

 **Matsura**

5-Axis Vertical Machining Center

MX-520



MAXIA
Innovation by  Matsura

Matsaura MX-520

For a smooth Transition To -Axis Machining **MX-520**



● **MIMS**



● **Intelligent
P
Protection
System**



● **Excellent operability**



● **60-tool Chain Magazine**

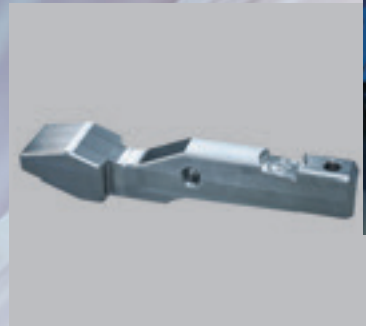


The **MX-520** heralds a new era in 5 axis machining for 3 axis users making the transition to full 5 axis operation. Matsaura, the established world leader in 5 axis machining, make this transition process simple, effortless & cost effective.

Part Name	Sub base
Material	AC4A
Dimensions	165×182×212 mm (6.49×7.16×8.34 in.)
Programming Method	Programmed utilising NC standard feature - "Manual Guide i" with no external CAM system. Multi-face machining with minimal cost and maximum productivity.

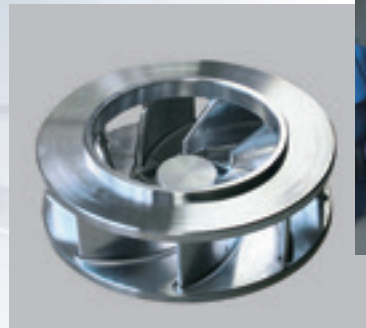


Part Name	Finger
Material	S50C
Dimensions	143×27×28 mm (5.62×1.06×1.10 in.)
Programming Method	Programmed using GibbsCAM incorporating multi-face machining of multiple parts using tombstone fixturing. Machining of slant faces included, which is not available with horizontal machining centres.



*GibbsCAM and the GibbsCAM logo are registered trademarks of Gibbs and Associates in the United States of America and other countries.

Part Name	Impeller
Material	A5052
Dimensions	Ø295×100 mm (Ø11.61×3.93 in.)
Programming Method	Highly advanced simultaneous 5-axis machining fully utilizing the A-axis stroke of -125° to +10° degrees. Utilizing the full capabilities of the MX-520, programming and machining times are drastically reduced. High quality surface finish as standard.



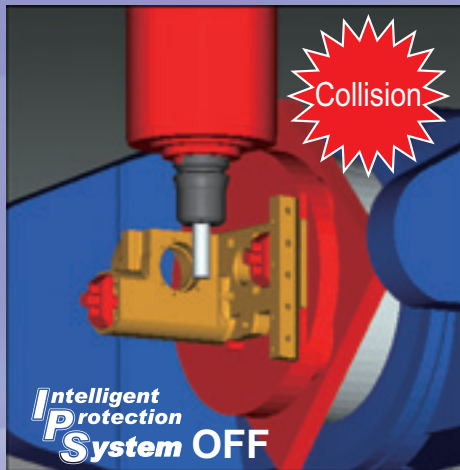
Part Name	Automotive valve
Material	A5056
Dimensions	Ø100×74 mm (Ø3.93×2.91 in.)
Programming Method	One-hit machining achieved the complex shaped prototype. Simplified machining process by combination of Tilted Working Plane Command & Tool Center Point Control. Using the simple jig enables 46 faces index machining and reduce the jig cost significantly.



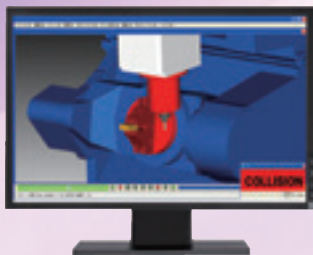
MAXIA
Innovation by  Mitsuura

Intelligent Protection System

Ultra Safe Collision Protection



● On-Line Link with PC



External PC



Machining center

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

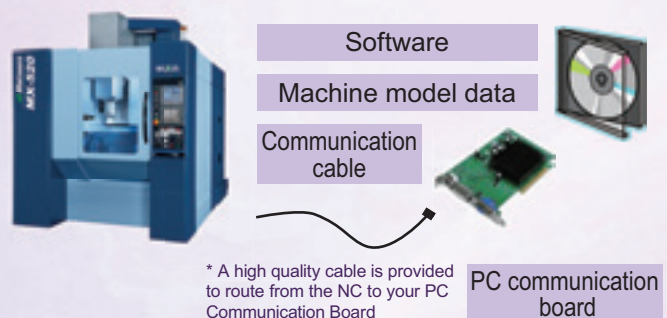
● Collision Avoidance during Setup

Tool length compensation data is linked with the **Intelligent Protection System**. As NC data changes, PC compensation data is automatically updated.

