

LU3000EX

2-Saddle CNC Lathe



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Max power 2-saddle CNC Lathe for even higher productivity

Huge productivity gains at higher performance levels

Achieve the best production system with our wide-ranging lineup

Wide array of intelligent technologies are powerful support for operator



LU3000EX



Standard chuck size	8 inch
Max turning dia	ømm Upper: 410, lower: 250
Max work length	mm 600, 1,000
Spindle speed	min ⁻¹ 5,000
No. of tools	Upper: 12, lower: 8
Spindle motor	kW 22/15 (30 min/cont)
Machine size (W × D × H)	mm Work length 600: 2,950 × 2,198 × 2,080 Work length 1,000: 3,980 × 2,650 × 2,230
Spec extensions	L: UT* and LT* turning
	M: UT milling
	MY: UT Y-axis control milling
	2M: UT and LT milling
	2MY: UT Y-axis control UT and LT milling
	W: Sub-spindle
	MW: UT milling with sub-spindle
	2MW: UT and LT milling with sub-spindle

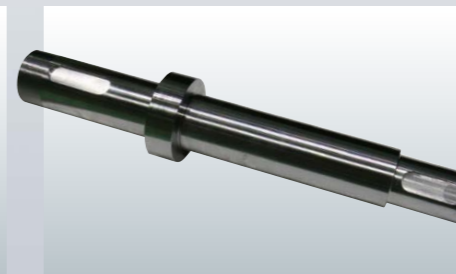
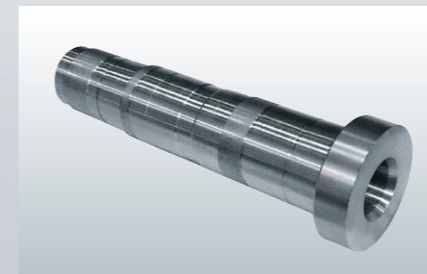
* UT: Upper turret, LT: Lower turret

Shaft shapes are machined with high efficiency

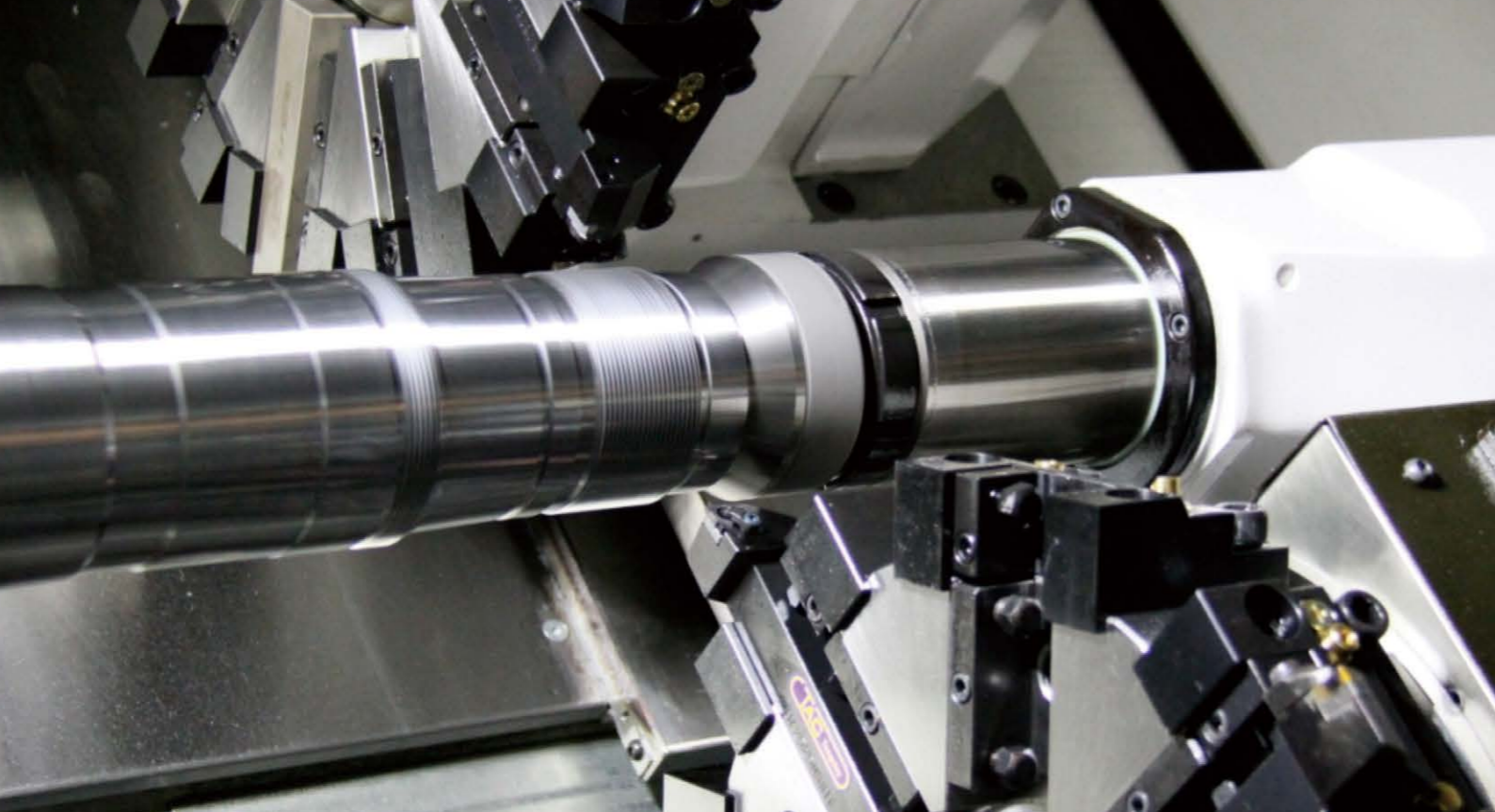
- Part name: Spindle
- Size: ø145 × 465 mm

- Part name: Drive shaft
- Size: ø100 × 500 mm

- Part name: Worm screw
- Size: ø85 × 500 mm



Photographs and images used in this brochure may include optional equipment.



Powerful machining and rapid movements mean shorter cycle times

High-performance simultaneous (heavy) turning with power to spare (actual data)

Turning

- Heavy-duty **4.4 mm²**
- OD (S45C)
 - Cutting speed: 150 m/min
 - Cutting depth: 8 mm
 - Feed rate: 0.55 mm/rev
- ø63 carbide drill (S45C)
 - Cutting speed: 150 m/min
 - Feed rate: 0.23 mm/rev

Milling

- Chip volume **240 cm³/min**
- 7-Flute, carbide, ø20 mm end mill (S45C)
 - Cutting speed: 200 m/min
 - Cutting width: 3.0 mm
 - Cutting depth: 18 mm
 - Feed rate: 1.4 mm/rev
- ø20 carbide drill (S45C)
 - Cutting speed: 135 m/min
 - Feed rate: 0.25 mm/rev
- Tapping (S45C) M20 P2.5

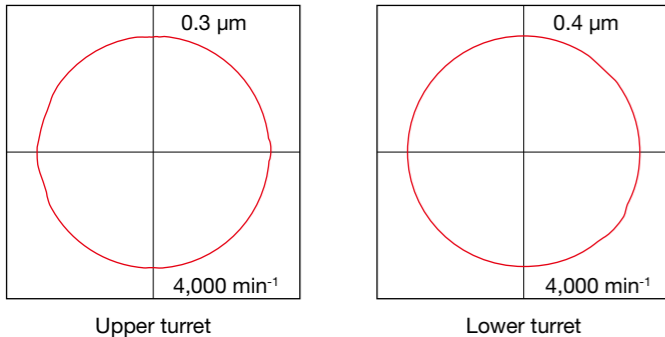
Note: The "actual data" referred to above for this brochure represent examples, and may not be obtained due to differences in specifications, tooling, cutting conditions, and others.

Highly accurate machining of shafts

Example of high accuracy machining (actual data)

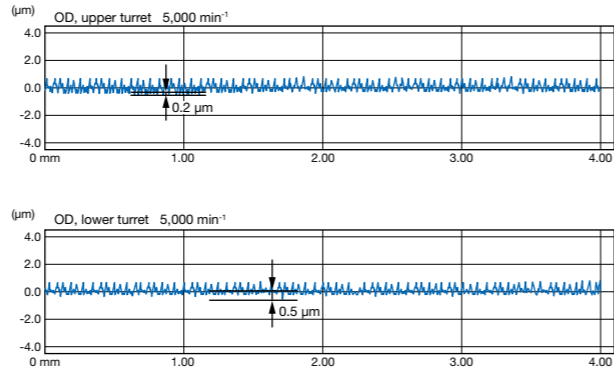
Roundness

- 0.3 µm (upper turret)/0.4 µm (lower turret)



Surface roughness (tool edge uniformity)

- 0.2 µm (upper turret)/0.5 µm (lower turret)



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

High-rigidity hydraulic quill tailstock

- Smooth, E-Z tailstock positioning by using upper saddle. (clamping/unclamping, coupling of tailstock itself is done manually)
 - Dead sleeve: MT No. 5
 - (Option: Built-in): MT No. 4)
 - Quill dia: ø90 mm
 - Quill travel: 120 mm
 - Maximum tailstock thrust: 4,900 N
 - Double-centered support mass: 500 kg (including chuck)



Quick moving components shorten non-cutting times

- **Rapid feedrates** X-axis 25 m/min, Z-axis 30 m/min
- **Turret indexing time** 0.1 sec/index
- **Spindle start/stop** 4 sec (0 ↔ 5,000 min⁻¹)

Thermo-Friendly Concept

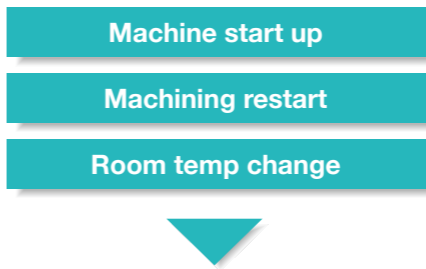
Manageable Deformation—Accurately Controlled

The "Thermo-friendly concept" enables remarkable machining accuracy through original structural design and thermal deformation control technology. It frees you from troublesome dimensional compensation and warm-up. Exhibits excellent dimensional stability even during consecutive operation over long periods and environmental temperature change in the plant.

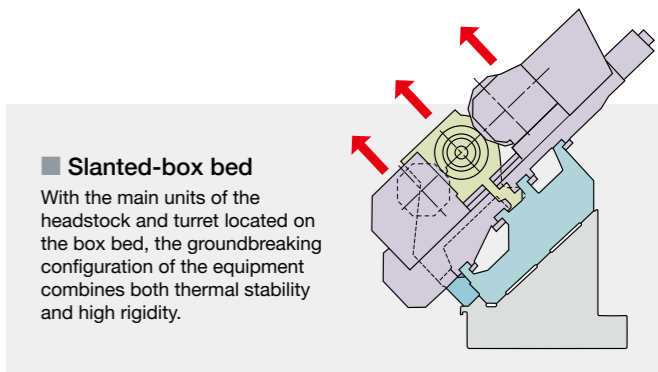
Fewer tool compensation checks

Compensation due to ambient temperature changes and temporary midday or evening machine stops is performed fewer times thanks to outstanding dimensional stability. This leads to better machine utilization, improving efficiency especially for mass-production machining.

- Simple machine construction
- Machine designs that equalize ambient temperatures



High dimensional stability



Many types of machining with the flexibility of 4 axes

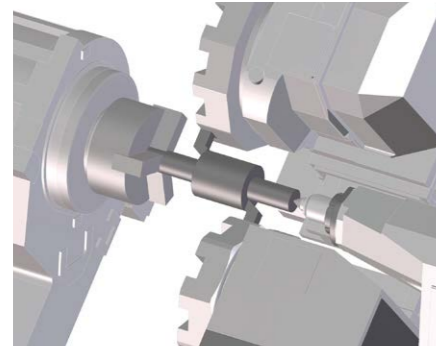
Wide working ranges for upper and lower turrets

	X-axis travel	Z-axis travel*
Upper turret	260 mm	685 mm, 1,085 mm
Lower turret	160 mm	615 mm, 1,015 mm

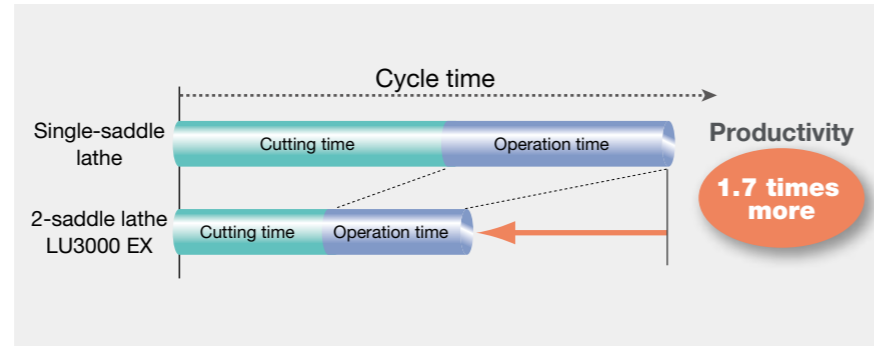
* This is for L/M specs and max work lengths of 600 mm and 1,000 mm. Please see the Machine Specifications for details depending on the specs.

