OKUMA

OPEN POSSIBILITIES

1-Saddle CNC Lathe

SPACE TURN LB4000 EX II

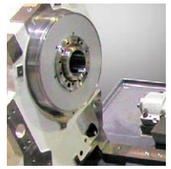
LB that transcends LB

Okuma's LB series of NC lathes have always been pioneers,
leaving a path for others to follow behind.
The LB series thus has an obligation to respond to the needs of the times, open possibilities for the next generation, and deliver new value to customers worldwide.
That means constantly developing LBs that transcend LB.
Okuma's advanced technology in its SPACE TURN EX Ⅱ series continues to write new pages in world standards for machining quality, speed, power & torque, multitasking, ease of operation, and more.

SPACE TURN
LB4000 EXII

Photo includes optional specifications.
Standard window size differs by market region.

The machine against which all others will be measured



Highest Quality

- **Application of Thermo-Friendly Concept**
- **Slanted-box bed construction**

Super Rigidity Speed

- **Equipped with new high-power, high-torque motor**
- **Combination of larger and faster spindle**
- **Large through-hole diameter, large working range**
- **Top rotation speed, horsepower, and torque in its class**

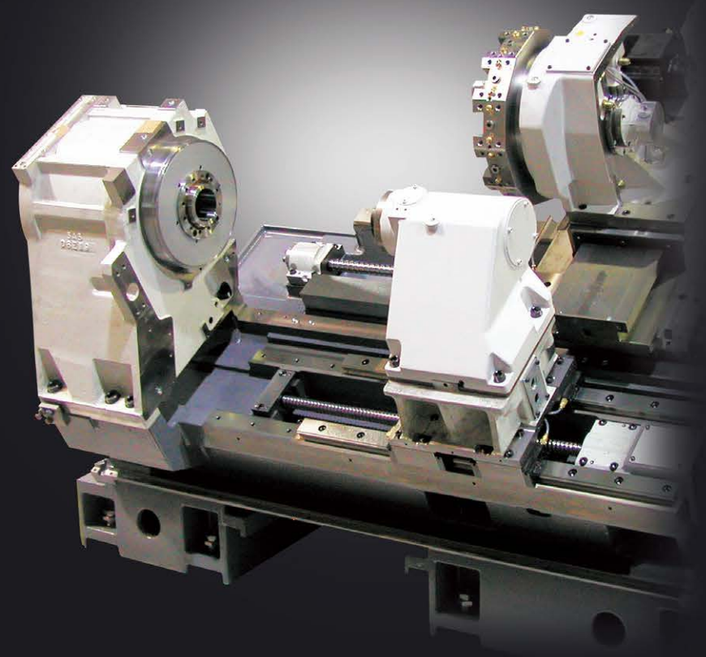
Extreme Versatility

- **Abundant series variation**
- **NC tailstock standard equipment**

Easy Operation

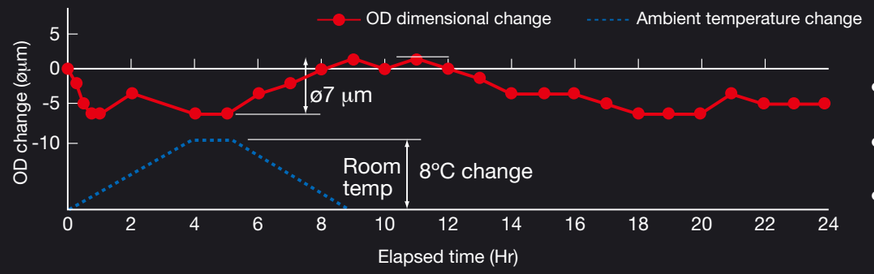
- **The Next-Generation Intelligent CNC** OSP suite OSP-P300LA

Highest Quality



Machining dimensional change over time: ø7 μm

Actual data [LB4000 EX Ⅱ turning] (MY) (ambient temperature: 8ºC change)

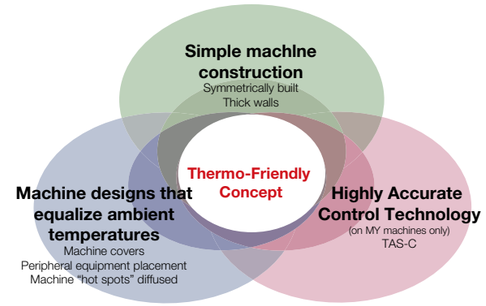


- Cycle time: 60 sec
  [X-axis travel: 60 mm
  3 repetitions/cycle]
- Cutting conditions Spindle speed: 4,000 min^{-1}
  Cutting depth : 0.1 mm
  Feed : 0.05 mm/rev
- Workpiece material: BsB

High accuracy specifications overall assure machining with high dimensional stability

Thermo-Friendly Concept for unparalleled dimensional stability

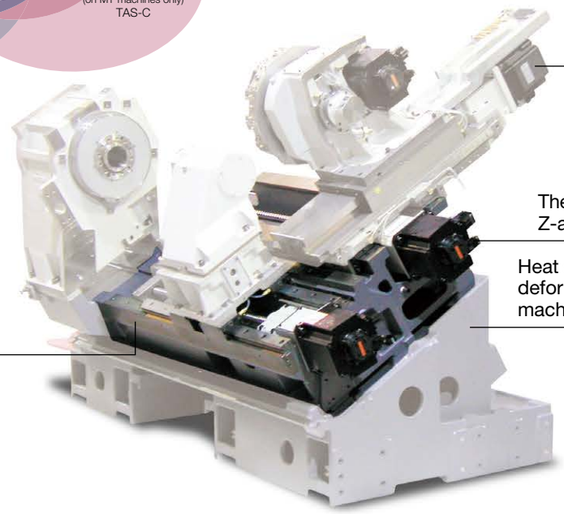
Okuma's Thermo-Friendly Concept is used on all the LB EX machines for extraordinary machining accuracy, using our unique machine design and thermal deformation control technology. Outstanding dimensional stability in long-time continuous operation, multitasking, and even Y-axis machining without troublesome compensation or warming up.



Slanted-box bed configuration with superior construction and rigidity

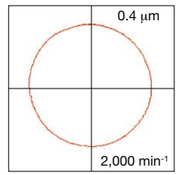
The next evolution of the slanted-box bed construction that has been highly praised as a "rugged, Okuma-like construction" in the SPACE TURN series. The primary units of headstock and turret on a box bed is optimally placed for outstanding thermal dimensional and high rigidity. Exhibits stable machining accuracy even in heavy cutting.

Thermo-Friendly Concept



Roundness [Actual data*]

- Standard spindle 0.4 μm/2,000 min^{-1}

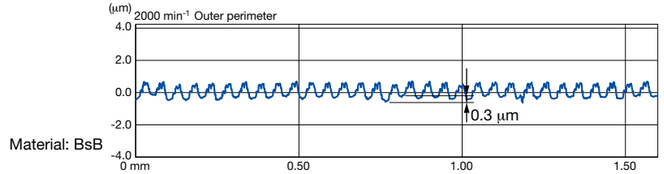


Material: BsB

Standard spindle

Tool nose uniformity (for better surface roughness) [Actual data*]

- Standard spindle: 0.3 μm/2,000 min^{-1}

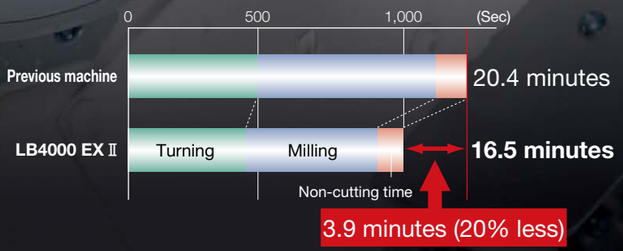


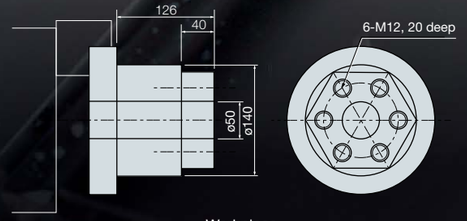
Material: BsB

* 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.

