OKUMA

OPEN POSSIBILITIES

LB45III

1-Saddle CNC Lathe

LB45Ⅲ

1-Saddle CNC Lathe

Green-Smart Machine
Powered by Intelligent Technology

Produce more with heavy-duty turn/mill operations! Large, 1-saddle CNC lathe meet the demands of the times

A 1-saddle CNC lathe for medium and large size workpiece machining, with uncompromising speed, accuracy, and power.
The LB series has improved every aspect of performance. As a large model within this series, the LB45Ⅲ has inherited this performance and further developed and expanded it.

LB45Ⅲ DBC 1000

Number of doors differs depending on DBC.
Photographs and images used in this brochure may include optional equipment.

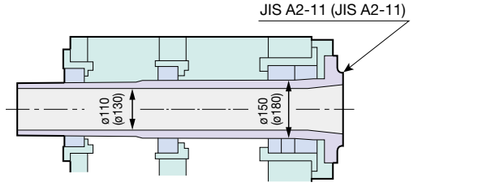
High productivity

Stable, powerful cutting realized by a highly rigid spindle

High-output, high-rigidity spindle and motor with fast machine movements

Rigid spindle for fast, heavy-duty turning

- 3-point bearing support for steady, powerful cutting (double-row cylindrical roller bearings plus highspeed duplex angular contact ball bearings)
- Housing cooled for minimal thermal deformation
- Unique labyrinth construction keeps coolant from penetrating spindle bearings



( ) Big-Bore spindle

Wide-range, full power cutting

Full-power cutting over a wide range—from low to high speed ranges—is possible with gear shift system

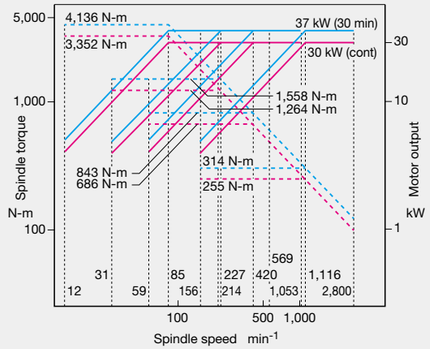
■ Turning spindle

4 auto ranges (4 gears)

Spindle speed 2,800 min^{-1}

Max output 37/30 kW (30 min/cont)

Max torque 4,136/3,352 N-m (30 min/cont)



* See pages 13 and 14 for options.

High-speed, high-accuracy C-axis headstock

- Direct C-axis control with VAC motor
  X/Z-axis generation is possible
- Quick rapids/positioning: Max 100 min^{-1}
- C-axis geometric accuracies (ex):
  Indexing: M specs: ±0.015°
  Repeatability: M specs: ±0.007°

Faster machine movement reduces non-cutting time

- Fast turret rotation of 0.7 sec/1 index
  Rotation speed is also unaffected by unbalanced tooling
- Further reduction in non-cutting time with high-speed rapid traverse of X-axis: 15 m/min, Z-axis: 20 m/min
  Uses backlash-free, direct drive mechanism on X-axis

Powerful clamping to match heavy-duty turning

- Big coupling (ø460) for powerful hydraulic clamping on turret
- Large turret but minimal interference (700 mm across flats) in L specs
- NC turret with servo motor drive

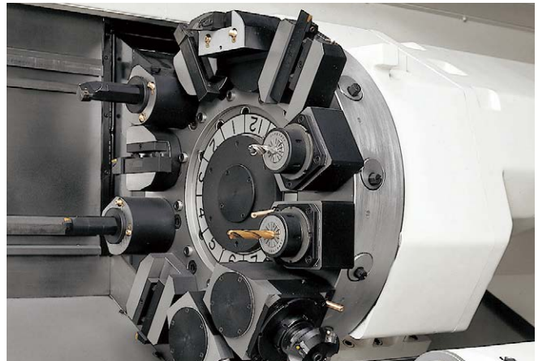
Higher production efficiency with a multitasking turret

Multitasking V12 turret gives rise to highly efficient machining

L (lathe) and M (milling) tools can be mounted in all stations

VDI turret: M specs

- Quick change tooling system used



Radial turret: M specs, MY specs

- Powerful milling with high power, high torque motor

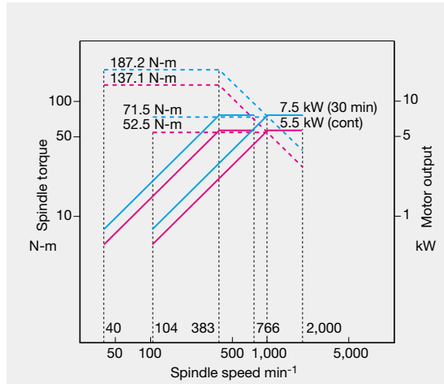
High speed, high power milling tool spindle

