OKUMA

OPEN POSSIBILITIES

CNC Internal Grinder

GI-20NII

CNC Internal Grinder

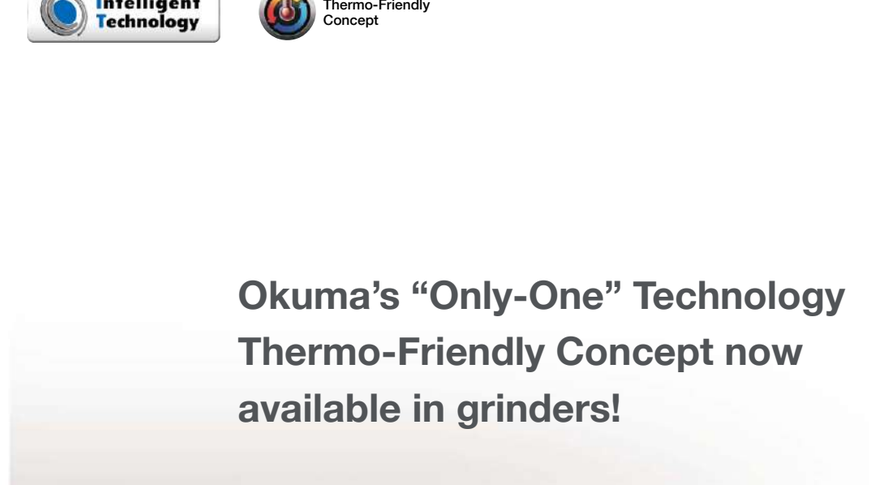
GI-20NII

Intelligent Technology

Thermo-Friendly Concept

Okuma's "Only-One" Technology Thermo-Friendly Concept now available in grinders!

- Equipped with Thermo Active Stabilizer–Construction (TAS-C)
- With PFCⅡ (compensation for following error during axial travel reversal)
- Simplified setting of workpiece and diamond (wheel/tool) origins
- Faster feedrate X, Z: 20 m/min (Previous machine 12 m/min)
- Equipped with OSP-P300GA



GI-20NII

Combines the latest technology with traditional technology cultivated over many years Internal grinders with greater-than-ever reliability

Photographs used in this brochure may show optional equipment.

Higher accuracy

Thermo-Friendly Concept

Thermo-Friendly Concept

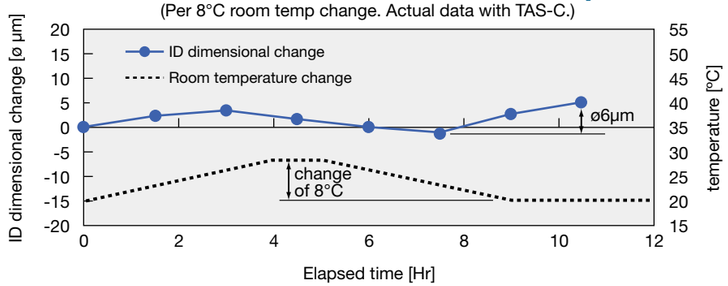
The Thermo-Friendly Concept delivers high machining accuracy with a unique machine construction design and thermal deformation control technology. The Thermo-Friendly Concept releases you from bothersome dimension compensation and warming-up, and provides outstanding dimensional stability even during long-time operation or changes in the plant temperature environment.

- Achieves high thermal stability not only during room temperature change, but also at machine startup and restarts.
- Thanks to stabilized thermal deformation, warming-up time is shortened and the burden of dimensional correction during machining restart is reduced.

*Note: This (TFC) is not available with 4WS and belt-driven grinding wheel specs.

Higher machine utilization

Machining dimensional change over time: ø6 µm
(Per 8°C room temp change. Actual data with TAS-C.)



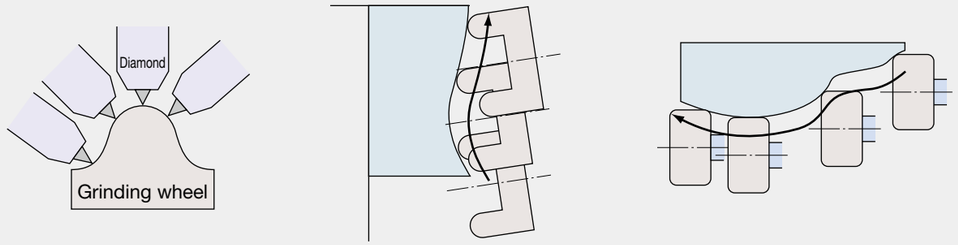
TAS-C
(Thermo Active Stabilizer—Construction) [Optional]

The TAS-C environmental thermal deformation control accurately controls the machine's structural thermal deformation; by taking into consideration the machine's thermal deformation characteristics, temperature data from properly placed sensors, and feed axis positioning information.

Note: 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.

Use of PFC Ⅱ (compensation for following error during axial travel reversal)

Projection Flatten Control II will reduce ridges that occur at these radial quadrant changes.



