

# ***GENOS M Series***

***GENOS M460-VE-e***

***GENOS M560-V-e***

***GENOS M660-V-e***

Vertical Machining Centers



# GENOS M Series

Vertical Machining Centers

**GENOS M460-VE-e GENOS M560-V-e GENOS M660-V-e**



**GENOS technology carries Okuma's genetic heritage and takes you to the leading edge of global competition.**

With machining accuracy that exceeds expectations, high rigidity that achieves improved productivity, and ease of use from the user's perspective.

Machine shops around the world long for machines like this.

Okuma has faced this challenge head on, resulting in the high quality GENOS global machine.

Okuma's technical genes are found in cutting edge manufacturing that seeks to balance high quality and low cost.



**GENOS M460-VE-e**



**GENOS M560-V-e**



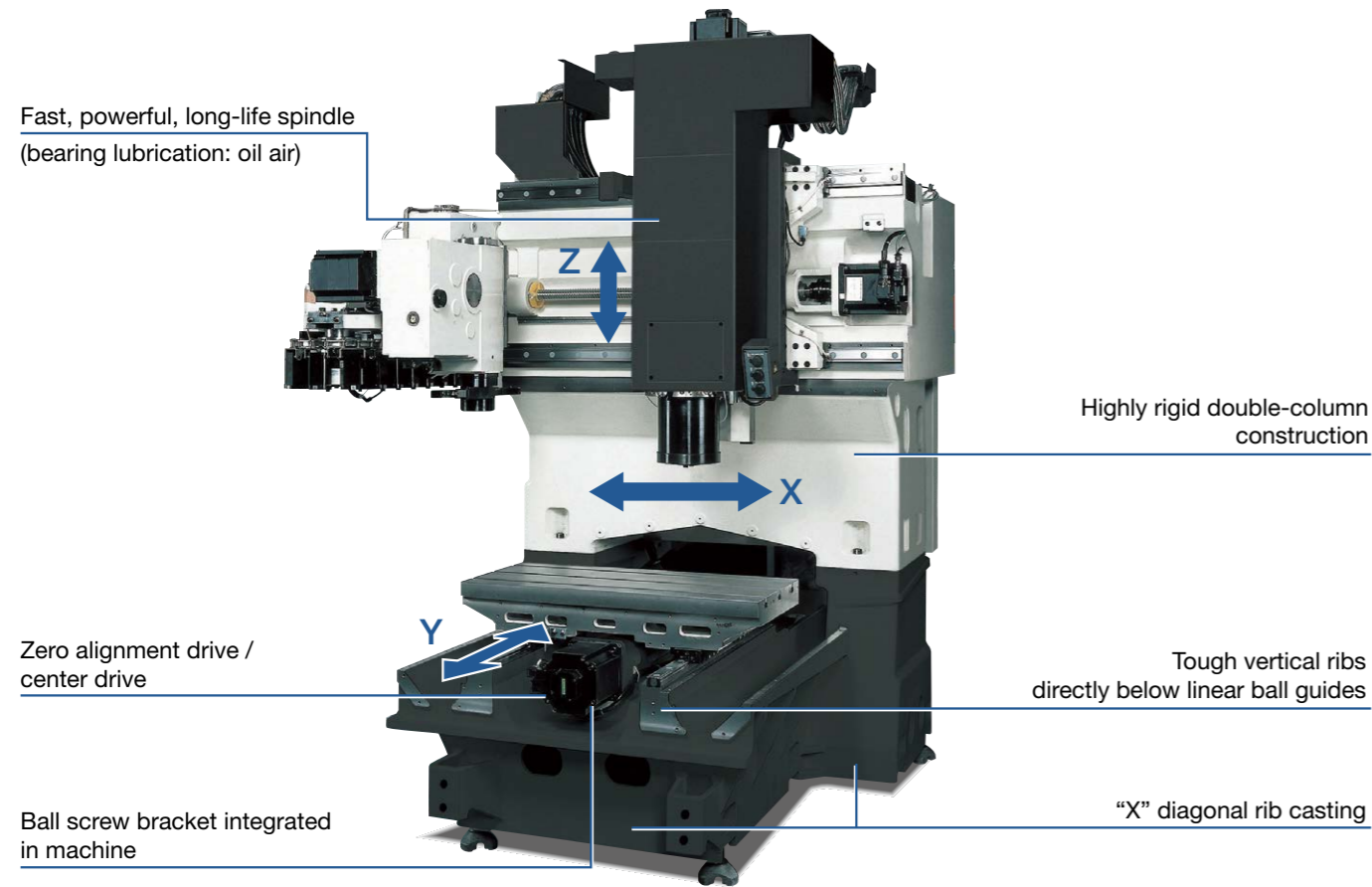
**GENOS M660-V-e**

Photos used in this brochure include optional equipment.

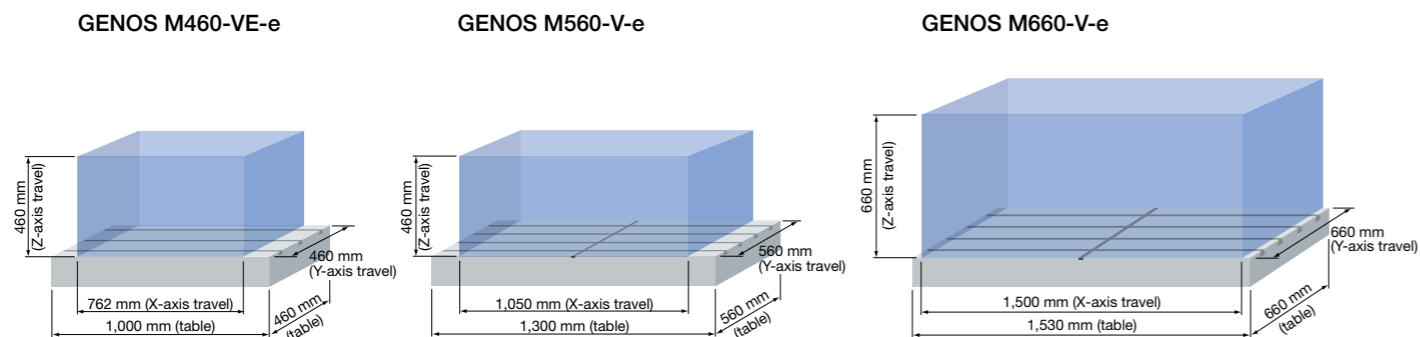
# Highly rigid construction for productivity that exceeds expectations

## Same double column structure as on the best-selling MB-V series

Maximum performance is achieved by limiting the options with the same high-rigidity structure.



## Table size / machining area



## Fast machine movements reduce non-cutting time

Non-cutting time reduced 35% from previous machine with maximum acceleration/deceleration speeds of 0.7 G and high-speed rapid traverse.

### Non-cutting time

35% less  
(Compared with previous machine)

### Rapid traverse

X, Y: 40 m/min, Z: 32 m/min

### ATC time

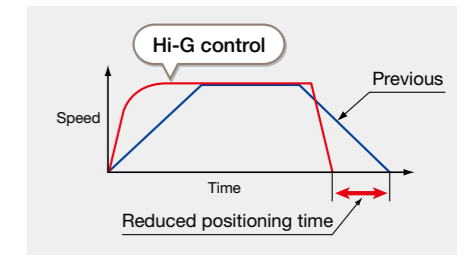
T-T<sup>\*1</sup>: 1.5 sec  
 CTC min<sup>\*2</sup>: 3.4 sec (M460-VE-e)  
 3.8 sec (M560-V-e)  
 4.2 sec (M660-V-e No. 40 spindle)

\*1. M460-VE-e, M560-V-e and M660-V-e models with No. 40 taper spindles  
 MAS standard measurements (formerly JIS B 6013)

\*2. ISO 10791-9 (2001) (JIS B 6336-9) measurements

### Hi-G Control

Acceleration/deceleration during positioning is controlled by math functions linked to motor speed/torque characteristics, to provide both machine accel/dec and vibration control.

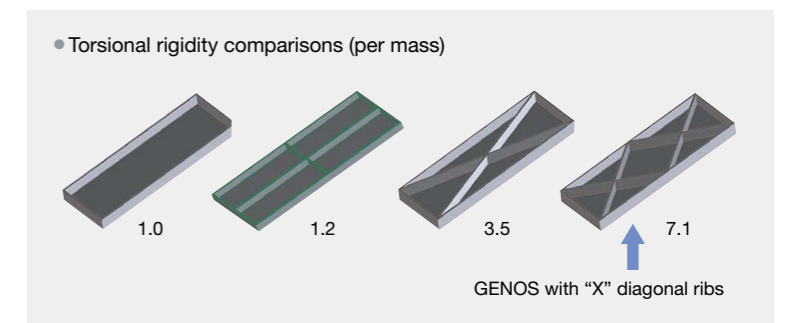
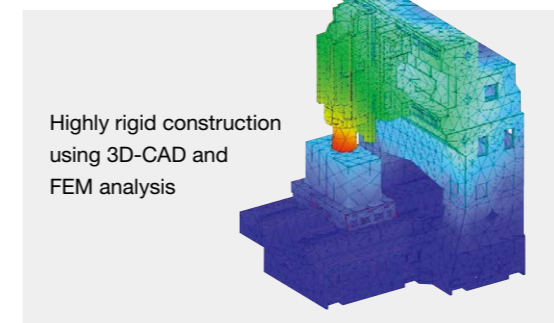


## Highly rigid structure supports powerful cutting

In addition to the highly rigid double-column structure and the diagonal rib casting base section, Okuma's original design makes this a robust machine capable of stable, powerful cutting even with high-speed movement.

