

 **Matsuura**

Vertical Machining Center

# **VX-1000**



**MAXIA**  
Innovation by  Matsuura

## Introducing the Matsuura VX Series: Cost Effective Heavy Duty Performance

Incorporating Matsuura's class leading technology from many decades of producing world class vertical machining centres, the all new **VX-1000** is fully equipped for today's arduous and demanding machine shop environments.

The **VX-1000** possesses a new **MAXIA** spindle - offering all industries the un-erring performance for which Matsuura **MAXIA** spindles have become renowned worldwide - no matter what the material.

**Table size: 1,200×600 mm (47.24×23.62 in.)**

**Loading Capacity: 500 kg (1,100 lb.)**

**MAXIA spindle: 15,000 min<sup>-1</sup>**

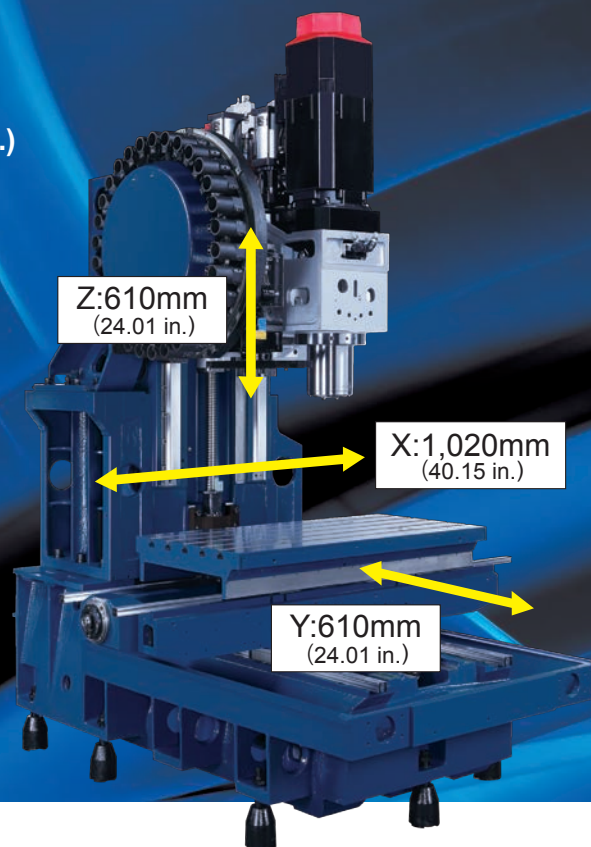
**Standard features:**  
**Spindle through coolant and lift up conveyor.**



Coolant-through mechanism



Lift-up conveyor





**MAXIA**  
Innovation by  Matsuura

# The Matsuura designed MAXIA and accurate. From Aluminium the VX auto grease spindle of

The MAXIA Spindle - designed by Matsuura. Our pioneering heritage as the technology innovators in high speed spindles now sees that history invested in our MAXIA brand spindles. The newly designed **VX-1000** spindle offers reliable and robust performance operation upto 15,000 min<sup>-1</sup> - with Matsuura's legendary sustained precision and accuracy as standard.



Standard features of spindle
Spindle oil cooler
Coolant-through spindle 2 MPa
Thermal displacement compensation of spindle 15K BT40 Temperature monitoring type
Automatic grease supply type
Synchronized tapping

Spindle specifications	
Spindle taper	7/24 taper JIS BT40 (Double contact type)
Spindle speed range	50 - 15,000 min <sup>-1</sup>
Spindle motor	15/22 kW (Low-speed winding: Continuous/15 min) 15/22 kW (High-speed winding: Continuous/15 min)
Max. Spindle Torque	150 N·m / 1,400 min <sup>-1</sup>

