The all new **H.Plus-300**.

A fusion of cutting edge CNC design functionality coupled with an eclectic mix of classic and ultra modern aesthetics.

The next generation of Matsuura H.Plus Horizontals has arrived.
Upgraded Specification as Standard (compared to previous model)

- Y-axis stroke increased to **560 mm** (22.04 in.) [+60 mm (2.36 in.)].
- Max. work piece envelope increased to **ø530 x H760 mm** (ø20.86 x H29.92 in.) [+H60 mm (2.36 in.)]. No competitor machine has a larger working envelope.
- Rapid traverse rate (X/Y/Z) increased to **60 m/min** (2,362 ipm) [+10 m/min (393.7 ipm)].
- Min. distance from spindle to pallet center reduced to **70 mm** (2.75 in.) [-50 mm (1.96 in.)]
- **51 tools** ATC as standard [+20 tools] incorporating a new Matsuura developed high speed ATC tool indexing system.
- High speed indexing increased to **100 min⁻¹** [+50 min⁻¹], the rotary table can be supplied with a DD Motor as an option.
- Floor space reduced by **15%** to 7.8 m².

Superb Reliability

- THERMAL MEISTER ™ [Thermal Displacement Compensation for Spindle & Feed Axis] is provided as standard.
- Feed Axis Grease Auto Supply System is provided as standard.
- Spindle Grease Auto Supply System is provided as standard.
- Powerful Swarf Management by W-Type Cover for Z-Axis + X-Type APC Door.

User Friendly

- Ergonomic design – based around maximum operator comfort & productivity.
- Supplied with powerful NC Matsuura G-Tech 30i
  Matsuura G-Tech 840DI
Unmanned Multi Pallet Excellence

Matsuura offer 3 proven, expandable & highly productive multi pallet systems – tailored to your production process

<table>
<thead>
<tr>
<th>Type</th>
<th>Features</th>
<th>Production Volume</th>
<th>Number of Pallets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor Pallet System</td>
<td>Compact, fully integrated &amp; expandable multi pallet system</td>
<td>Low to Medium Volume</td>
<td><strong>PC5  PC11</strong></td>
</tr>
<tr>
<td>Tower Pallet System</td>
<td>Vertically aligned space saving multi pallet system</td>
<td>Medium to High Volume</td>
<td><strong>PC15</strong></td>
</tr>
<tr>
<td>Linear Pallet System</td>
<td>Twin decked &amp; fully expandable linear pallet system</td>
<td>High to Continuous High Volume</td>
<td><strong>PC17</strong></td>
</tr>
</tbody>
</table>
All Matsuura H.Plus Series horizontals pallet storage options can be upgraded after the initial purchase of your machine to support your changing production environment. Retrofits at your premises can be accommodated quickly, efficiently & cost effectively. Linear pallet systems have the added advantage of being able to fully support both 4-axis Matsuura horizontals & certain Matsuura 5-axis machines, providing they have the same pallet size.
Unrivaled Tool Storage & Management Capacity - Supporting Your Unmanned Production Process

### High Speed Index Drum Magazine

<table>
<thead>
<tr>
<th>Standard</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>51 (Bi-Directional Address Code)</td>
<td>52 (Memory Random)</td>
</tr>
</tbody>
</table>

Maximum 240 tools can be stored in this ATC tool magazine.

<table>
<thead>
<tr>
<th>Max. 240 tool storage Matrix Magazine</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>150</td>
</tr>
</tbody>
</table>

Maximum 320 tools can be stored in this ATC tool magazine.

<table>
<thead>
<tr>
<th>Max. 320 tool storage Matrix Magazine</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>160</td>
</tr>
</tbody>
</table>

Maximum 520 tools can be stored in this ATC tool magazine.

<table>
<thead>
<tr>
<th>Max. 520 tool storage Matrix Magazine</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>360</td>
<td>400</td>
</tr>
</tbody>
</table>
New ATC Technology

Designed & fully proven by Matsuura this new drum type ATC magazine offers vastly reduced tool change times. Tool indexing time has been reduced by a massive 60%.

