization and profitability



90-tool magazine (chain type) Standard

▶ Standard; 90 Tool, chain driven. Reduced indexing time via random pot memory system.





Tool management screen

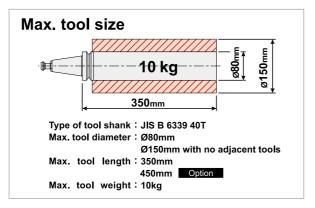
▶ Tool life management functionality is provided as a standard feature, enabling extended unmanned operation and complete oversight of tool history and status within the machine.

Matrix tool magazine

- ▶ The newly developed Matrix magazine has a large storage capacity (max. 530 tools) and a small footprint. Tools can be stored in sufficient quantity to assist diverse machining requirements including complex 5-axis machining, variable-part variable-volume production and extended unmanned operation.
- ▶ The Matrix magazine can optionally handle tools up to 450 mm in length.
- * Storage positions are restricted for 450-mm long tools. Up to nine (Ø80 mm or less) or five (Ø80-150 mm) tools 450 mm long can be



330-tool base Matrix magazine



Matsuura Multi-Pallet Systems; from the pioneers of reliable and proven unmanned peration

- Innovative and dynamic rotary APC. The support of the 4th-/5th-axis table is retractable under the APC door to minimize the overall machine length to a compact size.
- From twin pallet, to 6 pallet, to 18 pallet to FMS our pallet pool choices are defined to match your current workflow and accommodate future growth.
- Add an "unmanned night shift" to your bottom line.
- ▶ PC6 floor pallet system
- ▶ PC18 tower pallet system The multi-storey tower pallet system accommodates 18 pallets in a small footprint.



Support retractable under the APC door



Rotary type





MAM72-70V

Standard



PC6 Floor pallet system



PC18 Tower pallet system Option

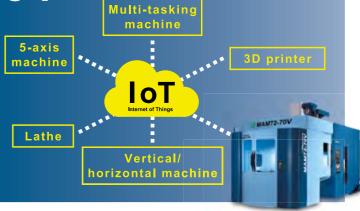
5-Axis Vertical Machining Center

Easy Operation

Ready for "loT"

which enables sharing of information with various machines.

Visualization of machine statuses facilitates optimal preventive maintenance and failure prognosis to optimize production.



Easy to view / No confusion / No mistakes

MIMS

Matsuura Intelligent Meister System

Security

Reliability Meister

Reduced machine downtime

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

Simplici

Operability Meister

Hassle-free, simple operation

- Tool setup support
- Workpiece setup support

Accura

Thermal Meister

Stable accuracy

- Spindle thermal displacement compensation
- Environmental thermal displacement compensation
- X/Y/Z thermal displacement compensation

Environ

Eco Meister

Eco mode

Power savings

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



Operation panel

FANUC 31i

(iHMI, 15-inch touch panel type) Usability is drastically upgraded with context-sensitive screen icons and quick screen displays.



Intelligent Protection System



Collision prevention function

Standard

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



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

* Prepare a PC on your side. Contact

Synchro Tip + Orbit machining

Simple turning function by 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 process, no additional setup is required for a turning process.



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

eZ-5

5-axis error probing and correction

Geometric error correction is essential for multi-axis machine tools. Using a touch probe and calibration sphere, measurement is completed 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.



Automatic measurement (interactive)

Operators can perform alignment without being conscious of program contents.



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MAM72-70V Floor Plan

[Specification / Equipment]