● Collision Avoidance during Automatic Operation

Collision check can be activated during simulation. The collision check function renders the part in real time on screen.

● Standard Accessories



* A high quality cable is provided to route from the NC to your PC Communication Board

MIMS

Eco Meister

Environment

Power Saving

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

Thermal Meister

Accuracy

Stable Accuracy

- Spindle thermal displacement compensation

Meister's knowledge,
skills, and ideas combined

Environment

Secure

Simple

Accuracy

Reliability Meister

Secure

Machine Down Time Reduction

- Preventive maintenance support functions
- Machine restoration support functions

Operability Meister

Simple

Fuss-Free Simple Operation

- Tool setup support
- Part setup support
- Restart after machining stop

Option

Reliability Meister Plus

Secure

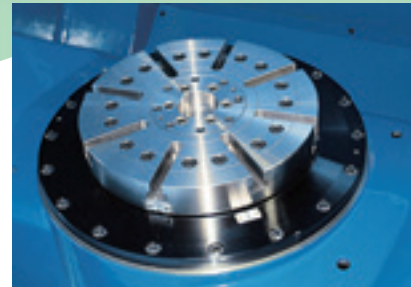
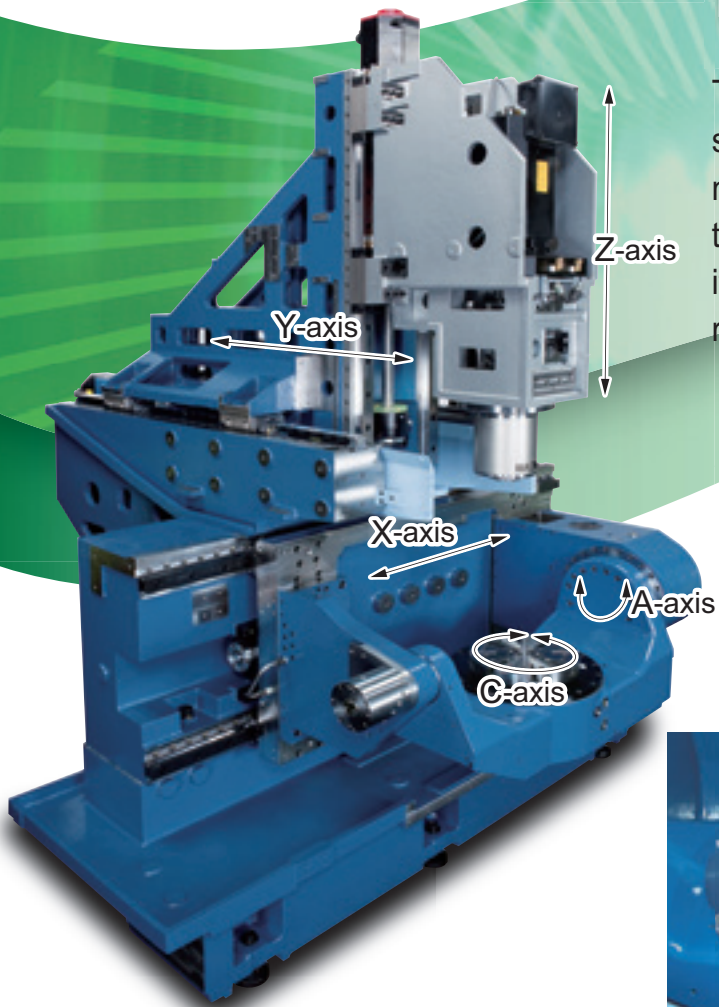
Increased Security Provided

- Electronic manual
- E-mailing function

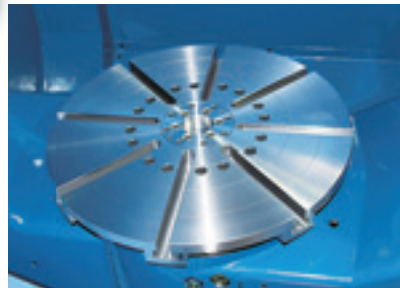
* Reliability Meister Plus requires a PC. Consult Matsuura for more information.

