OKUMA

2-Saddle CNC Lathe

SIMUL TURN LU3000 EX

2-Saddle CNC Lathe

SIMUL TURN LU3000EX

Thermo-Friendly Concept

Collision Avoidance System

Machining Navi

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.

The most powerful 2-saddle CNC lathe achieves higher productivity

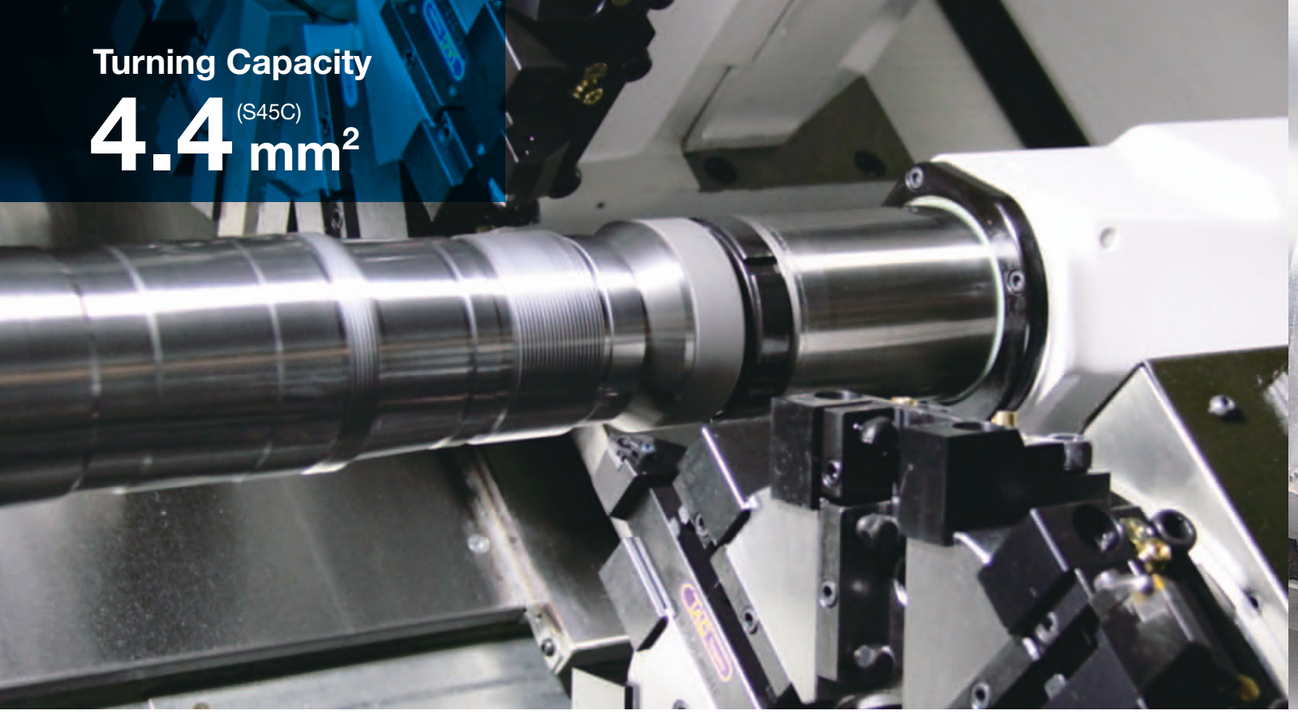
Huge productivity gains with machining capacity of a class above

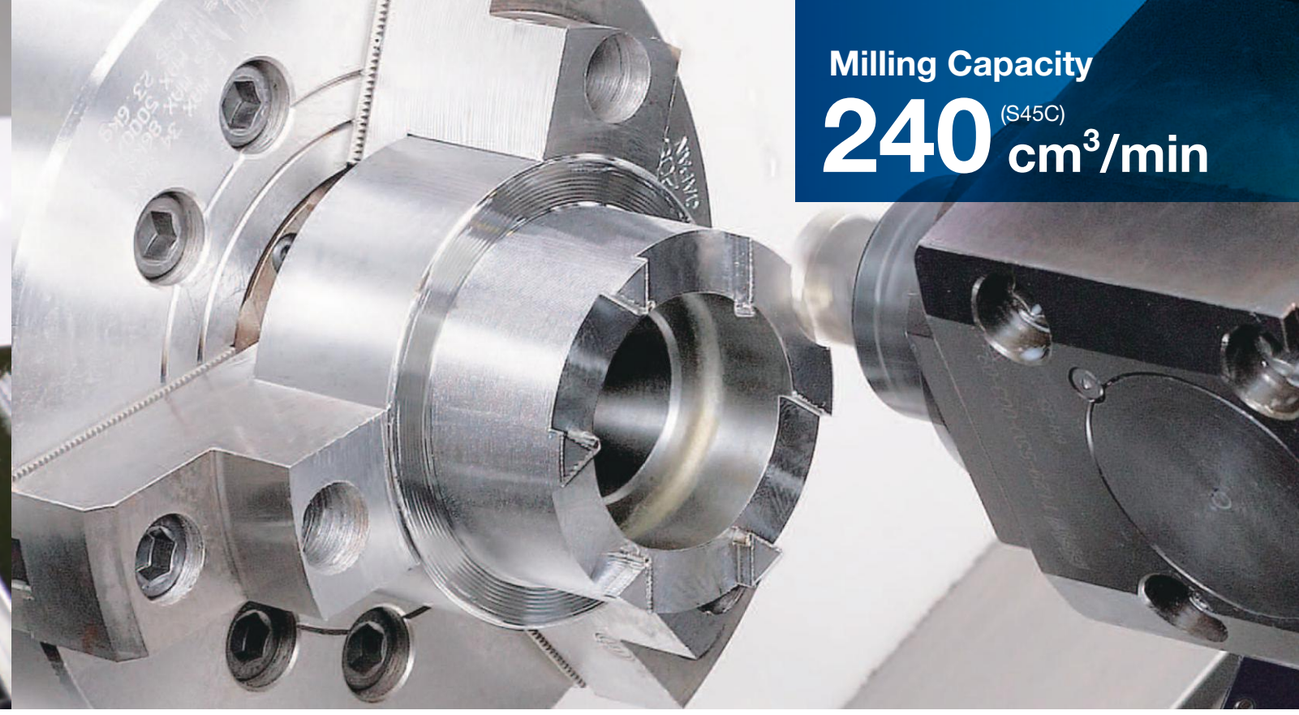
Outstanding operability achieved with CNC made by machine tool manufacturer

Wide array of intelligent technologies are powerful support for operator

MY specifications

Photos include optional specifications.