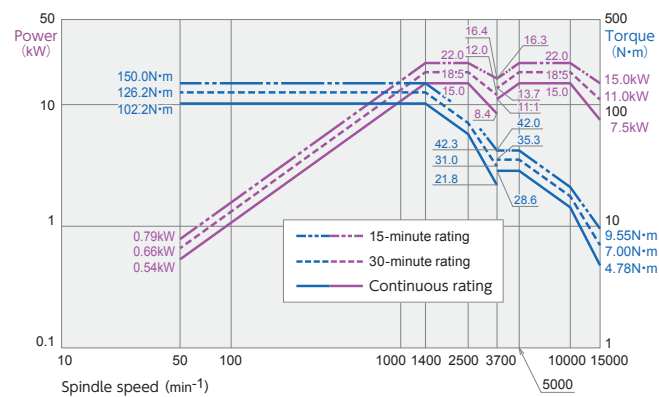
# Spindle - robust, reliable to hard-to-cut materials - offers effortless performance.

## MAXIA Spindle

The MAXIA Spindles adhere to the very same stringent quality controls as stipulated by Matsuura. Hand built in a dedicated clean room environment, the **VX-1000** maintenance free auto grease 15,000 min<sup>-1</sup> MAXIA spindle achieves the same build accuracies and strict QA controls as all Matsuura spindles.



## Spindle Power and Torque Diagram

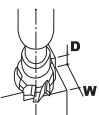

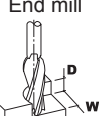
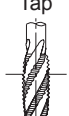


## Thermal Displacement Function: Eliminate Errors from Spindle Growth.

The MAXIA spindle possesses a tried and tested Thermal Displacement function that eliminates machining errors due to thermal growth of the machine - offering long periods of stable, reliable and accurate operation even if the machining environment ambient temperature excessively fluctuates.

### Cutting test results (BT40 15,000min<sup>-1</sup>)

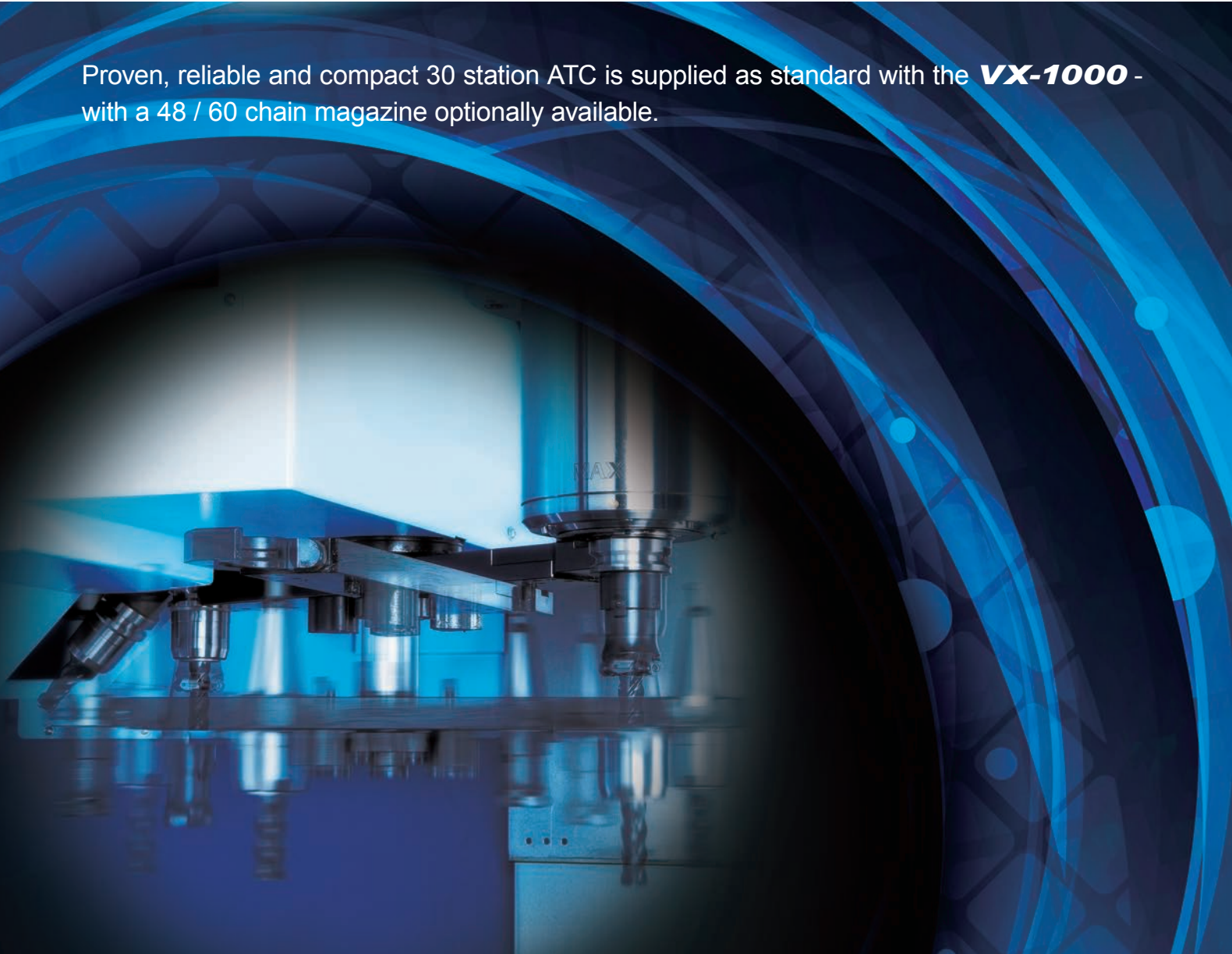
(in.)

