OKUMA

OPEN POSSIBILITIES

LT2000EX

Turning Center with Twin Spindles

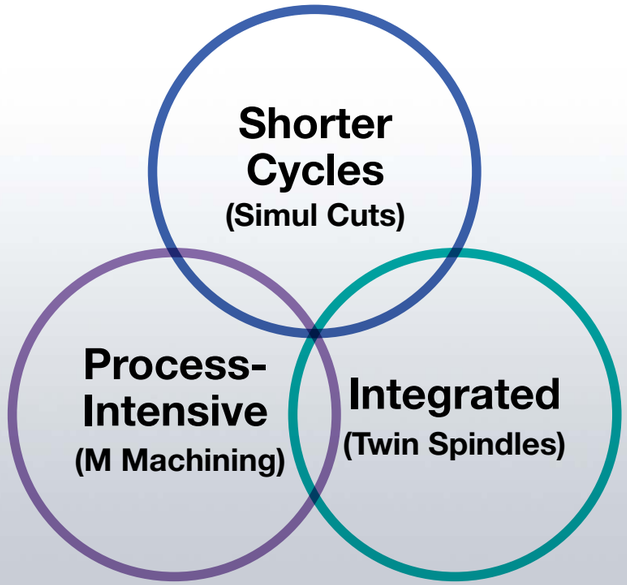
LT2000EX

Turning Center with Twin Spindles

Green-Smart Machine
Powered by Intelligent Technology

In All Directions

Performance that lets you seek the highest productivity. Complete machining on a single machine with left and right spindles, upper and lower turrets.



LT2000EX

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

The image shows the LT3000 EX with 3-turret, V16 specifications.

Increase productivity to the highest possible level with process-intensive machining, integrated operations

Highly efficient, repeated machining of complex-shaped parts on 3 turrets. Equipped with powerful spindles that have the same capacity on left and right and turrets with the same capacity on top and bottom, optimizing the cycle time balance for 1-2 processes. Long-run continuous operation is also possible with auto bar feeder and unloading systems.
Flexible production systems give the ultimate production efficiency.

Complex shape, variable-mix, variable-volume production achieved with the highest productivity

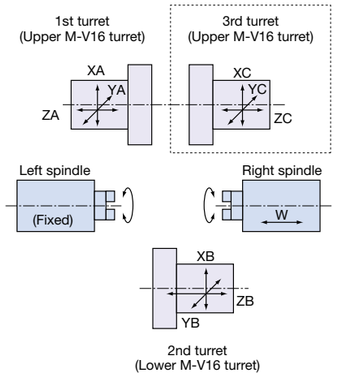
V16 turrets are used for all 3 turrets. Handles complex shape, multi-process, and high mix production with up to 48 tools mounted. Fewer tool changes, greatly reduced non-cutting time, and improved productivity.

Achieve the best production system with our abundant lineup

Achieve even greater productivity and process-intensive machining by selecting specifications matched to use, such as simultaneous machining with 3 upper/lower turrets or simultaneous upper/lower Y-axis machining.

Spec variations

		2-turret specs			3-turret specs		
		2M	1MY	2MY	3M	2MY	3MY
First multitasking turret (upper left turret)	Without Y-axis control	●			●		
	With Y-axis control		●	●		●	●
Second multitasking turret (lower right turret)	Without Y-axis control	●	●		●		
	With Y-axis control			●		●	●
Third multitasking turret (Upper right turret)	Without Y-axis control				●	●	
	With Y-axis control						●



Handles many types of bar blanks

Bar blank diameter that can be machined is expanded to ø52 mm.
Also handles sizes of a higher rank. Continuous nighttime operation is also possible with the use of bar feeders.

High machining accuracy is maintained and worker burden is reduced.

Using the Thermo-Friendly Concept, dimensional accuracy is maintained at high levels during cycle starts and machining restarts. The number of dimensional corrections is reduced and work efficiency is raised.

Achieve ideal balance for 1-2 processes

Highly efficient machining with spindles with same capacity on left and right

Left and right spindles equipped with high accuracy integral motor/spindles make part transfer possible during spindle operation with synchronized C axis control.

Spindle motor		11.5/7.5 kW (5 min/cont)
Bar dia	Standard spindle	ø52 mm
	Big bore spindle	ø65 mm*

* Left spindle only
Note: The chuck/cylinder used may limit machinable bar diameters.

The image has 2-turret, V16 specifications.

Turrets with the same upper and lower capacity enable full process-intensive machining

V16 turrets are used on both top and bottom to handle complex shape, multi-process, high mix production. Setup change time can be shortened with permanent tool sets.