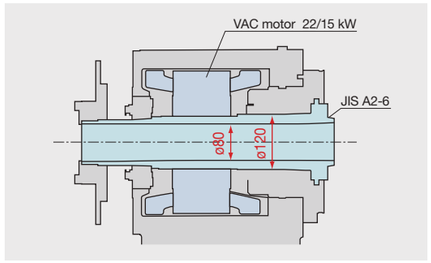
Global standard for 2-saddle simultaneous machining

Powerful turning, powerful milling

Powerful turning and milling produced by a highly rigid bed. Greater productivity for mass-produced parts achieved with a highly rigid structure that provided powerful simultaneous machining on the upper and lower turrets, where machining load is heavy for cast and forged parts.

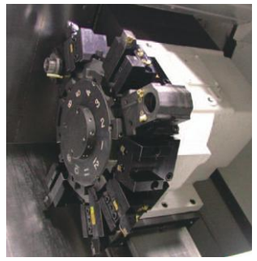
Highly rigid spindle

- Spindle bearing ID ø120 mm
- Through spindle bore ø80 mm



Quick and high-torqued milling tool spindle

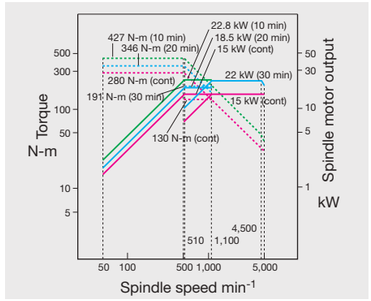
- M spindle speed 6,000 min⁻¹
- M spindle motor PREX 7.1/4.1 kW (25 min/cont)
- Output torque 40.4/23.4 N-m (25 min/cont)
- Milling tool dia Max ø20 mm



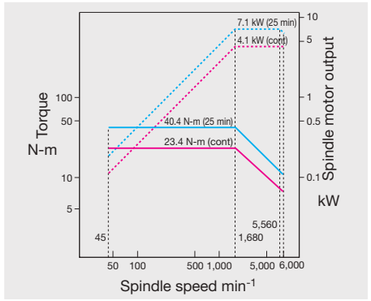
Turning spindle power/torque diagram

Standard specification

Spindle speed 5,000 min⁻¹
Motor output VAC 22/15 kW (30 min/cont)
Spindle torque 427/280 N-m (10 min/cont)



Milling tool spindle power/torque diagram



Shorter cycle time and flexible mass-production machining

Faster movement

High-speed rapid feedrates

- X axis 25 m/min
- Z axis 30 m/min

Machining Capacity (Actual data)

Turning

· Heavy-duty: 4.4 mm² (379 cm³/min)

- **OD** (S45C)

Cutting speed	150 m/min
Cutting depth	8 mm
Feed rate	0.55 mm/rev

- **ø63 carbide insert drill** (S45C)

Cutting speed	180 m/min
Feed rate	0.25 mm/rev

Milling

· Chip volume: 240 cm³/min

- **7-Flute, carbide, ø20-mm end mill** (S45C)

Cutting speed	200 m/min
Cutting depth	18 mm
Feed rate	1.4 mm/rev
Chip volume	240 cm³/min

- **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, environmental conditions during measurement, tooling, cutting, and other conditions.

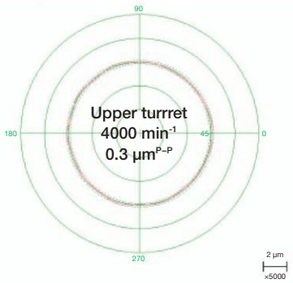
Wide working ranges for upper and lower turrets

Upper turret	X axis	260 mm
	Z axis	685 mm
Lower turret	X axis	160 mm
	Z axis	615 mm

Example of high accuracy machining (Actual data)

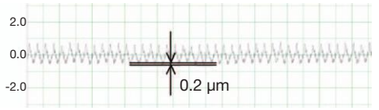
Roundness

- 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)

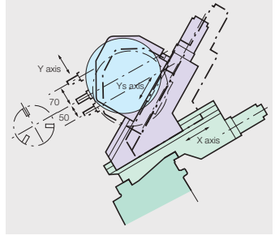


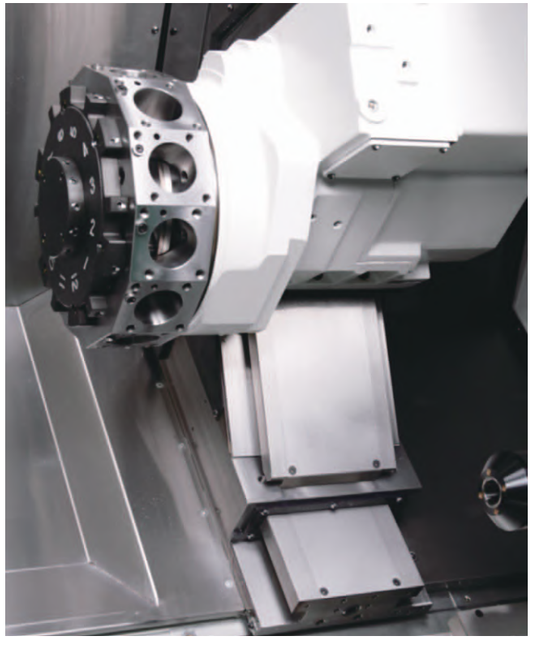
Wide range of machining

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

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

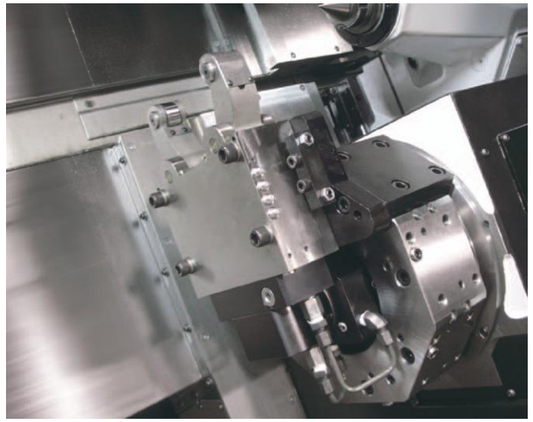
- Y-axis-travel 120 mm (+70 to -50)
- Y-axis rapid traverse 12.5 m/min (492 ipm)





Machining of long workpieces with steadyrest

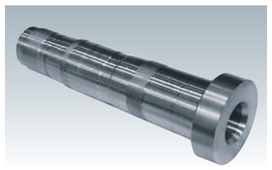
Steadyrest (optional) mounted on the lower turret supports workpieces. Long workpieces, workpieces with long extensions and the like can be machined without chatter.

