

OPEN POSSIBILITIES

















Innovative productivity of large components

High power and high-speed movement improves productivity

•45 kW, 1,071 N-m spindle

• 40 kW, 1,920 N-m spindle (Optional)

• Rapid traverse: 42-m/min X-Y-Z axes

Automatic tool change for super big bore tools enables long-run unattended operation

• ATC your boring tools up to ø600 mm

Long-run high-precision machining with machine design to inhibit thermal deformation

• Plus ball-screw cooling, motor base cooling, and B-axis drive cooling

AULUSIO

Thermo-Friendly Concept

OKUMA



Photographs used in this brochure may show optional equipment. In the above image, portions of the enclosure shielding have been removed to reveal the interior. This view differs from the actual product.

Improved productivity through highly efficient large part machining

Outstanding machining capacity handles even hard-to-cut materials with ease



* Limitations on possible B-axis rotational range

Jobs inside the machine are easy, with low pallet top surface, and fast table rotation

 B-axis double-motor drive design enables minimal table thickness, and lower height of pallet top surface. B-axis rotation speed: 9 min⁻¹ Table indexing time: 2.1 sec (90°)



High-torque spindle for easy machining of titanium, Inconel and other difficult-to-cut materials

Integral motor/spindle: 1.071 N-m Gear spindle (Optional): 1,920 N-m



Spindle torque / Power graph

Optimal for difficult-to-cut materials and heavy-duty cutting

Standard spindle

N-m

Spindle Speed 6,000 min⁻¹ VAC 45/37 kW (20 min/cont) Max output Max torque 1.071/637 N-m (3 min/cont)

Gear spindle (Optional) Spindle Speed 4,500 min⁻¹

Max output Max torque





Machining capacity (Material: S45C)

Standard spindle: 6,000 m 45/37 kW (20 min/cont)

in ⁻¹	Tool	Spindle speed min ⁻¹	Cutting m/min	Feedrate mm/min	Cut width mm	Cut depth mm	Chips cm³/min
	ø160 face mill: 16 blades (carbide)	500	251	2,688	112	4	1,204
	ø63 roughing end mill: radial 4 flutes (carbide)	1,266	251	1,495	15	35	785
	M42 P4.5 tap	91	12	409	-	-	-

*The "actual data" referred to above for this brochure represent examples, and may not be obtained due to differences in specifications, tooling, cutting, and other conditions. 4

- VAC 40/30 kW (15 min/cont) 1.920/1.440 N-m (15 min/cont)

Ideal for machining a wide range of materials, from aluminum to steel

Wide-range spindle (Optional)

- Spindle Speed 12,000 min⁻¹
- Max output
- Max torque
- VAC 37/26 kW (10 min/cont) 419/194 N-m (2 min/cont)



Long, untended operations of the big components

ATC of large tools for the big component jobs

Enables automatic tool changes, even with large-diameter boring bars, milling cutters, and other large tools generally changed manually for long, untended operations of the big components.



Automatic tool changer

High-precision machining on a large machine



The unique approach of "accepting temperature changes" **Thermo-Friendly Concept**

Thermo-Friendly structure gives outstanding thermal stability



Thermo Active Stabilizer-Construction

The TAS-C environmental thermal deformation control

deformation; by taking into consideration the machine's

thermal deformation characteristics, temperature data from

properly placed sensors, and feed axis positioning information.

accurately controls the machine's structural thermal

TAS-C (Optional)

hermo Active Stabilizer Construction (TAS-C) Thermo Active Stabilizer -Spindle (TAS-S) **Highly Accurate Control Technology** Thermo-Friendly Concept Machine designs that equalize ambient Simple machin construction temperatures Symmetrically built Machine covers Thick walls Peripheral equipment placement

Machining dimensional change over time minimized with outstanding dimensional stability

TAS-S

Machine "hot spots" diffused

Thermo Active Stabilizer-Spindle

The TAS-S spindle thermal deformation control takes into account various conditional changes such as the spindle's temperature data, modification of the spindle rotation and speed, as well as spindle stoppage. The spindle's thermal deformation will be accurately controlled, even when the rotating speed changes frequently.

