

 **Matsuura**

Horizontal Machining Center

# ***H.Plus-630***



**MAXIA**  
Innovation by  Matsuura



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**ELLIOTT MATSUURA CANADA INC.**

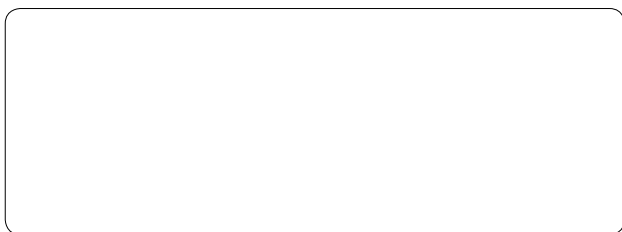
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- Product specifications and dimensions are subject to change without prior notice.
  - The photos may show optional accessories.



Products are subject to all applicable export control laws and regulations.

# **Matsuura H.Plus-630**

## High Rigidity, High Speed, Compact World-renowned All-rounder New! Re designed from the ground up

### Features

- **700N·m High Torque Spindle** (10,000 min<sup>-1</sup> Rating Option ).  
Solid, robust rigidity for highly accurate hard metal cutting.
- **Workpiece Height 11.5% Increase**—Max. workpiece size  $\phi 1,115$  mm ( $\phi 43.89$  in.) ( $\phi 1,050$  mm ( $\phi 41.33$  in.)).
- **B-axis Feed Rate 330% Increase**—DD Motor (Direct Drive Motor) adopted (75 min<sup>-1</sup>).  
Fastest speed in class.
- **All axes 20% Speed Increase**—Increased from 50 m/min (1.96 ipm) to 60 m/min (2.36 ipm).
- **Expandable ATC/APC Options**—Strong support for long hour unmanned operation and various production.

### Axes Configuration

Spindle: BT50

12,000min<sup>-1</sup> Standard  
10,000min<sup>-1</sup> Option  
15,000min<sup>-1</sup> Option

B:360deg  
(75min<sup>-1</sup>)

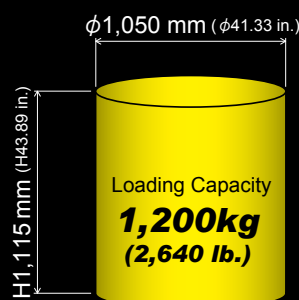
Y:920mm (36.22 in.)  
(60m/min) (2.36 ipm.)

X:1,050mm (41.33 in.)  
(60m/min) (2.36 ipm.)

Z:990mm (38.97 in.)  
(60m/min) (2.36 ipm.)

Pallet (630mm×630mm) (24.8 in.×24.8 in.)

### Maximum Workpiece Size





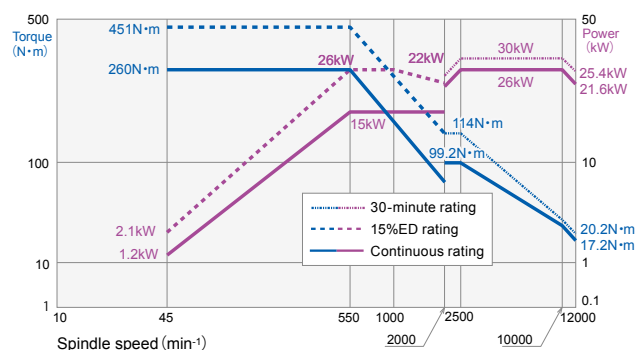
**MAXIA**  
Innovation by  Matsuura

High speed, high rigidity, high torque & high accuracy  
- from aluminium to titanium, from inconel to hardened steels

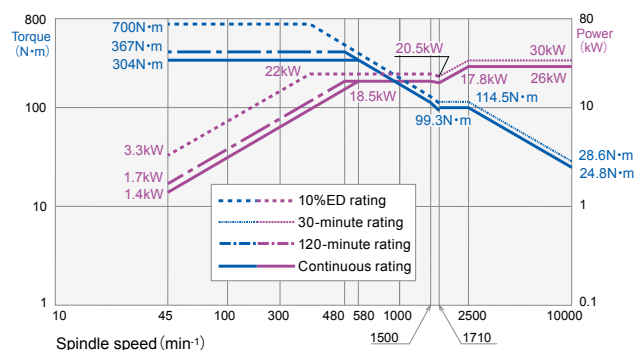
### High-torque, high-speed spindle.

Matsuura are the pioneers of reliable modern spindle technology. The standard 12,000min<sup>-1</sup> spindle in the **H.Plus-630** offers a massive 451N·m of torque. An optional 700N·m variant is available. Both spindles offer superb cutting performance and reliability - from aluminium to titanium, from inconel to hardened steels.

Standard BT50 12,000min<sup>-1</sup>



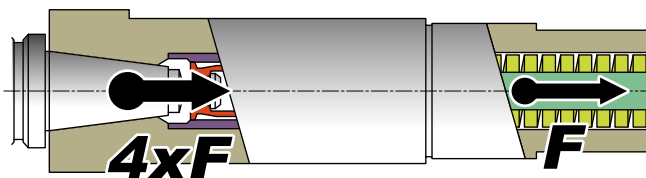
Option BT50 10,000min<sup>-1</sup> (High-torque motor at 700 N·m)



### Incorporates a unique spindle mechanism that realizes highly reliable machining precision.

The integrated drive key and Big Plus configuration of Matsuura spindles assure maximum rigidity and accuracy. In addition, the enhanced tool clamping system holds the toolholder at an attraction force of 21.5kN, maximising sustained precision machining.

#### ■ Tool Clamping System

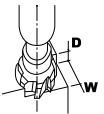
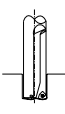
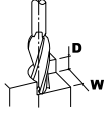





# ■ Results of Cutting Tests (BT50 12,000min<sup>-1</sup>)

Standard

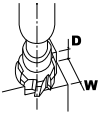
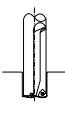
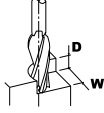

(in.)

