Matsuura V.Plus-550

Pioneers of the Vertical MC

Matsuura Pioneering Machine Tool Excellence Since 1935

Pioneers in the development and manufacture of high quality CNC vertical machining center’s, Matsuura have been at the forefront of providing excellence through innovation since 1935. Matsuura’s first vertical, the **MC-750V** was introduced to much global acclaim in 1974 and set the benchmark for precision, quality and productivity. To date Matsuura have supplied in excess of 15,400 vertical machines to every conceivable industry the world over, manufacturing every possible component. Because of our prestigious heritage and established global customer base, we are recognized as a technology leader in today’s world of high performance machining. Matsuura customers demand and receive high accuracy, high speed and reliability form our products, with after sales service and applications support that is second to none in the global machine tool supply industry.

**Hand Built to Exacting Quality Standards**

The **V.Plus-550** Matsuura’s latest vertical series incorporates all of our hard won knowledge & experience gained from over 30 years of supplying high performance verticals to the worlds leading industries. Designed from “the ground up”, the **V.Plus-550** has taken full advantage of the latest technology & design processes to ensure that it is ready for all applications - no matter how arduous the machining environment, nor how difficult the job. All Matsuura machines are handbuilt by Matsuura Engineers to strict & exacting quality standards - assuring our customers of years of high speed, high accuracy & highly reliable service & operation. The **V.Plus-550** Cost effective, highly reliable, productive excellence.
Compact, User Friendly Models
Highly Rigid Construction

- Widely spaced, rectangular section column guideways on the Z axis are traditionally finished by hand scraping to minimize wear, offer life long accuracy & to accommodate the powerful headstock / spindle assembly.

- The massive bed, supported at 6 points offers total stability - despite the vast inertia forces generated by all axes during rapid acc/dec.

- The ball-screws on all axes, and the linear guides have inherent high rigidity & high accuracy. Matsuura only use the finest available components - with proven, class leading performance for our machining center’s.

- To support longevity, & maintain high accuracy for the life of the machine, parallelism & straightness of the linear guides is set to within 2µm during manufacture. (Full stroke)
• Utilizing Matsuura’s many decades of pioneering high speed machining experience, our spindles are designed & assembled “in house”. Matsuura’s spindle engineers work in a dedicated clean room complex to assure the highest quality & reliability, the precision spindles are assembled to guarantee a runout of less than 1µm (0.000039 in.) (actually measured value) at the nose of the spindle.

• The spindle and the motor are connected by Matsuura’s unique coupling. This assembly is designed to prevent the heat from being transferred from the motor to the spindle & contributes to the high rigidity of the spindle.

• To minimize heat build-up in the spindle, cooled oil is circulated around the outer jacket of the spindle and motor as well as the motor flange, thus sustaining its high accuracy.

• Matsuura’s own Hi-Tech spindles feature “face & taper” contact with the tool as standard. Unification of the spindle & tool is completed by means of drive keys, a unique mechanism securing the tool to improve repeatability and stationary/ dynamic rigidity. This results in excellent material removal rates and surface finish - everytime.

### Spindle Specification (BT40)

<table>
<thead>
<tr>
<th>Speed</th>
<th>15,000 min⁻¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Power</td>
<td>5.5 / 7.5 kW</td>
</tr>
<tr>
<td>Motor Torque</td>
<td>65.1 N·m / 1,100 min⁻¹</td>
</tr>
</tbody>
</table>

### Spindle Specification (BT40) - Option

<table>
<thead>
<tr>
<th>Speed</th>
<th>20,000 min⁻¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Power</td>
<td>7.5 / 11 kW</td>
</tr>
<tr>
<td>Motor Torque</td>
<td>70 N·m / 1,500 min⁻¹</td>
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### Cutting Performance

<table>
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<tr>
<th>Spindle Type</th>
<th>Speed</th>
<th>Feed Rate</th>
<th>Removal Rate</th>
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<tbody>
<tr>
<td>ø80 FACE MILL</td>
<td>6,000 min⁻¹</td>
<td>3,500 mm/min</td>
<td>735 cc/min</td>
</tr>
<tr>
<td>ø25 END MILL</td>
<td>15,000 min⁻¹</td>
<td>4,500 mm/min</td>
<td>594 cc/min</td>
</tr>
<tr>
<td>ø80 FACE MILL</td>
<td>1,100 min⁻¹</td>
<td>1,400 mm/min</td>
<td>196 cc/min</td>
</tr>
<tr>
<td>ø20 END MILL</td>
<td>5,500 min⁻¹</td>
<td>3,200 mm/min</td>
<td>192 cc/min</td>
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### Spindle Torque & Power Diagrams