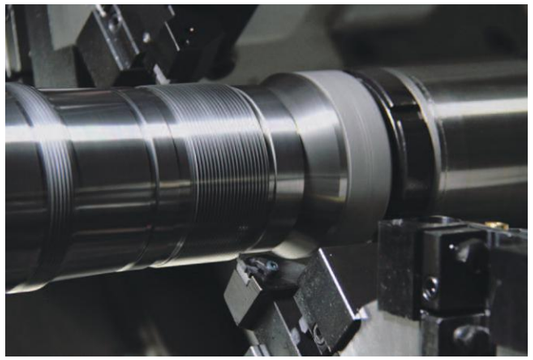


Simultaneous threading with upper and lower turrets

Simultaneous machining greatly reduces number of passes. Cycle time is significantly reduced.

- Part name : Spindle
- Material : SCM415H
- Size : ø145×465 mm
- Cycle time : 10 min 19 sec





The unique approach of "accepting temperature "changes."

Manageable Deformation—Accurately Controlled

Thermo-Friendly Concept

Thermo-Friendly Concept

Okuma's Thermo-Friendly is a structurally designed 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.

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.

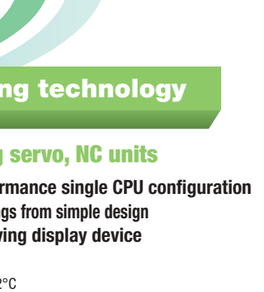
Machine start up
Machining restart
Room temp change

High dimensional stability

Simple machine construction
Machine designs that equalize ambient temperatures

Box slant bed

The innovative box slant bed gives you far more consistently higher accuracies than conventional lathes.



ECO² Friendly™ ECOLOGY & ECONOMY

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_2 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: 10 x 10 x H3 m ±2°C

Machine Specifications

Item		unit	LU3000 EX			LU3000 EX (M)		
			2ST	2SC × 600	2SC × 1000	2ST	2SC × 600	2SC × 1000
Capacity	Swing over bed	mm (in.)	ø580 (ø22.84)					
	Distance between centers	mm (in.)	–	600 (23.63)	1,000 (39.37)	–	600 (23.63)	1,000 (39.37)
	Max turning diameter	mm (in.)	ø410 (16.14)			ø340 (13.39)		
	Max work length	mm (in.)	350 (13.78)	600 (23.63)	1,000 (39.37)	350 (13.78)	600 (23.63)	1,000 (39.37)
Travels	X-axis	mm (in.)	U: 260 <+205 to -55> / L: 160 <+125 to -35> (U: 10.24 <+8.07 to –2.17> / L: 6.30 <+4.92 to –1.38>)			U: 260 <+170 to -90> / L: 160 <+110 to -50> (U: 10.24 <+6.70 to –3.55> / L: 6.30 <+4.33 to –1.97>)		
	Z-axis	mm (in.)	U: 685/L: 615 (U: 26.97/L: 24.22)		U: 1,085/L: 1,015 (U: 42.72/L: 39.96)	U: 685/L: 615 (U: 26.97/L: 24.22)		U: 1,085/L: 1,015 (U: 42.72/L: 39.96)
	Y-axis	mm (in.)	–					
	C-axis	mm (in.)	–			360° (0.001 unit)		
Spindle	Speed	min^{-1}	45 to 5,000 [42 to 4,200, 30 to 3,000]					
	Speed ranges		Infinity variable × 2 auto ranges					
	Spindle noze		JIS A2-6 [JIS A2-8, JIS A2-11]					
	Bore diameter	mm (in.)	ø80 [ø91, ø112] (ø3.15 [ø3.59, ø4.73])					
	Front bearing dia	mm (in.)	ø120 [ø140, ø160] (ø4.73 [ø5.52, 6.30])					
Turret	Type Upper		V12			Multitasking V12		
	Lower		V8					
	No. of tools		U: 12 / L: 8			U: 12 (L/M) / L: 8		
	OD tool shank height	mm (in.)	25 (1)					
	ID tool shank dia	mm (in.)	ø40 (ø1-1/2)					
	Turret index time	sec/1 index	0.1					
Milling tool spindle	Speed	min^{-1}	–			45 to 6,000		
Feedrates	Rapid traverse	m/min (ipm)	X: 25/Z: 30 (X: 984/Z: 1,181)			X: 25/Z: 30/C: 200 min^{-1} (X: 984/Z: 1,181)		
Tailstock	Quill diameter	mm (in.)	–	ø90 (ø3.55)		–	ø90 (ø3.55)	
	Quill bore taper		–	MT No.5		–	MT No.5	
	Quill travel	mm (in.)	–	120 (4.72)		–	120 (4.72)	
Motors	Spindle	kW (hp)	22/15 (30/20) (30 min/cont)					
	Milling tool	kW (hp)	–			7.1/4.1 (9.5/5.5) (25min/cont)		
	Axis drive	kW (hp)	XA: 2.8 (3.7) ZA: 3.5 (4.7) / XB: 2.2 (2.9) ZB: 3.5 (4.7)					
	Coolant pump	kW (hp)	0.85 (1.14)					
Machine size	Height	mm (in.)	2,080 (82)		2,229 (88)	2,080 (82)		2,229 (88)
	Floor space	mm (in.)	2,950 × 2,176 (116 × 86)		3,980×2,478 (156×98)	2,950 × 2,176 (116 × 86)		3,980×2,478 (156×98)
	Weight (w/ CNC)	kg (lb)	6,400 (14,080)	6,700 (14,740)	8,300 (18,260)	6,400 (14,080)	6,700 (14,740)	8,300 (18,260)
CNC system			OSP-P300L					