3-axis simultaneous normal line dressing
Optional

Axial contour grinding

Contour grinding

Traditional Okuma 5-sided hydrostatic guideway

- Both cross-slide and table always raise with oil to achieve high follow-up accuracy.
- Higher rigidity with support on 5 sides from upper and lower portions of slide.
- Distance between two guideways is wide, and vibration absorption characteristics are improved simultaneously with high speed and high rigidity.
- With closed structure holds top and bottom solidly in place, accuracy and guideway durability are improved.
- The best machines for die/mold contour grinding.

Cross slide X axis

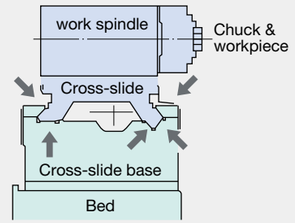
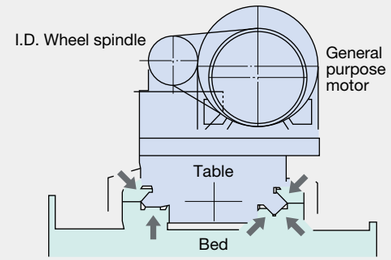


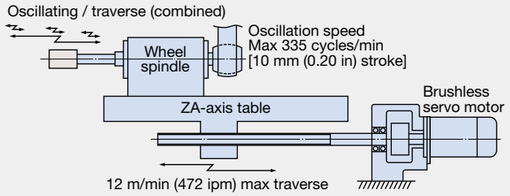
Table Z axis



Greater machining efficiency

Benefits of numerically controlled oscillating traverse

- Higher removal rates, lower cycle times
- Improved surface roughness compared to conventional traverse grinding
- Ideal for long workpieces



2-wheel spindle (2WS)

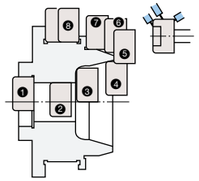
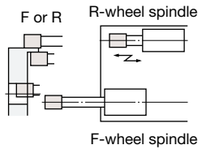
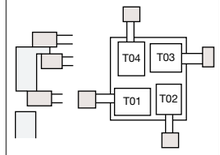
Expanded range of uses for grinding wheel, including cylindrical and internal grinding, roughing, and finishing.

4-wheel spindle (4WS)

Up to 4 high frequency grinding wheel spindle sets can be mounted, enabling greater diversity of integrated grinding operations than with 2WS, and more efficient grinding.

Perfect for any grinding pattern

ID, OD, simultaneous 2-axis end faces
Please select the best specifications for the machining you do.

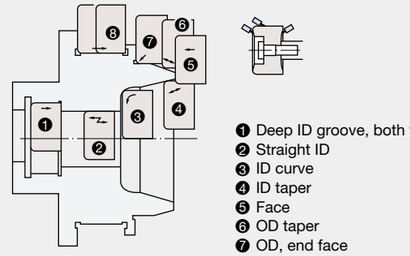
Specifications	SBK	SHK	2WS	4WS
Applicable workpieces				