Super Rigidity Speed

■ Improved productivity: 20% shorter cycle time*





Workpiece

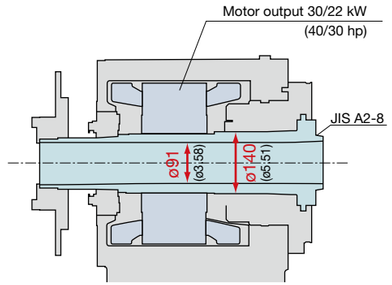
* Previous machine comparison

Huge reduction in machining time with an original high power motor and faster machine movements

Powerful motor on the spindle gives turning capacity of 6.3 mm²

Spindle with a larger bearing internal diameter of ø140 mm can accommodate larger workpieces, and a turning capacity of 6.3 mm² is achieved with a high-speed, wide-area full power motor. Stable, high quality machining, from heavy to high speed cutting.

● Spindle size	Bearing ID ø140 (bore ø91)
● Spindle speed	4,200 min^{-1}
● Output	30 kW (40 hp)
● Torque	700 N-m (515 ft-lbf)



Integral motor/spindle—Okuma's own powerful motor—retains full power over a wide area. There are no gears or belts that can cause vibration or bending, for stable machining without chatter.

Reduced operation time achieved with higher speed machine movements

● Rapid traverse	X: 25 m/min (984 ipm)
	Z: 30 m/min (1,181 ipm)
● Spindle start/stop	4.4 sec (4,200 min^{-1})
● Turret rotate	0.2 sec/index
● NC tailstock rapids	12 m/min (472 ipm)

Turning 6.3 mm²

(Workpiece: S45C)

[Actual data*]

Cylindrical, heavy-duty cutting

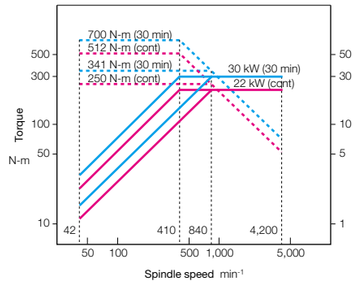
6.3 mm² (0.01 in.²)
Cutting speed V: 150 m/min (492 fpm)
Cutting depth t : 10 mm (0.39 in.)
Feedrate f : 0.63 mm/rev (0.02 ipr)

Drilling

ø63 (ø2.48) carbide insert drill
Cutting speed V: 179 m/min (587 fpm)
Feedrate f : 0.25 mm/rev (0.01 ipr)

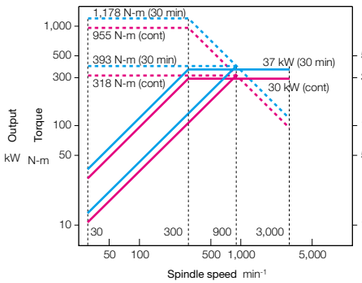
* The “actual data” referred to above for this brochure represent examples, and may not be obtained due to differences in specifications, tooling, cutting and other conditions.

■ Motor/spindle variations



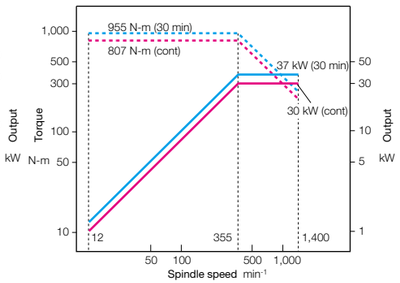
Standard spindle

ø140, 4,200 min^{-1}
30/22 kW (30 min/cont)
700 N-m (515 ft-lbf)



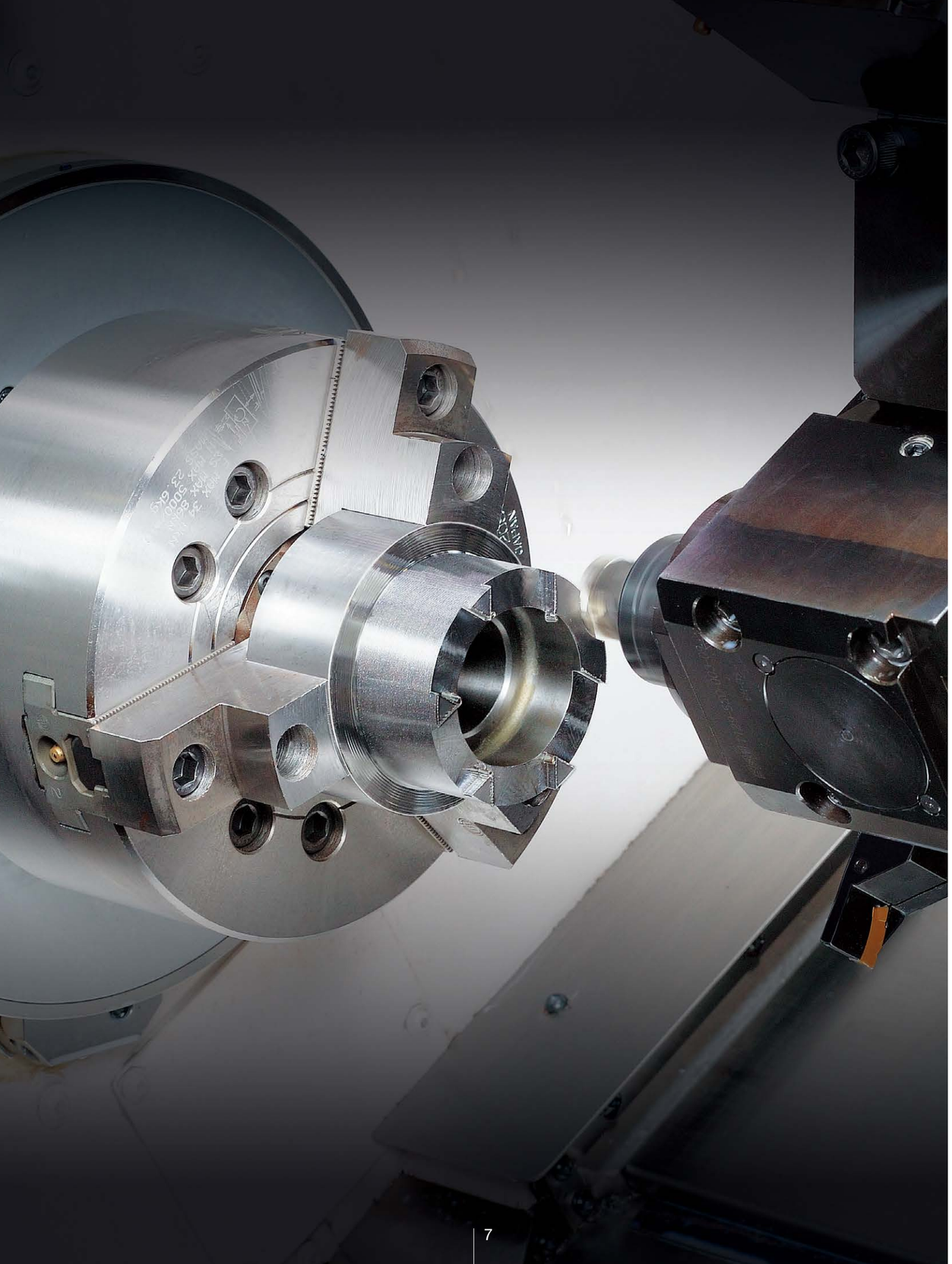
Big-bore spindle

ø160, 3,000 min^{-1}
37/30 kW (30 min/cont)
1,178 N-m (866 ft-lbf)



Super big-bore spindle

ø240, 1,400min^{-1}
37/30 kW (30 min/cont)
955 N-m (702 ft-lbf)



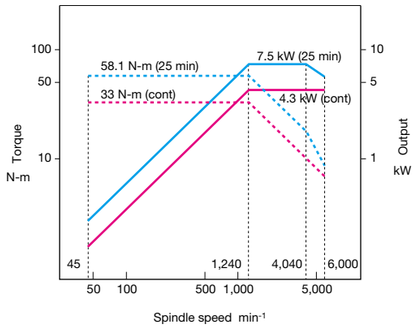
Greater efficiency with highest milling performance in its class and fast tool change times

Compact new PREX motor gives milling performance of 200 cm³/min

Compact, high-power, high-torque PREX motor also used for milling spindle of the multitasking V12 radial turret. This combined with a powerful, highly rigid bolt clamp system greatly increases multitasking speed.