Milling-tool spindle motor	5.5/3.7 kW (2 min/cont)
Rapid traverse	X-axis: 30 m/min Z-axis: 40 m/min

Machining capacity

Turning (workpiece material: S45C)

<Actual data>
Cutting area **2.5 mm²**

Heavy-duty		Drilling	
2.5 mm²		ø30 carbide drill	
Cutting speed	150 m/min	Cutting speed	150 m/min
Cutting depth	5 mm	Feed rate	0.15 mm/rev
Feed rate	0.5 mm/rev		

(Left spindle: First turret)

Milling (workpiece material: S45C)

<Actual data>
Chip volume **144 cm³/min**

End milling		Drilling	
ø16-mm 5-flute carbide end mill		ø16 carbide drill	
Cutting speed	201 m/min	Cutting speed	135 m/min
Depth × width	3.0 × 16 mm	Feed rate	0.25 mm/rev
Feed rate	0.75 mm/rev		
Chip volume	144 cm³/min		

Tapping
M16 P2

(Left spindle: First turret)

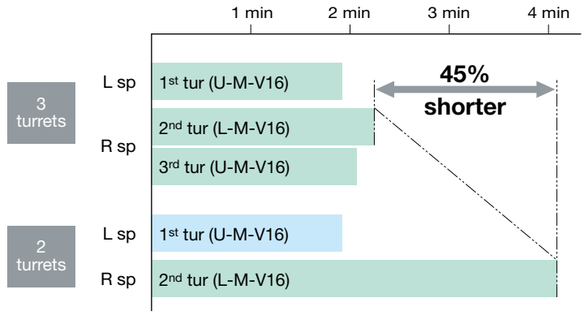
Note: The “actual data” referred to above for this brochure represent examples, and may not be obtained due to differences in specifications, tooling, cutting, and other conditions.

Achieve the best production system with our abundant lineup

Minimize takt time with third turret (option)

Well-balanced cycle times achieved with simultaneous machining using upper left and right turrets and lower turret. Cycle times can be significantly shortened.

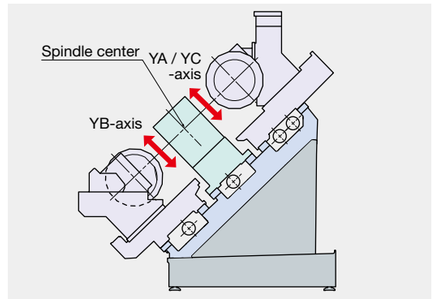
Example of spool
ø80 × 60 mm



Y-axis specifications (option) added on all turrets

Simultaneous upper/lower Y-axis machining possible.

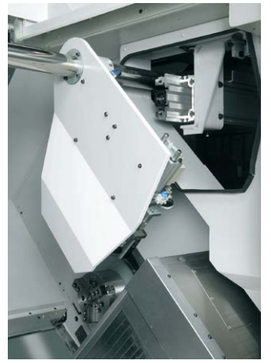
Y-axis travel	95 mm YA, YC: +50 to –45 mm YB: +45 to –50 mm



Best also for automation with many different specifications

Automation systems can be built to correspond to the machining job, including bar feeder, unloader, and loader specifications. Reduces operator burden and raises productivity even further.

Bar feeder (option)



Unloader (option)

Reducing operator burden with advanced technology

AI Machine Diagnosis Function (option)

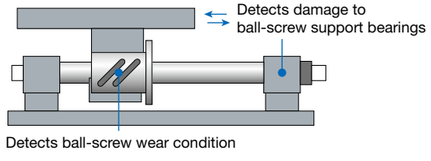
Machine tool diagnostics technology with artificial intelligence (AI)

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*.

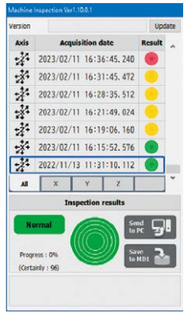
* With AbsoScale detection specs, ball-screw wear detection is possible.

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.

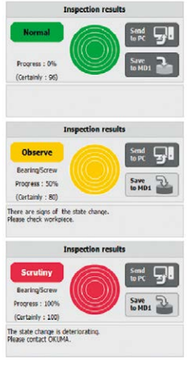
Execute diagnostic tests from the screen guidelines



Diagnosis by OSP-AI



Diagnostic results per lamp color



Sludgeless Tank (option)

Coolant maintenance work is significantly reduced
The environmental impact of coolant disposal is also minimized

The Sludgeless Tank continuously circulates cutting fluid within the tank, efficiently collecting sludge to prevent accumulation and significantly reducing issues and maintenance work.
This significantly reduces the frequency of tank cleaning, enabling stable operation over long periods and improving productivity.
It also extends the cutting fluid’s lifespan, helps prevent spoilage and odors, and creates a better working environment.
Furthermore, reducing the frequency of cutting fluid changes decreases industrial waste and lessens the environmental impact.

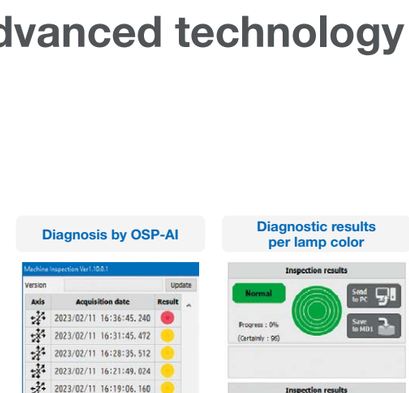
Sludge removal rate **99%** (when the material is casting and aluminum)

Notes: After secondary filtration (cyclone filter) permeation
Okuma evaluated removal rate

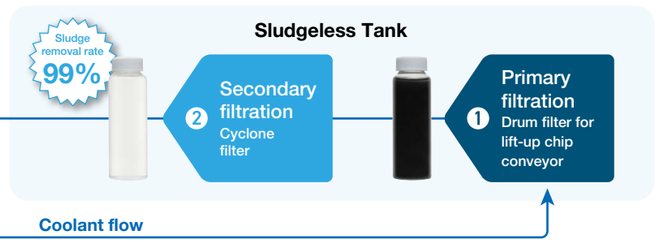
No tank cleaning for 3 years (okuma equipment actual data)

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

Note: If the Sludgeless Tank is chosen, it is necessary to select a hinge + scraper chip conveyor with a drum filter.