	Work material	Tool	Cut width Cut depth	Spindle rotation speed	Cutting feed rate	Cutting amount		Work material	Tool	Spindle rotation speed	Cutting feed rate	Work material
<div>Face mill</div> 	A5052	Ø80mm (3.14) 3 blades	W=70mm (2.75) D=5mm (0.19)	5,500 min <sup>-1</sup>	8,000 mm/min (314.96)	2,800 cc/min	<div>Drill</div> 	A5052	Ø35mm (1.37)	1,500 min <sup>-1</sup>	700 mm/min (27.55)	673 cc/min
	S45C	Ø80mm (3.14) 5 blades	W=70mm (2.75) D=3mm (0.11)	2,800 min <sup>-1</sup>	1,120 mm/min (44.09)	588 cc/min		S45C	Ø35mm (1.37)	1,300 min <sup>-1</sup>	330 mm/min (12.99)	317 cc/min
<div>End mill</div> 	A5052	Ø25mm (0.98) 2 blades	W=22mm (0.86) D=8.5mm (0.33)	12,000 min <sup>-1</sup>	10,000 mm/min (393.70)	1,870 cc/min	<div>Tap</div> 	A5052	M36 × P4.0	120 min <sup>-1</sup>	480 mm/min (18.89)	
	S45C	Ø20mm (0.78) 4 blades	W=3mm (0.11) D=35mm (1.37)	5,500 min <sup>-1</sup>	5,500 mm/min (216.53)	578 cc/min		S45C	M30 × P3.5	100 min <sup>-1</sup>	350 mm/min (13.77)	

\*Results above may differ in repeat tests due to different operating conditions.

# ATC: Proven design, robust per The **VX-1000** accommodate

Proven, reliable and compact 30 station ATC is supplied as standard with the **VX-1000** - with a 48 / 60 chain magazine optionally available.