STANDARD ACCESSORIES

Specification		Descriptions	Qty	SBK	SHK	2WS	4WS
Grinding system	ID (OD)	(1) Plunge (oscillation available) (2) Multiplunge (oscillation available) (3) Simultaneous plunge (ID & end face, or OD & end face) (4) Traverse (oscillation available) (5) Taper traverse (6) Profile		Straight ID, OD End face grinding Taper ID and OD Contour grinding	Straight ID, OD End face grinding Taper ID and OD Contour grinding + Large, small hole grinding	Straight ID, OD End face grinding Taper ID and OD Contour grinding + Large, small hole grinding or one chuck grinding of various materials	Straight ID, OD End face grinding Taper ID and OD Contour grinding + Large, small hole grinding or one chuck grinding of various materials
	End face	(1) Plunge					
Sizer		Indirect sizing (w/program data)	1	○	○	○	○
Bed		Bed washing	1	○	○	○	○
Workhead	Spindle	Front bearing ID, ø100 mm (ø3.94 in)	1	○	○	○	○
	Spindle motor	3.5 kW (4.76 hp) brushless motor					
	Spindle speed	100 to 750 min^{-1} (Infinitely variable S4 code direct command)					
	Override	50 to 200%					
	Swivel system	10° swivel, dial gauge, (0.01 mm (0.0004 in) /division)					
Center rests (Optional)		Headstock is movable headstock (Optional)	1	—	—	—	—
Wheelhead	Wheel motor	Differs depending on grinding wheel spindle specifications	1	○	○	Parallel type wheelheads	Turret type wheelheads
	Wheel cover	Air-driven					
Belt driven grinding wheel specifications (Optional)		Should be selected from the following 5 spindles: (Refer to Optional Specificatious on page 10 for details) BK25, BK30, BK40, BK50, BK65	1	○			
High frequency drive wheel spindles (Optional)		Should be selected from the following 9 spindles: (Refer to Optional Specificatious on page 10 for details) HK15004, HK10007, HK802, HK503, HK507, HK303, HK307, HK157, HK155			Required options	Required options	Required options
Power supply for high frequency wheel spindles		12 kVA ; 2 units necessary for 2WS; 4 for 4WS, selected for wheel spindle	1		○	○	○
Wheel spindle cooler		Tank capacity; 70 L (18 gal) (4WS specifications are 40 L)	1		○	○	○
Grinding wheel spindle alignment bar		One is needed with accessory grinding wheel spindle type		Required options	Required options	Required options	Required options
Workhead cross slide	Ways	Closed, hydrostatic type	1	○	○	○	○
	Controlled axis	XA, brushless motor, 2.9 kW (2.13 hp)					
Table	Ways	Closed, hydrostatic type	1				
	Controlled axis	ZA, brushless motor, 2.8 kW (3.81 hp)					
Wheel dresser		Swivel type for internal and cylindrical grinding	1	○	○	○	Dedicated 4WS swivel type
Wheel dresser attachment base		Position adjustment system	1				
Hydraulic oil tank		Separate type, 40 L (11 gal), variable discharge 0.75 kW (1 hp) pump motor	1	○	○	○	○
Oil-air lubricator		For wheel spindles (BK, HK compatible), Work spindle	1				
Air control unit			1				
Coolant tank		Separate type, 180L (48 gal), 0.25 kW (0.3 hp) pump motor	1				
Coolant nozzle			1				
Wheel spindle overload protector		Digital setting (Displayed by Ampere)	1				
Tools		Wrenches, toolbox	1				
Jack screws & washers			1				
Machine enclosures		Manual opening front door (w/ interlock)	1				
Lamp		ON/OFF type; inside machine enclosure shield	1				
Skip dressing		By NC programming	1				
Multidressing		By NC programming	1				
Chuck surface washer			1				
Door interlock			1				
3-jaw scroll chuck		9-inch; 1 adapter, hard jaws (1 set), soft jaws (1 set)	1				

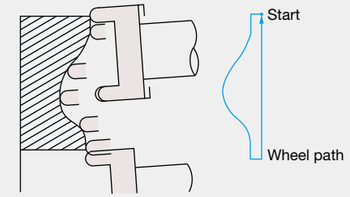
Basic grinding examples

- Besides conventional straight or taper grinding, this CNC grinding machine has 8 different grinding patterns which in free combinations, can do contour grinding with CNC control of the wheel.
- Two diamond tools can be used for basic functions to obtain the desired wheel configuration with profiling control.

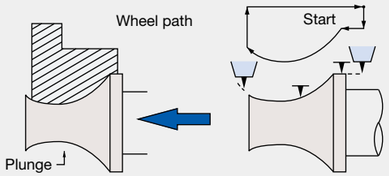


❶ Deep ID groove, both faces
❷ Straight ID
❸ ID curve
❹ ID taper
❺ Face
❻ OD taper
❼ OD, end face
❽ OD grooves, both face

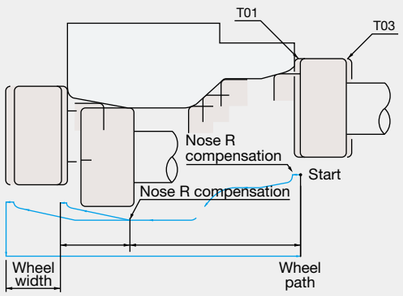
End face contour grinding



Wheel profile generation dressing



Contour grinding (ideal for diemold profiling)