Tank structures vary by model or specification.



Collision Avoidance System (option)

Collision prevention

“Concentrate on machining” without collision worries

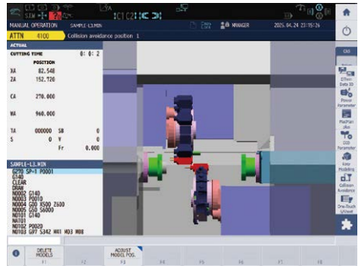
NC controller (OSP) with 3D model data of machine components—workpiece, tool, chuck, fixture, headstock, turret, tailstock—performs real time simulation just ahead of actual machine movements. It checks for interference or collisions and stops the machine movement immediately before collision. Machinists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

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.

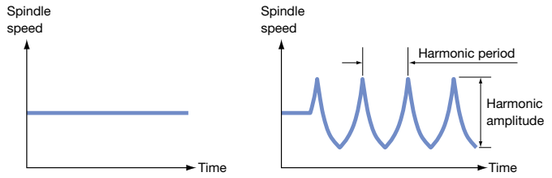


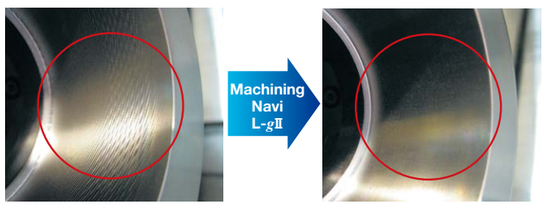
Virtual machine (interference check)

Machining Navi L-*g*Ⅱ (option)

Cutting condition search for turning
(Harmonic Spindle Speed Control)

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 cycle times reduced by using the optimum cutting conditions, producing significant effects in deep-hole boring bar and grooving applications.

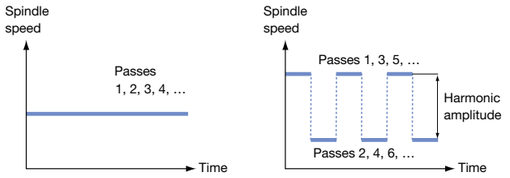




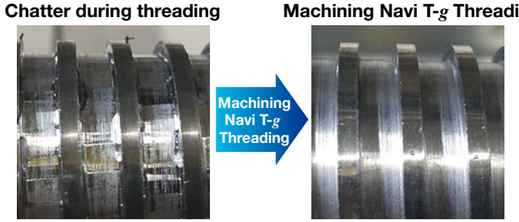
Machining Navi T-*g* Threading (option)

Cutting condition search for threading

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 commonly used tools can be maximized for stable machining.



Chatter during threading **Machining Navi T-*g* Threading**



Chatter marks 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 distributing them globally, we will partner with our customers to address the social challenges 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

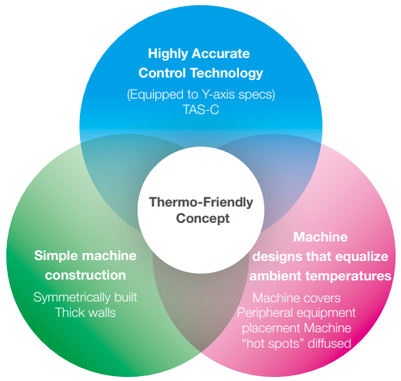
The Okuma Intelligent Technology that enables machines to autonomously maintain high accuracy stability

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

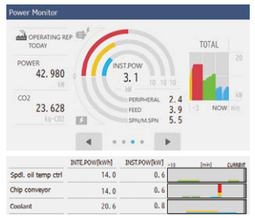
A system for an energy-saving society

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 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.