Huge reduction in machining time with simultaneous 4-axis machining on upper and lower turrets

In other words, simultaneous OD/OD or ID/OD operations drastically reduce cycle times. In addition with optional shaft cradle or a steadyrest attached to the lower turret—the possibilities are endless.

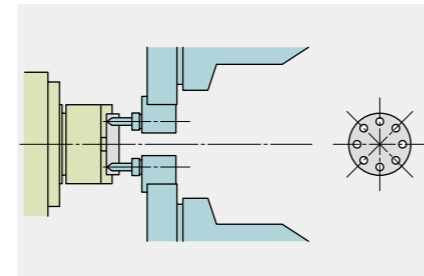
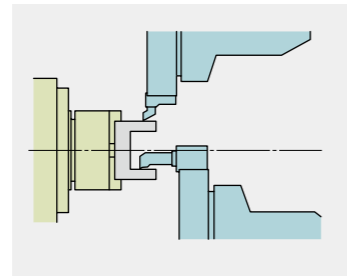
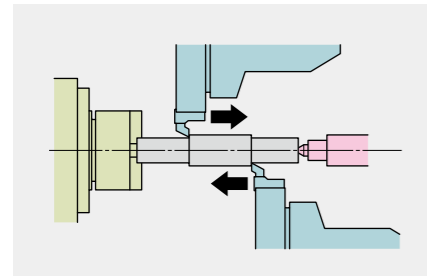


High-efficiency machining from simultaneous 4-axis machining



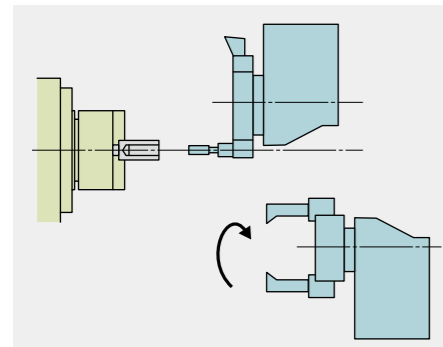
Reduced machining time due to simultaneous machining with the upper and lower turrets

- Simultaneous OD machining
- Simultaneous ID/OD machining
- Simultaneous milling with the upper and lower turrets



Note: Upper and lower turret milling specs

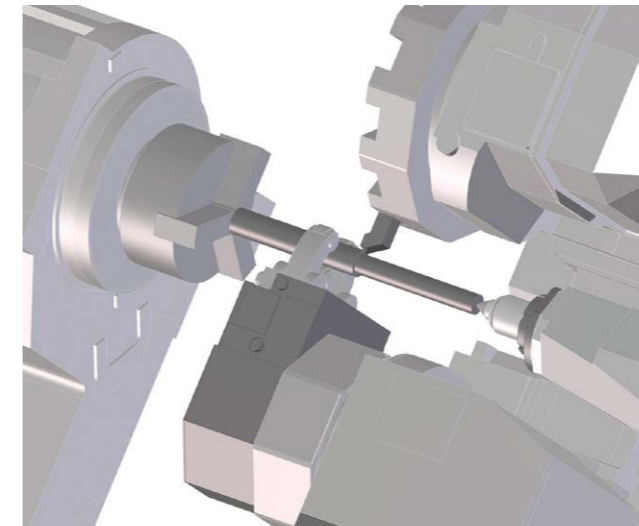
Operation time reduction



When a workpiece is too small for simultaneous cutting due to tool interference, the upper and lower turrets alternately index and approach the workpiece during cutting to shorten the operation time.

Turning long shafts with a steadyrest—without chatter

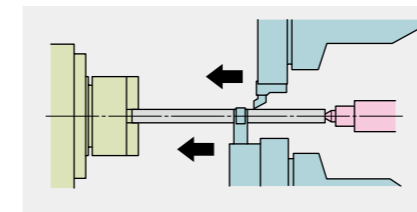
A steadyrest (option) mounted on the lower turret does provide steady workpiece support. With an NC programmed upper turret and simultaneous control, long shafts will always be supported near the cutting point.



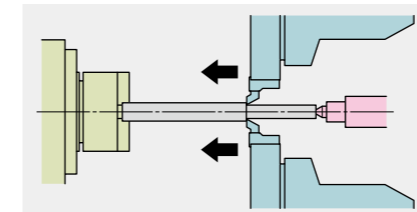
Prevents chatter with synchronized control of the upper turret and a steadyrest

Avoiding chatter of long workpieces

- Attach a steadyrest to the lower turret



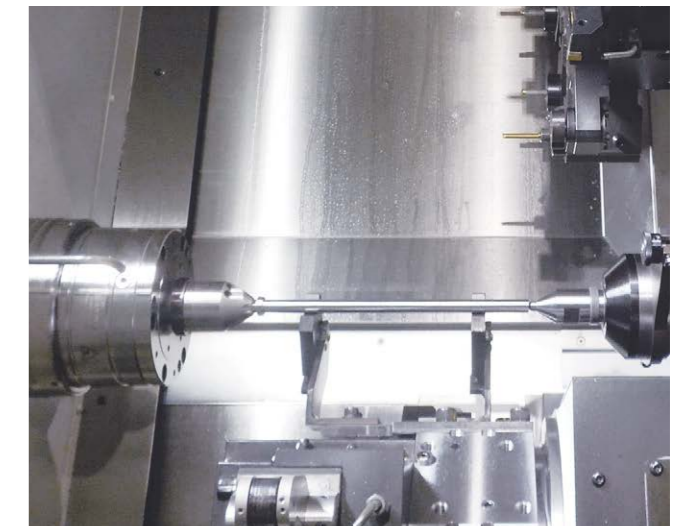
- Balanced and simultaneous upper and lower turret operations prevent chatter



Long workpieces that would otherwise be unable to be turned due to chattering can be machined without chattering with balanced and simultaneous upper and lower turret operations. (Test cutting is required.)

Reducing operator burden by auto part load/unload

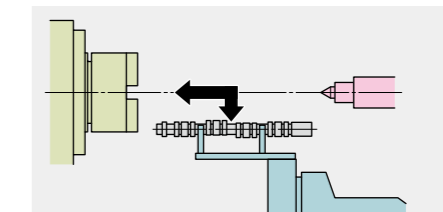
A shaft cradle (option) is attached to the lower turret to automate part load/unload, and reduce the workload of the operator.



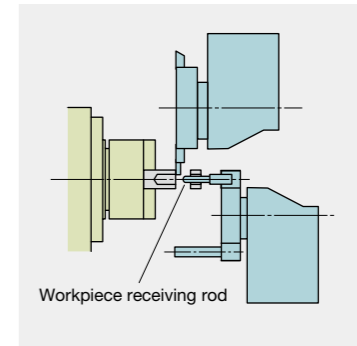
Shaft cradle reduces operator burden

Reducing the burden of part load/unload

- A shaft cradle is attached to the lower turret



- Reducing the burden during unloading



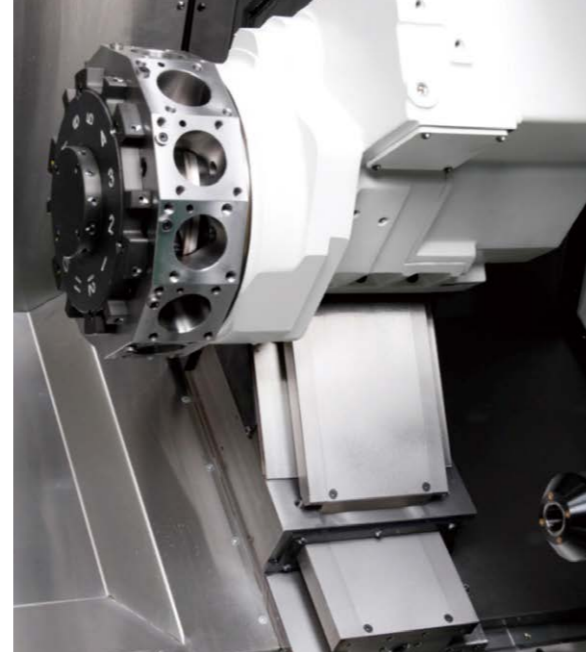
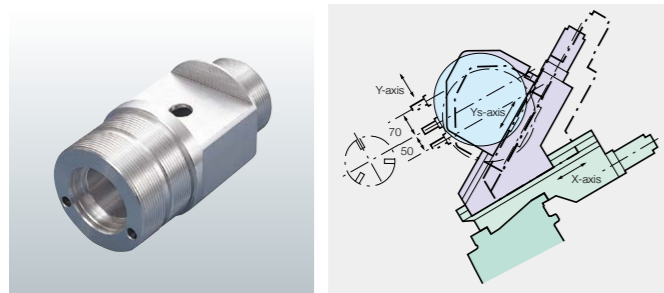
One turret is equipped with a receiving rod, tray, etc. to receive workpieces on cutoff, then carry to designated position by turret rotation.

Achieve the best production system with our wide-ranging lineup

Complete multitasking with Y-axis functions One chuck machining even with irregularly shaped workpieces (MY/2MY)

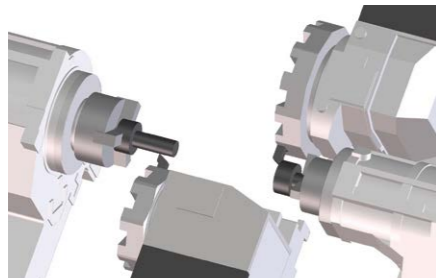
A variety of milling operations can be accommodated with high-accuracy, wide-range Y-axis control using a double slide system. Achieves complete multitasking with a single chucking. (Y-axis control is applied to the upper turret.)

Y-axis travel	120 mm (+70 to -50)
Y-axis rapid traverse	12.5 m/min



Sub-spindle for integrated front/back (1 machine) operations (W/MW/2MW)

With a sub-spindle, front and back machining can be done on a single machine. Since machining of both ends can be completed on one machine, storage space for in-process inventory and post-process machines are unnecessary.



Lower turret multitasking specifications eliminate milling tool shortages (2M/2MY/2MW)

A multitasking turret (V8) is used for the lower turret, enabling integrated machining of complex-shaped parts that require many milling tools. The lineup also includes 2MY specifications with Y-axis functions and 2MW with a sub-spindle.

Automation that meets your needs enables labor-saving and long periods of operation

Labor shortages can be solved with a wide variety of automated systems

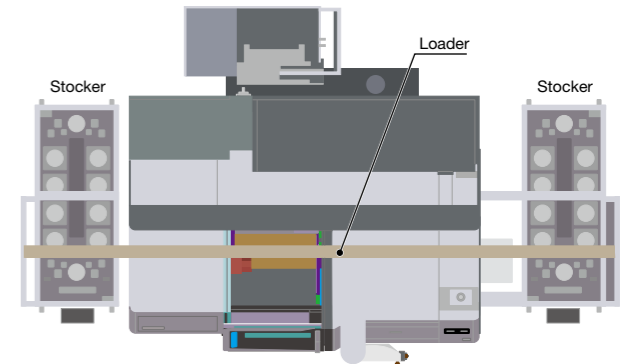
Automated system with stand-alone articulated robots

Highly versatile to be compatible with a variety of workpieces. Automation of high-mix, low-volume production and system upkeep, such as measurement and cleaning, including peripheral equipment is also freely configurable. Automation with a high degree of freedom can be achieved according to production demands, such as process transfer between multiple machines and combination with a machining center.



Automated system with a loader

This workpiece transport and load/unload system is suitable for medium-scale to mass production of workpieces with similar shapes. The loader can be an on-machine loader attached to the upper part of the machine or a stand-alone gantry loader with stand-alone legs that support the beam. Because the space above the machine can be used effectively, the need for a large space is eliminated, and the workflow in front of the machine is also secured. The most suitable line configurations are proposed, ranging from a cell system with one machine and one loader to a multi-process line connecting multiple devices, as well as combinations of workpiece conveyors and measuring, flip, cleaning, and other peripheral devices. The system realizes long periods of reliable and stable automatic operation.



