



Turning Center with Twin Spindles

# *TWIN STAR* **LT3000 EX**

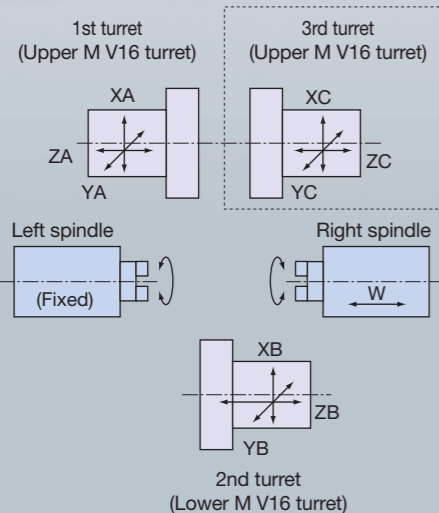
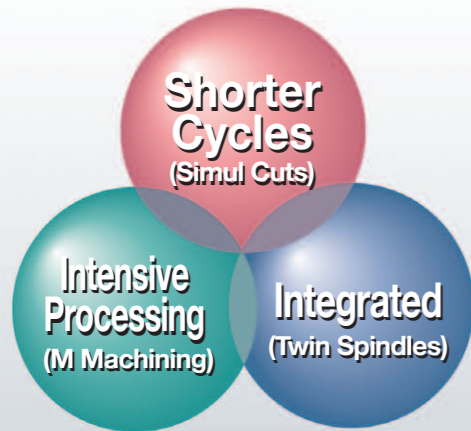


Turning Center with Twin Spindles

# TWIN STAR **LT3000 EX**

## 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.



- V16 turrets are standard. (V12 is optional)
- Optional third turret may be added.
- Y-axis specs available for all turrets.

## Premium Designing

Harmonious human-machine interaction produces new forms. Add to that, reliably cultivated and sustainable innovation from a comfortable work place found in a pleasing factory environment. With superior quality and value, Premium Designing has begun.

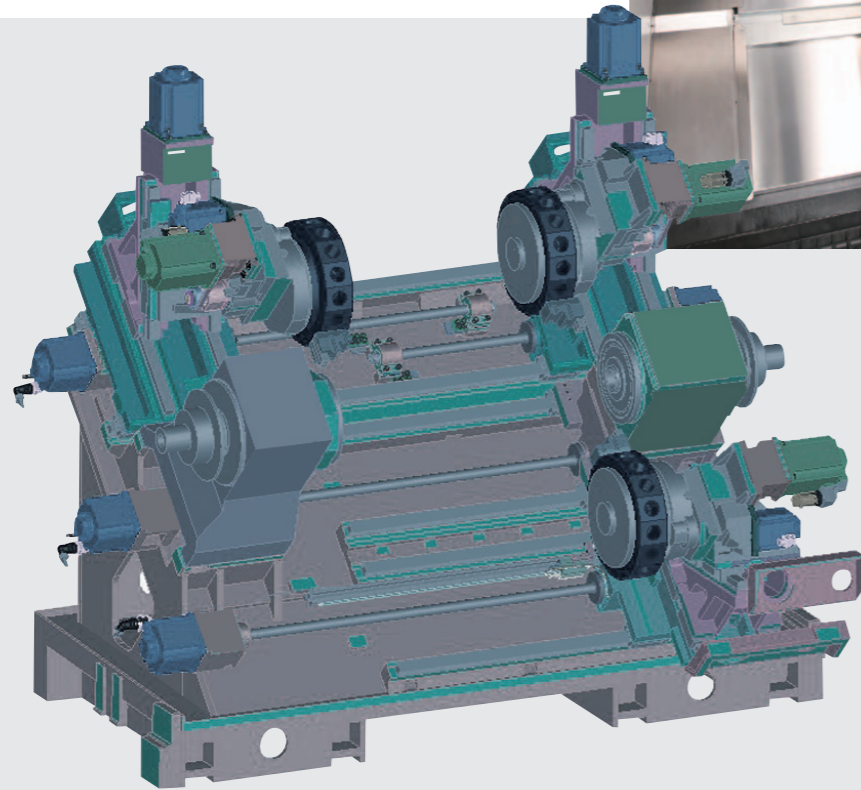
Photos shown in this brochure may also show optional equipment.

## Advanced 4-axis operations with left/right spindles

The upper/lower turrets can be combined with either spindle. Thus, you can get the ideal cycle balance of primary and secondary operations to assure maximum productivity.