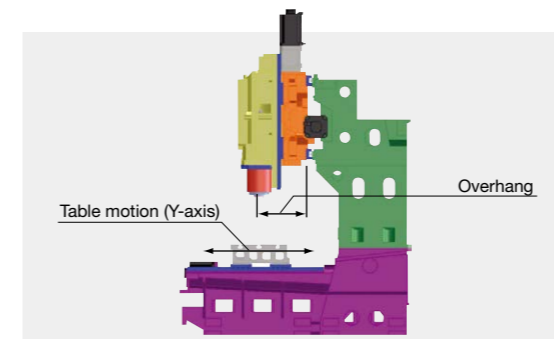
### Highly rigid double-column construction

### "X" diagonal rib casting



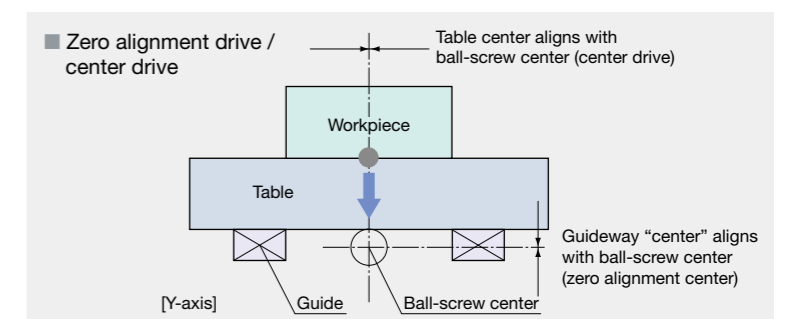
## Small overhang for more efficient machining

The overhang from the machining point to slideway is small, enabling efficient machining. For table movement, the Y-axis overhang also remains small regardless of the machining position.



## Highly accurate drive system

The ball screw is set at the center of the table. By aligning the positions of the center of the ball screw and the guideway, highly accurate drive and positioning are achieved without wobbling.





# High dimensional stability



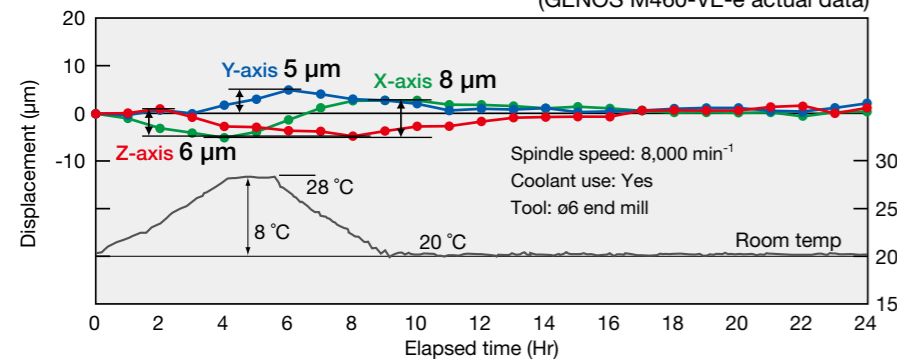
## Thermo-Friendly Concept

The unique approach of “accepting temperature changes.”

The “Thermo-friendly” concept enables remarkable machining accuracy through original structural design and thermal deformation control technology. It frees you from troublesome dimensional compensation and warm-up. Exhibits excellent dimensional stability even during consecutive operation over long periods and environmental temperature change in the plant.

### Machining dimensional change over time: Less than 8 μm

(GENOS M460-VE-e actual data)



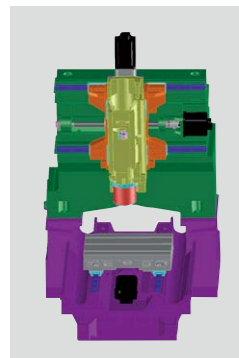
### Eliminate waste with the Thermo-Friendly Concept

Okuma's Thermo-Friendly Concept achieves high dimensional stability not only when the room temperature changes, but also at machine startups or when machining is resumed.

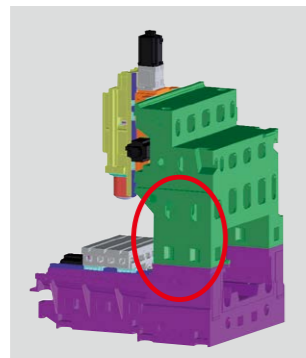
The warm-up operation time to stabilize thermal deformation is shortened, and the burden of dimensional correction when resuming machining is reduced.

### Simplified structure for thermal deformation / Design technology for uniform dissemination of heat

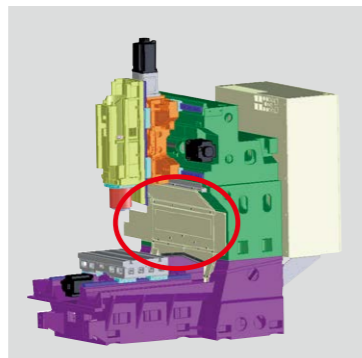
The machine expands and contracts in predictable directions, and manageable deformation is achieved with a machine structure that evenly transmits the temperature.



**Thermally symmetric structure**  
Equal left-right construction permits straightforward thermal distortion



**“Box-build” structure**  
Column structure built up of simple blocks is used to permit straightforward thermal distortion



**Thermally balanced structure**  
A cover is set on the front of the column and the control cabinet on the back for even conduction of temperature.

### Insulation measures from coolant, chips

Chips with heat produced by machining are quickly removed before heat is transferred to machine.

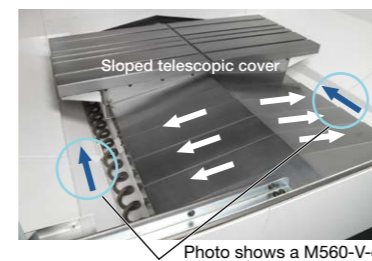
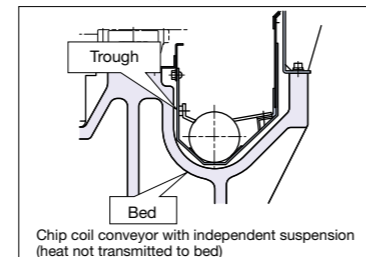


Photo shows a M560-V-e



Chip coil conveyor with independent suspension (heat not transmitted to bed)

### Highly accurate thermal deformation control technology

#### TAS-C

Thermo Active Stabilizer—Construction

Providing optimal control of the machine and stable machining accuracies even during ambient temperature changes.

#### TAS-S

Thermo Active Stabilizer—Spindle

Spindle deformation will be accurately controlled even during operations with frequent speed changes.

# Improved productivity with powerful machining

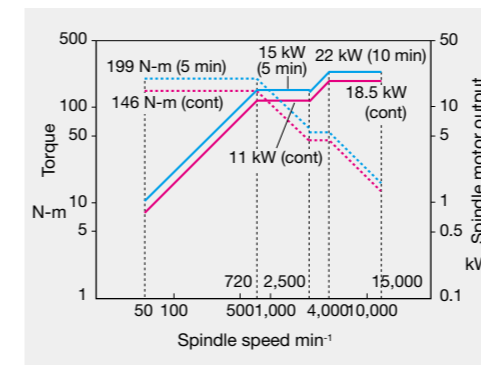
## Spindle

### Wide-range spindle specifications 15,000 min<sup>-1</sup>

Spindle motor output: 22/18.5 kW (10 min/cont)

Torque: 199 N-m

Tapered bore: 7/24 taper No. 40

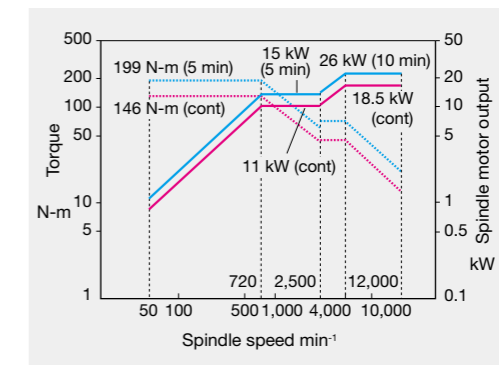


### Wide-range spindle specifications 12,000 min<sup>-1</sup> (GENOS M660-V-e No. 50) (option)

Spindle motor output: 26/18.5 kW (10 min/cont)

Torque: 199 N-m

Tapered bore: 7/24 taper No. 50



### 15,000 min<sup>-1</sup> wide-range spindle

(Workpiece: S45C)

| Tool  | Spindle min <sup>-1</sup> | Cutting m/min | Feed rate mm/min | Width mm | Depth mm | Amount cm <sup>3</sup> /min |
|---|---------------------------|---------------|------------------|----------|----------|-----------------------------|
| ø80 face mill<br>8 blades (cermet)          | 895                       | 225           | 3,000            | 56       | 3        | 504                         |
| ø20 roughing end mill<br>7 flutes (carbide) | 4,000                     | 251           | 4,800            | 7        | 20       | 672                         |
| ø63 insert drill<br>(carbide)               | 720                       | 142           | 108              | —        | —        | —                           |
| M30 x 3.5 tap                               | 318                       | 30            | 1,113            | —        | —        | —                           |

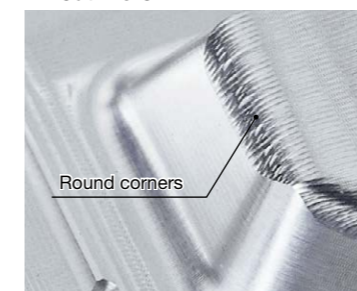
Note: The “actual data” referred to above for this brochure represent examples, and may not be obtained due to differences in specifications, tooling, cutting condition, and others.

