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

Intelligent Technology

Thermo-Friendly Concept

Machining Navi

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.
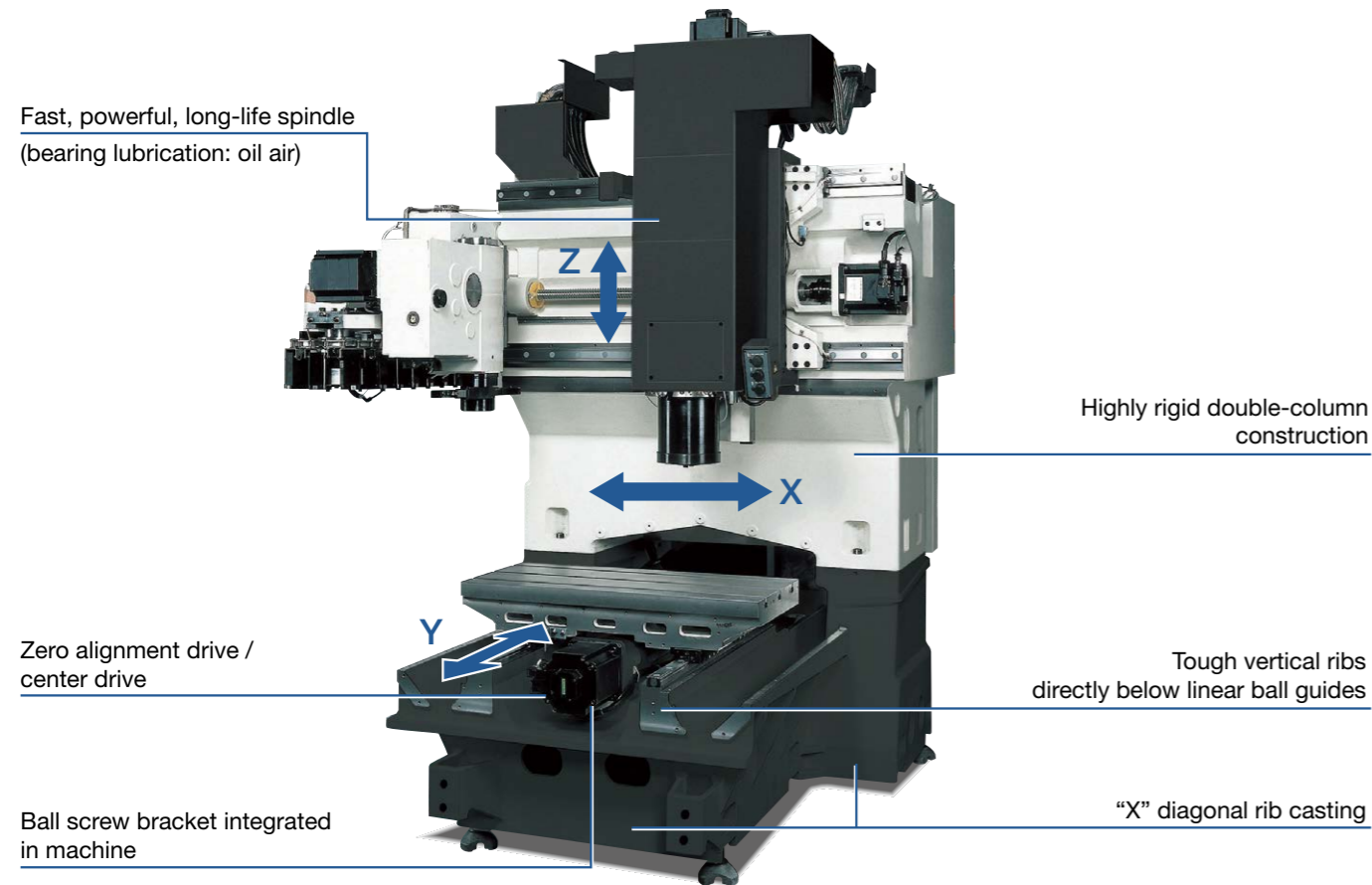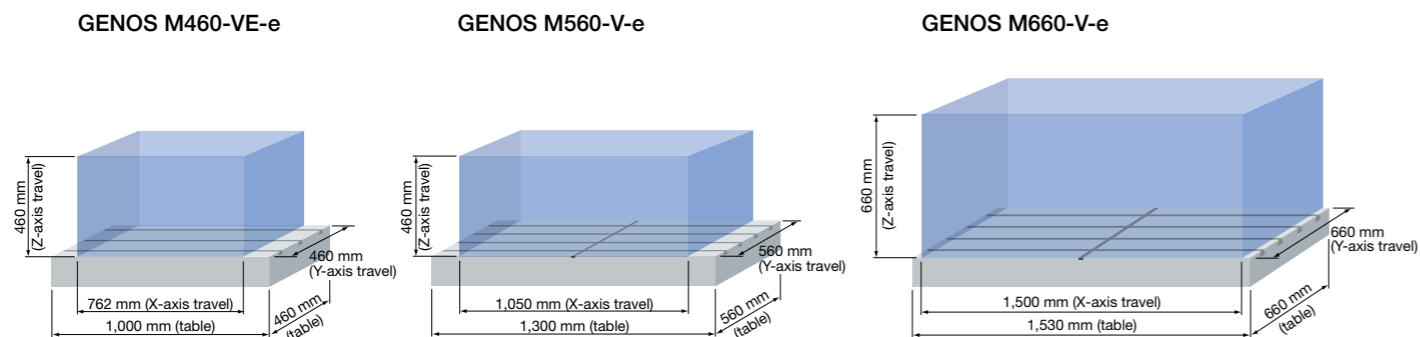
Fast, powerful, long-life spindle
(bearing lubrication: oil air)