### Highly efficient machining with 3 turrets (Optional)

- Simultaneous machining with left and right upper turrets, and lower turret
- Less workpiece turnover with simultaneous machining on upper and lower Y axis



## Equal-capacity left/right spindles

### High-accuracy integral motor/spindle

- Left/right VAC 22.5/15 kW (30 min/cont)

### Digital synchronized control (direct C-axis control)

- Part transfer possible during spindle rotation

### A single machine handles various bar workpieces

- Spindle size one rank higher
- Bar dia Standard spindle  $\phi 65$  mm \*
- Big bore spindle  $\phi 80$  mm

\* Up to  $\phi 69$  mm with 10" chucks

## Equal-capacity upper/lower turrets

### Multitasking V16 NC turrets

- High-speed indexing NC turret: 0.3 sec/index

### Milling-tool spindle motor

- PREX 7.1/4.1 kW (25 min/cont)

### Rapid traverse

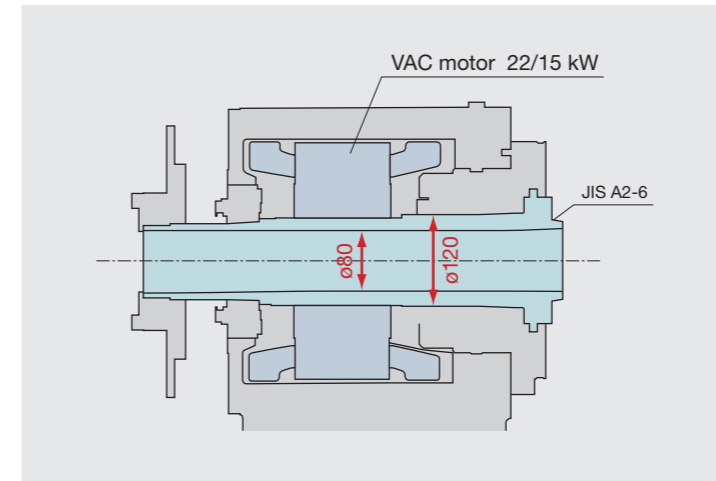
- X axis: 30 m/min Z axis: 40 m/min

### Huge reductions in setup time

- V16 turret with permanently set tooling

## Highly rigid spindles

- Spindle through-hole/bearing ID:  $\phi 80/\phi 120$  mm (Optional:  $\phi 91/\phi 140$  mm)
- Spindle speed 5,000 min<sup>-1</sup> (Optional: 4,200 min<sup>-1</sup>)
- Spindle motor VAC 22/15 kW (30 min/cont) (Optional: 30/22 kW)
- Output torque 427/280 N-m (30 min/cont)



## High speed, high power milling tool spindle

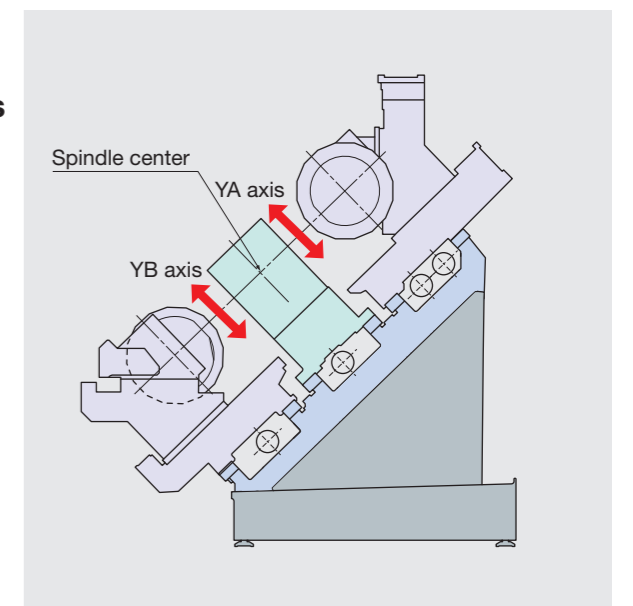
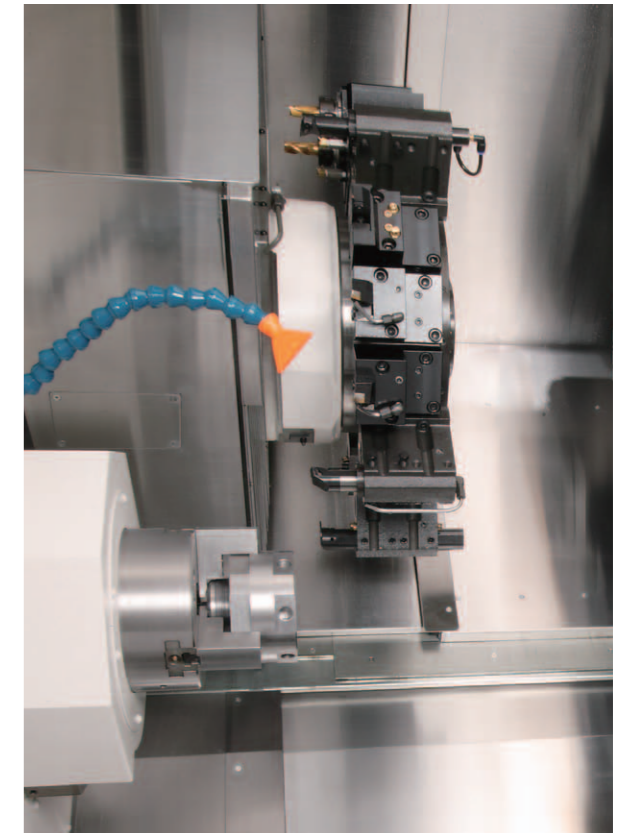
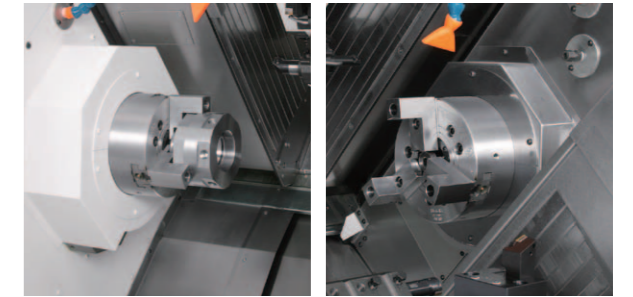
- Milling tool spindle speed 6,000 min<sup>-1</sup>
- Milling tool spindle motor PREX 7.1/4.1 kW (25 min/cont)
- Output torque 40.4/23.4 N-m (25 min/cont)
- Milling tool diameter Max  $\phi 20$  mm

