OKUMA

OPEN POSSIBILITIES

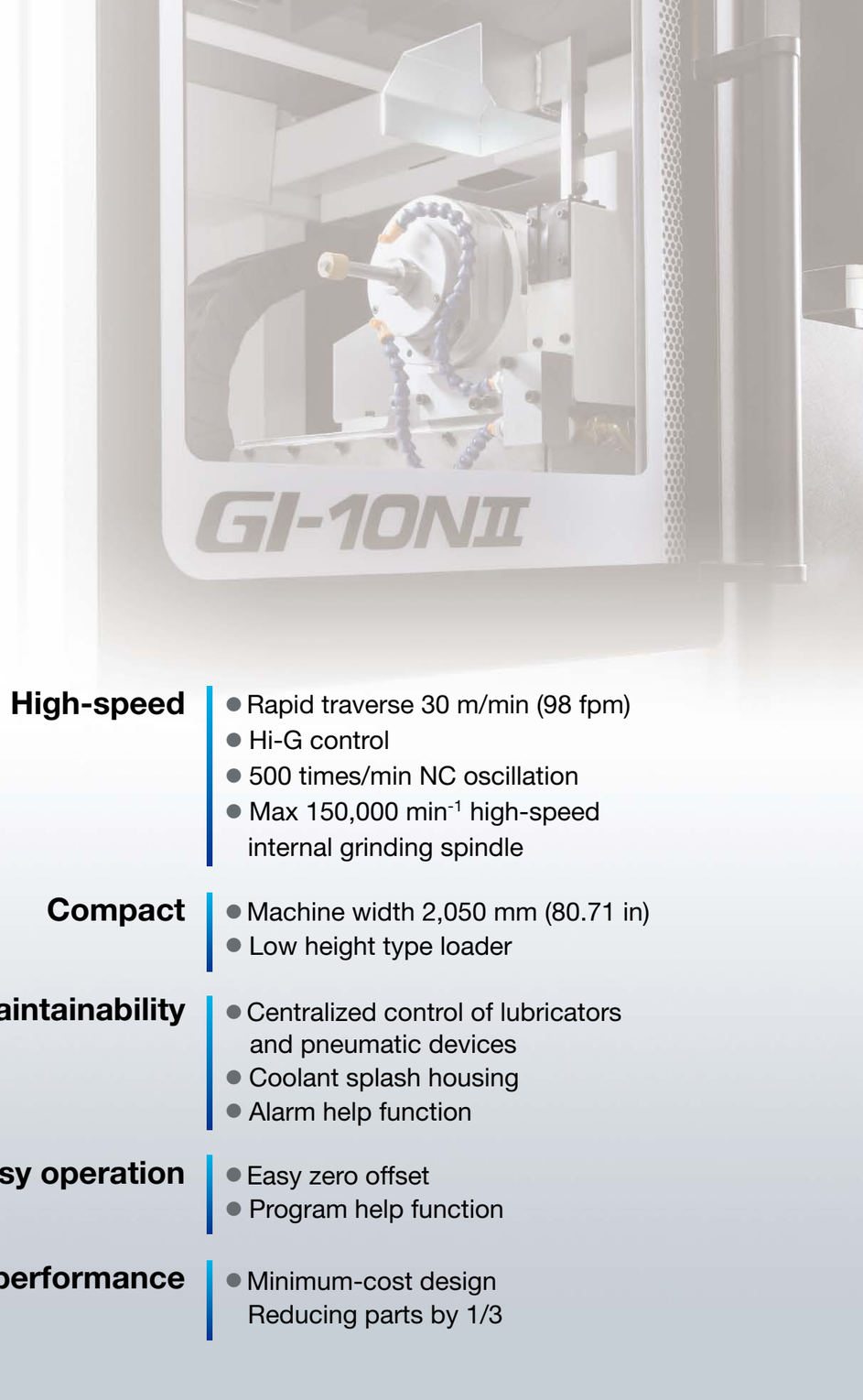
GI-10NII

CNC Internal Grinder for Mass Production

GI-10NII

CNC Internal Grinder for Mass Production

A compact, high-speed internal grinder that makes a difference in high-performance production



High-speed
- Rapid traverse 30 m/min (98 fpm)
- Hi-G control
- 500 times/min NC oscillation
- Max 150,000 min^{-1} high-speed internal grinding spindle

Compact
- Machine width 2,050 mm (80.71 in)
- Low height type loader

Excellent maintainability
- Centralized control of lubricators and pneumatic devices
- Coolant splash housing
- Alarm help function

Easy operation
- Easy zero offset
- Program help function

Cost performance
- Minimum-cost design
  Reducing parts by 1/3

Photos in this brochure include optional specifications.

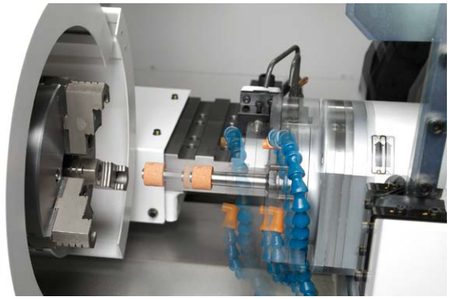
High efficiency grinding

Machine configuration to achieve high efficiency grinding

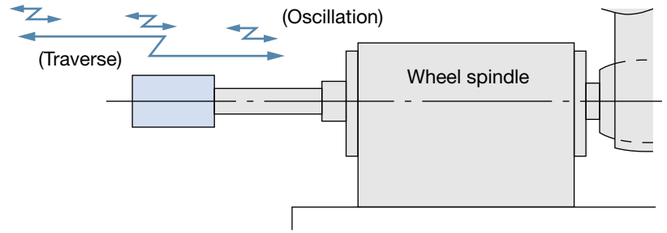
NC high-speed oscillation

To enhance grinding removal efficiency, and to achieve high efficiency grinding

- Oscillation frequency: Up to 585 times/min
- Rapid traverse: 30 m/min (Z-axis)
  20 m/min (X-axis)
- 0.1 µm control



