Matsuura
MX-850
5-Axis Vertical Machining Center

MAXIA
Innovation by Matsuura
Cost Effective, Large Capacity
5 Axis Excellence

Introducing the big brother of the globally acclaimed **MX-520**

Developed in response to global market demand following the runaway success of the **MX-520**, the **MX-850** is the largest in the series so far - offering established and aspirational companies alike a high quality, large capacity single table 5 axis Matsuura - at an investment level that will surprise you.

From Beginner to Advanced, the **MX-850** Offers Sublime Usability

Equipped with a new operating system that allows for direct, instinctive control as well as MIMS (Matsuura Intelligent Meister System) and Matsuura’s proprietary Intelligent Protection System for the prevention of collisions, the **MX-850** can be used simply, safely, and with confidence.

Superb & Efficient Design

Designed for efficient, safe working practices and operator comfort, the **MX-850** offers superb access to the enclosure for the rapid set up of work - even utilising overhead cranes to load up to 500kg on the trunnion table.

Large Workpiece Machining

The standard table has a diameter of Ø500mm. Optional side tables offer superb versatility with the 500 table - taking the outer rotary side table size to SIZE REQUIRED. An optional Ø700mm rotary table is also available. The maximum workpiece size on the standard Ø500mm table is 850mm in width with a height of 450mm, combined with a maximum weight of 500kg.

The Matsuura **MX-850** - bringing raw cutting power and Matsuura 5 axis high speed finesse to within reach of every company. From aluminium to hard to cut materials - the **MX-850** is the market solution to large and complex machining tasks.
Cost Effective, Large Capacity
5 Axis Excellence
Introducing the big brother of the globally acclaimed MX-520
MAXIA Spindles from Matsuura - the Pioneers of High Speed Spindles

A replete line-up of spindles that meets all machining needs, from high-torque heavy cutting to high-speed machining.

Spindle Motor Torque & Power Diagram

Standard BT40 12,000 min\(^{-1}\)

An all-round spindle that offers excellent cost performance.

Option BT40 15,000 min\(^{-1}\)

A new product, offering enhanced 350 N\(\cdot\)m/600 min\(^{-1}\) high torque, heavy cutting capabilities.

Option BT40 20,000 min\(^{-1}\)

The Matsuura MX-850 – a true high speed machine

High Precision, High Durability and Maintenance Free

MAXIA Spindles – from Matsuura, the pioneers of spindle technology. MAXIA Matsuura spindles are renowned the world over for their robust operation, sustained high accuracy, low noise & low or zero maintenance – offering users the very best in machining versatility – from aluminium to pre-hardened materials. The MX-850 is launched with three powerful spindle options

Spindle Thermal Displacement Compensation Function Equipped as Standard

Thermal distortion caused by the spindle is corrected automatically, maintaining stable and precise machining at all times.
A high speed type, excelling during high speed machining such as on aluminium.

Highly Durable RAM Type Structure

The **MX-850** has been designed with a RAM type structure, offering a compact & highly durable machining platform. Design advances have afforded the **MX-850** a large machining enclosure for its class. Matsuura’s established high accuracy & reliability comes as standard with the **MX-850**.

- **X**: 900 mm (35.43 in.)
- **Y**: 780 mm (30.70 in.)
- **Z**: 650 mm (25.59 in.)
- **C**: 360

Table Options That Meet All Machining Needs

The φ 500 mm table comes equipped as standard. You can also choose from a φ 700 mm table or one with an attached flat table (φ 500 mm) according to your machining needs.

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

**φ500 mm**

- Section A (4 positions): JIS grade 1
- Section B (4 positions): JIS grade 2
- Centre hole details

**φ700 mm**

- Section A (4 positions): JIS grade 1
- Section B (4 positions): JIS grade 2
- Centre hole details

Option
Excellent Workpiece and Spindle Accessibility – by design

The **MX-850** possesses a cavernous enclosure door opening width of 1,055mm – allowing safe and ergonomic loading of even the most unwieldy billets. The distance from the front of the machine to the spindle is just 110mm – assuring operator comfort whilst work setting & routine maintenance.

Designed for easy crane access

A sliding roof cover, incorporating a proven Matsuura design, affords the operator a spacious 435mm roof opening for loading billets safely by crane.
Proven Chip Removal Design

Smooth Chip Removal

Dynamic chip flush & chip flow are fitted as standard, evacuating the machining enclosure of chips. Optional larger tanks & conveyors can be added allowing longer periods of continuous machining.

60 Tool Chain Magazine as Standard

The standard 60 tool chain type ATC offers ample storage for a vast array of machining processes.

Automation

Robotic Interface Enabling Connections to External Workpiece Conveying Machines

Responding to demand for automatic workpiece conveyors using robotics.

- Robotic interface
- Automatic door (automatically opens and closes the operator door)
- Pressure supply system for jigs (supplies pressure to the auto clamping device for the workpiece)
Intuitive, Superlative Control – from Beginner to Advanced Operators


Running, set-up and maintenance screens are just a touch away – offering status at a glance to the operator and full control over all functionality and systems. Effortless, fast navigation and a custom view function allows the operator to set the control to match the work undertaken. From beginner to advanced – all levels of operator will get the very best out of this NC - & the **MX-850** it controls.