### Shorter cutting times and highly accurate machining

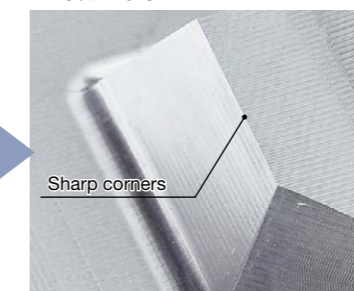
#### Hi-Cut Pro

A speed and acceleration controller to make sharper corners and smoother arcs—ideal for the extra accurate and quicker cycle time jobs.

Hi-Cut Pro Off



Hi-Cut Pro On



# Truly machinist oriented, superb ease-of-use machine operation

## For smooth machining preparations

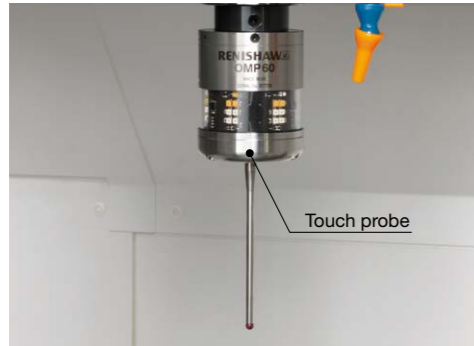
- Loading/unloading tools to/from the magazine can be performed from the front of the machine



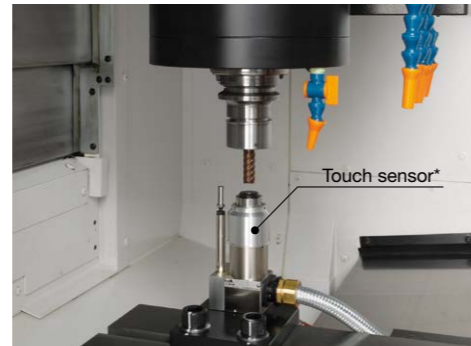
- Tool load/unload button on spindlehead



- Simple and accurate zero setting with auto gauging (option)



- Simple and accurate tool information input with auto tool length compensation (option)

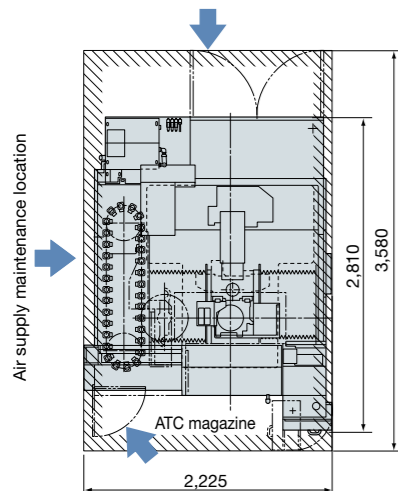


\*Table mounted; which may limit available working range.

## Actual required footprint

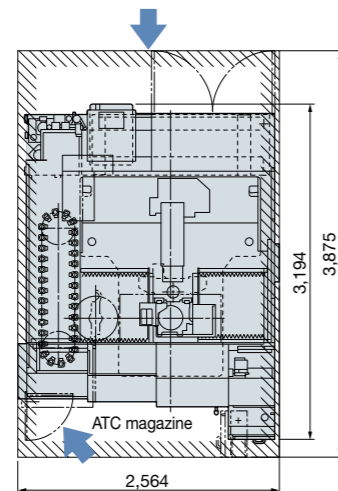
M460-VE-e 8.0 m<sup>2</sup>

Power line, chip disposal  
maintenance location



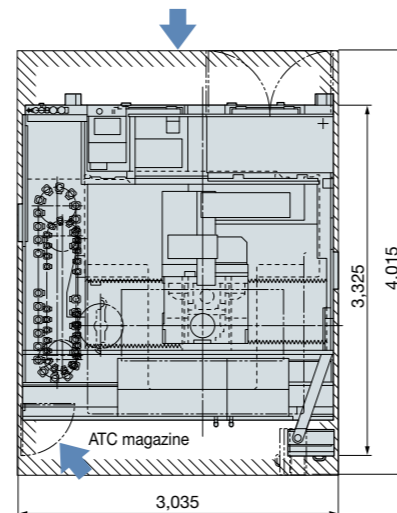
M560-V-e 10 m<sup>2</sup>

Power line, air supply and chip disposal  
maintenance location



M660-V-e 13 m<sup>2</sup>

Power line, air supply and chip disposal  
maintenance location



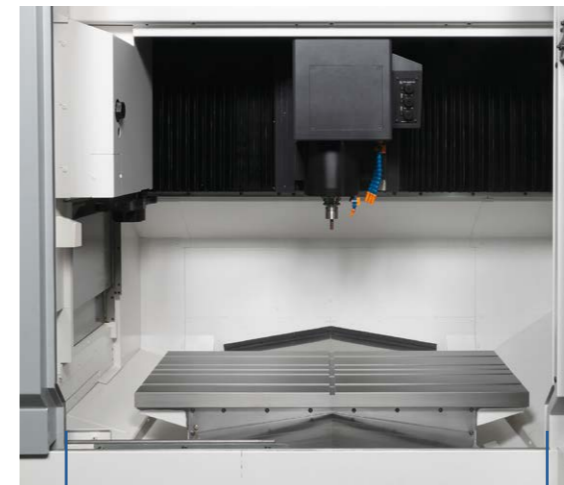
Unit: mm

## With wide door opening for easy workpiece access and setup changes

### Outstanding ease of use

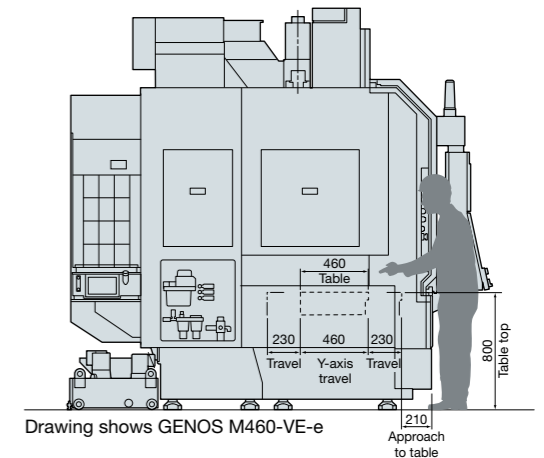
- Wide door opening: 850 mm (1,323 mm/1,510 mm)
- Approach to table: 210 mm (215 mm/235 mm)
- Table height: 800 mm (800 mm/850 mm) ( ) for M560-V-e/M660-V-e

Photo shows a M560-V-e



Wide opening

GENOS M460-VE-e: 850 mm  
GENOS M560-V-e: 1,323 mm  
GENOS M660-V-e: 1,510 mm



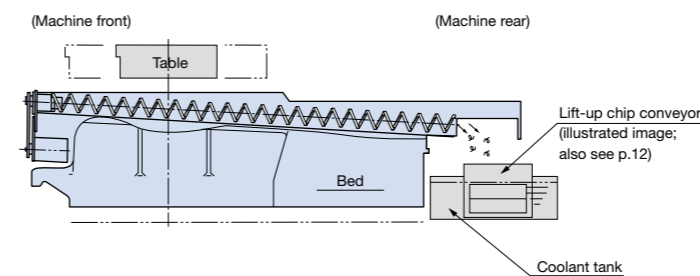
Drawing shows GENOS M460-VE-e

Unit: mm

|                   | M460-VE-e | M560-V-e | M660-V-e |
|-------------------|-----------|----------|----------|
| Table             | 460       | 560      | 660      |
| Table top         | 800       | 800      | 850      |
| Y-axis travel     | 460       | 560      | 660      |
| Travel            | 230       | 280      | 330      |
| Approach to table | 210       | 215      | 235      |