Highly rigid double-column construction

Zero alignment drive / center drive

Tough vertical ribs directly below linear ball guides

Ball screw bracket integrated in machine

"X" diagonal rib casting

Table size / machining area

GENOS M460-VE-e

460 mm (Z-axis travel)
762 mm (X-axis travel)
1,000 mm (table)
460 mm (Y-axis travel)
460 mm (table)

GENOS M560-V-e

460 mm (Z-axis travel)
1,050 mm (X-axis travel)
1,300 mm (table)
560 mm (Y-axis travel)
560 mm (table)

GENOS M660-V-e

660 mm (Z-axis travel)
1,500 mm (X-axis travel)
1,530 mm (table)
660 mm (Y-axis travel)
660 mm (table)

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)

■ ATC time
T-T^{*1}: 1.5 sec
CTC min^{*2}: 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

■ Rapid traverse
X,Y: 40 m/min, Z: 32 m/min

■ Hi-G Control
Acceleration/deceleration during positioning is controlled by math functions linked to motor speed/torque characteristics, to provide both machine accel/decel and vibration control.

Hi-G control
Speed
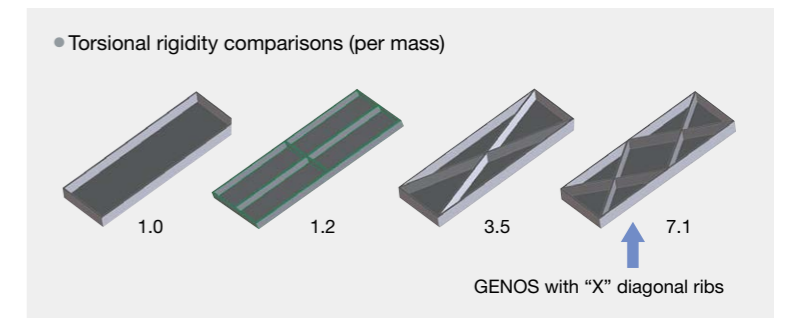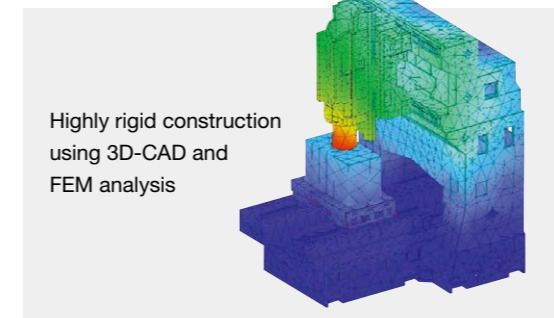Previous
Time
Reduced positioning time
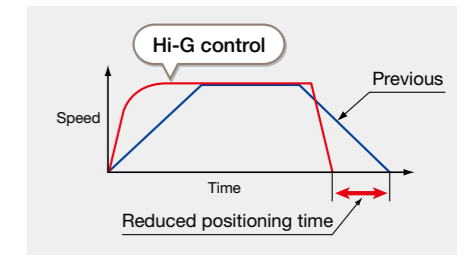
Highly rigid structure supports powerful cutting

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

Highly rigid construction using 3D-CAD and FEM analysis

■ "X" diagonal rib casting

● Torsional rigidity comparisons (per mass)

1.0   1.2   3.5   7.1
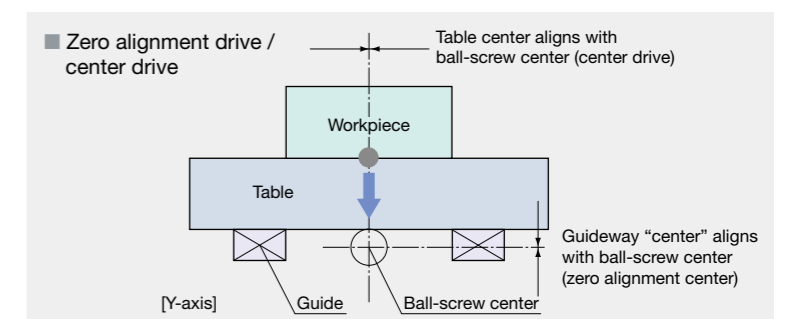
GENOS with "X" diagonal ribs

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.

