Matsuura

ES-550V

Vertical Machining Center

New!

High Speed
Reliability
User Friendly

Traverses (X/Y/Z)	: 550 / 410 / 460 mm (21.6/16.1/18.1 in.)
Table Size	: 860 x 400 mm (33.8 x 15.7 in.)
Table Loading Capacity	: 400 kg (880 lb.)
Spindle Taper	: BT40 BIG PLUS
Spindle Speed Range	: 50 - 15,000 min^{-1}
Rapid Traverse(X/Y/Z)	: 30 m/min (1,181 ipm)
Tool Storage Capacity	: 30 tools

New England

Arizona

California

Michigan

Colorado

Southeast

Chicago

Methods & Matsuura Partnership

Japan

Intelligent Solutions for Manufacturing

The benefits of high speed machining can be phenomenal; so can the costs if you did not purchase a total solution. Methods/Matsuura now introduce the "Evolution Series" of cost-effective vertical high speed machining centers. These machines may change the way you approach almost every project which enters your shop. More importantly, they could open hundreds of new opportunities.

The ES-550V is an amazingly compact, easy-to-use high speed machining center that is very economically priced. As with all Matsuura machining centers quality and reliability are emphasized to ensure you the utmost in performance for years to come. The ES-550V is a revolutionary machine brought to you by two of the most experienced names in CNC machine tools, Matsuura Corporation and Methods Machine Tools, Inc. When you own a Matsuura machining center you can be assured you have one of the world's finest CNC machine tools on your floor supported by companies in partnership for over 3 decades. Methods/Matsuura realize the real benefit to you is predicated on the strength of this unique and long-standing relationship now managed by third generation ownership, something unique in this fast-paced and ever-changing global environment.

Far more than a sales and marketing arm, Methods' national staff of engineers actually create specifications and design parameters via specific Product Committees to focus on the development of core and market-driven products for the North American market. The Evolution Series is one of these products. Methods has six regional tech centers in addition to corporate headquarters in Massachusetts. All direct outlets are networked in their corresponding engineering departments with the same CAD/CAM systems for application driven projects from cycle time analysis to full turnkeys plus sales, service, parts and training. Additionally, Methods uses a network of carefully selected and proven machine tool dealers for comprehensive sales, service and support.

Take a closer look at the ES-550V and come to realize why long-term

The ES-550V provides an extremely cost-effective entry point to Matsuura high speed machining

The ES-550V offers all of the attributes for which Matsuura machines are renowned, namely sustained high accuracy, quality and outstanding performance.

1. High Speed

Matsuura's unique, in-house designed and manufactured high speed spindle 15,000 min^{-1} as standard.

The Matsuura G-Tech 840Dls based on Yaskawa SIEMENS is available for extremely fast data processing.

Tool Changing is achieved within 1.2 seconds while total reliability is ensured thanks to Matsuura's unique tool changing mechanism.

Latest servo motor technology enables rapid traverses of 30 m/min (1,181 ipm) to be achieved.

2. Reliability

Robust, heavily ribbed castings, wide section ways and the use of traditional hand scraped mating faces sustaine the machine's accuracy & high reliability.

3. User Friendly

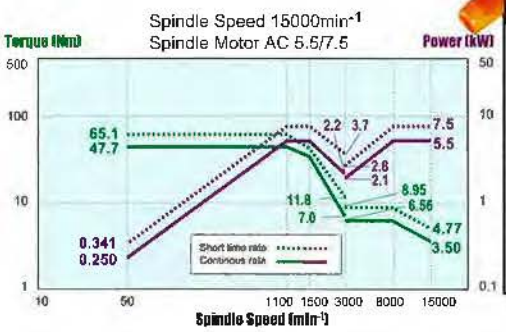
The powerful graphical user interface of the Handy Man II system, supplied as standard, provides major savings by reducing set-up, programming, operation and maintenance times.

