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

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 **Matsuura**

Vertical Machining Center

VX-1000



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



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MAXIA
Innovation by  Matsuura

Matsuura VX-1000

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⁻¹

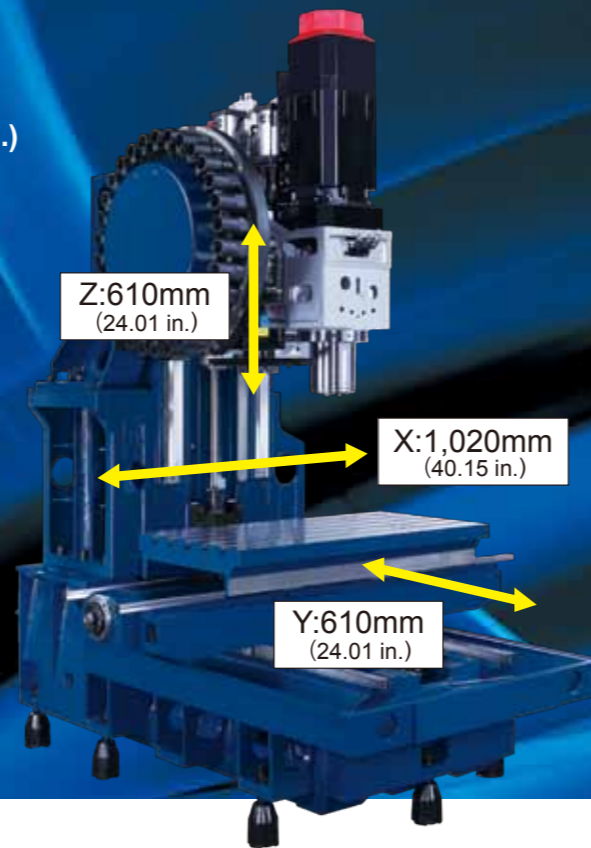
Standard features:
Spindle through coolant and lift up conveyor.



Coolant-through mechanism



Lift-up conveyor



MAXIA
Innovation by Matsuura

The Matsuura designed MAXIA Spindle - robust, reliable and accurate. From Aluminium to hard-to-cut materials - the VX auto grease spindle offers effortless performance.

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⁻¹ - 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	

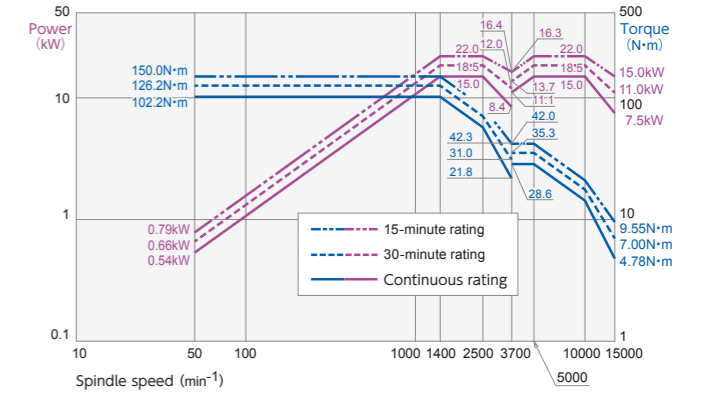
Spindle specifications	
Spindle taper	7/24 taper JIS BT40 (Double contact type)
Spindle speed range	50 - 15,000 min ⁻¹
Spindle motor	15/22 kW (Low-speed winding: Continuous/15 min) 15/22 kW (High-speed winding: Continuous/15 min)
Max. Spindle Torque	150 N·m / 1,400 min ⁻¹

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⁻¹ 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.

