

V.Plus Series



V.Plus-660



V.Plus-800



R.Plus-800



V.Plus-1000



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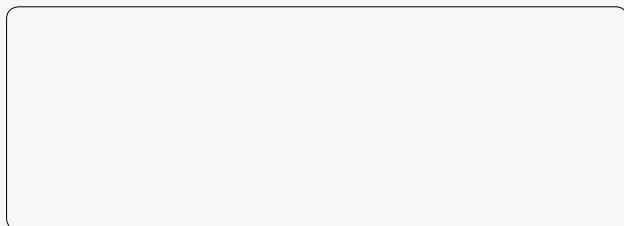
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- Product specifications and dimensions are subject to change without prior notice.
 - The photos may show optional accessories.



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

Pioneers of the Vertical Machining Matsuura introduce Our Latest To

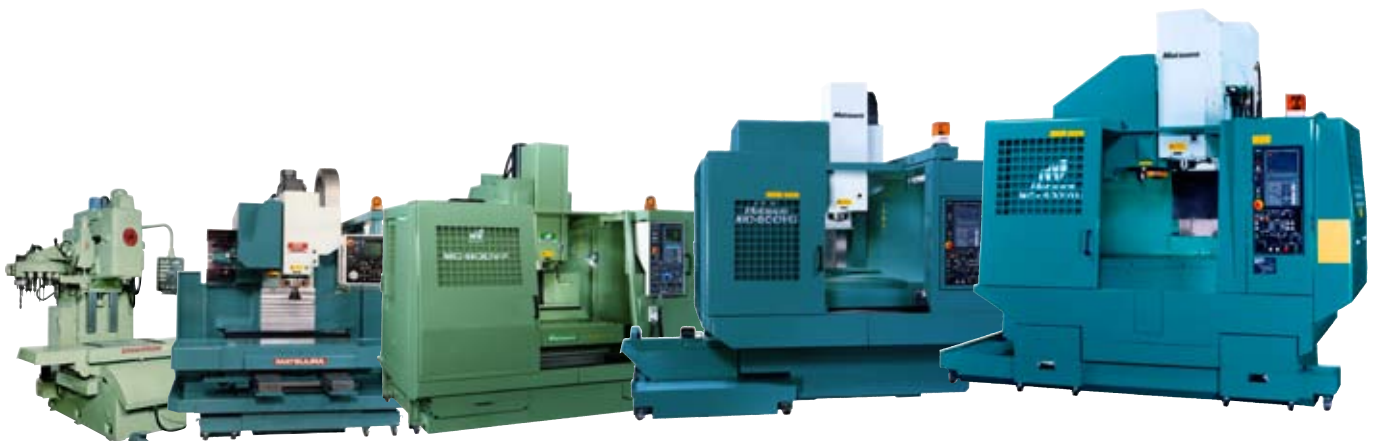
Hand Built to Exacting Quality Standards



The **V.Plus** - 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 Series** 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.

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 15,000 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 recognised as a technology leader in today's world of high performance machining. Matsuura customers demand and receive high accuracy, high speed and reliability from our products, with after sales service and applications support that is second to none in the global machine tool supply industry.



ng Center echnology - *V.Plus Series*

Vertical Machining Center

V.Plus-660

Travel (X/Y/Z)	660/550/500 mm (25.98/21.65/19.68 in.)
Table Size	940 x 550 mm (37.00 x 21.6 in.)
Loading Capacity	500 kg (1,100 lb.)



Vertical Machining Center

V.Plus-800

Travel (X/Y/Z)	800/550/500 mm (31.49/21.65/19.68 in.)
Table Size	1,150 x 550 mm (45.27 x 21.65 in.)
Loading Capacity	500 kg (1,100 lb.)



Vertical Machining Center

V.Plus-1000

Travel (X/Y/Z)	1,020/550/500 mm (40.15/21.65/19.68 in.)
Table Size	1,150 x 550 mm (45.27 x 21.65 in.)
Loading Capacity	500 kg (1,100 lb.)



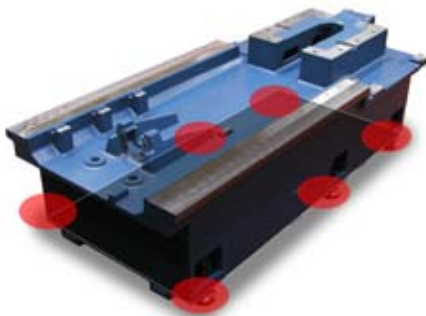
Highly Rigid Construction, Ultra

FEM-Analysis



- Significant ribbing of the bed & column - designed & optimized by FEM analysis.

Stable, Robust Bed



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

Z-Axis Box Slide Way



- 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.

Reliable, High Quality



- Grease lubrication is utilized for all axes ballscrews, & on X & Y linear guides.