● Main loader specifications

OGL5-O II on-machine loader

Maximum workpiece size	Flange	ø150 × L100 mm
	Shaft	ø80 × L150 mm
Portable mass		3 kg × 2

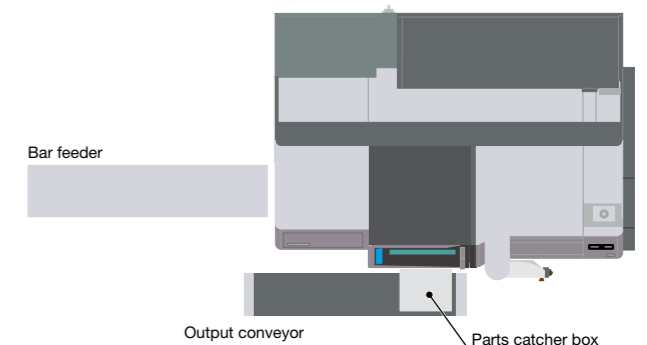
OGL10-P stand-alone gantry loader

Maximum workpiece size	Flange	ø250 × 150 mm
	Shaft	ø80 × 400 mm
Portable mass		5 kg × 2

There may be limitations for the workpiece size or portable mass. Please use the data as a guide. Many other specifications are available. Please consult your Okuma representative.

Automation with the supply of bar materials via a bar feeder

An automated system for bar materials can be constructed with a bar feeder, parts catcher, and output conveyor.



Reducing operator burden with comfortable machine operation

User-friendly operation panel and machine design



Swivel operation panel

The 15-inch operation panel swivels to make setup work in the machining chamber comfortable.



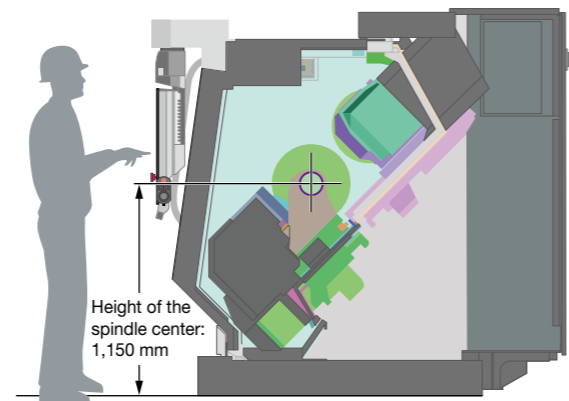
The panel can be swiveled according to the work position to ensure good operability

45° slant bed

The 45° slant bed structure has good workability and visibility of the upper and lower turrets, spindle, and tailstock to eliminate the burden on the operator.

Excellent chip discharge

A chip conveyor (option) is placed at the chip discharge immediately beneath the chuck to achieve efficient chip discharge and maintain high productivity without the need to stop the machine.



Chip conveyor types and applications

Type	Hinge	Scraper	Magnet scraper	Hinge + scraper (with drum filter)
Application	<ul style="list-style-type: none"> For steel 	<ul style="list-style-type: none"> For castings 	<ul style="list-style-type: none"> For castings 	<ul style="list-style-type: none"> For steel, castings, nonferrous metal
Features	<ul style="list-style-type: none"> General use 	<ul style="list-style-type: none"> Magnet scraper for sludge processing Easy for maintenance Blade scraper 	<ul style="list-style-type: none"> Suitable with sludge Not suitable for nonferrous metals 	<ul style="list-style-type: none"> Filtration of long and short chips and coolant
Shape				

Note: Raised machine arrangements may be necessary depending on the type of conveyor.

Reducing operator burden with advanced technology



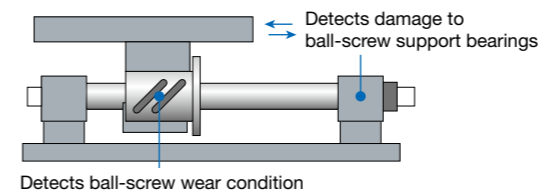
AI Machine Diagnosis Function (option) Machine tool diagnostics technology with artificial intelligence (AI)

Machine tool self-diagnosis technology "AI machine diagnosis function" can detect signs of failure. Machine downtime can be reduced by preventing machine shutdown. The OSP-AI installed in the CNC identifies the presence or absence of any abnormality in the feed axis and the location of the abnormality and detects damage to the ball-screw support bearing and wear of the ball-screw*.

* With AbsoScale detection specs, ball-screw wear detection is possible.

Notes: AI diagnostic models are already installed, and diagnoses can be performed by the machine itself. AI diagnostic models can be updated through Okuma's Connect Plan.

Execute diagnostic tests from the screen guidelines



Sludgeless Tank (option)

Reducing waste liquid by suppressing coolant deterioration

Troublesome coolant tank cleaning work is reduced dramatically to increase productivity. In addition, the environmental impact caused by the disposal of coolant is reduced.

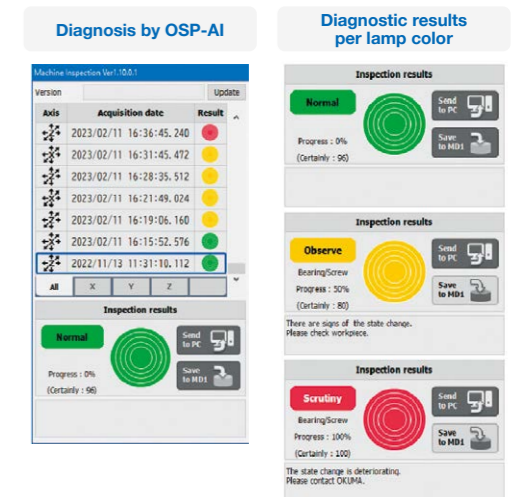
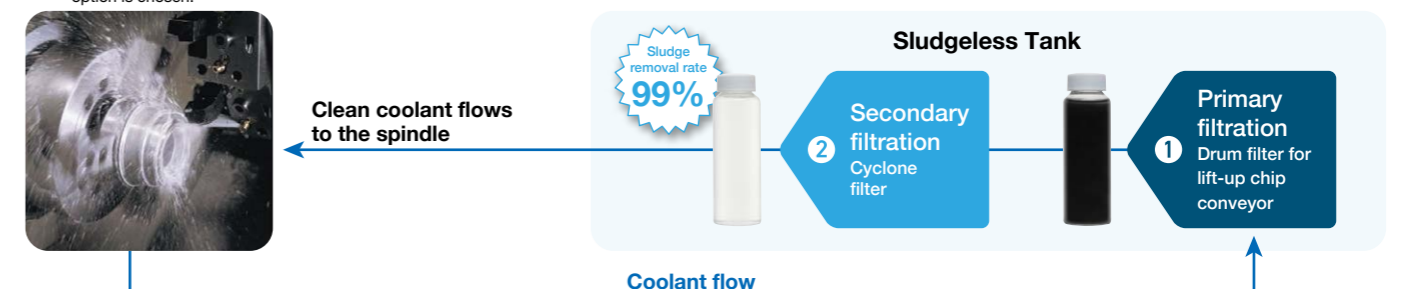
It is important to remove impurities (sludge) contained in the coolant for the stable operation of the machine, and coolant tank cleaning is indispensable. The Sludgeless Tank (option) circulates coolant at a constant speed in the tank to effectively collect sludge even during non-machining while reducing defects caused by the sludge contained in the coolant, such as scratches on machined surfaces and troubles of cutters, as well. Sludge accumulation in the tank is suppressed, which also drastically reduces the frequency of troublesome tank cleaning and enables stable operation over long hours. In addition, the frequency of coolant replacement can be greatly reduced, which also reduces the environmental impact of coolant disposal.

Sludge removal rate **99%** (when the material is casting and aluminum)
Notes: After secondary filtration (cyclone filter) permeation
Okuma evaluated removal rate

No tank cleaning for 3 years (okuma equipment actual data)

No coolant replacement for 3 years (okuma equipment actual data)

Note: It is necessary to select the hinge + scraper (with drum filter) type chip conveyor if the Sludgeless Tank option is chosen.



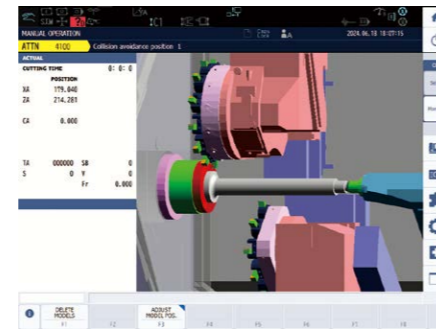
Collision Avoidance System

Collision prevention

(option)

“Concentrate on machining” without collision worries

NC controller (OSP) with 3D model data of machine components—workpiece, tool, chuck, fixture, headstock, turret, tailstock—performs real time simulation just ahead of actual machine movements. It checks for interference or collisions, and stops the machine movement immediately before collision. Machinists (novice or pro) will benefit from reduced setup and trial cycle times, and the confidence to focus on making parts.



Virtual machine (interference check)

Collision prevention during automatic operation

NC program is read in advance and axial travel commands are checked for interference with consideration of zero point and tool compensation values set in NC. Axial travel movement is stopped temporarily before collision occurs.

Collision avoidance in manual operation

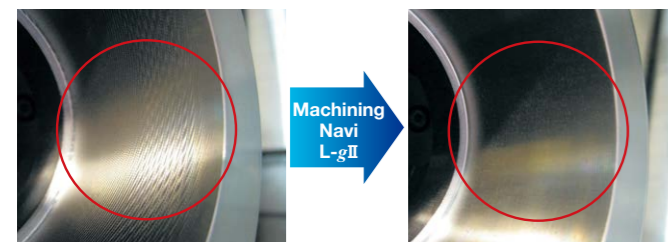
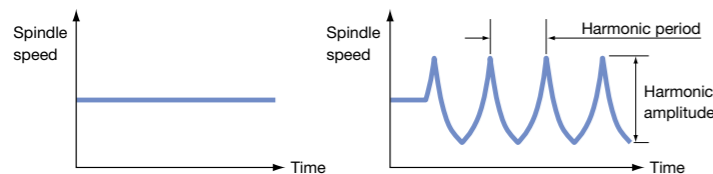
Especially useful for machine operators setting up a job, collision avoidance in manual mode provides collision-free confidence and faster machining preparations.

Machining Navi L-gII

(Harmonic Spindle) Cutting condition search for turning (Speed Control)

(option)

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 cycles times reduced with use of the optimum cutting conditions, producing significant effects in deep-hole boring bar, threading, and grooving applications.

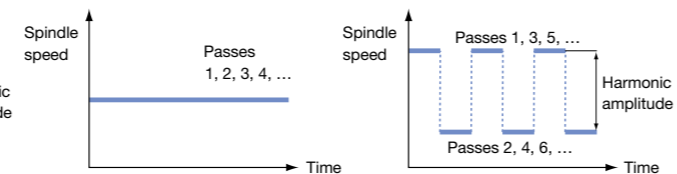


Machining Navi T-g Threading

Cutting condition search for threading

(option)

When chattering occurred during threading, it was common to lower the cutting conditions or use special tools that resist chattering. Okuma's Machining Navi T-g (threading) breaks the vibration periodicity with a different spindle speed for each threading pass, and suppresses chatter growth. The machining capacity of your normally used tools can be maximized for stable machining.



Normal threading



Chatter marks

Machining Navi T-g Threading



Smooth surface

Contribution to the realization of a carbon-free society

Highly productive, accurate and eco-friendly Green-Smart Machine

Okuma has worked to reduce energy consumption in order to achieve carbon neutrality at the three factories in Japan which are our main production bases.

We have realized high productivity through automation and process-intensive machining, in addition to high-accuracy machining, and we then introduced the use of green energy to transform the three domestic factories into carbon-neutral factories. “Green-Smart Machines” is our definition of Okuma’s intelligent machine tools, which autonomously achieve stable dimensional accuracy and reduced energy consumption, to support environmentally friendly production. Our policy is to deploy “Green-Smart Machines” fully, to help achieve a carbon-free society.

Starting with products manufactured at those carbon-neutral factories and supplying them all over the world, we will work together with our customers to help solve the social issues faced by the manufacturing industry.

Green-Smart Machines are **environmentally friendly** products that autonomously achieve stable dimensional accuracies and reduced energy consumption.

Green-Smart Machine Technology that achieves Green-Smart Machine

Thermo-Friendly Concept

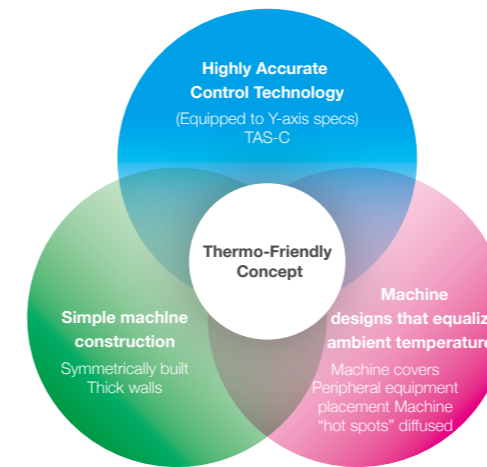
The Okuma Intelligent Technology that enables machines to autonomously maintain high accuracy stability

Reduction of warm-ups and dimensional compensation

Reduce the time needed for daily warm-ups and dimensional compensation to adjust to ambient temperature changes

Reduction of power used for air conditioning

Maintain high stability of dimensional accuracy even if the air conditioning temperature range is expanded.