Table motion (Y-axis)
Overhang
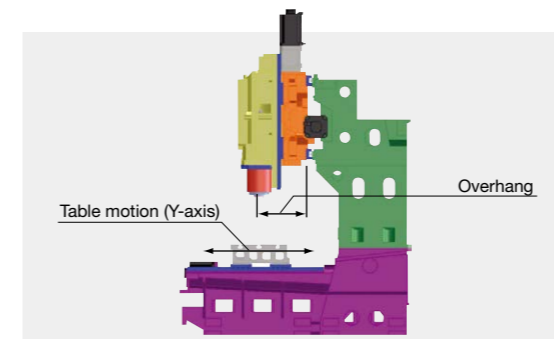
Highly accurate drive system

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.

■ Zero alignment drive / center drive

Table center aligns with ball-screw center (center drive)
Workpiece
Table
Guideway "center" aligns with ball-screw center (zero alignment center)
[Y-axis]   Guide   Ball-screw center
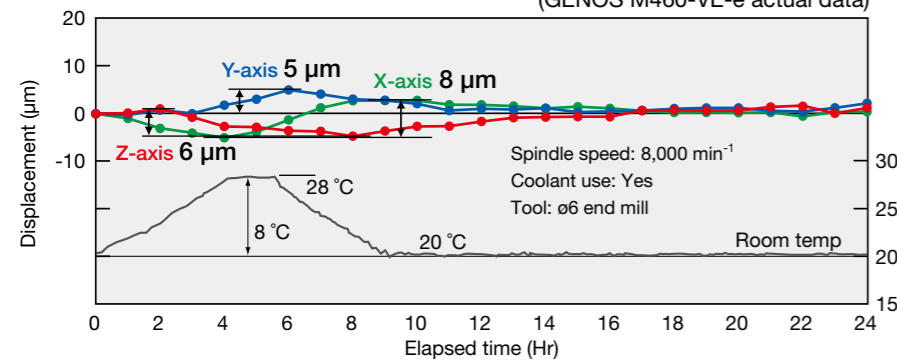
High dimensional stability

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. If 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)

Y-axis 5 μm
X-axis 8 μm
Z-axis 6 μm

Spindle speed: 8,000 min⁻¹
Coolant use: Yes
Tool: ø6 end mill

28 ℃
8 ℃
20 ℃
Room temp

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
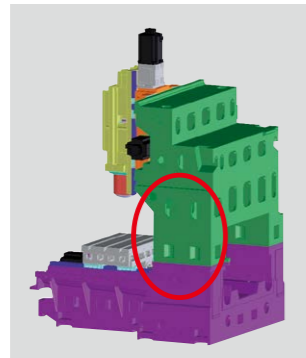
"Box-build" structure
Column structure built up of simple blocks is used to permit straightforward thermal distortion
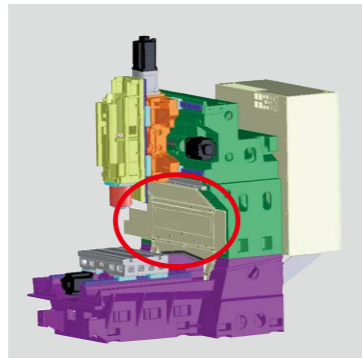
Thermally balanced structure
A cover is set on the front of the column and the control cabinet on the back for even conduction of temperature.

Insulation measures from coolant, chips

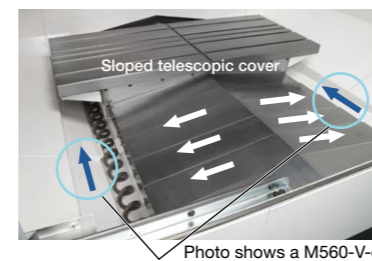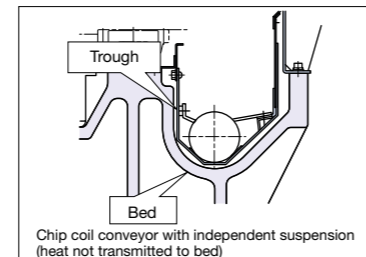Chips with heat produced by machining are quickly removed before heat is transferred to machine.

Sloped telescopic cover

Photo shows a M560-V-e

Trough
Bed

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.