- To support longevity, & maintain high accuracy for the life of the machine, parallelism & straightness of the linear guides is set to within 2 μm during manufacture. (Full stroke)

Precision Assembly

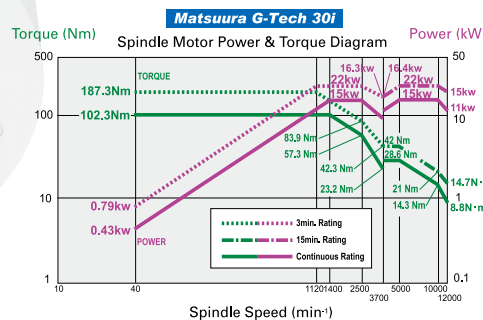
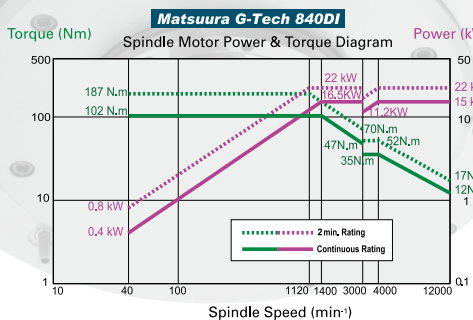
Powerful, Versatile, Unique Matsuura Hi-Tech Spindle



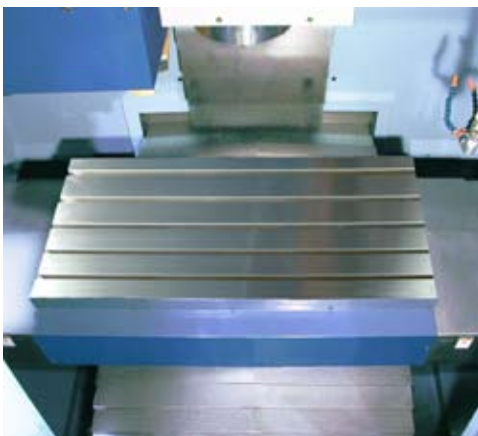
• Spindle Taper	BT40 Double Contact
• Spindle Speed	12,000 min ⁻¹
• Motor Power	15/22kW (30HP)
• Max. Torque	187 Nm/1,120 min ⁻¹

- 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 1 µm (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.
- The standard, double contact of the face & taper, unification of the spindle & drive key features a unique tool clamp

mechanism to improve repeatability and stationary/dynamic rigidity. The clamping force is 14.7kN. This results in excellent material removal rates and surface finish.



Clean and Efficient Swarf Management



- Highly accurate telescopic guards are used on all axes, assuring minimum drag, deflection, vibration & noise, in addition to protecting the guideways from the ingress of swarf & chips.



Chip Flow (Y-axis Front)

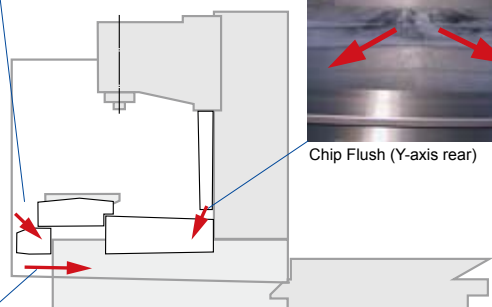


Chip Flow (Y-axis left & right)

- Large bedway ducts ensure the unobstructed free flow of swarf into the chip collection buckets at the rear of the machine.
- Excellent chip flow - front & rear of Y axis telescopic cover.
- Deep side troughs.



Chip Flush (Y-axis rear)



- Chip Bucket
- Coolant Tank (400L)

Latest High Performance Control

Matsuura G-Tech 30i



<FEATURES>

- 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 and Finer Machined Surface

<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



<FEATURES>

- Equipped with the Latest high performance CPU, Windows XP Professional®, graphical user interface, USP port.
- 10.4 inch color LCD, soft keys vertically arranged.
- Faster editing, machine power on/off.

For High Speed and Finer Machined Surface

<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)

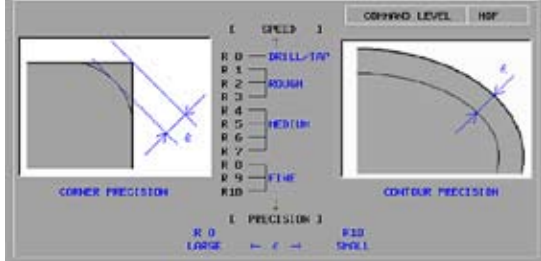
- After compressing a maximum of 50 blocks & engaging the 100 Block Look Ahead function, IZ-1/COMP interpolates & applies to the B-Spline to the nearest point selected.

Windows XP Professional is a Microsoft Corporation Trademark

System “Matsuura G-Tech”

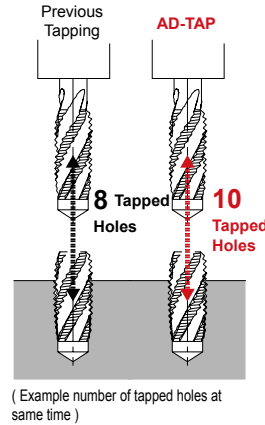
Solution for High Speed and High Accuracy Machining

IPC



- 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. (Patented)

Reliable High Performance

Rapid Traverse (X/Y/Z)	50 / 50 / 30 m/min (1,968.5/1,968.5/1,181.1 ipm)
Feedrate (X/Y/Z)	50 / 50 / 30 m/min (1,968.5/1,968.5/1,181.1 ipm)
Rapid Traverse Acceleration	0.8 G (Average 0.5 G)
Feedrate Acceleration	0.8 G (Average 0.3 G)

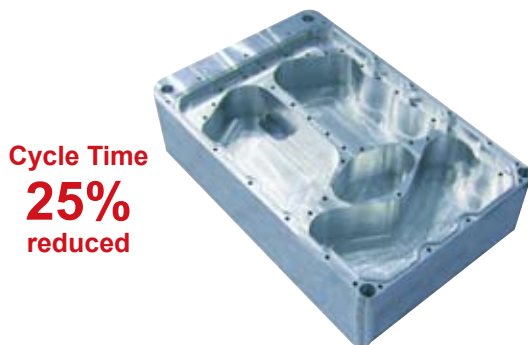


- The compact, digital technology feed motors generate extremely high levels of acceleration. This achieves vast reductions of cutting, positioning & non-cutting times.

