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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

VEGETABLE OIL INK

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Matsuura

Vertical Machining Center

VX-1000

MAXIA

Innovation by Matsuura

Matsuura VX-1000

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

Better by Design; The Upgraded ***VX-1000***, with new Fanuc 31i control, modernized ergonomic guarding & increased versatility & functionality.

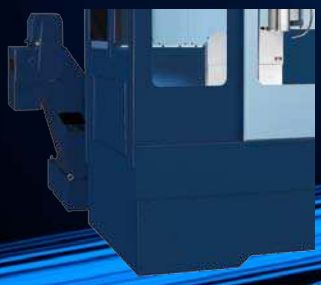
Table size: 1,200×600 mm (47.24×23.62 in.)

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

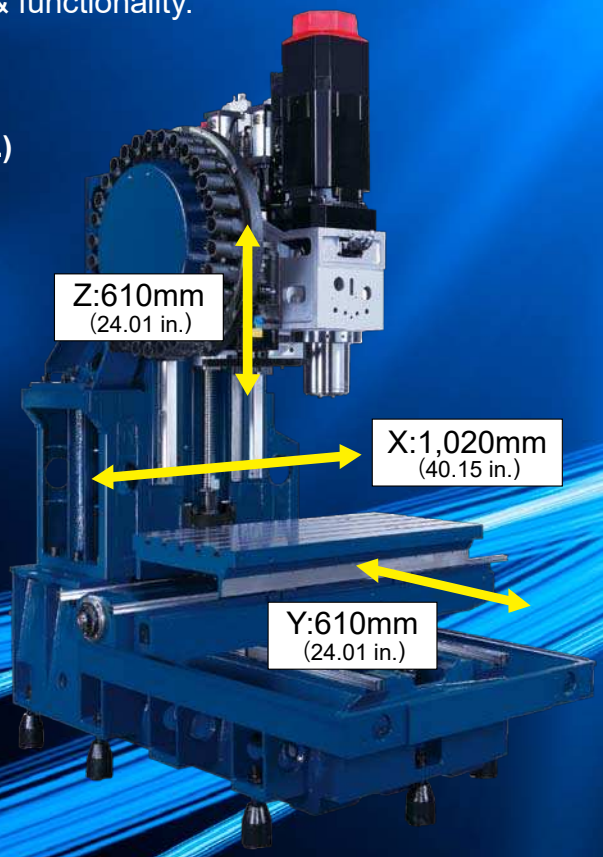
MAXIA spindle: 15,000 min^{-1}

Standard features:
Spindle through coolant and lift up conveyor.

Coolant-through mechanism



Lift-up conveyor



* Photo shows machine with options installed

MAXIA
Innovation by Matsuura

Legendary ***Matsuura*** Spindle Performance; **MAXIA** 15,000min^{-1} Spindle as Standard, 20,000min^{-1}

The globally acclaimed performance of the **MAXIA** spindles in all arduous machining environments is testimony to our prestigious heritage as technology leaders in the field. The ***VX-1000*** is now further enhanced with the availability of a **MAXIA** 20,000min^{-1} as an option.

MAXIA Spindle

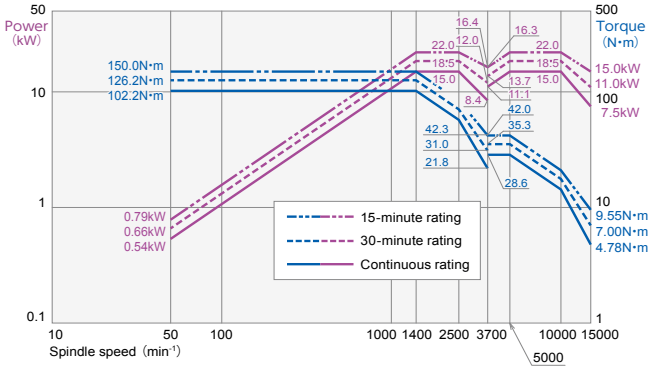
Matsuura control every aspect of our **MAXIA** Spindles creation; from design concept, to precision in-house component manufacture, to clean room assembly, to rigorous testing, to final installation & commission. Quality assurance & sustained Spindle performance – every time."

Thermal Displacement Compensation: Eliminate Errors from Spindle Growth.