Highly Rigid Ram Type Structure

The **MX-520** has been designed with a RAM type structure, offering a compact & highly rigid machining platform. Design advances have afforded the **MX-520** a large machining enclosure, within its class. Matsuura's established high accuracy & reliability comes as standard with **MX-520**.



Ø300 mm (Ø11.81 in.) Table



Ø500 mm (Ø19.68 in.) Table Option

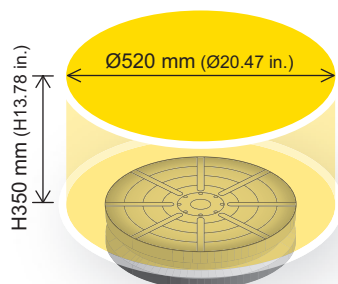
Two table sizes are available for the **MX-520** - Ø300 mm (Ø11.81 in.) and Ø500 mm (Ø19.68 in.) (option).

Stroke

X-axis stroke	630 mm (24.8 in.)
Y-axis stroke	560 mm (22.04 in.)
Z-axis stroke	510 mm (20.07 in.)
A-axis rotation angle (along the X-axis)	-125~+10deg
C-axis rotation angle (along the Z-axis)	360deg

Maximum Work Size

Max. work dimensions	Ø520×H350 mm (Ø20.47×H13.77 in.)
Loading capacity	200 kg (440 lb.)



The headstock & trunnion configuration has been designed in such a way as to minimise the possibility of collision, whilst maximising tool access & reach.

Ergonomic Operation

Possessing a front door opening of 805 mm (31.69 in.) and a distance from the operator to the table centre of 385 mm (15.15 in.), the machine ensures designed ergonomic operator comfort and easy facilitation of work setting. The ceiling cover can be quickly opened for the loading of large-sized parts with a crane.

Chain magazine with 60 tools



Easy tool setup



Easy operator access to the spindle



Crane access



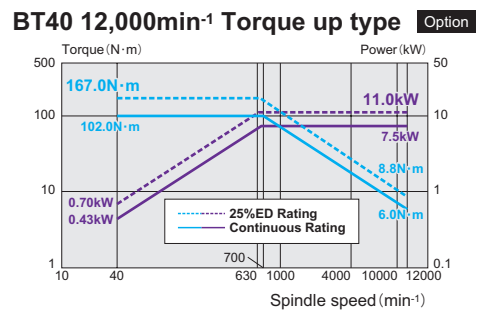
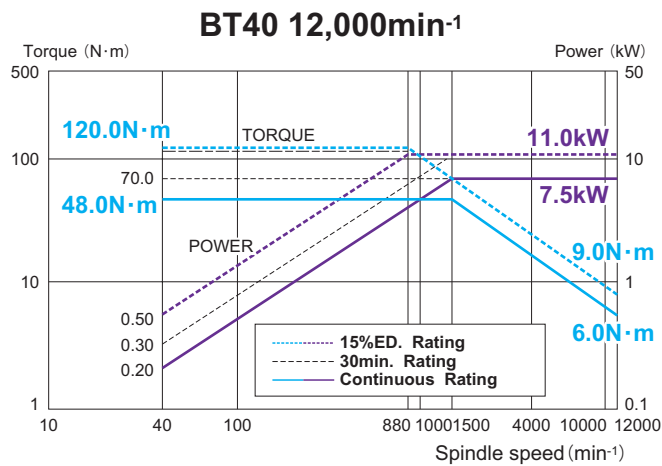
Distance from machine front to table center 385 mm (15.15 in.)

Excellent accessibility

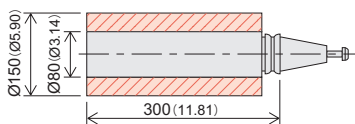
MAXIA Spindles – from the pioneers of High Speed Machining

MAXIA spindle for a wide range of materials
 from steel to aluminum
 Assembled in a dedicated clean room
 Spindle runout less than 1 μm at spindle end.

