

 **Matsuura**

Horizontal Machining Center

H.Plus-300



MAXIA
Innovation by  Matsuura

Matsuura H.Plus-300

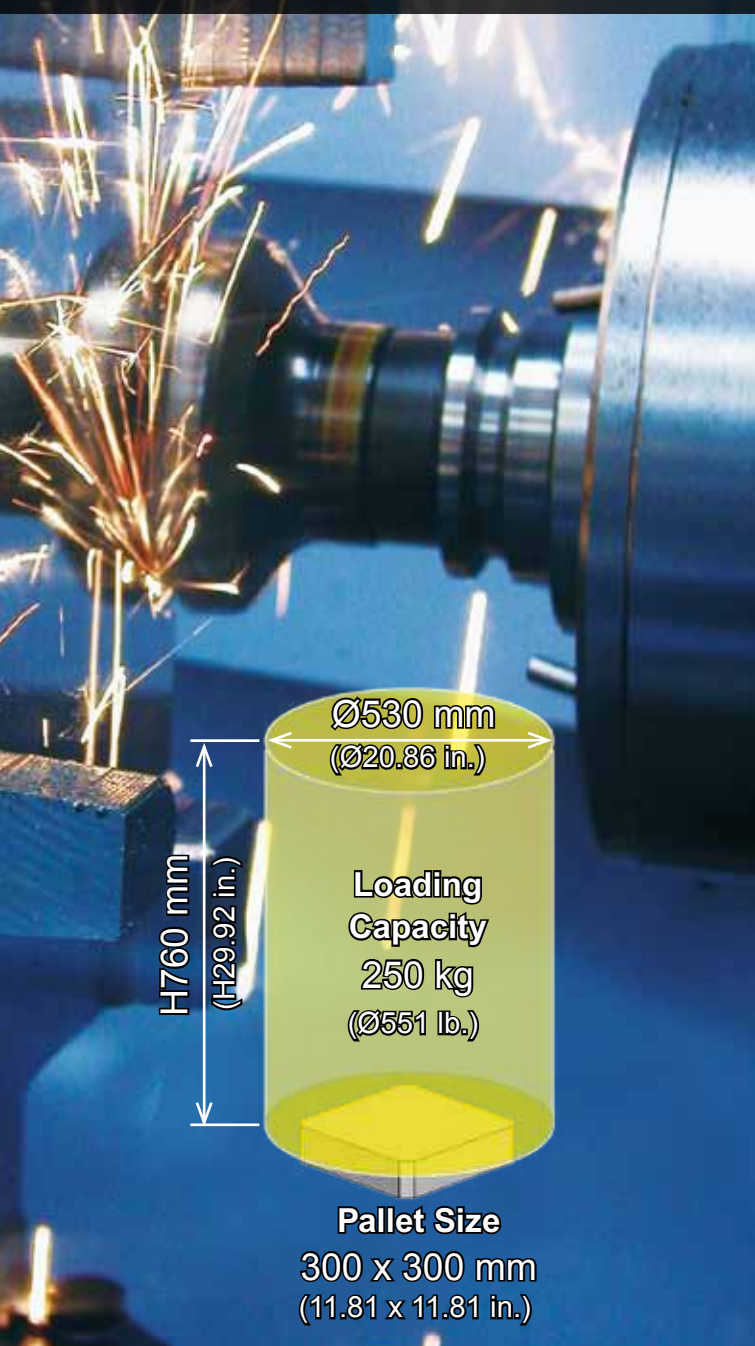


The all new **H.Plus-300**.

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.

Largest Working Envelope in its Class



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.)]
- **60 tools** ATC as standard 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-Ttype 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**



Tower Pallet System **PC15**

Unmanned Multi Pallet Excellence

Matsuura offer 2 proven, expandable & highly productive multi pallet systems – tailored to your production process

Type	Features	Production Volume	Number of Pallets
Floor Pallet System	Compact, fully integrated & expandable multi pallet system	Low to Medium Volume	PC5 PC11
Tower Pallet System	Vertically aligned space saving multi pallet system	Medium to High Volume	PC15

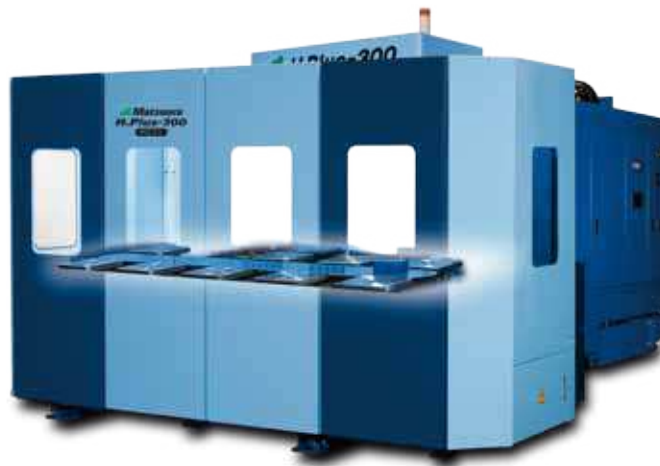
Floor Pallet System

Option

PC5



PC11



Tower Pallet System

Option

PC15





Matrix Magazine for 320 Tools

Unrivaled Tool Storage & Management Capacity - Supporting Your Unmanned Production Process

High Speed Index Drum Magazine

60(Fixed Address) Standard

Maximum 240 tools can be stored in this ATC tool magazine

Max. 240 tool storage Matrix Magazine Option

120	150	180	210	240
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Maximum 320 tools can be stored in this ATC tool magazine.