● M spindle	6,000 min^{-1}
● Output	7.5 kW (10 hp)
● Torque	58.1 N-m (42.7 ft-lbf)

■ Milling tool spindle



6,000 min^{-1}

7.5/4.3 kW (25 min/cont)

58.1 N-m (43 ft-lbf)

Reduced operation time achieved with higher speed machine movements

● Turret rotate	0.2 sec/ index
● M-spindle start/stop	0.4 sec (6,000 min^{-1})
● M-M switch	1.5 sec

Milling capacity 200 cm³/min

(Workpiece: S45C)

[Actual data*]

End milling
Chip volume 200 cm³/min (12.2 in.³/min)
ø20 7-flute carbide end mill
Cutting speed V: 200 m/min (656.2 fpm)
Cutting depth t : 20 x 2.5 mm (0.79 x 0.09 in.)
Feedrate f : 1.26 mm/rev (0.05 ipr)

Face mill
Chip volume 177 cm³/min (11 in.³/min)
ø80 face mill 8-blade
Cutting speed V: 312 m/min (1,024 fpm)
Cutting depth t : 1.6 x 56 mm (0.06 x 2.2 in.)
Feedrate f : 1.6 mm/rev (0.06 ipr)

Drilling
ø28 carbide insert drill
Cutting speed V: 90 m/min (295.3 fpm)
Feedrate f : 0.2 mm/rev (0.01 ipr)

Tapping
M24 P3
(Synchronized tapping)

* 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.

Wide working range

■ Max machining dia: ø480 mm (M turret: ø340 mm)

● Standard spindle:	JIS A2-8	10-in. chuck, 12-in. chuck
● Big-bore spindle:	JIS A2-11	12-in. chuck, 15-in. chuck
● Super big-bore spindle:	JIS A2-15	15-in. chuck, 18-in. chuck

■ Distance between centers: 770/1,520/2,170 mm

■ Spindle thru hole: Bigger

- Standard spindle: ø91 mm (ø3.59 in)
- Big-bore spindle: ø112 mm (ø4.41 in.)
- Super big-bore spindle: ø185 mm (ø7.28 in.)

Extreme Versatility

Providing rich variation and optimum ease of use

NC tailstock that shortens setup and automates center work is standard equipment

Up to 10 pairs of tailstock positions can be set, enabling continuous machining of workpieces with 10 different lengths without setup. In addition, thrust can be switched between high and low without resetting the workpiece. (Tailstock thrust high/low switch: option)
High accuracy positioning is also possible with a high speed linear guide employing a ball screw guide.

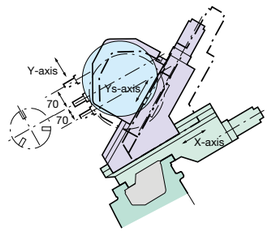
● Tailstock thrust	1 to 7.5 kN (Opt: 1.5 to 10 kN)
● Rapid traverse	12 m/min (472 ipm)
● Approach	10 m/min (394 ipm)
● Retract	12 m/min (472 ipm)

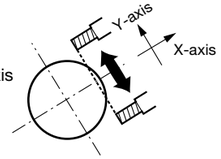
Note: Please select a hyrdraulic quill for face driver machining applications.

Complete multitasking with Y-axis functions
One chuck machining even with irregularly shaped workpieces

A variety of milling operations can be accommodated with high-accuracy, wide-range Y-axis travel using a double slide system. Achieves complete multitasking with a single chucking (MY specifications).

●Travel	140 mm (+70 to -70) [5.51 in. (+2.76 to -2.76]
●Y-axis rapid traverse	12.5 m/min (492 ipm)





X•Y plane Radial Y-axis machining examples

Simple automation with parts catcher (Optional)

Automation can be achieved easily with a simple mechanism in which the bucket swings and discharges workpieces outside the machine.

Front door with large window provides outstanding visibility (Optional) *

* Front door with large window shown here is a standard specification for the European market region.

The Next-Generation Intelligent CNC **OSP suite** **OSP-P300LA**

Every aspect of *“monozukuri”* encompassed with one finger

Suite apps for visualization of all information, from preaparation to machining

Suite operation for stress-free operability

CNC—From machine controller to *monozukuri* controller

Suite apps for the visualization of all kinds of information, from workpiece drawings, tooling and other information needed in machining preparation to information on machining and machine status; suite operation for the full command of those functions. Okuma’s next-generation intelligent CNC “OSP suite” combines intelligent technology to elicit maximum performance from machine tools with evolution of the CNC controller to all aspects of *monozukuri*, from production preparation to maintenance.

The Next-Generation Intelligent CNC

OSP suite **OSP-P300LA**

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

Smart factories implement advanced digitization and networking (IoT) in "Monozukuri," (manufacturing) achieving enhanced productivity and added value.
The OSP has evolved tremendously as CNC control 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. Moving, enlarging, reducing, and rotating 3D models, as well as list views of tool data, programs, and other information can be accomplished through smooth, speedy operations with the same feel as using a smart phone.
The screen display layout on the operation screen can also be changed to suit operator tastes, and customized for needs from beginning to veteran operator.

Features you wanted – loaded with new OSP suite apps!

We made these real through the addition of Okuma's machining expertise based on requests we heard from customers in the machine shop. These are filled with intelligence that enhances the "strength in the field" that CNC control can accomplish because it's created by a machine-tool manufacturer.

S11

Increased productivity through visualization of motor power reserve

Spindle Output Monitor

The specified spindle output (red line: short time rating, green line: continuous rating) and the spindle output in current cutting (blue circle) are simultaneously displayed on the screen, for real-time view of power reserve during cutting.
This allows speeding up cutting by increasing the spindle speed or feed rate while monitoring the graph to ensure that the blue circle does not cross the lines.

SDF

Easy programing without keying in code

Scheduled Program Editor

Monitoring utilization status even when away from the machine

E-mail Notification

Ensuring smooth machining preparations

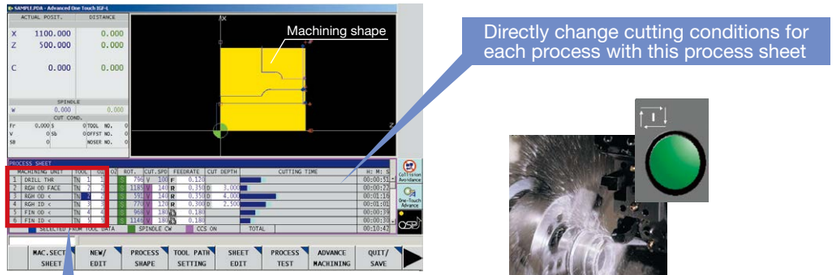
Interactive operations Advanced One-Touch IGF-L (Optional)

Part program create

After simple cutting data inputs (interactively), the required machining processes are determined and a part program is created (automatically).

Advanced run

To run the machine directly from the interactive part program screen.
When a problem is detected it can be quickly corrected and checked, speeding up first part machining.



PROCESS SHEET <CONTINUO

	MACHINING UNIT	TOOL
1	DRILL THR	TN 1
2	RGH OD FACE	TN 2
3	RGH OD <	TN 2
4	RGH ID <	TN 3
5	FIN OD <	TN 4
6	FIN ID <	TN 5

Continuous run

PROCESS SHEET <CONTINUO

	MACHINING UNIT	TOOL
1	DRILL THR	TN 1
2	RGH OD FACE	TN 2
3	RGH OD <	TN 2
4	RGH ID <	TN 3
5	FIN OD <	TN 4
6	FIN ID <	TN 5

Mid-cycle start
(finishing repeated)

PROCESS SHEET <SINGLE F

	MACHINING UNIT	TOOL
1	DRILL THR	TN 1
2	RGH OD FACE	TN 2
3	RGH OD <	TN 2
4	RGH ID <	TN 3
5	FIN OD <	TN 4
6	FIN ID <	TN 5

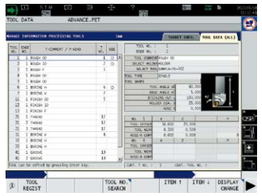
Individual run
(machining repeated with this tool only)

Easy to Operate

Operation screen split into four displays

Simultaneous display includes setup work, current position needed in confirming movement in trial machining, NC program, and graphic simulation.