Matsuura G-Tech 840Dls based on Yaskawa SIEMENS

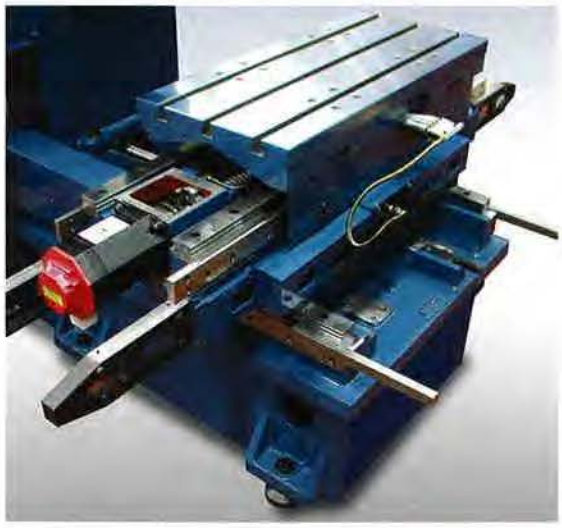
1. High Speed

Matsuura Hi-Tech 15,000 min^{-1} Spindle

The standard 15,000 min^{-1} spindle / motor arrangement provides 65 Nm of low end torque - ideal for cast steel or forged components typically found in the automotive sector. The benefits of high speed machining are realised when machining thin walls and small cavities, or when a superior surface finish is required.



CUTTING PERFORMANCE		1 - SPINDLE SPEED 2 - FEED RATE 3 - REMOVAL RATE			
15,000 min^{-1}	A5052	Ø80 FACE MILL W 70mm D 3mm 1 8,000 min^{-1} 2 4,000 mm/min 3 840 cc/min	Ø25 END MILL W 22mm D 6mm 1 15,000 min^{-1} 2 3,700 mm/min 3 488 cc/min	M30xP3.5 TAP 1 120 min^{-1} 2 420 mm/min	Ø27 DRILL 1 1,500 min^{-1} 2 450 mm/min 3 257 cc/min
	S45C	Ø80 FACE MILL W 70mm D 2mm 1 1,100 min^{-1} 2 1,700 mm/min 3 238 cc/min	Ø20 END MILL W 2 mm D 30mm 1 7,000 min^{-1} 2 2,800 mm/min 3 168 cc/min	M20xP2.5 TAP 1 100 min^{-1} 2 250 mm/min	Ø27 DRILL 1 1,500 min^{-1} 2 240 mm/min 3 137 cc/min



Fast Digital Drive

Impressive performance is achieved by the latest, highly compact digital drives used on the slideways.

Given their very fast acceleration capabilities, the axes actually achieve in practice their programmed

- Rapid traverse, 30 m/min (1,181 ipm)
- Cutting feedrate 15m/min (590.6 ipm)

Fast & Reliable Tool Changer

With tool-changing taking less than 1.2 seconds, you can appreciate that little time is wasted ES-550V.

Being of simple, yet ingenious design, the patented tool changer is also extremely reliable, utilising a motor driven cam mechanism to actuate directly the double gripper arm.

2. Sustained Accuracy & High R

Solid Machine Bed

Based upon well proven and established machine tool design principles, the bed and column castings incorporate exceptionally heavy ribbing for maximum rigidity. Widely spaced, rectangular section column guideways provide maximum support for the headstock which itself is of substantial proportions having a large width/length ratio. The large linear packs utilised on the table slideways enable traverses up to 30 m/min (1,181 ipm) to be achieved while supporting components up to 400 kg (880 lb.).

ES-550V internal ribbing construction

Swarf Removal

In designing a high speed machining center, careful consideration must be given to the high rate at which swarf is produced. Totally enclosed, steel guarded slideways and large bedway ducts ensure unobstructed free flow of swarf into the coolant pan or optional one piece conveyor system.