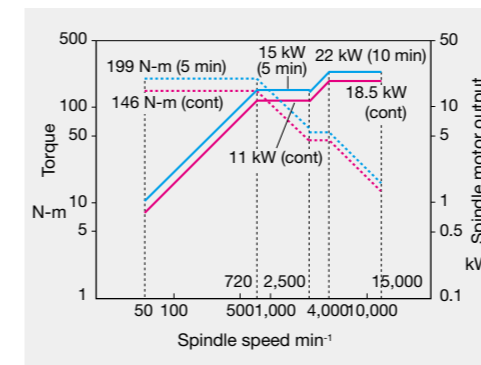# Improved productivity with powerful machining

Spindle

Wide-range spindle specifications 15,000 min⁻¹

Spindle motor output: 22/18.5 kW (10 min/cont)
Torque: 199 N-m
Tapered bore: 7/24 taper No. 40

199 N-m (5 min) 15 kW (5 min) 22 kW (10 min)
146 N-m (cont) 18.5 kW (cont)
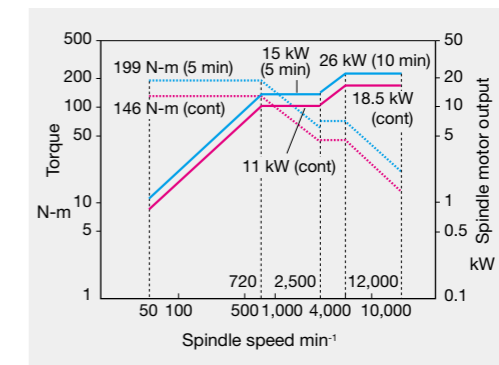11 kW (cont)
720 2,500 15,000

Wide-range spindle specifications 12,000 min⁻¹ (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

199 N-m (5 min) 15 kW (5 min) 26 kW (10 min)
146 N-m (cont) 18.5 kW (cont)
11 kW (cont)
720 2,500 12,000

● 15,000 min⁻¹ wide-range spindle (Workpiece: S45C)

| Tool	Spindle min⁻¹	Cutting m/min	Feed rate mm/min	Width mm	Depth mm	Amount cm³/min
ø80 face mill 8 blades (cermet)	895	225	3,000	56	3	504
ø20 roughing end mill 7 flutes (carbide)	4,000	251	4,800	7	20	672
ø63 insert drill (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

Round corners
Sharp corners
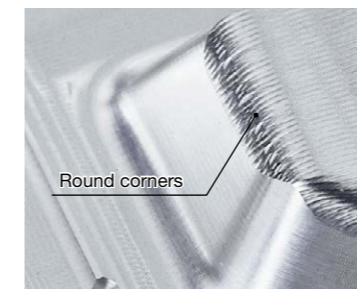
Truly machinist oriented, superb ease-of-use machine operation

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

Photo shows a M460-VE-e

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

Touch probe

- Simple and accurate tool information input with auto tool length compensation (option)
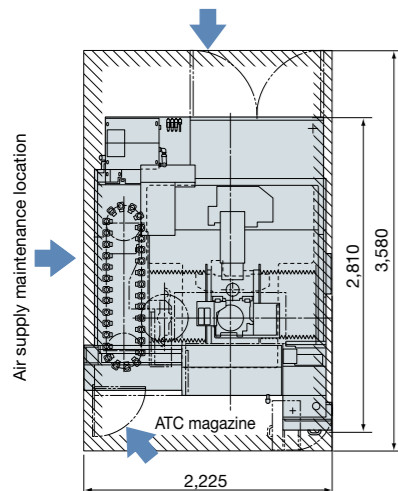
Touch sensor*
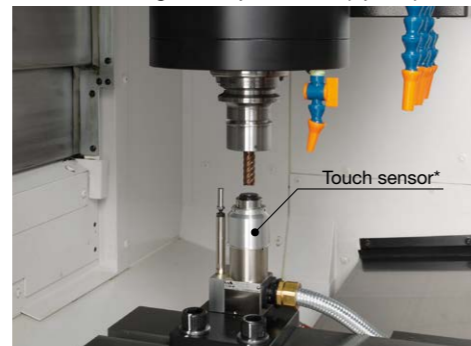
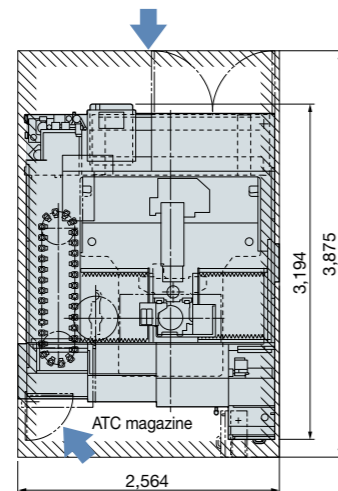*Table mounted; which may limit available working range.

Actual required footprint

M460-VE-e 8.0 m²

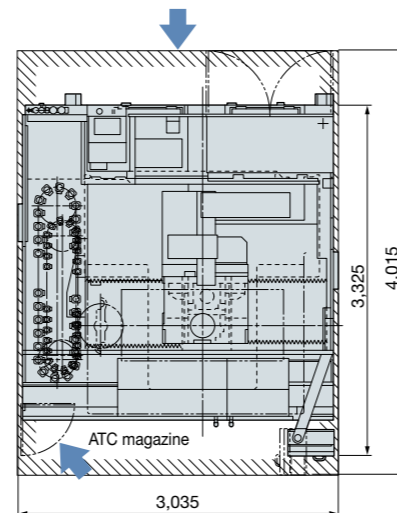Power line, chip disposal maintenance location