Tool registration



Register data for all of your tools.
Since the registered tool data is also used by Okuma auto programming (Advanced One-Touch IGF) and a collision check function (Collision Avoidance System), this screen will complete the entire registering process.
When loading a tool in the machine, simply select it from among the registered tools.
ATC manual operation does not require inputting the tool number. Just select the tool from the list and press the function key.

Forming soft jaws

Templates like this make it easy to set required jaw shape, tool, and cutting conditions.
Part programming not required to do this.

Zero offsets

A simple function key operation is all it takes to shift a zero offset to either the left or right end of a workpiece. The required zero offset will be calculated automatically based on jaw and workpiece lengths. (when the tool offset is set with reference to the turret tool mounting surface)

Okuma's Intelligent Technology reduces operator burden

Intelligent Technology

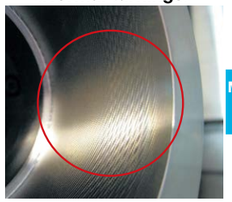
Cutting condition search function for turning
Machining Navi L-*g* (guided, harmonic spindle speed control) (Optional)

Varying the spindle speed in accordance with the best amplitude and period makes it possible to suppress chatter during turning operations. Tool life can be extended and machining time reduced with use of the optimum cutting conditions, producing significant effects in drilling/boring bar, threading, and grooving applications.

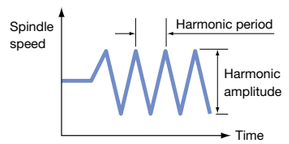
Cutting condition search in threading
Machining Navi T-*g* (Optional)

When chatter occurs in threading, general methods to resolve the problem have been to either lower cutting conditions at the expense of productivity, or to use special chatter-resistant tools at some cost. Machining Navi T-*g* (threading) provides optimum control, increasing or decreasing spindle speed on each pass to inhibit the periodic vibrations that are a cause of chatter.

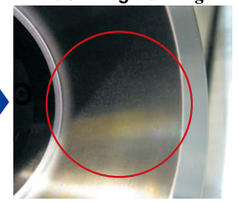
<Normal turnings>



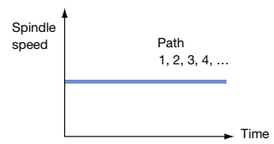
Chatter marks



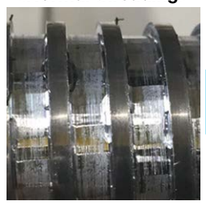
<Machining Navi L-*g*>



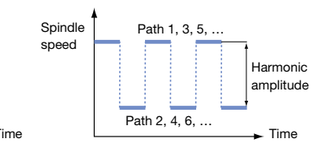
Smooth surface



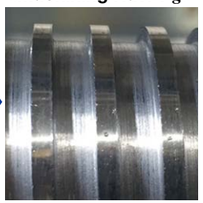
<Normal threading>



Chatter marks



<Machining Navi T-*g*>



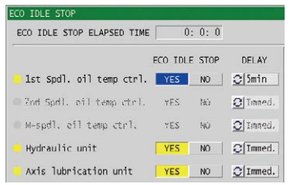
Smooth surface

Next-Generation Energy-Saving System
ECO suite

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)

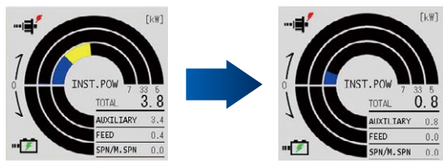
● Example of equipment that can use Idling Stop



On-the-spot check of energy savings
ECO Power Monitor

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.

● Example of Power Monitor check



Before ECO Idling Stop
After ECO Idlling Stop

The displayed values are one example.

Standard Specifications

Name	Model		LB4000 EX Ⅱ(L)			
			T	C×750	C×1500	C×2000
Capacity	Swing over bed	mm (in.)	ø670 (ø26.38)			
	Swing over saddle	mm (in.)	ø480 (ø18.90)			
	Distance between centers	mm (in.)	—	770 (30.31)	1,520 (59.84)	2,170 (85.43)
	Max turning dia	mm (in.)	ø480 (ø18.90)			
	Max work length	mm (in.)	380 (14.96)	750 (29.53)	1,500 (59.06)	2,150 (84.65)
Travels	X axis	mm (in.)	300 (11.81)			
	Z axis	mm (in.)	840 (33.07)		1,590 (62.60)	2,240 (88.19)
	Y axis	mm (in.)	–			
	C axis	deg	–			
Spindle	Spindle speed	min^{-1} (rpm)	42 to 4,200 [30 to 3,000] 〈12 to 1,400〉			
	Speed ranges		2 auto ranges (2 range motor coil switching) 〈Infinitely variable〉			
	Spindle nose		JIS A2-8 [JIS A2-11] 〈JIS A2-15〉			
	Spindle bore dia / Front bearing dia	mm (in.)	ø91 [ø112] 〈ø185〉(ø3.58 [ø4.41] 〈ø7.28〉) / ø140 [ø160] 〈ø240〉(ø5.51 [ø6.30] 〈ø9.45〉)			
Turret	Type		V12 NC turret			
	No. of tools		L: 12			
	OD tool shank	mm (in.)	25 × 25 (1 × 1)			
	ID tool shank dia	mm (in.)	ø40 (ø1-1/2)			
	Turret rotation	sec/index	0.2			
Milling tool	Spindle speed	min^{-1} (rpm)	—			
	Speed range		—			
Feedrates	Rapid traverse	m/min (ipm)	X: 25, Z: 30 (984, 1,181)			
	Tailstock rapids	m/min (ipm)	—	12 (472)		
	Rapid traverse (C)	min^{-1} (rpm)	–			
	Cutting (X-Z-Y)	mm/rev (ipr)	0.001 to 1,000.000 (0.00004 to 39.37)			
Tailstock	Tapered bore type		—	MT 5		
	Quill travel	mm (in.)	—	780 (30.71)	1,530 (60.24)	2,180 (85.83)
Motors	Main spindle (30 min/cont)	kW (hp)	30/22 (40/30) [37/30 (50/40)] 〈37/30 (50/40)〉			
	Milling tool spindle	kW (hp)	—			
	Axis drive	kW (hp)	X: 3.5 / Z: 4.6 (4.73/6.21)			
	Tailstock travel	kW (hp)	—	2.9 (3.9)		
	Coolant pump (50/60 Hz)	kW (hp)	SD*: 0.25/0.25 (0.33/0.33) RD*: 0.55/0.75 (0.73/1)		SD*: 0.25/0.25 (0.33/0.33)	SD*: 0.55/0.75 (0.73/1)
Machine size	Height	mm (in.)	1,955 (76.97)		2,157 (84.92)	2,005 (78.94)
	Floor space*1	mm × mm (in.)	3,100 × 1,921 (122 × 76)		4,175 × 2,390 (164 × 94)	5,515 × 2,505 (217 × 99)
	Weight (w/ CNC)*1	kg (lb)	6,000 (13,200)	6,300 (13,860)	8,200 (18,040)	11,000 (24,200)
CNC			OSP-P300LA			