[ ] : Optional

Item		unit	LU3000 EX (MY)		
			2ST	2SC × 550	2SC × 950
Capacity	Swing over bed	mm (in.)	ø580 (ø22.84)		
	Distance between centers	mm (in.)	–	550 (21.65)	950 (37.40)
	Max turning diameter	mm (in.)	ø340 (13.39)		
	Max work length	mm (in.)	350 (13.78)	550 (21.65)	950 (37.40)
Travels	X-axis	mm (in.)	U: 260 <+170 to -90> / L: 160 <+110 to -50> (U: 10.24 <+6.70 to –3.55> / L: 6.30 <+4.33 to –1.97>)		
	Z-axis	mm (in.)	U: 630/L: 615 (U: 26.97/L: 24.22)		U: 1,030/L: 1,015 (U: 40.55/L: 39.96)
	Y-axis	mm (in.)	120 (+70 to -50)		
	C-axis	mm (in.)	360° (0.001 unit)		
Spindle	Speed	min^{-1}	45 to 5,000 [42 to 4,200, 30 to 3,000]		
	Speed ranges		Infinity variable × 2 auto ranges		
	Spindle noze		JIS A2-6 [JIS A2-8, JIS A2-11]		
	Bore diameter	mm (in.)	ø80 [ø91, ø112] (ø3.15 [ø3.59, ø4.73])		
	Front bearing dia	mm (in.)	ø120 [ø140, ø160] (ø4.73 [ø5.52, 6.30])		
Turret	Type Upper		Multitasking V12		
	Lower		V8		
	No. of tools		U: 12 (L/M) / L: 8		
	OD tool shank height	mm (in.)	25 (1)		
	ID tool shank dia	mm (in.)	ø40 (ø1-1/2)		
	Turret index time	sec/1 index	0.1		
Milling tool spindle	Speed	min^{-1}	45 to 6,000		
Feedrates	Rapid traverse	m/min (ipm)	X: 25/Z: 30/Y: 12.5/C: 200 min^{-1} (X: 984/Z: 1,181/Y: 492)		
Tailstock	Quill diameter	mm (in.)	–	ø90 (ø3.55)	
	Quill bore taper		–	MT No.5	
	Quill travel	mm (in.)	–	120 (4.72)	
Motors	Spindle	kW (hp)	22/15 (30/20) (30 min/cont)		
	Milling tool	kW (hp)	7.1/4.1 (9.5/5.5) (25min/cont)		
	Axis drive	kW (hp)	XA: 2.8 (3.7), ZA: 3.5 (4.7) / XB: 2.2 (2.9), ZB: 3.5 (4.7), YS: 3.5 (4.7)		
	Coolant pump	kW (hp)	0.85 (1.14)		
Machine size	Height	mm (in.)	2,507 (99)		2,677 (105)
	Floor space	mm (in.)	2,950 × 2,176 (116 × 86)		3,980 x 2,478 (157 x 98)
	Weight (w/ CNC)	kg (lb)	7,000 (15,430)	7,300 (16,090)	8,800 (19,400)
CNC system			OSP-P300L		

Standard Specification

	LU3000 EX		LU3000 EX (M/MY)	
	2ST	2SC	2ST	2SC
Spindle				
JIS A2-6 45 to 5,000 min^{-1}		●		
VAC integral 22/15 kW (30 min/cont)		●		
Turret				
Upper V12 + lower V8	●		—	
Upper multitasking V12 + lower V8	—		●	
Milling tool spindle				
45 to 6,000 min^{-1}	—		●	
PREX 7.1/4.1 kW (25 min/cont)	—		●	
Tailstock				
Dead hydraulic MT No. 5	—	●	—	●
Manual tow-along	—	●	—	●
Accessories				
Hydraulic unit		●		
Coolant system		●		
Full-enclosure shielding		●		
Work lamp		●		
Chuck foot switch		●		
Tailstock sleeve foot switch	—	●	—	●
Lubrication monitor		●		
CNC	OSP-P300L			

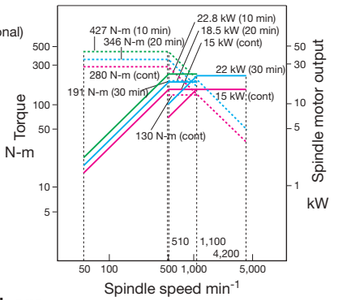
Chucking Kit

	LU3000 EX (M) 2ST/2SC				
	A	B	C	D	E
N-08 Kit A Solid 8 in.	1	—	—	—	—
N-08 Kit B Solid 8 in.	—	1	—	—	—
B-208 Kit C Solid 8 in., hole diameter ø52	—	—	1	—	—
B-210 Kit D Solid 10 in., hole diameter ø70	—	—	—	1	—
BB208 Solid 8 in., for big bore spindle, E hole diameter ø66	—	—	—	—	1
Standard soft jaws, A	—	5	5	5	5
Standard soft jaws, B	—	3	3	3	3
Standard hard jaws	—	1	1	1	1

Spindle torque/ output diagram (Optional)

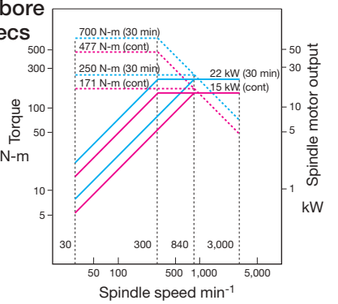
Big-bore spindle (optional)

- Spindle speed 4,200 min^{-1}
- Spindle motor VAC 22/15 kW (30 min/cont)
- Output torque 427/280 N-m (10 min/cont)



Super big-bore spindle specs (optional)

- Spindle speed 3,000 min^{-1}
- Spindle motor PREX 22/15 kW (30 min/cont)
- Output torque 700/477 N-m (30 min/cont)



Optional Equipment & Accessories

Big-bore spindle	JIS A2-8 42 to 4,200 min^{-1}
	Front bearing dia ø140 / spindle bore dia. ø91
Super big-bore spindle	JIS A2-11 30 to 3,000min^{-1}
	Front bearing dia ø160 / spindle bore dia. ø112
Hydraulic tailstock	
Programmable tailstock	
Chucking kit	Solid/hollow hydraulic power chuck, soft jaws
Tooling kit	Various toolholders
Chip discharge	Chip pan
	Chip conveyor (side discharge/rear discharge)
	Chip bucket
Touch setter	M (manual), A (auto)
Steadyrest	
Automation	On-machine loader, gantry loader
	Robots, bar feeders
Front cover	Auto open/close (safety tape SW, area sensor)
	Two-hand cycle start button
For chucking	Chuck auto open/close confirm
	Chucking miss detection (main)
	Chuck high/low pressure switch with reclamping (main)
For tailstock	Tailstock travel 230 mm
	Tailstock quill auto advance/retract confirm, tailstock thrust high/low switch
	Low tailstock thrust, tailstock quill position detection
	2-speed tailstock quill
For air blower	Chuck, tailstock
	Upper turret (internal piping, common coolant nozzle)
	Lower turret (common coolant nozzle)
	Upper/lower turret air blower outlet control (simultaneous, independent)
For coolant blower	Shower coolant (A, B), coolant gun
	In-machine chip washer (A, B)
	Spindle ID coolant (main, A, B)
Dust proofing	Spindle air purging, X-axis double wiper (Xa)
	Z-axis double wiper (Za + Zb)
In-process work gauging	
Workrest	
Stopper in spindle	
Chuck internal sizing stopper	
Coolant	Upper/lower turret air blower outlet control (independent)
	Coolant high/low switch (upper, lower)
	Coolant sensors (level sensor, flow sensor, level + flow sensors)
Face plate	ø200, ø250, ø300
Mist collector	
Parts catcher	
Optional high-accuracy specifications	Turcite® lining (Xa axis, Za axis, Zb axis)
	AbsoScale (Xa axis, Za axis, Xb axis)
	Coolant temperature regulator, spindle temperature regulator
	Hydraulic oil temperature regulator
Front door with large window	