Machine Specifications

Item		Unit	SBK	SHK	2WS	4WS
Capacity	Grinding bore range	mm (in)	ø5 to 200*1 (ø0.2 to 7.87) ø5 to 300*2 (ø0.2 to 11.81)		ø5 to 300 (ø0.2 to 11.81)	ø5 to 200 (ø0.2 to 7.87)
	OD grinding range	mm (in)	ø200*1 (ø7.87) ø100*2 (ø3.9)		ø200*1 (ø7.87) ø100*2 (ø3.9)	ø200 (ø7.87)
	Max grinding lengh	mm (in)	200 (7.87) 400*3 (15.75)		200 (7.87) 400*3 (15.75)	130 (5.12)
	Swing within chuck cover	mm (in)	ø400 (15.75)			
	Spindle support capacity (workpiece mass × distance)	kg × mm (lb×in)	150 × 200 (330 × 7.87)			
Work spindle	Spindle nose dia	mm (in)	ø100 (ø3.94)			
	Spindle bore	mm (in)	ø70 (ø2.76)			
	Spindle speed	min^{-1}	100 to 750			
	Spindle speed settings (C-axis)		Infinitely variable (by NC programming)			
Workhead	Swivel angle	deg	10			
Cross-slide (XA-axis)	X-axis travel	mm (in)	200 (–50 to 150 (–1.97 to 5.91))			
	Travel / pulse-handle revolution	mm (in)	ø0.1, ø1.0, ø5.0 (ø0.004, ø0.04, ø0.20)			
	Travel / pulse-handle gradation	mm (in)	ø0.001, ø0.01, ø0.05 (ø0.00004, ø0.0004, ø0.002)			
	Auto-infeed rate	mm/min (ipm)	ø0.0012 to ø6,000 (ø0.00005 to ø236.22)			
	Positioning rate	mm/min (ipm)	ø20,000 (787.40)			
Table (ZA-axis)	Z-axis travel	mm (in)	500 (19.69)			
	Travel / pulse-handle revolution	mm (in)	0.1, 1.0, 5.0 (0.004, 0.04, 0.20)			
	Travel / pulse-handle graduation	mm (in)	0.001, 0.01, 0.05 (0.00004, 0.0004, 0.002)			
	Auto-infeed rate	mm/min (ipm)	0.0006 to 6,000 (0.00002 to 236.22)			
	Table oscillation travel	mm (in)	Max 10 (0.39) (via parameters)			
	Table oscillation number	osc/min	335, 293, 260, 234, 213, 195, 180, 167, 156, 146 (via parameters)			
	Positioning rate	mm/min (ipm)	20,000 (787.40)			
Wheelhead	Swivel angle	deg	5			
	Travel (left-right)	mm (in)	350 (13.78)			
Wheel dresser			Swivel type			Swivel type (for 4WS)
Motors	Wheel spindle drive	kW (hp)	5.5 to 7.5 (7.3 to 10)	3.7 to 7.5 (4.9 to 10)		
	Workhead spindle drive	kW (hp)	3.5 (4.76) (brushless motor)			
	Coolant pump	kW-P (hp-p)	0.25 (0.34)-2			
	Hydraulic oil / lube pump	kW-P (hp-p)	0.75 (1)-4			
	Cross-slide (XA-axis)	kW (hp)	2.9 (3.94) (brushless motor)			
	Table (ZA-axis)	kW (hp)	2.8 (3.81) (brushless motor)			
Tank capacity	Hydraulic & lube oil tank	L (gal)	40 (10.6)			
	Coolant tank	L (gal)	180 (47.6)			
Machine height		mm (in)	2,010 (79.13)			2,110 (83.07)
Floor space		mm x mm (in)	2,500 × 2,955 (98.43 to 116.34)		2,491 × 2,955 (98.07 to 116.34)	2,980 × 3,300 (117.32 to 129.92)
Net weight		kg (lb)	4,500 (9,900) 4,800*3 (10,560)		4,800 (10,560) 5,100*3 (11,220)	5,000 (11,000)

*1: With grinding wheel diameter ø100 *2: With wheelhead 50 mm offset specifications (Optional) *3: With center rest specifications (Optional)

Optional

Specifications	Descriptions	Kit SBK	SHK	2WS	4WS
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-09T				
	Pneumatic 3-jaw power chuck				
	Diaphragm chuck				
	Finger chuck				
	Diaphragm/finger 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					
Grinding wheel dresser	Fixed type			⁄	⁄
Automation					
Workpiece seat check					
Workpiece air blast	Compressed air blast to clear/drain fluids				
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 ø400, 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					
Plate for magnetic dial gage base	Retractable plate				

Specifications	Descriptions		Kit SBK	SHK	2WS	4WS
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	⁄			
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/paper: SHIF* FP-8; 80 L/min					
	Magnetic/paper: SHIF* FP-12; 120 L/min					
	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					

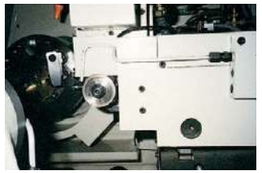

Diaphragm chuck


Diaphragm/finger chuck


Shoe centerless


Front fork gauge


Form grinding rotary dresser


Traverse rotary dresser for CBN wheels


Collet chuck

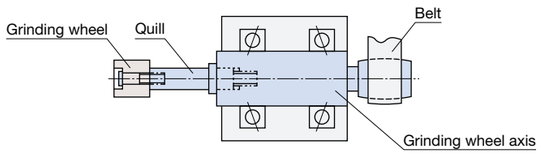
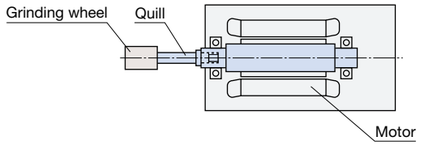
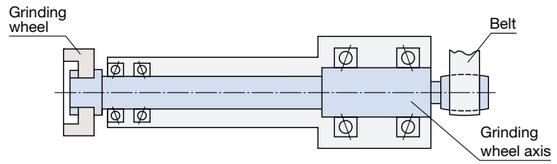