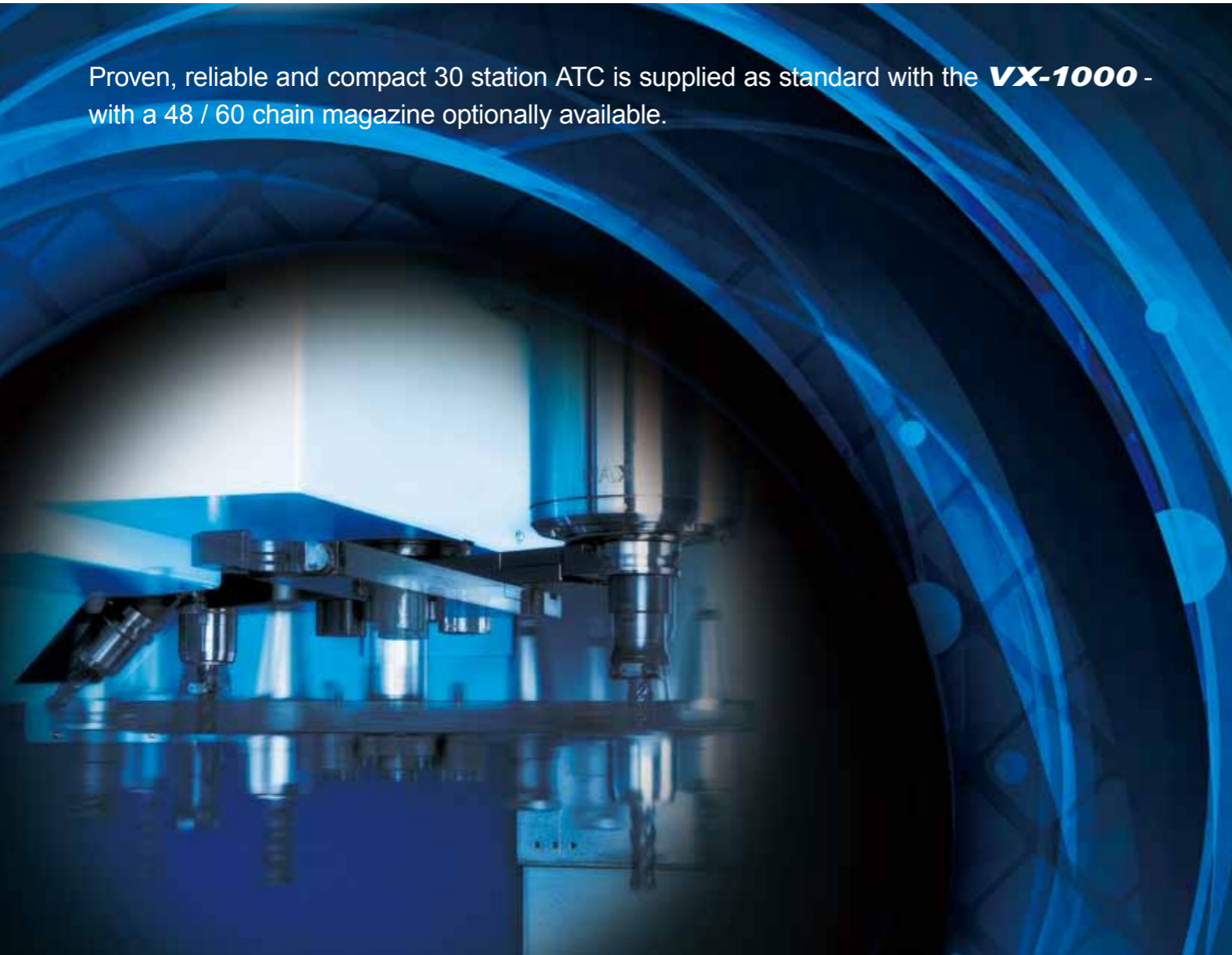
■ Cutting test results (BT40 15,000min⁻¹)

	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
Face mill	A5052	Ø80mm (3.14) 3 blades	W=70mm (2.75) D=5mm (0.19)	5,500 min ⁻¹	8,000 mm/min (314.96)	2,800 cc/min	Drill	A5052	Ø35mm (1.37)	1,500 min ⁻¹	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 ⁻¹	1,120 mm/min (44.09)	588 cc/min		S45C	Ø35mm (1.37)	1,300 min ⁻¹	330 mm/min (12.99)	317 cc/min
End mill	A5052	Ø25mm (0.98) 2 blades	W=22mm (0.86) D=8.5mm (0.33)	12,000 min ⁻¹	10,000 mm/min (393.70)	1,870 cc/min	Tap	A5052	M36 × P4.0	120 min ⁻¹	480 mm/min (18.89)	
	S45C	Ø20mm (0.78) 4 blades	W=3mm (0.11) D=35mm (1.37)	5,500 min ⁻¹	5,500 mm/min (216.53)	578 cc/min		S45C	M30 × P3.5	100 min ⁻¹	350 mm/min (13.77)	

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

ATC: Proven design, robust performance.