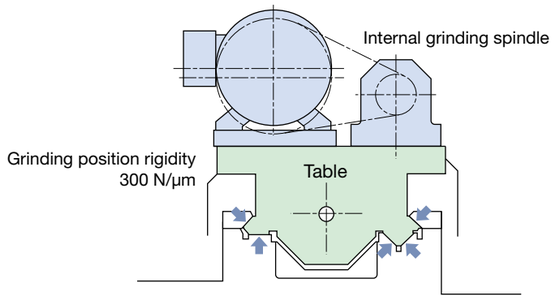
Oscillating and traverse method (combined)

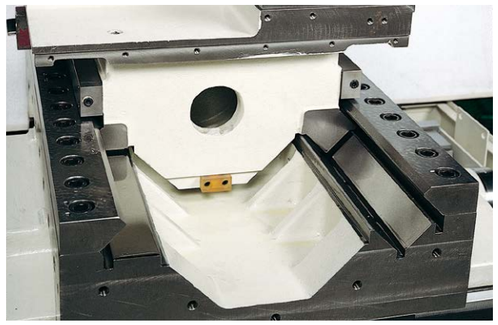


Restraining 5-surface hydrostatic guideway system (Z-axis)

This guideway with high followability and high rigidity enables high-speed oscillation.

- High rigidity: 300 N/µm
- Maintenance free: Non-contact
- No backlash: High followability

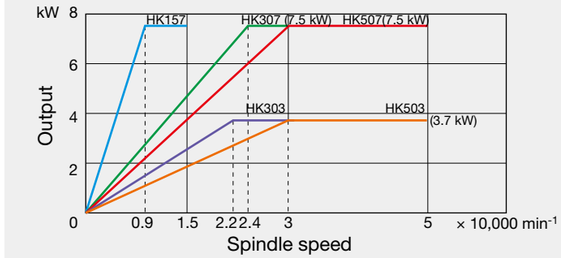


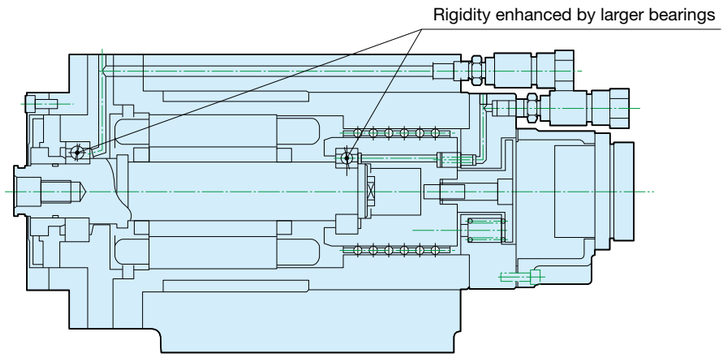


The internal grinding spindle with high-speed, high rigidity enables powerful grinding.

- Dn value: 1,600,000 (maximum)
- Oil air lubrication

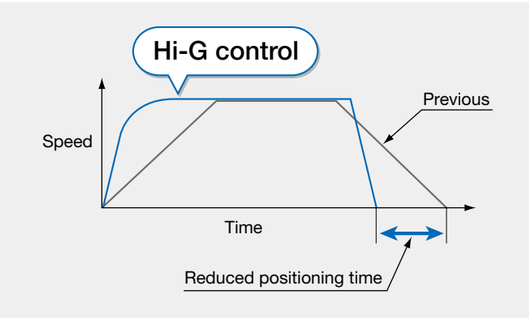
Output diagram of high frequency internal grinding spindle HK series





Hi-G control

During positioning, this function controls the acceleration/deceleration speed in accordance with the speed-torque characteristics of the BL motor, resulting in high-speeds and highly stable positioning. Accordingly, this Hi-G control function reduces positioning time and greatly reduces non-cutting time.

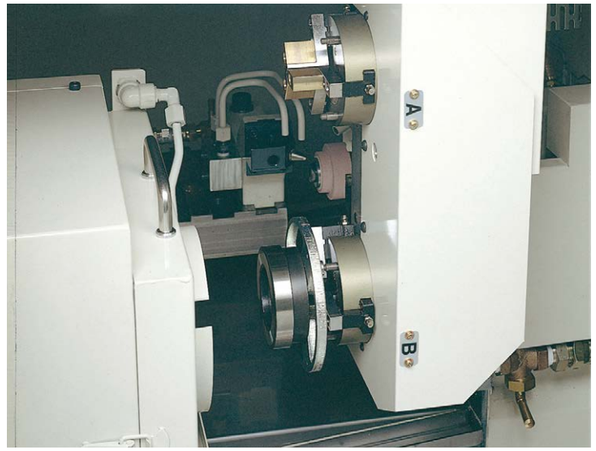


Dressing during loading (Optional)

Non-grinding time reduced by dressing during loading.

Non-grinding time reduction

A fixed headstock configuration enables to allow dressing during loading.
This function significantly reduces the cycle time.



Larger space for workpiece loading/unloading

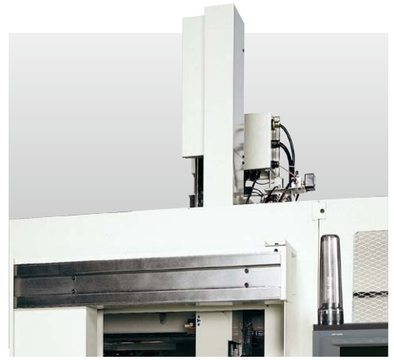
This machine configuration with a larger X-axis travel allows the wheel to retract farther when loading/unloading the workpiece, resulting in greater safety.