Magnetic chuck


Mist collector


Combination magnetic paper filter coolant separator

Grinding wheel spindle type

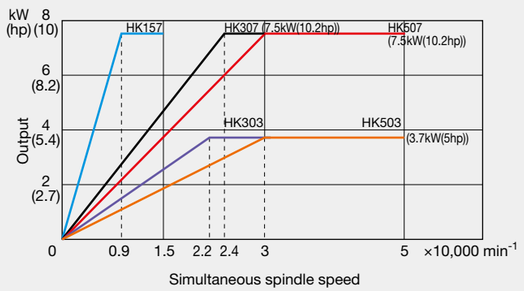
This is a high speed, high power, high rigidity grinding wheel spindle with a stable bearing life having dn value of 1.2 million, using an oil air lubrication system.
* dn value: d = diameter × n = spindle speed

Wheel Spindle Type		Spindle speed Output	Lubrication type
BK quill Belt drive system		6,300 to 40,000 min^{-1} (5 types) 5.5 to 7.5 kW (7.5 to10 hp) 2P 3-phase motor	Oil-air
HK quill High frequency drive system (Built-in motor)		4,500 to 150,000 min^{-1} (9 types) High frequency power supply 12 kVA	Oil-air
BS sleeve Belt drive system		6,000 to 16,000 min^{-1} (4 types) 5.5 to 7.5 kW (7.5 to 10 hp) 2P 3-phase motor	Grease

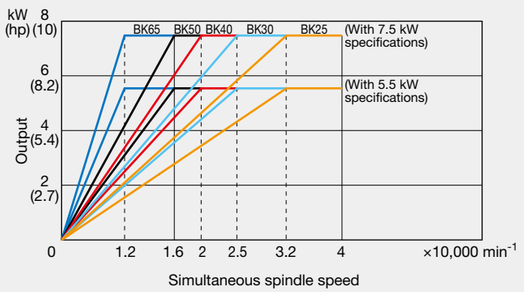
Internal grinding spindle output

High frequency internal grinding spindle

- Dn value Max. 1,600,000
- Oil-air lubrication



Belt driven internal grinding spindle



Grinding Wheel Spindle Selection Table

Grinding wheel spindle cannot be used with both 2WS and 4WS kits

	Wheel Peripheral Speed				Grinding wheel spindle (Quill dia. x max. length) ● See torque constants on page 9 for high-frequency ID wheel spindle (HK)								
	2,000 m/min (78,740 ipm)		3,000 m/min (118,110 ipm)										
Wheel Speed min^{-1}	Wheel Diameter mm (in)	Grinding Bore mm (in)	Wheel Diameter mm (in)	Grinding Bore mm (in)	BK65	HK155 HK157 BK50	BK40	BK30	BK25	HK303 HK307	HK503 HK507	HK802	HK10007
100,000	6.3 (0.25)	8 (0.31)	9 (0.35)	13 (0.51)									5 × 13
80,000	8 (0.31)	10 (0.39)	12 (0.47)	16 (0.63)								6 × 16	6 × 16
63,000	10 (0.39)	13 (0.51)	15 (0.59)	20 (0.79)								8 × 20	8 × 20
50,000	13 (0.51)	16 (0.63)	19 (0.75)	25 (0.98)							10 × 25	10 × 25	10 × 25
40,000	16 (0.63)	20 (0.79)	24 (0.94)	32 (1.26)					13 × 32		13 × 32	12 × 32	
32,000	22 (0.87)	27 (1.06)	32 (1.26)	42 (1.65)				16 × 40	16 × 40	16 × 40	16 × 40		
25,000	25 (0.98)	32 (1.26)	38 (1.50)	50 (1.97)			20 × 50	20 × 50	20 × 50	20 × 50	20 × 50		
20,000	32 (1.26)	40 (1.57)	48 (1.89)	63 (2.48)		25 × 63	25 × 63	25 × 63	23 × 63	23 × 63			BS38-16
16,000	40 (1.57)	50 (1.97)	60 (2.36)	80 (3.15)	32 × 80	32 × 80	32 × 80	28 × 80		32 × 80		BS45-13	38 × 270
13,000	50 (1.97)	63 (2.48)	75 (2.95)	100 (3.94)	40 × 100	40 × 100	38 × 100				BS55-10	45 × 270	
10,000	63 (2.48)	80 (3.15)	95 (3.74)	130 (5.12)	50 × 130	48 × 130				BS70-08	55 × 280		
8,000	80 (3.15)	100 (3.94)	120 (4.72)	160 (6.30)	63 × 160					70 × 280			
6,300	105 (4.13)	200 (7.87)	158 (6.22)	200 (7.87)									