Eliminate waste with the

Okuma's Thermo- Friendly Concept

To stabilize thermal deformation,

machining restart is reduced.

Thermo-Friendly Concept

In addition to maintaining high dimensional

accuracy when room temperature changes,

provides high dimensional accuracy during

Machine startup

Machining restart

Room temp change

High dimensional stability

machine startup and machining restart.

warming-up time is shortened and the burden of dimensional correction during

W-axis delivers effective deep-hole and pocket milling for large components (Optional)

Effective deep-hole boring

W-axis travel reaches the back of deep holes

• 500-mm W-axis travel, ø130-mm quill diameter



High-torque spindle provides highly efficient machining



Operator-friendly machine structure design

Superior ease-of-use reduces operator burden

Z-axis column travel construction provides superior operability

• Door opening ensures good operability in the machine Simple and easy confirmation of tool edge machining area greatly reduces time in preparing tools and confirming programs







* The photograph 19-inch operation panel (Optional)

5

W-/Z-axis travels with good access to table center -275 to 1,875-mm range from pallet center





*1. Y-axis travel above pallet top surface: +50 to 1,525 mm Note: +50 to 1,650 mm with standard pallet



Reduces burden of setup

- Flattening within the machine for excellent operability
- Setup station with excellent operability
- Platforms surround the pallets to assist operator setups
- Being able to walk around the job makes it so much easier to handle difficult, heavy workpieces.

Smooth discharge of large volumes of chips from long-run machining

Flexible production of large-variety workpiece applications

Smooth chip discharge

- Smooth discharge of chips with hinged conveyor situated beneath the spindle where the chips are generated.
- Clean, simple covering prevents chips from accumulating in the machining chamber.



In-machine chip conveyor (hinged)



Recommended chip conveyors

○: Recommended specifications, △: Recommended specifications with conditions

Workpiece mater	ial		Steel	FC	Al / Nonferrous	Mixed (general use)
Chip shape					A	
In-machine	Hinge type	[Std] *	0	0	0	0
Off machina	Scraper type (with drum filter)	[Opt]	_	(Wet) w/magnet	∆*3	_
On-machine	Hinge + scraper (with drum filter)	[Opt]	*1		0	0

7

* Scraper type is available as an option

*1. When there are many fine chips *2. When chips are longer than 100 mm *3. When chips are shorter than 100 mm Note: In the case of dry chips, clean out chips that have accumulated under the pallet or elsewhere in the machine as needed.

Off-machine lift-up chip conveyors



*Regular cleaning of coolant tank is necessary even for conveyors with drum filters.



Hinge + scraper (with drum filter) lift-up chip convevor

Tool changer (ATC), matrix magazine type

- Fast, space-saving matrix magazine system with low energy use drive (Standard)
- Open-ceiling magazine door for storage of heavy tools with crane
- Shorter tool preparation times: minimum 18 seconds
- Reduced machine width



			ATC Tool Spe	cs			
ATC tools		Max length,					
	w/ adjacent tools	Storage	w/o adjacent tools	Storage	Moment		
81 tools		81 tools (59 tools*)			Max length:	600 mm	
129 tools	ø130mm	129 tools (107 tools*)	ø315mm	8 tools	Max mass:	30 kg	
177 tools		177 tools (155 tools*)	77 tools (155 tools*)		Mass moment:	37 N-m	

Ready for FMS applications (Optional)

With several machines, stacker/transport system, and a control system, this FMS makes possible flexible production of high-mix, high-volume jobs. With long, untended operations, efficient (waste-less) machine utilization, reduced work-inprogress inventory, and space-saving arrangement raises shop productivity to high levels.