	Workpiece	Tool	Cutting width Cutting depth	Spindle speed	Cutting feed speed	Cutting rate		Workpiece	Tool	Spindle speed	Cutting feed speed	Cutting rate
 <p>Face Mill</p>	A5052	Ø100mm (3.93) 4 blades	W=80mm (3.14) D=5mm (0.19)	5,500 min <sup>-1</sup>	9,000 mm/min (354.33)	3,600 cc/min	 <p>Tap</p>	A5052	Ø52mm (2.04)	1,500 min <sup>-1</sup>	400 mm/min (15.74)	849 cc/min
	S45C	Ø125mm (4.92) 9 blades	W=90mm (3.54) D=7mm (0.27)	550 min <sup>-1</sup>	900mm/min (35.43)	567 cc/min		S50C	Ø52mm (2.04)	1,500 min <sup>-1</sup>	220 mm/min (8.66)	467 cc/min
		Ø80mm (3.14) 6 blades	W=70mm (2.75) D=4mm (0.15)	900 min <sup>-1</sup>	2600mm/min (102.36)	728 cc/min						
 <p>End Mill</p>	A5052	Ø25mm (0.98) 2 blades	W=20mm (0.78) D=15mm (0.59)	12,000 min <sup>-1</sup>	7,000 mm/min (275.59)	2,100 cc/min	 <p>Drill</p>	A5052	M42 × P4.5	120 min <sup>-1</sup>	540 mm/min (21.25)	
	S45C	Ø25mm (0.98) 4 blades	W=3mm (0.11) D=40mm (1.57)	5,500 min <sup>-1</sup>	6,000 mm/min (236.22)	720 cc/min		S45C	M42 × P4.5	80 min <sup>-1</sup>	360 mm/min (14.17)	

# ■ Results of Cutting Tests (BT50 10,000min<sup>-1</sup>)

Option

(in.)

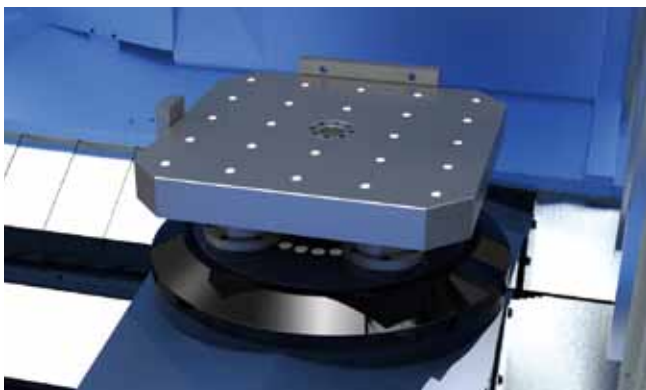
	Workpiece	Tool	Cutting width Cutting depth	Spindle speed	Cutting feed speed	Cutting rate		Workpiece	Tool	Spindle speed	Cutting feed speed	Cutting rate
 <p>Face Mill</p>	A5052	Ø100mm (3.93) 4 blades	W=80mm (3.14) D=5mm (0.19)	5,500 min <sup>-1</sup>	9,000 mm/min (354.33)	3,600 cc/min	 <p>Tap</p>	A5052	Ø52mm (2.04)	1,500 min <sup>-1</sup>	400 mm/min (15.74)	849 cc/min
	S50C	Ø160mm (6.29) 10 blades	W=100mm (3.93) D=7mm (0.27)	300 min <sup>-1</sup>	850 mm/min (33.46)	595 cc/min		S50C	Ø52mm (2.04)	1,500 min <sup>-1</sup>	220 mm/min (8.66)	467 cc/min
 <p>End Mill</p>	A5052	Ø25mm (0.98) 2 blades	W=20mm (0.78) D=15mm (0.59)	10,000 min <sup>-1</sup>	8,000 mm/min (314.96)	2,400 cc/min	 <p>Drill</p>	A5052	M42 × P4.5	120 min <sup>-1</sup>	540 mm/min (21.25)	
	S50C	Ø25mm (0.98) 4 blades	W=3mm (0.11) D=40mm (1.57)	5,500 min <sup>-1</sup>	6,000 mm/min (236.22)	720 cc/min		S50C	M42 × P4.5	80 min <sup>-1</sup>	360 mm/min (14.17)	

\* Results above are actual recorded data under test conditions. Reproduction of these results may differ due to different parameters and ambient and environmental factors during re-test.

# B Axis Direct Drive: Fastest in Class. 10% Z axis Stroke Increase. 20% All axis Faster.

## 330% B-Axis Feed Rate Increase Utilizing Direct Drive Motor.

The B-Axis utilizes a DD Motor that achieves a 330% feed rate increase compared to the previous model - attaining the fastest speed and highest precision in its class.



## All axes 20% speed increase—Increased to 60 m/min.

All axes on the **H.Plus-630** operate at 60m/min (2.36 ipm), significantly reducing non cutting time operations. The deployment across all axes of highly rigid, high quality roller guides and precision ball screws assure the highest repeatable high speed precision and positional accuracy in their class.