The unique concept of accepting temperature changes achieves consistent high accuracy without special coolers or excessive air conditioning.

ECO suite plus

A system for an energy-saving society

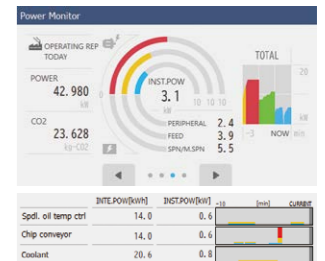
ECO Idling Stop

Auxiliary equipment consume a substantial portion of the power used in a factory. This function enables each of them to be turned off when not needed to reduce power consumption. In addition to when automatic operation is suspended, it is now possible to stop idling during manual operation. Power consumption and carbon dioxide emissions are reduced without conscious effort by the operator.

ECO IDLE STOP			
ECO IDLE STOP ELAPSED TIME	0; 0; 0		
1st spdl. oil temp ctrl.	YES	NO	SetIn
2nd spdl. oil temp ctrl.	YES	NO	TimeL
M-spdl. oil temp ctrl.	YES	NO	TimeL
Hydraulic unit	YES	NO	TimeL
Axis lubrication unit	YES	NO	TimeL

ECO Power Monitor

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



ECO Operation

By using only the required peripherals (chip conveyor, mist collector), energy-saving operations are possible.

ECO PARAMETER		ECO IDLE STOP (114)		ECO OPERATION	
ECO IDLE STOP ELAPSED TIME		000:00:00		REMAINING TIME UNTIL ECO IDLE STOP READY 12:46	
Chip conveyor interval control		PARAMETER	UNIT		
Chip conveyor interval:active time		OFF	[min]		
Chip conveyor interval:suspended time		100	[min]		
		200	[min]		

Machine Specifications

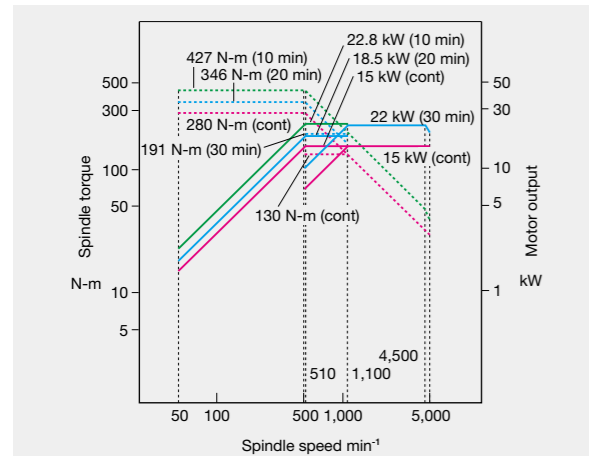
Model/Spec	LU3000 EX (L)			LU3000 EX (M) <2M>			LU3000 EX (MY) <2MY>			LU3000 EX (W)		LU3000 EX (MW) <2MW>	
	2ST	2SC x 600	2SC x 1000	2ST	2SC x 600	2SC x 1000	2ST	2SC x 550	2SC x 950	2SW x 600	2SW x 1000	2SW x 600	2SW x 1000
Capacity	Swing over bed mm (in) $\phi 580 (\phi 22.83)$ Max turning dia, upper/lower mm (in) U: $\phi 410/L: \phi 250$ (U: $\phi 16.14/L: \phi 9.84$) U: $\phi 340/L: \phi 220 <\phi 180>$ (U: $\phi 13.39/L: \phi 8.66 <\phi 7.09>$) U: $\phi 340/L: \phi 220 <\phi 180>$ (U: $\phi 13.39/L: \phi 8.66 <\phi 7.09>$) U: $\phi 410/L: \phi 250$ (U: $\phi 16.14/L: \phi 9.84$) U: $\phi 340/L: \phi 220 <\phi 180>$ (U: $\phi 13.39/L: \phi 8.66 <\phi 7.09>$) DBC (DBN)*1 mm (in) - 816 (32.13) 1,216 (47.87) - 816 (32.13) 1,216 (47.87) 895 (35.24) 1,295 (50.98) 895 (35.24) 1,295 (50.98) Max work length mm (in) 350 (13.78) 600 (23.62) 1,000 (39.37) 350 (13.78) 600 (23.62) 1,000 (39.37) 350 (13.78) 550 (21.65) 950 (37.40) -												
Travels	X-axis mm (in) U: 260/L: 160 (U: 10.24/L: 6.30) U: 260/L: 160 (U: 10.24/L: 6.30) U: 260/L: 160 (U: 10.24/L: 6.30) Z-axis mm (in) U: 685/L: 615 (U: 26.97/L: 24.21) U: 1,085/L: 1,015 (U: 42.72/L: 39.96) U: 685/L: 615 <L: 600> (U: 26.97/L: 24.21 <L: 23.62>) U: 1,085/L: 1,015 <L: 1,000> (U: 42.72/L: 39.96) U: 685/L: 615 <L: 600> (U: 26.97/L: 24.21 <L: 23.62>) U: 1,030/L: 1,015 <L: 1,000> (U: 40.55/L: 39.96) U: 685/L: 610 (U: 26.97/L: 24.02) U: 1,085/L: 1,010 (U: 42.72/L: 39.76) U: 576/L: 610 <L: 595> (U: 22.68/L: 24.02) U: 976/L: 1,010 <L: 995> (U: 38.43/L: 39.76) Y-axis mm (in) - W-axis mm (in) - C-axis deg - 360 (0.001) 360 (0.001) 360 (0.001)												
Spindle	Speed [Big-Bore, Super Big-Bore] min ⁻¹ 50 to 5,000 [50 to 4,200, 30 to 3,000] 50 to 5,000 [50 to 4,200, 30 to 3,000] Main: 50 to 5,000 [50 to 4,200, 30 to 3,000], Sub: 50 to 6,000 Speed ranges Two auto ranges (motor coil switching ranges) Two auto ranges (motor coil switching ranges) Spindle noze [Big-Bore, Super Big-Bore] JIS A2-6 [JIS A2-8, JIS A2-11] JIS A2-6 [JIS A2-8, JIS A2-11] Main: JIS A2-6 [JIS A2-8, JIS A2-11], Sub: $\phi 140$ flat Bore dia [Big-Bore, Super Big-Bore] mm (in) $\phi 80 [\phi 91, \phi 112] (\phi 3.15 [\phi 3.58, \phi 4.41])$ $\phi 80 [\phi 91, \phi 112] (\phi 3.15 [\phi 3.58, \phi 4.41])$ Main: $\phi 80 [\phi 91, \phi 112] (\phi 3.15 [\phi 3.58, \phi 4.41])$, Sub: $\phi 43 (1.69)$ Front bearing dia [Big-Bore, Super Big-Bore] mm (in) $\phi 120 [\phi 140, \phi 160] (\phi 4.72 [\phi 5.51, \phi 6.30])$ $\phi 120 [\phi 140, \phi 160] (\phi 4.72 [\phi 5.51, \phi 6.30])$ Main: $\phi 120 [\phi 140, \phi 160] (\phi 4.72 [\phi 5.51, \phi 6.30])$, Sub: $\phi 80 (3.15)$												
Turret	Type, upper/lower U: V12/L: V8 U: Multitasking V12/L: V8 <L: Multitasking V8> U: Multitasking V12/L: V8 <L: Multitasking V8> U: V12/LV8 U: Multitasking V12/L: V8 <L: Multitasking V8> No. of tools, upper/lower U: 12/L: 8 U: 12 (L/M)/L: 8 <L: 8 (L/M)> U: 12 (L/M)/L: 8 <L: 8 (L/M)> U: 12/L: 8 U: 12 (L/M)/L: 8 <L: 8 (L/M)> OD tool shank height mm (in) $\square 25 (1)$ $\square 25 (1)$ ID tool shank dia mm (in) $\phi 40 (\phi 1-1/2)$ $\phi 40 (\phi 1-1/2)$ Turret index time sec/1 index 0.1 0.1												
Milling tool spindle	Spindle speed min ⁻¹ - 45 to 6,000 45 to 6,000 - 45 to 6,000 Feed rate Rapid traverse m/min (ipm) X: 25, Z: 30 (X: 984, Z: 1,181) X: 25, Z: 30 (X: 984, Z: 1,181), Y: 12.5 (X: 984, Z: 1,181, Y: 492), C: 200 min ⁻¹ X: 25, Z: 30, Y: 12.5 (X: 984, Z: 1,181, Y: 492), C: 200 min ⁻¹ X: 25, Z: 30, W: 15 (X: 984, Z: 1,181, W: 591) X: 25, Z: 30, W: 15 (X: 984, Z: 1,181, W: 591), C: 200 min ⁻¹												
Tailstock	Quill dia mm (in) - $\phi 90 (\phi 3.54)$ - $\phi 90 (\phi 3.54)$ - $\phi 90 (\phi 3.54)$ Quill bore taper [built-in] - MT No. 5 (revolving center) [MT No. 4 (dead center)] - MT No. 5 (revolving center) [MT No. 4 (dead center)] - MT No. 5 (revolving center) [MT No. 4 (dead center)] Quill travel mm (in) - 120 (4.72) - 120 (4.72) - 120 (4.72)												
Motor	Spindle kW (hp) 22/15 (30/20) {30 min/cont} 22/15 (30/20) {30 min/cont} Main: 22/15 (30/20) {30 min/cont}, Sub: 7.5/5.5 (10/7.5) {20 min/cont} Milling tool kW (hp) - 7.1/4.1 (9.5/5.5) {25 min/cont} <L: 5.5/3.7 (7.5/5) {2 min/cont}> 7.1/4.1 (9.5/5.5) {25 min/cont} <L: 5.5/3.7 (7.5/5) {2 min/cont}> 7.1/4.1 (9.5/5.5) {25 min/cont} <L: 5.5/3.7 (7.5/5) {2 min/cont}> Axis drive kW (hp) XA: 2.8 (3.7), XB: 2.2 (3), ZA: 3.5 (4.7), ZB: 3.5 (4.7) XA: 2.8 (3.7), XB: 2.2 (3), ZA: 4.6 (6.1), ZB: 3.5 (4.7), Ys: 3.5 (4.7) XA: 2.8 (3.7), XB: 2.2 (3), ZA: 3.5 (4.7), ZB: 3.5 (4.7), W: 3.5 (4.7) Coolant pump (50 Hz/60 Hz) kW (hp) 0.55/0.75 (3/4 /1) 0.55/0.75 (3/4 /1)												
Machine size	Height mm (in) 2,080*2 (81.89*2) 2,230 (87.80) 2,080*2 (81.89*2) 2,230 (87.80) 2,509*2 (98.78*2) 2,677 (105.39) 2,080*2 (81.89*2) 2,230 (87.80) 2,080*2 (81.89*2) 2,230 (87.80) Floor space Side discharge mm (in) 2,950 x 2,198 [2,995 x 2,198] 3,980 x 2,650 2,950 x 2,198 [2,995 x 2,198] 3,980 x 2,650 2,950 x 2,198 [2,995 x 2,198] 3,980 x 2,478 3,750 x 2,198 4,040 x 2,650 3,750 x 2,198 4,040 x 2,478 Width x depth (including tank) Rear discharge mm (in) 116.14 x 86.54 [117.91 x 86.54] (156.69 x 104.33) 116.14 x 86.54 [117.91 x 86.54] (156.69 x 104.33) 116.14 x 86.54 [117.91 x 86.54] (156.69 x 104.33) 116.14 x 86.54 [117.91 x 86.54] (156.69 x 104.33) 116.14 x 86.54 [117.91 x 86.54] (156.69 x 104.33) 116.14 x 86.54 [117.91 x 86.54] (156.69 x 104.33) 116.14 x 86.54 [117.91 x 86.54] (156.69 x 104.33) 116.14 x 86.54 [117.91 x 86.54] (156.69 x 104.33) 116.14 x 86.54 [117.91 x 86.54] (156.69 x 104.33) [Big-Bore spindle] Rear discharge mm (in) 2,850 x 2,558 [2,895 x 2,558] - 2,850 x 2,558 [2,895 x 2,558] - 2,850 x 2,558 [2,895 x 2,558] 2,850 x 2,558 [2,895 x 2,558] - 2,850 x 2,558 [2,895 x 2,558] 2,850 x 2,558 [2,895 x 2,558] - 2,850 x 2,558 [2,895 x 2,558] 2,850 x 2,558 [2,895 x 2,558] - 2,850 x 2,558 [2,895 x 2,558] 2,850 x 2,558 [2,895 x 2,558] - 2,850 x 2,558 [2,895 x 2,558] Mass (w/ CNC) kg (lb) 6,400 (14,080) 6,700 (14,740) 8,200 (18,040) 6,500 (14,300) 6,800 (14,960) 8,300 (18,260) 7,000 (15,400) 7,300 (16,060) 8,800 (19,360) 7,100 (15,620) 8,600 (18,920) 7,200 (15,840) 8,700 (19,140)												
CNC	OSP-P500L OSP-P500L												

[]: option
 *1. DBC: Distance between centers, DBN: Distance between noses
 *2. Raised machine height of 45 mm is standard for rear chip discharge.