Grinding Wheel & Quill Projection Dimensions

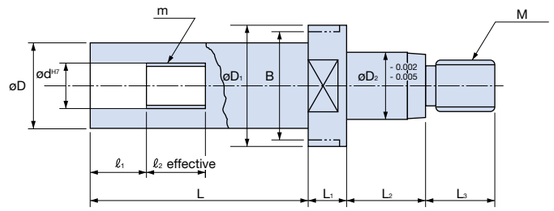
Applicable Wheel Spindle	D × max.L mm	D1	D2	M	L1	L2	L3	B	d	m	ℓ1	ℓ2
HK10007	3, 4, 5 × 13 6 × 16 8 × 20	15 (0.59)	8 (0.31)	M6	6 (0.24)	8 (0.31)	8 (0.31)	13 (0.51)	—	—	—	—
	10 × 25								5(0.20)	M5	8(0.31)	7(0.28)
HK802	4, 5, 6 × 16 8 × 20	18.5 (0.73)	10 (0.39)	M8	7 (0.28)	12 (0.47)	12 (0.47)	16.5 (0.65)	—	—	—	—
	10 × 25								5(0.20)	M5	8(0.31)	7(0.28)
	12 × 32								6(0.24)	M6	9(0.35)	9(0.35)
BK25	13 × 32	23.5 (0.93)	12 (0.47)	M10 P1.25	8 (0.31)	14 (0.55)	14 (0.55)	21 (0.83)	6(0.24)	M6	9(0.35)	9(0.35)
	16 × 40, 20 × 50, 23 × 63								8 (0.31)	M8	10 (0.39)	10 (0.39)
HK503 HK507 BK30	10 × 25	28.5 (1.12)	16 (0.63)	M12 P1.5	9 (0.35)	18 (0.71)	16 (0.63)	26 (1.02)	5(0.20)	M5	8(0.31)	7(0.28)
	13 × 32								6(0.24)	M6	9(0.35)	9(0.35)
	20 × 50 25 × 63 28 × 80								10 (0.39)	M10 P1.25	13 (0.51)	13 (0.51)
HK303 HK307 BK40	20 × 50	38 (1.50)	22 (0.87)	M16 P1.5	10 (0.39)	24 (0.94)	21 (0.83)	36 (1.42)	10(0.39)	M10 P1.25	13(0.51)	13(0.51)
	25 × 63 32 × 80 38 × 100								12 (0.47)	M12 P1.5	15 (0.59)	15 (0.59)
HK155 HK157 BK50	25 × 63	48 (1.89)	28 (1.10)	M20 P1.5	10 (0.39)	30 (1.18)	25 (0.98)	44 (1.73)	12(0.47)	M12 P1.5	15(0.59)	15(0.59)
	32 × 80 40 × 100 48 × 130								16 (0.63)	M16 P1.5	18 (0.71)	19 (0.75)
BK65	32 × 80	63 (2.48)	35 (1.38)	M26 P1.5	11 (0.43)	38 (1.50)	31 (1.22)	59 (2.32)	16(0.63)	M16 P1.5	18(0.71)	19(0.75)
	50 × 130 63 × 160								20 (0.79)	M20 P1.5	21 (0.83)	23 (0.91)

Quill projection identification symbols

Q 50 - 30 × 50
- L, mm
- D, mm
- Bearing dia, mm

Standard L size (mm)

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

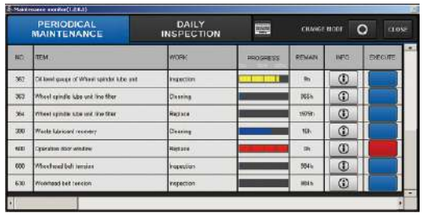


The Next-Generation Intelligent CNC OSP suite OSP-P300GA

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

A rich array of applications is available for visualization and digitization of information needed on shop floors to support high-level “monozukuri.”