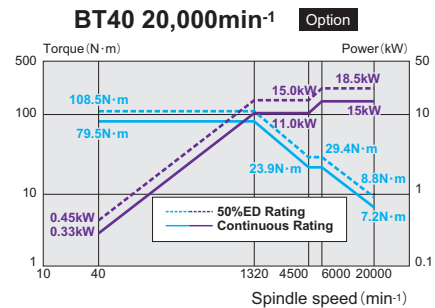
Spindle Motor Power & Torque Diagram



Maximum tool shape (Units: mm (in.))



Type of tool shank : JIS B 6339 40T
 Max. tool diameter : Ø80 mm (Ø3.14 in.) (Ø150 mm (Ø5.90 in.) without adjacent tools)
 Max. tool length : 300 mm (11.81 in.)
 Max. tool mass : 10kg(22 lb.)



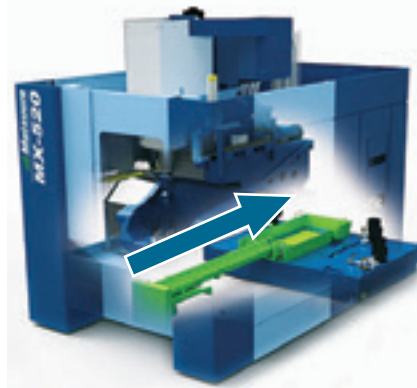
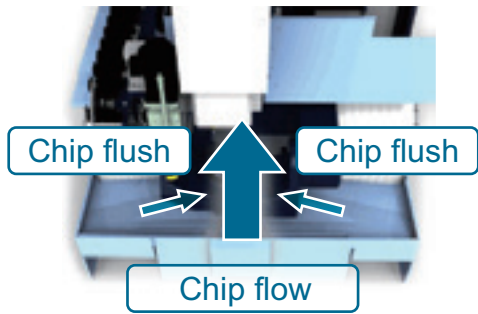
JIS#40 12,000min⁻¹ Standard

	Material	Tool Details	Cutting Width & Depth	Spindle Speed	Feedrate	Quantity		Material	Tool Details	Spindle Speed	Feedrate	Quantity
	A5052	Ø80mm (3.14 in.) 3 tooth	W=70mm (2.75 in.) D=4mm (0.15 in.)	5,500 min ⁻¹	4,000 mm/min (157.48 ipm)	1,120 cc/min		A5052	Ø33mm (1.29 in.)	1,200 min ⁻¹	500 mm/min (19.68 ipm)	427 cc/min
	S45C	Ø80mm (3.14 in.) 5 tooth	W=70mm (2.75 in.) D=3mm (0.11 in.)	900 min ⁻¹	1,800 mm/min (70.86 ipm)	378 cc/min		S45C	Ø33mm (1.29 in.)	1,200 min ⁻¹	220 mm/min (8.66 ipm)	188 cc/min
	A5052	Ø25mm (0.98 in.) 2 tooth	W=22mm (0.86 in.) D=6mm (0.23 in.)	12,000 min ⁻¹	7,000 mm/min (275.59 ipm)	924 cc/min		A5052	M30 × P3.5	120 min ⁻¹	420 mm/min (16.53 ipm)	—
	S45C	Ø20mm (0.78 in.) 4 tooth	W=3mm (0.11 in.) D=30mm (1.18 in.)	5,000 min ⁻¹	3,000 mm/min (118.11 ipm)	270 cc/min		S45C	M24 × P3.0	100 min ⁻¹	300 mm/min (11.81 ipm)	—

JIS#40 20,000min⁻¹ Option

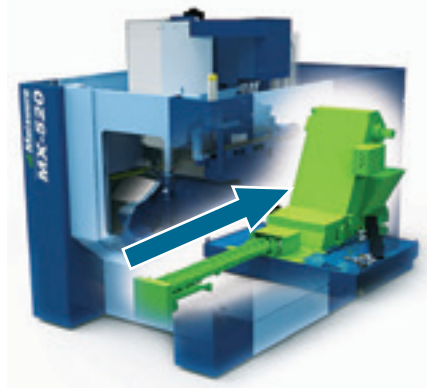
	Material	Tool Details	Cutting Width & Depth	Spindle Speed	Feedrate	Quantity		Material	Tool Details	Spindle Speed	Feedrate	Quantity
	A5052	Ø80mm (3.14 in.) 3 tooth	W=70mm (2.75 in.) D=4mm (0.15 in.)	5,500 min ⁻¹	7,000 mm/min (275.59 ipm)	1,960 cc/min		A5052	Ø30mm (1.18 in.)	1,800 min ⁻¹	700 mm/min (27.55 ipm)	495 cc/min
	S45C	Ø80mm (3.14 in.) 5 tooth	W=70mm (2.75 in.) D=2mm (0.07 in.)	1,320 min ⁻¹	2,600 mm/min (102.36 ipm)	364 cc/min		S45C	Ø27mm (1.06 in.)	1,500 min ⁻¹	320 mm/min (12.59 ipm)	183 cc/min
	A5052	Ø25mm (0.98 in.) 2 tooth	W=22mm (0.86 in.) D=6mm (0.23 in.)	20,000 min ⁻¹	11,000 mm/min (433.07 ipm)	1,452 cc/min		A5052	M36 × P4.0	120 min ⁻¹	480 mm/min (18.89 ipm)	—
	S45C	Ø20mm (0.78 in.) 4 tooth	W=3mm (0.11 in.) D=30mm (1.18 in.)	5,000 min ⁻¹	5,000 mm/min (196.85 ipm)	450 cc/min		S45C	M24 × P3.0	100 min ⁻¹	300 mm/min (11.81 ipm)	—