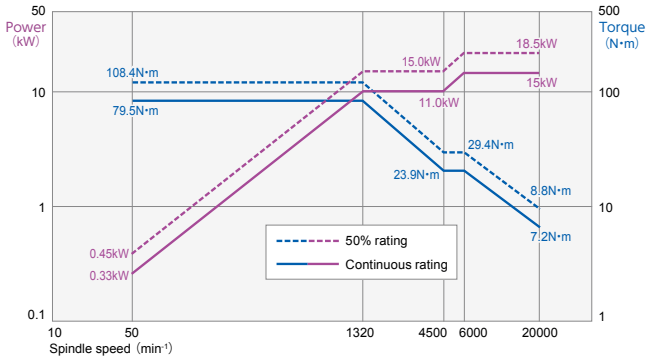
The spindle's thermal displacement compensation function eliminates dimensional error due to thermal displacement. Stable machining accuracy over long periods is assured.

Spindle Power and Torque Diagram

Standard BT40 15,000 min^{-1}



Option BT40 20,000 min^{-1}

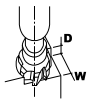
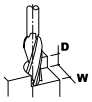


Spindle Specifications		
Spindle speed	15,000 Standard	20,000 Option
Taper	BT #40	BT #40
Bearing diameter (mm)	D80 (3.14 in.)	D70 (2.75 in.)
Power (kW)	15 / 22	11 / 15 / 18.5
Torque (N·m)	150.0	108.4
Lubrication system	Automatic grease supply	

Option

■ Cutting test results Standard BT40 15,000 min^{-1}

(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
Face mill 	Aluminum	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 	Aluminum	Ø35mm (1.37)	1,500 min^{-1}	700 mm/min (27.55)	673 cc/min
	Steel	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		Steel	Ø35mm (1.37)	1,300 min^{-1}	330 mm/min (12.99)	317 cc/min
End mill 	Aluminum	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)	
	Steel	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		Steel	M30 × P3.5	100 min^{-1}	350 mm/min (13.77)	

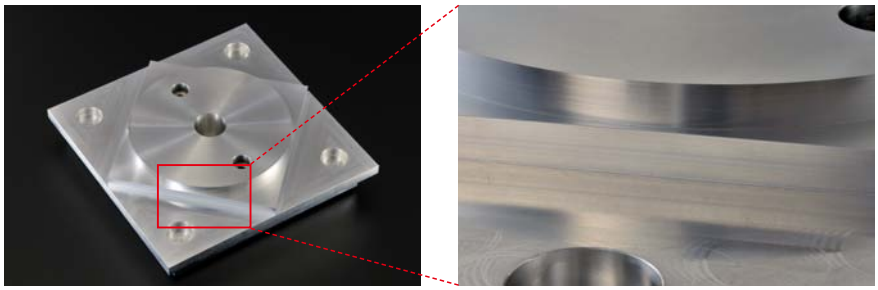
*Results above may differ in repeat tests due to different operating conditions.

Machining Examples

■ Automobile crank mold

Workpiece size	300 × 100 × 30 [mm] (11.81 × 3.93 × 1.18 [in.])
Material	SKD11 (no heat treatment)
Tools used	6
Machining time	2 hours, 26 minutes

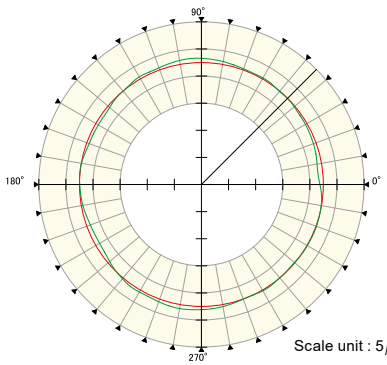
■ Workpiece for accuracy assessment



Filter	1-15
Material	Aluminum A5052
Spindle speed	5,000 min^{-1}
Feed rate	1,000 mm/min (39.37 ipm)
Tool	End mill, 2 flutes

Out of roundness 1.75μm

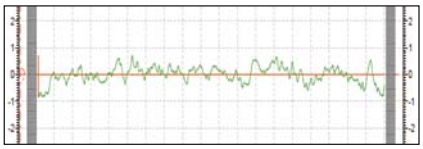
* Actual value



Scale unit : 5μm

Surface roughness 1.5μm

* Actual value (Side face cutting, X-Y direction)



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

Expanded ATC Capacity; 60 Tool Stations

The ATC is equipped with a 30-tool drum magazine as standard.
48-tool and 60-tool chain magazines are available as options.