Drum Type ATC – Specification

<table>
<thead>
<tr>
<th>ATC time</th>
<th>2.44 sec.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neighbor tool calling time</td>
<td>0.4 sec.</td>
</tr>
<tr>
<td>The longest next tool calling time</td>
<td>3.2 sec.</td>
</tr>
</tbody>
</table>

New ATC touch panel display – larger screen, ergonomic & user friendly. All tool management & ATC functionality can be controlled from this screen.
NC Controlled Indexing Rotary Table: High Speed, Accuracy & Reliability

**DD Motor Driven 100 min⁻¹**

The DD (Direct Drive) motor driving the NC controlled rotary table indexes twice as fast as a conventional worm gear set up.

DD Motors also possess the added advantage of being non contact. The non contact aspect of the DD Motor also eliminates not only the abrasive wear on components associated with conventional worm gear set ups but also completely removes backlash, offering increased and sustained positional accuracy as well as high speed operation.

The functional simplicity and reliability of the DD mechanism is also maintenance free.

**DCS Dynamic Clamp System**

Matsuura are proud to announce the development of our DCS System (Dynamic Clamp System).

This automatic feature of the DD Motor mechanism will clamp the rotary table if and when a pre-determined force greater than the DD Motor can hold is brought to bear against it – as in heavy milling operations.

Once the force is lower than the pre-determined level, the clamp will automatically remove itself. This set up offers yet another substantial advantage over traditional worm gear set ups.

Owing to the automatic functionality of the DCS System, un-necessary clamping is eliminated – offering further reductions in indexing, cycle & operational times.

**Application of the DCS system**

- On the light machining, it skips M21 & M22 operation.
- On the heavy duty machining, if the loading force exceeds a designated value then it keeps M21 & M22 command.

**Conventional Machining**

<table>
<thead>
<tr>
<th></th>
<th>M21</th>
<th>M22</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>-90.0</td>
<td>Machining</td>
</tr>
</tbody>
</table>

**Application of the DCS system**

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>Machining</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>-90.0</td>
<td></td>
<td></td>
<td>0.0</td>
</tr>
</tbody>
</table>
Eco Friendly Spindle

Matsuura Hi-Tech Spindle

The heart of all Matsuura machines – the Matsuura Hi-Tech Spindle, from the original pioneers of High Speed Spindles. With integrated grease lubrication, noise output lower than 75dB and vastly reduced air consumption all Matsuura Spindles offer years of reliable service and maintenance free operation.

All Matsuura Spindles are designed and built in house at our clean room centers of excellence in Fukui Japan & Leicestershire England.

<table>
<thead>
<tr>
<th>Standard 15,000 min⁻¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Power 7.5 / 15 kW (20 HP)</td>
</tr>
<tr>
<td>Motor Torque 119.3 N·m/1,200 min⁻¹</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option 20,000 min⁻¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Power 15 / 18.5 kW (25 HP)</td>
</tr>
<tr>
<td>Motor Torque 108.5 N·m/1,320 min⁻¹</td>
</tr>
</tbody>
</table>

Vacuum Type Coolant Thru Spindle System

This newly proven option removes all residual coolant from the tool and spindle during tool changing operations.

* Vacuum Type Coolant-Thru for 30,000min⁻¹ Spindle is not available.
Effective & Reliable Swarf Management

**W-Type Protection Cover**

The Z-axis protective cover offers a slant of 45 deg – assuring rapid fall away of swarf & chips. The design of the enclosure assures no swarf traps – protecting your unmanned production processes & offering peace of mind lights out unattended operation.

![Adoption of the W-type cover.](image)

**X-Type APC Door**

The new design of the X-Type APC door (Patent Pending) between the machining enclosure and the APC has proven itself to be highly effective in eliminating swarf build up around the APC door.

![X-Type APC door / New](image)

![Reduced spattering area.](image)

![I-shaped conventional APC door](image)
**Thermal Displacement Compensation**

**THERMAL MEISTER™**

Thermal Meister™ monitors the temperature of the spindle and the X, Y and Z axes and supplies a constant feed of compensation values to the NC to maintain assured accuracy.