These important features have been incorporated into the ES-550V to help eliminate swarf associated problems.

eliability

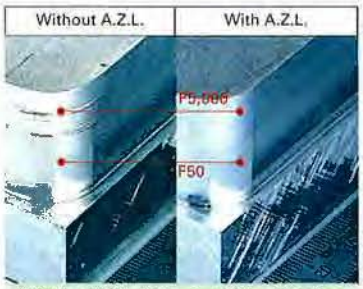
Matsuura G-Tech 840DIs

The Matsuura System offers a high speed processing solution with network functionality. While providing backward compatibility with Matsuura's earlier control systems, working in combination with the digital drive technology, offers faster machining feedrates and higher levels of accuracy.
Developed by Matsuura using the experience gained from many thousands of high speed installations throughout the world, this unique combination of hardware and software, coupled with the machines' new high performance servo system, ensures that extremely high accuracy profiling at speeds up to 15 m/min can be achieved and maintained.

High Speed Cutting Program Support Function

Advanced Zee-Lag Y

Matsuura's original High Speed control function that compensates for any geometric error between the machining program and the actual machined profile.



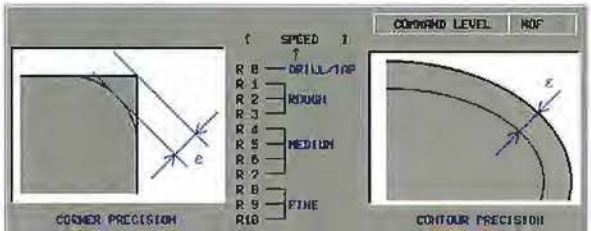
F5,000 and F50 with level variation within 2 µm

OPTION **IZ-1/COMP**

This is suitable for the minute division program like more complex & precision parts. Each block in the program are compressed by high-speed, and it is converted into a smooth B-spline curve.

IPC : Intelligent Precision Control

For Die & Mould industry applications, Matsuura's proven & pioneering software is recommended. The name & certain functions of this software may differ, depending on your choice of NC control. When utilizing this software, setting the required part accuracy level is quick, simple & user friendly, allowing you to prioritize precision against speed.



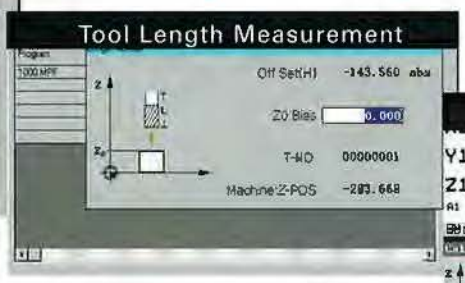
3. User Friendly

Handy Man II

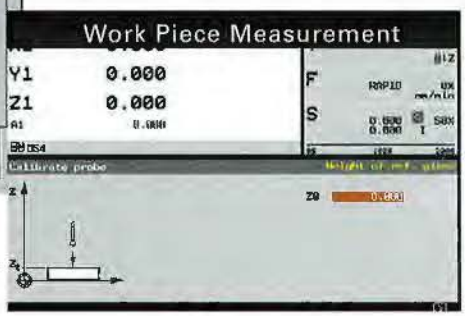
Intelligent Functionality : Simple, Quick, Easy to use

1. Easy Set-Up

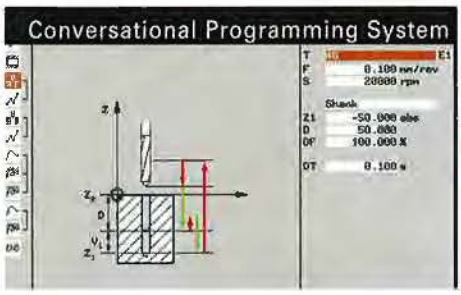
- A tool offset list can be generated and displayed from any program. As this function is linked to the ATC and TLM operations, tool setting time can be significantly reduced and errors practically eliminated.