High-speed loader (Optional)

Non-grinding time reduced by high-speed loader

High-speed loader at a rapid traverse of 180 m/min

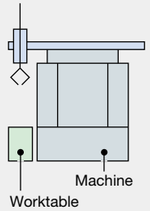
- Low-height design makes for more clearance from the ceiling of your factory
- On-machine type makes relocation easy



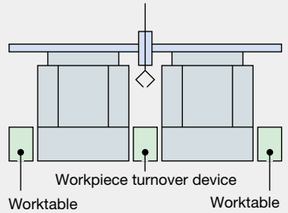
Abundant variety of loader patterns that facilitate automation

Examples of OGL-5 loader layout

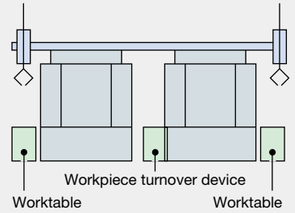
- 1M1L (one-machine one-loader)



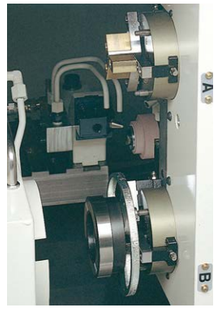
- 2M1L



- 2M2L

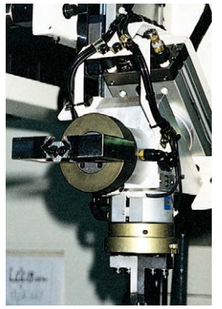


Loader gripper



Vertical drop double hand

- Max workpiece diameter: 120 mm (4.72 in)
- Max workpiece length: 60 mm (2.36 in)
- Max workpiece mass: 3 kg × 2



Swivel double hand

- Max workpiece diameter: 120 mm (4.72 in)
- Max workpiece length: 60 mm (2.36 in)
- Max workpiece mass: 3 kg × 2

Machine specifications

	Unit	SBK Kit:	SHK Kit:
Capacity			
Grindable bore	mm (in)	ø3 to 150 (0.12 to 5.91)	
Grindable hole length	mm (in)	to 150 (5.91)	
Swing over table	mm (in)	ø400 (15.75)	
Swing within chuck cover	mm (in)	ø350 (13.78)	
Workpiece length	mm (in)	to 150 (5.91)	
Spindle support capacity (mass × distance)	kg × mm	100 × 150	
Cross slide (X-axis)			
Travel	mm (in)	300 (11.81)	
Feedrate	mm/min	ø0.02 to ø6,000	
Rapid traverse	mm/min	ø40,000	
Minimum unit	mm	ø0.0001	
Table (Z-axis)			
Travel	mm (in)	350 (13.78)	
Feedrate	mm/min	0.02 to 3,000	
Table oscillation amount	mm (in)	10 (0.39)	
Table oscillation frequency	times/min	to 585	
Rapid traverse	mm/min	30,000	
Minimum unit	mm	0.0001	
Work spindle			
Spindle nose diameter	mm (in)	ø100 (3.94)	
Spindle bore	mm (in)	ø70 (2.76)	
Spindle speed	min^{-1}	100 to 1,000	
Motors			
Internal grinder spindle	kW (hp)-P	5.5 (7.33)–2	Select
Work spindle	kW (hp)	3.5 (4.69)	
Cross slide (X-axis)	kW (hp)	2.9 (3.89)	
Table (Z-axis)	kW (hp)	2.8 (3.75)	
Hydraulic lube pump	kW-P	0.4–4	
Coolant pump	kW-P	0.25–2, 0.18–2	
ID spindle cooling pump	kW-P	–	0.18–2
Tank capacity			
Hydraulic lube	L	40	
Coolant	L	200	
ID spindle cooling	L	–	40
Machine dimensions			
Machine height	mm (in)	1,900 (74.80)	
Floor space	mm (in)	2,050 × 2,110 (80.71 × 83.07)	
Machine mass	kg (lb)	3,600 (7,920)	

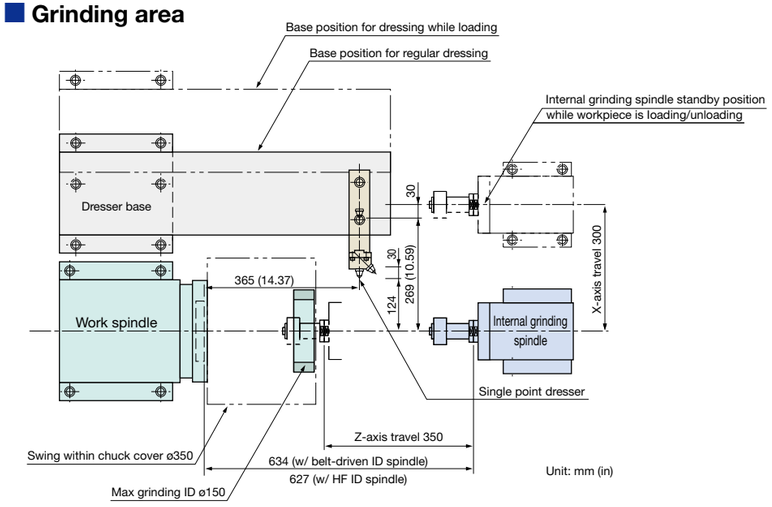
SBK: Belt driving internal grinding spindle kit
SHK: High frequency internel grinding spindle kit

Standard specifications

Specifications	Q'ty	Contents of specifications	Kit SBK	Kit SHK
Grinding process	1set	Plunge grinding (oscillation possible) Multi-plunge grinding (oscillation possible) End face plunge grinding Simultaneous plunge grinding (OD & end or ID & end face) Parallel traverse grinding (oscillation possible) Taper traverse grinding Profile grinding	○	○
Sizing	1set	Indirect sizing (according to program data)	○	○
Bed	1set	1 complete set of bed-related items	○	○
Workhead Spindle Spindle motor Spindle speed Override	1set	 Front bearing ID,ø100 3.5 kW brushless motor 100 to 1,000 min^{-1} (infinity variable S4 code direct command) 50 to 200%	○	○
Internal grinder spindles*	1set	Belt-driven: BK50, 1 pulley and belt (1 set), 5.5-kW inverter motors Driver power: With general inverter and spindle ID signal (1 set)	○	
	1set	High-frequency: Select from Optional specs Cooler: With 40-L tank, spindle bracket Driver power: With 12-kVA HF inverter		○
Cross slide (X-axis) Guideway Feed motor	1set	 V-flat turcite forced lubrication brushless motor 2.9 kW	○	○
Table (Z-axis) Guideway Feed motor	1set	 Closed hydrostatic type brushless motor 2.8 kW	○	○
Hydraulic oil tank	1set	Separate type,40L. Variable discharge 0.4 kW pump motor Fan cooler	○	○
Oil air lubricator	1set	Internal grinder wheel, X-axis ball screw nut	○	○
Air control unit	1set		○	○
Coolant nozzle	1set		○	○
Wheel spindle overload protecter	1set	Digital setting (Displayed by Ampere)	○	○
Work lamp	1set	ON/OFF type inside machine enclosure shield	○	○
Skip dressing	1set	By NC programming	○	○
Multi-dressing	1set	By NC programming	○	○
Full enclosure shielding	1set	With manual opening/closing door (interlocked)	○	○
Jack bolt and washer	1set		○	○
Hand tools	1set	Spanners, etc with a tool box	○	○
Electrical equipment	1set	50/60Hz, 200V Okuma standard electric equipment specification, main motor and standard electric equipment	○	○