## Y axis specifications can be added on all turrets

- Axis travel distance  
125 mm YA, YC: +70 to -55  
YB: +55 to -70

## All turrets have 16 stations (L/M)

- Permanently set tooling for reduced setup time  
Handles complex shapes, multi-process, and high-variety operations



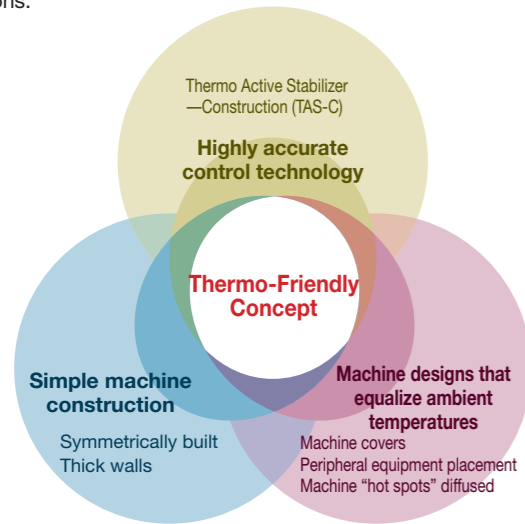
The unique approach of "accepting temperature "changes."

Manageable Deformation—Accurately Controlled

## Thermo-Friendly Concept



Okuma's Thermo-Friendly is a structurally designed, thermal deformation control system that provides astonishing machining accuracy. It frees the machinist from troublesome offsets and machine warm-ups—is superb for long runs, multitasking, front/backend work, plus Y-axis applications.



- Highly accurate control technology
- Simple machine construction
- Machine designs that equalize ambient temperatures

### TAS-C [Thermo Active Stabilizer – Construction]

Overall control of thermal deformation on headstock, turret, and bed

Super thermostability minimizes machining dimensional changes over time



## Environmental economic benefits of Okuma's Thermo-Friendly Concept

In environments with normal temperature changes, machining accuracies equivalent to those in temperature-controlled rooms are achieved. As long as the operator is comfortable, no air conditioning is needed to ensure accuracy.

Amount of energy consumed for temperature-controlled room

Savings of approximately 210,000 kWh per year\*

Prevents CO<sub>2</sub> emissions equivalent to about 11,500 beech trees



### Thermo-Friendly Concept

## Ecology & Economy

Machines and technology to achieve eco-friendly "monozukuri"

### Energy-saving functions

#### Energy-saving function

##### Power-saving function

Peripheral device power shutoff after completion of automatic operation  
· Spindle cooler, etc.

### Energy-saving technology

#### Energy-saving servo, NC units

- High-performance single CPU configuration
- Energy savings from simple design
- Energy-saving display device

\* Calculations are examples only, and may differ from actual circumstances. Temperature-controlled room capacity: 30m x 15m x H8m ±2°C