Swing Control Panel; Easy to Operate

The swing control panel allows easy access to the controls at any time, even while setting up or performing adjustments.
Ultra Safe Collision Protection

The Intelligent Protection System provides Matsuura's proprietary anti-collision function that prevents machinery collision resulting from programming mistakes at the time of automatic operation and human errors while the machine is under manual control or during workpiece setup time.

On-line Link with PC

* Under normal operations, the Intelligent Protection System prevents collisions when the shape and position of the machine model, tools, workpieces, jigs match.

* Requires end-user PC. Contact Matsuura for full specifications.

---

<table>
<thead>
<tr>
<th>Environment</th>
<th>Eco Meister</th>
<th>Thermal Meister</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Eco Mode</td>
<td>Stable Accuracy</td>
</tr>
<tr>
<td></td>
<td>Power Mode</td>
<td>Spindle thermal displacement compensation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accuracy</th>
<th>Simple Meister</th>
<th>Reliability Meister</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fuss-free Simple Operation</td>
<td>Machine Down Time Reduction</td>
</tr>
<tr>
<td></td>
<td>Tool setup support</td>
<td>Preventive maintenance support functions</td>
</tr>
<tr>
<td></td>
<td>Workpiece setup support</td>
<td>Machine restoration support functions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Secure</th>
<th>Reliability Meister Plus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Increased Security Provided</td>
</tr>
<tr>
<td></td>
<td>Electronic manual</td>
</tr>
<tr>
<td></td>
<td>E-mailing function</td>
</tr>
</tbody>
</table>

---

Matsuura Intelligent Meister System

A Master Craftsman’s Knowledge, Skills, and Ideas Combined

OEM Matsuura operator support software to maximise rapid operation and usability.

---

* The above shows a concept image.
Standard Machine Specifications

**Movement and Range**
- X-Axis Travel: mm (in.) 900 (35.43")
- Y-Axis Travel: mm (in.) 780 (30.70")
- Z-Axis Travel: mm (in.) 650 (25.59")
- A-Axis Rotation Angle: deg -125 to +30
- C-Axis Rotation Angle: deg 360

**Table**
- Working Surface: mm (in.) 500 (19.68")
- Loading Capacity: kg (lb.) 500 (1100)
- Max. Work Size: mm (in.) 760 x H 450 / H 17.71"

**Spindle**
- Spindle Speed: min-1 40 - 12000 (GREASE LUBRICATION)
- Spindle Speed Change Command: SSDIRECT
- Spindle Taper: 7/24 TAPER BT40 (DOUBLE FACE CONTACT)
- Spindle Motor Power: kW AC 15 / 22 (Low Speed : Contin. / 15min)
- Max. Spindle Motor Torque: N•m 187 / 1120min-1

**Feed Rate**
- Rapid Traverse Rate X / Y / Z: mm/min 40000
- Feedrate X / Y / Z: mm/min 1 ~ 40000
- A / C: min-1 17 / 33

**Automatic Tool Changer**
- Type of tool shank: JIS B 6339 tool shank 40T
- Type of retention knob: JIS B 6339 pullstud 40P
- Tool Storage Capacity: pcs. 60 (chain magazine)
- Max. Tool Diameter: mm (in.) φ80 (φ3.14) (with adjacent tools) φ150 (φ5.90) (without adjacent tools)
- Max. Tool Length: mm (in.) 350 (13.77")
- Max. Tool Mass: kg (lb.) 10 (22)
- Methods of Tool Selection: Memory random system

**Power Sources**
- Power Capacity: kVA 56 (Depending on options)
- Voltage: V AC 200 / 220 ± 10%
- Frequency: Hz 50 / 60 ± 1

**NC System**
- Control System: Matsura G-Tech 31i

**Standard Accessories**
- 01. Total Splash Guard
- 02. ATC Auto Door
- 03. Synchronized Tapping
- 04. MIMS Function
- 05. AD-TAP Function
- 06. IPC Function
- 07. Spindle Oil Cooler
- 08. Auto Grease Supply Unit for Feed Axes
- 09. Coolant System
- 10. Chip Flush
- 11. Chip Flow
- 12. Spindle Overload Protection
- 13. Work Light
- 14. Standard Mechanical Tool and Tool Box
- 15. Machine Color Paint
- 16. Leveling Pads and Bolts
- 17. Spindle Run Hour Meter
- 18. Automatic Operation Run Hour Meter
- 19. Intelligent Protection System
- 20. Leveling Pads and Bolts
- 21. Scale Feedback for A / C

Floor Plan (Unit : mm (in.))