■ Milling tool spindle (VDI turret: M specs)

Spindle speed 2,000 min^{-1}

Max output 7.5/5.5 kW (30 min/cont)

Max torque 187.2/71.5 N-m (30 min/cont)

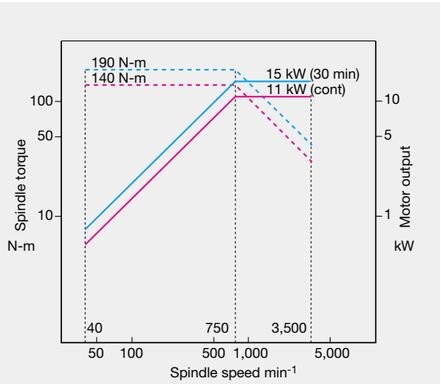


■ Milling tool spindle (Radial turret: M specs, MY specs)

Spindle speed 3,500 min^{-1}

Max output 15/11 kW (30 min/cont)

Max torque 190/140 N-m (30 min/cont)



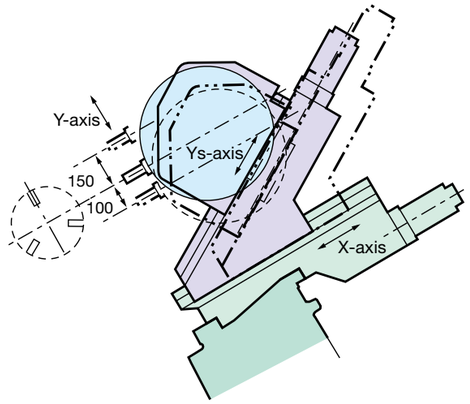
High productivity

Improved productivity through versatile process integration and ease of use

Wide-range of variations and greatest ease of use

Process-intensive machining with the Y-axis 1-chuck machining even with complex-shaped workpieces (MY specs)

- A wide range of milling based on highly precise, wide-ranging Y-axis travel with a double slide system
- Achieves process-intensive machining with 1-chucking



The best tailstock with built-in center for machining shafts

- Highly-rigid built-in center (standard);
  Quill diameter: ø130 mm
  Built-in tailstock MT No. 5

Superior chip discharge and maintainability

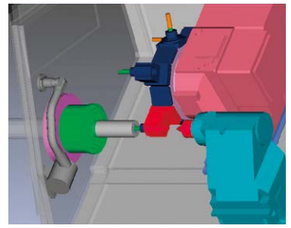
- Large outlet directly beneath chuck and a saddle cover with good chip flow
- Sealed cover construction including tailstock guideway
- NC Torqur Limiter on servos minimizes any damage from possible operator error and makes it easy to resume processing.
- All ordinary maintenance points located at the front of the machine: chuck pressure adjustment, tailstock pressure adjustment, way lubrication etc.

Okuma's advanced technologies deliver real results on the production sites

"Concentrate on machining" without collision worries

Collision Avoidance System option
Collision prevention

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.

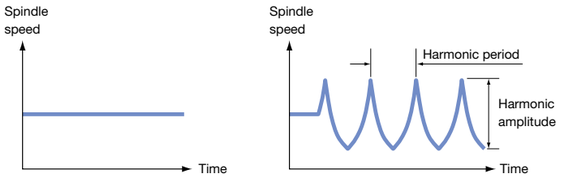
Collision avoidance in manual operation

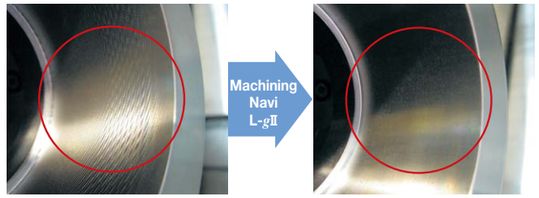
Especially useful for machine operators setting up a job, collision avoidance in manual mode provides collision-free confidence and faster machining preparations.

Chatter-free applications for lathes

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.