Max. 320 tool storage Matrix Magazine Option

120	160	200	240	280	320
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Maximum 520 tools can be stored in this ATC tool magazine.

Max. 520 tool storage Matrix Magazine Option

360	400	440	480	520
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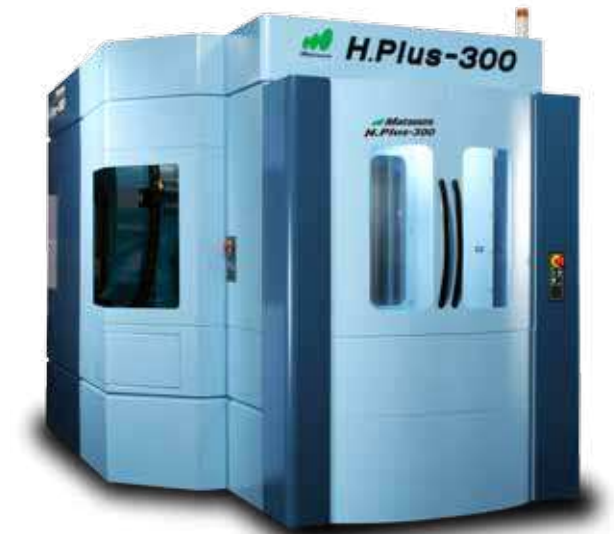
Drum Magazine High Speed Index, Low Noise

Standard

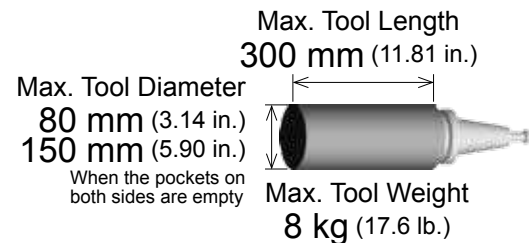
Designed & fully proven by Matsuura this new drum magazine offers vastly reduced tool change times when compared to conventional designs. Tool indexing time has been reduced by a massive 60%. With less moving parts than standard ATC's, a design imperative from the outset was the elimination of un-necessary noise & vibration.

Drum Type ATC – Specification

ATC time	2.44 sec.
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H.Plus-300 60 tool ATC, Twin Pallet Changer Standard



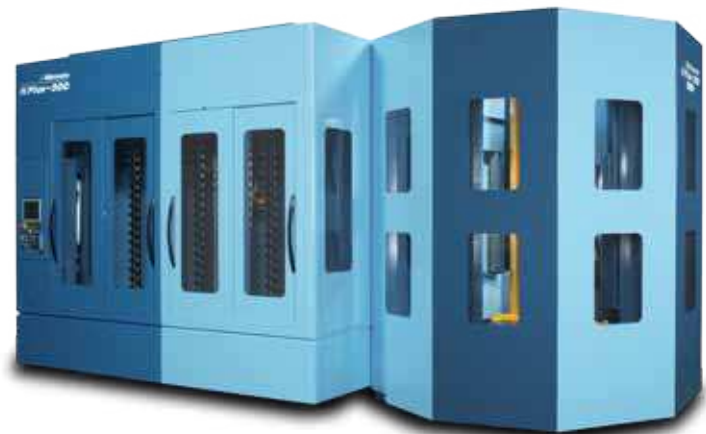
Matrix Magazine Space Saving, Large Capacity