Open ceiling magazine door

* When 8 ø315-mm tools are stored with ø130-mm or smaller tools.

The Next-Generation Intelligent CNC **OSP Suite osp-p300M**

It is a suite of premium applications to increase the efficiency of each manufacturing process by increasing status visibility and digitizing shop floor production instructions, setup information, machining and utilization, machine maintenance information and more. Intelligent, fast machining and efficient "monozukuri" (craftsmanship-based manufacturing) achieved with a control interface that can be operated on a new dimension.



suite apps

In addition to Okuma's Intelligent Technology, a rich array of applications is available for visualization and digitization of information needed on shop floors to support high-level "monozukuri."

	PERIODICAL MAINTENANCE	DAILY INSPECTION			01687	woor
NØ./	ITEN .	WORK	MICHINEXX	REVAN	IN'G.	CHECUTE
310	Grease for tool clamping unit (HSP)	Saply	-	- 24	0	
311	Paoling is test slamping unit (HEK)	haperion	0	101	(i)	
szi	B-era contrar fabication tal	Reglace	1	1000	0	
411	Hydradia unit al	Replace	-		٢	
412	Hydraulic unit line filter	Clearing	1	19	(
413	Hademulic unit line filter	Replace		32h	0	
301	On the SPCIL example unit	Replace	1	1000+	0	

Maintenance Monitor that displays daily and regular check items



suite operation

A highly reliable touch panel suited to shop floors is used. Suite apps can be started by touching a function key icon on the right side of the screen. They are then displayed in a pop-up window. The icon layout is customizable. Suite apps can be accessed with one touch according to the desired phase of operation.



Note: 15-in. operation panel screen

Okuma Intelligent Technology for competitive machine shops



Collision prevention Collision Avoidance System (Optional)

World's first "Collision-Free Machine"

CAS prevents collisions in automatic or manual mode, providing risk-free protection for the machine and great confidence for the operator.



Cutting condition search for milling Machining Navi M-i, M-gII+, M-gII* (Optional)

Automatically changes to optimum spindle speed (M-i)

Sensors built in to the machine detect and analyze machining chatter. Machining Navi then navigates to the effective measures in a wide range of spindle speeds, from low to high. • Available only with Okuma integral motor/spindles. (N/A with gear spindles.)





* Harmonic Spindle Speed Control available only with M-i or M-gII+. (N/A with M-gII.)



Achieves long term accuracy and surface guality

SERVONAVI AI (Automatic Identification)

Cycle time shortened with faster acceleration Work Weight Auto Setting

On table travel type machining centers, the table feed acceleration with the previous system was the same regardless of weight, such as workpieces and fixtures loaded on the table. Work Weight Auto Setting estimates the weight of the workpiece and fixture on the table and automatically sets servo parameters, including acceleration, to the optimum values. Cycle times are shortened with no changes to machining accuracy.





Adjust cutting conditions while monitoring the data (M-gII+, M-gII)

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.





Maintains machining accuracy and surface quality **Reversal Spike Auto Adjustment**

Slide resistance changes with length of time machine tools are utilized, and discrepancies occur with the servo parameters that were the best when the machine was first installed. This may produce crease marks at motion reversals and affect machining accuracy (part surface quality).

SERVONAVI's Reversal Spike Auto Adjustment maintains machining accuracy by switching servo parameters to the optimum values matched to changes in slide resistance.

Contributes to longer machine life Vibration Auto Adjustment

When aging changes machine performance, noise, vibration, crease marks, or fish scales may appear.

Vibration Auto Adjustment can guickly eliminate noise and vibration even from machines with years of operation.