**Access & Maintenance**

**Improved Accessibility**

The minimum distance from the spindle to the gauge line has been reduced by 50 mm to 70 mm. Even though Matsuura H.Plus machines are renowned for their rigidity, previously unattainable levels of ultra rigid machining with a shorter cutter can now be effortlessly achieved.

**Minimum Maintenance**

An automatic grease supply unit as standard feeds the spindle & all axes – eliminating maintenance intervention.

**Reduced Machine Footprint**

The new H.Plus-300 offers a saving on floor space of 15% on the standard twin pallet machine when compared to the previous incarnation.

**Improved Spindle Maintenance**

On the rare occasion that your Matsuura Hi-Tech Spindle requires removal from headstock, the operation can be efficiently & quickly expedited – with minimum fuss & machine downtime.
The Latest High Performance NC

Powerful NC Choices **Matsuura G-Tech 30i** or **Matsuura G-Tech 840DI**

### Matsuura G-Tech 30i

High speed CPU and FSSB, internal CNC bus, optical fiber cables used for high speed data transfer. 
Nanometer resolution. 
10.4 inch color LCD, soft keys vertically arranged, Compact Flash Port, PC file management structure

**For High Speed & Superb Surface Finish**

- **Machining for General Parts or Mold & Die**
  - IZ-1/15F: Standard
- **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.
  
  *Max. 1,000 block available as option.*

### Matsuura G-Tech 840DI

Equipped with the latest high performance CPU, Windows XP Professional, graphical user interface, USB port. 
10.4 inch color LCD, soft keys vertically arranged. 
Expanded media for data backup such as PC card drive, USB Memory, USB HDD.

**For High Speed & Superb Surface Finish**

- **Machining for General Parts or Mold & Die**
  - Advanced Zee LagY: Standard
- **Machining for more Complex, Precision Parts**
  - IZ-1/COMP: Option (Max. 5,000 Block Look Ahead + Spline Interpolation)
    - After compressing a maximum of 50 blocks and engaging the 100 Block Look Ahead function, IZ-1/COMP interpolates & applies to the B-Spline to the nearest point selected

Windows XP Professional is a Microsoft Corporation Trademark
Proven Software Performance

**IPC** High-Speed Precision Machining Program Support Function

When utilizing this software, setting the required part accuracy level is quick, simple and user friendly, allowing you to prioritize precision against speed.

![Image of IPC](image.png)

**Handy Man II F/Y** Standard

**Handy Man II** provides major savings by reducing set-up, programming, operating & maintenance times.

Please contact Matsuura for a copy of our in-depth Handy Man II brochure.

![Images of Troubleshooting](image.png)

**AD-TAP** High-Speed Tapping Function Standard

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. [PATENTED]

![Comparison with AD-TAP and Conventional Tapping](image.png)

**H.S.M. NC Package** Option

This extensive package of High Speed software has been developed from our many decades as primary leaders in the field of High Speed Machining.

**Matsuura G-Tech 30i**

**High Speed High Accuracy Package**

- IZ-2/150NF
- 1000 block look ahead
- Nono smoothing
- Nono smoothing2
- Optional torque acc./dec.
- Fast data server

**Matsuura G-Tech 840DI**

High Speed High Accuracy Package

**Special Pallet (400 x 400 mm 15.75 x 15.75 in.)** Option

The new **H.Plus-300** can operate with a 400mm pallet with minor limitations.

400 x 400 mm (15.75 x 15.75 in.)

300 x 300 mm (11.81 x 11.81 in.)