## Chip discharge

### In-machine chip conveyor (coil)



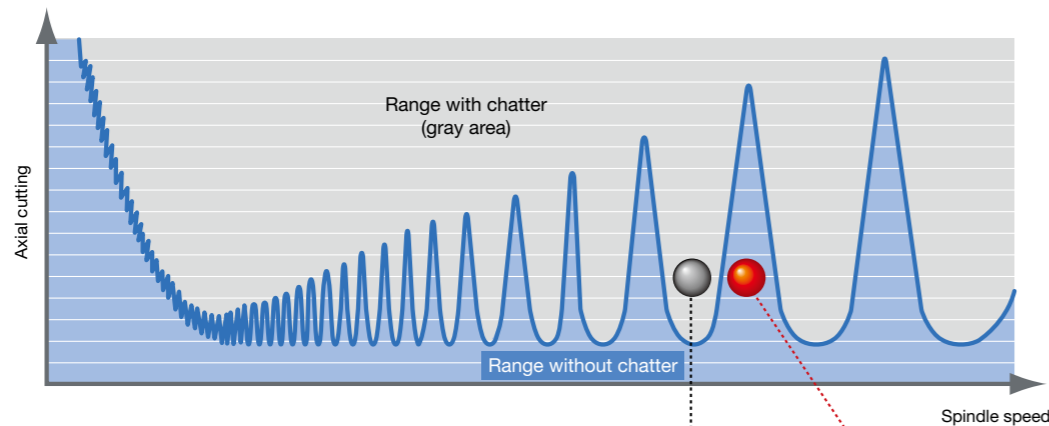
# Hi-tech Okuma mechatronics for advanced machining applications



**Machining Navi M-gII+** (option)  
Cutting condition search for milling

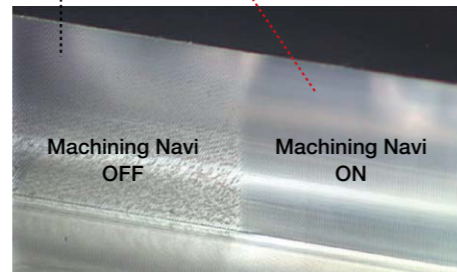
## Push cutting conditions higher to increase profit

Machining Navi instantly determines the optimal cutting conditions for highly efficient machining.



Spindle speed and chatter are linked in a periodic manner, manifesting as alternating ranges with and without chatter. This means that there will be cases in which chatter cannot be suppressed with a reduction in spindle speed, and other cases where increasing the spindle speed will eliminate the chatter.

Machining Navi navigates the extremely difficult process of finding the optimal spindle speed value by analyzing chatter and instantly determining (powerful computing) the best spindle speed.



## Cutting conditions can be changed while looking at analysis results

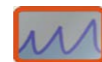
Based on the chatter noise captured by the microphone, Machining Navi displays a number of optimal spindle speed possibilities on the screen. The operator can change to the indicated spindle speed with a single touch and immediately confirm the result.



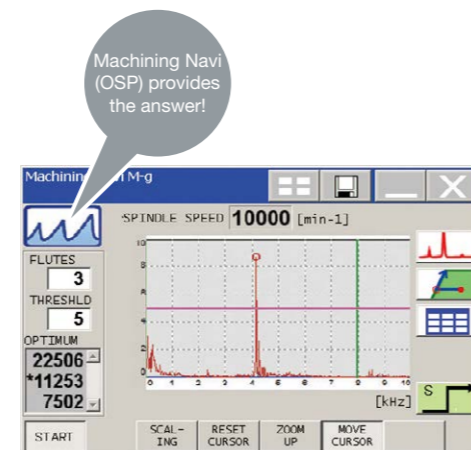
This sign indicates a change to the optimum spindle speed.



This sign indicates that spindle speed is being changed.



This sign indicates that the cutting load needs to be reduced.



# With a variety of eco-friendly features

## ECO suite

Next-Generation Energy-Saving System

A suite of energy-saving applications for machine tools

**ECO Idling Stop** Accuracy ensured, cooler off  
This is the intelligent energy-saving application used by Okuma's Thermo-Friendly Concept. When not machining, power consumption can be significantly reduced by frequently stopping unnecessary peripheral equipment.  
Moreover, in machines equipped with the Thermo Active Stabilizer—Spindle (TAS-S), spindle cooler idling is automatically turned ON/OFF while maintaining stable accuracies.

**ECO Power Monitor** On-the-spot check of energy savings  
Power is shown individually for spindle, feed axes, and auxiliaries on the OSP operation screen. In addition to regenerative power, the energy-saving benefits from auxiliary equipment stopped with ECO Idling Stop can be confirmed on the spot.

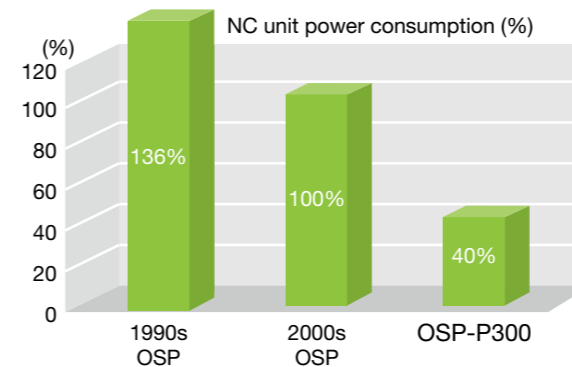
**ECO Operation** (option)  
Intermittent/continuous operation of chip conveyor and mist collector during operation  
The chip conveyor and mist collector can be controlled according to the operating conditions of the machine, reducing power consumption during machine operation.

## Energy-saving technology

### Energy-saving NC unit

- Computer in a flat panel with a high-performance CPU
- Power-saving design
- LCD (Liquid Crystal Display) used

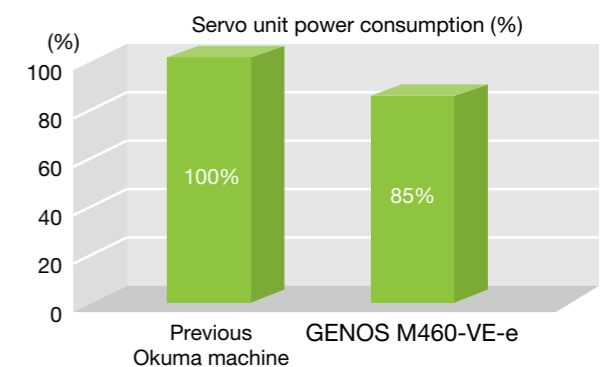
Power consumption  
**Reduced 60%** (compared to previous Okuma machine)



### Energy-saving drive unit

- Low-loss power transistor used
- Power regeneration system used

Power consumption  
**Reduced 15%** (compared to previous Okuma machine)





## Machine Specifications

| Model          |                                  |                   | GENOS M460-VE-e     | GENOS M560-V-e | GENOS M660-V-e        |                    |
|----------------|----------------------------------|-------------------|---------------------|----------------|-----------------------|--------------------|
|                |                                  |                   | No.40               | No.40          | No.40                 | No.50 <sup>1</sup> |
| Travel         | X-axis (ram saddle left/right)   | mm                | 762                 | 1,050          | 1,500                 |                    |
|                | Y-axis (table front/back)        | mm                | 460                 | 560            | 660                   |                    |
|                | Z-axis (spindle up/down)         | mm                | 460                 |                | 660                   |                    |
|                | Table top to spindle nose        | mm                | 150 to 610          |                | 150 to 810            |                    |
| Table          | Max work dimension               | mm                | 1,000 x 460         | 1,300 x 560    | 1,530 x 660           |                    |
|                | Floor to table top               | mm                | 800                 |                | 850                   |                    |
|                | Max load capacity                | kg                | 700                 | 900            | 1,500                 |                    |
| Spindle        | Max spindle speed                | min <sup>-1</sup> | 15,000              |                | 12,000                |                    |
|                | Speed range                      |                   | Infinitely variable |                |                       |                    |
|                | Tapered bore                     |                   | 7/24 taper No. 40   |                | 7/24 taper No. 50     |                    |
|                | Bearing ID                       | mm                | ø70                 |                | ø90                   |                    |
| Feed rate      | Rapid traverse                   | m/min             | X, Y: 40, Z: 32     |                |                       |                    |
|                | Cutting feed rate                | m/min             | X, Y, Z: 32         |                |                       |                    |
| Motor          | Spindle                          | kW                | 22/18.5             |                | 26/18.5               |                    |
|                | Feed axes                        | kW                | X, Y, Z: 3.5        |                | X, Y, Z: 4.6          |                    |
| ATC            | Tool shank                       |                   | MAS BT40            |                | MAS BT50              |                    |
|                | Pull stud                        |                   | JIS (thru)          |                | MAS 2 (thru)          |                    |
|                | Tool magazine capacity           | tool              | 32                  |                |                       |                    |
|                | Max tool dia (w/adjacent tool)   | mm                | ø90                 |                | ø100                  |                    |
|                | Max tool dia (w/o adjacent tool) | mm                | ø125                |                | ø152                  |                    |
|                | Max tool length                  | mm                | 300                 |                | 400                   |                    |
|                | Max tool mass                    | kg                | 8                   |                | 12                    |                    |
|                | Max tool moment                  | N-m               | 7.8 [8 kg x 100 mm] |                | 15.3 [12 kg x 130 mm] |                    |
| Tool selection |                                  | Memory random     |                     |                |                       |                    |
| Machine size   | Height                           | mm                | 2,746               |                | 3,295                 |                    |
|                | Floor space                      | mm                | 2,225 x 2,810       | 2,564 x 3,194  | 3,035 x 3,325         |                    |
|                | Mass                             | kg                | 7,000               | 8,300          | 11,500                | 12,200             |
| Controller     |                                  | OSP-P300MA-e      |                     |                |                       |                    |

\*1. No.50 spindle is option.