Machine Specifications

	Item	Unit	MA-12500H	MA-12500H W *1
Travel	X-axis travel (table L/R)	mm (in.)	2,200	(86.61)
	Y-axis travel (spindlehead vertical)	mm (in.)	1,600 (62.99)	1,475 (58.07)
	Z-axis travel distance (column front/back)	mm (in.)	1,650	(64.96)
	W-axis travel distance	mm (in.)	_	500 (19.69)
	B axis (pallet swivel)	deg	±3	60
	Pallet top to spindle centerline	mm (in.)	Tapping specs: 50 to 1,650 (1.97 to 64.96),	Tapping specs: 50 to 1,525 (1.97 to 60.04),
			[T-slot specs: 20 to 1,620 (0.79 to 63.78)]	T-slot specs: 20 to 1,495 (0.79 to 58.86)
	Pallet centerline to spindle nose	mm (in.)	225 to 1,875 (8.86 to 73.82)	-
	Pallet centerline to W-axis spindle nose	mm (in.)	-	-275 to 1,875 (-10.83 to 73.82)
Pallet	Pallet dimensions	mm (in.)	□ 1,250	0 (49.21)
	Max load capacity	kg (lb)	Tapping specs: 5,000 (11,000)	, [T-slot specs: 4,600 (10,120)]
	Indexing angle	deg	0.0	001
	Max workpiece dimensions	mm (in.)	Tapping specs: ø2,000 (78.74) × h1, 600 (62.99) [T-slot specs: ø2,000 (78.74) × h1, 570 (61.81)]
Spindle	Spindle speed	min⁻¹	50 to 6,000 [10 to 4,500 <gear spindle="">]</gear>	3 000 < gear spindles
			[50 to 12,000 <integral motor="" spindle="">]</integral>	
	Spindle speed ranges		Stepless [2 <gear spindle="">, Ste</gear>	epless <integral motor="" spindle="">]</integral>
	Tapered bore		7/24 taper No. 50 [H	ISK-100, HSK-A125]
Bearing dia (front bearing)		mm (in.)	ø100 (3.94) [ø110 (4.33) <gear spindle="">]</gear>	ø200 (7.87)
	W-axis feed spindle diameter (Quill dia)	mm (in.)	-	ø130 (5.12)
Feed	Rapid traverse	m/min (ipm)	X-Y-Z: 42 (1,654)	X-Y-Z: 42 (1,654), W: 8 (315)
		deg/min	B: 3	,240
	Cutting feedrate	mm/min (ipm)	X-Y-Z: 1 to 42,00	00 (0.04 to 1,654)
		deg/min	B: 3	,240
Motors	Spindle drive	kW (hp)	45/37 (60/50) (20 min/cont)	37/30 (50/40) (30 min/cont)
			[40/37/30 (55/50/40) (15 min/30 min/cont) <gear spindle="">]</gear>	<gear spindle=""></gear>
			[37/26 (50/35) (10 min/cont) <integral motor="" spindle="">]</integral>	
	Feed axes	kW (hp)	X-Z: 5.2 (7) × 2, Y: 5.1 (7) × 2, B: 4.6 (6) × 2	X-Z: 5.2 (7) ×2, Y: 5.1 (7) ×2, B: 4.6 (6) ×2, W: 3.5 (4.7)
ATC		tools	[81, 12	9, 177]
	Iool shank		MAS BI50 [CAI No. 50, DIN N	0. 50, HSK-A100, HSK-A125 ²]
	Pull stud	<i>(</i>)	MAS-2 [MAS-1, CAI,	CAI Special, DIN, JIS]
	Max tool dia (W/ adjacent tool)	mm (in.)	Ø130	(5.12)
	Max tool dia (w/o adjacent tool)	mm (in.)	Ø315	(12.40)
	Max tool length	mm (in.)	800 (/	(66)
	Max tool weight	KG (ID)	30	(00)
		IN-ITT (IT-IDT)		(27)
			Fixed a	
APC	Rollet change system		2 2 pallet pa	
Maahina	Height	mm (in)	2-pallet pal	
		mm (in)	6 880 × 12 512 (270 87 × 402 60) (81-	140.00
-size	TIOU SPACE WAD	(iii.)	$(129-tool ATC magazine) \sim 14.127$	7 (556 57) (177 tool ATC magazine)
	Weight	ka (lb)	63 100 (138 820) (81-tool ATC	$(177-100) \times 10$ (140 140)
	Weight	kg (ib)	(129-tool ATC magazine) 64 000 (140, 800 (177-tool ATC magazine)
			(123-1001 ATO Magazine), 04,000 (
			03P-1	000191

[] Optional *1. W-axis specs are Optional. *2. HSK-A125 shank not available for 6,000 and 12,000 min⁻¹ spindles.