Machine Specifications

Item			LT2000 EX					
			2-turret specs			3-turret specs		
			2M	1MY	2MY	3M	2MY	3MY
Capacity	Swing over saddle	mm (in)	ø400 (ø15.75)					
	Max machining dia × length*	mm (in)	ø210 × L130 (ø8.27 × L5.12)					
	Distance between noses	mm (in)	960 (37.80)			990 (38.98)		
Travel	X-axis	mm (in)	XA, XB: 205 (8.07) (+175 to –30)			XA, XB, XC: 205 (8.07) (+175 to –30)		
	Z-axis	mm (in)	ZA, ZB: 700 (27.56), W: 730 (28.74)			ZA, ZC: 400 (15.75), ZB: 730 (28.74), W: 760 (29.92)		
	Y-axis	mm (in)	–	YA: 95 (3.74) (+50 to –45)	YA: 95 (3.74) (+50 to –45) YB: 95 (3.74) (+45 to –50)	–	YA: 95 (3.74) (+50 to –45) YB: 95 (3.74) (+45 to –50)	YA, YC: 95 (3.74) (+50 to –45) YB: 95 (3.74) (+45 to –50)
	C-axis	deg	360 (minimum control angle 0.001)					
Spindle (L/R)	Speed	min^{-1}	50 to 6,000 [50 to 5,000 (Left spindle only)]					
	Speed ranges		2 auto ranges (motor coil switching, 2 ranges)					
	Spindle nose		ø140 flat [JIS A2-6 (Left spindle only)]					
	Spindle bore / Front bearing ID	mm (in)	ø62/100 (ø2.44/3.94) [ø80/120 (ø3.15/4.72) (Left spindle only)]					
Turret (U/L)	Type		Multitasking V16 [V12]					
	No. of tools		16 [12] (L, M)					
	OD tool shank	mm (in)	□20/ø32 (3/4 × 3/4 / ø1-1/4)					
	Milling tool spindle speed	min^{-1}	45 to 6,000					
Rapid traverse	X-axis	m/min (ipm)	30 (1,181)					
	Z-axis	m/min (ipm)	40 (1,575)					
	Y-axis	m/min (ipm)	–	15 (591)		–	15 (591)	
	W-axis	m/min (ipm)	32 (1,260)					
	C-axis	min^{-1}	200					
Motors	Main spindles	kW (hp)	L/R: 11.5/7.5 (15.3/10) [22/15 (30/20)] (5 min/cont)					
	Milling tool	kW (hp)	5.5/3.7 (7.5/5) (2 min/cont)					
	X-axis	kW (hp)	XA: 3.5 (4.7), XB: 3.0 (4)			XA, XC: 3.5 (4.7), XB: 3.0 (4)		
	Z-axis	kW (hp)	ZA, ZB: 3.5 (4.7)			ZA, ZB, ZC: 3.5 (4.7)		
	Ys-axis	kW (hp)	–	YsA: 3.5 (4.7)	YsA: 3.5 (4.7) YsB: 2.2 (3)	–	YsA: 3.5 (4.7) YsB: 2.2 (3)	YsA, YsC: 3.5 (4.7) YsB: 2.2 (3)
	Coolant motor (50/60 Hz)	kW (hp)	0.55/0.75 (3/4 / 1) × 3			0.55/0.75 (3/4 / 1) × 4		
Machine size	Height Chip discharge, side	mm (in)	2,339 (92.09)	2,380 (93.70)		2,339 (92.09)	2,380 (93.70)	
	Chip discharge, rear		2,489 (97.99)	2,530 (99.61)		2,489 (97.99)	2,530 (99.61)	
	Floor space (including tank)	mm (in)	Chip discharge, side: 3,745 × 2,540 (147.44 × 100.00), Chip discharge, rear: 3,231 × 3,493 (127.20 × 137.52)					
	Mass (with CNC)	kg (lb)	8,500 (18,700)	9,000 (19,800)		9,300 (20,460)	9,800 (21,560)	
CNC			OSP-P500L					

* Rough dimensions for work lengths that can be axially milled simultaneously on 2 turrets [ ] option

LT2000 EX Standard Specifications & Accessories

Spindle		L/R ø140 flat, 50 to 6,000 min^{-1}
		11.5/7.5 kW (5 min/cont)
Turret		U/L M-V16 (L/M 16 tools)
	Tools	OD 20 × 20 mm ID ø32 mm
	Milling tool spindle speed	45 to 6,000 min^{-1}
	Motors	5.5/3.7 kW (2 min/cont)
Spindle cooler		
Standard accessories		
Hydraulic unit		
Coolant unit		Chip washing nozzle (distribution type)
Chip air blower (blast)		L/R chuck air blast
Lube system		Oil level alarm/pressure alarm (lube monitor)
Triple-lamp status indicator		
Chuck foot pedal		
Work lamp		LED
Jack bolts, foundation block		
Hand tools		
Standard specs		
Front door interlock		
Control unit		OSP-P500L
Operation panel		15-inch swivel operation panel
Pulse handle		
TAS-C		Thermo Active Stabilizer – Construction

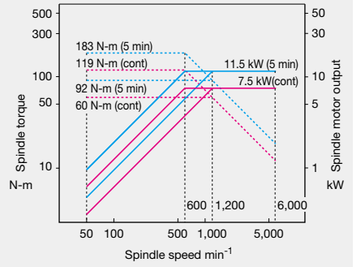
LT2000 EX Optional Specifications & Accessories

Big-bore spindle	JIS A2-6 50 to 5,000 min^{-1} Spindle bearing ID ø120, spindle bore ø80 (Left spindle only)	Hydraulic chuck	Solid chuck
			Hollow chuck
		Chucking related	Chuck pressure high/low switch (L/R)
Turning spindle high output specs	50 to 6,000 min^{-1} 22/15 kW (5 min/cont)		Chucking miss sensor (L/R)
		Chip air blower (blast)	Chuck air blast (L/R)
V12 turret	Tools 12 pcs		Turret air blast
Chip conveyor (types)	Hinge, scraper, scraper + drum filter		Spindle ID air blast (L/R)
	Side discharge, rear discharge; L/H discharge heights	AbsoScale detection	XA, XB, XC, YsA, YsB, YsC, ZA, ZB, ZC axes
Chip pan	Side discharge, rear discharge	Temperature regulator	Spindle, coolant and hydraulic oil
Chip bucket	L type (height 700 mm)	Automation	Bar feeder
	H type (height 1,000 mm)		Loader, robot
Coolant	Coolant gun		Touch Setter A, M (L/R)
	Shower coolant (L/R)		In-process work gauging (upper/lower turret)
	Spindle ID coolant (L/R)		Parts catcher
	Coolant temperature controller		Output conveyor
	Coolant sludge control		Unloader
	Coolant level detection	Front cover related	Auto front door open/close, two-hand cycle start button
	High pressure coolant unit	Toolholders, sleeves	
Sludgeless Tank		Raised machine height	50 mm, 100 mm, 150 mm