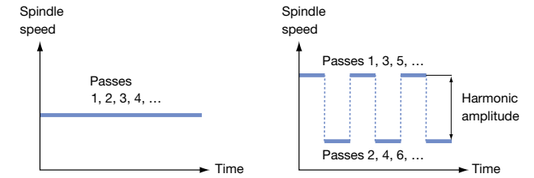


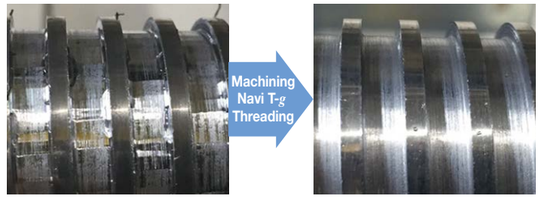


Threading chatter can be easily controlled by anyone

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 marks　Smooth surface

High accuracy Stable accuracy reduces the burden of dimensional control

Exceptional dimensional stability enables high-precision large-workpiece machining

Thermo-Friendly Concept
Manageable Deformation—Accurately Controlled

Okuma's "Thermo-Friendly Concept" enables remarkable machining accuracy through original structural design and thermal deformation control technology. Free from troublesome dimensional compensation and warm-up, it exhibits excellent dimensional stability even during consecutive operation over long periods and environmental temperature change in the plant.

Eliminate waste with the Thermo-Friendly Concept

In addition to maintaining high dimensional accuracy when room temperature changes, Okuma's Thermo-Friendly Concept provides high dimensional accuracy during machine startup and machining restart.
To stabilize thermal deformation, warming-up time is shortened and the burden of dimensional correction during machining restart is reduced.

Machine startup
Machining restart
Room temp change
High dimensional stability

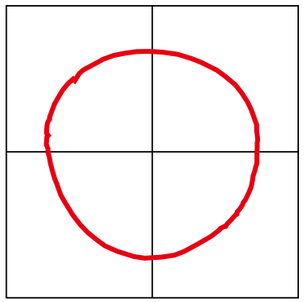
TAS-C
Thermo Active Stabilizer – Construction

The machine is optimally controlled and machining accuracy is maintained when the ambient temperature changes.

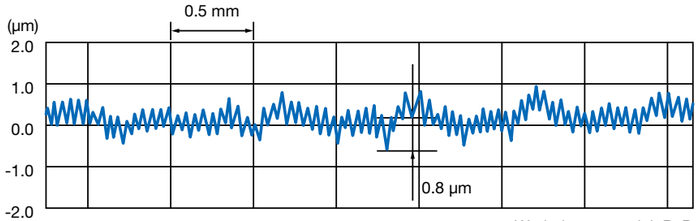
Machining accuracy

LB45Ⅲ actual data

Roundness
ø0.9 μm/2,000 min^{-1}



Surface roughness (tip uniformity)
ø0.8 μm/2,000 min^{-1}



Workpiece material: BsB

Labor-saving Labor-saving solutions to address labor shortages

Various solutions provided that reduce operator workload

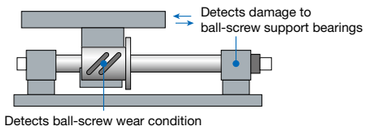
With predictive maintenance, prevent machine stoppages just in time

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

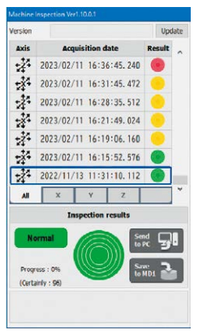
Machine tool self-diagnosis technology "AI machine diagnosis function" can detect signs of failure. Machine downtime can be reduced by preventing machine shutdown. The OSP-AI installed in the CNC identifies the presence or absence of any abnormality in the feed axis and the location of the abnormality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

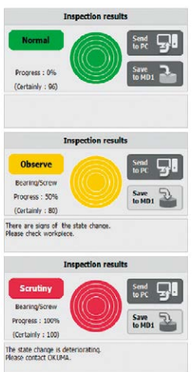
Execute diagnostic tests from the screen guidelines



Diagnosis by OSP-AI



Diagnostic results per lamp color

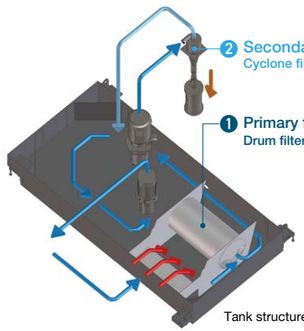


Coolant maintenance work is significantly reduced

The environmental impact of coolant disposal is also minimized

Sludgeless Tank option

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.