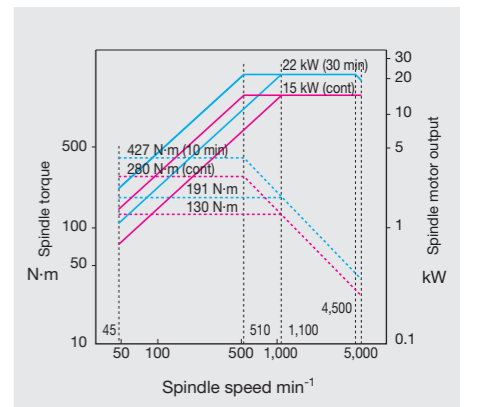
## Machine Specifications

Model	LT3000 EX					
	2-turret specs		3-turret specs			
	M	MY	M	MY		
Capacity	Swing over saddle	mm (in.)			ø550 (ø21.66)	
	Max machining dia x length	mm (in.)			ø350 x L200 (ø13.78 x L7.88)	
	Distance between noses	mm (in.)			1,200 (47.25)	
Travel	X axis	mm (in.)		XA, XB: 255 (10.04)	XA, XB, XC: 255 (10.04)	
	Z axis	mm		ZA, ZB: 930	ZA, ZC: 480, ZB: 930	
	Y axis	mm	YA: 125 (+55 to -70) YB: 125 (+70 to -55)	–	YA, YC: 125 (+55 to -70) YB: 125 (+70 to -55)	
	C axis	deg	360 (minimum control angle 0.001°)			
Spindle (L/R)	Speed	min <sup>-1</sup>			50 to 5,000 [42 to 4,200]	
	Speed ranges	2 auto ranges (VAC motor coil switching)				
	Spindle nose	A2-6 [A2-8]				
	Spindle bore / Front bearing ID	mm (in.)				ø80/120 [ø91/140] (ø3.15/4.73 [ø3.59/5.52])
Turret (U/L)	Type	Multitasking V16 [V12]				
	No. of tools	16 (L / M) [12]				
	OD tool shank	mm (in.)				□ 25/ø40 (1 x 1/ø1-1/2)
	Milling tool spindle speed	min <sup>-1</sup>				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)	–	20 (787)	–	20 (787)
	W axis	m/min (ipm)		40 (1,575)		
	C axis	min <sup>-1</sup>		200		
Motors	Main spindles (L/R) *	kW (hp)				VAC 22/15 (30/20) [VAC 30/22 (40/30)]
	Milling tool	kW (hp)				PREX 7.1/4.1 (9.5/5.5) (25 min/cont)
	X axis	kW (hp)		XA, XB: BL3.5 (4.7)	XA, XB, XC: BL3.5 (4.7)	
	Z axis	kW (hp)		ZA, ZB: BL3.5 (4.7)	ZA, ZB, ZC: BL3.5 (4.7)	
	Ys axis	kW	YsA: BL3.5 YsB: BL2.2	–	YsA, YsC: BL3.5 YsB: BL2.2	
	Coolant pumps	kW (hp)		0.8 (1.07) x 3	0.8 (1.07) x 4	
Machine size	Height	mm (in.)			2,650 (104)	
	Floor space (w/o coolant tank)	mm (in.)			4,504 x 2,750 (177 x 108)	
	Weight (with CNC)	kg (lb)		11,200 (24,640)	12,600 (27,720)	
CNC					OSP-P300L	

\* 30 min/cont [ ] Optional

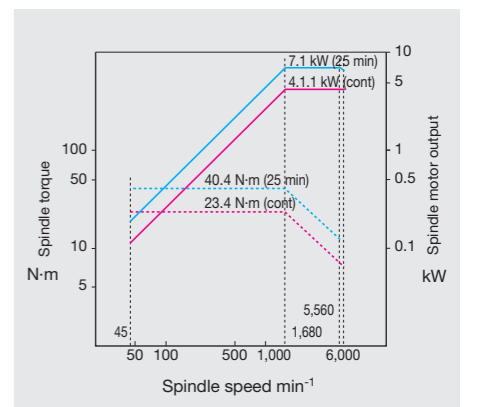
## Main spindle power/torque diagram

Spindle speed 5,000 min<sup>-1</sup>  
Motor output VAC 22/15 kW (30 min/cont)  
Spindle torque 427/280 N-m (30 min/cont)



## Milling tool spindle power/torque diagram

Spindle speed 6,000 min<sup>-1</sup>  
Motor output PREX 7.1/4.1 kW (25 min/cont)  
Spindle torque 40.4/23.4 N-m (25 min/cont)



## Specification variations available

Multitasking turret	Y-axis control	2-turret specifications			3-turret specifications		
		2M	1MY	2MY	3M	2MY	3MY
1st (upper left)	Without	●			●		
	With		●	●		●	●
2nd (lower right)	Without	●	●		●		
	With			●		●	●
3rd (upper right)	Without				●	●	
	With						●

M specs without Y-axis control  
MY specs with Y-axis control

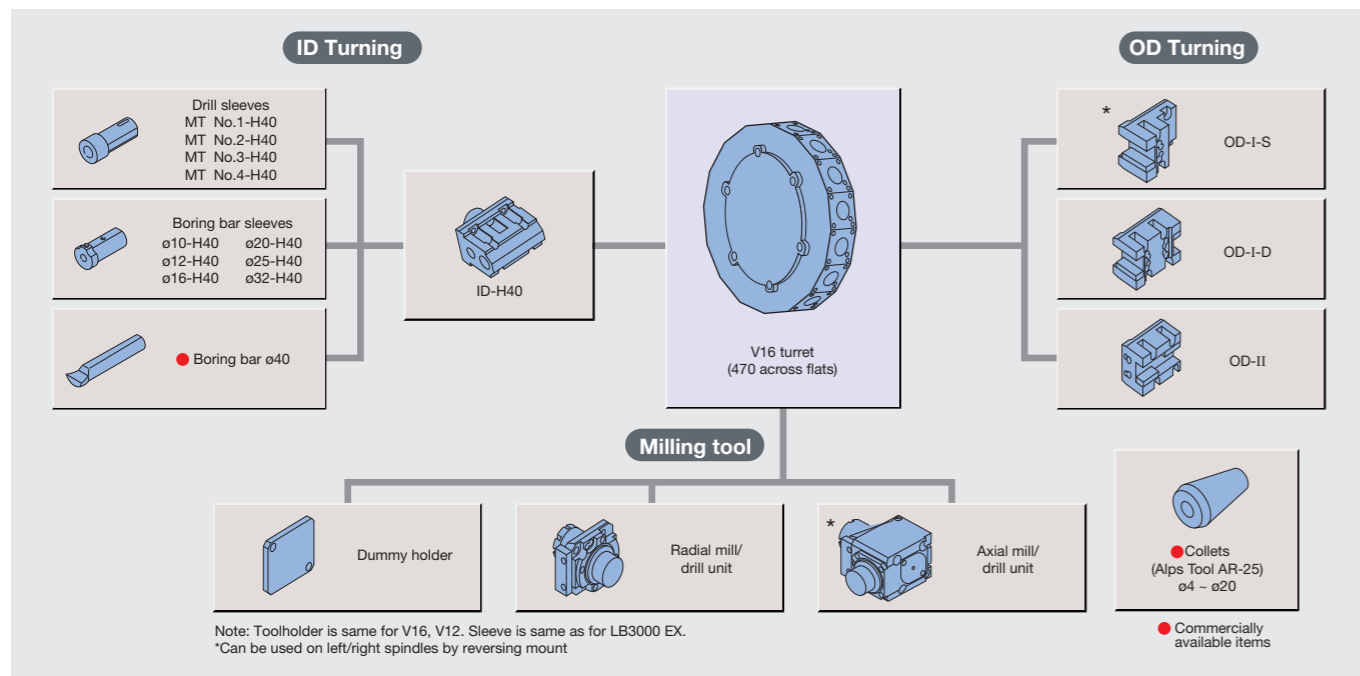
## Standard Specifications & Accessories