Standard Specifications

Spindle speed	6,000 min ⁻¹ (45/37 kW [20 min/cont])	2-pallet parallel shuttle APC	Pallet top: M20 tap
Spindle/spindlehead cooler	Oil controller	Full enclosure shielding	
Ball screw cooler	X-Y-Z axes	Operation panel	
B axis cooler	Oil controller	Operator platform	
Centralized lube auto unit	With oil level and pressure alarms	ATC manual operation panel	
Coolant system	Tank: 1,400 L (Effective 1,000 L)	Work lamp	LED
	Pump: 555/885 W (50/60Hz)	Status indicator	3-color C type
In-machine chip discharge	Chip conveyor below X-axis telescopic cover	Air filter and oiler	
	Center trough chip conveyor	Hydraulic unit	
In-machine chip washer	1,100 W	Foundation blocks, jack bolts	
ATC air blower (blast)		Tool release lever	
Chip air blower (blast)	Nozzle	Tapered bore cleaning bar	
Table washer		Hand tools	
Telescopic cover	And in-machine washer	Tool box	
Auto 0.001° indexing table	Built-in NC table	Thermo Active Stabilizer-Spindle	TAS-S

Optional Specifications

Spindle speed	4,500 min ⁻¹ , 40/37/30 kW, No. 50 ^{*1} 12,000 min ⁻¹ , 37/26 kW, No. 50 ^{*2}	Off machine chip discharge	Drum filter type lift-up conveyor Mosnic RDF
Spindle speed W-axis	3,000 min ⁻¹ , 37/30 kW (Gear spindle)	Chip bucket for above	Height 700 mm, 1,000 mm
Dual contact spindle	HSK, BIG-PLUS®	Hydraulic unit cooler	
ATC tool magazine capacity	81, 129, 177 tools (matrix)	Coolant heater/cooler	
AbsoScale detection	X, Y, Z axes	ATL*4 comp/breakage detect	Laser sensor
Automatic pallet changer	FMS	Auto zero offset/gauging	Touch probe
Pallet upper surface shape	T groove specs	In-magazine tool breakage detection	Touch sensor
Spare pallet		Tool life management	Time counter, etc.
Edge locator		Operation panel	Link arm type
Oil-hole coolant system	1.5 MPa	Pull stud shape	MAS-1, CAT, DIN, JIS
Thru-spindle coolant*3	1.5, 7.0 MPa	Pull studs	MAS-2, MAS-1, CAT, DIN, JIS
	Large flow specs: 1.5, 7.0 MPa	Machine anchoring	Chemical anchors, foundation bolts
Shower coolant system		B-axis hydraulic clamp	
Workpiece washing gun		High-precision B-axis indexing	
Chip air blower (blast)	Adapter type	Thermo Active Stabilizer-Construction	TAS-C

*1. Gear spindle *2. Integral motor/spindle *3. Okuma pull stud required *4. ATL: auto tool length

Main special specifications

Shower coolant, coolant nozzle



-

 Auto tool length compensation, breakage detection (laser sensor) In-magazine tool breakage detection





Machine tool idling stop

ECO Idling Stop

Only the necessary units run

Accuracy ensured, cooler off ECO Idling Stop

Intelligent energy-saving function with the Thermo-Friendly Concept.