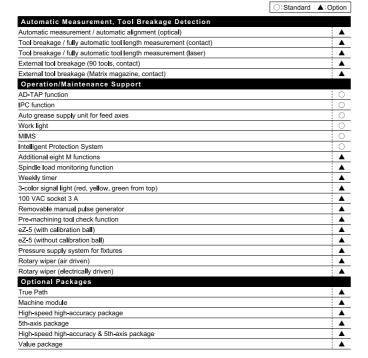
Standard Machine Specifications

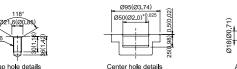
X-axis travel [mm (in.)] 1200 (47.24) Y-axis travel [mm (in.)] 720 (28.34) Z-axis travel [mm (in.)] 710 (27.95) Z-axis travel [mm (in.)] 710 (27.95) Z-axis travel [mm (in.)] 710 (27.95) Z-axis travel Z-ax	Travel		
Z-axis travel [mm (in,] 710 (27,95) 4th (B) axis rotation angle [deg] +30 ~ -125 5th (C) axis rotation angle [deg] 360 Pallot Working surface (X × Y) [mm (in,]] 500 x 500 (19.69 x 19.69) Loading capacity [kg (b,]] 500 (1100) Max. workpiece size [mm (in,]] 6700 x H 500 (Ø27.56 x H 19.68) Spindle Spindle speed [min-] 40 - 15000 (auto grease) Spindle speed spindle speed [min-] 7/24 taper #40 (BT dual contact type) Spindle bearing inner diameter [mm (in,]] 800 (Ø3.14) Max. spindle torque [N-m] 150/1400min ⁻¹ Spindle motor [kW] AC15/22 (low-speed coil: cont. / 15 min.) Feed Rate Rapid traverse rate X / Y / Z [mm/min (ipm)] 60000/60000 (2362.2) B / C [min-] 50/100 Automatic Tool Changer Type of tool shank JIS B 6339 pull stud 40P Tool storage capacity [tools] 90 (chain magazine) Max. tool length [mm (in,]] 350 (13.77) Max. tool selection method Memory random system	X-axis travel	[mm (in.)]	1200 (47.24)
### (B) axis rotation angle	Y-axis travel	[mm (in.)]	720 (28.34)
Sth (C) axis rotation angle	Z-axis travel	[mm (in.)]	710 (27.95)
Pallet Working surface (X × Y) [mm (m,1)] 500 x 500 (19.69 x 19.69)	4th (B) axis rotation angle	[deg]	+30 ~ -125
Working surface (X × Y) [mm (in.)] 500 x 500 (19.69 x 19.69) Loading capacity [kg (lb.)] 500 (1100) Max. workpiece size [mm (in.)] 2700 x H 500 (Ø27.56 x H 19.68) Spindle Spindle speed Spindle speed change command 35 digits direct command Type of spindle taper 7/24 taper #40 (BT dual contact type) Spindle bearing inner diameter [mm (in.)] 806 (Ø3.14) Max. spindle torque [N·m] 150/1400min* Spindle motor [kW] AC15/22 (llow-speed coil: cont. / 15 min.) Feed Rate Rapid traverse rate X / Y / Z [mm/min (ipm)] 60000/60000/60000 (2362.2) B / C [min*] 50/100 Automatic Tool Changer Type of tool shank JIS B 6339 tool shank 40T Pull stud JIS B 6339 pull stud 40P Tool storage capacity [tools] 90 (chain magazine) Max. tool diameter (with adjacent tools) [mm (in.)] Ø80 (Ø3.14) (without adjacent tools) [mm (in.)] 350 (13.77) Max. tool length	5th (C) axis rotation angle	[deg]	360
Loading capacity [kg (lb.)] 500 (1100) Max. workpiece size [mm (m.)] 2700 x H 500 (Ø27.56 x H 19.68) Spindle Spindle speed [mile*] 40 - 15000 (auto grease) Spindle speed change command S5 digits direct command 7/24 taper #40 (BT dual contact type) Spindle bearing inner diameter [mm (m.)] Ø80 (Ø3.14) Max. spindle torque [N*m] 150/1400min* Spindle motor [kW] AC15/22 (low-speed coil: cont. / 15 min.) Feed Rate Rapid traverse rate X / Y / Z [mm/min (pm)] 60000/60000/60000 (2362.2) B / C [mile*] 50/100 Automatic Tool Changer Type of tool shank JIS B 6339 pull stud 40P Tool storage capacity [tools] 90 (chain magazine) Max. tool diameter (with adjacent tools) [mm (m.)] Ø80 (Ø3.14) Max. tool length [mm (m.)] 350 (13.77) Max. tool weight [kg (b.)] 10 Memory random system	Pallet		
Max. workpiece size	Working surface (X × Y)	[mm (in.)]	500 x 500 (19.69 x 19.69)
Spindle Spindle speed [min²] 40 - 15000 (auto grease) Spindle speed change command S5 digits direct command Type of spindle taper 7/24 taper #40 (BT dual contact type) Spindle bearing inner diameter [mm (in²)] 280 (Ø3,14) Max. spindle torque [N·m] 150/1400mir¹ Spindle motor [kW] AC15/22 (low-speed coil: cont. / 15 min.) Feed Rate Rapid traverse rate X / Y / Z [mm/min (pm)] 60000/60000/60000 (2362.2) B / C [min²] 50/100 Automatic Tool Changer Type of tool shank JIS B 6339 tool shank 40T Pull stud JIS B 6339 pull stud 40P Tool storage capacity [tools] 90 (chain magazine) Max. tool diameter (with adjacent tools) [mm (in²,]] 280 (Ø3,14) (without adjacent tools) [mm (in²,]] 350 (Ø5,9) Storage locations are restricted. Max. tool length [mm (in²,]] 350 (13,77) Max. tool weight [kg (b²,)] 10 Memory random system	Loading capacity	[kg (lb.)]	500 (1100)
Spindle speed [milin-1] 40 - 15000 (auto grease)	Max. workpiece size	[mm (in.)]	Ø700 x H 500 (Ø27.56 x H 19.68)
Spindle speed change command S5 digits direct command	Spindle		
Type of spindle taper	Spindle speed	[min-1]	40 - 15000 (auto grease)
Spindle bearing inner diameter	Spindle speed change command		S5 digits direct command