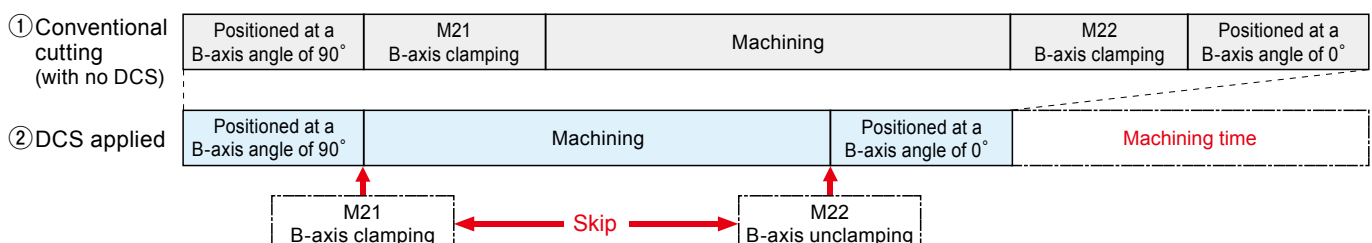
Model	X-Axis	Y-Axis	Z-Axis
<b>H.Plus-630</b>	60m/min (2.36 ipm)	60m/min (2.36 ipm)	60m/min (2.36 ipm)
Conventional model	50m/min (1.96 ipm)	50m/min (1.96 ipm)	50m/min (1.96 ipm)

**All Axes 20% Speed Increase**

## Patented DCS further reduces machining time.

Matsuura's patented Dynamic Clamp System (DCS) is adopted on the B-Axis, monitoring the load on the DD motor. This allows flexible range setting, vastly reducing machining time by eliminating clamp / unclamp operations.

### ■ Light cutting



■ Within set load range ⇒ Machined in an unclamp state.  
(M21 and M22 are skipped for light cutting.)

■ Beyond set load range ⇒ Machined in a clamp state.  
(Neither M21 nor M22 is skipped for heavy cutting.)





## Z-axis stroke of 990 mm (38.97). (in.)

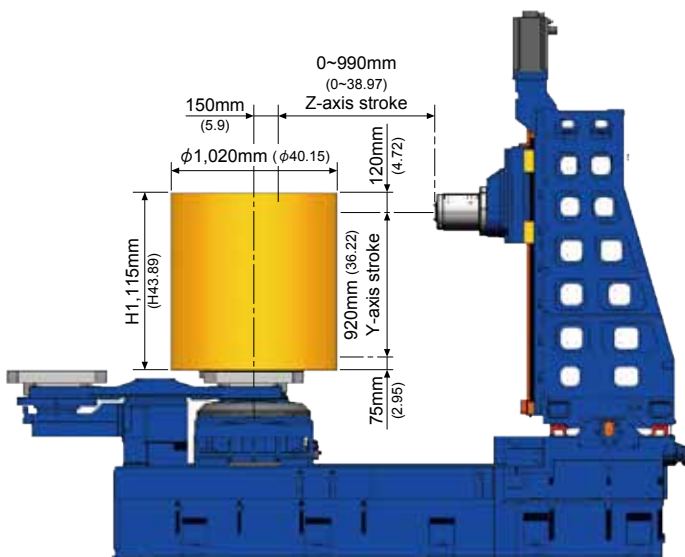
The maximum distance from the centre of the pallet to the spindle nose is extended to 990mm (38.97), offering an increase of 120mm (4.72) on the previous model. This change enables the use of longer tools.

## 43% Axial thrust increase - effortless high load cutting performance.

Axial thrust is increased by a massive 43% - enabling more power to be put through the ballscrews to make light work of heavy load materials.

### ■ Axial Thrust

Model	X-Axis	Y-Axis	Z-Axis
<b><i>H.Plus-630</i></b>	12.6kN	23.6kN	12.6kN
Conventional model	11.7kN	16.2kN	11.7kN



## FEM Analysis and Matsuura's Quality Engineering Heritage Guarantees Rigidity.

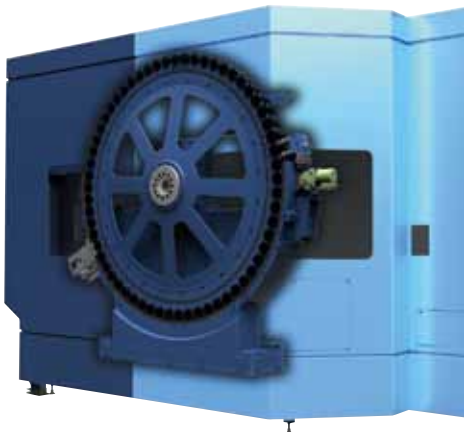
Matsuura's FEM design heritage in highly rigid castings combined with our highly skilled engineering staff offers the ultimate assurance of sustained rigidity and accuracy for the life of the machine - even operating in the most arduous conditions with any material.



# Versatile, flexible and cost effective ATC & APC expansion options that can grow with your production requirements.

## Equipped with servo-driven drum magazine.

The standard machine adopted Matsuura's proven servo driven drum magazine, offering assured, reliable and low noise performance - now with increased indexing speed.



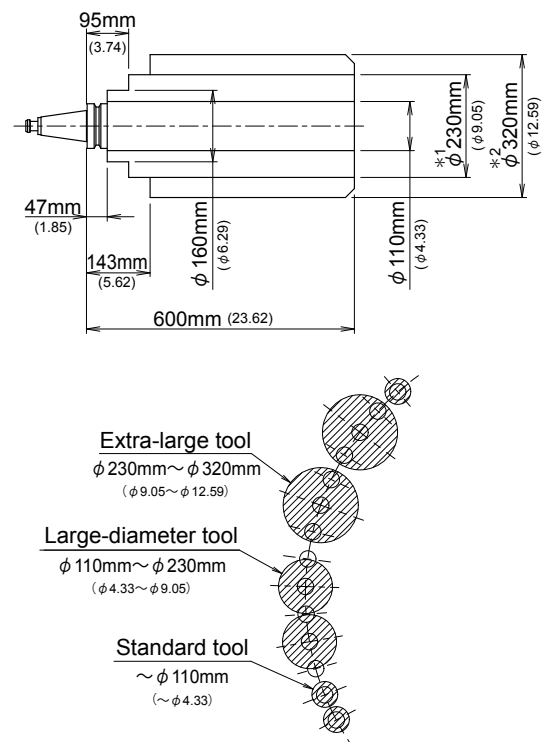
## Line up of ATC Options

To support unmanned running and subcontractors attain faster set ups of repeat jobs, a 120 Tool Chain Magazine and Matrix Magazines for up to 360 tools are available, offering unprecedented flexibility.