## Standard Specifications and Accessories

| Item   | Description                                    | Item                                 | Description                     |
|--|--|--------------------------------------|---------------------------------|
| Spindle speed 50 to 15,000 min <sup>-1</sup> | 7/24 taper No. 40, 22/18.5 kW                  | Coolant nozzle                       | 5 flexible nozzles              |
| Rapid traverse X, Y: 40 m/min, Z: 32 m/min   |  | In-machine chip conveyor (coil)      | Table both sides                |
| Spindle cooling system                       | Oil temperature controller                     | Chip pan                             |                                 |
| Air cleaner (filter)                         | Including regulator                            | ATC air blower (blast)               |                                 |
| Spindle oil-air lubrication system           |  | Chip air blower (blast)              | Nozzle type                     |
| TAS-S  | Thermo Active Stabilizer—Spindle               | Foundation washers (with jack bolts) | 8 pcs                           |
| TAS-C  | Thermo Active Stabilizer—Construction          | 2-lamp status indicator              | CE compliant (LED signal tower) |
| Automatic tool changer                       | 32-tool magazine                               | Work lamp                            |                                 |
| ATC magazine shutter                         |  | Full enclosure shielding             | With ceiling                    |
| Tool unclamp package                         |  | Tapered bore cleaning bar            |                                 |
| Coolant tank capacity <sup>*1</sup>          | M460-VE-e: 190 L (100 L effective), 250 W pump | Hand tools                           |                                 |
|  | M560-V-e: 230 L (120 L effective), 250 W pump  | Tool box                             |                                 |
|  | M660-V-e: 460 L (270 L effective), 390 W pump  | Operation panel with color LCD       |                                 |
| Thru-spindle coolant <sup>*2</sup>           | 1.5 MPa (medium pressure, large volume)        | Pulse handle                         |                                 |

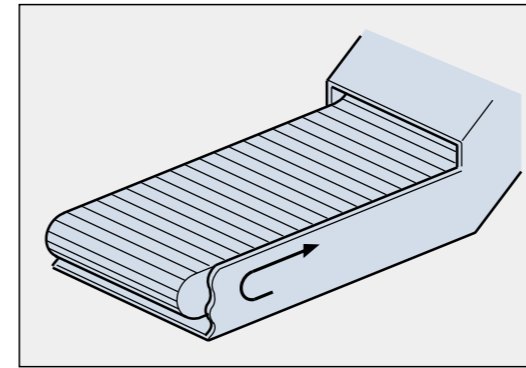
\*1. Use water-based coolant. \*2. Okuma pull studs required.

## GENOS M460-VE-e, M560-V-e and M660-V-e “Package” Specifications

(Europe Package Specs)

| Item                             | Description      |
|----------------------------------|------------------|
| 15,000 min <sup>-1</sup> spindle |                  |
| 32-tool ATC                      |                  |
| Shower coolant supply            |                  |
| In-machine chip conveyor (coil)  | Table both sides |
| 1.5 MPa thru-spindle coolant     | Large volume     |
| Air blow during spindle rotation | Thru-spindle     |
| Transformer                      |                  |

## Lift-up chip conveyor (option)



For reliable and efficient handling of chips from machine tools.

| Conveyor Type   | Remarks   |
|---|---|
| Hinge<br>A hinged steel belt conveyor suitable for steel chips in various shapes and lengths (coils/curls, short/medium/long) | To easily handle hot, wet or dry chips, or other scrap material from milling, boring, drilling and other machining center operations. |

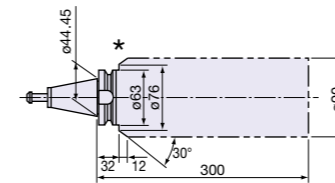
## ATC tool dimensions

### Max tool size

In tool magazine (with adjacent tools)

Unit: mm

#### • GENOS M460-VE-e / M560-V-e

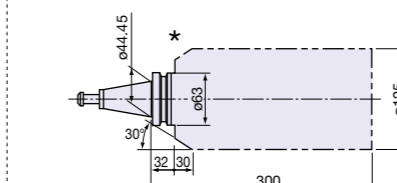


### Max single tool size

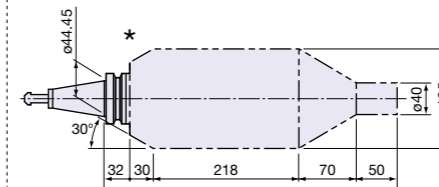
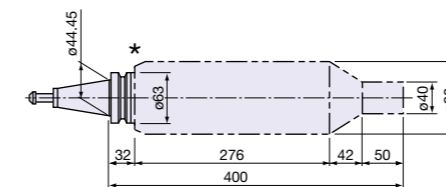
(Without adjacent tools)

Unit: mm

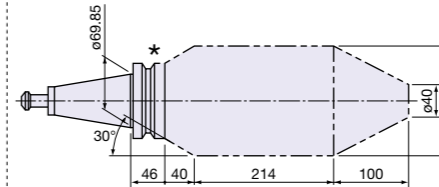
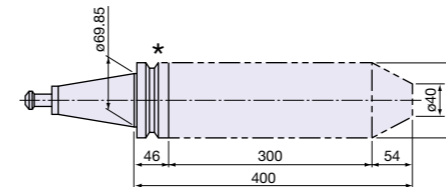
#### • GENOS M660-V-e (No. 40)



#### • GENOS M660-V-e (No. 50)



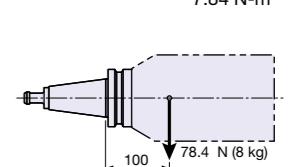
#### • GENOS M660-V-e (No. 50)



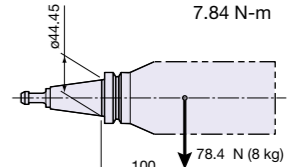
### Max tool mass moment

Unit: mm

#### • GENOS M460-VE-e / M560-V-e

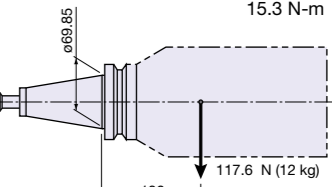


#### • GENOS M660-V-e (No. 40)



Mass including shank may be up to 78.4 N (8 kg), and the position of center of gravity at that time may be up to 100 mm from the datum diameter (ø44.45).

#### • GENOS M660-V-e (No. 50)



Mass including shank may be up to 117.6 N (12 kg), and the position of center of gravity at that time may be up to 130 mm from the datum diameter (ø69.85).

\* Commercially available milling chucks may interfere with the ATC tool change arm and tooling outer portions. Please check dimensions with tool manufacturer documentation before use.

## With revamped operation and responsiveness—ease of use for machine shops first!

Smart factories implement advanced digitization and networking (IIoT) in manufacturing to achieve enhanced productivity and added value. The OSP has evolved tremendously as a CNC suited to advanced intelligent technology. Okuma's new control uses the latest CPUs for a tremendous boost in operability, rendering performance, and processing speed. The OSP suite also features a full range of useful apps that could only come from a machine tool manufacturer, making smart manufacturing a reality.

## Smooth, comfortable operation with the feeling of using a smartphone

Improved rendering performance and use of a multi-touch panel achieve intuitive graphical operation. Moving, enlarging, reducing, and rotating 3D models, as well as list views of tool data, programs, and other information can be accomplished through smooth, speedy operations with the same feel as using a smartphone. The screen display layout on the operation screen can also be changed to suit operator preferences and customized for the novice and/or veteran machinists.



## “Just what we wanted.”— Refreshed OSP suite apps

This became possible through the addition of Okuma's machining expertise based on requests we heard from real, machine-shop customers. The brain power packed into the CNC, built by a machine tool manufacturer, will “empower shop floor” management.