Spindle torque/output diagram

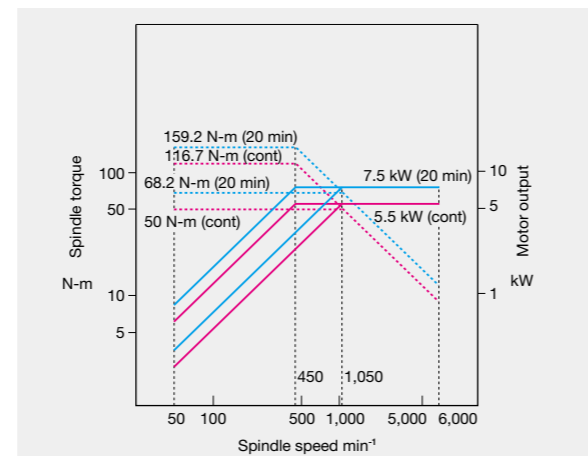
Standard spindle

Spindle speed 5,000 min⁻¹
 Output 22/15 kW (30 min/cont)
 Torque 427/280 N-m (10 min/cont)



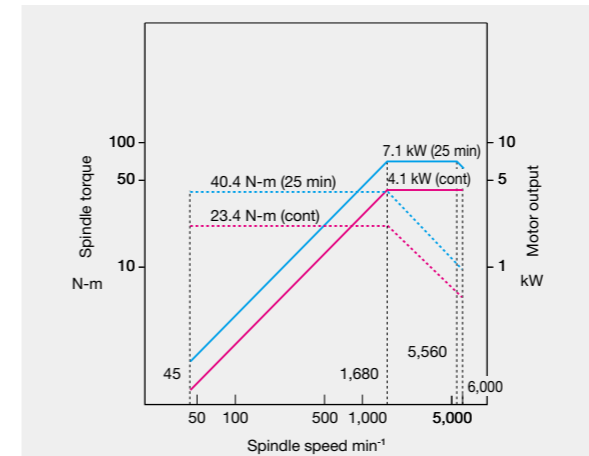
Sub-spindle (W) specs

Spindle speed 6,000 min⁻¹
 Output 7.5/5.5 kW (20 min/cont)
 Torque 159.2/116.7 N-m (20 min/cont)



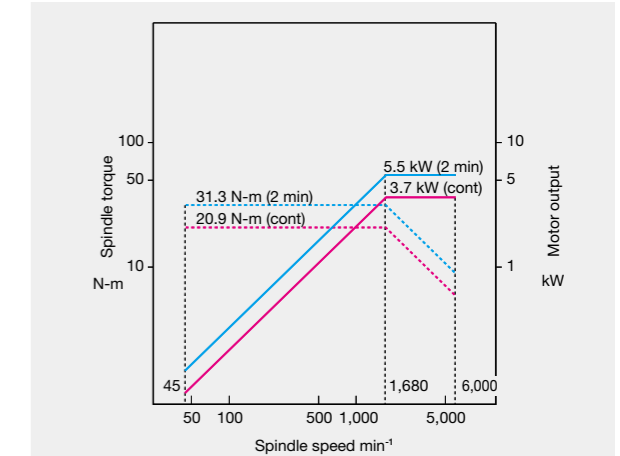
Milling tool spindle (M) specs upper turret

Spindle speed 6,000 min⁻¹
 Output 7.1/4.1 kW (25 min/cont)
 Torque 40.4/23.4 N-m (25 min/cont)



Milling tool spindle (2M) specs lower turret

Spindle speed 6,000 min⁻¹
 Output 5.5/3.7 kW (2 min/cont)
 Torque 31.3/20.9 N-m (2 min/cont)



Standard Specification

Specifications	LU3000 EX								
	L		M/MY		2M/2MY		W	MW	2MW
	2ST	2SC	2ST	2SC	2ST	2SC	2SW		
Headstock	JIS A2-6 50 to 5,000 min ⁻¹ Integral 22/15 kW (30 min/cont)								
Sub-spindle	-					ø140 flat 50 to 6,000 min ⁻¹ Integral 7.5/5.5 kW (20 min/cont)			
Turret	Upper V12 + lower V8		Upper multitasking V12 + lower V8		Upper multitasking V12 + lower multitasking V8		Upper V12 + lower V8	Upper multitasking V12 + lower V8	Upper multitasking V12 + lower multitasking V8
Milling tool spindle	-		Upper 45 to 6,000 min ⁻¹ 7.1/4.1 kW (25 min/cont)			-		Upper 45 to 6,000 min ⁻¹ 7.1/4.1 kW (25 min/cont)	Lower 45 to 6,000 min ⁻¹ 5.5/3.7 kW (2 min/cont)
Tailstock	-	MT No. 5 Dead hydraulic Manual tow-along	-	MT No. 5 Dead hydraulic Manual tow-along	-	MT No. 5 Dead hydraulic Manual tow-along	-		
Accessories	Hydraulic unit								
	Coolant system								
	Full-enclosure shielding								
	Work lamp (LED)								
	Chuck foot switch								
	Chuck auto open/close confirmation								
	Lubrication monitor								
	Door interlock								
	Foundation washers, leveling bolts								
	Hand tools								
CNC	OSP-P500L								
	15-inch swivel operation panel								
	Pulse handle								

Chucking Kit

	LU3000 EX (L/M) specs			
	Chuck	Standard soft jaw A	Standard soft jaw B	Hard jaw
A kit	N-08 solid 8-in	-	-	-
B kit	N-08 solid 8-in	5 sets	3 sets	3-step hard jaw 1 set
C kit	B-208 hollow 8-in, hole dia ø52 mm	5 sets	3 sets	3-step hard jaw 1 set
D kit	B-210 hollow 10-in, hole dia ø70 mm	5 sets	3 sets	2-step hard jaw 1 set
E kit	BR08* hollow 8-in, hole dia ø66	5 sets	3 sets	Convex hard jaw 1 set

* For BR chucks, it is possible to select Tnut-Plus, a special T nut that can improve the mounting accuracy at the time of attaching and detaching the jaw in comparison with the standard T nut.(option)
(Tnut-Plus does not improve workpiece gripping accuracy.)

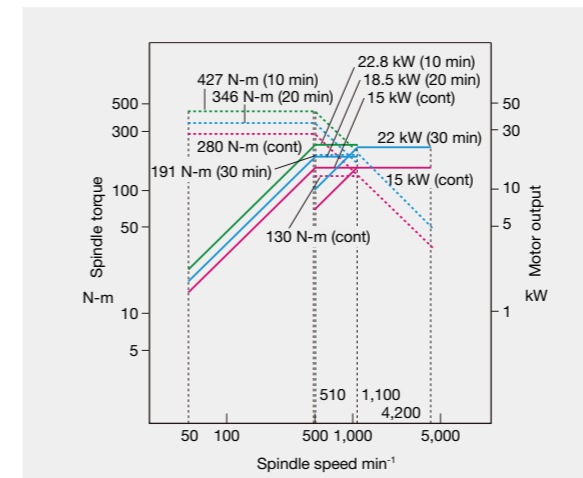
Optional Equipment & Accessories

Big-Bore spindle	JIS A2-8 42 to 4,200 min ⁻¹ Front bearing dia ø140 mm Spindle bore dia ø91 mm	For air blower (blast)	Air blow gun Chuck Tailstock center Spindle ID Upper turret (internal piping, common coolant nozzle) Lower turret (common coolant nozzle) Upper and lower turret air blower discharge control (simultaneous, independent)
Super Big-Bore spindle	JIS A2-11 30 to 3,000 min ⁻¹ Front bearing dia ø160 mm Spindle bore dia ø112 mm		
L-VDI turret			
Live quill hydraulic tailstock	MT No. 4		
Tailstock	Auto tow-along hydraulic tailstock Self-traveling hydraulic tailstock	For coolant blower	Coolant gun Shower coolant (main spindle, sub-spindle) control system A/B Spindle ID coolant (main spindle, sub-spindle) control system A/B
Chucking kit	Solid/hollow hydraulic power chuck, soft jaws See details on page 15.	Dust proofing	Spindle air purging X-axis double wiper (XA) (Standard for XB) Z-axis double wiper (ZA + ZB)
Tooling kit	Various toolholders See details on page 17.	For gauging	In-process workpiece gauging (upper turret mounted) Renishaw RLP40, System-D
Raised machine height	50 mm, 100 mm, 150 mm	Workpiece cradle	Lower turret mounted, headstock mounted
Chip discharge	Chip pan Chip conveyor (side discharge/rear discharge) Chip bucket	Sizing stopper in spindle	Adjustment stroke 100 mm
Touch Setter	M (manual), A (auto)	Chuck internal sizing stopper	
Hydraulic steadyrest	Lower turret mounted, lower cross-slide mounted	Coolant	Upper and lower turret coolant blower discharge control (independent) Coolant high/low switch (upper, lower turret) Coolant detection (level, flow rate, level + flow rate detectors)
Automation	On-machine loader, gantry loader Robot, bar feeder	Mist collector	With/without machine link
Front cover	Front cover auto open/close (safety tape SW, area sensor) Two-hand cycle start button	Sludgeless Tank	Oil skimmer
For chucking	Chuck auto open/close confirm Chucking miss detection (main, sub) Chuck high/low pressure switch with reclamping (main, sub)	Sludge prevention	
For tailstock	Tailstock travel 230 mm Tailstock quill auto advance/retract with confirm Tailstock thrust high/low switch Low tailstock thrust Tailstock quill position detection 2-speed tailstock quill High tailstock thrust	Automatic extinguisher	For oil-based coolant, fire damper
Front door with large window		Parts catcher	Main (ø80 × L150 mm, 5.8 kg) Sub (ø65 × L150 mm, 4 kg)
Hydraulic unit	Inverter (energy-saving)	High-accuracy specifications	Turcite® lining (XA-axis, ZA-axis, ZB-axis) AbsoScale (XA-axis, ZA-axis, XB-axis) 0.1 µm control Pitch error compensation Coolant temperature regulator Spindle temperature regulator
Specs for easy maintenance	Normal kit, economy kit	Hydraulic oil temperature regulator	

Spindle torque/output diagram

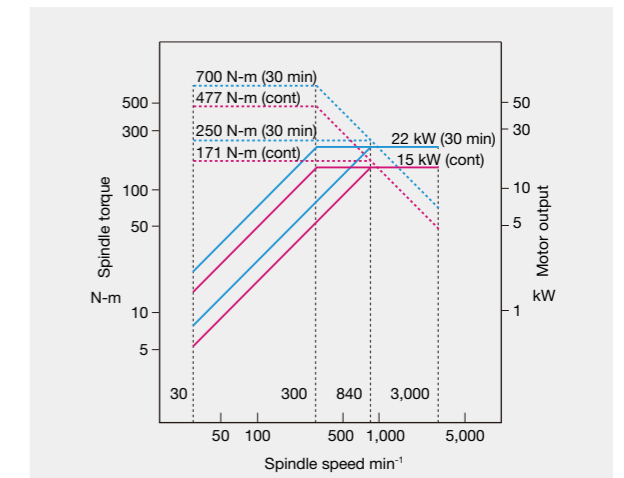
Big-Bore spindle (option)

Spindle speed 4,200 min⁻¹
Output 22/15 kW (30 min/cont)
Torque 427/280 N-m (10 min/cont)



Super Big-Bore spindle (option)

Spindle speed 3,000 min⁻¹
Output 22/15 kW (30 min/cont)
Torque 700/477 N-m (30 min/cont)