Spindle power/torque diagrams

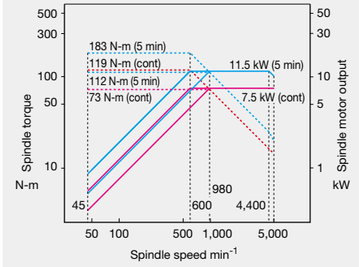
● **Standard specifications**

Spindle speed 6,000 min^{-1}
Motor output 11.5/7.5 kW (5 min/cont)
Spindle torque 183/119 N-m (5 min/cont)



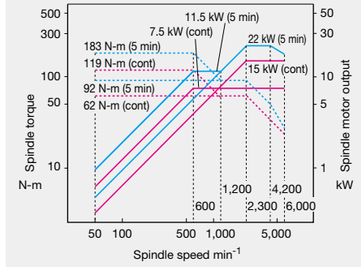
● **Left spindle big-bore specification**

Spindle speed 5,000 min^{-1}
Motor output 11.5/7.5 kW (5 min/cont)
Spindle torque 183/119 N-m (5 min/cont)



● **High output specification**

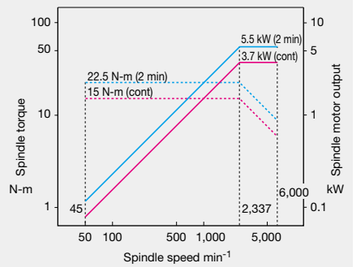
Spindle speed 6,000 min^{-1}
Motor output 22/15 kW (5 min/cont)
Spindle torque 183/119 N-m (5 min/cont)



Milling tool spindle power/torque diagram

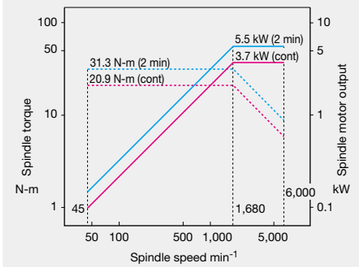
● **Standard V16 turret**

Spindle speed 6,000 min^{-1}
Motor output 5.5/3.7 kW (2 min/cont)
Spindle torque 22.5/15 N-m (2 min/cont)

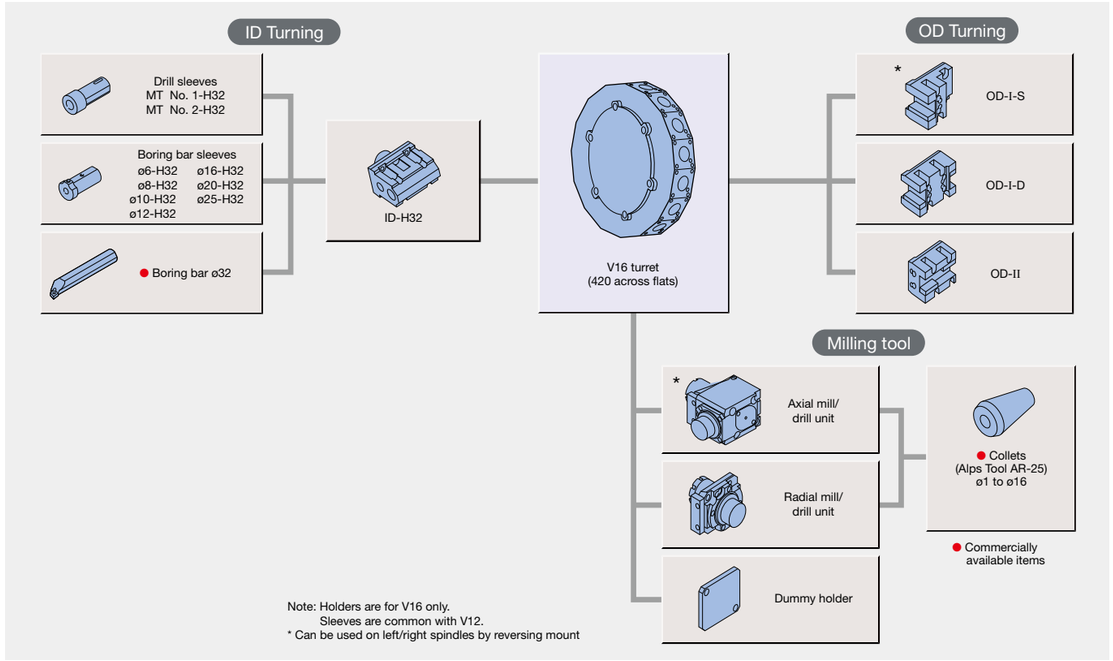


● **V12 turret** (option)