### Maintenance Monitor

Routine inspection support

The Maintenance Monitor displays items for inspections before starting daily operation and regular inspections and the rough estimate of inspection timing. Touching the [INFO] button displays the PDF instruction manual file of relevant maintenance items.

| PERIODICAL MAINTENANCE                   | DAILY INSPECTION | CHANGE MODE |
|--|------------------|-------------|
| 300 Dressing for tool clamping unit (SD) | Supply           | 5h          |
| 301 Packing in tool clamping unit (SD)   | Inspection       | 50h         |
| 302 Brand control calibration oil        | Replace          | 1000h       |
| 421 Hydraulic unit oil                   | Replace          | 5h          |
| 422 Hydraulic unit line filter           | Cleaning         | 1h          |
| 423 Hydraulic unit line filter           | Replace          | 50h         |
| 424 Oil for SPCL cooling unit            | Replace          | 1000h       |

[INFO] button

### Spindle Output Monitor

Increased productivity through visualization of motor power reserve

### E-mail Notification

Monitoring operating status even when away from the machine

### Common Variable Monitor

Comment display for greater ease of use and faster work

### Screen Capture

Automatic saving of recorded alarms

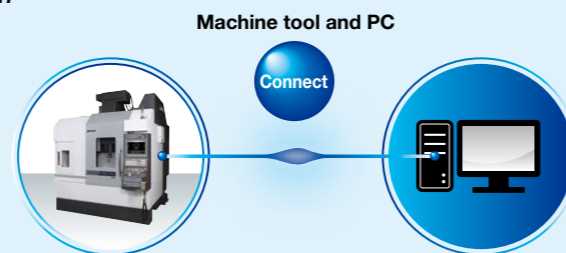
### Scheduled Program Editor

Easy programing without keying in code

## Connect Plan Get Connected, Get Started, and Get Innovative with Okuma “Monozukuri”

### Connect, Visualize, Improve

Okuma's Connect Plan is a system that provides analytics for improved utilization by connecting machine tools and visual control of factory operation results and machining records. Simply connect the OSP and a PC and install Connect Plan on the PC to see the machine operation status from the shop floor, from an office, from anywhere. The Connect Plan is an ideal solution for customers trying to raise their machine utilization.



## Advanced One-Touch IGF-M (option) Interactive operations

### The objective: simple programming

Machining processes can be newly added or revised on the Machining Order Table. Each process can be set freely with tool units, and knowhow can be input with the edit function with a high degree of freedom. The recommended value is automatically set when new additions are made.

Processes can be added or have their order changed for each tool on the Machining Order Table

Details are established in window

Key items changed directly on Machining Order Table

Tool path, cutting conditions...  
Approach/relief, cutting depth movement

### Simple operations for 1st part machining jobs

Can be operated directly from Machining Order Table. When a problem is detected it can be quickly corrected and checked, speeding up first part machining.

Selected overall

| PROCESS SHEET    | CONTINUOUS |
|------------------|------------|
| 1 FramMach-R     | 8.1        |
| 2 Chamfering     | 10.8       |
| 3 Drilling       | 8.0        |
| 4 Endmill hole   | 7.4        |
| 5 Reaming        | 8.0        |
| 6 Linear chamfer | 5.1        |
| 7 FramMach-F     | 8.1        |

Selected range

| PROCESS SHEET    | CONTINUOUS |
|------------------|------------|
| 1 FramMach-R     | 8.1        |
| 2 Chamfering     | 10.8       |
| 3 Drilling       | 8.0        |
| 4 Endmill hole   | 7.4        |
| 5 Reaming        | 8.0        |
| 6 Linear chamfer | 5.1        |
| 7 FramMach-F     | 8.1        |

Cycle start

Mid-/single cycle start by simply selecting target on Machining Order Table

Immediate editing from Machining Order Table

Tool path, cutting conditions...  
Approach/relief, cutting depth movement



# OSP-P300MA-e

## Standard Specifications

|                             |   |  |
|-----------------------------|---|--|
| Basic Specs                 | Control   | X, Y, Z simultaneous 3-axis, spindle control (1 axis)  |
|                             | Position feedback   | OSP full range absolute position feedback (zero point return not required)   |
|                             | Coordinate functions  | Machine coordinate system (1 set), work coordinate system (20 sets)  |
|                             | Min / Max command   | ±99999.999 mm, ±9999.9999°, 8-digit decimal, command unit: 0.001 mm, 0.01 mm, 1 mm, 0.0001°, 0.001°, 1°  |
|                             | Feed  | Cutting feed override 0 to 200%, rapid traverse override 0 to 100%   |
|                             | Spindle control   | Direct spindle speed commands, override 30 to 300%, multi-point indexing   |
|                             | Tool compensation   | No. of registered tools: Max 999 sets, tool length/radius compensation: 3 sets per tool  |
|                             | Display   | 15-inch color LCD + multi-touch panel operations   |
|                             | Self-diagnostics  | Automatic diagnostics and display of program, operation, machine, and NC system faults   |
|                             | Programming   | Program capacity   |
| Program operations          |   | Program management, editing, scheduled program, fixed cycle, G-/M-code macros, arithmetic, logic statements, math functions, variables, branch commands, coordinate calculate, area machining, coordinate convert, programming help  |
| Operations                  | "suite apps"  | Applications to graphically visualize and digitize information needed on the shop floor  |
|                             | "suite operation"   | Highly reliable touch panel suited to shop floors. One-touch access to suite apps.   |
|                             | Easy Operation  | One series of operations completed with a single screen (single mode operation)<br>Comprehensive management of tool shape and tool compensation information for each tool number<br>Tool data shared between machining and Advanced One-Touch IGF (option)<br>Machine operating panel achieves sure machine operations |
|                             | Machine operations  | MDI, manual (rapid traverse, manual cutting feed, pulse handle), load meter, operation help, alarm help, sequence return, manual interrupt/auto return, pulse handle overlap, parameter I/O, self-diagnostics, PLC monitor, Easy Setting of Cycle Time Reduction   |
| MacMan                      | Machining management: machining results, machine utilization, fault data compile & report, external output        |  |
| Communications / Networking | USB (2 ports), Ethernet, DNC-T1   |  |
| High speed/accuracy specs   | TAS-S (Thermo Active Stabilizer—Spindle), TAS-C (Thermo Active Stabilizer—Construction), Hi-G Control, Hi-Cut Pro |  |
| Energy-saving function      | ECO suite   | ECO Idling Stop, ECO Power Monitor*1   |

\*1. The power display shows estimated values. When precise electrical values are needed, select the wattmeter option.

## 3D-E Kit Specifications (Europe Package Specs)

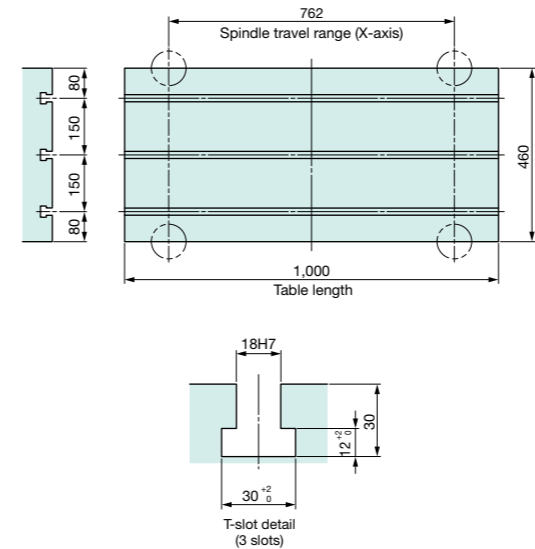
| Item                                   | Description  |
|--|--|
| Auto program schedule update           | To change a part program during a scheduled run  |
| Coordinate system selection            | 100 sets (Std: 20 sets)  |
| Helical cutting                        | To machine large-diameter screws with angular cutters  |
| Synchronized Tapping II                | Fast & accurate rigid tapping (synchronized spindle speed, angle, feed axis position)            |
| Programmable travel limits             | Per G22, G23   |
| Arbitrary angle chamfering             | Easy any-angle chamfering (C, R)   |
| Tool life management                   | Tools automatically replaced per No. of workpieces or cycle times                                |
| Auto power shut-off                    | At auto run end or preset times  |
| Sequence stop                          | Machining stopped at designated sequence No.   |
| Real 3D simulation                     | Real time simulation of all machining modes (auto, MDI, manual)                                  |
| I-MAP                                  | Easy part program editing per guide maps (with drawing calculate)                                |
| Simple load monitor                    | Spindle load (stops machining at overload)   |
| NC operation monitor                   | Time totals (cutting, operation, spindle rotation, external input, etc) and 4 workpiece counters |
| Cycle time reduction                   | Reduces/shortcuts operation procedures   |
| Tool breakage detection (touch sensor) | Includes auto tool offset  |
| Auto gauging (preps)                   | Includes auto zero offset  |
| Multiple languages                     | 15 languages available   |