SBK: Belt-driven ID grinding spindle kit
SHK: High frequency ID grinding spindle kit
* Optional

Grinding area



Optional specifications

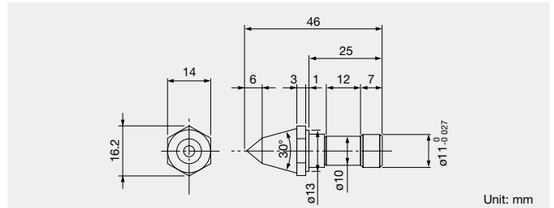
Specifications	Descriptions	Kit SBK	Kit SHK
Spare parts		–	–
Spare belts	For workhead		
	For wheel spindle		
Hydraulic/lubrication oil			
Grinding wheel			
Quill			
Diamond tool	D5 (2 pcs, 2 ct)	○	○
	Other		
Tooling			
Workpiece drivers	3-jaw scroll chuck ☐JN-07T ☐JN-09T		
	Pneumatic 3-jaw power chuck		
	Diaphragm chuck		
	Finger chuck		
	Diaphragm finger combination chuck		
	Collet chuck		
	Magnetic chuck		
Self-grinding chuck fixtures	Tension ring		
	Master		
	Quill (with bolt washer)		
	Grinding wheel (5 pieces/set)		
Shoe-type centerless grinding	Magnetic chucks and shoes		
	Movable workhead		
Sizer	Front fork ☐ Tokyo Seimitsu ☐ Marposs		
	End-face sizer ☐ Tokyo Seimitsu ☐ Marposs		
	Constant coolant supply (sizer therm def cntr meas)		
Dressers			
Rotary dresser	CBN wheels: traverse rotary dresser w/ AE sensor		
	Form grinding rotary dresser		
Diamond tools	For the above rotary dressers		
Grinding wheel dresser	Fixed type	○	○
Coolant			
Coolant tank	Separate type 200 L with 0.25 kW, 0.18 kW pump motor	○	○
Coolant separator	Magnetic: 80 L/min	○	○
	Magnetic: SHIF* F-12; 120 L/min		
	Magnetic and paper: SHIF* FP-8; 80 L/min		
	Magnetic and paper: SHIF* FP-12; 120 L/min		
	Thickener bag seprtr: SHIF* FP-8 300 L tank		
	Other		
Centralized coolant	SOL coolant, with pressure switch		
Thru-spindle coolant nozzles			
Splash gun	Inside-machine wash		
Coolant temperature regulator	Coolant temperature control		
Mist collector	☐KURAKO EUN-10 ☐Other		
Other			
High powered wheel spindle mtr	7.5 kW		
Oriented spindle stop	Electric		
Auto door open/close	Pneumatic (manual pushbutton, cycle-linked)		
Chuck cover	Swing within cover ø350, general purpose	○	○
Oil temp control heater	Recommended for cold climates		
Oil temp control heater/cooler	Recommended for cold climates		
X-axis AbsoScale			
Machine lifting fixtures			

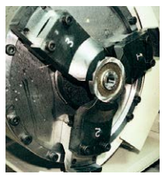
Specifications	Descriptions			Kit SBK	Kit SHK
Wheel spindle	Model	Max spindle (min^{-1})	Output (kW)	–	–
Belt-driven internal grinding spindles	BK25	40,000			
	BK30	32,000			
	BK40	25,000			
	BK50	20,000		○	
	BK65	16,000			
High frequency internal grinding spindles	HK15004	150,000	0.4		
	HK10007	100,000	0.7		
	HK802	80,000	2.2		
	HK503	50,000	3.7		
	HK303	30,000	3.7		
	HK507	50,000	7.5		
	HK307	30,000	7.5		
	HK155	15,000	5.5		
	HK157	15,000	7.5		
Automation					
Workpiece seat check					
Workpiece air blower	Compressed air blast to clear/drain fluids				
Loader					
OGL5	☐ Vertical drop double hand				
	3-jaw air chuck				
	With pusher				
	Workpiece grip check				
	Built-in controls				
	☐ Swivel double handle				
	3-jaw air chuck				
	With pusher				
	Workpiece grip check				
	Built-in controls				
Peripheral devices	Workpiece stocker ☐ Worktable ☐ Tray changer				
	Conveyor ☐ Pitch feed ☐ Accumulation feed				
Machine specifications	Loader cover; auto overhead open/close				
	Safety cover				
	Loader gripper jaws				
	Workpiece air blower				
	Chuck air blower				
	Chuck grip check				
	Cycle time reduction				
	Dressing during loading				

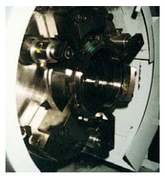
* Sumitomo Heavy Industries Finetech

SBK: Belt-driven ID grinding spindle kit
SHK: High frequency ID grinding spindle kit