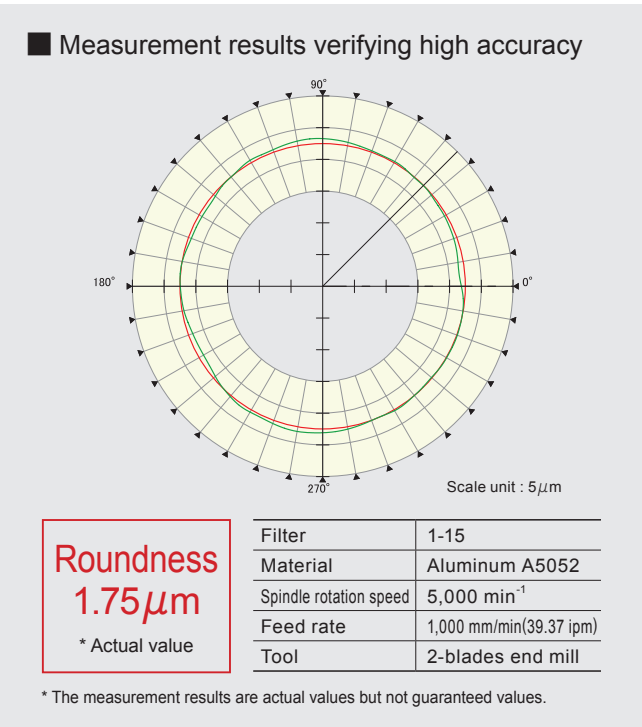
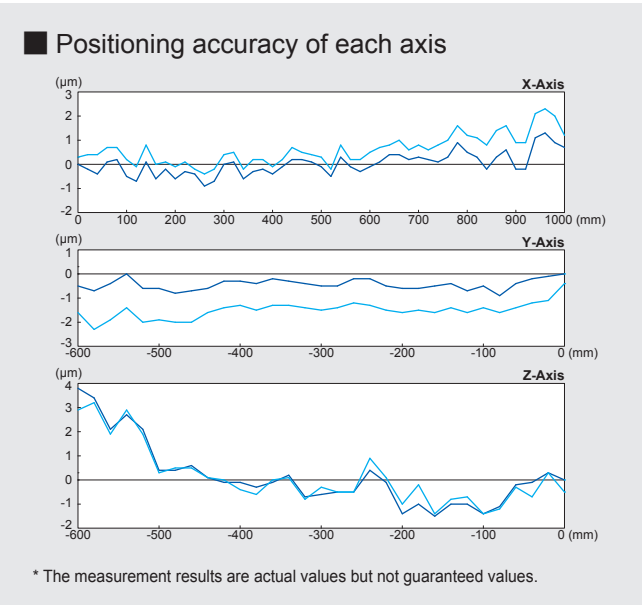


Main specifications					
Movement and Ranges (X/Y/Z axis)	mm (in.)	1,020 / 610 / 610 (40.15 / 24.01 / 24.01)	Rapid traverse rate (X/Y/Z axis)	m/min (in.)	40 / 40 / 36 (1574.80 / 1574.80 / 1417.32)
Working Surface	mm (in.)	1,200 × 600 (47.24 × 23.62)	Spindle speed range	min <sup>-1</sup>	50 - 15,000
Loading Capacity	kg (lb.)	500 (1,100)	Spindle taper		BT40

# formance. s up to 60 tools.

## High-precision positioning

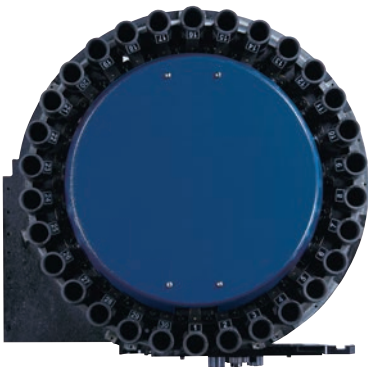
High precision and rigidity are standard features of all ballscrews and linear guides - offering dynamic and repeatable performance over many years of operation.



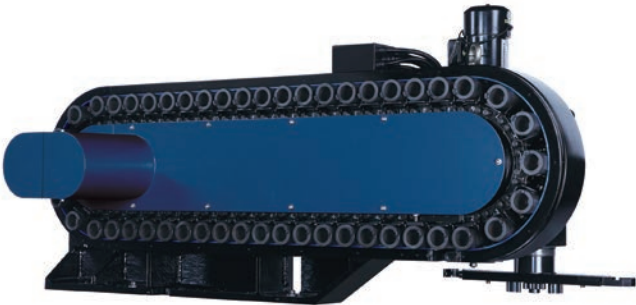
## Automatic tool changer

Proven, reliable and compact 30 station drum type ATC is supplied as standard with the **VX-1000** - with a 48 / 60 chain magazine optionally available.