## Optional Specifications

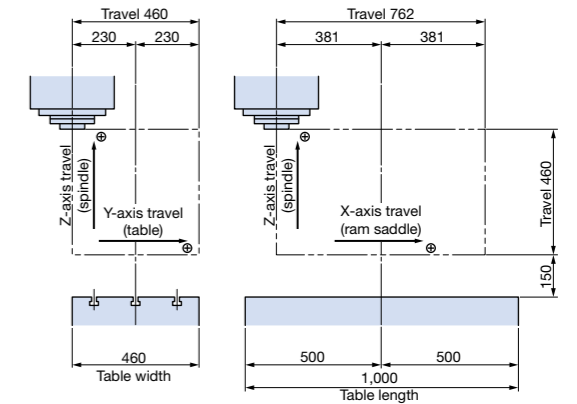
| Interactive functions                            |   | External I/O communication          |  |
|--|---|-------------------------------------|--|
| Advanced One-Touch IGF-M                         | Conversational programming and machine operations | DNC-DT<br>DNC-T3                    |  |
| Programming                                      |   | High-speed, high-precision          |  |
| Program notes (MSG)                              | Message displayed on screen by part program       | Hyper-Surface                       | Fast, high-precision applications (shape comp, adaptive control) |
| Coordinate system selection                      |   | ECO suite (energy-saving functions) |  |
| 3D circular interpolation                        | 200 sets (Std: 20 sets)                           | ECO Operation                       |  |
| Cylindrical side facing                          | Easier to execute                                 | ECO Power Monitor                   | On-machine wattmeter   |
| Slope machining                                  |   | Operations                          |  |
| Skip function                                    | G31   | Sequence operation                  | Sequence restart (Std)   |
| Drawing conversion                               | Programmable mirror image                         | Block skip                          | Mid-block restart  |
| Program branch; 2 sets                           | Enlarge/reduce                                    | External M signals                  | 3 sets   |
| F1-digit feed                                    | Parameter   |                                     | 4 signals, 8 signals   |
| User task 2                                      | I/O variables (16 each)                           | Other                               |  |
|  |   | Additional axis for rotary table    | 1 additional axis  |
| Monitoring                                       |   | OSP-VPS (Virus Protection System)   |  |
| Machining Navi M-gII+ (cutting condition search) | From chatter to optimum spindle speed             |                                     |  |
| Manual gauging (w/o sensor)                      |   |                                     |  |
| Interactive gauging                              | Touch sensor, touch probe required                |                                     |  |

# GENOS M460-VE-e

## Table size



## Working ranges



Unit: mm

## Dimensional drawing / Installation drawing

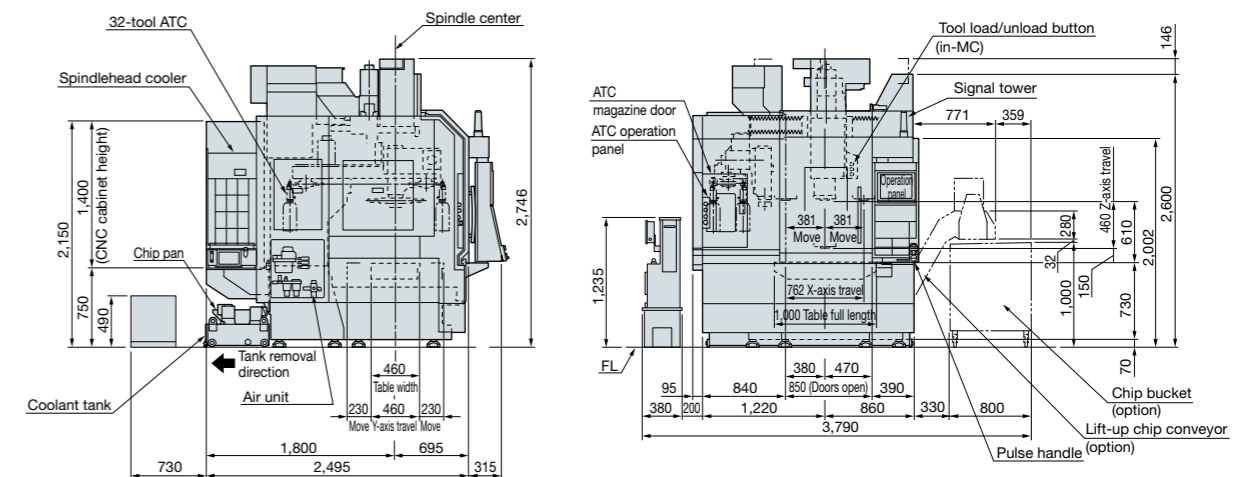
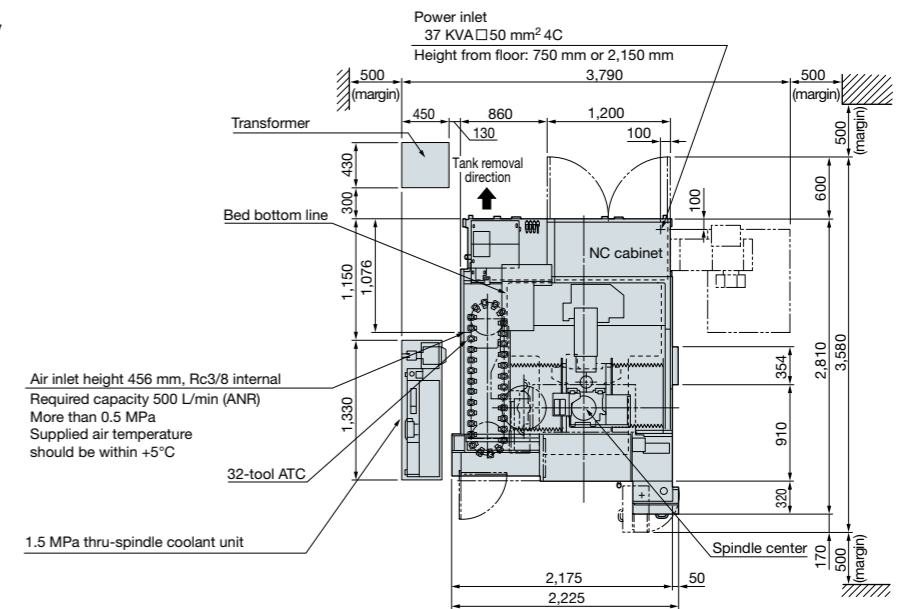
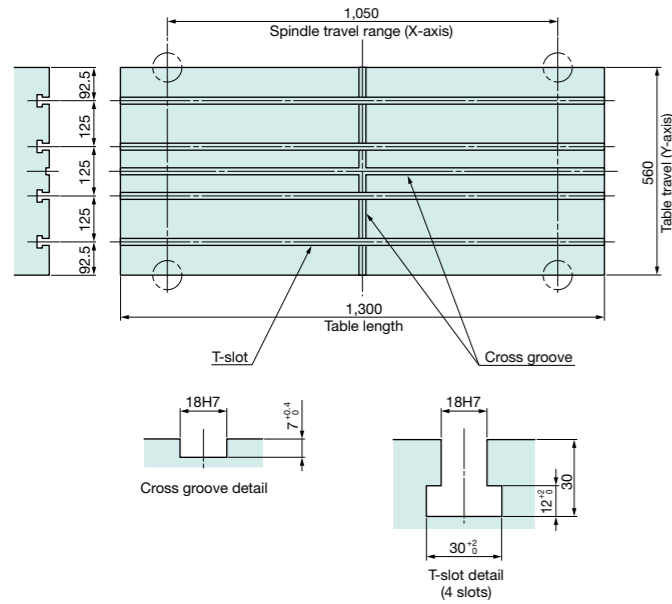
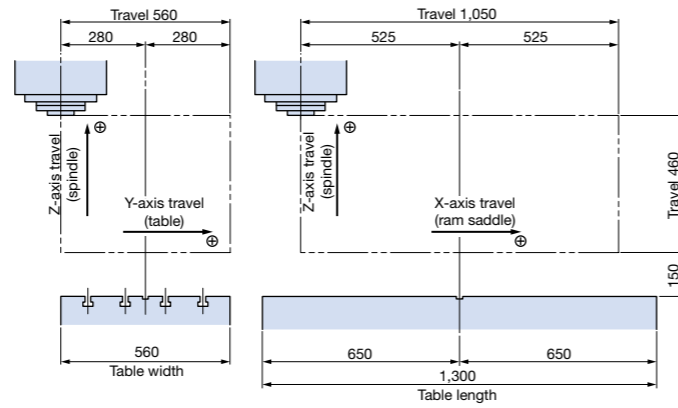