The **VX-1000** accommodates up to 60 tools.



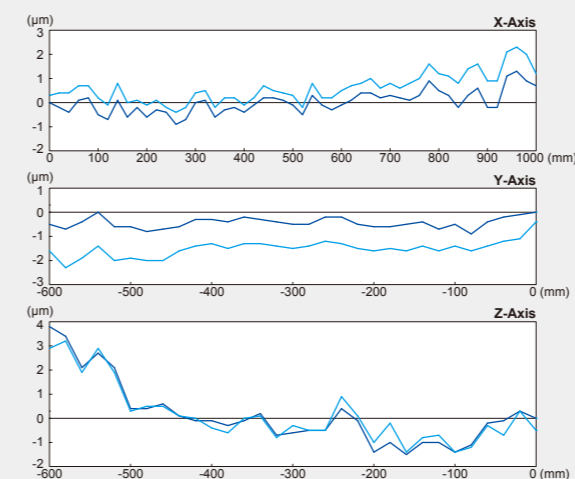
Proven, reliable and compact 30 station ATC is supplied as standard with the **VX-1000** - with a 48 / 60 chain magazine optionally available.

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 ⁻¹ 50 - 15,000
Loading Capacity	kg (lb.)	500 (1,100)	Spindle taper BT40

High-precision positioning

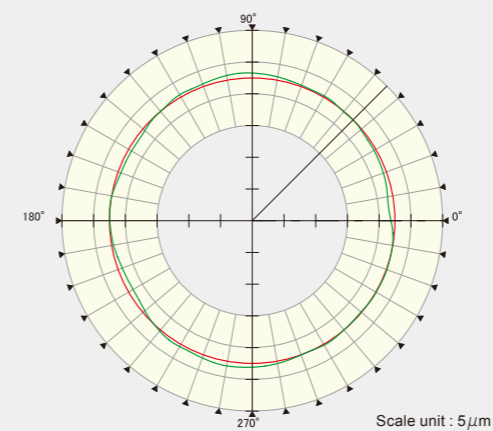
High precision and rigidity are standard features of all ballscrews and linear guides - offering dynamic and repeatable performance over many years of operation.

Positioning accuracy of each axis



* The measurement results are actual values but not guaranteed values.

Measurement results verifying high accuracy



Roundness
1.75 µm
* Actual value

Filter	1-15
Material	Aluminum A5052
Spindle rotation speed	5,000 min ⁻¹
Feed rate	1,000 mm/min(39.37 ipm)
Tool	2-blades end mill

* The measurement results are actual values but not guaranteed values.

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.

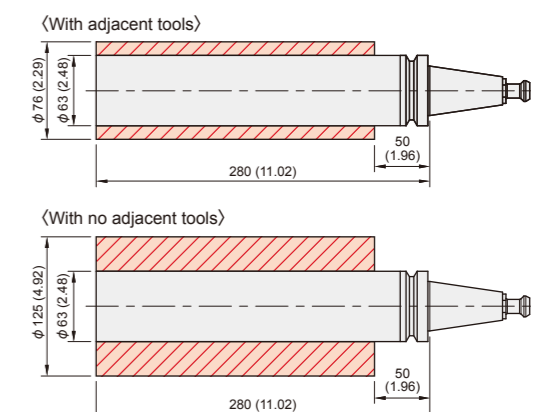
Standard drum magazine for 30 tools



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



Maximum tool size mm (in.)



Offering dynamic production enhancing features and systems as standard, the **VX-1000** sets new standards in vertical machining performance.

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



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 cavoursness 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

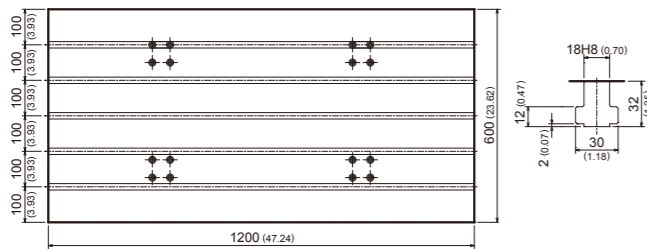
This product is designed in conformity with European Machinery Directives, EMC Directives, and Low-voltage Directives, thus bearing CE markings.