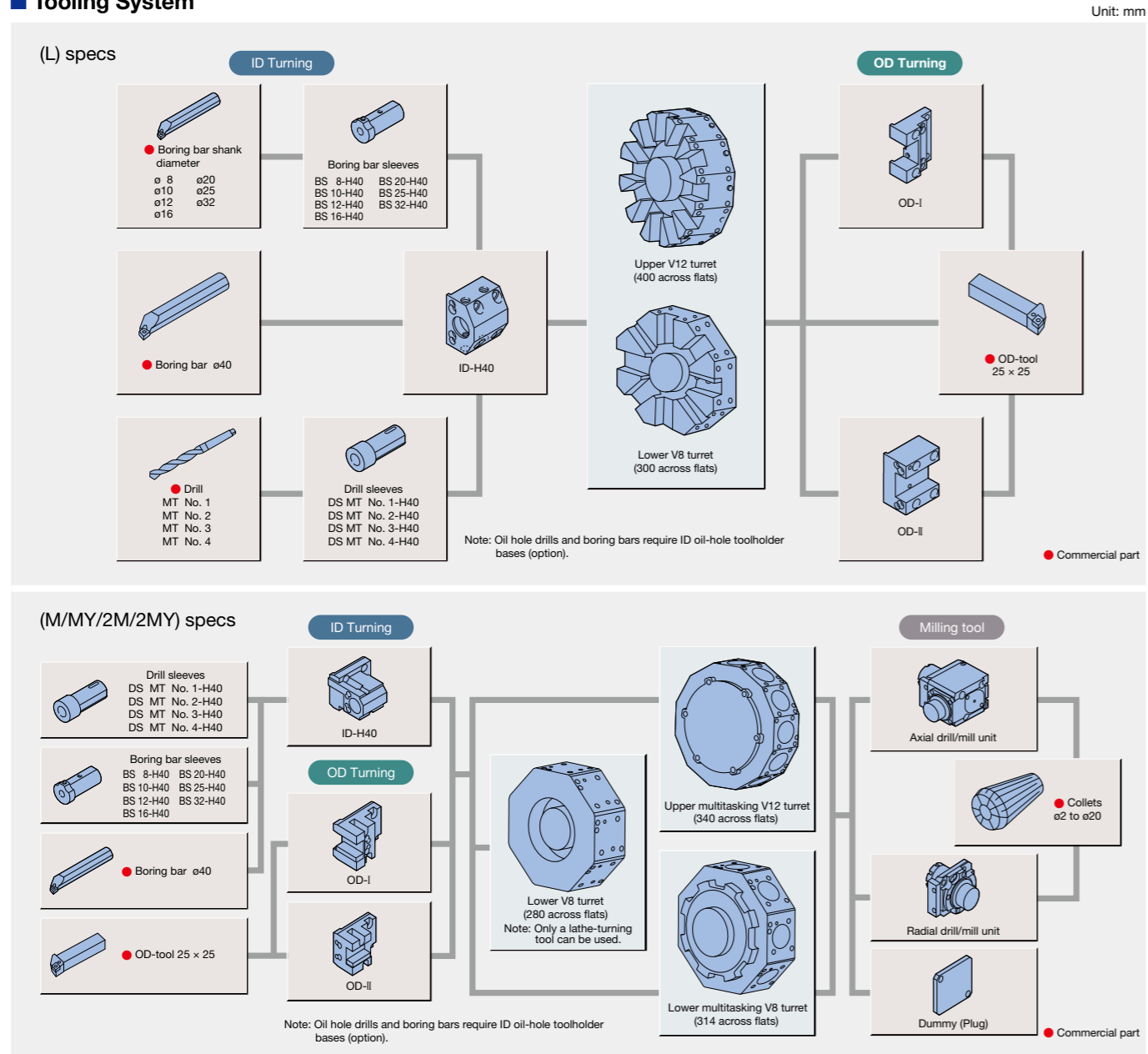


Tooling Kit

	LU3000 EX (L) specs				LU3000 EX (M) specs			
	2ST		2SC		2ST		2SC	
	E	D	E	D	E	D	E	D
OD-I	6	8	8	10	6	8	6	8
OD-II	4	6	2	4	2	4	2	4
ID-H40	8	10	8	10	8	10	8	10
BS 10-H40	—	2	—	2	—	2	—	2
BS 12-H40	—	2	—	2	—	2	—	2
BS 16-H40	—	2	—	2	—	2	—	2
BS 20-H40	4	4	4	4	4	4	4	4
BS 25-H40	4	4	4	4	4	4	4	4
BS 32-H40	—	2	—	2	—	2	—	2
DS MT No. 1-H40	—	1	—	1	—	1	—	1
DS MT No. 2-H40	—	1	—	1	—	1	—	1
DS MT No. 3-H40	1	1	1	1	1	1	1	1
Axial drill/mill unit					2	4	2	3
Radial drill/mill unit					2	3	2	4
Dummy holder					3	3	3	3
Revolving center MT No. 5					1	1	1	1

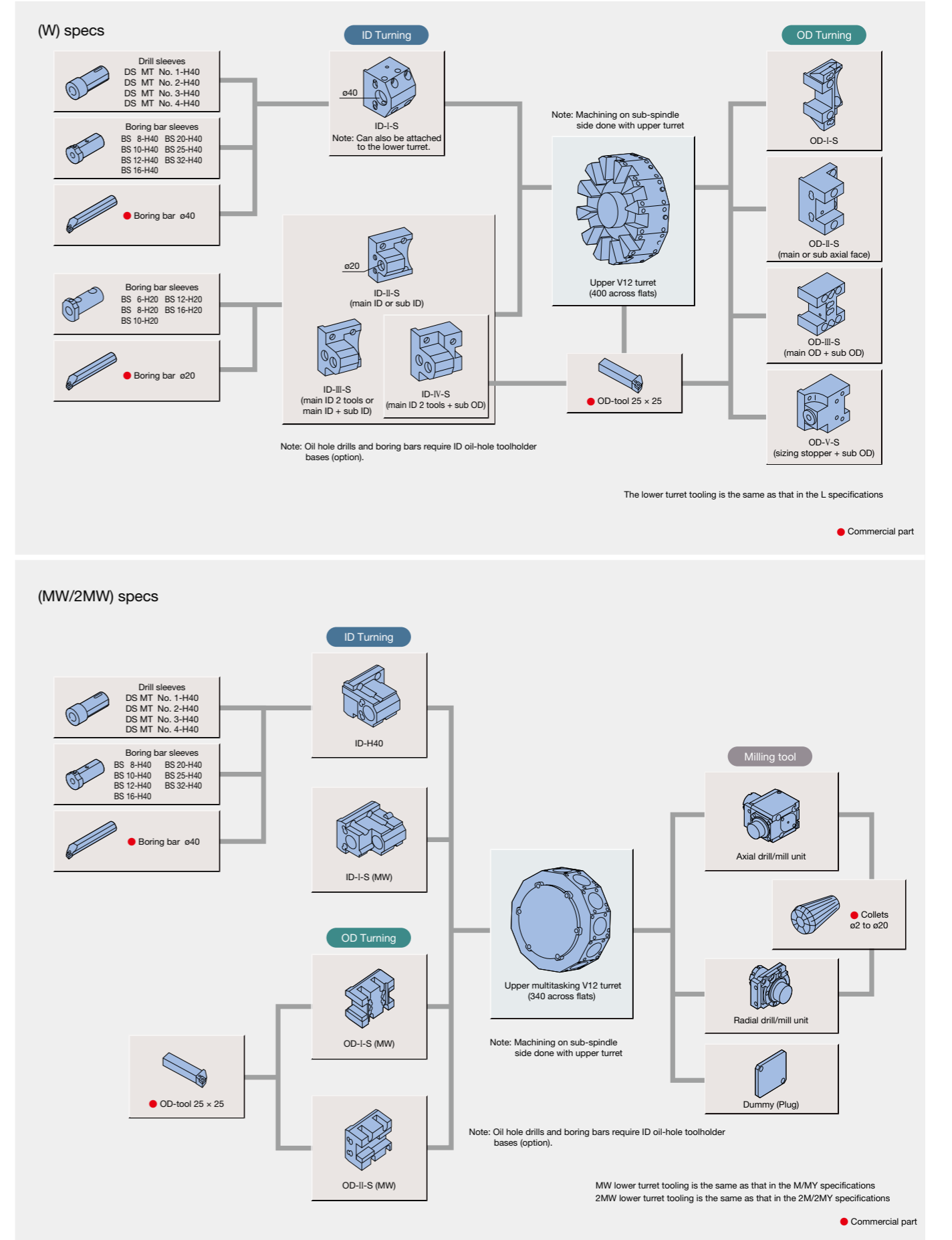
E kit: Economy
D kit: Deluxe

Tooling System



Tooling System

Unit: mm

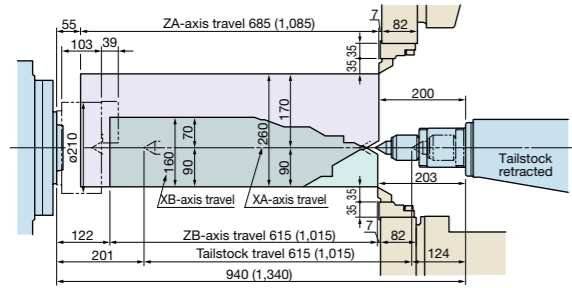


Working Ranges

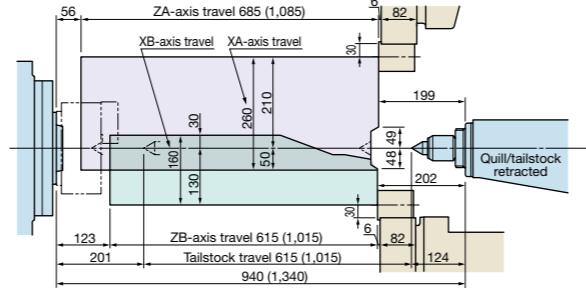
Unit: mm

(L) specs

OD-I



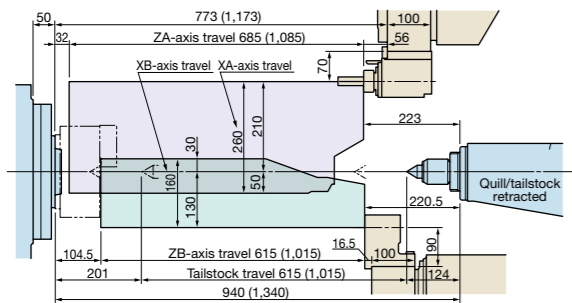
ID



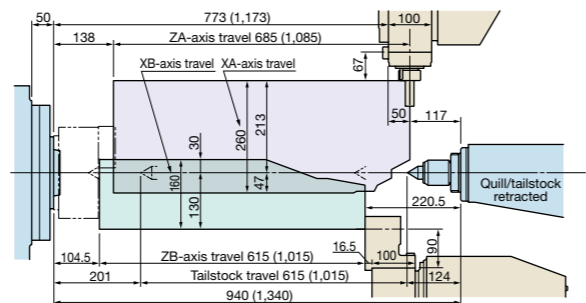
This drawing refers to the 600 DBC machine specifications. () : DBC 1000.

(M) specs

Axial drill/mill unit



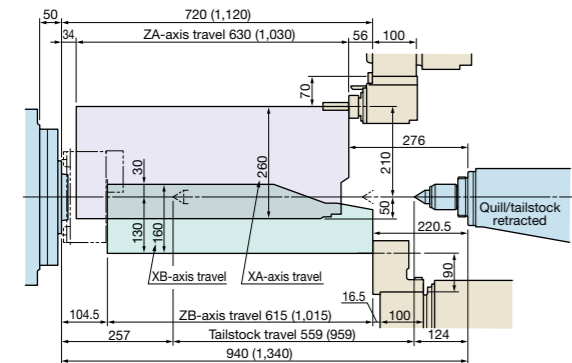
Radial drill/mill unit



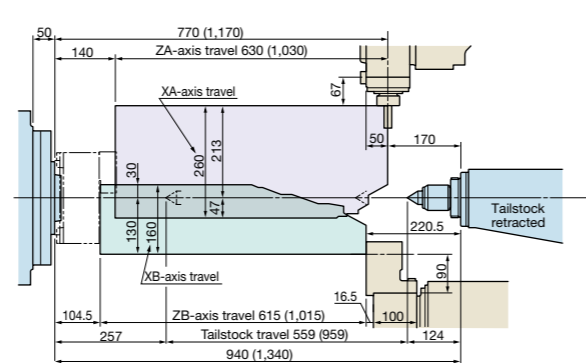
This drawing refers to the 600 DBC machine specifications. () : DBC 1000.

(MY) specs

Axial drill/mill unit Y=0



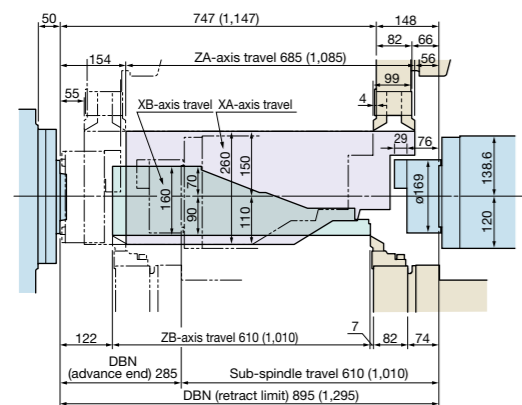
Radial drill/mill unit Y=0



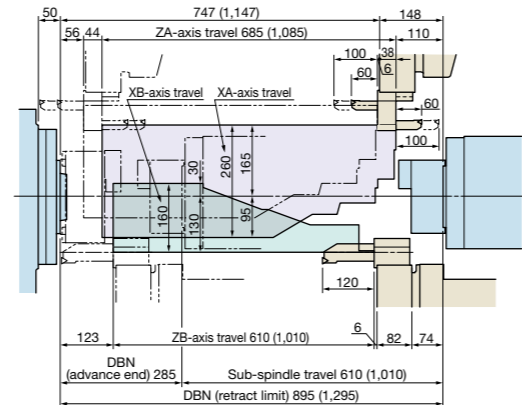
This drawing refers to the 550 DBC machine specifications. () : DBC 950.