Table size



Working ranges

Unit: mm



Dimensional drawing / Installation drawing

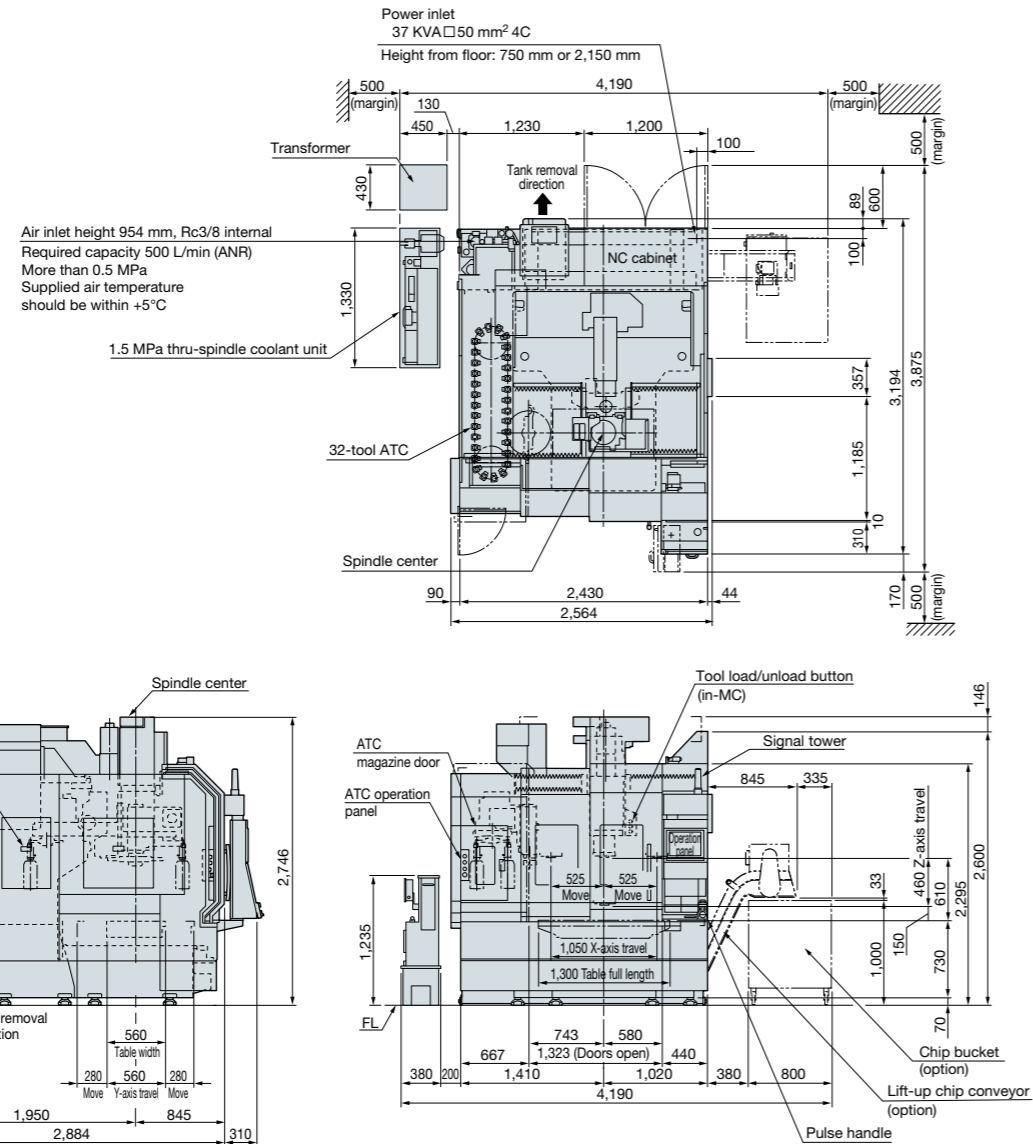
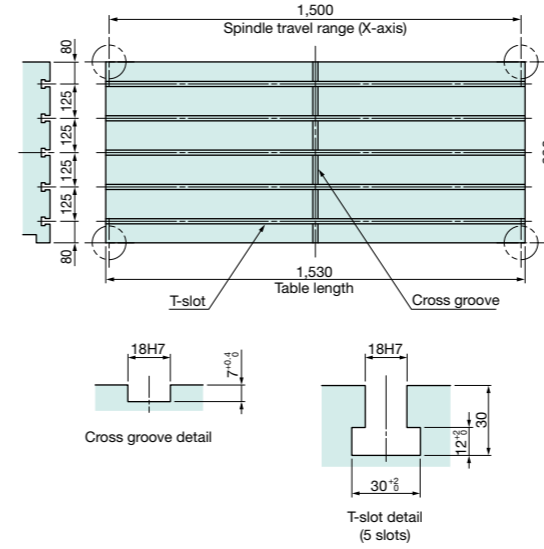
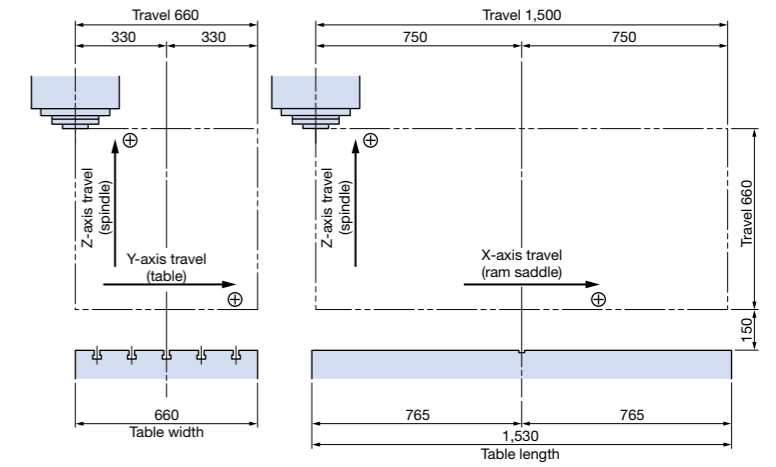


Table size

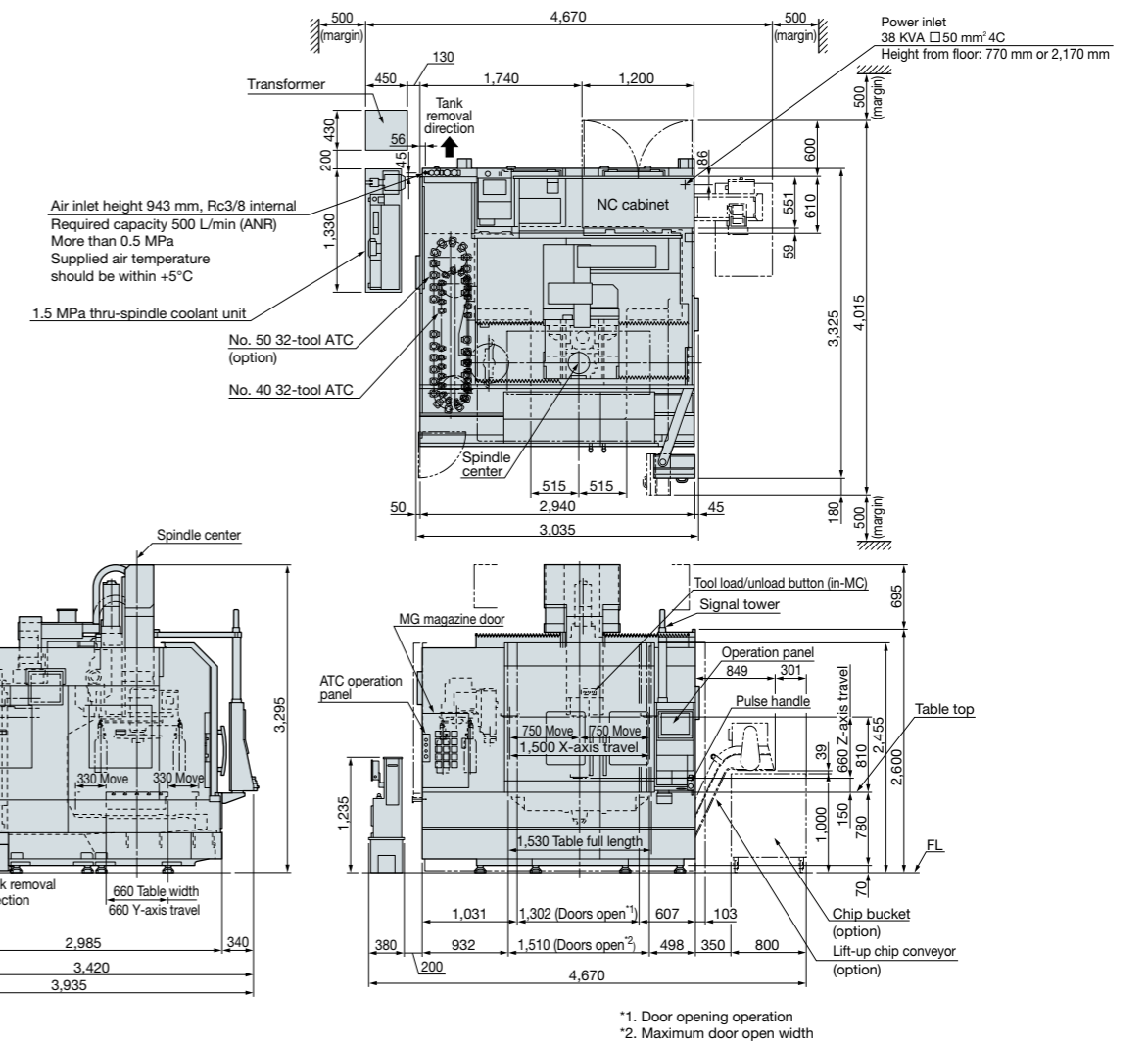


Working ranges

Unit: mm



Dimensional drawing / Installation drawing



When using Okuma products, always read the safety precautions mentioned in the instruction manual and attached to the product.

● The specifications, illustrations, and descriptions in this brochure vary in different markets and are subject to change without notice.  
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# GENOS

The origin of gene, from Greek *genos*  
meaning race, offspring, origin  
(pronounced “γένος” as in “generous”)

**Global**  
**Efficient**  
**No.1**  
**Standard**



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