Chain Magazine	Option
120 tools	
Matrix Magazine	Option
150 / 180 / 210 / 240 (240 tools)	
270 / 300 / 330 / 360 (360 tools)	

## Maximum tool size

(in.)



Tool shank	JIS B 6339 Tool Shank 50T
Pullstud	JIS B 6339 Pullstud 50P
Max. tool diameter	$\phi 110 \text{ mm}$ ( $\phi 4.33$ ) $\phi 230 \text{ mm}$ ( $\phi 9.05$ ) (*1. No adjacent tool/with specified storage space) $\phi 320 \text{ mm}$ ( $\phi 12.59$ ) (*2. No adjacent tool/with specified storage space) * Tools with $\phi 320 \text{ mm}$ (12.59) in diameter can be mounted side by side, provided that two empty pots are required between them.
Max. tool length	600 mm (23.62)
Max. tool math	20 kg (44 lb.) (The tool moment load must not exceed 2 kgm.)

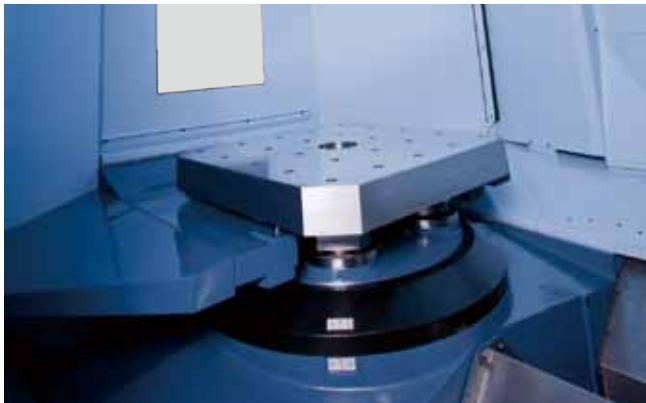


## Highly reliable, High-speed automatic pallet changers (APCs).

PC2 is standard. Optional APC's in a wide variety of configurations to support modern unmanned production are available - all of which can be upgraded quickly and efficiently in situ as your manufacturing requirements change.

### PC2 Standard

A space-saving standard APC.

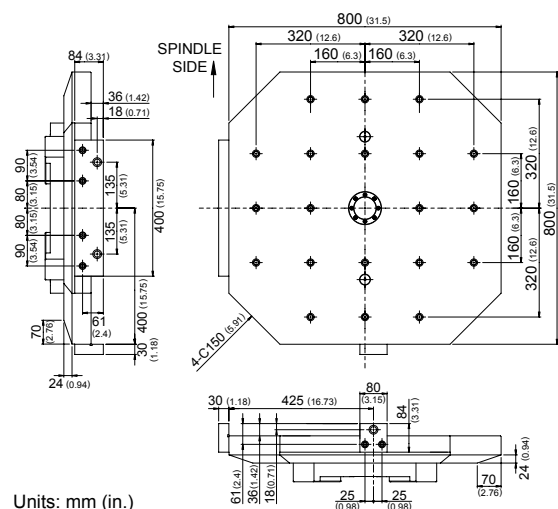
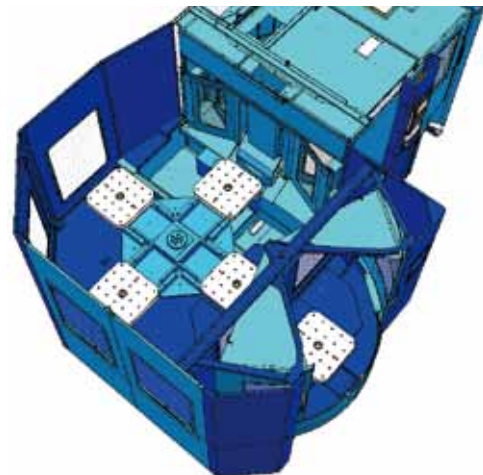


### 800 Pallet

Option

An 800mm<sup>2</sup> pallet is available for use with the **H.Plus-630**, offering versatile increased capacity performance should your workload require.

### PC6 Floor Pallet System Option

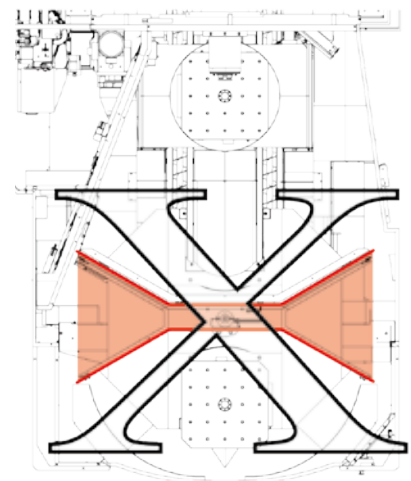
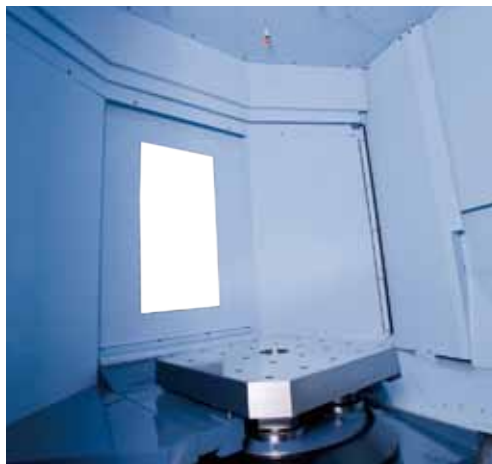


# Matsuura's unique X & W structure

- superb chip and swarf management.