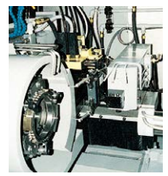
Diamond tool D5



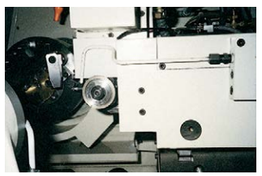

Diaphragm chuck

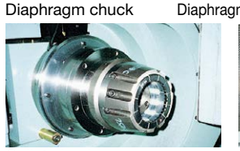

Diaphragm/finger chuck

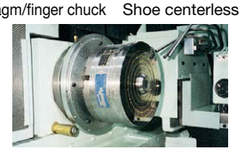

Shoe centerless


Front fork sizer


Form grinding rotary dresser


Traverse rotary dresser for CBN wheels


Collet chuck


Magnetic chuck


Mist collector

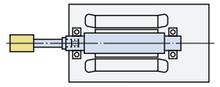
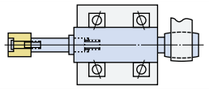

Combination magnetic paper filter coolant separator

Optional internal grinding spindles

Internal grinding spindle selections

	Wheel Peripheral Speed				Wheel Spindle (quill diameter × maximum length)								
	2,000 m/min		3,000 m/min										
Wheel Speed min^{-1}	Wheel Dia mm	Grindable bore mm	Wheel Dia mm	Grindable bore mm	BK65	HK157 BK50	BK40	BK30	BK25	HK303 HK307	HK503 HK507	HK802	HK10007
150,000	4.3	6											
120,000	5.3	7											
100,000	6.3	8	9	13									5×13
80,000	8	10	12	16								6×16	6×16
63,000	10	13	15	20								8×20	8×20
50,000	13	16	19	25							10×25	10×25	10×25
40,000	16	20	24	32					13×32		13×32	12×32	
30,000	22	27	32	42				16×40	16×40	16×40	16×40		
25,000	25	32	38	50			20×50	20×50	20×50	20×50	20×50		
20,000	32	40	48	63		25×63	25×63	25×63	23×63	23×63			
16,000	40	50	60	80	32×80	32×80	32×80	28×80		32×80			
13,000	50	63	75	100	40×100	40×100	38×100						
10,000	63	80	90	130	50×130	48×130*							
8,000	80	100	100	160									
6,000	100	200	100	200									

* 48 × 130 size available only for the BK50 wheel spindle.

Type	Construction	Model	Spindle speed (min^{-1})	Basic spindle speed (min^{-1})	Rated output (kW)	Max wheel dia (mm)	Max wheel wid (mm)
High frequency internal grinding spindle HK series (Oil air lubrication)	 High frequency integral motor/spindle	HK15004	150,000/100,000	150,000	0.4	ø40	20
		HK10007	100,000/50,000	100,000	0.7	ø45	30
		HK802	80,000/40,000	80,000	2.2	ø50	35
		HK503	50,000/15,000	30,000	3.7	ø60	40
		HK303	30,000/9,000	22,000	3.7	ø75	50
		HK507	50,000/15,000	30,000	7.5	ø60	40
		HK307	30,000/9,000	24,000	7.5	ø75	50
		HK157	15,000/4,500	9,000	7.5	ø100	60
Belt-driven internal grinding spindle BK series (Oil air lubrication)		BK25	40,000/20,000	Inverter motor-driven 5.5 kW (Std) 7.5 kW		ø70	35
		BK30	32,000/16,000			ø75	40
		BK40	25,000/12,500			ø80	55
		BK50 (Std)	20,000/10,000			ø90	50
		BK65	16,000/8,000			ø100	55

Internal grinding spindle and quill dimensions

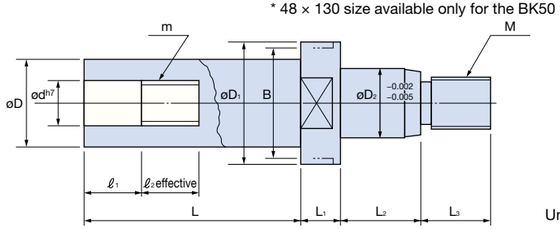
Wheel Spindle	D × Max L	D_1	D_2	M	L_1	L_2	L_3	B	d	m	ℓ_1	ℓ_2
HK10007	3,4,5 × 13 6 × 16 8 × 20	15	8	M6	6	8	8	13	–	–	–	–
	10 × 25								5	M5	8	7
HK802	4,5,6 × 16 8 × 20	18.5	10	M8	7	12	12	16.5	–	–	–	–
	10 × 25								5	M5	8	7
	12 × 32								6	M6	9	9
BK25	13 × 32	23.5	12	M10 P1.25	8	14	14	21	6	M6	9	9
	16 × 40, 20 × 50, 23 × 63								8	M8	10	10
HK503 HK507 BK30	10 × 25	28.5	16	M12 P1.5	9	18	16	26	5	M5	8	7
	13 × 32								6	M6	9	9
	20 × 50 25 × 63 28 × 80								10	M10 P1.25	13	13
HK303 HK307 BK40	20 × 50	38	22	M16 P1.5	10	24	21	36	10	M10 P1.25	13	13
	25 × 63 32 × 80 38 × 100								12	M12 P1.5	15	15
HK157 BK50	25 × 63	48	28	M20 P1.5	10	30	25	44	12	M12 P1.5	15	15
	32 × 80 40 × 100 48 × 130*								16	M16 P1.5	18	19
BK65	32 × 80	63	35	M26 P1.5	11	38	31	59	16	M16 P1.5	18	19
	50 × 130								20	M20 P1.5	21	23

* 48 × 130 size available only for the BK50 wheel spindle.