Max. spindle torque [N·m] 150/1400min¹¹ Spindle motor [kW] AC15/22 (low-speed coil: cont. / 15 min.) Feed Rate Rapid traverse rate X / Y / Z [mm/min (lpm)] 60000/60000/60000 (2362.2) B / C [mile*] 50/100 Automatic Tool Changer Type of tool shank JIS B 6339 tool shank 40T Pull stud JIS B 6339 pull stud 40P Tool storage capacity [tools] 90 (chain magazine) Max. tool diameter (with adjacent tools) [mm (in.)] 280 (23.14) (without adjacent tools) [mm (in.)] 350 (13.77) Max. tool length [mm (in.)] 350 (13.77) Max. tool weight [kg (b.)] 10 Tool selection method Memory random system	Type of spindle taper		7/24 taper #40 (BT dual contact type)
Spindle motor [kW] AC15/22 (low-speed coil: cont. / 15 min.)	Spindle bearing inner diameter	[mm (in.)]	Ø80 (Ø3.14)
KW AC15/22 (high-speed coil: cont. / 15 min.)	Max. spindle torque	[N·m]	150/1400min ⁻¹
Feed Rate Rapid traverse rate X / Y / Z [mm/min (ipm)] 60000/60000 (2362.2) B / C [min-1] 50/100 Automatic Tool Changer Type of tool shank JIS B 6339 tool shank 40T Pull stud JIS B 6339 pull stud 40P Tool storage capacity [tools] 90 (chain magazine) Max. tool diameter (with adjacent tools) [mm (in-1] Ø80 (Ø3.14) (without adjacent tools) [mm (in-1] Ø150 (Ø5.9) Storage locations are restricted. Max. tool length [mm (in-1] 350 (13.77) Max. tool weight [kg (lb-1] 10 Tool selection method Memory random system	Spindle motor	[kW]	AC15/22 (low-speed coil: cont. / 15 min.)
Rapid traverse rate X / Y / Z [mm/min (pm)] 60000/60000 (2362.2) B / C [min²] 50/100 Automatic Tool Changer Type of tool shank JIS B 6339 tool shank 40T Pull stud JIS B 6339 pull stud 40P Tool storage capacity [tools] 90 (chain magazine) Max. tool diameter (with adjacent tools) [mm (m-)] Ø80 (Ø3.14) (without adjacent tools) [mm (m-)] Ø50 (Ø5.9) Storage locations are restricted. Max. tool length [mm (m-)] 350 (13.77) (37.77) Max. tool weight [kg (b-)] 10 Tool selection method Memory random system		[kW]	AC15/22 (high-speed coil: cont. / 15 min.)
B / C	Feed Rate		
Automatic Tool Changer Type of tool shank JIS B 6339 tool shank 40T Pull stud JIS B 6339 pull stud 40P Tool storage capacity [tools] Max. tool diameter (with adjacent tools) [mm (in.)] (without adjacent tools) [mm (in.)] Max. tool length [mm (in.)] Max. tool weight [kg (lb.)] Tool selection method Memory random system	Rapid traverse rate X/Y/Z	[mm/min (ipm)]	60000/60000/60000 (2362.2)
Type of tool shank JIS B 6339 tool shank 40T Pull stud JIS B 6339 pull stud 40P Tool storage capacity [tools] 90 (chain magazine) Max. tool diameter (with adjacent tools) [mm (in-)] Ø80 (Ø3.14) (without adjacent tools) [mm (in-)] Ø150 (Ø5.9) Storage locations are restricted. Max. tool length [mm (in-)] 350 (13.77) Max. tool weight [kg (b-)] 10 Tool selection method Memory random system	B/C	[min-1]	50/100
Pull stud JIS B 6339 pull stud 40P Tool storage capacity [tools] 90 (chain magazine) Max. tool diameter (with adjacent tools) [mm [in.]] Ø850 (Ø3.14) (without adjacent tools) [mm [in.]] Ø150 (Ø5.9) Storage locations are restricted. Max. tool length [mm [in.]] 350 (13.77) Max, tool weight [kg (b.)] 1 Tool selection method Memory random system	Automatic Tool Changer		
Tool storage capacity [tools] 90 (chain magazine) Max. tool diameter (with adjacent tools) [mm (in.)] Ø80 (Ø3.14) (without adjacent tools) [mm (in.)] Ø150 (Ø5.9) Storage locations are restricted. Max. tool length [mm (in.)] 350 (13.77) Max. tool weight [kg (b.)] 10 Tool selection method Memory random system	Type of tool shank		JIS B 6339 tool shank 40T
Max. tool diameter (with adjacent tools) [mm (ih.)] Ø80 (Ø3.14) (without adjacent tools) [mm (ih.)] Ø150 (Ø5.9) Storage locations are restricted. Max. tool length [mm (ih.)] 350 (13.77) Max. tool weight [kg (lb.)] 10 Tool selection method Memory random system	Pull stud		JIS B 6339 pull stud 40P
(without adjacent tools) [mm (in.)] Ø150 (Ø5.9) Storage locations are restricted. Max. tool length [mm (in.)] 350 (13.77) Max. tool weight [kg (b.)] 10 Tool selection method Memory random system	Tool storage capacity	[tools]	90 (chain magazine)
Max. tool length [mm (in.)] 350 (13.77) Max. tool weight [kg (b.)] 10 Tool selection method Memory random system	Max. tool diameter (with adjacent tools)	[mm (in.)]	Ø80 (Ø3.14)
Max. tool weight [kg (lb-)] 10 Tool selection method Memory random system	(without adjacent tools)	[mm (in.)]	Ø150 (Ø5.9) Storage locations are restricted.
Tool selection method Memory random system	Max. tool length	[mm (in.)]	350 (13.77)
	Max, tool weight	[kg (lb.)]	10
Tool change arm W-grip type	Tool selection method	•	Memory random system
	Tool change arm		W-grip type