Maintenance Monitor that displays daily and regular check items

Actual Load

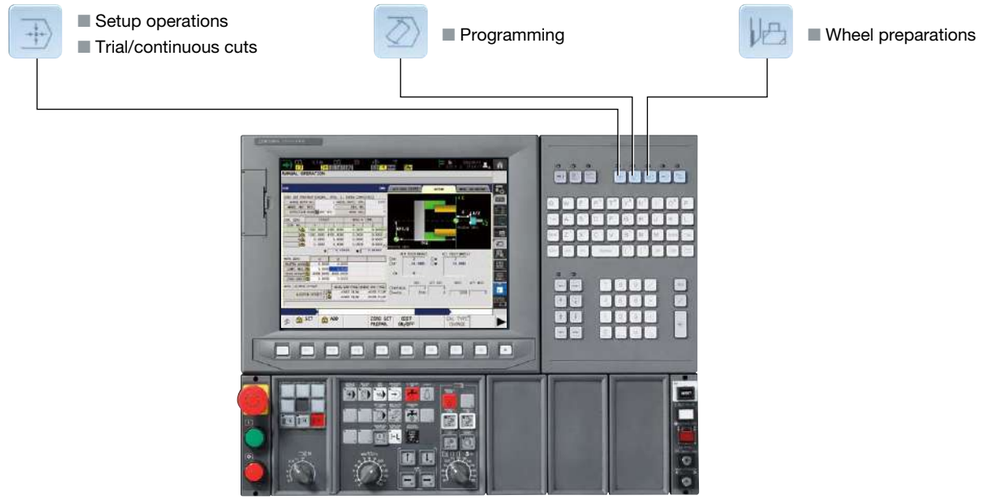
MacMan Monitor

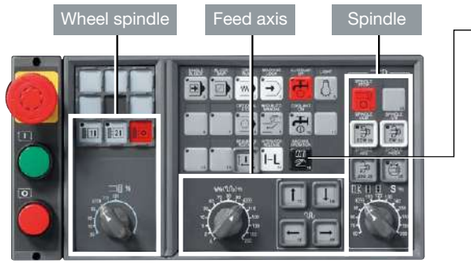
Tool Data

“suite” operation

A multi-panel display is used for inuitive graphic operation. Just like using a smart phone, enlarged display of the instruction manual, displays of tool data and program lists and other information can be brought up quickly and easily.

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

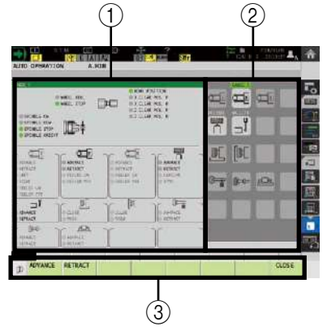




Operation screen

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)

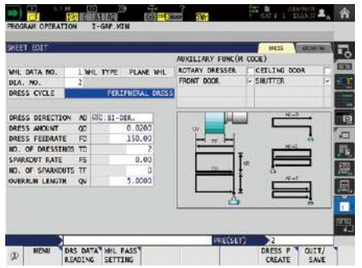


I-GAP+ (Optional)

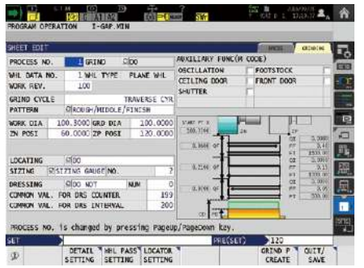
Intuitive machining operations are made possible with advances in interactive program creation and efficient creation of part programs.

- **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.

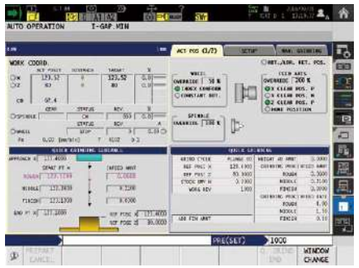
- **Quick grinding**
Grinding can be done while checking the cycle being executed and position on the drawings. This is Easy Operation that feels like manual operation, from roughing to finishing, by simply setting the infeed amount.



Wheel dressing program create sheet



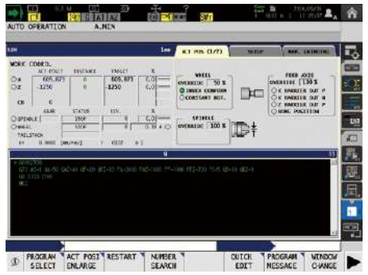
Grinding program create sheet



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)

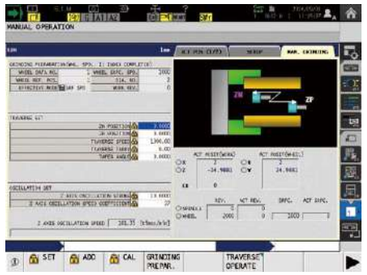
On the actual position sheet of the running screen, in addition to actual position display, workpiece selection/program selection/schedule selection are possible with use of the function keys.

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.

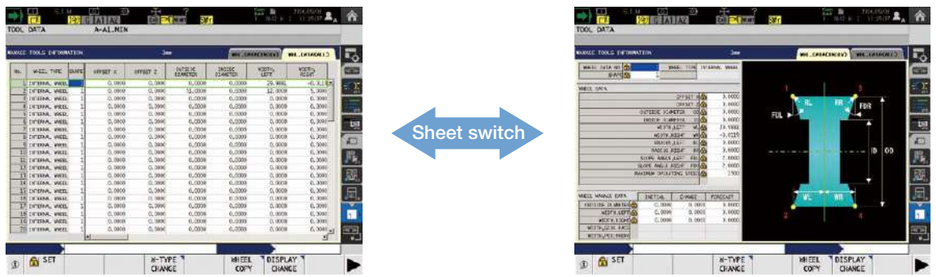
Manual grinding sheet

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.