Name	Model		LB4000 EX Ⅱ(M)			LB4000 EX Ⅱ(MY)			
			T	C×750	C×1500	C×2000	T	C×750	C×1500	C×2000
Capacity	Swing over bed	mm (in.)	ø670 (ø26.38)							
	Swing over saddle	mm (in.)	ø480 (ø18.90)							
	Distance between centers	mm (in.)	—	770 (30.31)	1,520 (59.84)	2,170 (85.43)	—	770 (30.31)	1,520 (59.84)	2,170 (85.43)
	Max turning dia	mm (in.)	ø430 (ø16.93)							
	Max work length	mm (in.)	380 (14.96)	750 (29.53)	1,500 (59.06)	2,150 (84.65)	380 (14.96)	750 (29.53)	1,500 (59.06)	2,150 (84.65)
Travels	X axis	mm (in.)	300 (11.81)							
	Z axis	mm (in.)	840 (33.07)		1,590 (62.60)	2,240 (88.19)	840 (33.07)		1,590 (62.60)	2,240 (88.19)
	Y axis	mm (in.)	—				140 (±70)			
	C axis	deg	360 (0.001 increments)							
Spindle	Spindle speed	min^{-1} (rpm)	42 to 4,200 [30 to 3,000] 〈12 to 1,400〉							
	Speed ranges		2 auto ranges (2 range motor coil switching) 〈Infinitely variable〉							
	Spindle nose		JIS A2-8 [JIS A2-11] 〈JIS A2-15〉							
	Spindle bore dia / Front bearing dia	mm (in.)	ø91 [ø112] 〈ø185〉(ø3.58 [ø4.41] 〈ø7.28〉) / ø140 [ø160] 〈ø240〉(ø5.51 [ø6.30] 〈ø9.45〉)							
Turret	Type		M-V12 NC turret (radial)							
	No. of tools		L / M: 12							
	OD tool shank	mm (in.)	25 × 25 (1 × 1)							
	ID tool shank dia	mm (in.)	ø40 (ø1-1/2)							
	Turret rotation	sec/index	0.2							
Milling tool	Spindle speed	min^{-1} (rpm)	45 to 6,000							
	Speed range		Infinitely variable							
Feedrates	Rapid traverse	m/min (ipm)	X: 25, Z: 30 (984, 1,181)				X: 25, Z: 30, Y: 12.5 (984, 1,181, 492)			
	Tailstock rapids	m/min (ipm)	—	12 (472)			—	12 (472)		
	Rapid traverse (C)	min^{-1} (rpm)	200							
	Cutting (X-Z-Y)	mm/rev (ipr)	0.001 to 1,000.000 (0.00004 to 39.37)							
Tailstock	Tapered bore type		—	MT 5			—	MT 5		
	Quill travel	mm (in.)	—	780 (30.71)	1,530 (60.24)	2,180 (85.83)	—	780 (30.71)	1,530 (60.24)	2,180 (85.83)
Motors	Main spindle (30 min/cont)	kW (hp)	30/22 (40/30) [37/30 (50/40)] 〈37/30 (50/40)〉							
	Milling tool spindle	kW (hp)	7.5/4.3 (10/5.7) (25 min/cont)							
	Axis drive	kW (hp)	X: 3.5 / Z: 4.6 (4.73/6.21)				X: 3.5 / Z: 4.6 / Ys: 3.5 (4.73/6.21/4.73)			
	Tailstock travel	kW (hp)	—	2.9 (3.9)			—	2.9 (3.9)		
	Coolant pump (50/60 Hz)	kW (hp)	SD*: 0.25/0.25 (0.33/0.33) RD*: 0.55/0.75 (0.73/1)		SD*: 0.25/0.25 (0.33/0.33)	SD*: 0.55/0.75 (0.73/1)	SD*: 0.25/0.25 (0.33/0.33) RD*: 0.55/0.75 (0.73/1)		SD*: 0.25/0.25 (0.33/0.33)	SD*: 0.55/0.75 (0.73/1)
Machine size	Height	mm (in.)	1,955 (76.97)		2,157 (84.92)	2,005 (78.94)	2,320 (91.34)		2,522 (99.29)	2,370 (93.31)
	Floor space*1	mm × mm (in.)	3,100 × 1,921 (122 × 76)		4,175 × 2,390 (164 × 94)	5,515 × 2,505 (217 × 99)	3,100 × 1,921 (122 × 76)		4,175 × 2,390 (164 × 94)	5,515 × 2,505 (217 × 99)
	Weight (w/ CNC)*1	kg (lb)	6,000 (13,200)	6,300 (13,860)	8,200 (18,040)	11,000 (24,200)	6,400 (14,080)	6,700 (14,740)	8,600 (18,920)	12,000 (26,400)
CNC			OSP-P300LA							

* SD: Side discharge, RD: Rear discharge

[ ]: Big-Bore spindle specs 〈 〉: Super big-bore spindle specs
*1: Standard spindle/side discharge specs, tank included

Standard Specifications & Accessories

Model	LB4000 EX Ⅱ					
Specifications	L		M		MY	
	T	C	T	C	T	C
Spindle	A2-8 42 to 4,200 min^{-1} 30/22 kW (40/30 hp) (30 min/cont)					
Turret	NC indexing					
	V12 bolt clamp		M-V12 radial			
Milling tool spindle	–		45 to 6,000 min^{-1} 7.5/4.3 kW (10/5.7 hp) (25 min/cont)			
Tailstock	–	NC travel Dead quill MT 5	–	NC travel Dead quill MT 5	–	NC travel Dead quill MT 5
Standard accessories	Coolant system (water soluble)					
	Work lamp (LED)					
	Full enclosure shielding					
	Jack screws, foundation washers					
	Hand tools					
Standard accessories	Door interlock (standard)					
	Lube monitor (A-1 + oil source pressure detector)					
CNC	OSP-P300LA					
	NC operation panel, 15-in. color TFT (touch panel)					
	Program storage; 2 GB					
	Operation buffer; 2 MB					

Chucking Kit Chuck table

	B kit: *1	E kit: *2	D kit: *3
Chuck	Hollow 10 in. BB210A8	Hollow 10 in. B-210A8	Hollow 12 in. B-212A8
Drive	SR1781	SR1670	SR1781

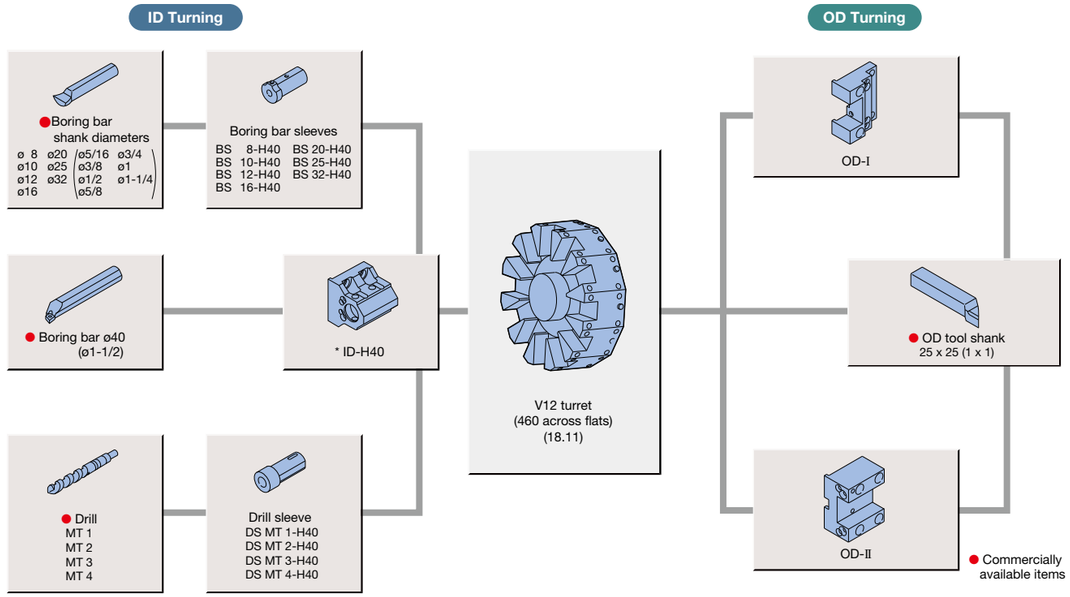
Chucking Kit / Tooling Kit

* Not available for T model specifications

Model	LB4000 EX Ⅱ				
Specifications	L			M	MY
	Std Chucking Kit	Std Tooling Kit	Chucking Kit	Chucking Kit	Chucking Kit
Chuck	Solid 10 in. N-10A8		BB kit: *1 E kit: *2 D kit: *3	BB kit: *1 E kit: *2 D kit: *3	BB kit: *1 E kit: *2 D kit: *3
Drive	SR1670				
Soft jaws, A			5	5	5
Soft jaws, B			3	3	3
Hard jaws			1	1	1
OD-I		4	6	6	6
OD-II		2	3	2	2
ID-H40		6	6	4	4
DS MT No.1-H40			1		
DS MT No.2-H40			1		
DS MT No.3-H40		1	1	1	1
DS MT No.4-H40			1		
BS 10-H40			2	2	2
BS 12-H40			2	2	2
BS 16-H40			2	2	2
BS 20-H40		2	2	2	2
BS 25-H40		2	2	2	2
BS 32-H40			2	2	2
Axial mill/drill unit				2	2
Radial mill/drill unit				2	2
Dummy holder				3	3
Revolving center MT 5*				1	1