Smooth Chip Removal



Spiral chip conveyor

Option



Spiral chip conveyor + Lift-up chip conveyor

Option

Table Top View $\varnothing 300$ mm ($\varnothing 11.81$ in.) Units: mm (in.)

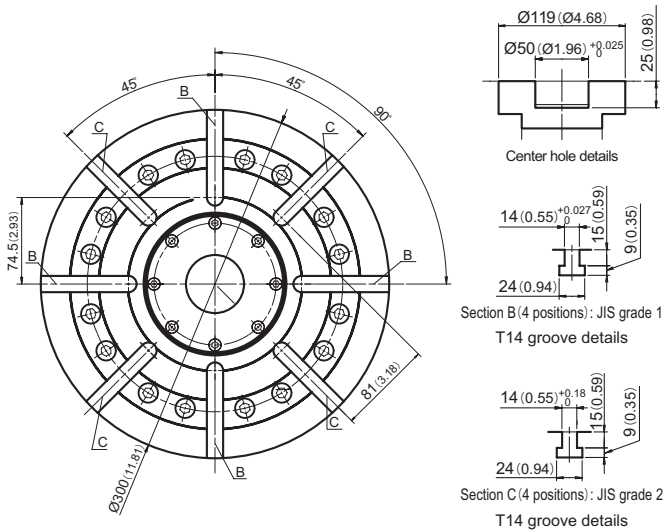
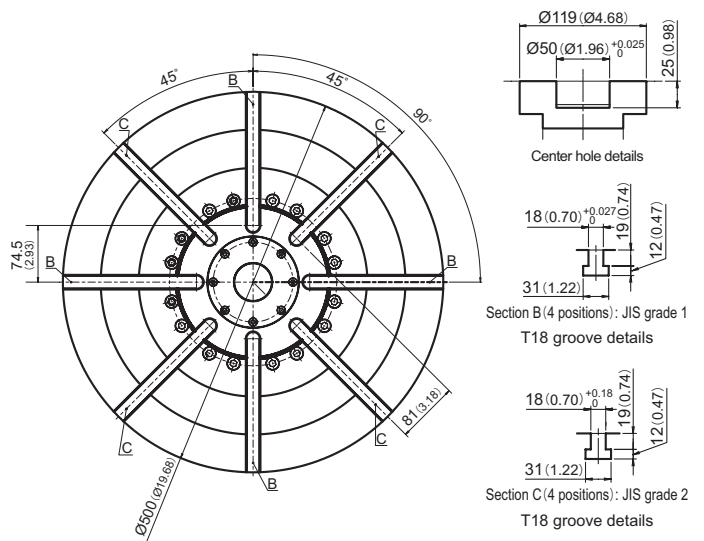
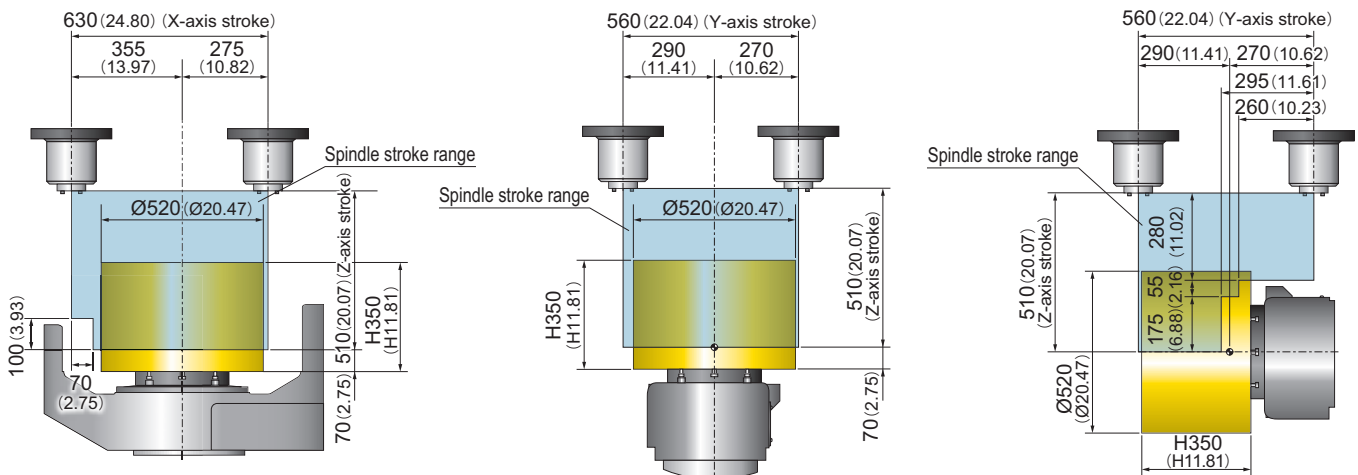