Air supply maintenance location

ATC magazine

2,810 / 3,580

2,225

M560-V-e 10 m²

Power line, air supply and chip disposal maintenance location

ATC magazine

3,194 / 3,875

2,564

M660-V-e 13 m²

Power line, air supply and chip disposal maintenance location
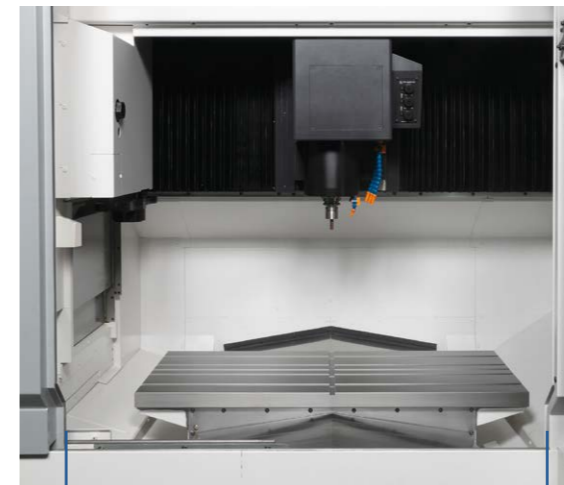
ATC magazine

3,325 / 4,015

3,035

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**
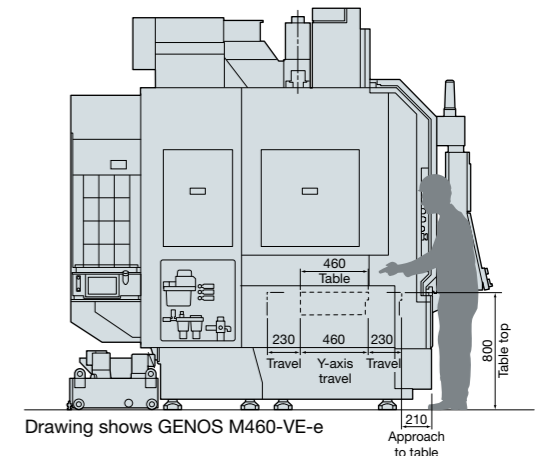
Drawing shows GENOS M460-VE-e

460 Table
230 Travel 460 Y-axis travel 230 Travel
800 Table top
210 Approach to table

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)

(Machine front)   (Machine rear)

Table

Bed

Lift-up chip conveyor (illustrated image; also see p.12)

Coolant tank
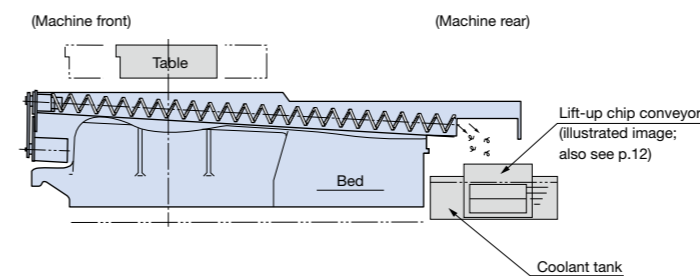
Hi-tech Okuma mechatronics for advanced machining applications

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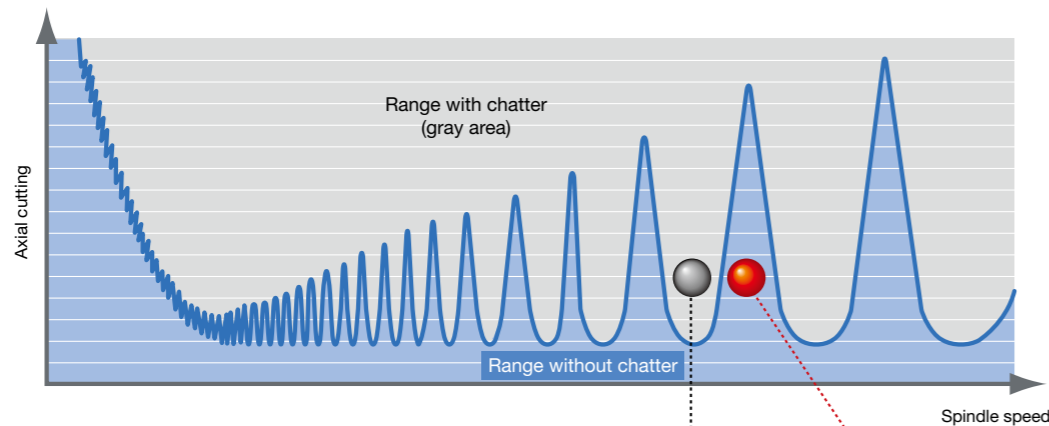Cutting condition search for milling

Push cutting conditions higher to increase profit

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

Range with chatter
(gray area)

Axial cutting

Range without chatter

Spindle speed

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.