- Simple, on screen instructions lead you through the tool measurement process. The data generated is automatically stored in the offset value list.

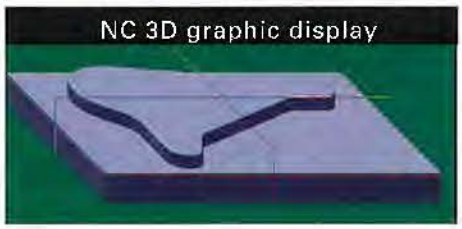


- The center of any workpiece can be detected and measured by following the on screen instructions. The workpiece data will automatically be set in the co-ordinate value list.

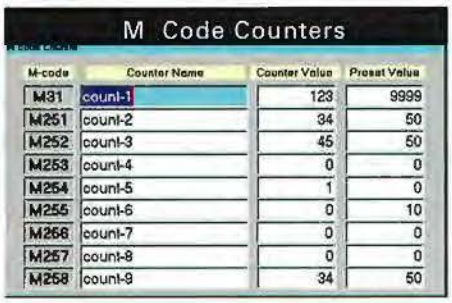


2. Easy Programming

- Machining programs can be automatically created by entering data in response to on screen prompting. Once entered, this data can be displayed as a 3D solid model.



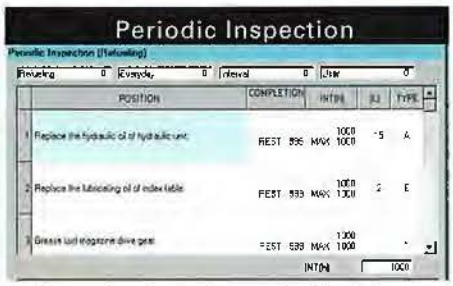
- Real time on screen simulation of a work piece being machined can be most useful in terms of verifying programs/cutter paths before applying the program to the actual component. Also, work in progress can be monitored if visibility in the enclosure is reduced by coolant.



M-code	Counter Name	Counter Value	Preset Value
M31	count-1	123	9999
M251	count-2	34	50
M252	count-3	45	50
M253	count-4	0	0
M254	count-5	1	0
M255	count-6	0	10
M256	count-7	0	0
M257	count-8	0	0
M258	count-9	34	50

- Nine sets of M code counters are supplied for counting workpieces, tool life etc,etc.