Comparison of Rapid Traverse/Feedrate with Previous Model

	Previous Model		V.Plus-800
Rapid Traverse	30 m/min (1,181.1 ipm)	1.6 times →	50 m/min (1,968.5 ipm)
Max. Acc. of Rapid Traverse	0.4G	2 times →	0.8 G
Max. Feedrate	15 m/min (590.5 ipm)	3.3 times →	50 m/min (1,968.5 ipm)
Max. Acc. of Feedrate	0.17G	4.7 times →	0.8 G

Comparison of Cycle Time



Cycle Time
25%
reduced

POCKET MACHINING DEMO

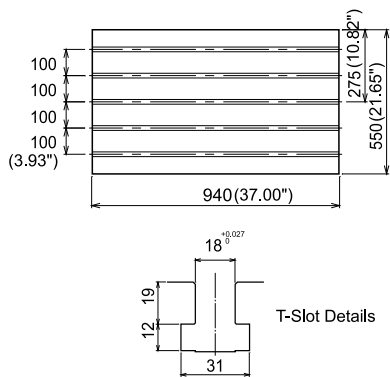
Size	: W295 X D195 X H75 mm (W11.6 x D7.67 x H2.95 in.)
Material	: Aluminum (A7075)
No. of Tools	: 9 tools

Intelligent Functionality : Simple, Quick, Easy to use

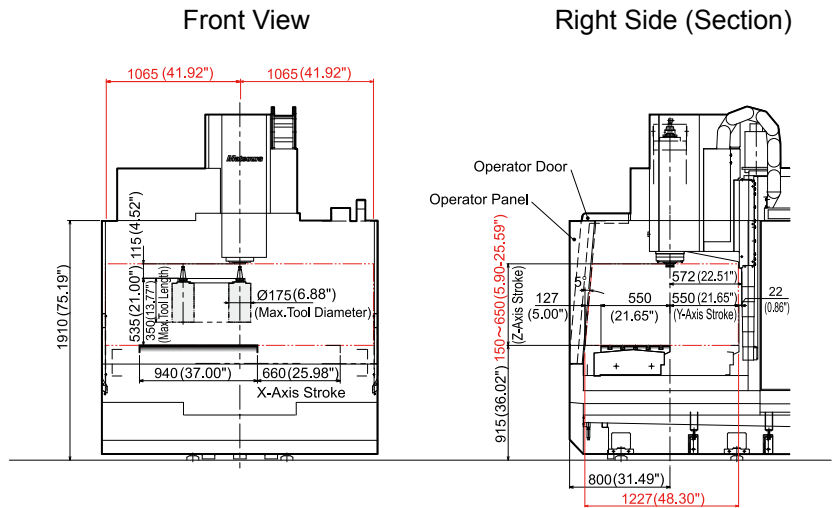
* **Handy Man II** provides major saving by reducing setup, programming, operation and maintenance times. Please refer the special brochure.