Quill drawing

Q 50 • 30 × 50
- L
- D
- Bearing dia

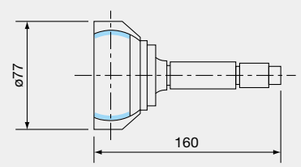
Standard L sizes
13, 16, 20, 25, 32, 40, 50, 63, 80, 100, 130, 160



Unit: mm

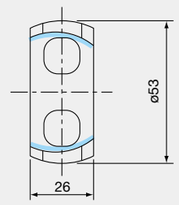
Grinding examples

CVT: outer race



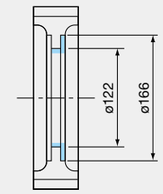
Cycle time: 35 sec
(incl load/unload)

CVT: cage



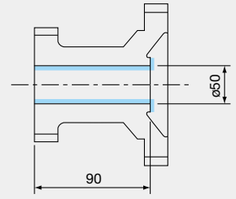
Cycle time: 27 sec
(incl load/unload)

Final gear



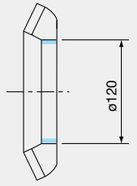
Cycle time: 70 sec

Idler gear



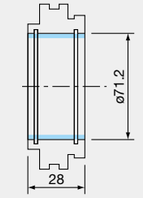
Cycle time: 269 sec

Differential gear



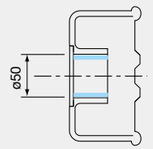
Cycle time: 30 sec

Torque converter: outer race



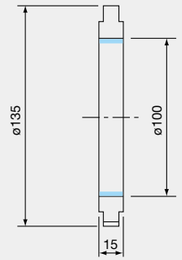
Cycle time: 60 sec

Torque converter: front clutch drum



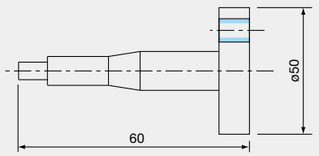
Cycle time: 50 sec

Torque converter: one-way clutch



Cycle time: 35 sec
(incl load/unload)

General-purpose engine: assembly crank



Cycle time: 30 sec
(incl load/unload)

Unit: mm

OSP suite OSP-P300GA

The Next-Generation Intelligent CNC

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

Smart factories are using 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 smart phone

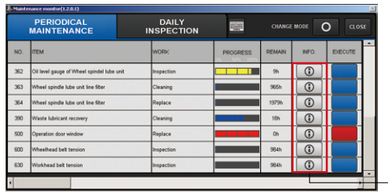
Improved rendering performance and use of a multi-touch panel achieve intuitive graphical operation. Enlarged instruction manual display and displays of tool data, programs and other lists can be done smoothly and easily with smart phone-like operations. The screen display layout on the operation screen 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.



[INFO] button

Wheel Spindle 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

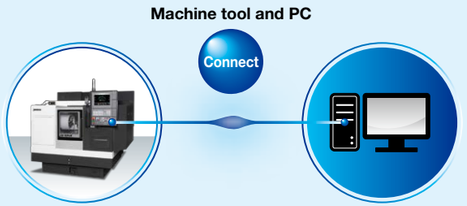
Scheduled Program Editor
Easy programming without keying in code

Connect Plan

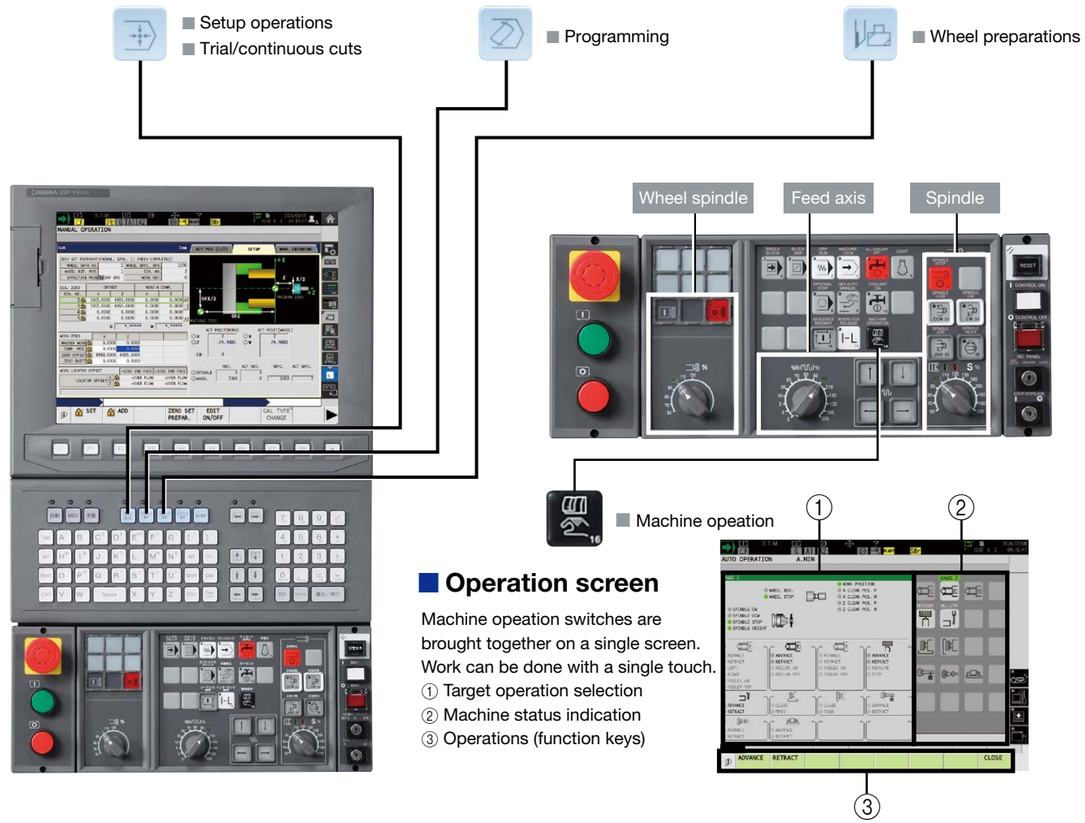
Get Connected, Get Started, and Get Innovative with Okuma "*Monozukuri*"

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.



Easy Operation . . .
Do and see the things you want quickly and without difficulty



Operation screen

Machine opeation switches are brought together on a single screen. Work can be done with a single touch.