Automatic tool changer

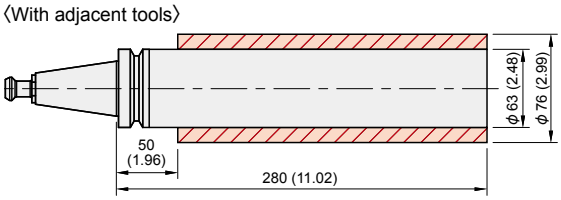
Random Memory System" adopted, shortening the waiting time to select the next too.

■ Standard drum magazine for 30 tools

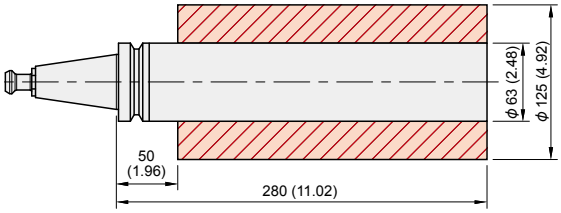
■ Chain magazine for 48/60 tools Option

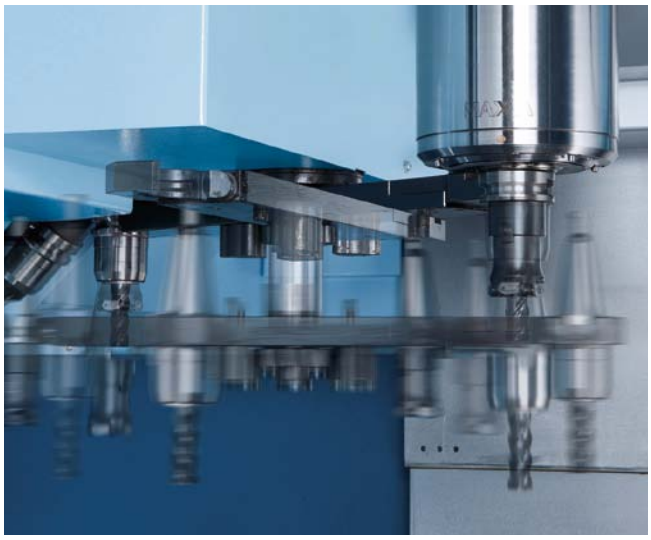
■ Maximum tool size mm (in.)

〈With adjacent tools〉



〈With no adjacent tools〉





Classic ***Matsuura*** Machine Build; Attention to Detail and Commitment to Engineering Excellence

Matsuura; Technology Innovators & Historical Creators of Vertical Machining Centers

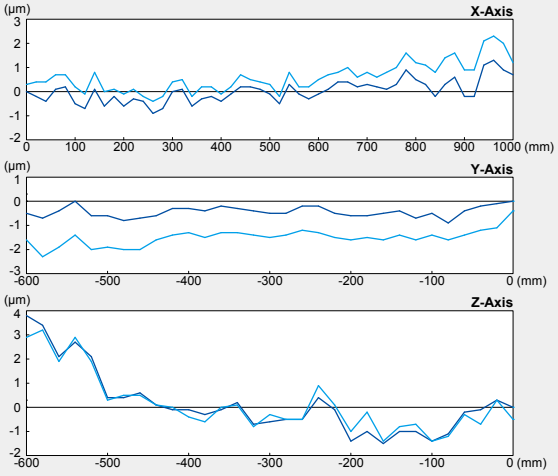
Ergonomic design, operator comfort and safety: The ***VX-1000*** has it all.

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.

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.