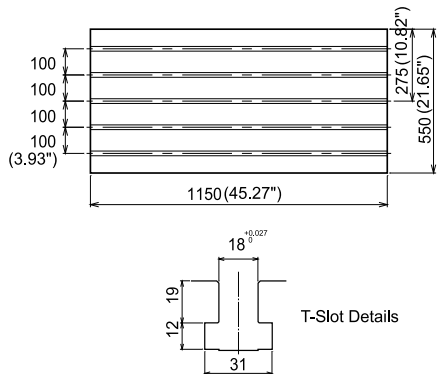
V.Plus-660 Table Surface



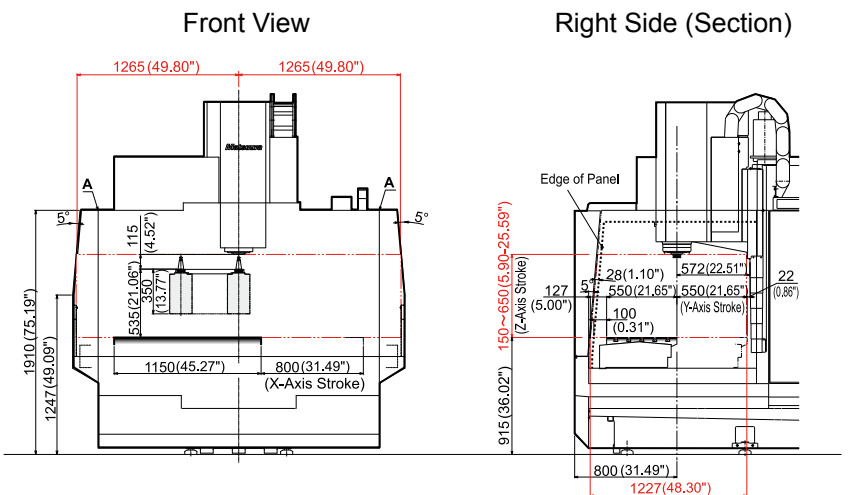
V.Plus-660 Interference



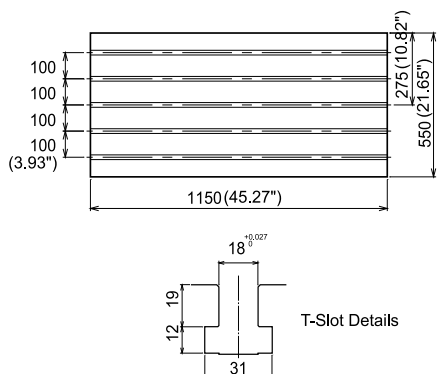
V.Plus- 800 Table Surface



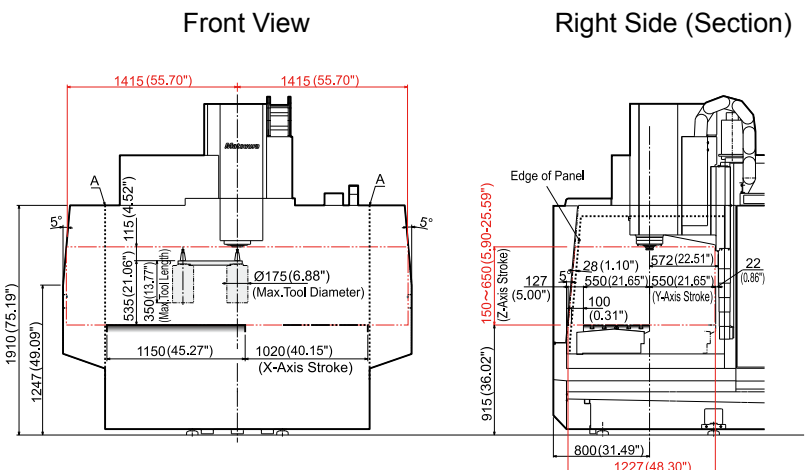
V.Plus- 800 Interference



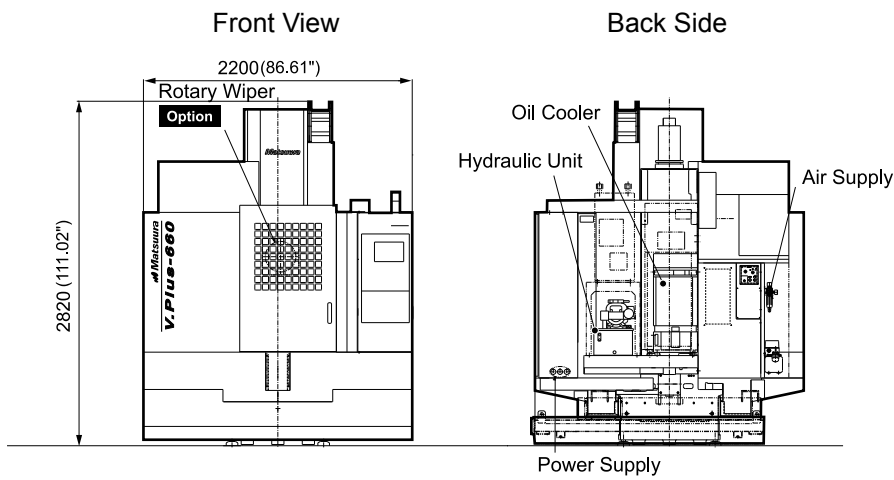
V.Plus-1000 Table Surface



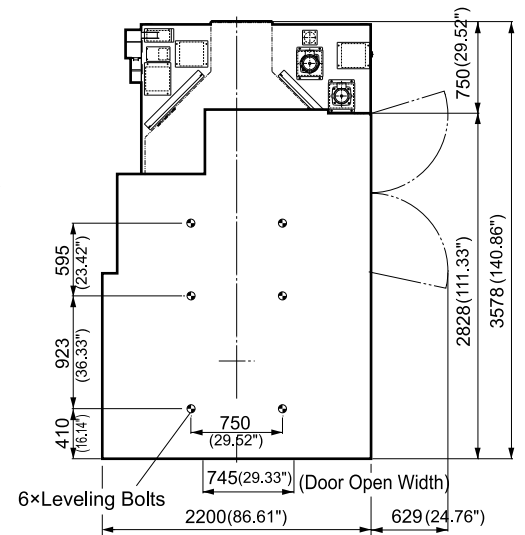
V.Plus-1000 Interference



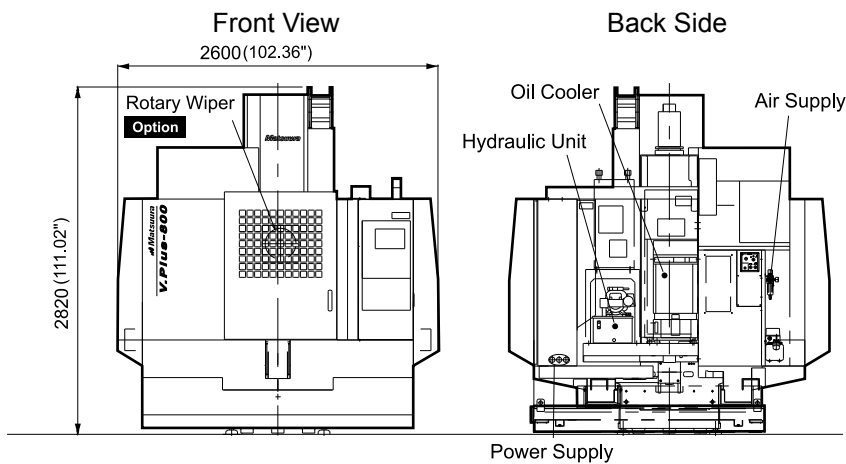
V.Plus-660 Outline



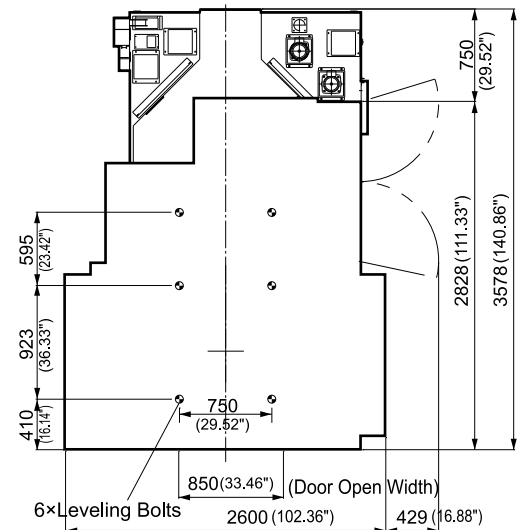
V.Plus-660 Floor Plan



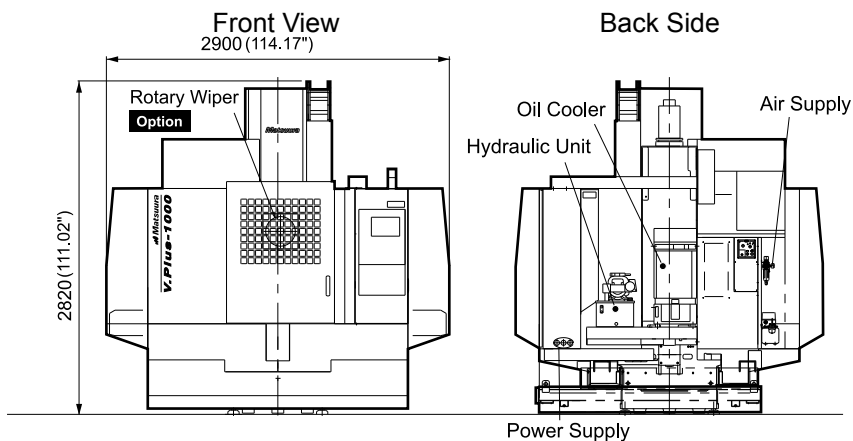
V.Plus- 800 Outline



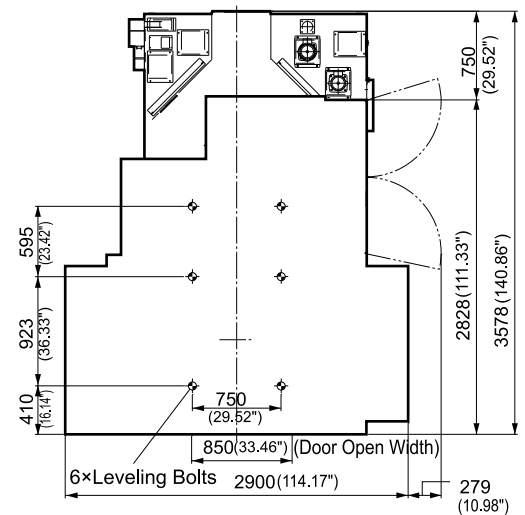
V.Plus- 800 Floor Plan



V.Plus-1000 Outline



V.Plus-1000 Floor Plan



Standard Machine Specifications

		V.Plus-660	V.Plus-800	V.Plus-1000
■ MOVEMENT AND RANGES				
X-Axis Travel	mm (in.)	660 (25.98)	800 (31.49)	1,020 (40.15)
Y-Axis Travel	mm (in.)	550 (21.65)	550 (21.65)	550 (21.65)
Z-Axis Travel	mm (in.)	500 (19.68)	500 (19.68)	500 (19.68)
■ TABLE				
Working Surface	mm (in.)	940 x 550 (37.00 x 21.65)	1,150 x 550 (45.27 x 21.65)	1,150 x 550 (45.27 x 21.65)
Loading Capacity	kg (lb.)	500 (1,100)	500 (1,100)	500 (1,100)
■ SPINDLE				
Speed Range	min ⁻¹	40 - 12,000	40 - 12,000	40 - 12,000
Spindle Taper		7/24 taper JIS BT40	7/24 taper JIS BT40	7/24 taper JIS BT40
Bearing Inner Diameter	mm (in.)	Ø80 (Ø3.14)	Ø80 (Ø3.14)	Ø80 (Ø3.14)
Bearing Lubrication		Grease	Grease	Grease
Motor Power	kW (HP)	15 / 22 (30)	15 / 22 (30)	15 / 22 (30)
Max. Spindle Torque	Nm/min ⁻¹	187 / 1,120	187 / 1,120	187 / 1,120
■ FEEDRATE				
Rapid Traverse (X/Y/Z)	mm/min (ipm)	50,000/50,000/30,000 (1,968.5/1,968.5/1,181.1)	50,000/50,000/30,000 (1,968.5/1,968.5/1,181.1)	50,000/50,000/30,000 (1,968.5/1,968.5/1,181.1)
Feedrate (X/Y)	mm/min (ipm)	1 - 50,00 (0.1 - 1,968.5)	1 - 50,00 (0.1 - 1,968.5)	1 - 50,00 (0.1 - 1,968.5)
Feedrate (Z)	mm/min (ipm)	1 - 30,000 (0.1 - 1,181)	1 - 30,000 (0.1 - 1,181)	1 - 30,000 (0.1 - 1,181)