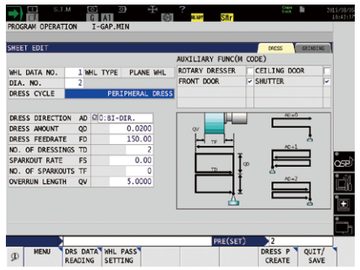
① Target operation selection
② Machine status indication
③ Operations (function keys)

I-GAP+ (Optional)

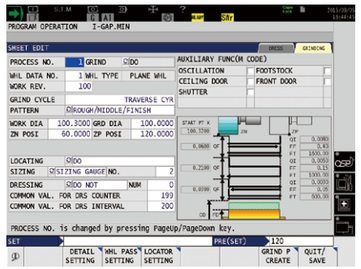
Intuitive machining operations are made possible with advances in interactive program creation and efficient creation of part programs.

● Sheet programming
With screen input of grinding conditions, the wheel runout, wheel dressing, and grinding programs needed for grinding can be created without regard to GM codes.

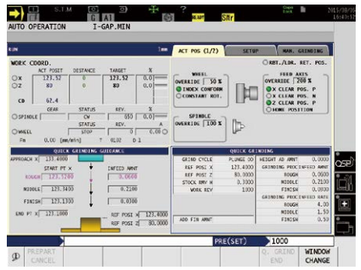
● Quick grinding
Grinding can be done while checking the cycle being executed and position on the drawings. This is Easy Operation that feels like manual operation, from roughing to finishing, by simply setting the infeed amount.



Wheel dressing program create sheet



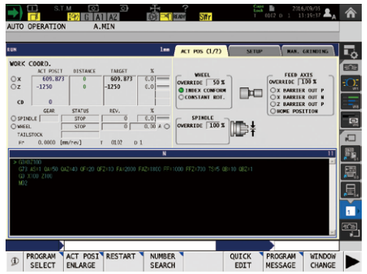
Grinding program create sheet



Quick grinding

Running screen indications

Automatic operations and setup work are done from the running screen. Press the “Running screen” key on the operation panel or the Auto/MDI mode key to display the running screen. You can switch to the actual position sheet, setup settings sheet, or manual grinding sheet as needed.



Actual position sheet (program selection)

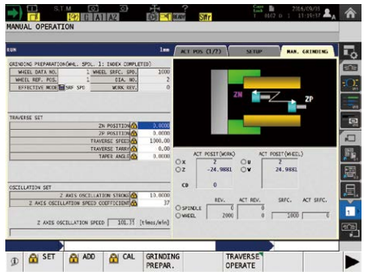
On the actual position sheet of the running screen, in addition to actual position display, workpiece selection/program selection/schedule selection are possible with use of the function keys.

Setup settings sheet

On the setup settings sheet on the running screen, guideways, various coordinate values, and other settings for different purposes are displayed. To minimize switching between screens, settings for running conditions selection/diagram zero point/zero point shift/workpiece locator offset can be made.

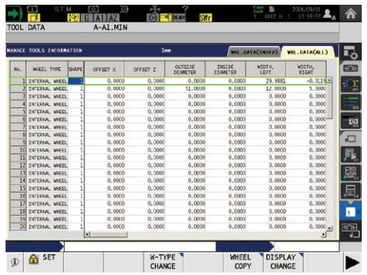
Manual grinding sheet

On the manual grinding sheet on the running screen, setting parameters for the grinding wheel and spindle speed used, traverse running, and oscillation operation are displayed. To minimize switching between screens, operation and setting items related to manual operation are brought together on a single screen.

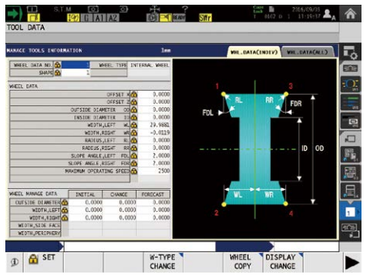


Tool data setting

Grinding wheel data are managed in the tool data settings. Grinding wheel data are displayed by pressing the “tool data setting” button on the operation panel. The setting screen shows a list of registered grinding wheel data and individual screens related to each grinding wheel.



Sheet switch



Standard Specifications

Basic Specs	Control	Simultaneous X, Z axis: 2 axes, 2 linear axes
	Spindle control	BL motor spindle, S command 4-digit, constant speed, override 50 to 200%
	Grinding wheel spindle	Grinding wheel axis (interver control), spindle speed (G99 mode) SW command 6-digit, peripheral speed (G98 mode) SW command 6-digit, G.W.constant speed function (G98), grinding wheel speed override 50 to 120%, maximum spindle speed setting (G50), maximum peripheral speed setting (G50)
	Position feedback	OSP full range absolute position detection
	Feed drives	Override switch 0 to 200% 15 steps
	Max/Min input	Decimal 8 digits, ±9999.9999 mm (±393.70078 in), 0.0001 mm (0.1 μm)
Display/operating functions	Display	15-inch color LCD + multi touch panel operations
	“suite” apps	Applications to 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 screen operations
	Data setting function	Zero point offset, wheel, wheel management, diamond tool, software limits, chuck barriers, etc
	Program editing	Program one-touch editing, workpiece selection, sequence number arrange, WIN app editing
	Operations	Workpiece selection (index program), sequence restart, manual interrupt, PLC monitor, parameter input/output
	Programming	Linear/circular interpolation, workpiece coordinates (G11 X-axis, Z-axis), grinding wheel coordinates (G12 U-axis, W-axis), grinding wheel data 80 sets, diamond data 9 sets, diamond data calculation command fixed grinding cycle, fixed wheel dressing cycle, programming using both mm/rev and mm/min user task 1, zero shift, home position function
	Program capacity	Program storage: 4 GB, operation buffer: 2 MB
	Machining management	Display of results for each machining program, display of operation results (power ON time, grinding time, etc.), input of reasons for non-operation
	Monitoring	Grinding load display, grinding overload detection, gap elimination function
Communications / Networking		Ethernet (1,000 Mbps), USB (2 ports)
High speed/accuracy specs		Hi-G control, droop control, variable lost motion compensation
Online help		Programming help, alarm help, operation help