---

**NC Box**
**Power Supply**
**Hydraulic Unit**
**Coolant tank**
**Air Supply**
**Chip Flush**
**Main Operation Panel**
**60-tools Magazine**
**Leveling Bolt**
**T/M32×P2**

---

10
List of Fittings

- **Spindle**
  - 12,000 min⁻¹ (BT40 Grease Lubrication)  
    15,000 min⁻¹ (BT40 Grease Lubrication)  
  - Spindle motor output kW: Low : 15 / 22, High : 15 / 18.5  
    20,000 min⁻¹ (BT40 Grease Lubrication)  
  - Spindle motor output kW: Low : 11 / 15, High : 15 / 18.5  
    Spindle max. torque N·m: 350

- **TABLE**
  - Ø500
    Ø700  
  - Ø500 + Flat Table
- **Coolant**
  - Coolant Tank
  - Vacuum-Type Coolant Through A 7MPa
  - Vacuum-Type Coolant Through B 7MPa
  - Vacuum-Type Coolant Through B 14MPa
  - Vacuum-Type Coolant Through C 2MPa
  - Vacuum-Type Coolant Through C 7MPa
- **Mist Separator (without Fire Damper)**
- **Coolant Temperature Controller with 100-liter Tank (installed separately); small 100L**
- **Automatic Measurement/Automatic Centering (optical type)**
- **Tool Damage Check/Full Automatic Tool Length Measurement (laser type)**
- **Tool Damage Check/Full Automatic Tool Length Measurement (laser type)**
- **Automatic Measurement (optical type) and Tool Damage Check (laser type)**
- **Automatic Measurement (optical type) and Tool Damage Check (laser type)**

- **Swarf Management**
  - Total Splash Guard
  - ATC Auto Door
  - Chip Flush
  - Chip Flow
  - Chip Bucket
  - Spiral Chip Conveyor
  - Lift-Up Chip Conveyor (scraper)
  - Chip Removal Air Blow
  - Workpiece Cleaning Gun (Main unit side)
- **Control / Maintenance Support**
  - AD-TAP Function
  - IPC Function
  - Work Light
  - MIMS Function
- **Intelligent Protection System**
  - Feed Axis Auto Lubricator
  - Reliability Meister Plus TYPE A
  - Reliability Meister Plus TYPE B
  - Eight additional M functions
  - Spindle Load Monitoring Function
  - Weekly Timer
  - 3-Color Signal Light (red, yellow, green from top)
  - Movable Manual Pulse Generator
  - Optional Block Skip 2 ～ 9
  - Rotary Wiper (air type)
  - Rotary Wiper (electric type)
  - 100 VAC outlet (3A)
  - Pressure Supply System for Fixtures
  - Robot Interface + Auto Door
  - Optional Package
    - High-speed, High-precision Package  
      5-Axis Package  
      High-speed, High-precision / 5-Axis Package
      Value Package  
      TRUE PATH  
      Machine module

Outline (Unit : mm (in.))

<table>
<thead>
<tr>
<th>TABLE</th>
<th>Ø500</th>
<th>Ø700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spindle</td>
<td>12,000 min⁻¹ (BT40 Grease Lubrication)</td>
<td>15,000 min⁻¹ (BT40 Grease Lubrication)</td>
</tr>
<tr>
<td>Spindle motor output kW (Low)</td>
<td>15 / 22</td>
<td>15 / 18.5</td>
</tr>
<tr>
<td>Spindle max. torque N·m</td>
<td>350</td>
<td></td>
</tr>
</tbody>
</table>

**Coolant**
- Coolant Tank
- Vacuum-Type Coolant Through A 7MPa
- Vacuum-Type Coolant Through B 7MPa
- Vacuum-Type Coolant Through B 14MPa
- Vacuum-Type Coolant Through C 2MPa
- Vacuum-Type Coolant Through C 7MPa

**Mist Separator (without Fire Damper)**

**Coolant Temperature Controller with 100-liter Tank (installed separately); small 100L**

**Automatic Measurement/Automatic Centering (optical type)**

**Tool Damage Check/Full Automatic Tool Length Measurement (laser type)**

**Tool Damage Check/Full Automatic Tool Length Measurement (laser type)**

**Automatic Measurement (optical type) and Tool Damage Check (laser type)**

**Automatic Measurement (optical type) and Tool Damage Check (laser type)**

**Swarf Management**
- Total Splash Guard
- ATC Auto Door
- Chip Flush
- Chip Flow
- Chip Bucket
- Spiral Chip Conveyor
- Lift-Up Chip Conveyor (scraper)
- Chip Removal Air Blow
- Workpiece Cleaning Gun (Main unit side)

**Control / Maintenance Support**
- AD-TAP Function
- IPC Function
- Work Light
- MIMS Function

**Intelligent Protection System**
- Feed Axis Auto Lubricator
- Reliability Meister Plus TYPE A
- Reliability Meister Plus TYPE B
- Eight additional M functions
- Spindle Load Monitoring Function
- Weekly Timer
- 3-Color Signal Light (red, yellow, green from top)
- Movable Manual Pulse Generator
- Optional Block Skip 2 ～ 9
- Rotary Wiper (air type)
- Rotary Wiper (electric type)
- 100 VAC outlet (3A)
- Pressure Supply System for Fixtures
- Robot Interface + Auto Door

**Optional Package**
- High-speed, High-precision Package  
  5-Axis Package  
  High-speed, High-precision / 5-Axis Package
  Value Package  
  TRUE PATH  
  Machine module
This product is subject to all applicable export control laws and regulations.