■ AUTOMATIC TOOL CHANGER				
Type of Tool Shank		JIS B 6339 tool shank 40T	JIS B 6339 tool shank 40T	JIS B 6339 tool shank 40T
Type of Retention Knob		JIS B 6339 pullstud 40P	JIS B 6339 pullstud 40P	JIS B 6339 pullstud 40P
Tool Storage Capacity	pcs.	30	30	30
Max. Tool Diameter	mm (in.)	96 (3.77) 175 (6.88) : When the pockets on both sides are empty	96 (3.77) 175 (6.88) : When the pockets on both sides are empty	96 (3.77) 175 (6.88) : When the pockets on both sides are empty
Max. Tool Length	mm (in.)	350 (13.77)	350 (13.77)	350 (13.77)
Max. Tool Weight	kg (lb.)	10 (22)	10 (22)	10 (22)
Method of Tool Selection		Memory random selection, Bidirectional magazine rotation	Memory random selection, Bidirectional magazine rotation	Memory random selection, Bidirectional magazine rotation
Tool Changing Time	sec.	Tool to Tool : 0.9 : Tool weight less than 5kg Tool to Tool : 1.8 : Tool more less than 5kg	Tool to Tool : 0.9 : Tool weight less than 5kg Tool to Tool : 1.8 : Tool more less than 5kg	Tool to Tool : 0.9 : Tool weight less than 5kg Tool to Tool : 1.8 : Tool more less than 5kg
	sec.	Chip to Chip : 2.8 : Tool weight less than 5kg	Chip to Chip : 2.8 : Tool weight less than 5kg	Chip to Chip : 2.8 : Tool weight less than 5kg
■ POWER SUPPLY				
Electrical Power Supply	kVA	43	43	43
Compressed Air Supply	MPa	0.54 - 0.93	0.54 - 0.93	0.54 - 0.93
Coolant tank Capacity	L (gal.)	400 (105)	400 (105)	400 (105)
■ MACHINE SIZE				
Mass of Machine	kg (lb.)	6,000 (1,300)	6,000 (1,300)	6,000 (1,300)
■ CONTROL				
Control System		Matsuura G-Tech 30i Matsuura G-Tech 840DI	Matsuura G-Tech 30i Matsuura G-Tech 840DI	Matsuura G-Tech 30i Matsuura G-Tech 840DI
■ STANDARD ACCESSORIES				
01. Total Enclosure Guard & Top Side Cover	11. 9 Sorts of M-Code Counters			
02. ATC Magazine Cover	12. Work Light			
03. ATC Auto Door	13. Standard Mechanical Tools & Tool Box			
04. Synchronized Tapping Function	14. Machine Color Paint			
05. AD TAP Function	15. Levelling Pads & Bolts			