Option

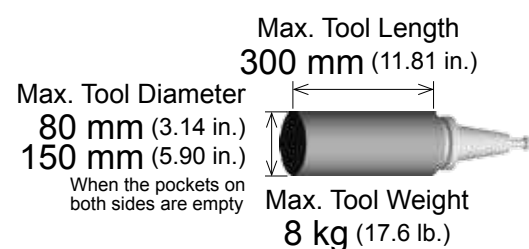


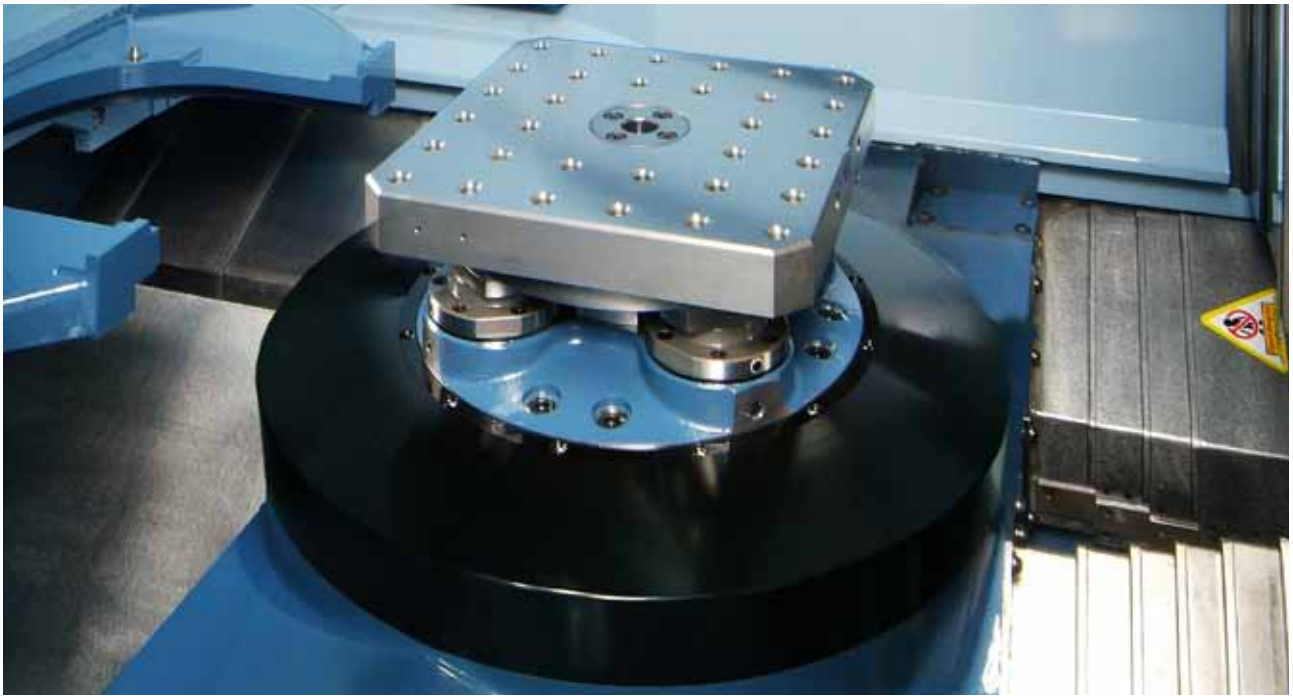
New ATC touch panel display – larger screen, ergonomic & user friendly.

All tool management & ATC functionality can be controlled from this screen.



H.Plus-300 PC15 320T magazine Option





NC Controlled Indexing Rotary Table : High Speed, Accuracy & Reliability Option

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

PATENT PENDING

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.

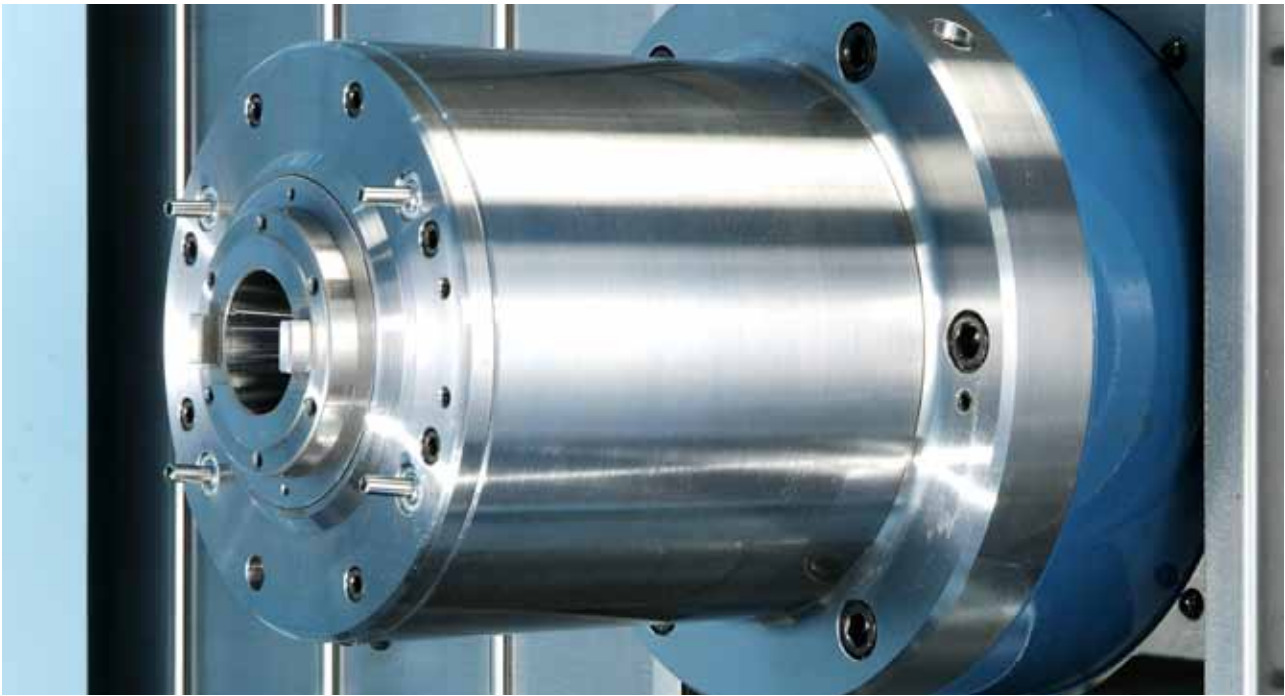
Conventional Machining

B -90.0	Table Clamp	Machining	Table Unclamp	B 0.0
	M21		M22	

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.