It is not possible to attach the edge locators.
### Main Specifications

#### Movement & Ranges
- **X-Axis Travel**: mm (in.) 500 (19.68)
- **Y-Axis Travel**: mm (in.) 560 (22.04)
- **Z-Axis Travel**: mm (in.) 500 (19.68)
- **B-Axis Travel**: deg 360

#### Pallet
- **Working Surface**: mm (in.) 300 x 300 (11.81 x 11.81)
- **Loading Capacity**: kg (lb.) 250 (551)
- **Max. Work Size**: mm (in.) Ø530 x H760 (Ø20.86 x H29.92)

#### Spindle : BT40
- **Spindle Speed Range**: min⁻¹ 50 ~ 15,000
- **Spindle Motor Power**: kW (HP) 7.5 / 15 (20)
- **Spindle Max. Motor Torque**: Nm/min⁻¹ 120 / 1,200

#### Feedrate
- **Rapid Traverse (X/Y/Z)**: mm/min (ipm) 60,000 (2,362.2)
- **Rapid Feed Acceleration**: G 0.93 / 1.28 / 1.06

#### Automatic Tool Changer
- **Type of Tool Shank**: JIS B 6339 40T
- **Type of Retention Knob**: JIS B 6339 40P
- **Number of Tools**: 51 : Drum Magazine
- **Max. Tool Diameter**: mm (in.) Ø90 (Ø3.54)
- **Max. Tool Diameter**: mm (in.) Ø150 (Ø5.90) : with conditions
- **Max. Tool Length**: mm (in.) 300 (11.81)
- **Max. Tool Weight**: kg (lb.) 8 (17)
- **Tool Change Time**: sec 2.4 : Chip to Chip

#### Power Supply
- **Input Power**: kW (50 : NC Indexing / opt.) 42
- **Voltage**: V AC200 / 220±10%
- **Frequency**: Hz 50 / 60±1
- **Air Source**: MPa 0.54~0.93
- **Required Air Volume**: NL/min Max.350

#### Standard Accessories
- **01. Total Enclosure Guard with Ceiling**: 11. M-Code Counter (Ø M-Code)
- **02. Synchronized Tapping Function**: 12. THERMAL MEISTER ™
- **03. AD-TAP Function**: 13. Work Light
- **04. IPC Function**: 14. Standard Mechanical Tools and Tool Box
- **05. Spindle Oil Cooler**: 15. Machine Color Paint
- **06. Spindle Grease Auto Supply System**: 16. Leveling Plate and Bolts (not Foundation Pad)
- **07. Feed Axis Grease Auto Supply System**: 17. Handy Man2 FY
- **08. Swarf Rear Disposal**: 18. CD-ROM for Memory Card Operation (only for Matsuura G-Tech 30i)
- **10. Spindle Overload Protection**: 

#### Outline (Standard Specifications)

#### Floor Plan (Standard Specifications)

**Machine Weight**: 8,300 kg
Equipment

- **Spindle**
  - 15,000 min⁻¹ (Spindle Auto Grease Supply)  ○
  - 20,000 min⁻¹ (Spindle Auto Grease Supply)  ▲
  - 30,000 min⁻¹ (Oil-Air)  ▲

- **ATC**
  - 51 (Drum Magazine : Bi-Directional Address Code)  ○
  - 52 (Drum Magazine : Memory Random)  ▲
  - 120 / 150 / 180 / 210 / 240 (Matrix Magazine 240 base)  ▲
  - 120 / 180 / 200 / 240 / 280 / 320 (Matrix Magazine 320 base)  ▲
  - 360 / 400 / 440 / 480 / 520 (Matrix Magazine 520 base)  ▲

- **High Accuracy Control**
  - Scale Feedback System X/Y-Axis (HEIDENHAIN)  ▲
  - Scale Feedback System Z-Axis (HEIDENHAIN)  ▲
  - Scale Feedback System X/Y/Z-Axis (HEIDENHAIN)  ▲
  - THERMAL MEISTER™ (Spindle & Feed Axes Thermal Displacement Compensation)  ○

- **APC**
  - PC2  ○
  - PC5 (Floor Pallet System)  ▲
  - PC11 (Floor Pallet System)  ▲
  - PC15 (Tower Pallet System)  ▲
  - PC17~ (Linear Pallet System)  ▲

- **Additional Table**
  - Matsuura made 1 degree Index Table  ○
  - Matsuura made NC Controlled Rotary Table (with DCS)  ▲