Standard Machine Specifications

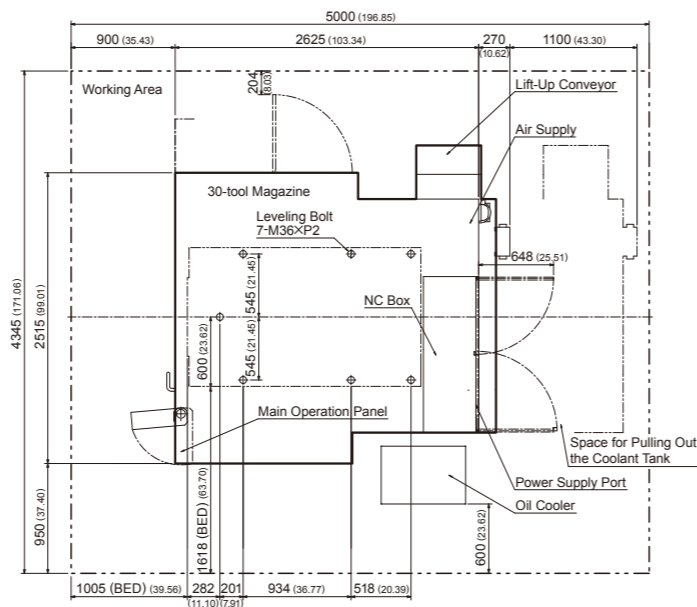
■ Movement and Ranges			
X-Axis Travel	mm (in.)	1020 (40.15)	
Y-Axis Travel	mm (in.)	610 (24.01)	
Z-Axis Travel	mm (in.)	610 (24.01)	
Table Surface to Spindle Gauge Line	mm (in.)	100 - 710 (3.93 - 27.95)	
Table Center to Column Guideway	mm (in.)	390 - 1000 (15.35 - 39.37)	
Spindle Center to Column Guideway	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 ⁻¹	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 / 1400min ⁻¹	
Spindle Air Blow		Standard	
Spindle Orientation		Standard (Electrical)	
Tool Clamping Force	kN	12.0	
■ Feedrate			
Rapid Traverse Rate	X / Y / Z	mm/min (ipm)	40000 / 40000 / 36000 (1574.8 / 1574.8 / 1417.32)
Feedrate	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.
Feedrate Max. Acceleration	X / Y / Z	G	0.15 / 0.15 / 0.15
Jog Feedrate		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)

Table top view Unit: mm (in.)



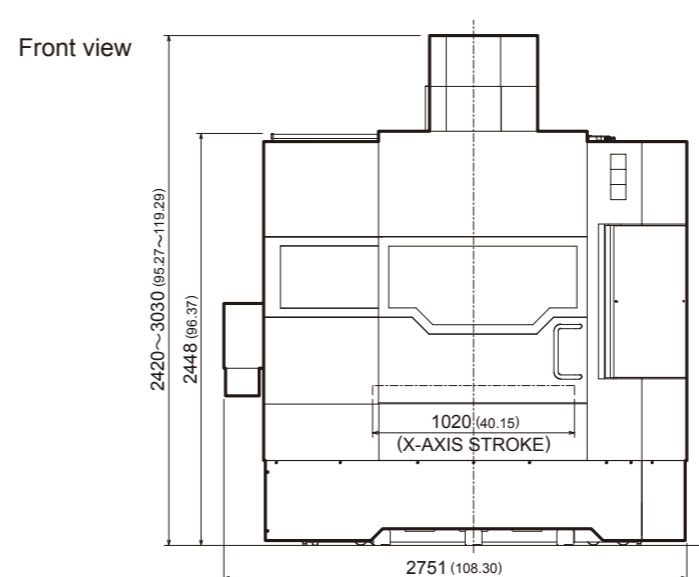
■ Automatic Tool Changer			
Type of Tool Shank		JIS B 6339 Tool Shank 40T	
Type of Retention Knob		JIS B 6339 Pull Stud 40P	
Number of Tools		30	
Max. Tool Diameter	mm (in.)	76 (2.99)	
Max. Tool Diameter	mm (in.)	125 (4.92) (When the pockets on both side are empty)	
Max. Tool Length	mm (in.)	280 (11.02)	
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	

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	

External view Unit: mm (in.)



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.