Spindle	L/R A2-6, 50 to 5,000 min <sup>-1</sup> VAC 22/15 kW (30 min/cont)
Turret	U/L M V16 (L/M 16 tools) Tools: OD 25 x 25, ID ø40 Milling tool spindle speed: 45 to 6,000 min <sup>-1</sup> PREX 7.1/4.1 kW (25 min/cont)
Spindle cooler	
Standard accessories	
Hydraulic unit	
Coolant unit	Chip washing nozzle (distribution type)
Chip air blower	L/R chuck air blast
Lube system	Oil level alarm/pressure alarm (lube monitor)
Triple-lamp status indicator	
Chuck foot pedal	
Work lamp	LED
Hand tools	
Standard specs	
Front door interlock	
Control unit	OSP-P300L
Operation panel	15" color TFT display
Pulse handle	
TAS-C	Thermo Active Stabilizer – Construction

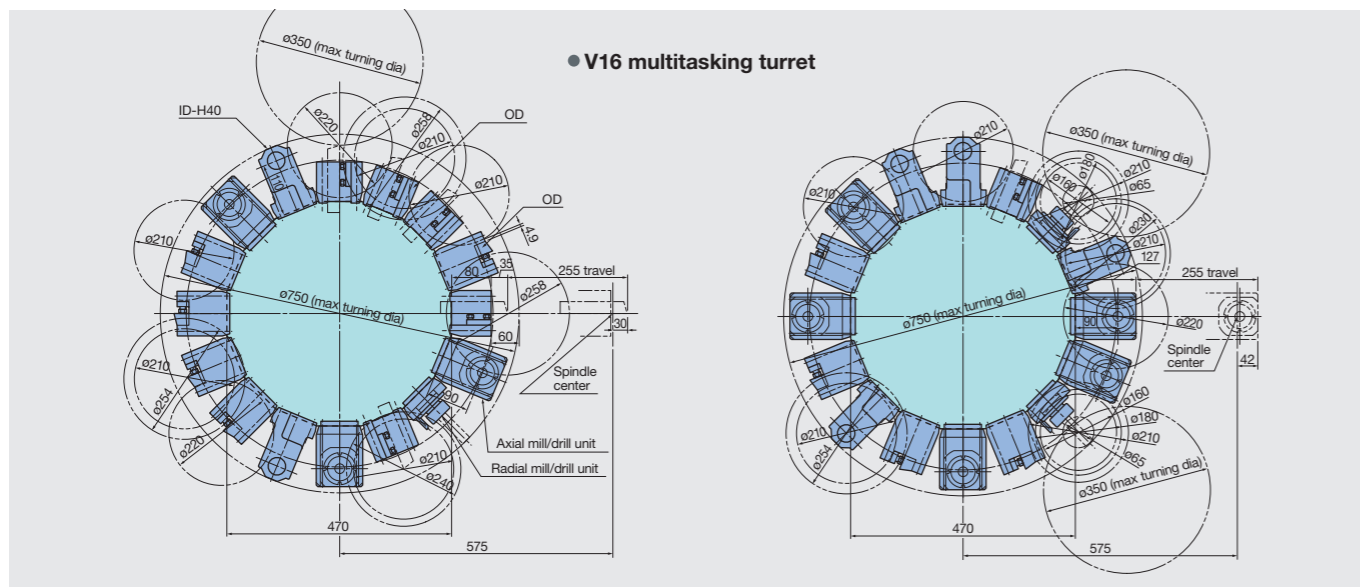
## Optional Specifications & Accessories

Big-bore spindle	ASA A2-8 42 to 4,200 min <sup>-1</sup> Spindle bearing ID ø140, through-hole ø91	Hydraulic chuck	Solid chuck Hollow chuck
Turning spindle high output specs	50 to 5,000 min <sup>-1</sup> VAC 30/22 kW (30 min/cont)	Chuck high/low pressure	Re-grip
V12 turret	Tools, 12 pcs	Chip air blower	Chuck air blower (L/R) Turret air blow (blast) Spindle ID air blow (blast) (L/R)
Chip conveyor (types)	Hinge, scraper, scraper + drum filter	AbsoScale detection	XA, XB, XC/YsA, YsB, YsC/ZA, ZB, ZC axes
Chip pan	Side discharge, rear discharge	Automation	Bar feeder Loader, robot Touch setter A, M (L/R) In-process work gauging (upper/lower turret) Parts catcher Unloader Output conveyor
Chip bucket	L type (height 700) H type (height 1,000)	Toolholders, sleeves	
Coolant	Rear chute L/R		
	Coolant gun		
	Shower coolant (L/R)		
	Spindle ID coolant (L/R)		
	Coolant temperature controller		
	Coolant sludge control		
	Coolant level detection		
	High pressure coolant unit		