Table Top View $\varnothing 500$ mm ($\varnothing 19.68$ in.) Option Units: mm (in.)



Spindle Stroke Diagram

Units: mm (in.)



* Table size: $\varnothing 300$ mm ($\varnothing 11.81$ in.), X-axis 0 to -560 mm (-22.04 in.)

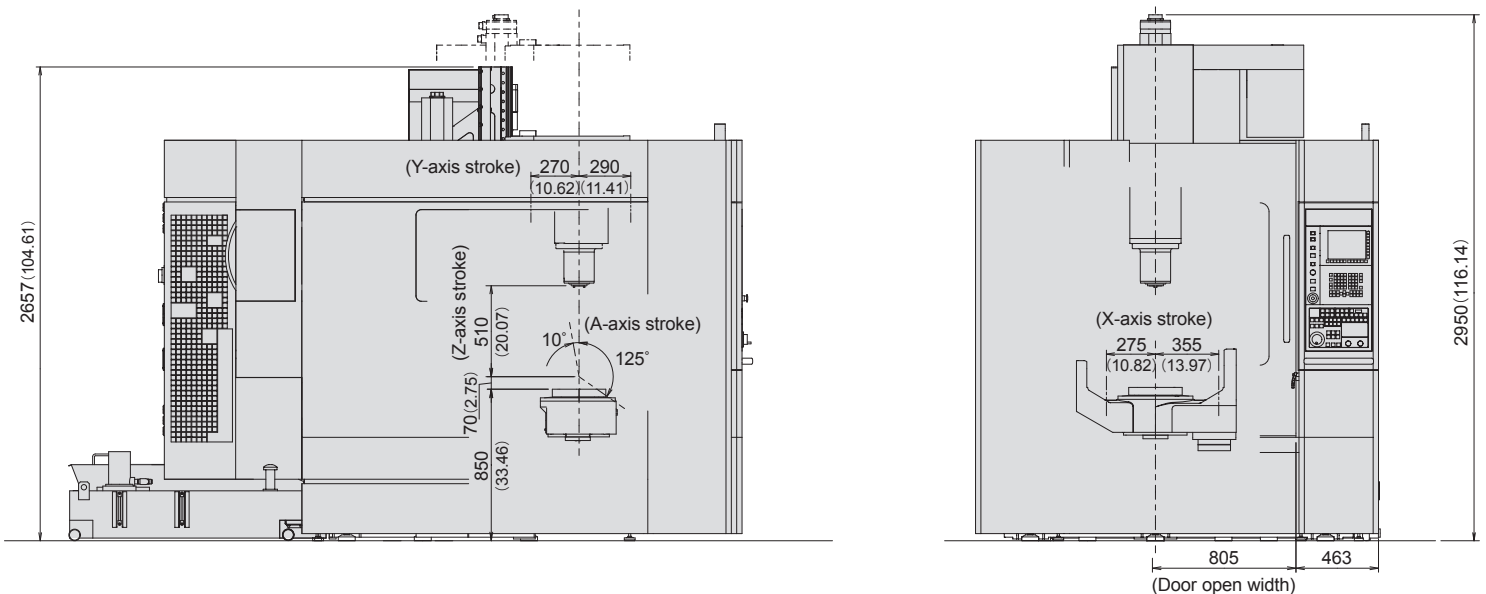
■ Movement and Ranges		
X-Axis Travel	mm (in.)	630(24.80)
Y-Axis Travel	mm (in.)	560(22.04)
Z-Axis Travel	mm (in.)	510(20.07)
A-Axis Travel	deg	-125~+10
C-Axis Travel	deg	360
■ Table		
Working Surface	mm (in.)	Ø300(Ø11.81)
Loading Capacity	kg (lb.)	200(440)
Max. Work Size	mm (in.)	Ø520×H350(Ø20.47×H13.77)
■ Spindle		
Spindle Speed Range	min ⁻¹	40~12,000
Spindle Bearing Lubrication		Grease
Spindle Drive Motor (Contin. / 30min)	kW	7.5 / 11
Max. Spindle Torque	Nm	120 (880min ⁻¹)
■ Feedrate		
Rapid Traverse Rate (X/Y/Z)	mm/min(ipm)	40,000(1,574.80)
Rapid Traverse Rate (A)	min ⁻¹	17
Rapid Traverse Rate (C)	min ⁻¹	33
Feedrate (X/Y/Z)	mm/min(ipm)	40,000(1,574.80)
Feedrate (A)	min ⁻¹	17
Feedrate (C)	min ⁻¹	33
■ Automatic Tool Changer		
Type of Tool Shank		JIS B 6339 40T
Tool Storage Capacity	pcs	60(chain magazine)
Max. Tool Diameter	mm (in.)	Ø80(Ø3.14): with adjacent tools Ø150(Ø5.90): without adjacent tools
Max. Tool Length	mm (in.)	300(11.81)
Max. Tool Mass	kg (lb.)	10(22)
Tool Changing Time(tool to tool)	sec.	1.2