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 120%
	Grinding wheel spindle	Grinding wheel axis (interver control), Spindle speed (G99 mode), SW command 6-digit, peripheral speed command (G98 mode), SW command 6-digit, Grinding wheel speed function (G98), Grinding wheel axis 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 2, Zero shift, Home position function
	Interactive programming	Program storage: 2 GB, operation buffer: 2 MB
	Programming capacities	Display of results for each machining program, display of operation results (power ON time, cutting time, etc.), input of reasons for non-operation
	Machining management	Grinding load display, Grinding overload detection, Gap elimination function
Communications / Networking		Ethernet (1000 Mbps), USB (2 ports), RS-232-C interface (1 channel)
High-speed/high-accuracy functions		Hi-G control, Droop control, Variable lost motion compensation
Online help		Programming help, Alarm help, Operation help

Optional Specifications

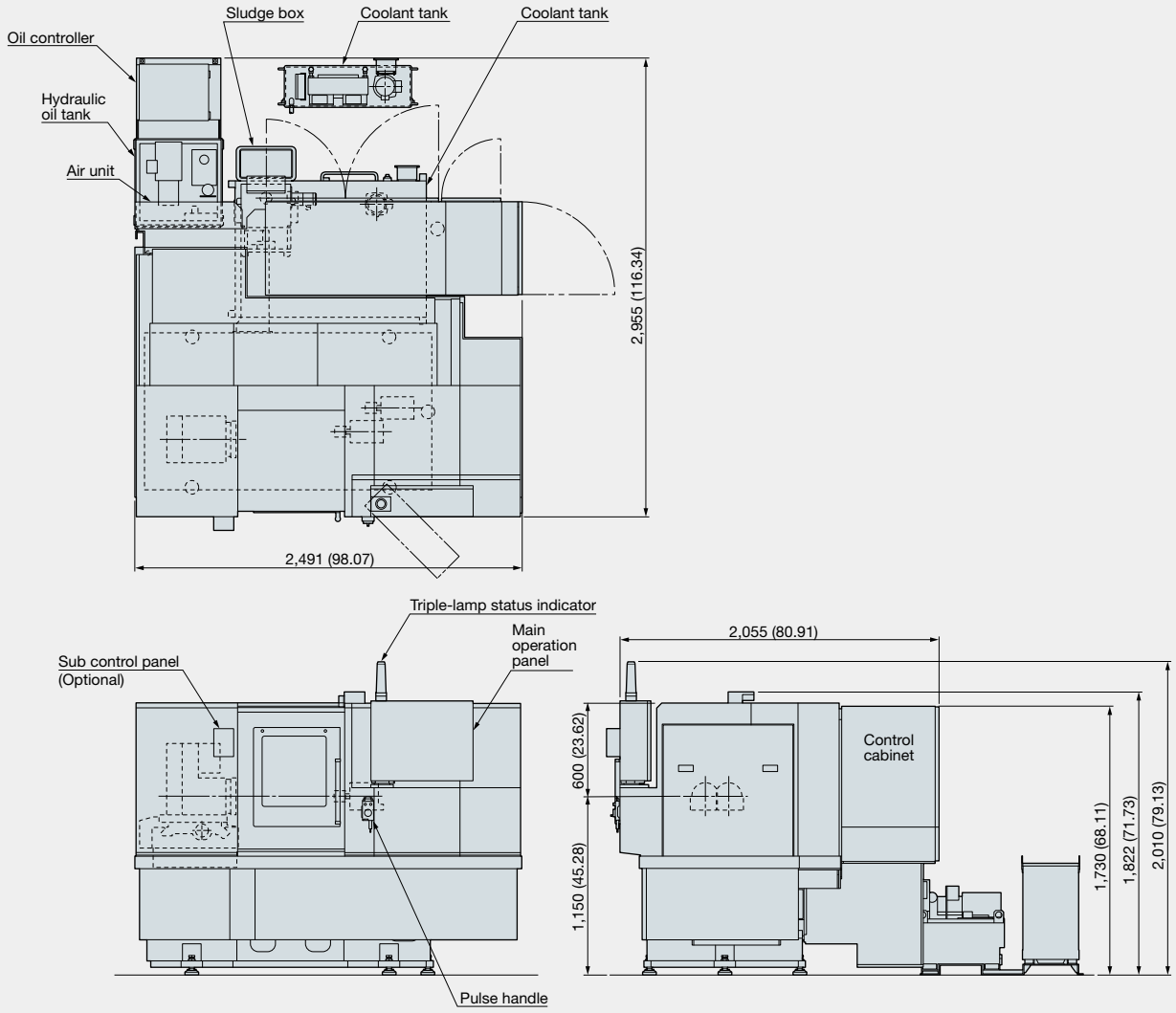
Items \ Kit Specs		NML E	NML D	3D E	3D D	I-GAP E	I-GAP D
Interactive operation							
I-GAP+						●	●
Programming							
Inch/metric switchable							
User task 2	Sub programs Calculation function	●	●	●	●	●	●
	operations With I/O terminals						
Common variables Standard 200 sets	1,000 sets						
Programmable 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		●	●	●	●	●	●
Work counter	4-digit resetting						
	6-digit resetting 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-232-C interface (additional 2 channels; 1 channel is standard)							
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						
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/tailstock quill can be operated during program stop							
Auto grinding wheel straightening		●	●	●	●	●	●
Pulse handle overlap							

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

GI-20NII
Dimensional and Installation Drawings

(2WS standard machine)



Unit: mm (in.)

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Pub.No.GI-20NII-E-(2a)-300 (Nov 2016)