Application of the DCS system

B -90.0	Machining	B 0.0	REDUCTION
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Eco Friendly Spindle with Spindle Grease Auto Supply System

Matsuura MAXIA Spindle

The heart of all Matsuura machines – the Matsuura **MAXIA** 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.

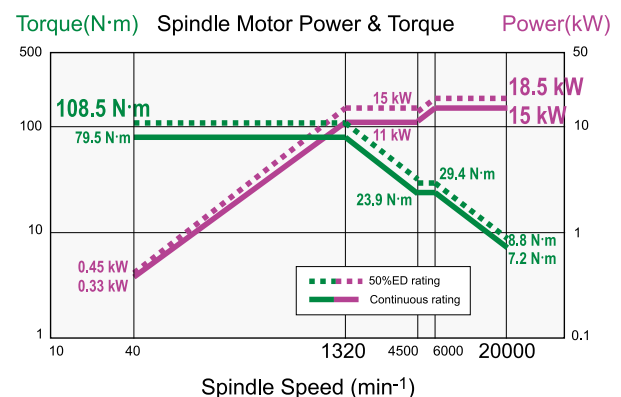
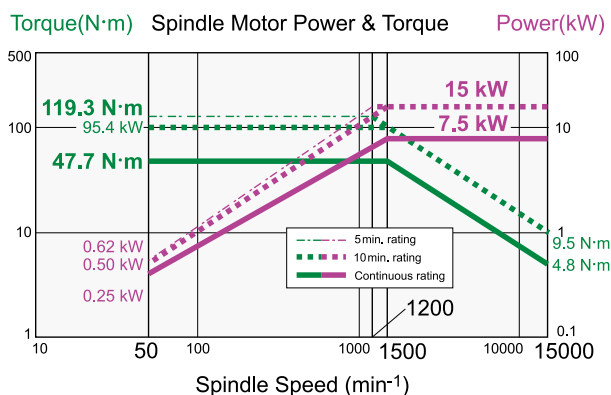
All Matsuura Spindles are designed and built in house at our clean room centers of excellence in Fukui Japan & Leicestershire England.

15,000 min⁻¹ Standard

Motor Power : 7.5 / 15 kW (20 HP)
Motor Torque : 119.3 N·m/1,200 min⁻¹

20,000 min⁻¹ Option

Motor Power : 15 / 18.5 kW (25 HP)
Motor Torque : 108.5 N·m/1,320 min⁻¹



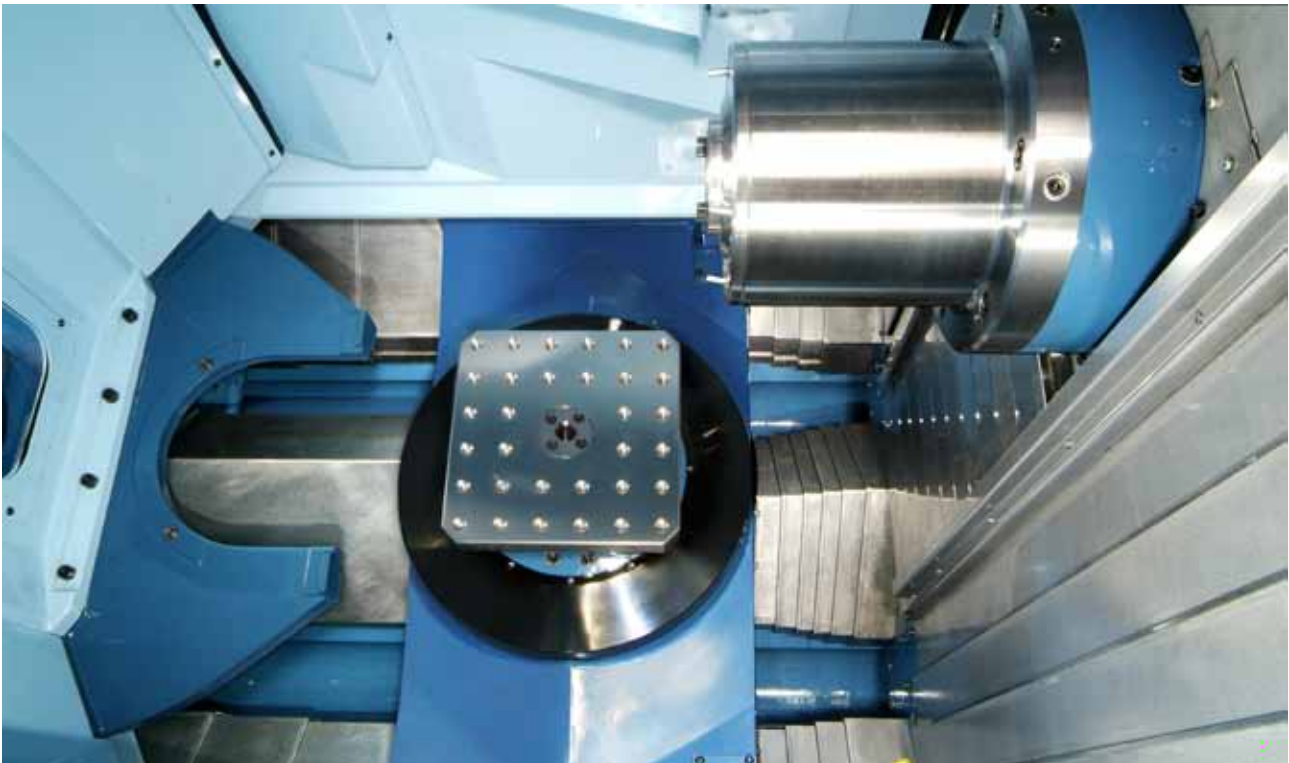
• 30,000 min⁻¹ spindle is available as option