Spindle speed 6,000 min^{-1}
Motor output 5.5/3.7 kW (2 min/cont)
Spindle torque 31.3/20.9 N-m (2 min/cont)



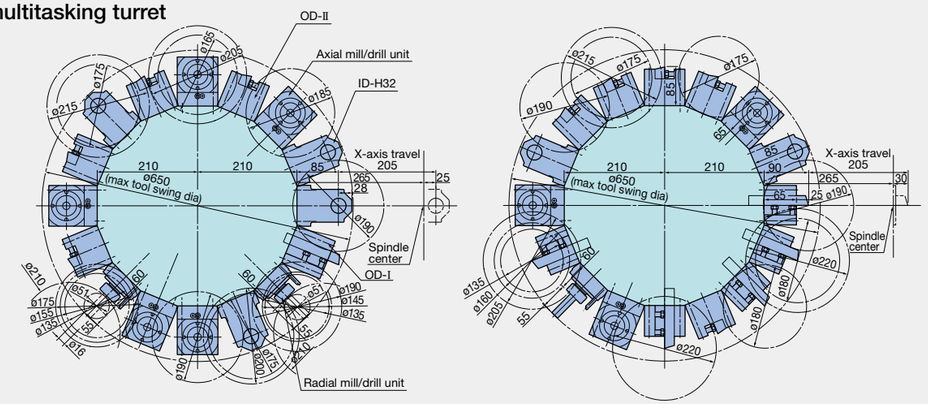
Tooling System



Turret Interference Diagram

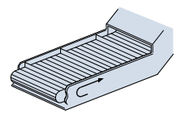
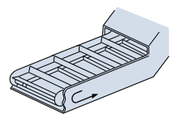
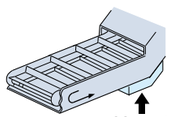
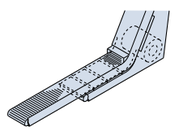
Unit: mm

V16 multitasking turret



Recommended chip conveyors

■ Chip conveyor types and applications

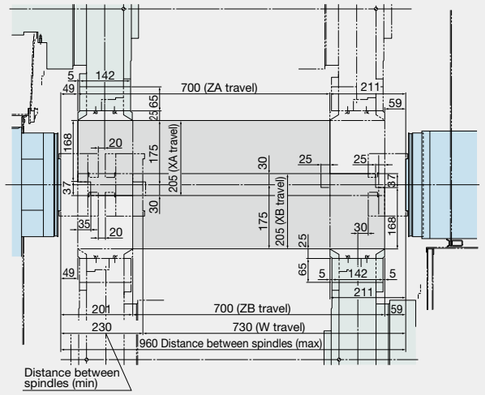
Type	Hinge	Scraper	Magnetic scraper	Hinge + scraper (drum filter)
Application	● Steel	● Castings	● Castings	● Steel, castings, nonferrous metal
Features	● General use	● Magnetic scraper more effective for sludge disposal ● Easy maintenance ● Blade scrape	● Effective with sludge ● Not suited for nonferrous metals	● Filtration of long and short chips and coolant
Shape				