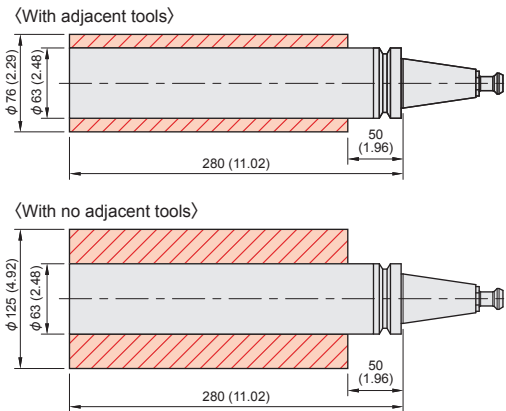
■ Standard drum magazine for 30 tools



■ Chain magazine for 48/60 tools **Option**



■ Maximum tool size mm (in.)



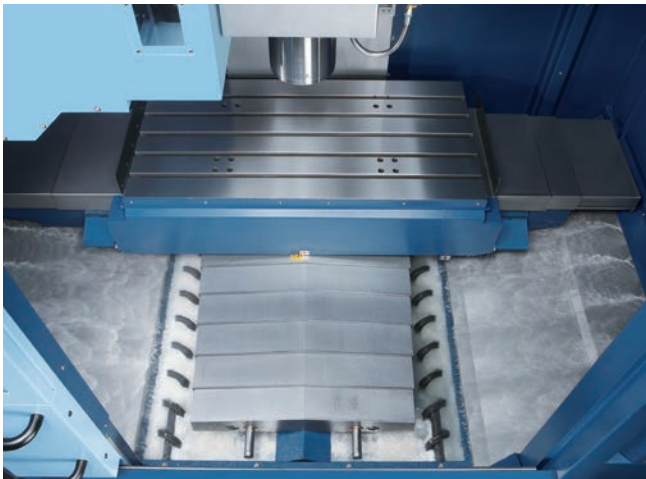
# Offering dynamic production enhancement the **VX-1000** sets new standard

The **VX-1000** incorporates features that have been optional extras for many previous vertical machine models. As ever with Matsuura, our pursuit of excellence and production value for our customers has driven us to set a new standard of cost down performance for exceptional quality in our vertical range. The **VX-1000** is the machine for all applications, all industries and all materials.

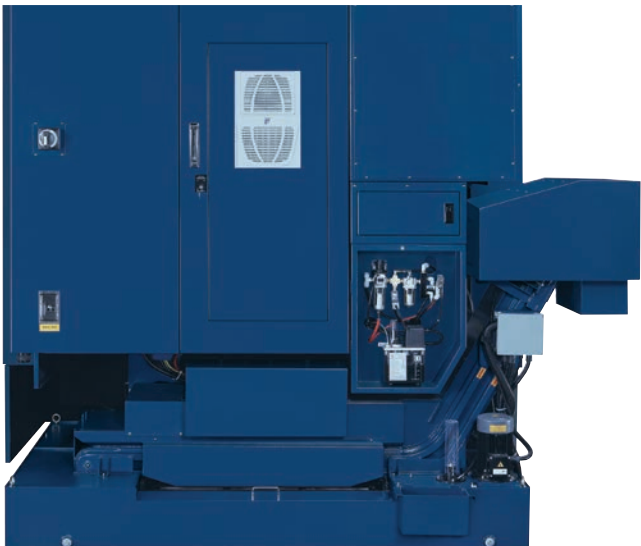
## Excellent Swarf Management

Modern machine shops and production environments require proven swarf management. Downtime due to blocked conveyors and "swarf traps" because of poor machine design are unacceptable as manufacturers lessen their time to market and improve cost per part ratios. The **VX-1000** inherits all of the design success of previous Matsuura machines and their proven swarf management design systems.