Vacuum Type Coolant Thru Spindle System

Option

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

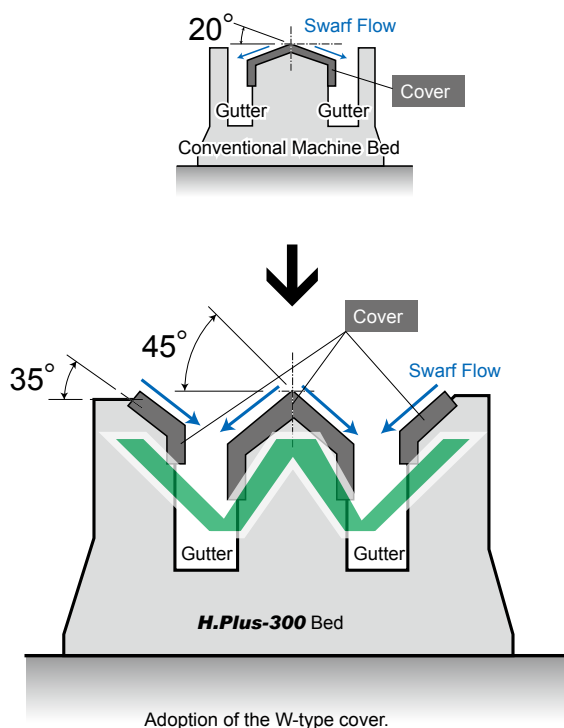
* Vacuum Type Coolant-Thru for 30,000min⁻¹ Spindle is not available.



Effective & Reliable Swarf Management

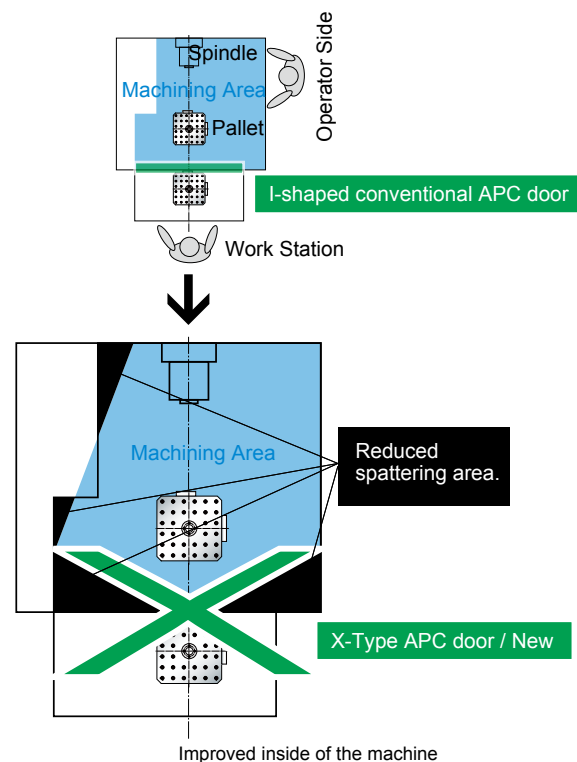
W-Type Protection Cover

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.

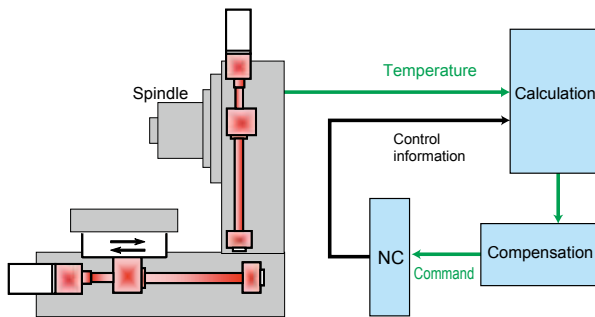


X-Type APC Door

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.