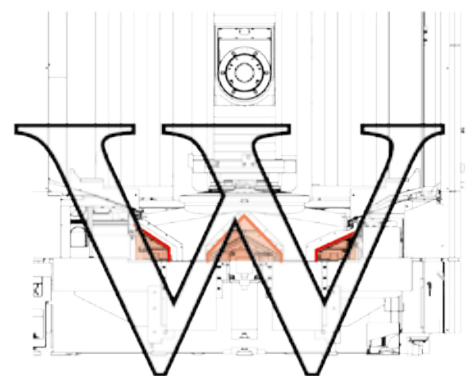
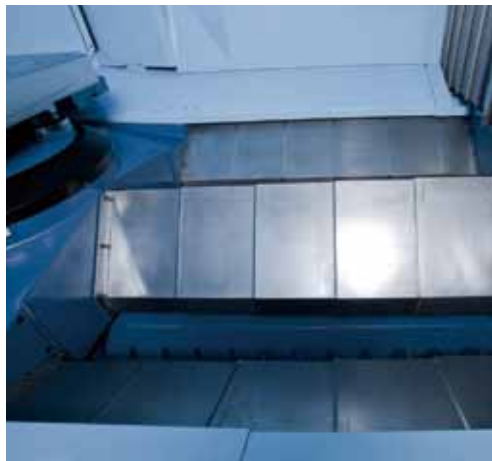
## X-type APC Door

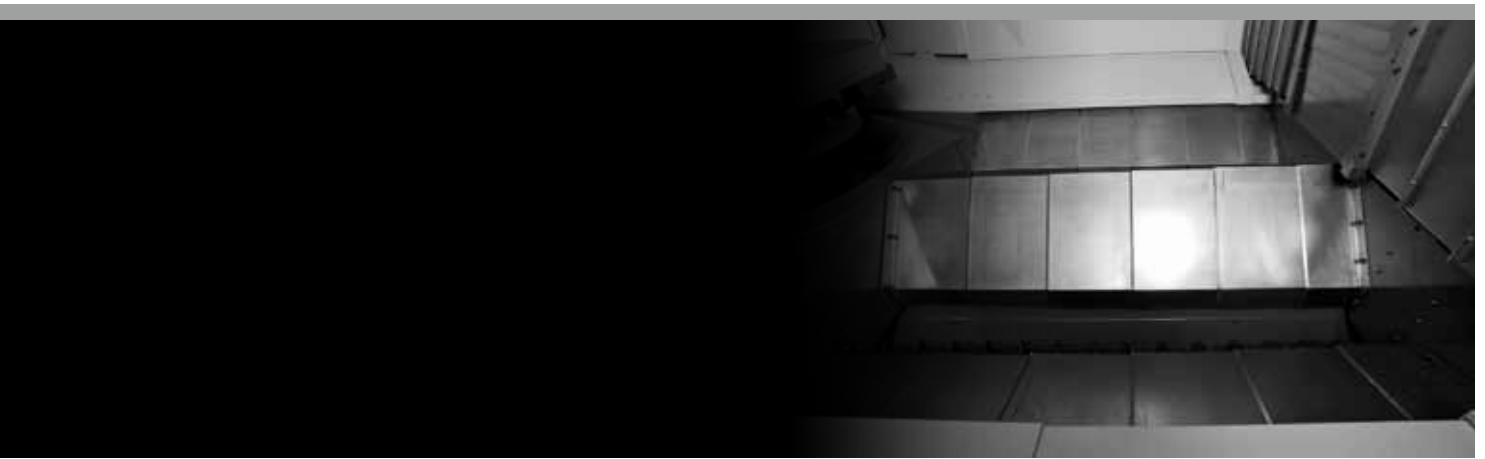
Separating the APC set up station from the machining enclosure is Matsuura's X Type door configuration. This unique design prevents chip build up and accumulation and is designed to handle the high metal removal rates generated by the **H.Plus-630**.



## W-type Slide Cover

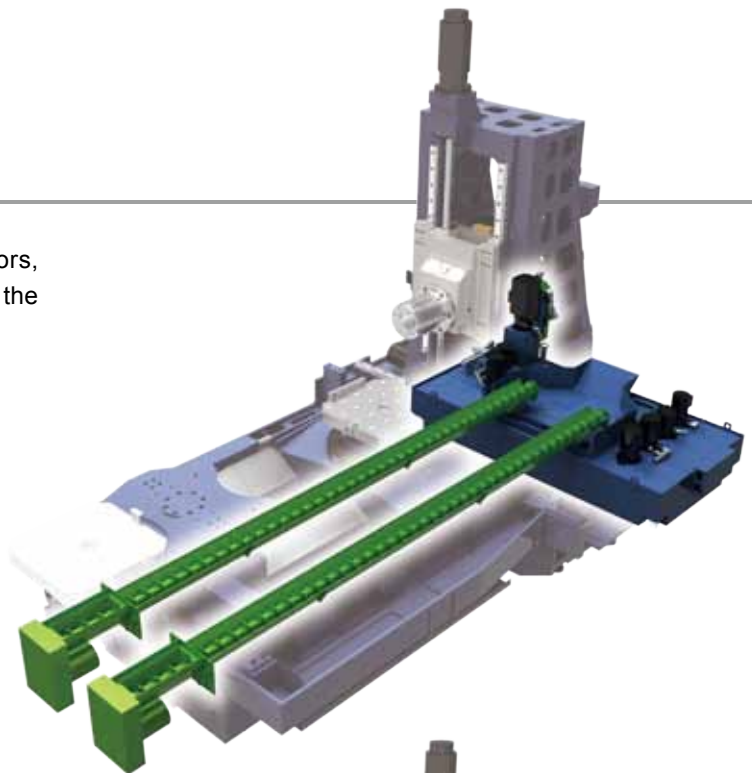
The W Type configuration with robust telescopic facilitates the fast and efficient evacuation of chips and swarf from the machining enclosure - even at the highest volume of metal removal.