- Chip flush
- Spiral chip conveyor
- Air Blow for Chip Removal



- Lift-up conveyor



- Coolant-through Spindle System



- Workpiece cleaning gun



# ing features and systems as standard, s in vertical machining performance.

Ergonomic design, operator comfort and safety: The **VX-1000** has it all.

The **VX-1000** is designed to maximise operator comfort and increase production output. Simple touches such as the remote manual pulse generator and a cavourness opening of 1,150mm gives the operator ease of use and reduce set up time.



■ External Manual Pulse Generator



■ 3-color Signal Light



## CE markings

This product is designed in conformity with European Machinery Directives, EMC Directives, and Low-voltage Directives, thus bearing CE markings.

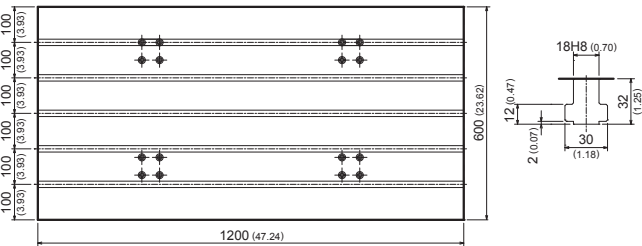


Standard Machine Specifications

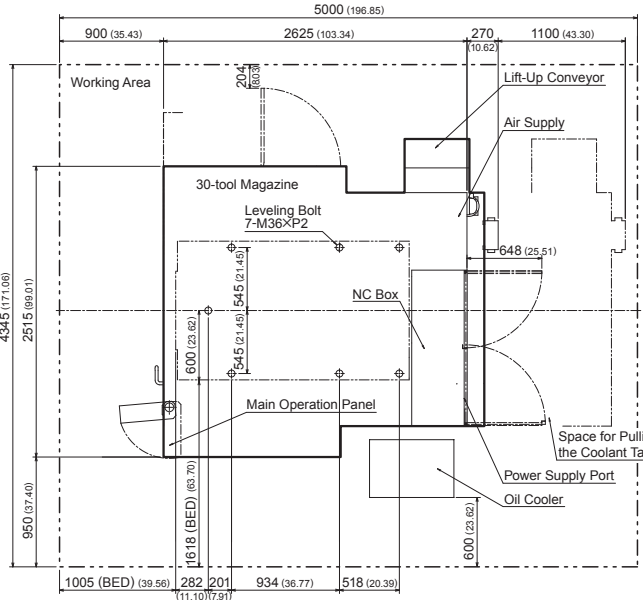
■ Movement and Ranges			
X-Axis Travel	mm (in.)	1020	(40.15)
Y-Axis Travel	mm (in.)	610	(24.01)
Z-Axis Travel	mm (in.)	610	(24.01)
Table Surface to Spindle Gauge Line	mm (in.)	100 - 710	(3.93 - 27.95)
Table Center to Column Guideway	mm (in.)	390 - 1000	(15.35 - 39.37)
Spindle Center to Column Guideway	mm (in.)	695	(27.36)
■ Table			
Working Surface	mm (in.)	1200×600	(47.24×23.62)
Loading Capacity	kg (lb.)	500	(1100)
Working Surface Configuration (width × number × pitch)	mm (in.)	18 (11/16) × 5 × 100	(3.93)
Table Height (from floor)	mm (in.)	930	(36.61)
■ Spindle			
Spindle Speed Range	min <sup>-1</sup>	50 - 15000	(Grease Lubrication)
Spindle Speed Change Command		S5-digit Direct Command	
Spindle Taper		7/24 Taper JIS BT40	(Double Contact Type)
Spindle Bearing Inner Dia.	mm (in.)	80	(3.14)
Max. Spindle Torque	N · m	150 / 1400	min <sup>-1</sup>
Spindle Air Blow		Standard	
Spindle Orientation		Standard (Electrical)	
Tool Clamping Force	kN	12.0	
■ Feederate			
Rapid Traverse Rate	X / Y / Z	mm/min (ipm)	40000 / 40000 / 36000 (1574.8 / 1574.8 / 1417.32)
Feederate	X / Y / Z	mm/min (ipm)	1 - 20000 (0.1 - 787.4) Limited to maximum cutting feed rate of the z-axis if simultaneous 2-axis (X/Z and Y/Z) or 3-axis (X/Y/Z) interpolation command is executed.
Feederate Max. Acceleration	X / Y / Z	G	0.15 / 0.15 / 0.15
Jog Feederate		mm/min (ipm)	With Door Opened: 2000 (78.74) Fast Feed with Door Closed: F0%, 25%, 50%, 100%
Min. Movement Increment	X / Y / Z	mm (in.)	0.001 (0.000039)