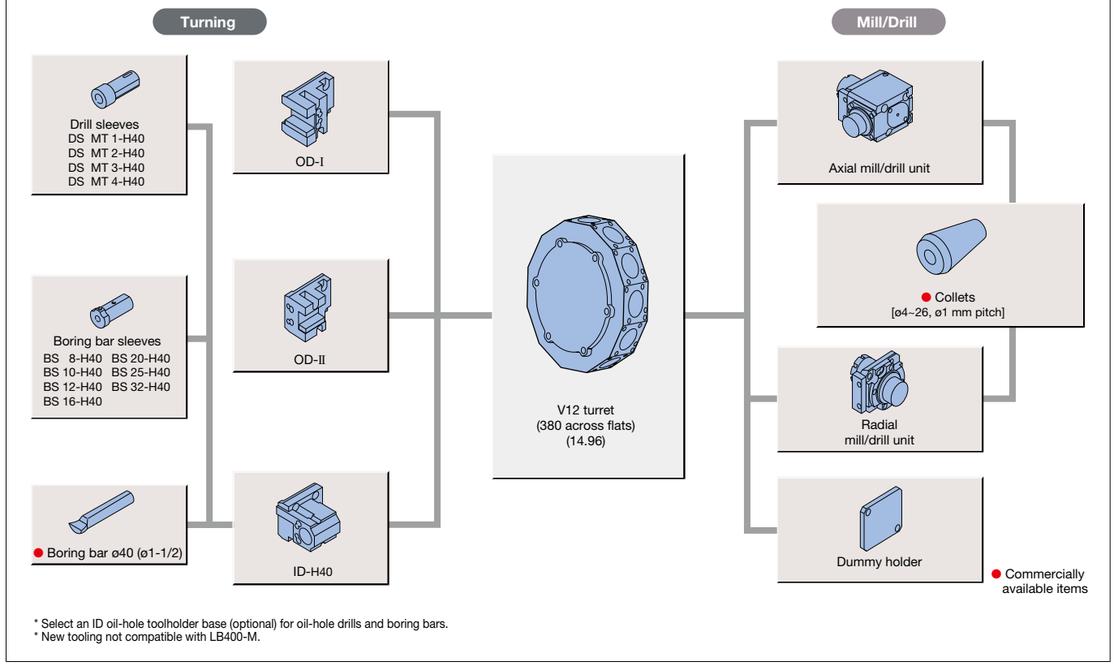
Tooling System

LB4000 EX Ⅱ (L)



* Select an ID oil-hole toolholder base (optional) for oil-hole drills and boring bars.
* LB400 same tooling, except for ID-H40.

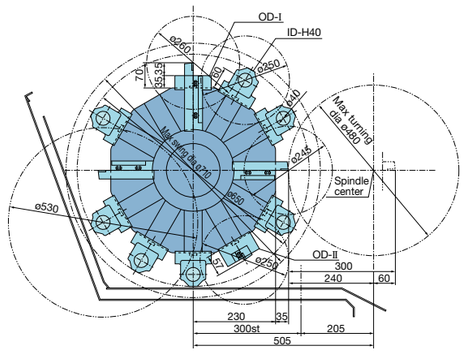
LB4000 EX Ⅱ (M/MY)



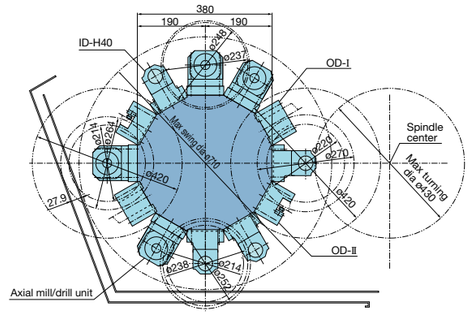
* Select an ID oil-hole toolholder base (optional) for oil-hole drills and boring bars.
* New tooling not compatible with LB400-M.

Tool Interference Drawings

LB4000 EX Ⅱ (L)

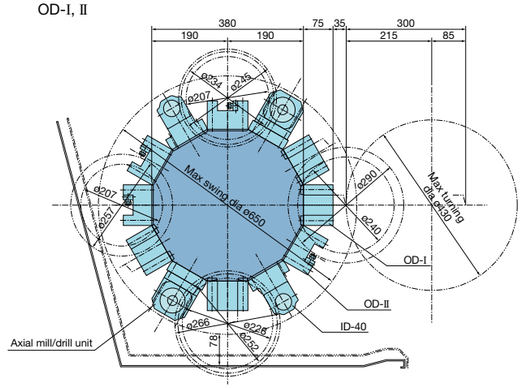


LB4000 EX Ⅱ (M)



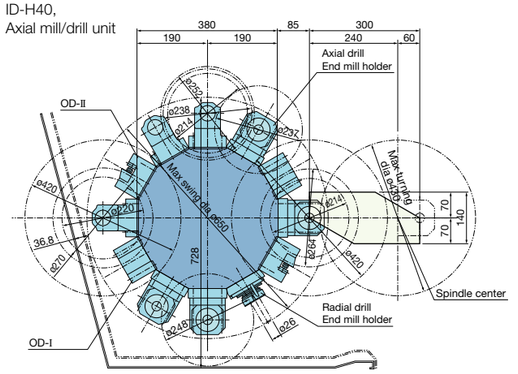
LB4000 EX Ⅱ (MY)

OD-I, Ⅱ



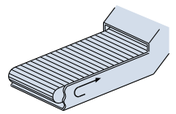
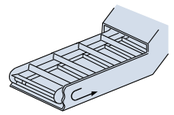
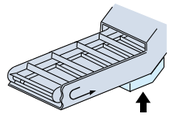
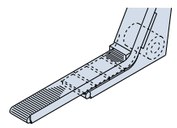
LB4000 EX Ⅱ (MY)

ID-H40,
Axial mill/drill unit



Various chip conveyors

Chip conveyor types and application

Name	Hinge type	Scraper type	Magnet scraper type	Hinge scraper type※
Application	● For steel	● For castings	● For castings	● For steel, castings, nonferrous metal
Features	● General use	● Magnet scraper for sludge processing ● Easy for maintenance ● Blade scraper	● Suitable with sludge ● Not suitable for nonferrous metals	● Filtration of long and short chips and coolant
Shape				

Note: Machine platform may be necessary depending on the type of conveyor.