Machining Navi
OFF
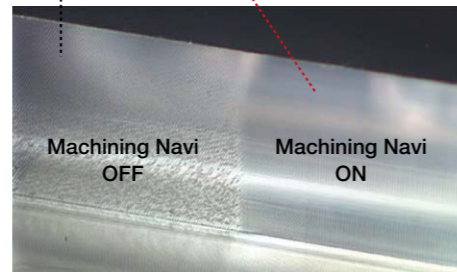
Machining Navi
ON

## 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.

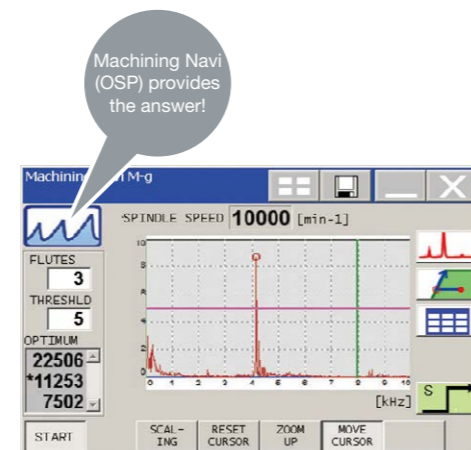Machining Navi (OSP) provides the answer!

This sign indicates a change to the optimum spindle speed.
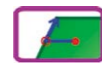
This sign indicates that spindle speed is being changed.
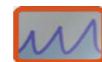
This sign indicates that the cutting load needs to be reduced.

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)

NC unit power consumption (%)

(%)
120
100
80
60
40
20
0

136%
100%
40%

1990s OSP | 2000s OSP | OSP-P300
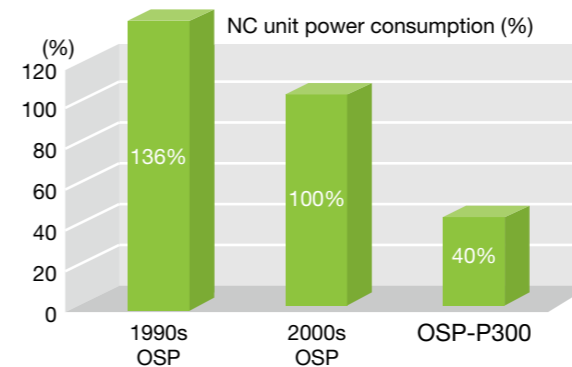
■ Energy-saving drive unit
· Low-loss power transistor used
· Power regeneration system used

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

Servo unit power consumption (%)

(%)
100
80
60
40
20
0

100%
85%

Previous Okuma machine | GENOS M460-VE-e
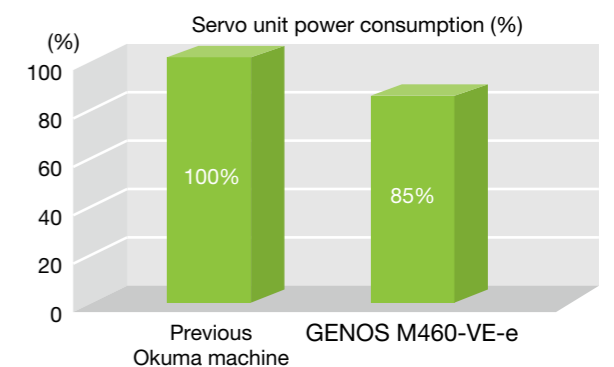
Machine Specifications

	Model		GENOS M460-VE-e	GENOS M560-V-e	GENOS M660-V-e	
			No.40	No.40	No.40	No.50*1
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⁻¹	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⁻¹	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*1	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*2	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⁻¹ 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)
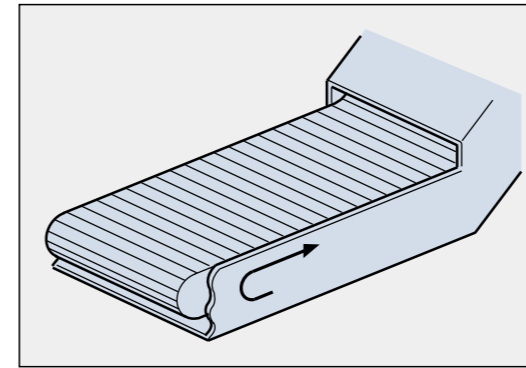
For reliable and efficient handling of chips from machine tools.

Conveyor Type	Remarks
Hinge 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

Max single tool size
(Without adjacent tools)
Unit: mm
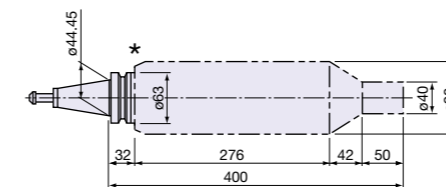
Max tool mass moment
Unit: mm

● GENOS M460-VE-e / M560-V-e

7.84 N-m

● GENOS M660-V-e (No. 40)
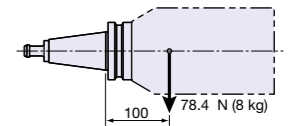
7.84 N-m
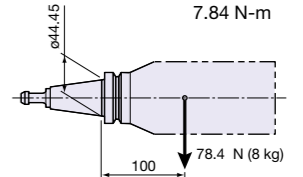
Mass including shank may be up to 78.4 N (8 kg), and the position of center of gravity at that time may be up to 100 mm from the datum diameter (ø44.45).