- **Spindle Torque & Power Diagram**
  - Torque: 65.1 N·m - 2.2 kW
  - Power: 0.28 kW - 3.7 kW
  - Line Types: Continuous, Rated

- **Spindle Torque & Power Diagram**
  - Torque: 70 N·m - 4.77 N·m
  - Power: 0.03 kW - 1.5 kW
  - Line Types: Continuous, Rated
Matsuura G-Tech Controls

Matsuura G-Tech 30i

Compensating for any Geometric Error Between the Machining Program & Actual Machined Profile

Machining for General Parts or Mold & Die

IZ-1/15F

Machining for more Complex, Precision Parts

IZ-1/30NF, IZ-2/150NF Option

(Look Ahead Linear acc/dec + Nano Interpolation)

• Executing the max. 200 (IZ-1/30NF)- or 600 (IZ-2/150NF) -block look ahead linear acc./dec. before interpolation achieves a smooth acc./dec. across the multiple blocks calculated by nano-order.

Solution for High Speed and High Accuracy Machining

IPC (Adjustment Function for High Speed/Accuracy Machining)

• For high speed cutting applications, Matsuura’s proven and pioneering software is recommended. When utilizing this software, setting the required part accuracy level is quick, simple and user friendly, allowing you to prioritize precision against speed.

AD-TAP

• Matsuura’s unique spindle motor control technology- AD-TAP, intelligently optimizes the torque V speed characteristics of the spindle motor, depending on the size of the tap used. This provides average reduction of 20% in tapping time.

Intelligent Functionality

Simple, Quick, Easy to Use Handy Man II

• Handy Man II provides major time savings by reducing setup, programming, operation and maintenance times. Please call Matsuura for in depth information.

• Tool Management
• Offset Value List
• Tool Length Measurement
• Work Shift

• Interactive Programming System

• NC 3D Graphic Display
• IPC Function

• ATC/APC Recovery
• Periodic Inspection
• Alarm Message
Standard Machine Specification

**■ Movement and Ranges**
- X-axis Travel: mm (in.) 550 (21.65)
- Y-axis Travel: mm (in.) 410 (16.14)
- Z-axis Travel: mm (in.) 460 (18.11)

**■ Table**
- Table Size: mm (in.) 860 x 400 (33.85 x 15.74)
- Loading Capacity: kg (lb.) 400 (880)

**■ Spindle (BT40)**
- Spindle Speed: min⁻¹ 50 ~ 15,000
- Spindle Motor Power: kW (HP) 5.5 / 7.5 (10) (cont./50%ED)
- Spindle Motor Torque: N·m/min 65.1 / 1,100

**■ Feedrate**
- Rapid Traverse/Feedrate: X/Y/Z mm/min (ipm) 36,000 / 36,000 / 30,000 (1,417.3 / 1,417.3 / 1,181.1)

**■ Automatic Tool Changer**
- Type of Tool Shank: JIS B 6339 40T
- Type of Tool Knob: JIS B 6339 40P
- Number of Tools: pcs. 30
- Max. Adjacent Tool Diameter: mm (in.) 96 (3.77)
- Max. Tool Dia. (both side pockets are empty): mm (in.) 175 (6.88)
- Max. Tool Length: mm (in.) 300 (11.81)
- Max. Tool Weight: kg (lb.) 6 (13.2)
- Tool Changing Time: sec 0.9 (Tool to Tool) 3.0 (Chip to Chip)

**■ Power Sources**
- Power Requirement: kVA 22
- Volume of Compressed Air to be supplied: NL/min 350

**■ NC System**
- Control System: Matsuura G-Tech 30i

**■ Standard Accessories**
- 01. Total Enclosure Guard
- 02. Workpiece Cleaning Gun
- 03. Synchronised Tapping Function
- 04. AD-TAP Function
- 05. IPC Function
- 06. Coolant Unit
- 07. Spindle Oil Cooler
- 08. Lubrication Unit
- 09. Spindle Overload Protection
- 10. 9 Sorts of M Code Counters
- 11. Work Light
- 12. Cycle End Annunciation Light
- 13. Std. Mechanical Tools & Tool Box
- 14. Machine Color Paint
- 15. Levelling Pads and Bolts
- 16. Handy Man II
- 17. CD-ROM for Memory Card Operation

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**Floor Plan**

- Work Area
- Maintenance Area
- POWER

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**Outline**

- Front View
- Right Side View

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**Table**

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**Unit**: mm (in.)
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.