## Spiral Chip Conveyor

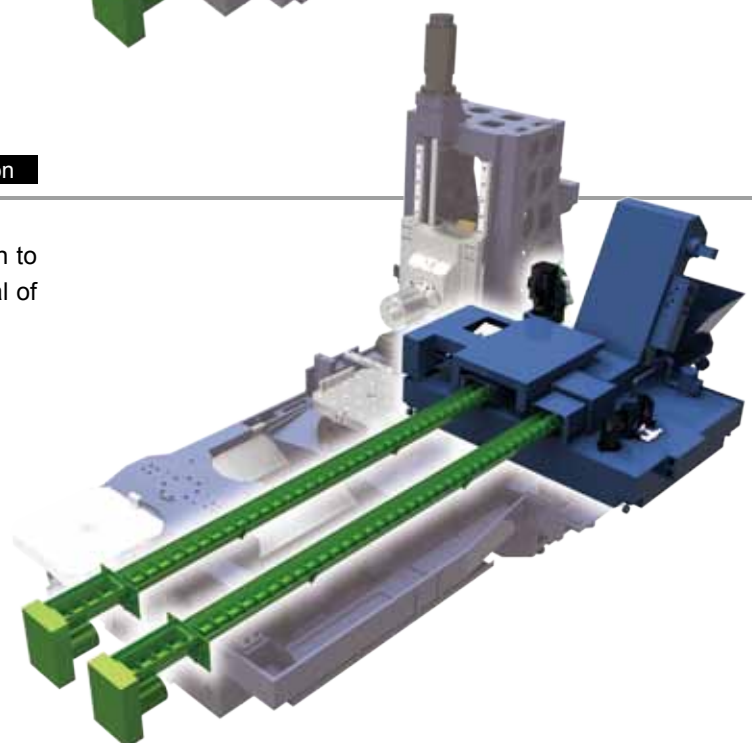
The twin troughs are serviced by twin spiral conveyors, smoothly transferring all chips and swarf to a tank at the rear of the machine.



## Lift-up Chip Conveyor

Option

The installation of the Lift-up Chip Conveyor in addition to the Spiral Chip Conveyor allows the automatic disposal of chips.



# MIMS Matsuura Intelligent Meister System

Digitizing Meister Knowledge, Skills, and Ideas  
Matsuura's unique interface in thorough  
pursuit of usability.

## Eco Meister

### Power Saving

- Power cut-off function
- Energy-saving devices installed

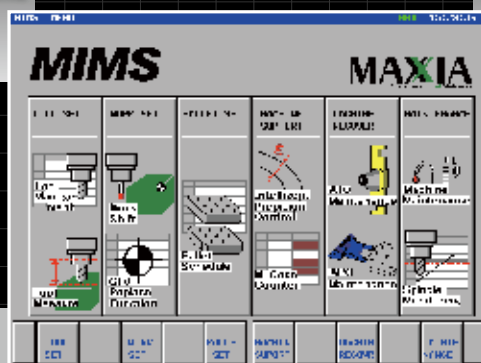
## Thermal Meister

### Stable Accuracy

- Spindle thermal displacement compensation
- X/Y/Z thermal displacement compensation

Environment

Accuracy



Simple

Secure

## Operability Meister

### Fuss-free Simple Operation

- Tool setup support
- Workpiece setup support

## Reliability Meister

### Machine Downtime Reduction

- Preventive maintenance support functions
- Machine restoration support functions

Option

## Reliability Meister Plus

### Increased Security Provided

- Electronic manual
- E-mailing function

\* Reliability Meister Plus requires a PC. Consult Matsuura for more information.

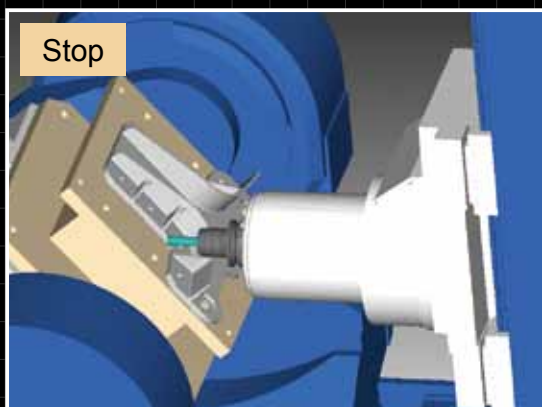
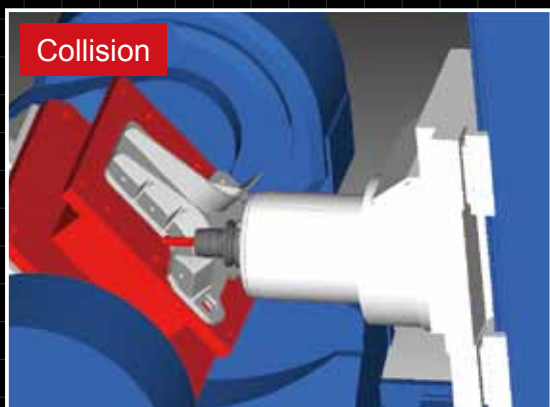


# Intelligent Protection System

Option

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.

## Ultra Safe Collision Protection



Intelligent Protection System



\* The above shows a concept image.

Intelligent Protection System



Manual/Automatic operation supported  
Simultaneous 4-axis machining support

\* The above shows a concept image.

### On-line Link with PC



External PC

\* The above shows a concept image.



Machining center

\* **Intelligent Protection System** simulates your programmed component alerting the user to any interference or collision before any actual machining.

\* Requires end-user PC—consult Matsuura for full specifications.