The machine itself determines whether or not cooling is needed and cooler idling is stopped with no loss to accuracy. (Standard application on machines with Thermo-Active Stabilizer—Spindle)

On-the-spot check of energy savings

Power is shown individually for spindle, feed axes, and auxiliaries on the OSP operation screen. The energy-saving benefits from auxiliary equipment stopped with ECO Idling Stop can be confirmed on the spot.

• Auto zero offset, auto gauging (wireless touch probe)







ECO suite benefits

Electricity consumption during non-machining time greatly reduced with "ECO Idling Stop", which shuts down each piece of auxiliary equipment not in use.



- "ECO Idling Stop" for operation of necessary units only
- "ECO Power Monitor" for visual graphics of power
- Intermittent/continuous operation of chip conveyor and mist collector during operation — "ECO Operation" (Optional)
- Energy-saving hydraulic unit using servo control technology "ECO Hydraulics" (Optional)

Pallet dimensions



MA-12500H



[]: T-slot pallet specs Unit : mm (in.)

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 inputs	8-digit decimal, ±99999.999 to 0.001 mm (3937.0078 to 0.0001 in.), 0.001°					
		Decimals as: 1 μm, 10 μm, 1 mm (0.0001,1 in.) (1°, 0.01°, 0.001°)					
	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 + touch panel operations					
	Self-diagnostics	Automatic diagnostics and display of program, operation, machine, and NC system faults					
Programming	Program capacity	Program storage capacity: 4 GB; operation backup capacity: 2 MB					
	Program operations	Program management, editing, multitasking, scheduled program, fixed cycle, G-/M-code macros, arithmetic, logic statements,					
		math functions, variables, branch commands, coordinate calculate, area calculate, 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	"Single-mode operation" to complete a series of operations					
		Advanced operation panel/graphics facilitate smooth machine control					
	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, PLC monitor					
	MacMan	Machining management: machining results, machine utilization, fault data compile & report, external output					
Communications / Netw	orking	USB (2 ports), Ethernet, RS-232-C interface (1 channel)					
High speed/accuracy sp	Decs	TAS-S (Thermo Active Stabilizer-Spindle), Hi-G Control, Hi-Cut Pro, pitch error compensation, ServoNavi M, Machining Time Shortening Function					
Energy-saving function	ECO suite	ECO Idling Stop*1, ECO Power Monitor*2					

Optional Specifications

	Kit Specs*1		VIL	3	υ	A	ונ
Item		E	D	E	D	Е	D
Interactive functions							
Advanced One-Touch IG	GF-M (Real 3D simulation included)						
Interactive MAP (I-MAP))					-	-
Programming	,						
Auto scheduled progra	m update						
G/M-code macros	an apaulo	-	-	-	-	-	-
Common variables	1 000 sets						
(Std: 200 sets)	2 000 sets						
Program branch: 2 sets	2,000 3013						
Program massage (MS	C)						
Coordinate system	100 sets		-		-		-
selection		-		•		•	
(Std: 20 sets)	200 Sets		•		•		•
	400 Sets						
Helical cutting (within 3	360)	•	•	•	•	•	•
3D circular interpolation	n T						
Synchronized Tapping	<u>II</u>			•			
Arbitrary angle chamfe	ring			•		•	•
Cylindrical side facing							
Slope machining							
Tool grooving (flat-tool	free-shaped grooving)						
Turn-Cut	urn-Cut						
Tool max rotational spe	Tool max rotational speed setting						
F1-digit feed	4 sets, 8 sets, parameter						
Programmable travel li	Programmable travel limits (G22, G23)						
Skip (G31)	Skip (G31)						
Axis naming (G14)							
3D tool compensation							
Tool wear compensation	on						
Drawing change	Programmable mirror image (G62)						
0 0	Enlarge/reduce (G50, G51)						
User task 2	I/O variables (16 each)						
Tape conversion*2	,						
Monitoring							
Beal 3D simulation							
Simple load monitor	Spindle overload monitor			ě	ě	ě	
NC operation monitor	Hour meter work counter	ě	ě	ě	ě	ě	
Hour meters	Power spindle NC cutting	-	-	-	-	-	-
	With M02_M30_and END commands						
Work counter	With M02 and M30 commands						
MOR COUNCI	Adaptive control overload monitor						
Tool life management	Hour motor No. of workpices						
Couging	Hour meter, No. or workpieces	-	-	-	-	-	-
Auto gauging	Touch probe (G21)	Incl	udar	in c	ook:		
Auto gauging	Auto gauging Iouch probe (G31)				Identi	ne sp	Jecs
Auto zero onset	includes auto gauging	Incl	uaea	in ñ	Iacul	ne sp	Jecs
lool breakage detection	(touch sensor) (G31) Includes auto tool offset	Incl	uded	in m	nachi	ne sp	becs
Gauging data printout	File output						
Manual gauging (w/o s	ensor)						
Interactive gauging (to	uch sensor touch probe required)	-	-	-	-	-	-
into aouro gaaging (tot							