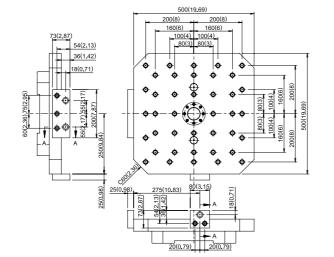
No. of pallets	2
Power Sources	
Electrical power supply [kVA]	85 (depends on the optional features)
Power supply voltage [V]	AC 200/220±10% Transformer required for a voltage other than above
Power supply frequency [Hz]	50/60±1
Air pressure to be supplied [MPa]	$0.54 \sim 0.93$
Air volume to be supplied (working flow volume) [NL/min]	115 (*atm.)
Air volume to be supplied (maximum flow volume) [NL/min]	580 (*atm.): 15000min ⁻¹
	610 (*atm.): 20000min ⁻¹ option
Tank Capacity	
Hydraulic unit tank [L]	40
Coolant tank [L]	800
Oil cooler tank [L]	22 (total capacity: 26)
Machine Size	
Machine weight [kg (lb.)]	19000kg (PC2/90tools)*
Standard Accessories	
Total splash guard	ATC auto door
Synchronized tapping function	AD-TAP function
IPC function	Spindle oil cooler
Auto grease supply unit for feed axes	Coolant unit
Chip-flush coolant	Spiral chip conveyor (right/left)
Spindle overload protection	M-code counter (9 kinds)
Work light	Standard mechanical tools & tool box
Machine color paint	Leveling pads & bolts
Scale feedback B-/C-axis	PC tool for memory card program operation / editing
MIMS (Matsuura Intelligent Meister System)	Intelligent Protection System
Spindle runhour meter	Automatic operation runhour meter
ADC (Automatic Acc. & Dec. Control)	DCS (Dynamic Clamp System)
Thermal displacement compensation (spindle, feed axes	s, environment)