Front door with large window

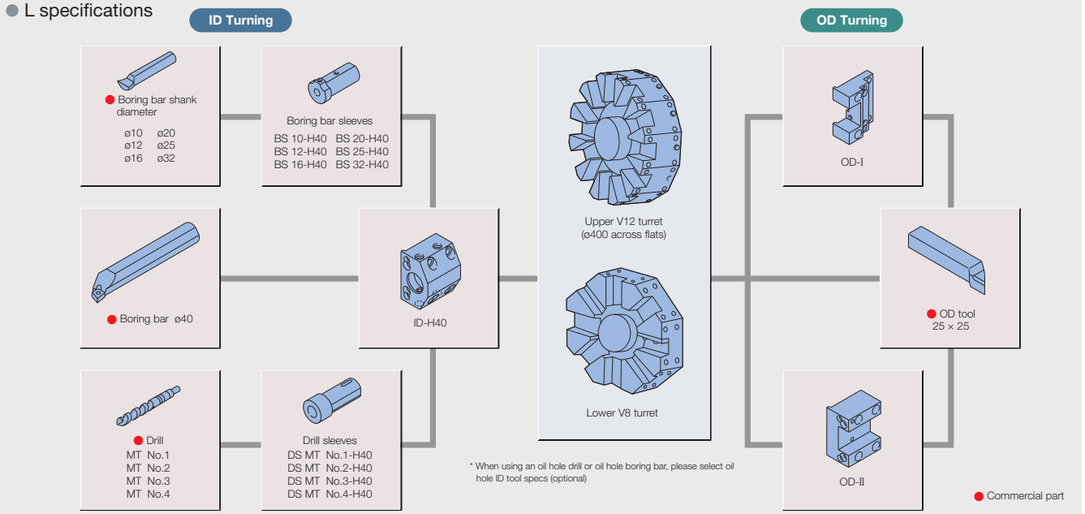
Tooling Kit

	LU3000 EX				LU3000 EX (M)			
	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

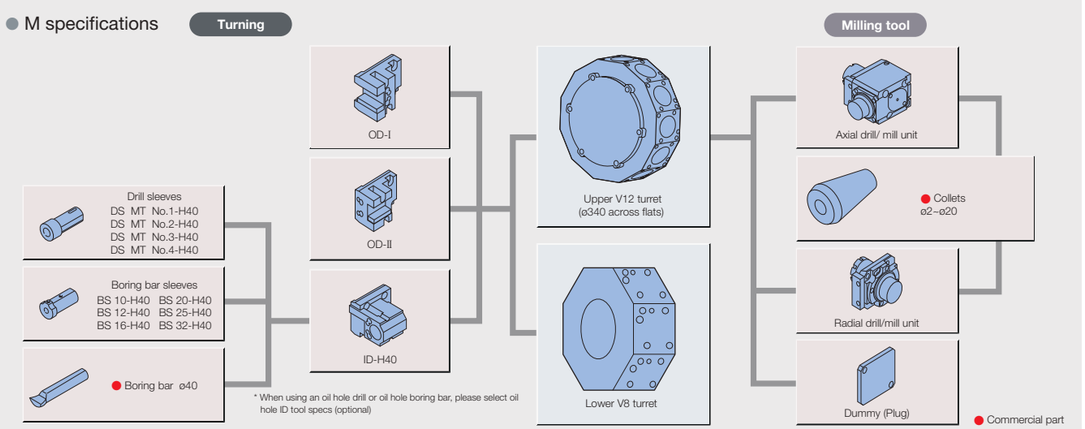
E Kit: Economy
D Kit: Deluxe

Tooling System

● L specifications

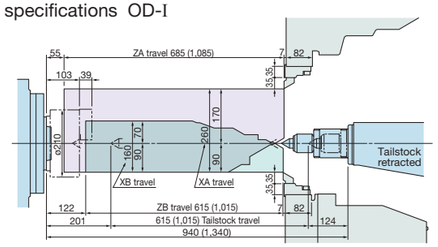


● M specifications



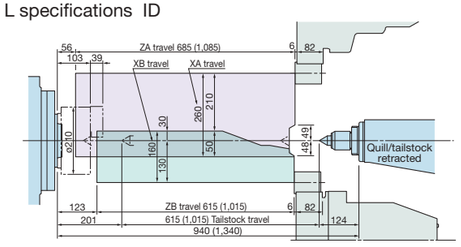
Working Ranges

● L specifications OD-I



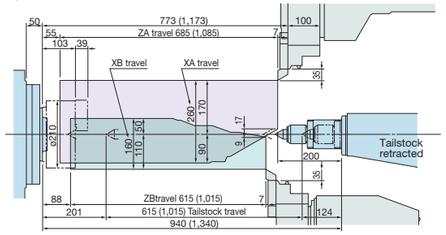
( ): Distance between centers 1,000.

● L specifications ID



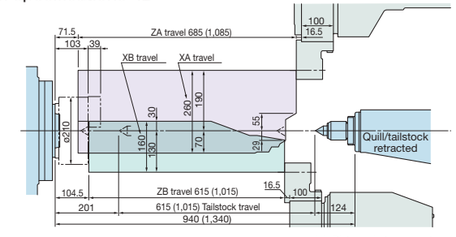
( ): Distance between centers 1,000.

● M specifications OD-I



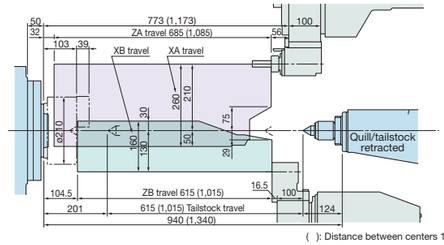
( ): Distance between centers 1,000.

● M specifications ID



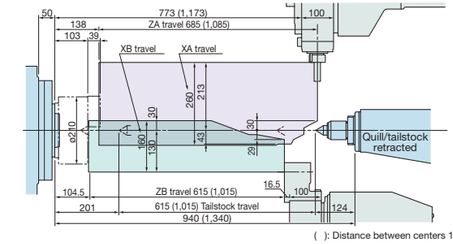
( ): Distance between centers 1,000.

● M specifications Axial drill/mill unit



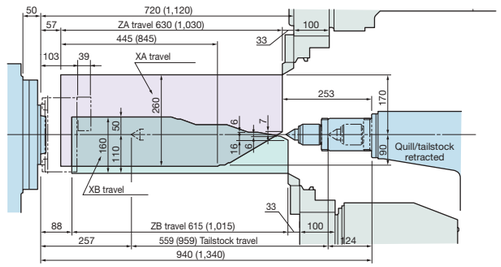
( ): Distance between centers 1,000.