■ Power Sources		
Power Capacity	kVA	44
Volume of Compressed Air	NL/min	300
■ Tank Capacity		
Coolant Tank Capacity	L	560
■ NC System		
Control System		Matsuuura G-Tech 31i

■ Standard Accessories	
01. Total Splash Guard	02. ATC Auto Door
03. Synchronized Tapping	04. AD-TAP Function
05. IPC Function	06. Spindle Oil Cooler
07. Auto Grease Supply Unit	08. Spindle Overload Protect
09. ChipFlush	10. Machine Color Paint
11. Work Light	
12. Standard Mechanical Tools & Tool box	
13. Leveling Pads & Bolts (Not utilized for the foundation)	
14. ScaleFeedback for the A/C Axis	
15. MIMS (without Thermal Meister)	
16. Intelligent Protection System	
17. Matsuuura Safety Specification	

External View

Units: mm (in.)

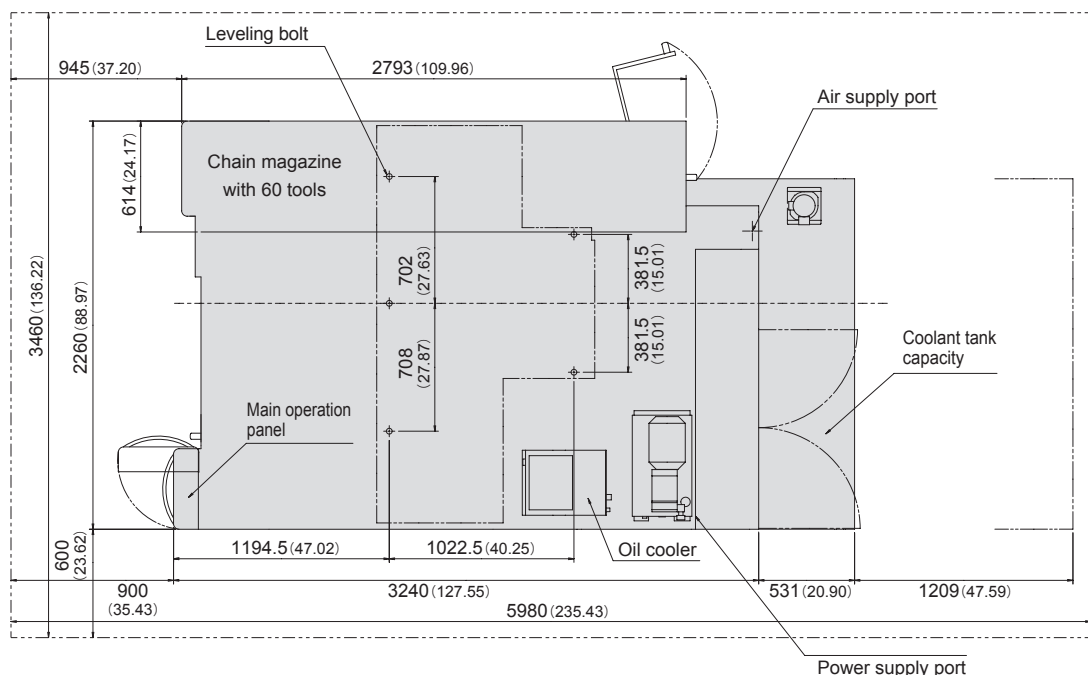


Spindle		
12,000 min ⁻¹ (BT40 Grease Lubrication)		○
12,000 min ⁻¹ Torque Up Type (BT40, Grease Lubrication)		▲
Spindle Drive Motor	kw	7.5/11
Max. Spindle Torque	Nm	167
20,000 min ⁻¹ (BT40 Auto Grease Lubrication)		▲
Spindle Drive Motor	kw	11/15/18.5
Max. Spindle Torque	Nm	108.4
Table		
Ø300(Ø11.81)		○
Ø500(Ø19.68)		▲
High Accuracy Control		
Scale Feedback XYZ-Axis		▲
A-Axis		○
C-Axis		○
Spindle Thermal Displacement Compensation 12K #40 S-Code Type		○
Spindle Thermal Displacement Compensation 20K #40 Temperature Monitor Type		▲
Coolant		
Coolant Tank Unit		○
Vacuum Type Coolant-Thru-Spindle Type A (7MPa)		▲
Vacuum Type Coolant-Thru-Spindle Type A (14MPa)		▲
Vacuum Type Coolant-Thru-Spindle Type B (7MPa)		▲
Vacuum Type Coolant-Thru-Spindle Type B (14MPa)		▲
Vacuum Type Coolant-Thru-Spindle Type C (2MPa)		▲