● GENOS M660-V-e (No. 50)

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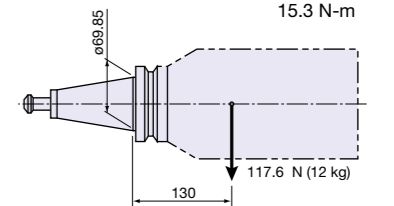
Mass including shank may be up to 117.6 N (12 kg), and the position of center of gravity at that time may be up to 130 mm from the datum diameter (ø69.85).

* 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.

OSP suite OSP-P300MA-e

The Next-Generation Intelligent CNC

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.

Smooth operations even with wet or work-gloved hands

Enlarge

"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
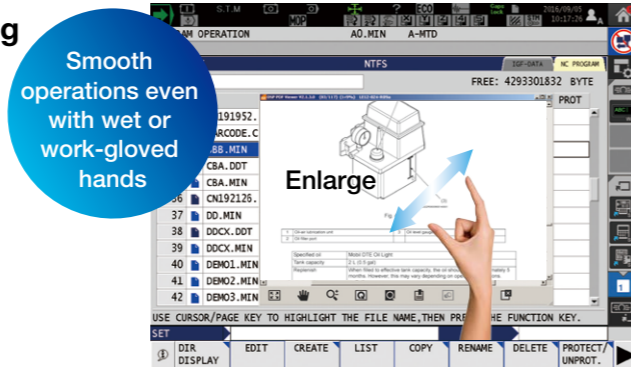Routine inspection support

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.

[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.

Machine tool and PC

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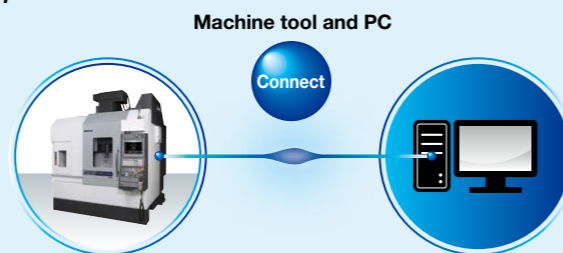
Advanced One-Touch IGF-M (option)
Interactive operations

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.

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

Immediate editing from Machining Order Table

Selected overall

Selected range

Cycle start

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 storage: 4 GB, operation buffer: 2 MB
	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)
		Comprehensive management of tool shape and tool compensation information for each tool number
		Tool data shared between machining and Advanced One-Touch IGF (option)
		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.

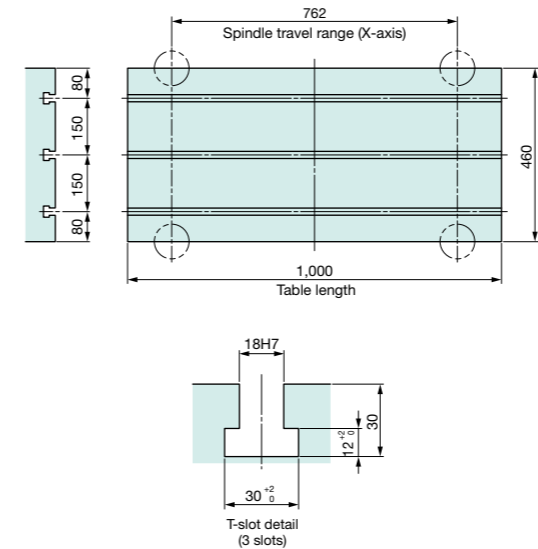### ■ 3D-E Kit Specifications (Europe Package Specs)

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
Mulitiple languages	15 languages available

■ Optional Specifications

Interactive functions			External I/O communication		
Advanced One-Touch IGF-M	Conversational programming and machine operations		DNC-DT		
			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	200 sets (Std: 20 sets)		**ECO suite (energy-saving functions)**		
3D circular interpolation			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			Mid-block restart	
	Enlarge/reduce		Block skip	3 sets	
Program branch; 2 sets			External M signals	4 signals, 8 signals	
F1-digit feed	Parameter		**Other**		
User task 2	I/O variables (16 each)		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				

■ Table size

762
Spindle travel range (X-axis)

460
Table travel (Y-axis)

1,000
Table length

18H7

30

12

30

T-slot detail
(3 slots)

■ Working ranges

Unit: mm

Travel 460
230 230

Travel 762
381 381

Z-axis travel (spindle)
Y-axis travel (table)

Z-axis travel (spindle)
X-axis travel (ram saddle)