■ Automatic Tool Changer		
Type of Tool Shank		JIS B 6339 Tool Shank 40T
Type of Retention Knob		JIS B 6339 Pull Stud 40P
Number of Tools		30
Max. Tool Diameter	mm (in.)	76 (2.99)
Max. Tool Diameter	mm (in.)	125 (4.92) (When the pockets on both side are empty)
Max. Tool Length	mm (in.)	280 (11.02)
Max. Tool Mass	kg (lb.)	7 (15.4)
Tool Selection		Memory Random
Tool Change Arm		Double Grip Type
Tool Pocket Pitch	mm (in.)	76.2 (3.0)
■ Motors		
Spindle Motor	kW	AC 15 / 22 (low-speed winding: continuous/15 min)
	kW	AC 15 / 22 (high-speed winding: continuous/15 min)
Feed Motors		
X-Axis	kW	AC 3.0
Y-Axis	kW	AC 3.0
Z-Axis	kW	AC 4.0
Coolant Pump Motor	kW	AC 0.555 / 0.885 (50Hz / 60Hz)
Chip Flush Pump Motor	kW	AC 0.555 / 0.885 (50Hz / 60Hz)
Oil Cooler Pump Motor	kW	AC 0.75
■ Power Supply		
Electrical Power Supply	kVA	43 (varies with option configuration)
Power Supply Voltage	V	AC 200 / 220 ± 10% Transformer required if supply voltage is other than above
Power Supply Frequency	Hz	50 / 60 ± 1
Compressed Air Supply	MPa	0.54 - 0.93
■ Tank Capacity		
Coolant Tank Capacity	L	300
Oil Cooler Tank Capacity	L	36

Table top view Unit: mm (in.)



Floor plan Unit: mm (in.)