● M specifications Radial drill/mill unit



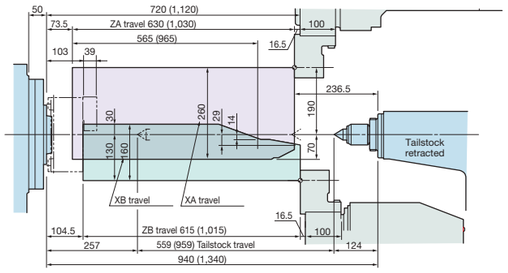
( ): Distance between centers 1,000.

● MY specifications OD-I



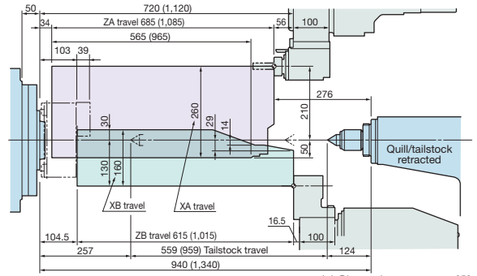
( ): Distance between centers 950.

● MY specifications ID



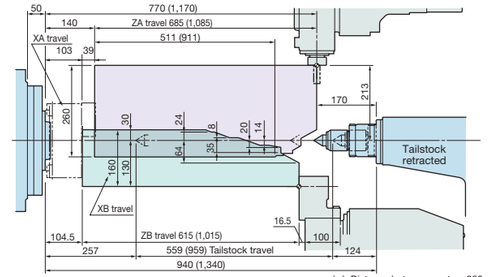
( ): Distance between centers 950.

● MY specifications Axial drill/mill unit Y=0



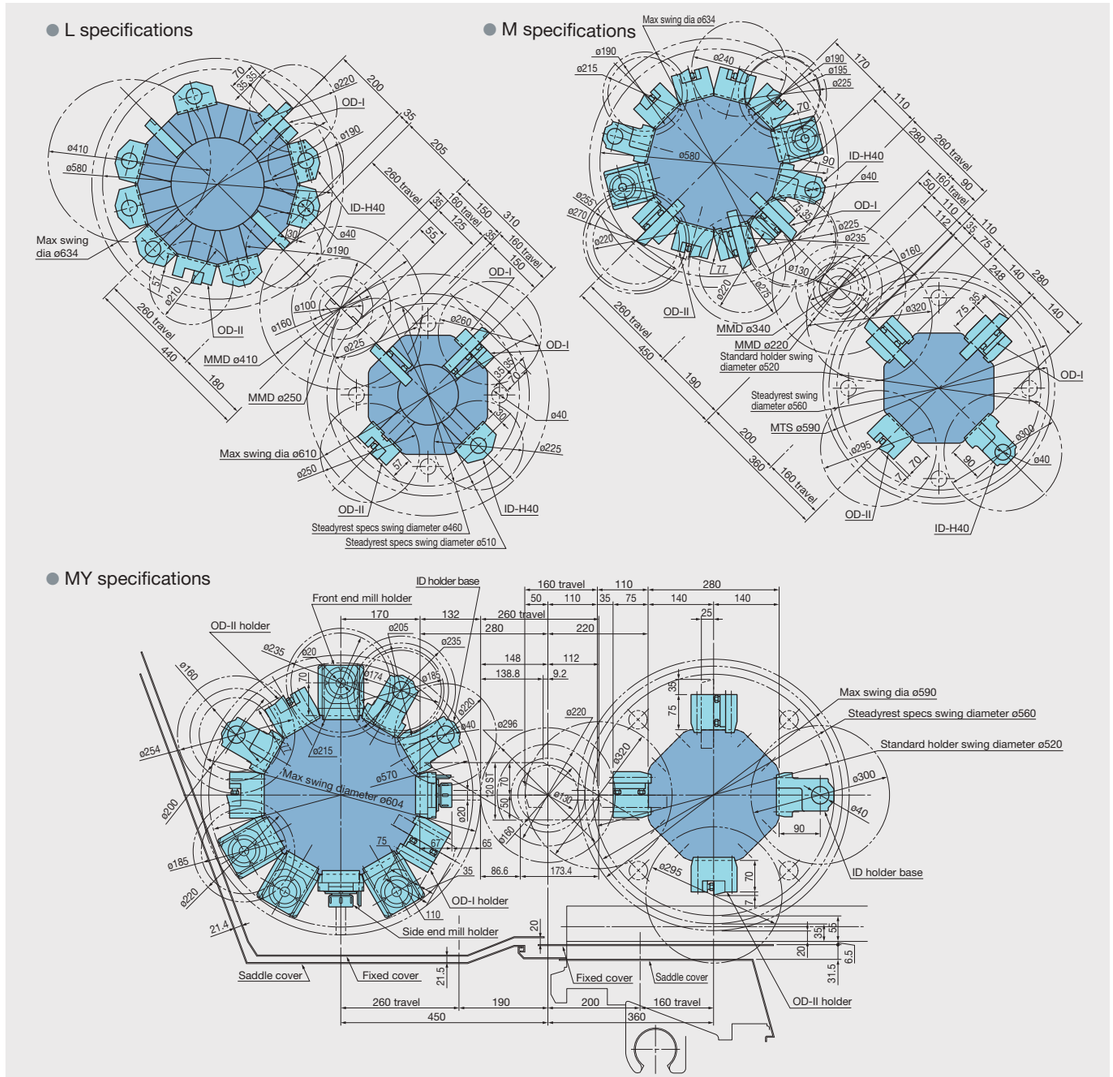
( ): Distance between centers 950.

● MY specifications Radial drill/mill unit Y=0



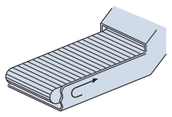
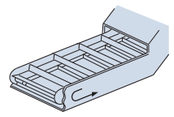
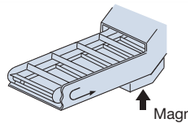
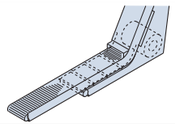
( ): Distance between centers 950.

Turret interference diagrams



Recommended Chip Conveyors

Chip conveyor: typical shapes and applications

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

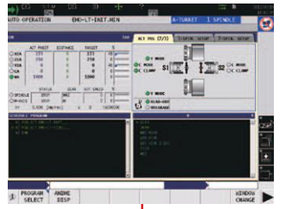
Note: Machine platform may be necessary depending on the type of conveyor.

Okuma Control OSP-P300L

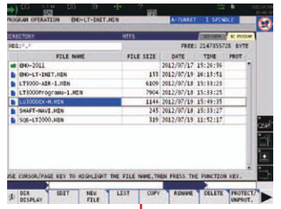
Satisfaction from complete control of a machine tool

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.