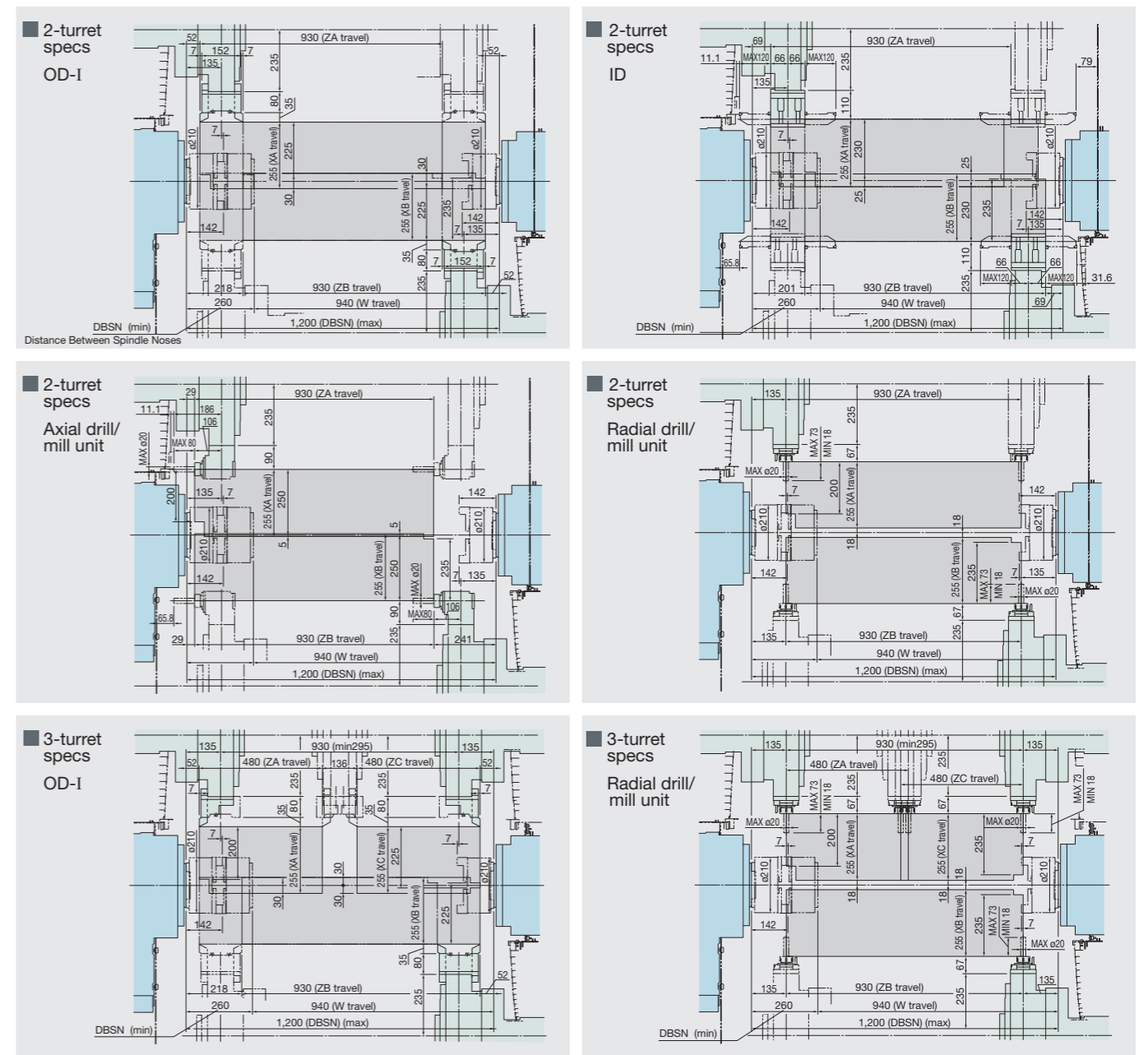
## Tooling System



## Tool Interference Drawing



## Working Ranges



## Recommended Chip Conveyors

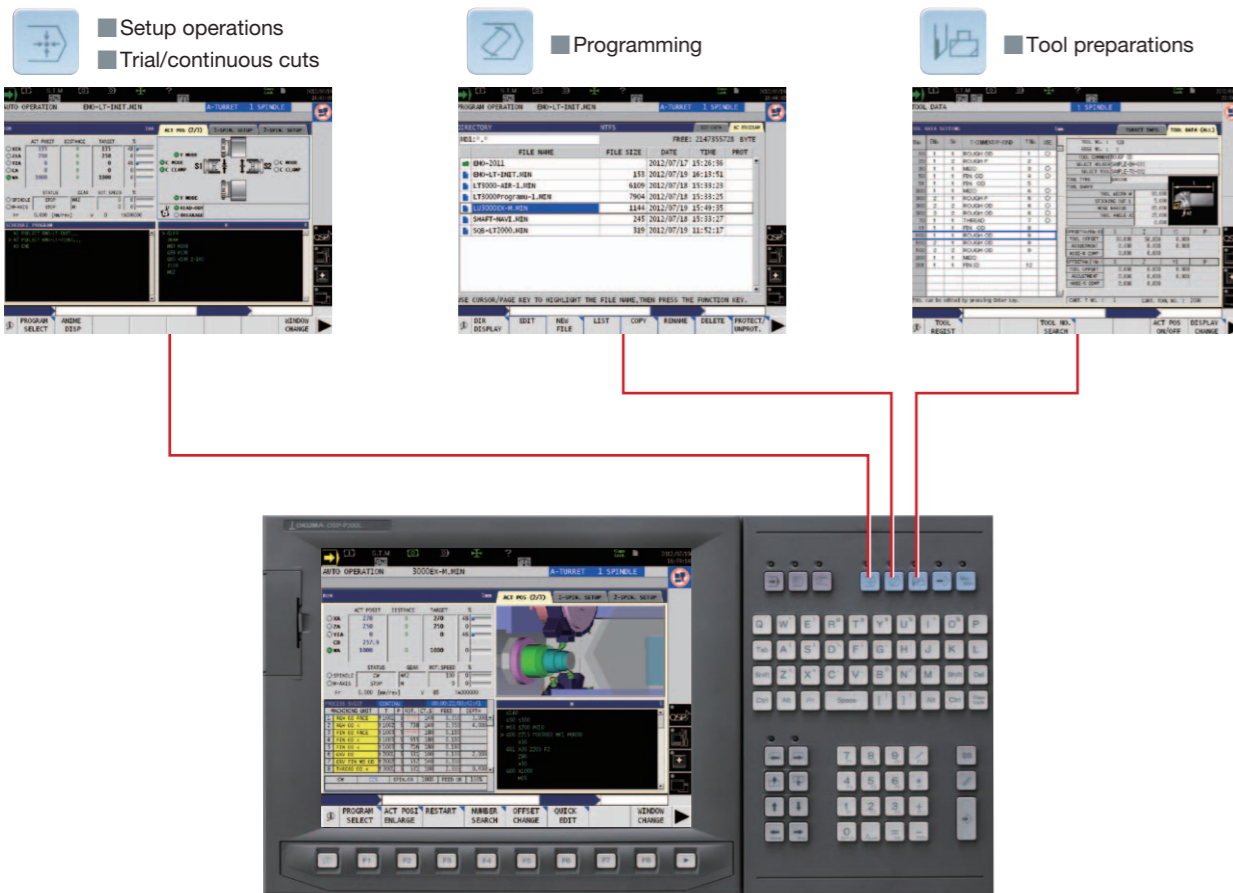
### Chip conveyor types and applications

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 scraper	● 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.

# Satisfaction from complete control of a machine tool

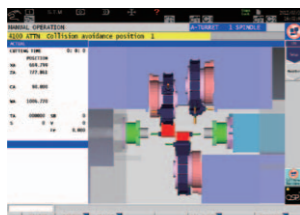
As a “machine & control” builder, Okuma makes further strides in machine tool manufacturing with this superb Control featuring “Easy Operation.” Okuma took a close look at the way machinists actually operate machine tools, to help them create smoother and more effective ways of producing parts. Novice operators as well as professional machinists get complete control—and satisfaction. Moreover, what you want to see and do conveniently come together in a “single-mode operation.” First, select one of three operation screens. Then simply touch the screen or press a function key to see and do your job.



**Collision prevention**  
**Collision Avoidance System (Optional)**

**World’s first “Collision-Free Machine”**

CAS prevents collisions in automatic or manual mode, providing risk-free protection for the machine and great confidence for the operator.

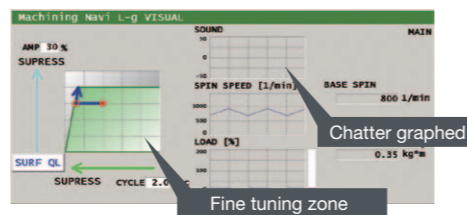


Virtual machine (collision check)

**Cutting condition search for turning**  
**Machining Navi L-g (Optional)**

**Chatter-free applications for lathes**

Chatter in a lathe can be suppressed by changing spindle speeds to the ideal amplitude and wave cycle—without decreasing spindle speed.