*1. Spindle cooler Idling Stop is used on TAS-S machines.

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

	Kit Specs*1	NML		3D		AC	TC
Item	Nit Opeca	Е	D	Е	D	Е	D
External I/O communicati	on						
Additional RS-232-C cha	annel (Std specs include 1 channel)						
DNC-T3							
DNC-B (232C-Ethernet	t transducer used on OSP side)						
DNC-DT	,						
DNC-/Ethernet							
Additional USB (Additional USB	onal 2 ports, Std: 2 ports)						
Automation / untended of	peration						
Auto power shut-off	M02 and END alarms,						
-	work preps done	•	•	•	•		•
Warm-up (calendar tim	er)						
External program	Button, rotary switch,						
selection	digital switch, BCD (2-digit, 4-digit)						
Cycle time reduction (I	gnores certain commands)						
Pallet pool control (PPO	C) (Required for multi-pallet APC)						
Robot, loader I/F							
High-speed, high-precision	on						
AbsoScale detection	X-, Y-, Z-axis						
Inductosyn detection	A-, B-, C-axis						
Super-NURBS	Super-NURBS						
0.1 µm control (linear a	xis commands)						
TAS-C (Thermo Active	Stabilizer—Construction)						
ECO suite (energy saving	functions)						
ECO Operation							
ECO Power Monitor	Wattmeter						
Energy-saving	Inverter						
hydraulic unit	ECO Hydraulics						
Other							
Control cabinet lamp (i	nside)						
Circuit breaker							
Sequence operation	Sequence stop						
Upgraded sequence restart	Mid-block return						
Pulse handles	2 pcs, 3 pcs (Std: 1 pc)						
External M signals	4, 8 signals						
Collision Avoidance Sy	Collision Avoidance System						
Machining Navi*3 M-i*4, M-g	Machining Navi*3 M-i*4, M-gII+*4, M-gII*5 (cutting condition search)						
One-Touch Spreadshee	et						
Block skip; 3 sets							
Additional axes	A, B, C axes [preps, specs]						
Fixture offset							
OSP-VPS (Virus Protec	tion System)						
19-inch variable angle	operating panel						

*1. NML: Normal, 3D: 3D Simulation, E: Economy, D: Deluxe,

AOT: Advanced One-Touch IGF-M

*2. Requires technical consultation.

*3. Harmonic Spindle Speed Control available only with Machining Navi M-i or M-gII+ specifications.

*4. Machining Navi M-i or M-gII+ are available with integral motor/spindles.

*5. Machining Navi M-gII is available with gear spindles.

This product is subject to the Japanese government Foreign Exchange and Foreign Trade Control Act with regard to security controlled items; whereby Okuma Corporation should be notified prior to its shipment to another country.



OKUMA Corporation

Oguchi-cho, Niwa-gun, Aichi 480-0193, Japan TEL: +81-587-95-7825 FAX: +81-587-95-6074