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

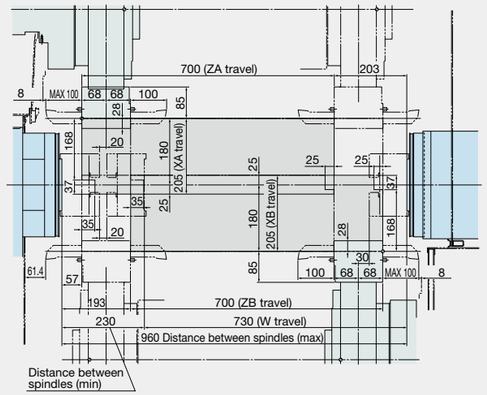
Working Ranges

Unit: mm

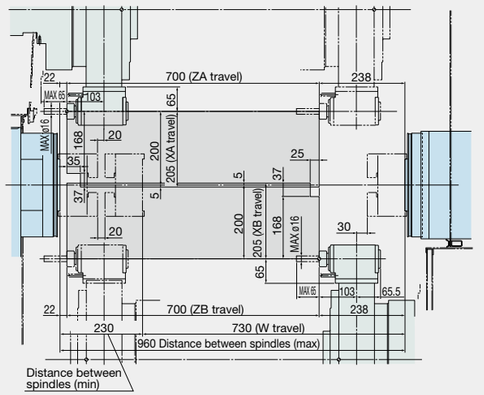
2-turret OD-I



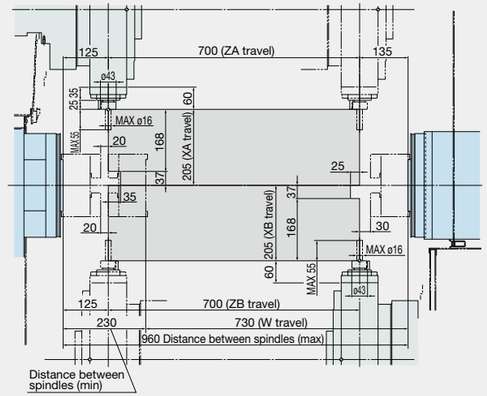
2-turret ID



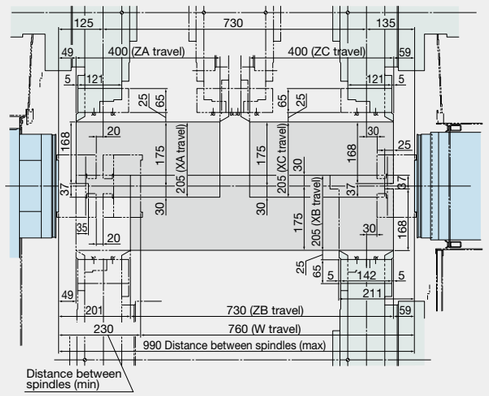
2-turret Axial drill/mill unit



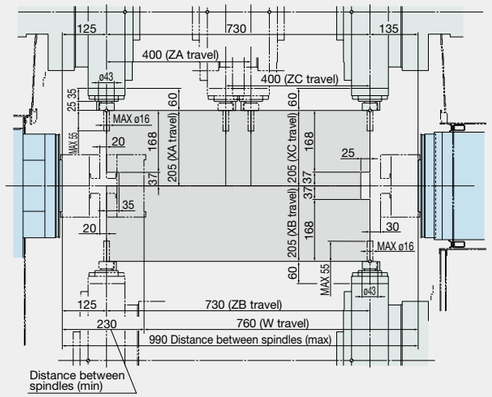
2-turret Radial drill/mill unit



3-turret OD-I



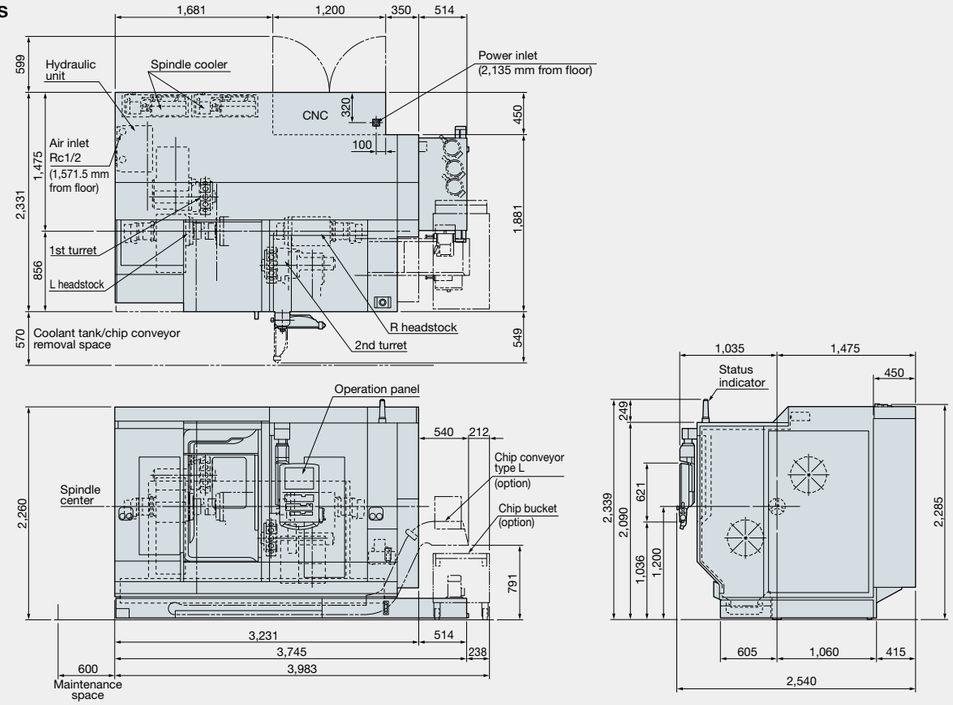
3-turret Radial drill/mill unit



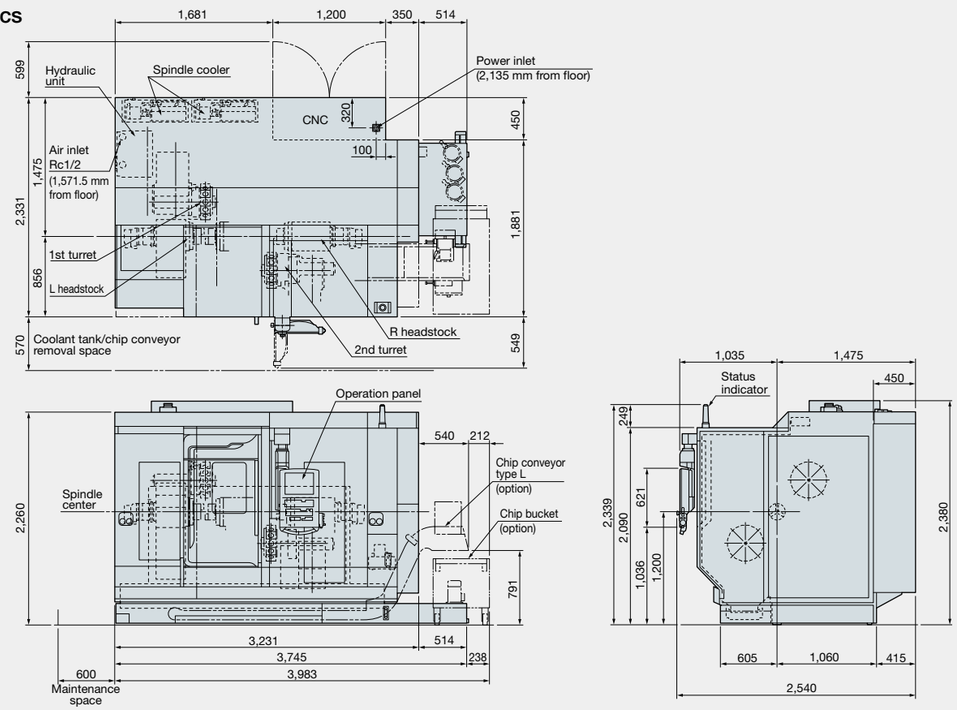
Dimensional/Installation Drawings

Unit: mm

M specs



MY specs



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 creates 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.

15-inch operation panel

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.

1 Digital Twin On PC*

Simulate shop machines in the office

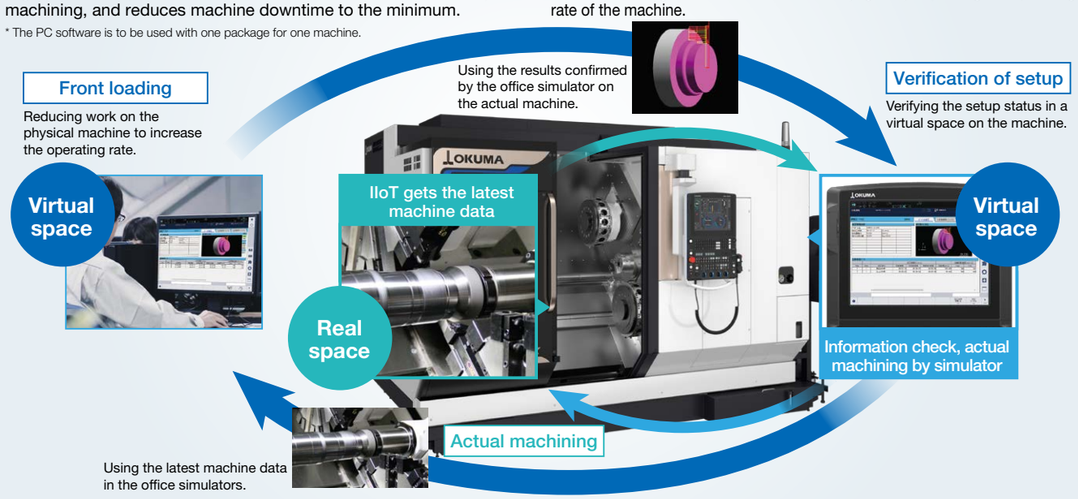
Front loading is performed with the actual status matched with the data on the office PC to further improve productivity.
Highly accurate pre-verification minimizes trial and error in first part machining, and reduces machine downtime to the minimum.

* 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.

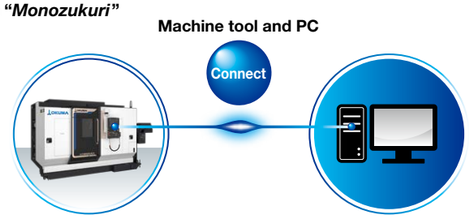


Connect Plan

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	Multitasking: X, Z, C simultaneous 3-axis + 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
	Security	Operator authentication, lock screen, OSP-VPSⅡ-STD (Virus Protection System)
Programming	Program capacity	Program storage: 4 GB, operation buffer: 2 MB
	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
Operations	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