Thermal Displacement Compensation



Schematic of the THERMAL MEISTER™ system

THERMAL MEISTER™

Standard

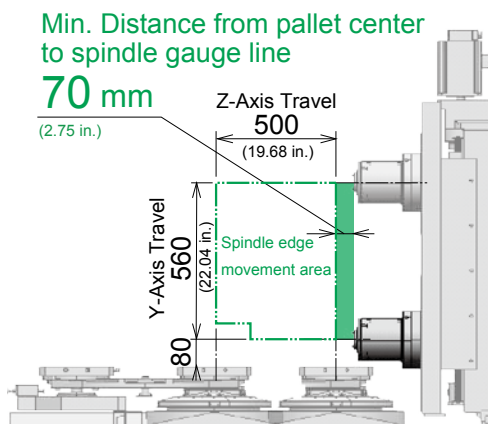
PATENT PENDING

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.



H.Plus-300 Movement Ranges(Y&Z-Axis)

Minimum Maintenance

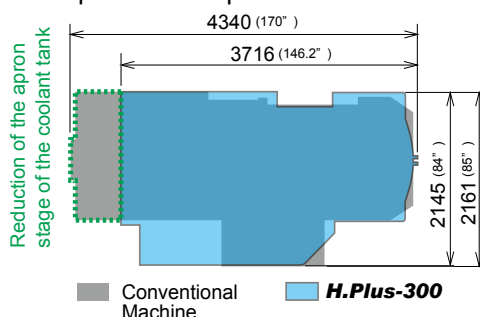
An automatic grease supply unit as standard feeds the spindle & all axes – eliminating maintenance intervention.



Maintenance requiring equipment is concentratedly arranged in the rear side of the machine.

Reduced Machine Footprint

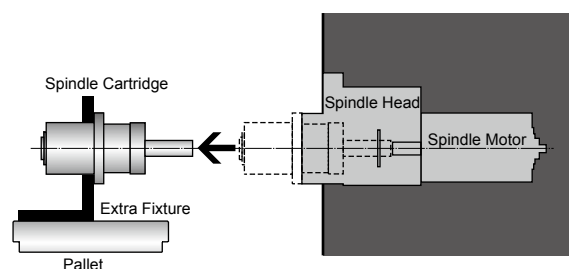
The new **H.Plus-300** offers a saving on floor space of 15% on the standard twin pallet machine when compared to the previous incarnation.



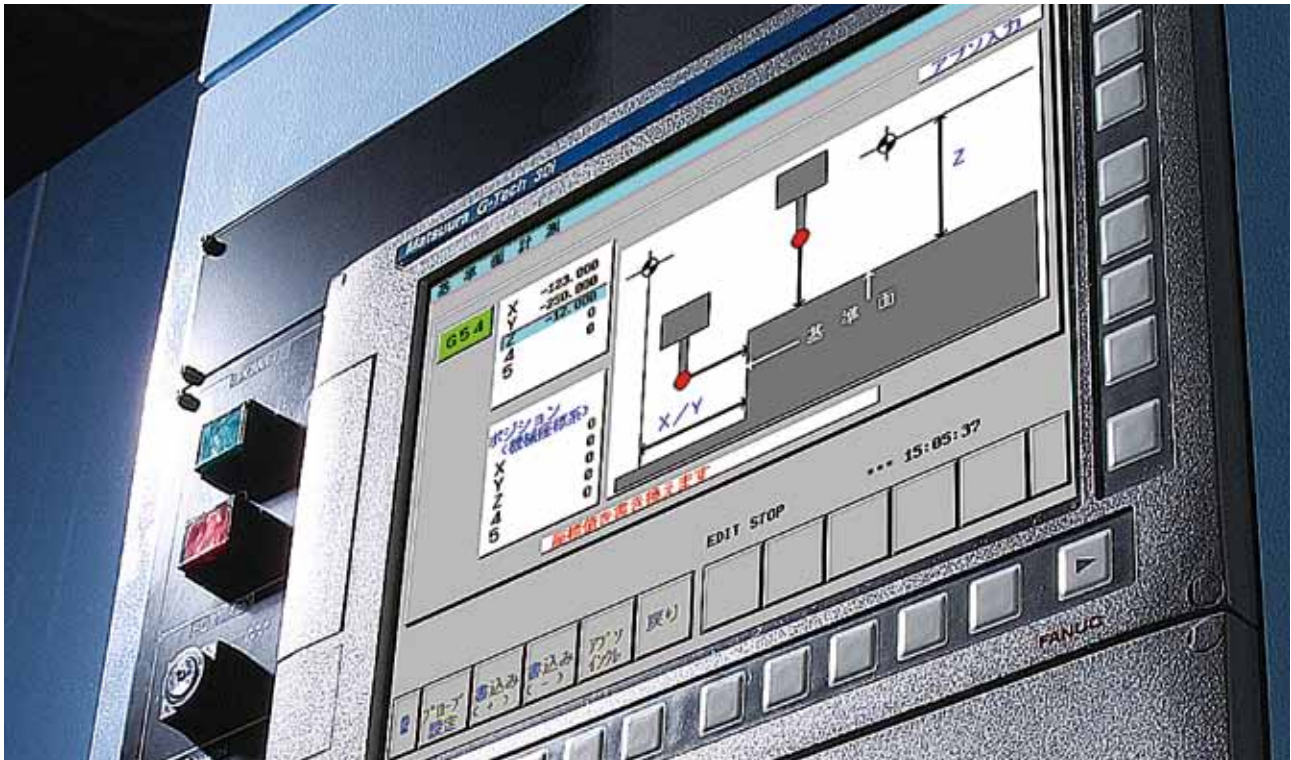
Comparison of the floor area

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.