06. IPC Function	16. Chip flow (Y-axis Cover & Side Trough)			
07. Spindle Oil Cooler	17. Coolant Nozzle Unit			
08. Coolant unit (Chip Rear Disposal)	18. Handy Man II Y/F			
09. Lubrication Unit	19. Matsuura Safety Specification			
10. Spindle Overload Protection				

Standard NC Specifications

Matsuura G-Tech 30i

■ CONTROLLED AXES	
Controlled Axes	3-axes : X/Y/Z
Simultaneous All-axes Expansion	Linear interpolation, Positioning
■ PROGRAMMING METHOD	
Least Input Increment	0.001mm (0.0001 in.)
Least Command Increment	0.001 mm
Max. Programmable Dimensions	±99999.999 mm (±9999.9999 in.)
Absolute / Incremental Programming	G90/G91
Decimal Point Input / Computer Type	Decimal Point Input
Inch / Metric Selection	G20/G21
■ INTERPOLATION	
Positioning	G00
Linear Interpolation	G01
Circular Interpolation	G02/G03 : (CW / CCW)
Helical Interpolation	G02/G03 : (CW / CCW)
NANO Interpolation	
■ FEED	
Cutting Feed Rate	F direct command (mm/min or in./min)
Dwell	G04
Handle Feed	Manual Pulse Generator : 1 set 0.001/0.01/0.1 mm /1 scale (0.0001/0.001/0.01 in./1-scale)
Manual Feed	Rapid / Jog Feedrate.
Automatic Acc./Dec.	Rapid & Cutting Feed : Linear acc./dec.
Rapid Feed Override	0, 1, 25, 50 & 100%
Feed Rate Override	0 - 200%, 10% each
Override Cancel	
■ PART PROGRAM STORAGE & EDIT	
Program Memory	(512 KB) 1,280 m
Expansion of Number of Programs (1000 pcs.)	
Part Program Storage & Editing	
Background Edit Function	
■ OPERATION & DISPLAY	
Operator's Panel	Display : 10.4 in. (LCD Color) Full Key Operation : Full Key, 10+2 Software Key
Run Hour/Parts Number Display	
Back Ground Graphic Function	
■ I / O FUNCTION & DEVICES	
Reader Punch Interface (1,2 ch.)	RS-232C
Internalized Ethernet	100/10 BASE-T
DNC Operation, Data Input/Output	Memory Card, Compact Flash Card
■ STM Function	
Spindle Function (S Function)	S 5 Digits Command
Spindle Speed Override	50 - 120% (Increment 10%)
Tool Function	T4 Digits Command
Miscellaneous Function	M3 Digits Command