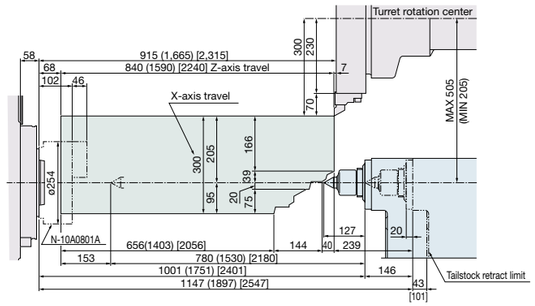
※With drum filter

Working Ranges

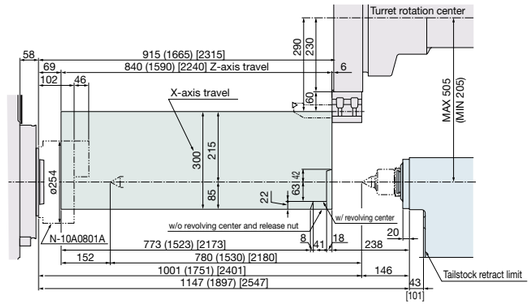
LB4000 EX Ⅱ (L)

( ) for C x 1500, [ ] for C x 2000; with different tailstock (minor dimensions may vary)

OD-I



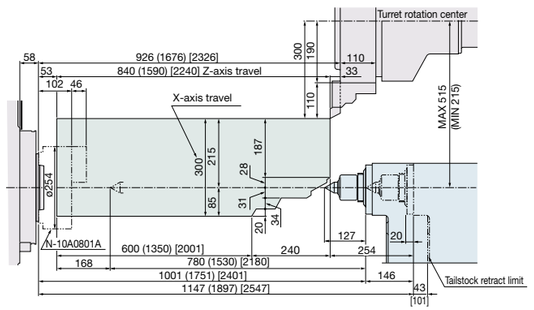
ID-H40



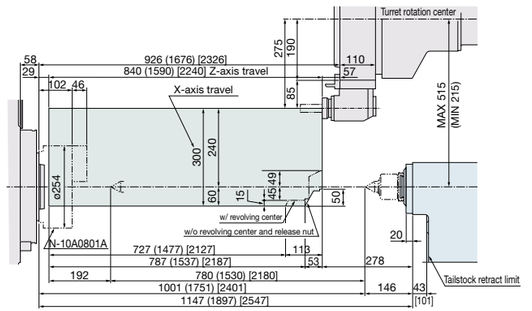
LB4000 EX Ⅱ (M, MY)

( ) for C x 1500, [ ] for C x 2000; with different tailstock (minor dimensions may vary)

OD-I



Axial mill / drill unit



Optional Specs & Accessories

Headstock	Big-Bore spindle Spindle bearing ID ø160 JIS A2-11 30 to 3,000 min^{-1} Spindle motor 37/30 kW (30 min/cont)
	Super Big-Bore spindle Spindle bearing ID ø240 JIS A2-15 12 to 1,400 min^{-1} Spindle motor 37/30 kW (30 min/cont)
Turret	V12 turret (VDI) M-V12 turret (VDI)
Chucking	Chuck auto open/close confirm
	Chuck high/low pressure switch
	Work stopper in spindle
Gauges	In-process gauging system
	Touch setter M (manual), A (auto)
Tailstock	Revolving center: MT 5
	Tailstock taper: Built-in center MT 4 Threaded center MT 4
	Tailstock taper: Built-in center MT 5 Threaded center MT 5
	High thrust specs Tailstock thrust hi/low switch specs

Steadyrests	Rollers (fixed position)
	Auto steadyrest (self-centering)
Lubrication	Lube monitor B-2, C-1, C-2
Coolant	Shower coolant A, B
	Spindle ID coolant A, B
	Coolant pump 0.8 kW
	Coolant high pressure switch
	Coolant sludge control
	Coolant detection; flow volume, level
	Mist collector
	Coolant gun
Air	Air blow (blast; chuck, center, spindle ID, turret)
Cover	Front door auto open/close
Chip handling *1	Chip pan side rear
	Chip conveyor side rear discharge L, H
	Chip bucket L, H
Dustproofing	Air purge, double wiper
Automation	Bar feeder
	Bar puller
	NC robots
	NC loaders
Front door with large window *2	

*1. Rear discharge is not available with C × 1500, C × 2000 specifications
*2. Standard for the European market.

Floor Space

* 5.9m²

Small machine footprint of *5.9 m² for effective use of plant floor space.

With a mere *5.9 m² (62 ft²) required for installation, workpieces of up to ø480 x 750 mm (18.9 x 29.53 in.) can be accommodated. This enables maximum use of limited factory space.

1,920 mm (74.80 in.)

3,050 mm (120.08 in.)

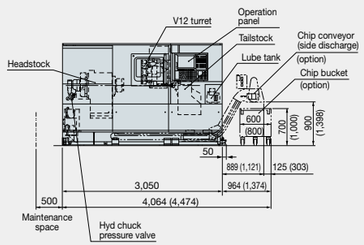
*When specification for distance between centers is 750

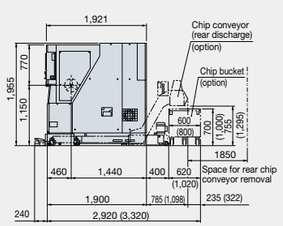
Some photos include parts that differ from specifications

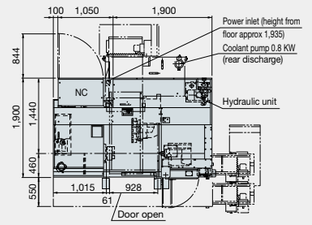
Dimensional Drawings

( ) dimensions for H chip conveyor

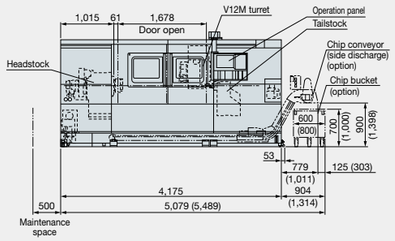
LB4000 EX Ⅱ(L / M) Specifications × 750

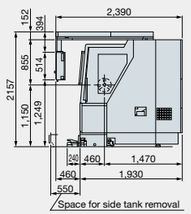


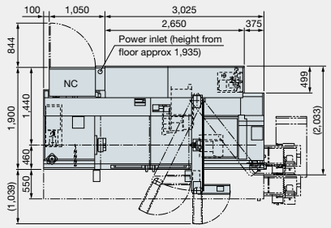




LB4000 EX Ⅱ(L / M) Specifications × 1,500



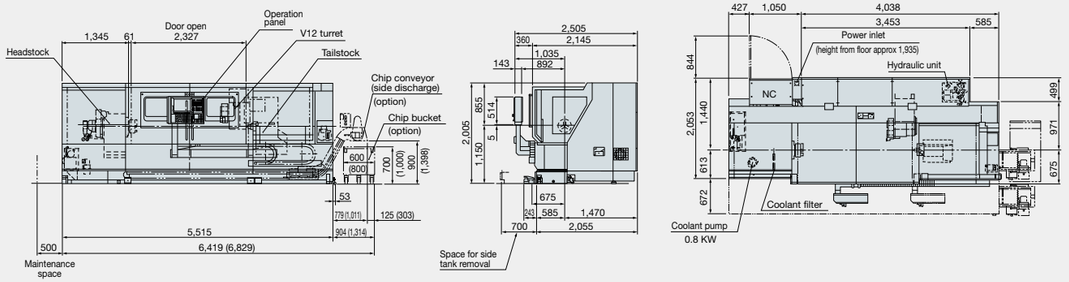




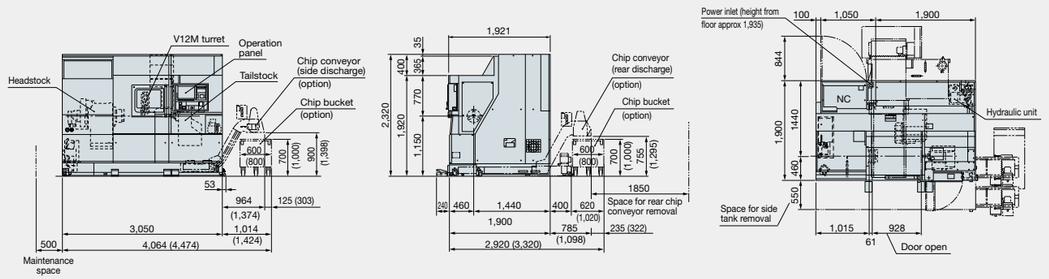
Dimensional Drawings

( ) dimensions for H chip conveyor

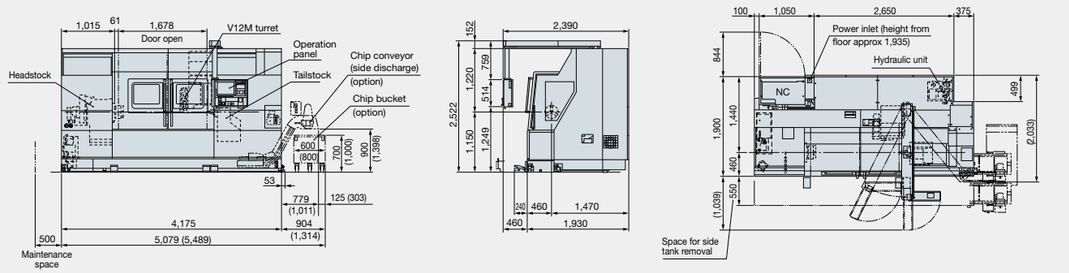
LB4000 EX Ⅱ(L / M) Specifications × 2,000