Travel 460

150

460
Table width

500 500
1,000
Table length

■ Dimensional drawing / Installation drawing

Power inlet
37 KVA □50 mm² 4C
Height from floor: 750 mm or 2,150 mm

Transformer

Tank removal direction

Bed bottom line

NC cabinet

Air inlet height 456 mm, Rc3/8 internal
Required capacity 500 L/min (ANR)
More than 0.5 MPa
Supplied air temperature should be within +5°C

32-tool ATC

1.5 MPa thru-spindle coolant unit

Spindle center

32-tool ATC

Spindle center

Spindlehead cooler

Tool load/unload button (in-MC)

ATC magazine door
ATC operation panel

Signal tower

Chip pan

Coolant tank

Tank removal direction

Air unit

Chip bucket (option)

Lift-up chip conveyor (option)

Pulse handle

■ Table size

■ Working ranges

Unit: mm

1,050 Spindle travel range (X-axis)

92.5 125 125 125 92.5

560 Table travel (Y-axis)

1,300 Table length

T-slot   Cross groove

18H7   7 +0.4 0

Cross groove detail

18H7

30 +2 0   12 -0 0   30

T-slot detail (4 slots)

Travel 560
280 | 280

Z-axis travel (spindle)

Y-axis travel (table)

Travel 1,050
525 | 525

Z-axis travel (spindle)

X-axis travel (ram saddle)

Travel 460   150

560 Table width

650 | 650
1,300 Table length

■ Dimensional drawing / Installation drawing

Power inlet 37 KVA □50 mm² 4C
Height from floor: 750 mm or 2,150 mm

500 (margin)   4,190   500 (margin)

130
450   1,230   1,200   100   500 (margin)

Transformer   430   Tank removal direction   89 600

Air inlet height 954 mm, Rc3/8 internal
Required capacity 500 L/min (ANR)
More than 0.5 MPa
Supplied air temperature should be within +5°C

NC cabinet   100

1.5 MPa thru-spindle coolant unit   1,330   357   3,194   3,875

32-tool ATC   1,185

Spindle center   310   10

90   2,430   44   170 500 (margin)
2,564

32-tool ATC   Spindle center

Spindlehead cooler

ATC magazine door
ATC operation panel

Tool load/unload button (in-MC)   146
Signal tower
845 | 335

2,150   1,400 (CNC cabinet height)   2,746   Air unit

Chip pan

750   490   525 Move | 525 Move   33   460 Z-axis travel   610   2,600   2,295

Operation panel   1,000   150   730

1,050 X-axis travel
1,300 Table full length

Tank removal direction   560 Table width   Chip bucket (option)

Coolant tank   280 | 560 | 280   Lift-up chip conveyor (option)
Move Y-axis travel Move

FL   70

89   1,950   845   667   743 | 580   440
511   2,884   310   1,323 (Doors open)

380 200   1,410   1,020   380   800
4,190

Pulse handle

■ Table size

■ Working ranges

Unit: mm

1,500 Spindle travel range (X-axis)

80   125 125 125   80

660 Table travel (Y-axis)

1,530 Table length

T-slot   Cross groove

18H7   7 +0.4 0

Cross groove detail

18H7   12 -0 0   30

30 +0 0

T-slot detail (5 slots)

Travel 660
330 | 330

Z-axis travel (spindle)

Y-axis travel (table)

Travel 1,500
750 | 750

Z-axis travel (spindle)

X-axis travel (ram saddle)

150   Travel 660

660 Table width

765 | 765
1,530 Table length

■ Dimensional drawing / Installation drawing

500 (margin)   4,670   500 (margin)   Power inlet 38 KVA □50 mm² 4C
Height from floor: 770 mm or 2,170 mm

130
450   1,740   1,200   500 (margin)

Transformer   200 430   Tank removal direction   88 600

Air inlet height 943 mm, Rc3/8 internal
Required capacity 500 L/min (ANR)
More than 0.5 MPa
Supplied air temperature should be within +5°C

NC cabinet   551 610
59   1,330   3,325   4,015

1.5 MPa thru-spindle coolant unit

No. 50 32-tool ATC (option)

No. 40 32-tool ATC

Spindle center

50   2,940   45   180 500 (margin)
3,035

Spindle center

Spindlehead cooler   MG magazine door

ATC operation panel

Tool load/unload button (in-MC)   695
Signal tower
Operation panel

2,170   1,400 (CNC cabinet height)   3,295   849 | 301   Pulse handle   Table top

Air unit   Chip pan

770   490   330 Move | 330 Move   750 Move | 750 Move   660 Z-axis travel   810   2,455   2,600
1,235   1,500 X-axis travel   39   150 780

Coolant tank   1,530 Table full length   1,000   70

Tank removal direction   660 Table width   Chip bucket (option)
660 Y-axis travel   Lift-up chip conveyor (option)

430   2,985   340   380   932   1,510 (Doors open*2)   498 | 350   800
85 | 95   3,420   200   1,031   1,302 (Doors open*1)   607 | 103
3,935   4,670

*1. Door opening operation
*2. Maximum door open width

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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