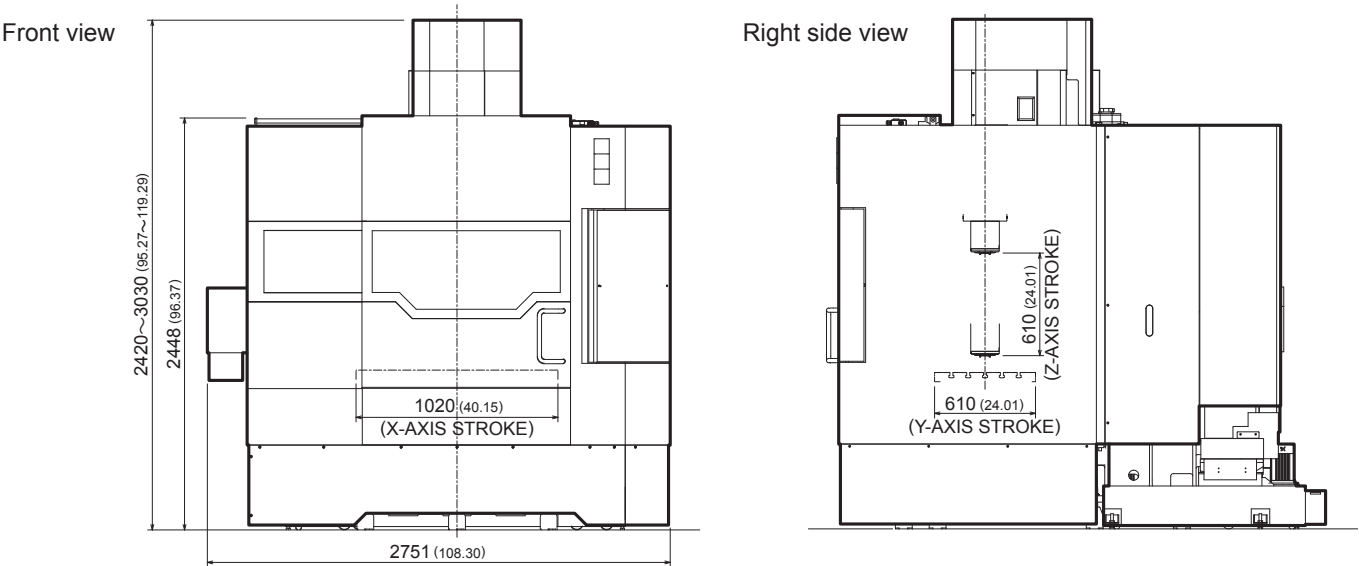
Machine Size		
Machine Height (from floor)	mm (in.)	3030 (119.29)
Floor Space	mm (in.)	2751W × 2893D (108.30W × 113.89D) (varies with option configuration)
Mass of Machine	kg (lb.)	7390 (16258) (include NC Equipment and ATC Magazine)
NC System		
Control System		FANUC Series 31i
Standard Accessories		
01. Total Enclosure Guard	With Top Side Cover	
02. ATC Magazine Guard		
03. CE Markings		
04. Synchronized Tapping Function		
05. Spindle Oil Cooler		
06. Lift-up Chip Conveyor (Scraper and Left and Right Spirals)		
07. Air Blow for Chip Removal		
08. Workpiece Cleaning Gun		
09. Coolant-through Spindle System		
10. Spindle Thermal Displacement Compensation, 15k, BT40, Temperature Monitor Type		
11. Chip Flush System		
12. Coolant System	Chip Side Discharge	
13. Auto Oil Supply Unit for Feed Axes	Greasing Points with Female Ball Screws (X/Y/Z)	
14. Work Light		
15. 3-color Signal Light (Red, Yellow, and Green from Top)	Standard Specifications: Red (Alarm), Yellow (Work Completion), and Green (Automatic Operation)	
16. External Manual Pulse Generator		
17. Tools and Tool Box		
18. Machine Color Paint		
19. Leveling Bolts and Leveling Plates	Not for Foundation	
20. Memory card program operation and editing	CD-ROM	

## Machine Option

Machine Option
48 Tools (#40 Chain Magazine)
60 Tools (#40 Chain Magazine)
Scale Feedback System
Scale Feedback System X/Y/Z (HEIDENHAIN)
Coolant-through Spindle System
Oil Temperature Controller with 50-BAR Coolant-through System of Mono-block Construction
Coolant Temperature Controller
Coolant Temperature Controller with 100-liter Tank (Separately Installed, Small Size)
Automatic Measurement, Tool Breakage Detection
Automatic Measurement / Automatic Alignment (Optical)
Tool Breakage / Full Automatic Tool Length Measurement (Contact)
Tool Breakage / Full Automatic Tool Length Measurement (Laser)
Automatic Measurement (Optical) / Tool Breakage (Contact)
Automatic Measurement (Optical) / Tool Breakage (Laser)
Rotary Wiper
Rotary Wiper

\* Optional accessories in a wide variety are available in addition to the above. For details, contact your Matsuura representative.

## External view Unit: mm (in.)





# Matsuura

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## MATSUURA MACHINERY USA INC.

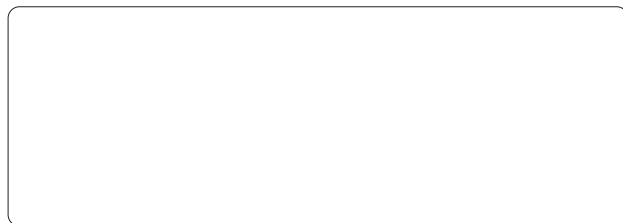
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- Product specifications and dimensions are subject to change without prior notice.
  - The photos may show optional accessories.



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



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