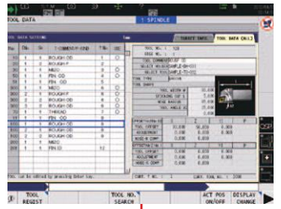
■ Setup operations
■ Trial/continuous cuts



■ Programming



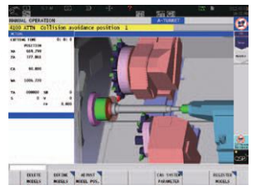
■ Tool preparations



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.

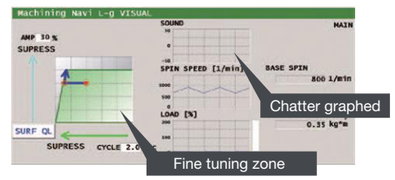


Virtual machine (collision check)

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
	Position feedback	OSP full range absolute position feedback (zero point return not required)
	Min / Max inputs	8-digit decimal, ±99999.999 ~0.001 mm (±3937.0078~0.0001 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 50~200% 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	Easy Operation	“Single-mode operation” to complete a series of operations Advanced operation panel/graphics facilitate smooth machine control
	Programing	Program management, edit, multitasking, scheduled programs, fixed cycles, special fixed cycles, tool nose R compensation, M-spindle synchronized tapping, fixed drilling cycles, arithmetic functions, logic statements, trig functions, variables, branch statements, auto programming (LAP4), programming help
	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, spindle orientation (electric)
	MacMan	Machining Management: machining results, machine utilization, fault data compile & report, external output
Communications/Networks		USB ports, Ethernet, RS232C interface (1 channel)
High speed/accuracy		Hi-G control, TAS-C (Thermal Active Stabilizer–Construction) (MY specifications only)

Optional Specifications

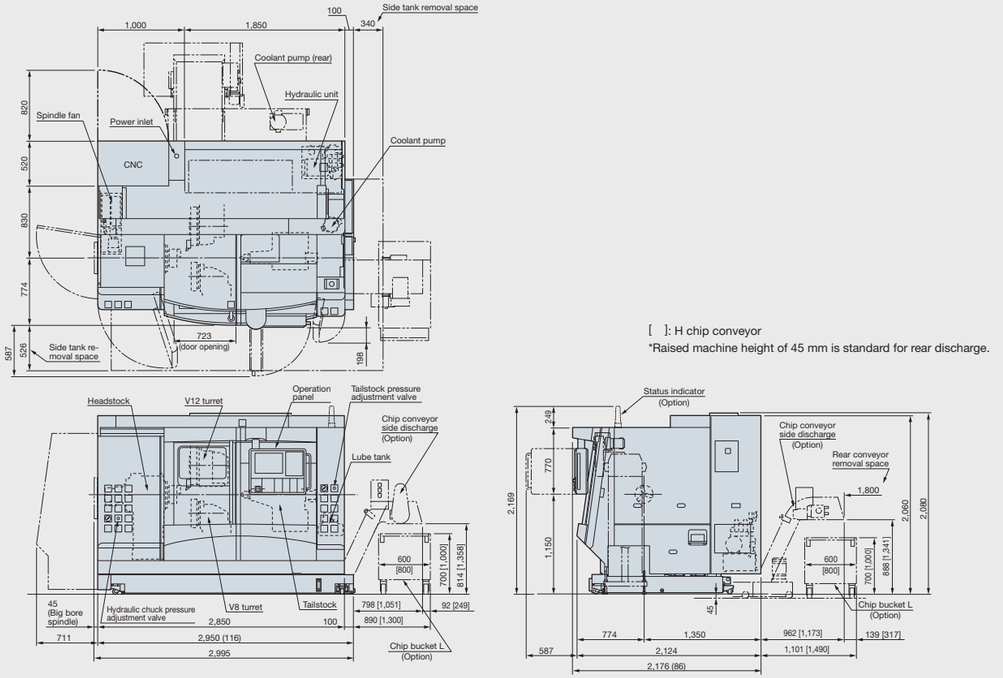
Item	Kit specs*1	NML E	NML D	3D E	3D D	OT-IGF E	OT-IGF D	OTM E	OTM D
New Operations									
Advanced One-Touch IGF-L *2						●	●		
Advanced One-Touch IGF-L Multitasking *2								●	●
Programming									
Circular threading			●		●		●		●
Program notes			●		●		●		●
User task 2 I/O variables, 8 each									
Work coordinate system select	10 sets								
	50 sets								
	100 sets								
Tool compensation (Std: 32 sets)	Tool compensation 64 sets								
	Tool compensation 96 sets								
	Tool compensation 200 sets								
	Tool compensation 999 sets								
Common variables 1,000 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								
	3-dimensional coordinate conversion								
Helical cutting (within 360 degrees)									
Monitoring									
Real 3-D simulation				●	●	●	●	●	●
Cycle time over check		●	●	●	●	●	●	●	●
Load monitor (spindle, feed axis)				●	●	●	●	●	●
Load monitor no-load detection (load monitor ordered)									
Tool life management			●		●		●		●
Tool life warning									
Operation end buzzer									
Chucking miss detection		Included in machine specs							
Work counters	Count only								
	Cycle stop								
	Start disabled								
Hour meters	Power ON								
	Spindle rotation								
	NC operating								
NC operation monitor (counter, totaling)		●	●	●	●	●	●	●	●
NC work counter (stops at full count with alarm)									
Status indicator (triple lamp) Type C [Type A, Type B]		●	●	●	●	●	●	●	●
Measuring									
In-process work gauging		Included in machine specs							
Z-axis automatic zero offset by touch sensor									
C-axis automatic zero offset by touch sensor									
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]		Included in machine specs							

Item	Kit specs*1	NML E	NML D	3D E	3D D	OT-IGF E	OT-IGF D	OTM E	OTM D
External Input/Output and Communication Functions									
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								
Automation/Untended Operation									
Auto power shutoff MO2, alarm									
Warmup function (by calendar timer)									
Tool retract cycle									
External program selections	A (pushbutton) 8 types								
	B (rotary switch) 8 types								
	C (digital switch) BCD, 2-digit								
	C2 (external input) BCD, 4-digit								
Okuma loader (OGL) interface		Including loader specs							
Third party robot and loader interface *3	Type B (machine)								
	Type C (robot and loader)								
	Type D								
	Type E								
Bar feeders	Bar feeder	Included in machine specs							
	Interface only								
Cycle time reduction *3	Operation time reduction	●	●	●	●	●	●	●	●
	Chuck open/close during spindle rotation								
	Tailstock advance/retract during spindle lotation								
High-Speed/High-Accuracy Functions									
0.1µm control *3									
Pitch error compensation									
AbsoScale detection *3									
Hi-Cut Pro		▲	▲	▲	▲			●	●
Other Functions									
Collision Avoidance System (CAS)									
One-Touch Spreadsheet									
Machining Navi L-*g*									
Variable spindle speed control (VSSC)		●	●	●	●	●	●	●	●
Spindle dead-slow cutting									
Spindle speed setting									
Spindle S command 0.1 min^{-1}									
Manual cutting feed									
Spindle power peak cutting									
Short circuit breaker									
External M signals [2 sets, 4 sets, 8 sets, ( )]									
Edit interlock									