Standard specifications		
Movement and Ranges (X/Y/Z axis)	mm (in.)	1,020 / 610 / 610 (40.15 / 24.01 / 24.01)
Working Surface	mm (in.)	1,200 × 600 (47.24 × 23.62)
Loading Capacity	kg (lb.)	500 (1,100)
Rapid traverse rate (X/Y/Z axis)	m/min (in.)	40 / 40 / 36 (1574.80 / 1574.80 / 1417.32)

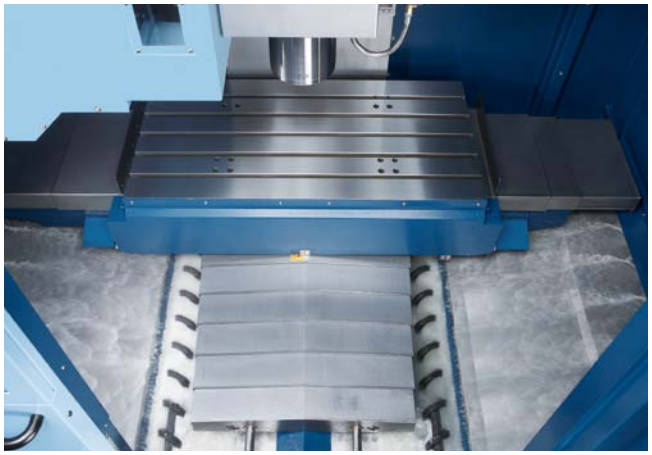
Dedicated & Focussed on Operability, Functionality & Ease of Use

VX-1000; a consummate performer, no matter what the task, no matter what the material

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
■ Lift-up conveyor (with drum filter) Option

■ Coolant-through Spindle System

■ Workpiece cleaning gun

MIMS Matsuura Intelligent Meister System

Combining craftsmanship, skill and ingenuity

Matsuura's original interface with uncompromising pursuit of utility

Environment

Eco Meister

Power savings

- Power cut-off function

Accuracy

Thermal Meister

Stable accuracy

- Spindle thermal displacement compensation

Simple

Operability Meister

Hassle-free, simple operation

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

Secure

Reliability Meister

Reduced machine downtime

- Preventive maintenance support function
- Machine recovery support function

Reliability Meister Plus

Offering greater peace of mind

- Electronic manual function
- Mail transmission function

Selectable M Codes

Matsuura original M codes now selectable

Function	***Matsuura*** M code	***VX*** M code
Through-spindle coolant start	M50	M11
Air blow for chip removal start/stop	M25/ 27	M12/ 32
Rigid tap mode preparation	M80	M29
4th-axis clamp	M21	M43
Orientation start for automatic measurement	M59	M109
Air blow start/stop Tool breakage detection sensor	M63/ 64	M47/ 48
Automatic measurement ON/OFF	M108/ 109	M58/ 85
Operator door open/close	M78/ 79	M138/ 139

* Can be changed by parameter.

Operation panel

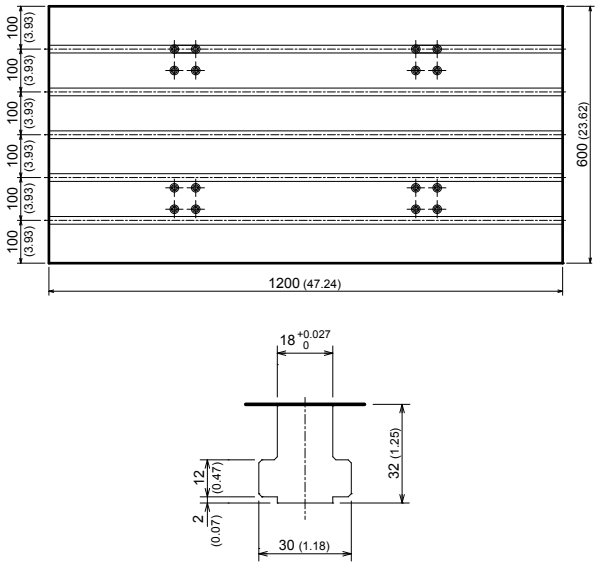
Operation panel changed for improved operability