■ TOOL OFFSET	
Tool Offset Memory C	Offset for figure & Wear (D/H Code)
Tool Offset Number Addition	Total 99
■ COORDINATE SYSTEM	
Manual Reference Point Return	
Reference Point Return Check	G27
Coordinate System Setting	G92
Automatic Coordinate System Setting	
2nd Reference Point Return	G30
Work Coordinate System Setting	G54-G59
■ OPERATION SUPPORT FUNCTION	
Label Skip	
Single Block	
Optional Stop	
Optional Block Skip	
Dry Run	
Machine Lock	
Mirror Image	
Z-Axis Command Neglect	
Feed Hold	
Cycle Start	
Data Protection Key	
Help Function	
■ PROGRAMMING SUPPORT FUNCTION	
Circular Interpolation by Radius R	
Canned Cycle	G73, G74, G80-G87, G89
Sub Program Calling (Quadruple)	
Exact Stop Check	G09, G61
Exact Stop Mode	G61, G64
Programmable Data Input	G10
Automatic Corner Deceleration	
Custom Macro	
Dynamic Graphic Display	
Rigid Tap	
IZ-1/15F	
■ AUTOMATIC SUPPORT FUNCTION	
Skip Function	G31
■ SAFETY / MAINTENANCE	
Emergency Stop	
Over Travel	
Stored Stroke Check1	
Self Diagnosis Function	
Stroke Limit Check Before Move	

The specifications of the **Matsuura G-Tech 30i** differ slightly in detail to the **Matsuura G-Tech 840DI**. Please call for details.

Matsuura's Unique & Patented All-in-One Maximum Performance & Sustain

Twin Pallet, Vertical Machining Center

R.Plus-800

Matsuura's unique, proven & extremely simple "Rapid Arm" pallet changer mechanism - the ***R.Plus-800*** is the latest incarnation of our outstanding 800 sized machine series.

Pallet Size	860 x 530 mm (33.85 x 20.86 in.)
Loading Capacity	300 kg (660 lb.)
Pallet Changing Time	11 sec
Travel (X/Y/Z)	800 / 550 / 500 mm (31.49/21.65/19.68 in.)

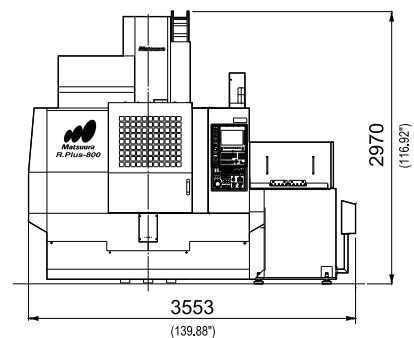


APC Enhanced Reliability

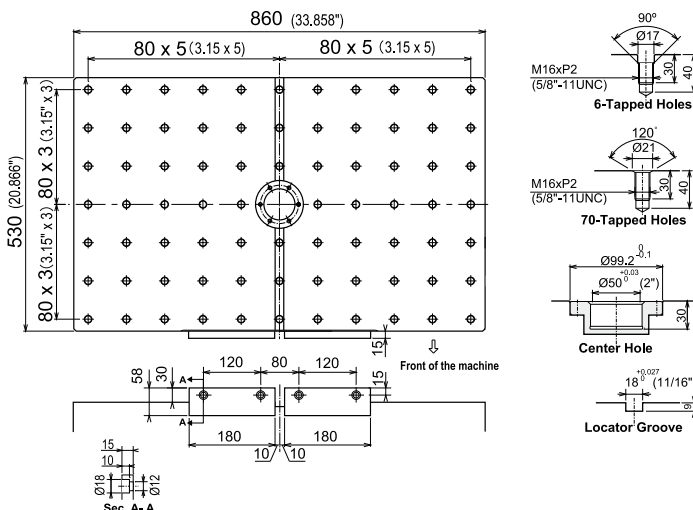
Matsuura's Unique & Patented APC

- For applications requiring increased levels of productivity, the twin pallet **R.Plus-800** offers an extremely compact, efficient & cost effective solution.
- Matsuura's acclaimed APC functionality is achieved by a simple combination of slideway traverse & rotary arm movement. This unique design is patented in Japan, the USA , Korea, Taiwan & 6 European Countries.
- For maximum rigidity & sustained clamping accuracy, pallets are located onto 4 precision taper cones.
- For absolute safety, the operator is separated from the set-up station enclosure by means of a protection cover. Auto safety door system for the work station is available, as standard.
- APC control panel is simple & easy to use.

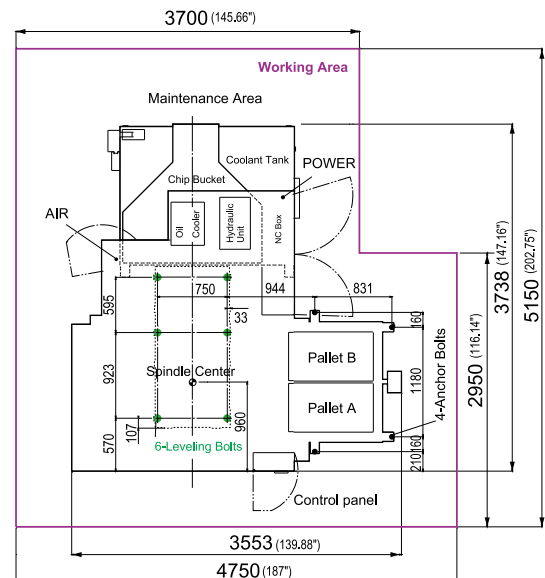
R.Plus-800 Outline



R.Plus-800 Table Surface



R.Plus-800 Floor Plan



Options (1)