- **Coolant**
  - Coolant Unit  ○
  - Coolant Shower System  ▲
  - Vacuum Type Coolant Thru Type A  ▲*
  - Vacuum Type Coolant Thru Type B  ▲*
  - Vacuum Type Coolant Thru Type C (2MPa)  ▲*
  - Vacuum Type Coolant Thru Type C (5MPa)  ▲*
  - Vacuum Type Coolant Thru Type C (7MPa)  ▲*
  - Coolant Flow Checker  ▲
  - Mist Separator Unit  ▲
  - Mist Separator Unit with Fire Protect Damper  ▲
  - Coolant Temperature Controller (Tank 100ℓ)  ▲
  - Coolant Temperature Controller (Tank 200ℓ)  ▲

- **Swarf Management**
  - Total Enclosure Guard  ○
  - Spiral Chip Conveyor  ▲
  - Lift-Up Chip Conveyor with Drum Filter (Scraper Type) + Spiral Chip Conveyor  *Oily coolant should be less than 10cSt.  ▲
  - Chip Bucket  ▲
  - Air Blow For Chip/Swarf Removal  ▲
  - Workpiece Cleaning Gun (Machine Side)  ▲
  - Workpiece Cleaning Gun (APC Side)  ▲

* Vacuum Type Coolant-Thru for 30,000 min⁻¹ Spindle is not available.

**Operation / Maintenance**

- AD-TAP Function  ○
- IPC Function  ○
- Handy Man F/Y  ○
- Work Light  ○
- 8 Sets of Extra M Function  ▲
- Spindle Load Monitoring Function  ▲
- Weekly Timer  ▲
- Program End Announcement Light (Red, Yellow, Green)  ▲
- Spindle Run Hour Meter  ▲
- Cumulative Run Hour Display Unit  ▲
- External Manual Pulse Generator  ▲
- Rotary Wiper (Air Supply System)  ▲
- Rotary Wiper (Electrical System)  ▲
- Hydraulic Power Supply System for Fixture : (from APC Upside) 16.8MPa, 4 ports  *Please consult Matsuura for more details.  ▲

**Safety Features**

- Matsuura Safety Specification  ○

**In-Process Measurement / Broken Tool Detection**

- In-Process Measurement / Auto Centering (Touch Probe)  ▲
- Broken Tool Detection / Auto Tool Length (Touch Sensor)  ▲
- Broken Tool Detection / Auto Tool Length (Laser Sensor)  ▲
- In-Process Measurement (Touch Probe)+Broken Tool Detection(Touch Sensor)  ▲
- In-Process Measurement (Touch Probe)+Broken Tool Detection(Laser Sensor)  ▲

**Pallet Surface**

Unit : mm (in.)

<table>
<thead>
<tr>
<th>Pallet Surface</th>
<th>Unit : mm (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 (11.81)</td>
<td>75 (3)</td>
</tr>
<tr>
<td>125 (5)</td>
<td>25 (1)</td>
</tr>
<tr>
<td>120 (4.7)</td>
<td>30 (1.18)</td>
</tr>
<tr>
<td>80 (3.1)</td>
<td>20 (0.78)</td>
</tr>
<tr>
<td>60 (2.36)</td>
<td>15 (0.59)</td>
</tr>
<tr>
<td>40 (1.6)</td>
<td>11 (0.43)</td>
</tr>
<tr>
<td>30 (1.18)</td>
<td>80 (3.1)</td>
</tr>
<tr>
<td>20 (0.78)</td>
<td>15 (0.59)</td>
</tr>
<tr>
<td>10 (0.39)</td>
<td>60 (2.36)</td>
</tr>
<tr>
<td>60 (2.36)</td>
<td>10 (0.39)</td>
</tr>
<tr>
<td>40 (1.6)</td>
<td>60 (2.36)</td>
</tr>
<tr>
<td>20 (0.78)</td>
<td>60 (2.36)</td>
</tr>
<tr>
<td>10 (0.39)</td>
<td>60 (2.36)</td>
</tr>
</tbody>
</table>

* Please consult Matsuura for more details.
Products are subject to all applicable export control laws and regulations.