Standard Machine Specifications

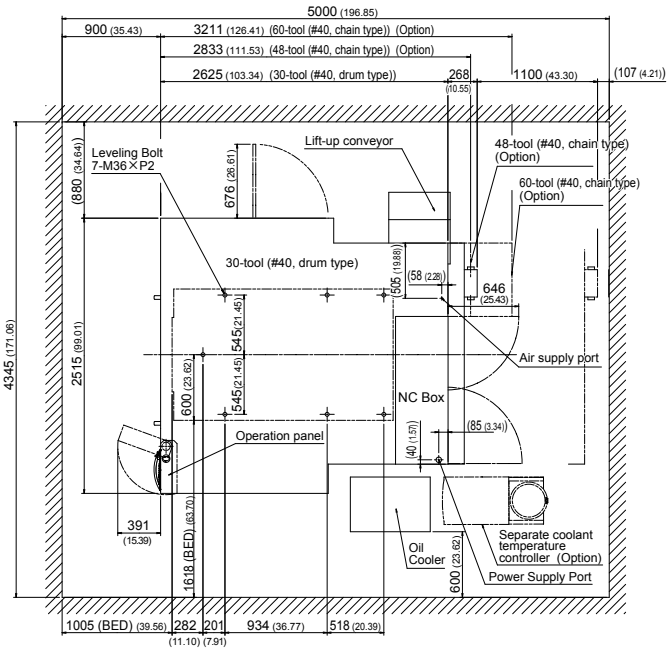
■ Movement and Ranges		
X-Axis Travel	mm (in.)	1020 (40.15)
Y-Axis Travel	mm (in.)	610 (24.01)
Z-Axis Travel	mm (in.)	610 (24.01)
Table Surface to Spindle Gauge Line	mm (in.)	100 - 710 (3.93 - 27.95)
Table Center to Column Guideway	mm (in.)	390 - 1000 (15.35 - 39.37)
Spindle Center to Column Guideway	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 (0.7) ×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.
Jog Feedrate	mm/min (ipm)	0-3750 (0-147.64)
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	30 (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 Option

■ Machine Size		
Machine Height (from floor)	mm (in.)	3030 (119.29)
Required floor space (including maintenance area)	mm (in.)	4345W ×5000D (171.06W ×196.85D) (varies with option configuration)
Mass of Machine	kg (lb.)	7390 (16258) (include NC Equipment and ATC Magazine)
■ NC System		
Control System		Matsuura G-Tech 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)		
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. Spiral Chip Conveyor		
13. Auto Power Off		
14. Coolant System		Chip Side Discharge
15. Auto Oil Supply Unit for Feed Axes		Greasing Points with Female Ball Screws (X/Y/Z)
16. Work Light		
17. 3-color signal light		
18. External Manual Pulse Generator		
19. Tools and Tool Box		
20. Machine Color Paint		
21. ***MIMS***		
22. ***AD-TAP*** function		
23. ***IPC*** function		
24. Spindle overload protection		
25. M code counter (9 types)		
26. Spindle runhour meter (within the ***MIMS*** screen)		
27. Automatic operation runhour meter (within the ***MIMS*** screen)		
28. Leveling Bolts and Leveling Plates		Not for Foundation
29. Memory card program operation and editing		CD-ROM

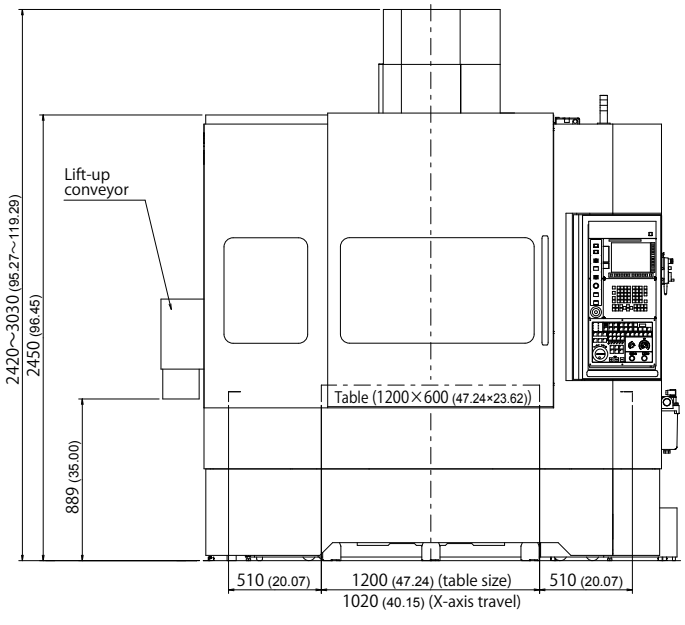
* 2 years spindle warranty

■ Spindle
20,000min^{-1} (BT40 Grease Lubrication)
■ ATC
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
70 bar, supporting through-spindle coolant system
■ Chip Removal
Coolant Temperature Controller with 100-liter Tank (Separately Installed, Small Size)
Lift-up conveyor (with drum filter)
■ 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.)

Front view



Right side view