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: 1,200x600 mm (47.24x23.62 in.)
Loading Capacity: 500 kg (1,100 lb.)
MAXIA spindle: 15,000 min⁻¹

Standard features:
Spindle through coolant and lift up conveyor.

X: 1,020mm (40.15 in.)
Y: 610mm (24.01 in.)
Z: 610mm (24.01 in.)
The Matsuura designed MAXIA 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 up to 15,000 min⁻¹ - with Matsuura’s legendary sustained precision and accuracy as standard.

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<td>Spindle speed range 50 - 15,000 min⁻¹</td>
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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**

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.

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

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

*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

<table>
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<tr>
<th>Description</th>
<th>Units</th>
<th>Details</th>
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<tr>
<td>Movement and Ranges (X/Y/Z axis)</td>
<td>mm (in.)</td>
<td>1,020 / 610 / 610 (40.15 / 24.01 / 24.01)</td>
</tr>
<tr>
<td>Working Surface</td>
<td>mm (in.)</td>
<td>1,200 × 600 (47.24 × 23.62)</td>
</tr>
<tr>
<td>Loading Capacity</td>
<td>kg (lb.)</td>
<td>500 (1,100)</td>
</tr>
<tr>
<td>Rapid traverse rate (X/Y/Z axis)</td>
<td>m/min (in.)</td>
<td>40 / 40 / 36 (1574.80 / 1574.80 / 1417.32)</td>
</tr>
<tr>
<td>Spindle speed range</td>
<td>min⁻¹</td>
<td>50 - 15,000</td>
</tr>
<tr>
<td>Spindle taper</td>
<td></td>
<td>BT40</td>
</tr>
</tbody>
</table>
**Performance.  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.)

**Positioning accuracy of each axis**

![Graph showing positioning accuracy of each axis](image)

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

**Measurement results verifying high accuracy**

![Graph showing measurement results](image)

**Roundness 1.75 μm**

* Actual value

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

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**Specifications**

- **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

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* The measurement results are actual values but not guaranteed values.
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 cavernous opening of 1,150mm gives the operator ease of use and reduce set up time.

**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**: 1020 (40.15)
- **Y-Axis Travel**: 610 (24.01)
- **Z-Axis Travel**: 610 (24.01)
- **Table Surface to Spindle Gauge Line**: 100 - 710 (3.93 - 27.95)
- **Table Center to Column Guideway**: 390 - 1000 (15.35 - 39.37)
- **Spindle Center to Column Guideway**: 695 (27.36)

#### Table
- **Working Surface**: 1200 x 600 (47.24 x 23.62)
- **Loading Capacity**: 500 (1100)
- **Table Height (from floor)**: 930 (36.61)

#### Spindle
- **Spindle Speed Range**: min⁻¹ 50 - 15000 (Grease Lubrication)
- **Spindle Taper**: 7/24 Taper JIS BT40 (Double Contact Type)
- **Spindle Bearing Inner Dia.**: 80 (3.14)
- **Max. Spindle Torque**: N·m 150 / 1400 min⁻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]
- **Feedrate Max. Acceleration**: X / Y / Z G 0.15 / 0.15 / 0.15
- **Jog Feedrate**: mm/in. 2000 (78.74)
- **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.) 75.5 (2.98)
- **Max. Tool Length**: mm (in.) 280 (11.02)
- **Max. Tool Mass**: kg (lb.) 17 (37.34)
- **Tool Selection**: Memory Random
- **Tool Change Arm**: Double Grip Type
- **Tool Pocket Pitch**: mm (in.) 78.2 (3.07)

#### Motors
- **Spindle Motor**: kW AC 15 / 22 (low-speed winding: continuous/15 min)
- **Feed Motors**: kW AC 15 / 22 (high-speed winding: continuous/15 min)
- **X-Axis**: kW AC 3.0
- **Y-Axis**: kW AC 4.0
- **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 38

### Table Top View
- **Unit**: mm (in.)

### Floor Plan
- **Unit**: mm (in.)

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**Floor plan**

**Table top view**
### Machine Size
- **Machine Height (from floor):** 3030 (119.29) mm (in.)
- **Floor Space:** 2751W x 2893D (108.30W x 113.89D) mm (in.)
- **Mass of Machine:** 7390 (16258) kg (lb.)

### 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)
- 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
- 48 Tools (#40 Chain Magazine)
- 60 Tools (#40 Chain Magazine)
- **Scale Feedback System**
- **Scale Feedback System X/Y/Z (HEIDENHAIN)**
- **Coolant-through Spindle System**
- **Coolant Temperature Controller**
- **Coolant Temperature Controller with 100-liter Tank (Separately Installed, Small Size)**
- Automatic Measurement / Tool Breakage Detection
- 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**

*Optional accessories in a wide variety are available in addition to the above. For details, contact your Matsuura representative.*
This product is subject to all applicable export control laws and regulations