Drawing out the spindle cartridge from the headstock by using extra fixture



The Latest High Performance NC



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

(Look Ahead Linear Acc./dec.+ Nano interpolation)

Option

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.

Proven Software Performance

IPC High-Speed Precision Machining Program Support Function

Standard

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

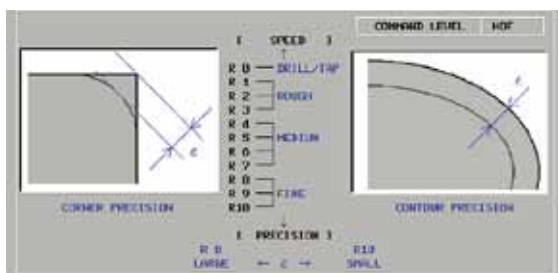
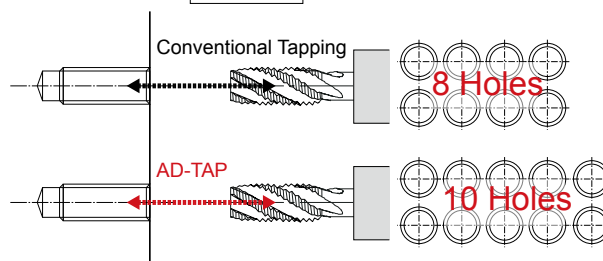


Image of IPC

AD-TAP High-Speed Tapping Function

Standard

Matsura'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

Handy Man II

Standard

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

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



Troubleshooting screens from **Handy Man II**

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

High Speed High Accuracy Package

IZ-2/150NF

1000 block look ahead

Nono smoothing

Nono smoothing2

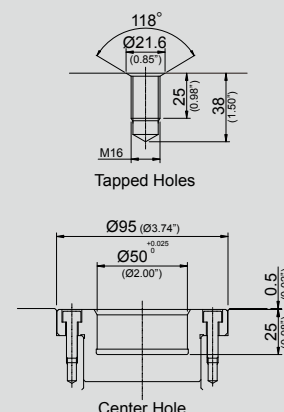
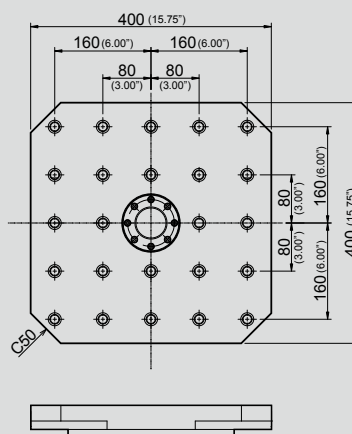
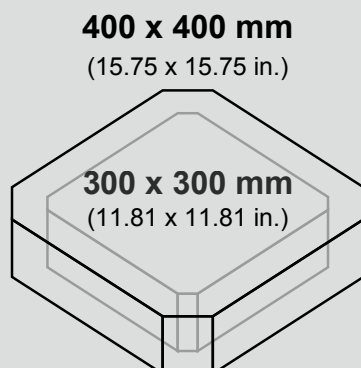
Optional torque acc./dec.

Fast data server

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.



It is not possible to attach the edge locators.

Main Specifications

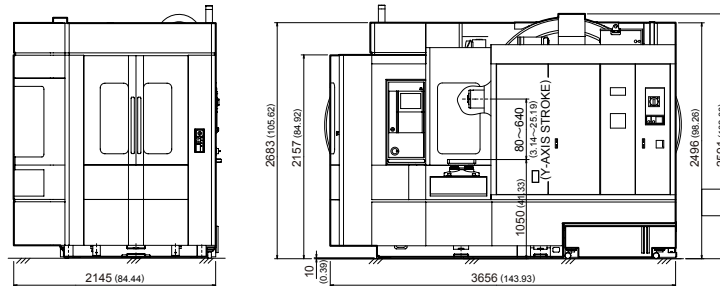
■ Movement & Ranges		
X-Axis Travel	mm (in.)	500 (19.68)
Y-Axis Travel	mm (in.)	560 (22.04)
Z-Axis Travel	mm (in.)	500 (19.68)
B-Axis Travel	deg	360
■ Pallet		
Working Surface	mm (in.)	300 x 300 (11.81 x 11.81)
Loading Capacity	kg (lb.)	250 (551)
Max. Work Size	mm (in.)	ø530 x H760 (ø20.86 x H29.92)
■ Spindle : BT40		
Spindle Speed Range	min ⁻¹	50 ~ 15,000
Spindle Motor Power (Contin. / 10 min.)	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		60 : Drum Magazine
Max. Tool Diameter	mm (in.)	Ø80 (Ø3.14)
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