Vacuum Type Coolant-Thru-Spindle Type C (7MPa)		▲
Coolant Temperature Controller With 100-liter Tank (Separately Installed, Small Size)		▲
Chip Removal		
Total Splash Guard		○
ATC Auto Door		○
Chip Flush System		○
Spiral Chip Conveyor		▲
Lift-Up Chip Conveyor (Scraper)		▲
Chip Bucket		▲

Air Blow For Chip Removal		▲
Workpiece Cleaning Gun (Machine side)		▲
Operation/Maintenance Support		
Reliability Meister Plus	Type A (With PC)	▲
	Type B (Without PC)	▲
AD-TAP Function		○
IPC Function		○
Auto Grease Supply Unit for Feed Axes		○
Work Light		○
Movable Manual Pulse Generator		▲
Additional Eight M Functions		▲
Spindle Load Monitoring Function		▲
Weekly Timer		▲
Spindle Run Hour Meter		▲
Rotary Wiper (air driven)		▲
Rotary Wiper (electrically driven)		▲
Automatic Operation Run Hour Meter		▲
100 VAC Socket (3A)		▲
Optional Block Skip 2~9		▲
3-Color Signal Light (red, yellow, green from top)		▲
TRUE PATH (by COMPLETE)		▲
Machine Module		▲
Pressure Supply System for Fixtures		▲
Safety Devices		
Matsuura Safety Specification		○
Automatic Measurement, Tool Breakage Detection		
Automatic Measurement / Automatic Alignment (Optical)		▲
Tool Breakage / Full Automatic Tool Length Measurement (Laser)		▲
Automatic Measurement (Optical) & Tool Breakage (Laser)		▲
Option Package		
Hi-Speed Hi-Precision Package		▲
5-Axis Package		▲
Hi-Speed Hi-Precision / 5-Axis Package		▲
Value Package		▲
Hi-Speed Hi-Precision / 5-Axis Package + TRUE PATH		▲

Floor Plan

Units: mm (in.)





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



Products are subject to all applicable export control laws and regulations.