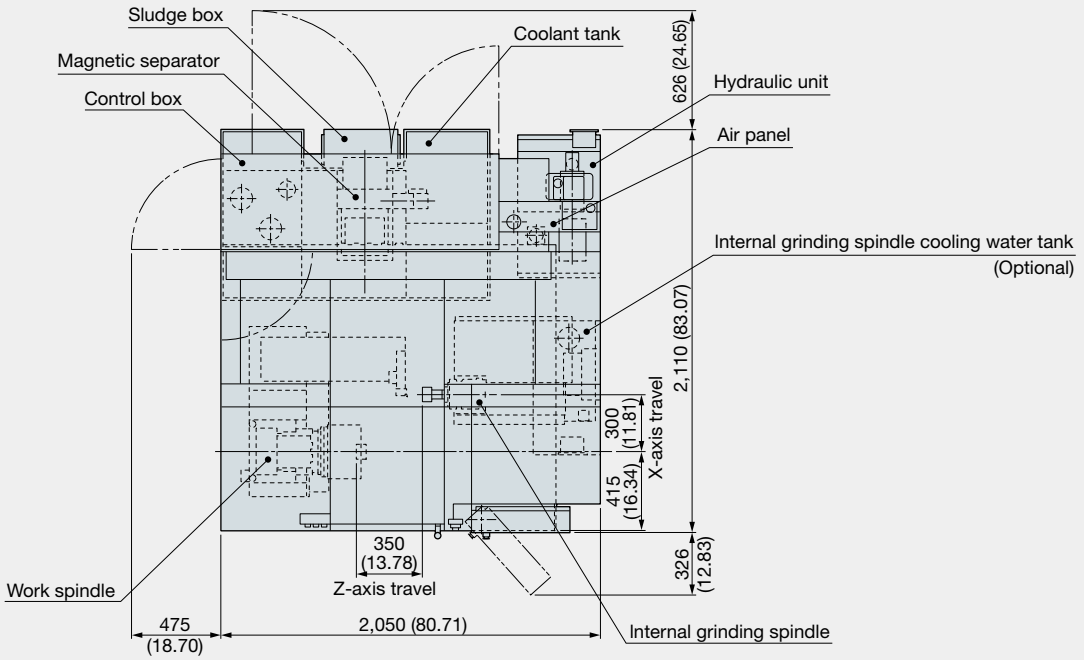
Optional Specifications

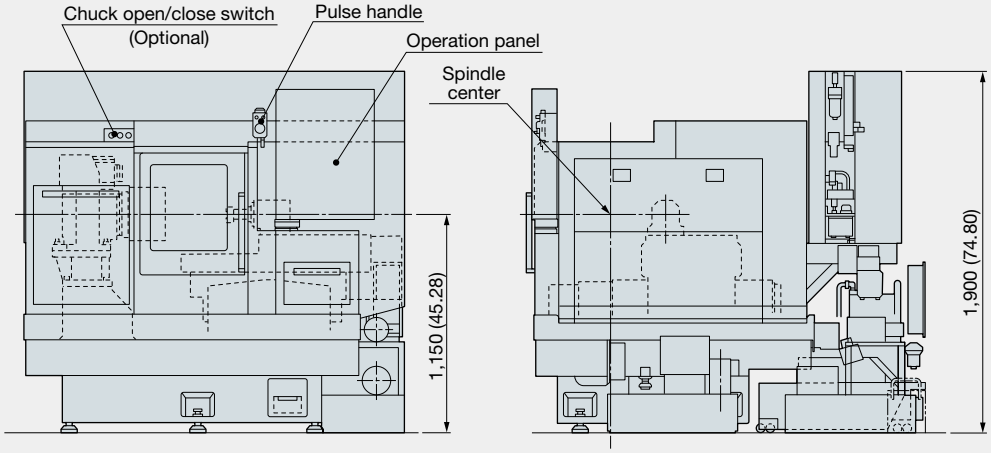
Items	Kit Specs *	NML E	NML D	3D E	3D D	I-GAP E	I-GAP D
Interactive operation							
I-GAP+						●	●
Programming							
Inch/metric switchable							
User task 2	Sub programs calculation function	●	●	●	●	●	●
	operations with I/O terminals						
Common variables	1,000 sets (Standard: 200 sets)						
Program notes			●		●		●
Monitoring							
Real 3D Simulation				●	●	●	●
3-step status indicator lamp	Type B						
	Type C	●	●	●	●	●	●
Operation end lamp	Yellow revolving light						
Alarm lamp	Red revolving light						
NC operation monitor		●	●	●	●	●	●
Workpiece counter	4-digit resettable						
	6-digit resettable or not						
Hour meters	Power ON, resettable						
	Spindle ON, resettable or not						
	Auto operation ON, resettable or not						
Displays wheel change indication		●	●	●	●	●	●
Cycle time over check		●	●	●	●	●	●
Displays wheel change warning		●	●	●	●	●	●
External input/output communication							
RS-232C connector							
DNC link	DNC-T1	●	●	●	●	●	●
	DNC-T3						
Additional USB	2 additional ports possible						

Items	Kit Specs *	NML E	NML D	3D E	3D D	I-GAP E	I-GAP D
Automated functions							
Oriented spindle stop	Electric						
Auto power shutoff	Machining completion, alarm						
	Above + external command						
Warm-up							
External workpiece selection	Rotary switch 8 types						
	Digital switch 99 types						
	External command BCD 2-digit						
	External command BCD 4-digit						
Okuma robot, loader I/F (built-in)							
Okuma robot, loader I/F (independent)							
Other manufacturers’ robot, loader I/F	Okuma standard; B specs						
	Okuma standard; C specs						
	User designation						
Dressing during loading							
Cycle time reduction		●	●	●	●	●	●
Other functions							
Control cabinet power socket							
Control cabinet lighting							
Earth leakage circuit breaker (ELCB)							
Spare M code	2 sets						
	4 sets						
	8 sets						
Chuck can be operated during program stop							
Auto grinding wheel straightening		●	●	●	●	●	●
Pulse handle overlap							
OSP-VPS (OSP Virus Protection System)							

* NML: normal, 3D: 3D simulation, E: economy, D: deluxe

GI-10NⅡ
Dimensional / Installation Drawings





Unit: mm (in)

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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.

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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