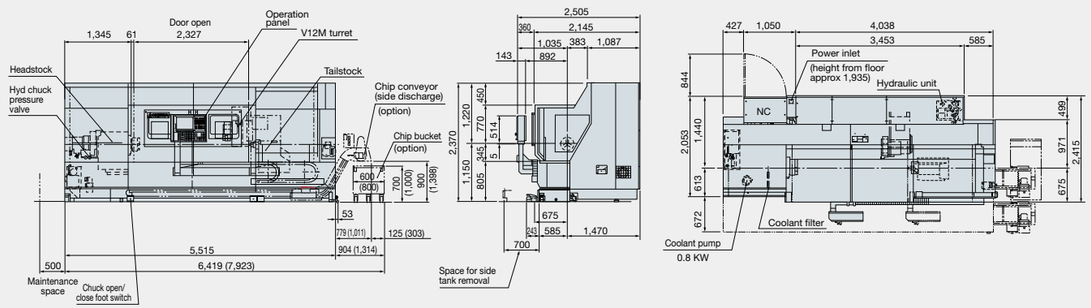
LB4000 EX Ⅱ(MY) Specifications × 750



LB4000 EX Ⅱ(MY) Specifications × 1,500



LB4000 EX Ⅱ(MY) Specifications × 2,000



Standard Specifications

Basic Specs	Control	Turning: X, Z simultaneous 2-axis, Multitasking: X, Z, C simultaneous 3-axis
	Position feedback	OSP full range absolute position feedback (zero point return not required)
	Min / Max inputs	8-digit decimal, ±99999.999 to 0.001 mm (±3937.0078 to 0.0001 in.), 0.001° Decimal:1 μm, 10 μm, 1 mm (0.0001,1 in.) (1°, 0.01°, 0.001°)
	Feed	Override: 0 to 200%
	Spindle control	Direct spindle speed commands (S4) override 50 to 200%
		Constant cutting speed, optimum turning speed designate
	Tool compensation	Tool selection: 32 sets, tool offset: 32 sets
	Display	15-inch color display operational panel + multi touch panel operations
	Self-diagnostics	Automatic diagnostics and display of program, operation, machine, and NC system problems
	Program capacity	Program storage: 2 GB, operation buffer: 2 MB
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.
	Programing	Program management, edit, multitasking, scheduled programs, fixed cycles, special fixed cycles, tool nose R compensation, M-spindle synchronized tapping, fixed drilling cycles, arithmetic functions, logic statements, trig functions, variables, branch statements, auto programming (LAP4), programming help
	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, operations help, alarm help, sequence, return, manual interrupt & auto return, threading slide hold, data I/O, chuck open/close during spindle rotation, spindle orientation (electric)
	MacMan	Machining Management: machining results, machine utilization, fault data compile & report, external output
Communications/Networks		USB (2 ports), Ethernet
High speed/accuracy		Hi-G control
Energy-saving function	ECO suite	ECO Idling Stop, ECO Power Monitor

Item	Kit Specs *1	NML E	NML D	3D E	3D D	OT-IGF E	OT-IGF D	OTM E	OTM D
New Operations									
Advanced One-Touch IGF-L *2						●	●		
Advanced One-Touch IGF-L Multitasking *2								●	●
Programming									
Circular threading			●		●		●		●
Program notes			●		●		●		●
User task 2 I/O variables, 8 each									
Work coordinate system select	10 sets								
	50 sets								
	100 sets								
Tool compensation (Std: 32 sets)	Tool compensation 64 sets								
	Tool compensation 96 sets								
	Tool compensation 200 sets								
	Tool compensation 999 sets								
Common variables 1,000 pcs (Std: 200 pcs)									
Thread matching (spindle orientation required)									
Threading slide hold (G34, G35)									
Variable spindle speed threading (VSST)									
Inverse time feed									
Spindle synchronized tapping (rigid tapping)									
Milling machine specs	Coordinate convert	▲	▲	▲	▲			●	●
	Profile generate	▲	▲	▲	▲			●	●
	Flat turning								
	3-dimensional coordinate conversion								
Helical cutting (within 360 degrees)									
Monitoring									
Real 3-D simulation				●	●	●	●	●	●
Cycle time over check		●	●	●	●	●	●	●	●
Load monitor (spindle, feed axis)				●	●	●	●	●	●
Load monitor no-load detection (load monitor ordered)									
Tool life management			●		●		●		●
Tool life warning									
Operation end buzzer									
Chucking miss detection		Included in machine specs							
Work counters	Count only								
	Cycle stop								
	Start disabled								
Hour meters	Power ON								
	Spindle rotation								
	NC operating								
NC operation monitor (counter, totaling)		●	●	●	●	●	●	●	●
NC work counter (stops at full count with alarm)									
Status indicator (triple lamp) Type C [Type A, Type B]		●	●	●	●	●	●	●	●
Measuring									
In-process work gauging		Included in machine specs							
Z-axis automatic zero offset by touch sensor									
C-axis automatic zero offset by touch sensor									
Gauge data output	File output								
Post-process work gauging interface	Set levels (5-level, 7-level)								
	BCD								
	RS-232-C (dedicated channel)								
Touch setter [M, A]		Included in machine specs							

Item	Kit Specs *1	NML E	NML D	3D E	3D D	OT-IGF E	OT-IGF D	OTM E	OTM D
External Input/Output and Communication Functions									
RS-232-C interface									
DNC link	DNC-T3								
	DNC-C/Ethernet								
	DNC-DT								
USB (additional)	2 additional ports possible								
Automation/Untended Operation									
Auto power shutoff MO2, alarm									
Warmup function (by calendar timer)									
Tool retract cycle									
External program selections	A (pushbutton) 8 types								
	B (rotary switch) 8 types								
	C (digital switch) BCD, 2-digit								
	C2 (external input) BCD, 4-digit								
Okuma loader (OGL) interface		Including loader specs							
Third party robot and loader interface *	Type B (machine)								
	Type C (robot and loader)								
	Type D								
	Type E								
Bar feeders	Bar feeder	Included in machine specs							
	Interface only								
Cycle time reduction *3	Operation time reduction	●	●	●	●	●	●	●	●
	Chuck open/close during spindle rotation								
	Tailstock advance/retrat during spindle rotation								
High-Speed/High-Accuracy Functions									
1/10 μm control *3		▲	▲	▲	▲			●	●
Pitch error compensation									
AbsoScale detection *3									
Hi-Cut Pro		▲	▲	▲	▲			●	●
Super-NURBS	Linear axis								
	Linear axis + rotary axis								
ECO suite (energy saving function)									
ECO Operation									
Other Functions									
Collision Avoidance System (CAS)									
One-Touch Spreadsheet									
Machining Navi L-*g*									
Machining Navi T-*g* thread cutting									
Harmonic spindle speed control (HSSC)		●	●	●	●	●	●	●	●
Spindle dead-slow cutting									
Spindle speed setting									
Spindle S command 0.1 min^{-1}									
Manual cutting feed									
Spindle power peak cutting									
Short circuit breaker									
External M signals [2 sets, 4 sets, 8 sets, ( )]									
Edit interlock									
OSP-VPS (virus protection system)									

*1. NML: Normal, 3D: Real 3D simulation, OT-IGF: One-Touch IGF, OTM: One-Touch M
E: Economy, D: Deluxe
*2. Real 3-D Simulation included
*3. Engineering discussions required.
Note: ▲ Triangle items for M function (milling tool) machines only.

SPACE TURN
LB4000 EXII

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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OKUMA

OKUMA Corporation

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