### Collision Avoidance during Setup

Tool length compensation data is linked with the **Intelligent Protection System**.

As NC data changes, PC compensation data is automatically updated.

### Collision Avoidance during Automatic Operation

Collision check can be activated during simulation.

The collision check function renders the part in real time on screen.

### Standard Accessories

Software

Machine mode data

Communications cable

PC communications board

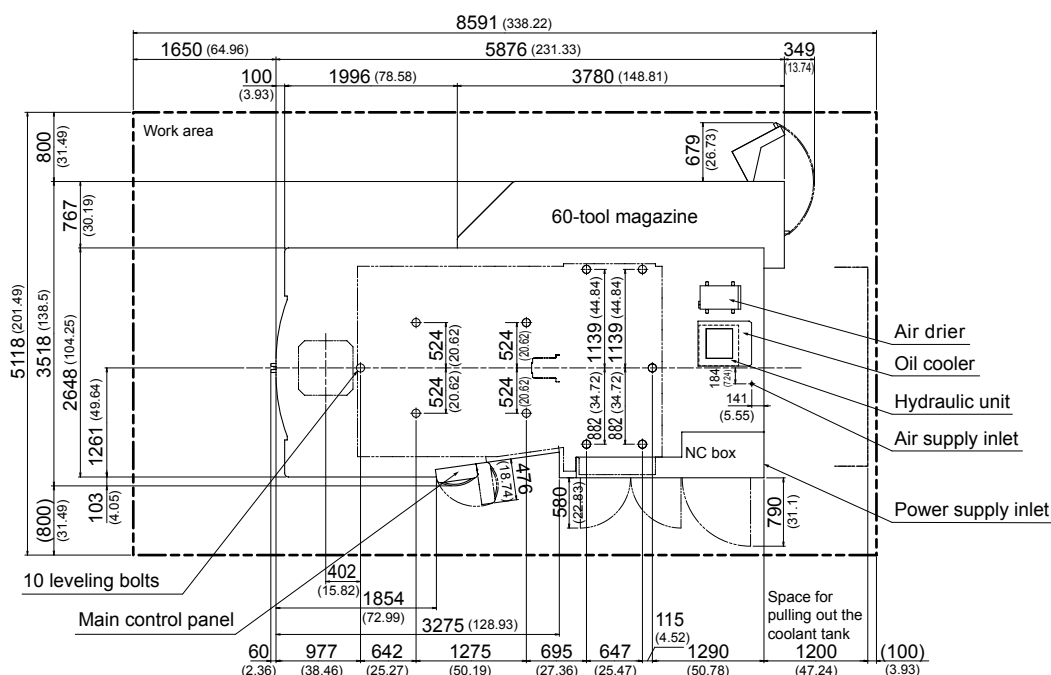
\* Connected to the rear part of the control box.

## Standard Machine Specifications

■ Movement and Range		
X-Axis Travel	mm (in.)	1,050 (41.33)
Y-Axis Travel	mm (in.)	920 (36.22)
Z-Axis Travel	mm (in.)	990 (38.97)
B-Axis Travel	deg	360
■ Pallet		
Working Surface	mm (in.)	630×630 (24.8×24.8)
Loading Capacity	kg (lb.)	1,200 (2,640)
Max. Workpiece Size	mm (in.)	φ 1,050×H1,115 (φ 41.33×H43.89)
■ Spindle		
Spindle Speed Range	min <sup>-1</sup>	45 - 12,000 (Oil-Air Lubrication System)
Spindle Taper		7/24 taper # 50 (BT Double Contact Type)
Spindle Bearing Inner Diameter	mm (in.)	φ 100 (φ 3.93)
Spindle Motor Power	kW	AC 15 / 2615/26 AC (Low Speed: Continuous/15%) AC 26/30 AC (High Speed: Continuous/60%)
Max. Spindle Motor Torque	N·m	451 / 550min <sup>-1</sup>
■ Feed Rate		
Rapid Traverse Rate	X/Y/Z mm/min (ipm)	60,000 / 60,000 / 60,000 (2,362.2 / 2,362.2 / 2,362.2)
	B min <sup>-1</sup>	75
Feed Rate	X/Y/Z mm/min (ipm)	1 - 60,000 (0.03-2,362.2)
	B min <sup>-1</sup>	0 - 75
■ Automatic Tool Changer		
Type of Tool Shank		JIS B 6339 tool shank 50T
Pullstud		JIS B 6339 pullstud 50P
Tool Storage Capacity	pcs.	60
Max. Tool Diameter	mm (in.)	φ 110 (φ 4.33) (Adjacent tool exists) φ 320 (φ 12.59) (No adjacent tool)
Max. Tool Length	mm (in.)	600 (23.62)
Max. Tool Mass	kg (lb.)	20 (44) (Tool moment load to be less than 2 kgm)
Methods of Tool Selection		Fixed address (Fixed address for rack type ATC magazine)
Tool Changing Time: Tool to Tool	sec	2.0 (When tool mass is 10 kg or less) 3.6 (When tool mass is over 10 kg)

■ Automatic Pallet Changer		
Number of Pallets		2
■ Power Sources		
Power Capacity	KVA	96
Required Air Volume	NL/min	600
■ Tank Capacity		
Coolant Tank Capacity	L	600
■ NC System		
Control System		<b>Matsura G-Tech 30i</b>
■ Standard Accessories		
01. Total Splash Guard	02. Pallet Magazine Safety Guard	
03. ATC Auto Door	04. Synchronized Tapping	
05. <b>AD-TAP</b> Function	06. <b>IPC</b> Function	
07. Spindle Oil Cooler	08. Auto Grease Supply Unit for X/Y/Z	
09. Air Dryer	10. Spindle Overload Protection	
11. 9 sorts of M-code Counters	12. Spiral Chip Conveyor (L/R)	
13. Work Light	14. Machine Color Paint	
15. Levelling Pads and Bolts	16. Spindle Run Hour Meter	
17. Feed Axis Interference Protection (with OT Software)		
18. Standard Mechanical Tool and Tool Box		
19. Matsura Intelligent Meister System ( <b>MIMS</b> )		
20. PC Tool for Memory Card Program Operation and Editing		
21. Auto Operation Integrator		