**Standard Specifications**

Basic Specs	Control	Turning: X, Z simultaneous 2-axis + 2-axis, Multitasking: X, Z, C simultaneous 3-axis + 3-axis
	Position feedback	OSP full range absolute position feedback (zero point return not required)
	Min / Max inputs	8-digit decimal, ±99999.999 to 0.001 mm (±3937.0078 to 0.0001 in.), 0.001° Decimal: 1 μm, 10 μm, 1 mm (0.0001, 1 in.) (1°, 0.01°, 0.001°)
	Feed	Override: 0 to 200%
	Spindle control	Direct spindle speed commands (S4) override 50 to 200% Constant cutting speed, optimum turning speed designate
	Tool compensation	Tool selection: 32 sets, tool offset: 32 sets
	Display	15-inch color display operational panel, touch panel
	Self-diagnostics	Automatic diagnostics and display of program, operation, machine, and NC system problems
	Program capacity	Program storage: 2 GB, operation buffer: 2 MB
	Operations	Programing
Easy Operation		“Single-mode operation” to complete a series of operations Advanced operation panel/graphics facilitate smooth machine control
Machine operations		MDI, manual (rapid traverse, manual cutting feed, pulse handle), load meter, operations help, alarm help, sequence return, manual interrupt & auto return, threading slide hold, data I/O, chuck open/close during spindle rotation, spindle orientation (electric)
MacMan		Machining Management: machining results, machine utilization, fault data compile & report, external output
Com / Net	USB ports, Ethernet, RS-232-C interface (1 channel)	
High speed/accuracy	Hi-G control, TAS-C (Thermal Active Stabilizer-Construction)	

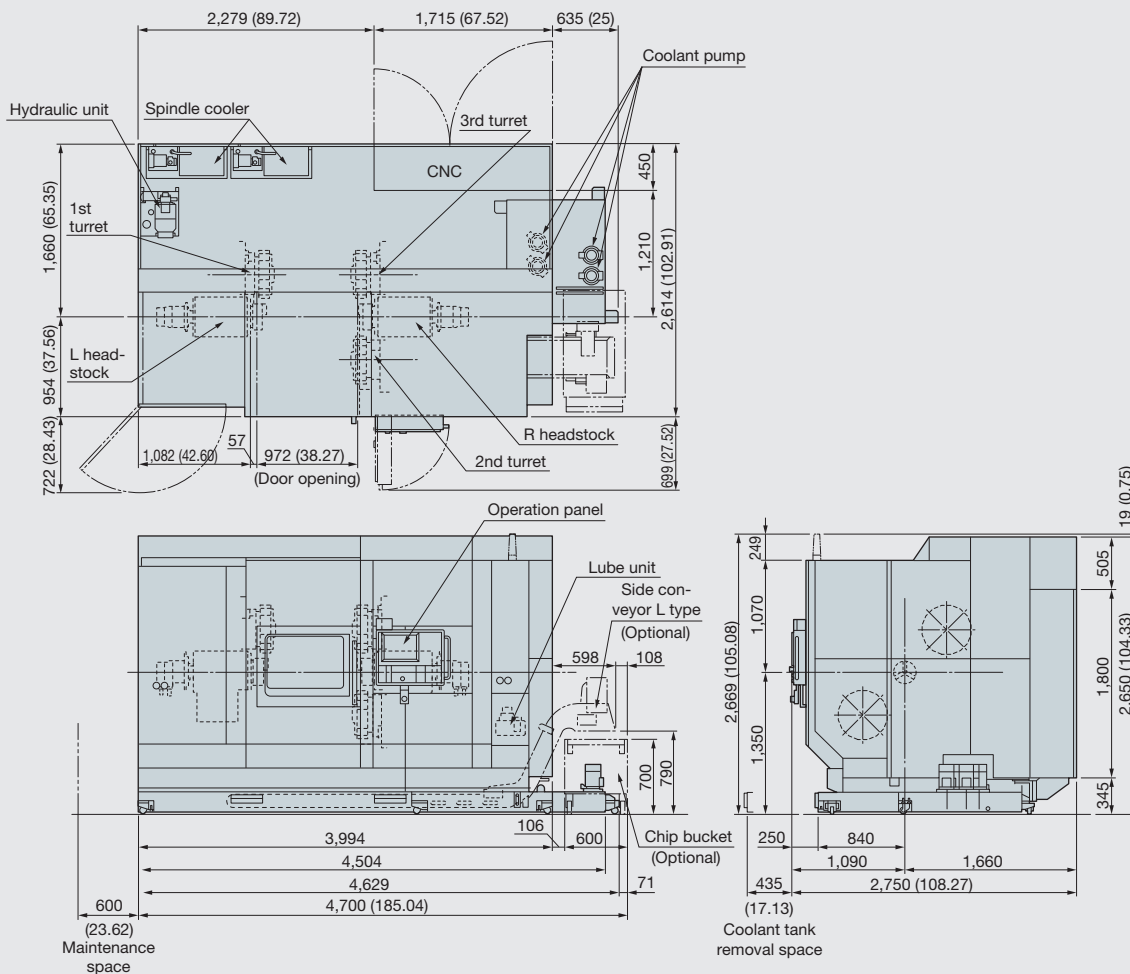
**Optional Specifications**

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

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

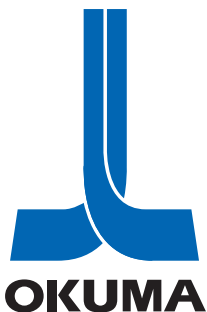
\*1. NML: Normal, 3D: Real 3D simulation, OTM: One-Touch M, E: Economy, D: Deluxe  
 \*2. Available only when MY specs selected.  
 \*3. Engineering discussions required.

**TWIN STAR LT3000 EX**  
**Dimensional/Installation Drawings**



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.