	MacMan plus	Machining management: machining results, machine utilization, fault data compile & report, visualization of power consumption, External output
Communications / Networking		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 functions	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 specs	NML E	NML D	AOT-M E	AOT-M D	DT E	DT D	DT AOT-M E	DT AOT-M D
Digital Twin									
Virtual Machining						● (VE)	● (VD)	● (VE)	● (VD)
Quick Modeling						● (VE)	● (VD)	● (VE)	● (VD)
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		▲		▲		▲		▲
	100 sets								
Thread matching									
Pause for threading during non-fixed cycle		●	●	●	●	●	●	●	●
Variable Spindle Speed Threading (VSST)									
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]		●	●	●	●	●	●	●	●

Item	Kit specs	NML E	NML D	AOT-M E	AOT-M D	DT E	DT D	DT AOT-M E	DT AOT-M D
External Input / Output and Communication Functions									
RS-232C interface									
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 codes [2 sets, 4 sets, 8 sets, 16 sets]									
OSP-VPSⅡ-EX (Virus Protection System)									

Note: NML: Normal kit, AOT-M: Advanced One-Touch IGF-L kit, DT: Digital Twin kit, DT AOT-M: Digital Twin Advanced One-Touch IGF-L, E: Economy, D: Deluxe
VE and VD kits are also equipped with the Digital Twin on PC function, allowing running from a PC.
*1. Applied according to machine specifications.
*2. With AbsoScale detection specs, ball-screw wear detection is possible.
*3. Engineering discussions required.
▲: Supplied to the milling specs of each kit.
Specifications, etc. are subject to change without notice.

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LT2000EX

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

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