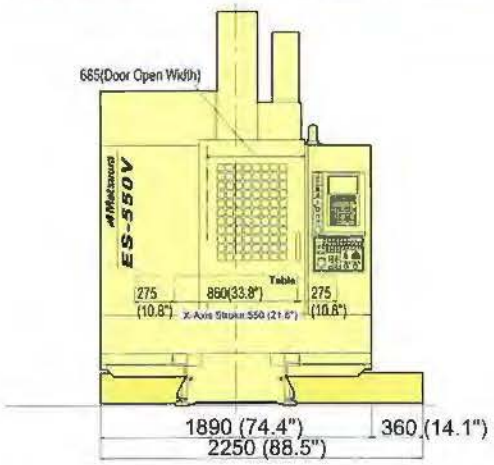
3. Operation Support

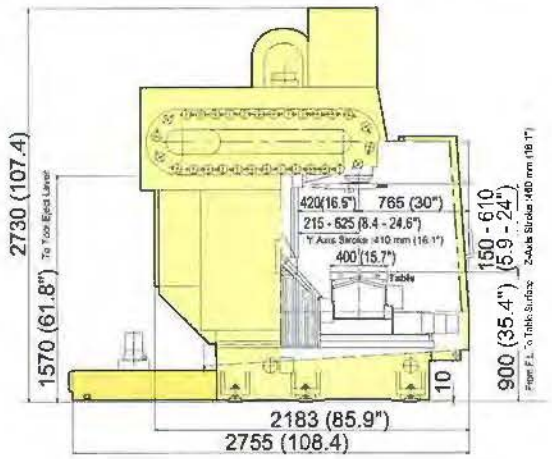


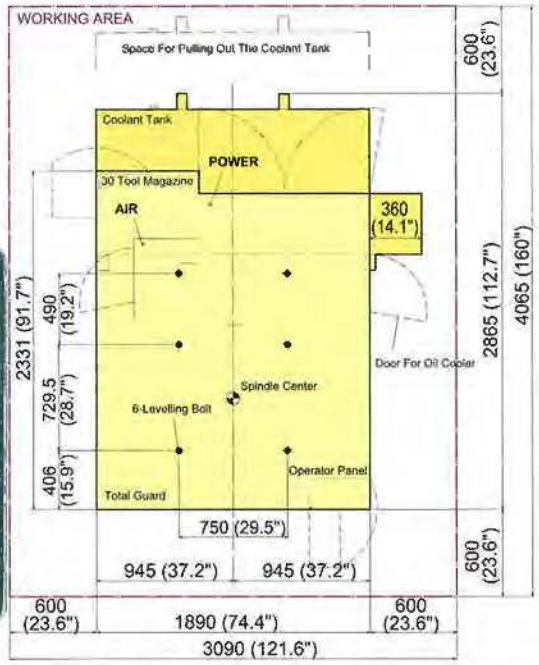
- General periodic inspection & oil inspec-

4. Easy Maintenance

ES-550V Outline & Floor Plan







ES-550V Standard Machine Specifications

TRAVEL

X-axis	550 mm (21.6 in.)
Y-axis	410 mm (16.1 in.)
Z-axis	460 mm (18.1 in.)

TABLE

Working Surface	860 x 400 mm (33.8 x 15.7 in.)
Loading Capacity	400 kg (880 lb.)

SPINDLE

Speed Range	50 - 15,000 min^{-1}
Bearing Inner Diameer	ø70 mm (ø2.7 in.)
Bearing Lubrication	Grease
Motor Power :cont./30 min.rating	5.5 / 7.5 kW (10 HP)
Motor Torque	65.1 Nm / 1,100 min^{-1}

FEEDRATE

Rapid Traverse	:X/Y/Z	30,000 mm/min (1,181.1 ipm)
Feedrate	:X/Y/Z	1-30,000 mm/min (0.3-1,181.1 ipm)

AUTOMATIC TOOL CHANGER

Type of Tool Shank	JIS B 6339 toolshank 40T
Type of Retention Knob	JIS B 6339 pullstud 40P
Tool Storage Capacity	30
Max. Tool Diameter	96 mm (3.7 in.)
*When both pockets are empty	175 mm (6.8 in.)
Max. Tool Length	300 mm (11.8 in.)
Max. Tool Mass	6 kg (13.2 lb.)
Tool Change Time :Chip to Chip	1.2 sec
	3.0 sec

POWER SOURCES

Electric Power Supply	AC 200/220V
Power Requirement	22 kVA
Compressed Air Supply	0.54 - 0.93 MPa (75.6 - 130,2 psi)
Volume of Compressed Air to be Supplied	350 NL/min (92 gpm)

TANK CAPACITY

Coolant Tank	300 L (79 gal.)

ACCURACY

Positioning : X/Y/Z : Full Stroke	+/- 0.002 mm (0.00008 in.)
Repetabikity : X/Y/Z : Full Stroke	+/- 0.001 mm (0.00004 in.)

NC CONTROL

Control System	Matsuura G-Tech 840DIs

Standard Accessories

- Total Enclosure Guard
- Workpiece Cleaning Gun (Machine Side)
- Synchronised Tapping Function
- Lubrication Unit
- Coolant Unit
- Spindle Overload Protection
- 9 Sorts of M-code Conters
- Cycle end annunciation light
- Work Light
- Standard Mechanical Tools & Tool Box
- Machine Color Paint
- Leveling Pads & Bolts

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