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

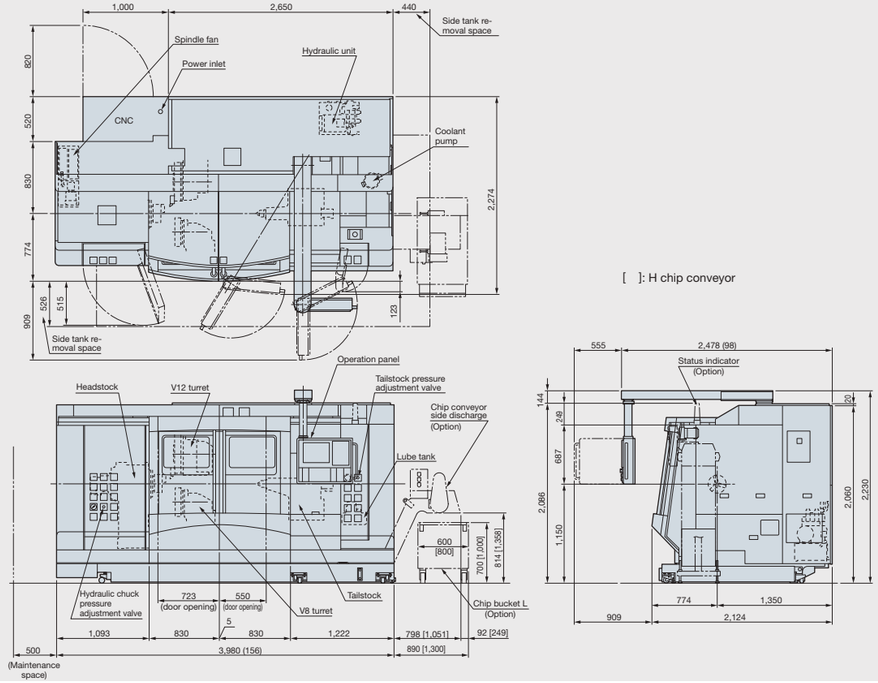
Dimensional / Installation Drawings

L·M specifications (distance between centers 600)



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

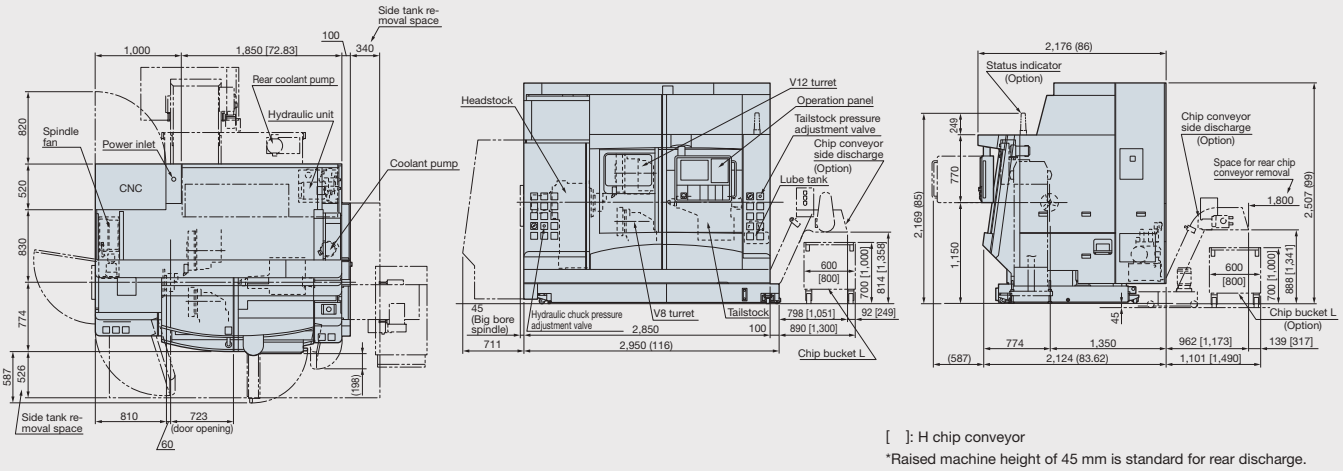
L·M specifications (distance between centers 1000)



[ ]: H chip conveyor

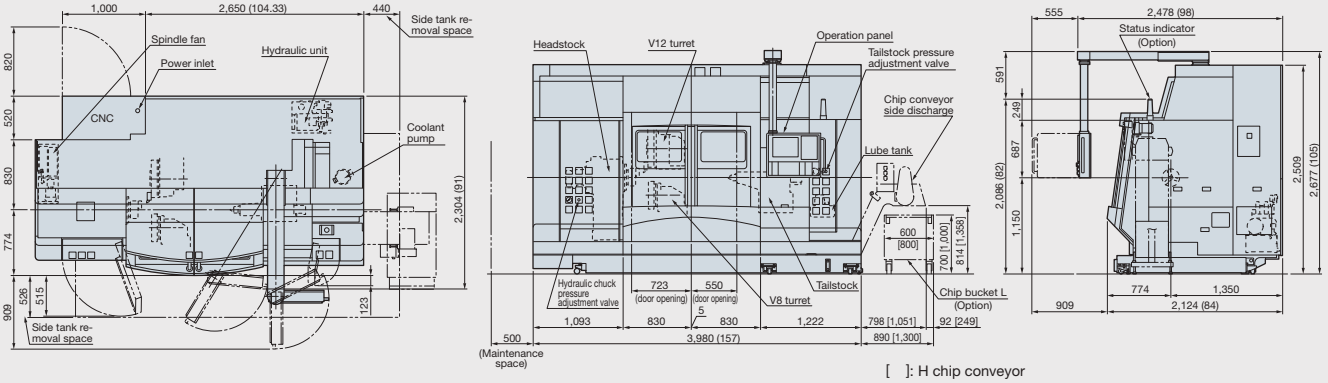
Dimensional / Installation Drawings

MY specifications (distance between centers 550)



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

MY specifications (distance between centers 950)



[ ]: H chip conveyor

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