■ Automatic Pallet Changer		
Type of pallet Change		Turn Table Methods
Pallet Change Time	sec	6.6 : Pallet to Pallet
■ Power Supply		
Input Power	kVA	42 (50 : NC Indexing / opt.)
Voltage	V	AC200 / 220±10%
Frequency	Hz	50 / 60±1
Air Source	MPa	0.54~0.93
Required Air Volume	NL/min	Max.350
■ Machine Size		
Mass of Machine	kg (lb.)	8,300 (18,300) PC2
■ Standard Accessories		
01. Total Enclosure Guard with Ceiling	11. M-Code Counter (9 M-Code)	
02. Synchronized Tapping Function	12. THERMAL MEISTER ™ · Spindle thermal displacement compensation · Feed axis thermal displacement compensation system. (This will be eliminated if you install the optional scale feed back system X, Y & Z-axis)	
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 ManII	
08. Swarf Rear Disposal	18. CD-ROM for Memory Card Operation	
09. Chip Flow	19. Matsuura Safety Specification	
10. Spindle Overload Protection		

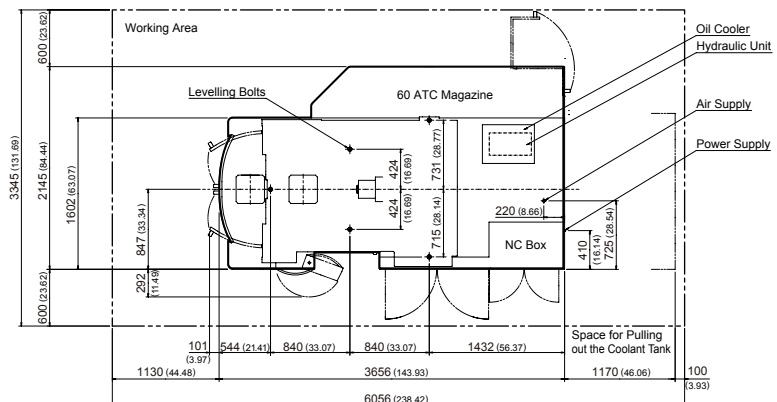
* 2 years spindle warranty

Outline (Standard Specifications)

Unit : mm (in.)



Floor Plan (Standard Specifications)



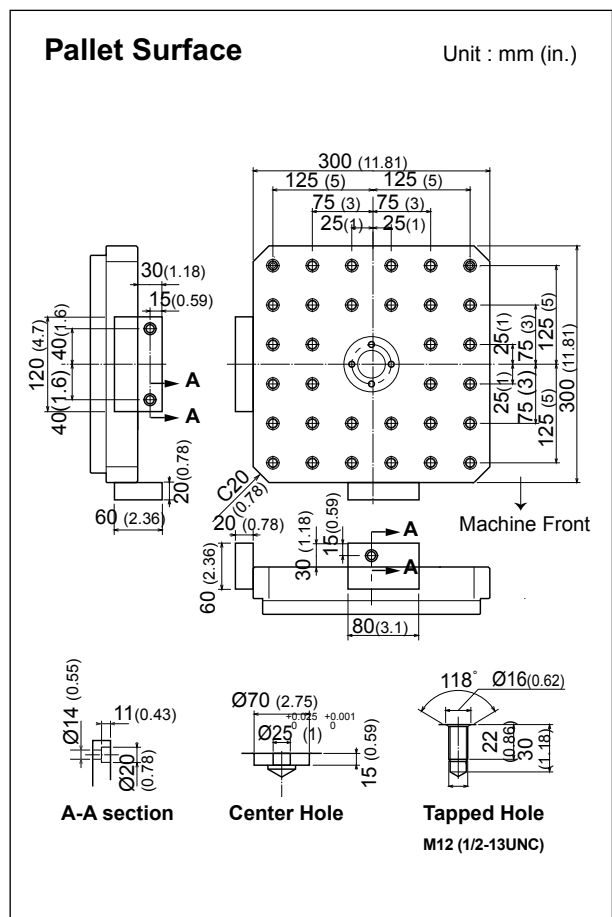
Equipment

○ : Standard ▲ : Option

■ Spindle		
15,000 min ⁻¹ (Spindle Auto Grease Supply)		○
20,000 min ⁻¹ (Spindle Auto Grease Supply)		▲
30,000 min ⁻¹ (Oil-Air)		▲
■ ATC		
60 (Drum Magazine : Fixed Address)		○
120 / 150 / 180 / 210 / 240 (Matrix Magazine 240 base)		▲
120 / 160 / 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)		▲
■ 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 30,000min⁻¹ Spindle is not available.

■ Operation / Maintenance	
AD-TAP Function	○
IPC Function	○
Handy Man II	○
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) 19.6MPa, 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)	▲





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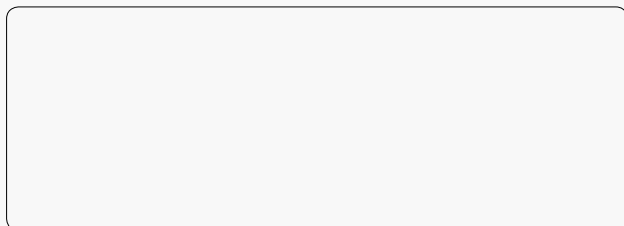
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- Product specifications and dimensions are subject to change without prior notice.
 - The photos may show optional accessories.



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