(W) specs

OD-III-S



ID-III-S

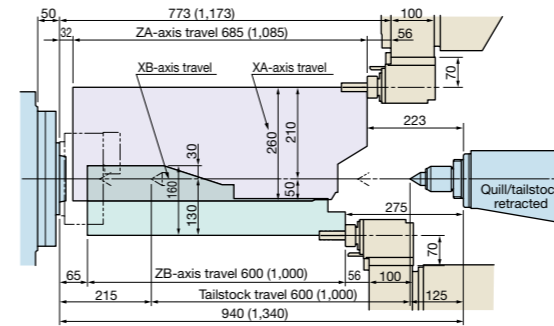


This drawing refers to the 600 DBC machine specifications. () : DBC 1000.

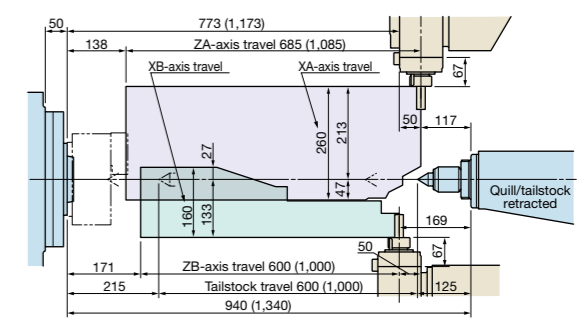
Unit: mm

(2M) specs

Axial drill/mill unit



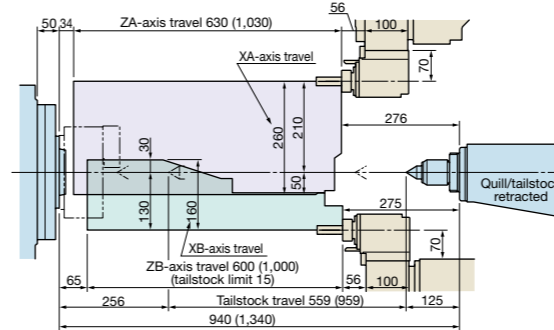
Radial drill/mill unit



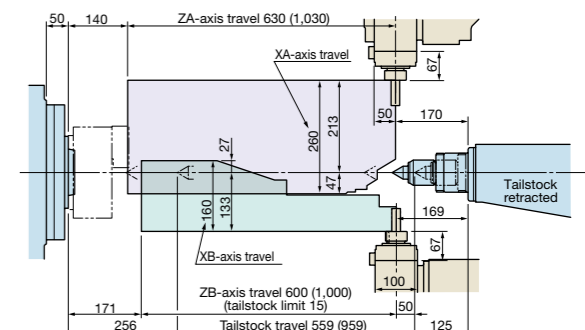
This drawing refers to the 600 DBC machine specifications. () : DBC 1000.

(2MY) specs

Axial drill/mill unit Y=0



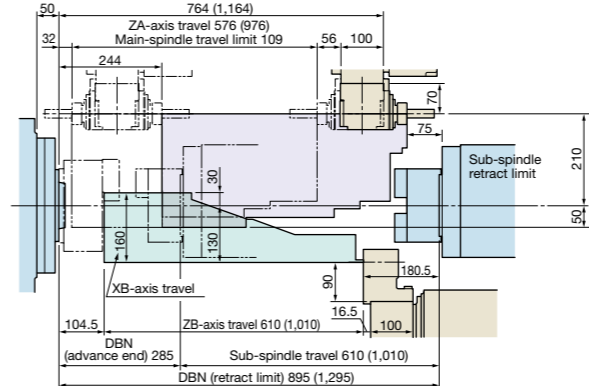
Radial drill/mill unit Y=0



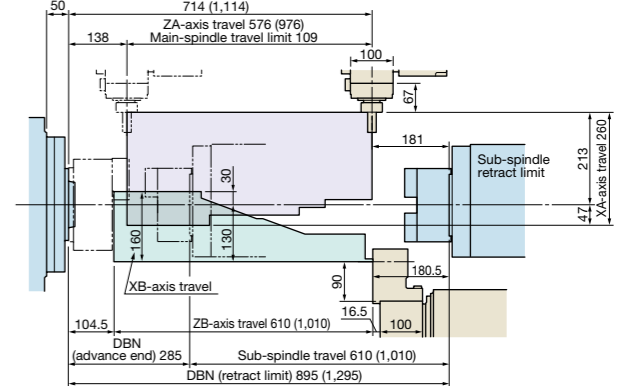
This drawing refers to the 550 DBC machine specifications. () : DBC 950.

(MW) specs

Axial drill/mill unit



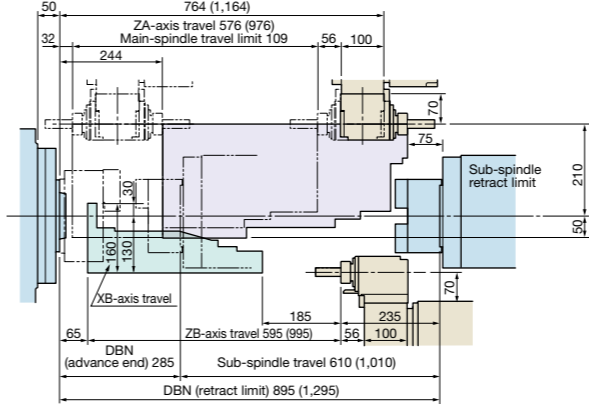
Radial drill/mill unit



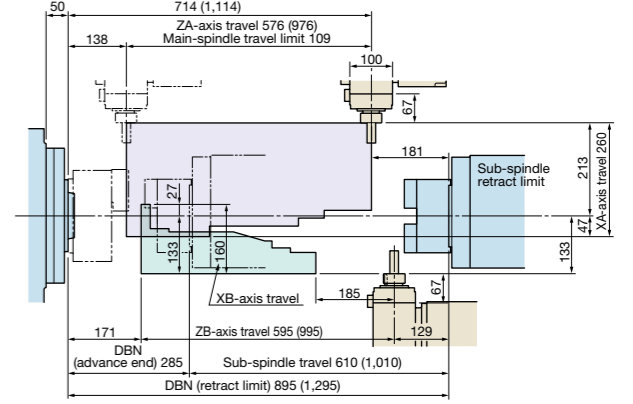
This drawing refers to the 600 DBC machine specifications. () : DBC 1000.

(2MW) specs

Axial drill/mill unit



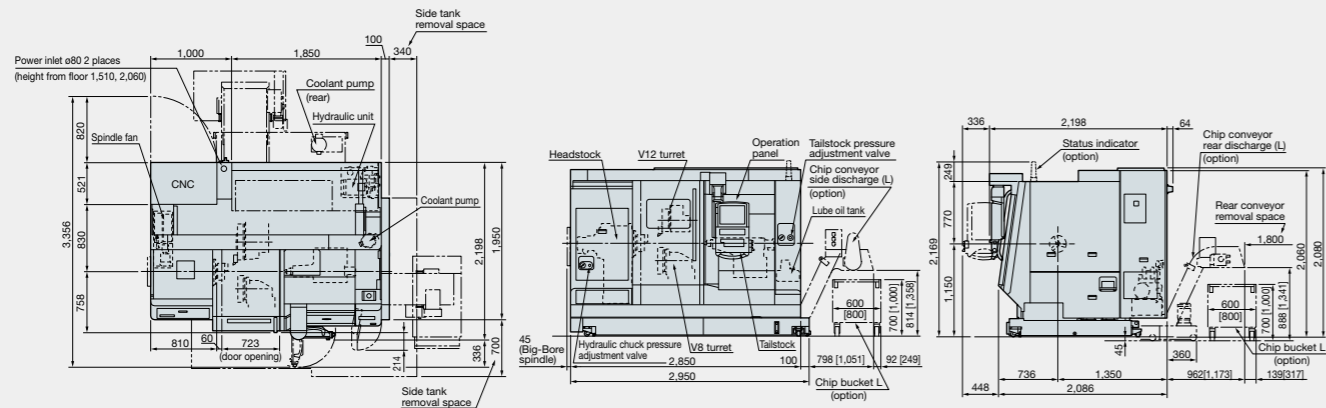
Radial drill/mill unit



This drawing refers to the 600 DBC machine specifications. () : DBC 1000.

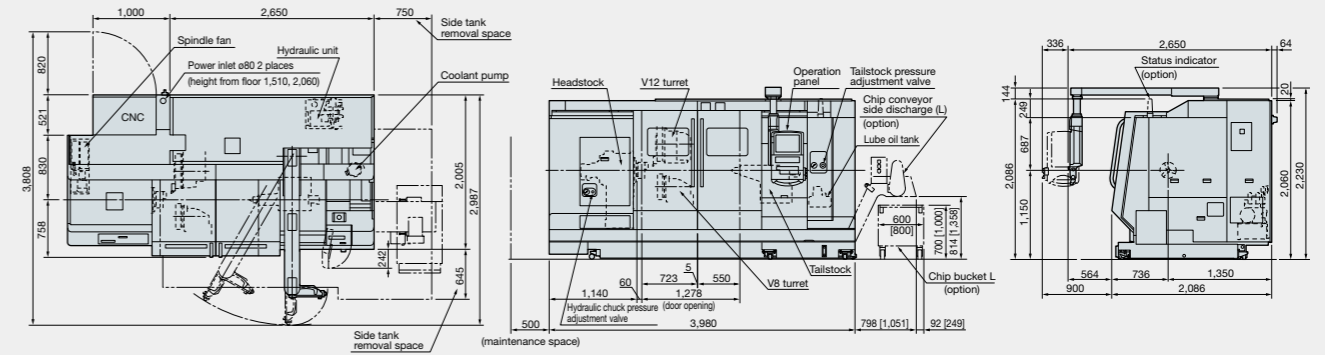
LU3000 EX (L/M/2M) specs DBC 600

[]: H chip conveyor
 Note: Raised machine height of 45 mm is standard for rear discharge.



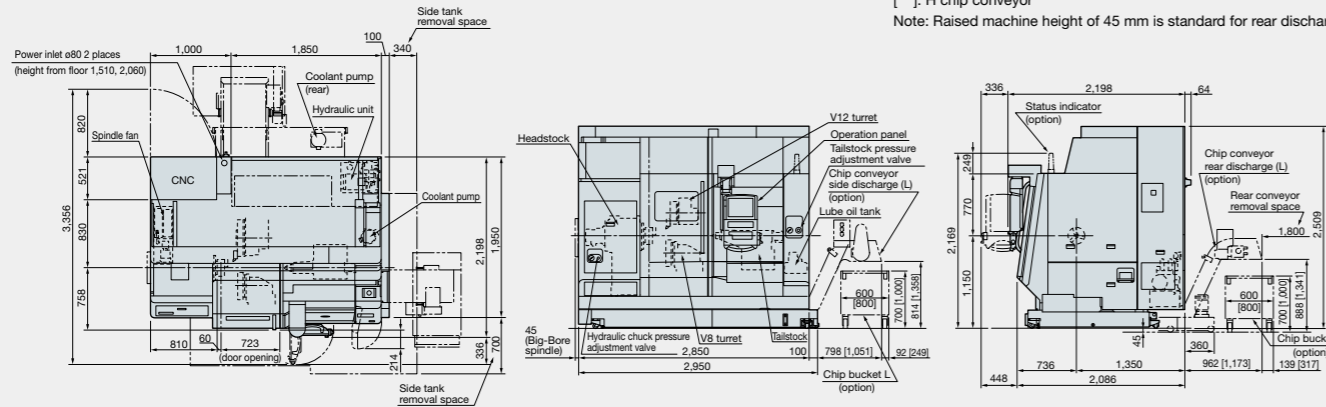
LU3000 EX (L/M/2M) specs DBC 1000

[]: H chip conveyor



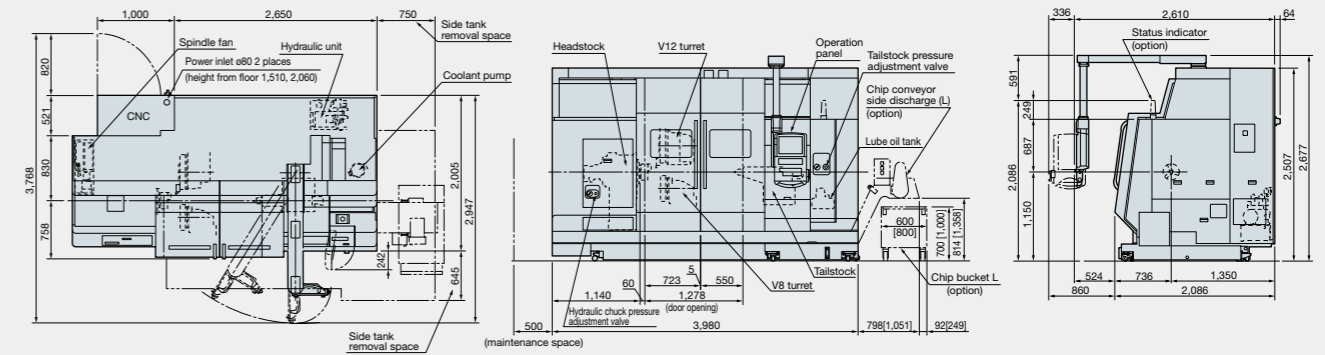
LU3000 EX (MY/2MY) specs DBC 550

[]: H chip conveyor
 Note: Raised machine height of 45 mm is standard for rear discharge.