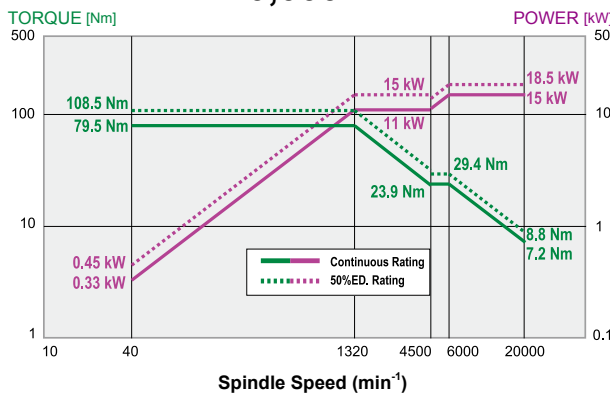
Spindles

Oil & Air Lubrication

Spindle Speed	20,000 min ⁻¹
	30,000 min ⁻¹

Matsuura G-Tech 840Di
Matsuura G-Tech 30i

20,000 min⁻¹



20,000 min⁻¹ Spindle Motor Power & Torque Diagram

ATC

Number of Tools	40 tools
	80 tools



80 tool Magazine

Operation / Maintenance

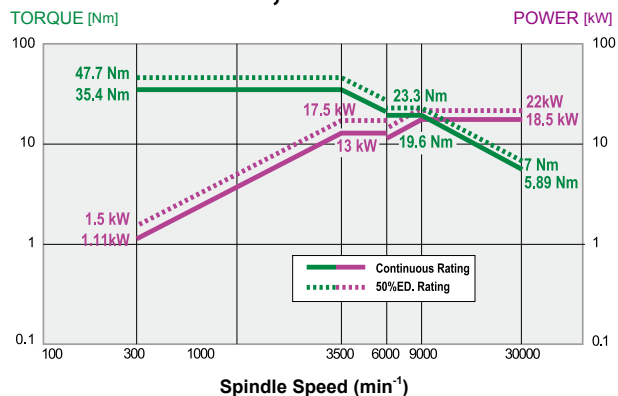
• Coolant Flow Checker
• 8 Sets of Extra M Function
• Weekly Timer
• 3 Color Status Light (red, green, yellow)
• Spindle Run Hour Meter
• Automatic Operation Run Hour Display unit
• Movable Manual Pulse Generator
• Mist Separator Unit
• Rotary Wiper (Air Supply System)
• Coolant Flow Checker
• Auto Grease Supply Unit (X/Y)

High Accuracy Control

• Scale Feedback System (X/Y, Z, X/Y/Z)
• Thermal Displacement Compensation Function

Matsuura G-Tech 840Di

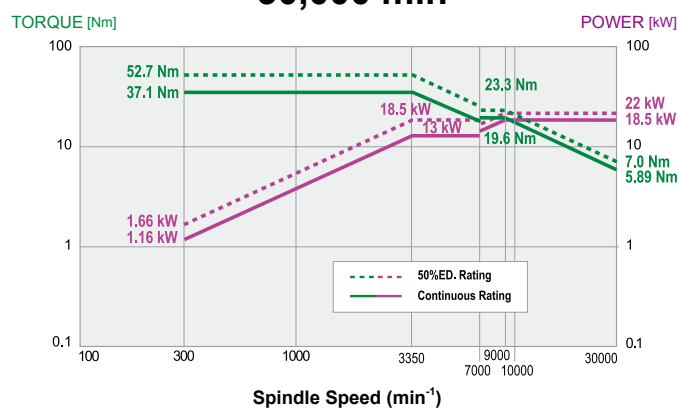
30,000 min⁻¹



30,000 min⁻¹ Spindle Motor Power & Torque Diagram

Matsuura G-Tech 30i

30,000 min⁻¹



30,000 min⁻¹ Spindle Motor Power & Torque Diagram



8 Sets of Extra M Function



Weekly Timer



Rotary Wiper



Auto Grease Supply Unit (X/Y)

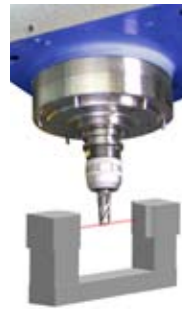


Scale Feedback System

Options (2)

Tool Management / Workpiece Measurement

- | |
|---|
| • Touch Type In-Process TLM Measurement
+ Broken Tool Detection + Auto Centering |
| • In-Process Measurement & Broken Tool Laser Detection |
| • Touch probe |



In-Process Measurement
+ Broken Tool Laser
Detection



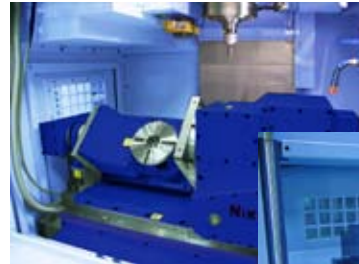
Touch Type In-Process TLM
Measurement
+ Broken Tool Detection
+ Auto Centering



Touch Probe

Others

- | |
|---|
| • High Column (+150 mm) |
| • Z-axis Stroke Extension (150 mm) |
| • Additional Axis (4/5 th Table) |



Example of 4/5th Table Installing

Coolant /Swarf Management

- | |
|--|
| • Coolant Thru
(2MPa/5MPa*/7MPa*) :*with Coolant Temperature Controller |
| • External Nozzle (2MPa/5MPa) |
| • Coolant Temperature Controller (100L/200L) |
| • Chip Flush System |
| • Spiral Chip Conveyor (Right & Left) |
| • Lift-Up Chip Conveyor (Hinge, Drum filter) |
| • Chip Bucket |
| • Air Blow for Chip Swarf Removal |
| • Workpiece Cleaning Gun |



Spiral Chip Conveyor (Right & Left)



Workpiece Cleaning Gun



High Pressure Coolant Unit