## Floor Plan Unit: mm (in.)





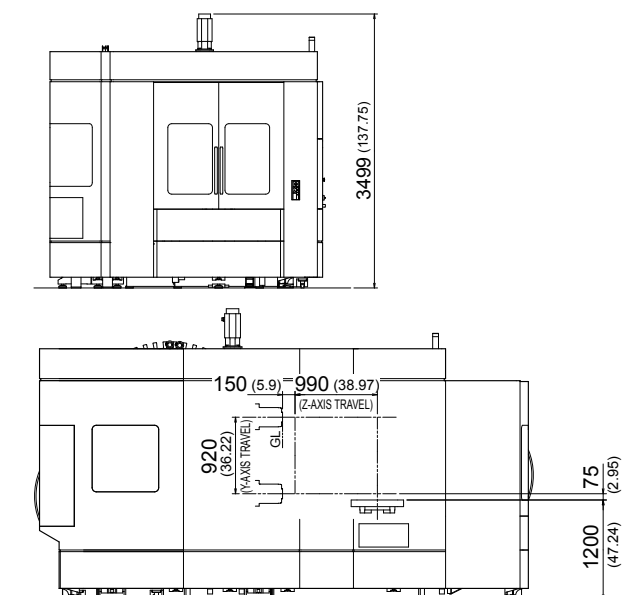
## List of Fittings

○:Standard ▲:Option

■ Spindle			
12,000 min <sup>-1</sup> (BT50 Oil-Air Lubrication System)			○
15,000 min <sup>-1</sup> (BT50 Oil-Air Lubrication System)			▲
10,000 min <sup>-1</sup> (BT50 Oil-Air Lubrication System)			
Spindle motor output	kW	Low : 18.5 / 22、High : 26 / 30	▲
Spindle max. torque	N·m	700 (300min <sup>-1</sup> )	
■ ATC			
60 tools (Drum Magazine)			○
120 tools (Chain Magazine)			▲
150 / 180 / 210 / 240 tools (based on 240-tool Matrix Magazine)			▲
270 / 300 / 330 / 360 tools (based on 360-tool Matrix Magazine)			▲
Max. tool mass: 30 kg			▲
■ High-precision Control			
Scale Feedback X/Y			▲
Scale Feedback Z			▲
Scale Feedback X/Y/Z			▲
■ APC			
PC2			○
PC6 (Floor Pallet System)			▲
■ Pallet			
□ 630	Working Surface	mm (in.)	630×630 (24.8×24.8)
	Loading Capacity	kg (lb.)	1,200 (2,640)
	Max. Workpiece Size	mm (in.)	φ 1,050×H1,115 (φ 41.33×H43.89)
□ 800	Working Surface	mm (in.)	800×800 (31.49×31.49)
	Loading Capacity	kg (lb.)	1,060 (2,310)
	Max. Workpiece Size	mm (in.)	φ 1,050×H1,115 (φ 41.33×H43.89)
■ Coolant			
Coolant Tank			○
Vacuum-Type Coolant Through A 7MPa			▲
Vacuum-Type Coolant Through A 14MPa			▲
Vacuum-Type Coolant Through B 7MPa			▲
Vacuum-Type Coolant Through B 14MPa			▲
Vacuum-Type Coolant Through C 2MPa			▲
Vacuum-Type Coolant Through C 7MPa			▲
Coolant Flow Checker (with spindle through)			▲
Coolant Flow Checker (with no spindle through)			▲
Coolant Temperature Controller with 100-liter Tank (installed separately); small 100ℓ			▲
Coolant Temperature Controller with 200-liter Tank (installed separately); large 200ℓ			▲

■ Automatic Measurement/Tool Damage Check	
Automatic Measurement/Automatic Centering (optical type)	▲
Tool Damage Check/Full Automatic Tool Length Measurement (contact type)	▲
Tool Damage Check/Full Automatic Tool Length Measurement (laser type)	▲
Automatic Measurement (optical type) and Tool Damage Check (contact type)	▲
Automatic Measurement (optical type) and Tool Damage Check (laser type)	▲
■ Chip Disposal	
Full Splash Guard	○
ATC Auto Door	○
Two Spiral Chip Conveyors	○
External Nozzle 2 MPa (with spindle through)	▲
External Nozzle 7 MPa (with spindle through)	▲
Lift-Up Conveyor (scraper and drum)	▲
Lift-Up Conveyor (hinge + scraper and drum)	▲
Chip Bucket	▲
Chip Removal Air Blow	▲
Workpiece Cleaning Gun (Main unit side)	▲
Workpiece Cleaning Gun (APC side)	▲
■ Control/Maintenance Support	
AD-TAP Function	○
IPC Function	○
MIMS	○
Feed Axis Auto Lubricator	○
Work Light	○
Spindle Operation Integrator	○
Automatic Operation Indicator	○
Intelligent Protection System	▲
Eight additional M functions	▲
Spindle Load Monitoring Function	▲
Weekly Timer	▲
Rotary Wiper (air type)	▲
Rotary Wiper (electric type)	▲
100 VAC outlet (3A)	▲
Optional block skip added 2 to 9	▲
Reliability Meister Plus TYPE A	▲
Reliability Meister Plus TYPE B	▲
■ Safety Device	
Matsuura Safety Specifications	○
Automatic Fire Extinguisher	▲
■ Optional Package	
High-speed, High-precision Package	▲
Value Package	▲

## External Dimensions Unit: mm (in.)



## Pallet Unit: mm (in.)