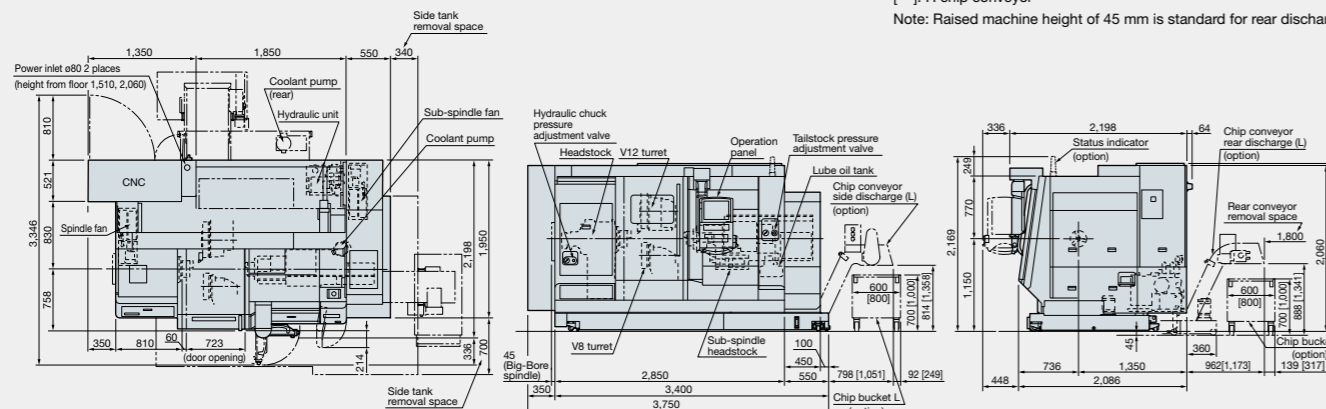
LU3000 EX (MY/2MY) specs DBC 950

[]: H chip conveyor



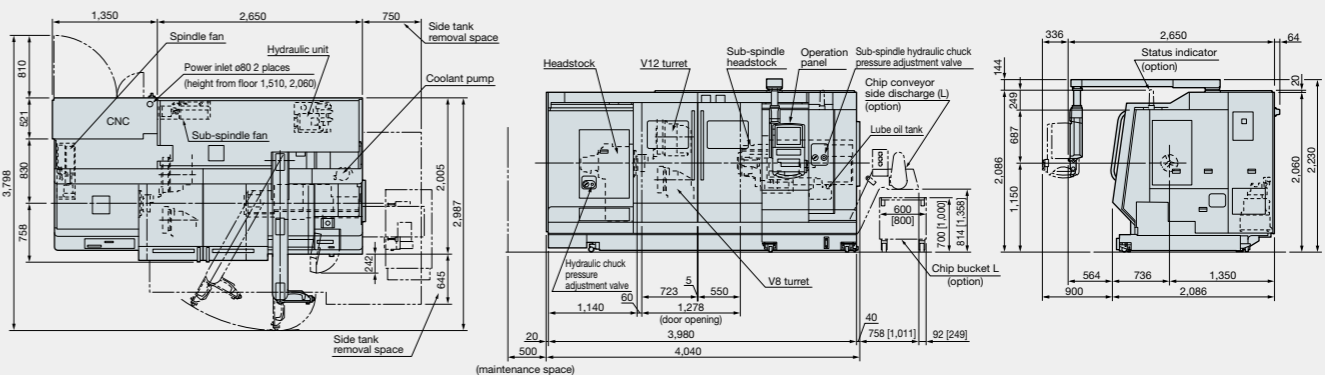
LU3000 EX (W/MW/2MW) specs DBC 600

[]: H chip conveyor
 Note: Raised machine height of 45 mm is standard for rear discharge.



LU3000 EX (W/MW/2MW) specs DBC 1000

[]: H chip conveyor



A next-generation CNC that makes manufacturing DX (digital transformation) a reality

OSP-P500

Improved productivity and stable production

As Your Single Source for M-E-I-K (Mechanics - Electronics - IT - Knowledge) merging technology, Okuma offers this CNC to build an advanced “digital twin” that faithfully reproduces machine control and machining operations and create new value. In addition, Okuma offers productivity improvement and stable production with ease of use that allows customers to use their machining know-how, an energy-saving solutions that achieve both high accuracy/productivity and eco-friendly products, with robust security protection against increasing threats of cyber attacks.

Faithful reproduction of machines and processing — Digital support for shop floor work
Digital Twin (option)

“Okuma’s **two** digital twins” made possible by an office PC and a next-generation CNC reduce machine downtime and improve machine utilization

Simulation using the latest machine information can be achieved with an office PC and OSP-P500 installed on the physical machine. This enables preparation for machining in advance in the office environment (front loading). Preparing machining for the next part while continuing machining can reduce the preparation time for the physical machine. When a problem occurs on the shop floor, it can be solved quickly on site without going back to the office.



15-inch operation panel

1 Digital Twin On PC* Simulate shop machines in the office

Front loading is performed with the actual status matched with the data on the office PC to further improve productivity. Highly accurate pre-verification minimizes trial and error in first part machining, and reduces machine downtime to the minimum.

* The PC software is to be used with one package for one machine.

2 Digital Twin On Machine Simulating the CNC of a real machine

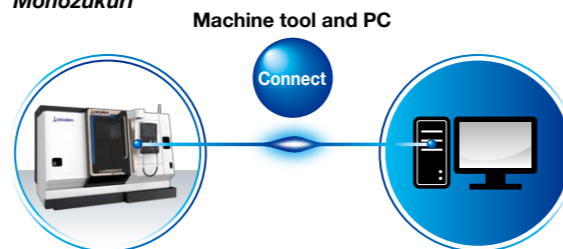
Super-fast and super-accurate machining simulations are performed with the CNC of a real machine on-site to minimize machining preparation work. Actual machining can be started immediately, greatly improving the operating rate of the machine.



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.



OSP-P500L standard specifications

Basic Specs	Control	Turning: X, Z simultaneous 2-axis + 2-axis. Multitasking: X, Z, C simultaneous 3-axis
	Position feedback	OSP full range absolute position feedback (zero point return not required)
	Min / Max command	±99999.999 mm, 8-digit decimal, command unit: 0.001 mm, 0.01 mm, 1 mm,
	Feed	Override: 0 to 200%
	Spindle control	Direct spindle speed commands 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 LCD + multi-touch panel operations
Programming	Security	Operator authentication, lock screen, OSP-VPSII-STD
	Program capacity	Program storage: 4 GB, operation buffer: 2 MB
Operations	Programming	Program management, edit, scheduled programs, user task (G-/M-code macros, arithmetic, logic statements, math functions, variables, Branch commands), fixed threading cycle, groove cutting spindle cycle, auto programming (LAP4), programming help, block skip; 1 sets, Oriented spindle stop
	OSP suite	Various “suite apps” support the series of machining operations, and “suite operation” enables one-touch access to those apps
	Easy Operation	“Single-mode operation” for a series of operations from a single screen. Easy-to-use operation panel supports complete machine control.
	Machine operations	MDI, manual (rapid traverse, pulse handle), load meter, operations help, alarm help, sequence return, manual interrupt & auto return, Parameter I/O
Communications / Networking	MacMan plus	Machining management: machining results, machine utilization, fault data compile & report, visualization of power consumption, External output
	USB ports, Ethernet, DNC-T1, Smart I/F	
High speed/accuracy	Hi-G control, SERVONAVI AP, Cycle time reduction (machining time shortening, easy parameter setting)	
Energy-saving	ECO suite plus	ECO Idling Stop, ECO Operation, ECO Power Monitor (on machine watt meter is optional)
	Power Regeneration System	Regenerative power is used when the spindle and feed axes decelerate to reduce energy waste.

OSP-P500L kit specifications/optional specifications

Item	Kit spec	NML		AOT-M		DT		DT AOT-M	
		E	D	E	D	E	D	E	D
Digital Twin									
Virtual Machining						●	●	●	●
Quick Modeling						●	●	●	●
OPC UA for Machine Tools						●	●	●	●
OSP API KIT						●	●	●	●
Interactive Programming									
Advanced One-Touch IGF-L (w/Real 3D)*1						●	●	●	●
Smart OSP Operation						●	●	●	●
Programming									
Circular threading				●	●	●	●	●	●
Program notes				●	●	●	●	●	●
User task I/O variables, 8 each									
Common variables 1,000 sets (Std: 200 sets)									
Work coordinate system select	10 sets			▲	▲	▲	▲	▲	▲
Thread matching	100 sets								
Pause for threading during non-fixed cycle		●	●	●	●	●	●	●	●
Variable Spindle Speed Threading (VSSST)									
Inverse time feed									
Mid-block sequence return				●	●	●	●	●	●
Milling machine specs (M)									
Synchronized C-axis control				▲	▲	▲	▲	▲	▲
Coordinate convert				▲	▲	▲	▲	▲	▲
Profile generate				▲	▲	▲	▲	▲	▲
Flat turning									
Coordinate calculation (with NCYL commands)									
Helical cutting									
Slope machining (TypeI, TypeII)									
Hobbing									
Harmonic Spindle Speed Control		●	●	●	●	●	●	●	●
Tool life management (include prior notice)		●	●	●	●	●	●	●	●
Block skip: 9 sets									
Home position									
Monitoring									
Real 3-D simulation				●	●	●	●	●	●
Cycle time over check		●	●	●	●	●	●	●	●
Load monitor (spindle, feed axis)									
No-load detection, part number expansion, Workpiece ejection detection				●	●	●	●	●	●
AI machine diagnostics (feed axes)*2									
Machine Status Logger									
Operation end buzzer									
Workpiece counters	Count only								
	Cycle stop								
	Start disabled								
Hour meters	Power ON								
	Spindle rotation								
	NC operating								
NC operation monitor (counter, totaling)		●	●	●	●	●	●	●	●
Status indicator (3-color C type) [A type, B type]		●	●	●	●	●	●	●	●
External Input/Output and Communication Functions									
RS-232C connector									
Ethernet/IP									
Networking	DNC-DT, DNC-T3								
	DNC-C/Ethernet								
Measuring									
In-process workpiece gauging									
Z-axis automatic zero offset									
C-axis automatic zero offset									
Y-axis zero offset and tool offset									
Y-axis slope gauging									
3-point gauging									
Gauge data output	File output								
Post-process workpiece gauging	Quantitative compensation (five level, seven level)								
	BCD								
	RS-232C (w/dedicated channel)								
Energy saving ECO suite plus									
Spindle power peak cutting									
ECO Power Monitor	On-machine wattmeter								
Automation / Unattended Operation									
Auto power shutoff	M02, alarm	●	●	●	●	●	●	●	●
Warm-up function (by calendar timer)									
Tool retract cycle									
External program	Pushbutton, rotary switch								
	Digital switch, BCD								
Connection with automated devices	Robot, loader I/F*3								
	Bar feeder I/F*3								
High-Speed /High-Accuracy									
Cycle time reduction*3	Operation time reduction	●	●	●	●	●	●	●	●
	Chuck and tailstock movement during spindle rotation								
0.1 μm control*3									
Pitch error compensation									
AbsoScale detection*3									
Hi-Cut Pro		▲	▲	▲	▲	▲	▲	▲	▲
Other									
One-Touch Spreadsheet									
Machining Navi [L-gII, T-g threading]									
Spindle dead-slow cutting									
Y-axis center height offset									
Feed axis retraction, tapping retraction									
Short circuit breaker									
External M signals [2 sets, 4 sets, 8 sets, 16 sets]									
OSP-VPSII-EX (Virus Protection System)									

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 Corporation

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