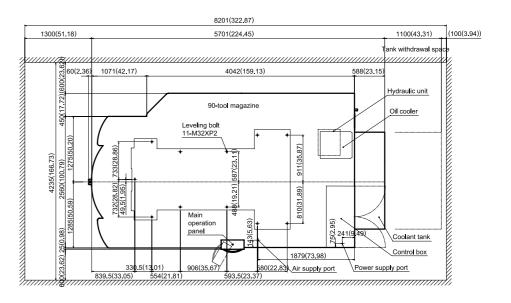
List of Fittings

Spindle	
15000 min⁻¹, BT40, grease, 15/22 kW, 150 N⋅m	0
15000 min⁻¹, BT40, grease, 15/30 kW, 350 N⋅m	
20000 min⁻¹, BT40, grease, 15/18.5 kW, 108.4 N⋅m	A
ATC	
90 tools (chain magazine)	0
130 / 170 / 210 / 250 / 290 / 330 tools (Matrix magazine: 330-tool base)	A
370 / 410 / 450 / 490 / 530 tools (Matrix magazine: 530-tool base)	A
Max. tool length 450 mm (for the matrix magazine only)	A
APC	
PC2	0
PC6 (Floor pallet system)	A
PC18 (Tower pallet system)	A
Chip Removal	
Total splash guard	0
Spiral chip conveyor	0
ATC auto door	0
Chip-flush coolant	0
Lift-up conveyor (scraper, drum, water-based)	A
Chip bucket	
Air blow for chip removal	A
Part washing gun (on the machine side)	A
Part washing gun (on the APC side)	A
External nozzle 2 MPa (with through-spindle coolant)	A
External nozzle 7 MPa (with through-spindle coolant)	A
Coolant	
Coolant tank unit	0
Mist separator (without fire damper)	A
Mist separator (with fire damper)	A
Vacuum type through-spindle coolant A 7 MPa	A
Vacuum type through-spindle coolant A 14 MPa	A
Vacuum type through-spindle coolant B 7 MPa	A
Vacuum type through-spindle coolant B 14 MPa	
Vacuum type through-spindle coolant C 2 MPa	A
Vacuum type through-spindle coolant C 7 MPa	A
Coolant temperature controller with 100-liter tank (separately installed, small size)	A
Coolant temperature controller with 200-liter tank (separately installed, large size)	A
Coolant flow checker	





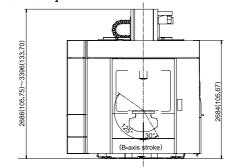


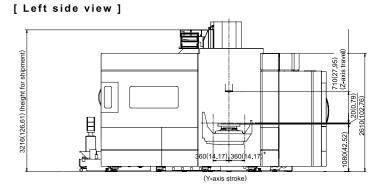


MAM72-70V External View

Unit: mm (in.)

[Front view]

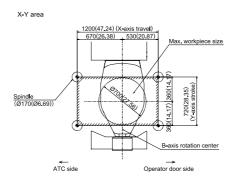


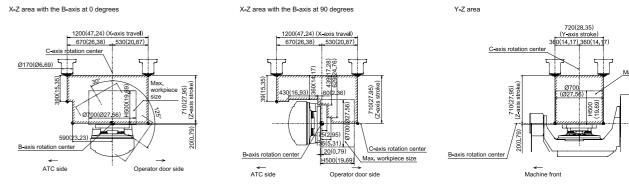


MAM72-70V Spindle Stroke Diagram

Unit: mm (in.)

15





* Calculated value