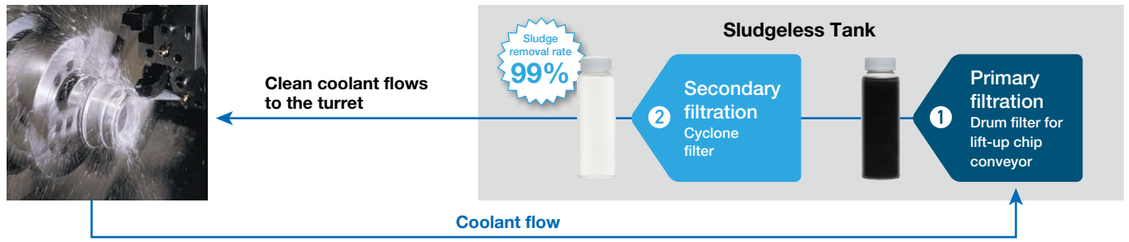
Tank structures vary by model or specification.

Sludge removal rate
99% (when the material is casting and aluminum)
Note: After secondary filtration (cyclone filter) permeation Note: 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.



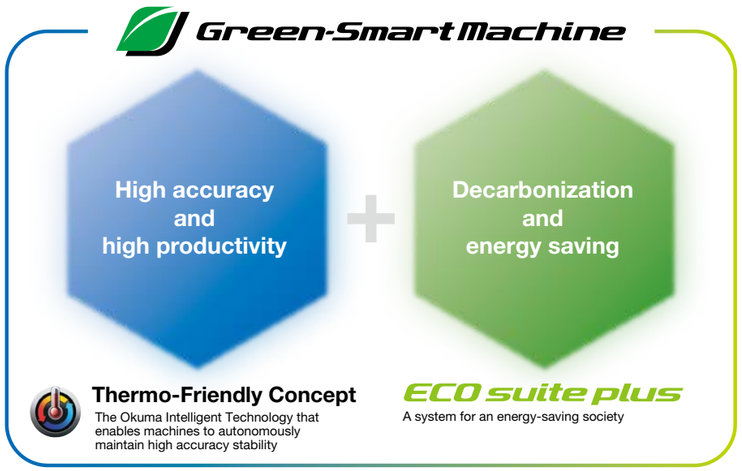
Energy-saving technology

Contributing to the realization of a decarbonized society by achieving high productivity and high precision, together with environmental friendliness

Highly accurate, productive 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.



Thermo-Friendly Concept

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

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

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.

Reduction of machine body coolers

Achieve outstanding dimensional accuracy without any special machine body cooling being required to maintain accuracy.

ECO suite plus A system for an energy-saving society

The “ECO suite plus” retains the concept of achieving both high machining accuracy stability and energy savings (less carbon dioxide emissions) achieved by the Thermo-Friendly Concept and the “ECO suite” that was put into practical use in 2014. It is an energy-saving system with enhanced high-accuracy/-productive functionality and advanced eco-friendly support.

Actively turn off unnecessary peripherals

ECO Idling Stop

All auxiliary equipment when not needed (most of factory power consumption), can be turned off. The ECO Idling Stop button enables diligent idle stop operations even during machining and maintenance work. With ECO suite plus, the machine automatically detects the operating status, eliminating the need to push buttons while reducing carbon dioxide emission as much as possible without operator awareness.

Peripheral equipment runs only when needed

ECO Operation

By using only the required peripherals (chip conveyor, mist collector), energy-saving operations that also maintain high productivity are possible.
ECO suite plus enables more detailed tuning of operations to thoroughly support carbon dioxide emission reduction activities that do not reduce productivity.

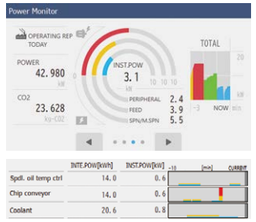
Confirming energy savings and analyzing reductions

ECO Power Monitor

Making it possible for the OSP control to analyze the operating status of each device.
The decarbonization cycle on the shop floor is supported through the three phases, 1. View, 2. Record, and 3. Analyze.

1 Check carbon dioxide emissions on the spot

With ECO suite plus, you can also check the power consumption of each device.



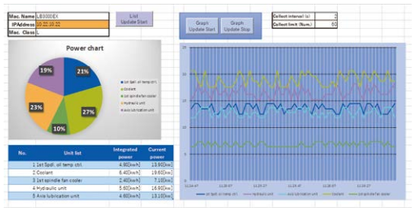
2 Simultaneously records operating status and carbon dioxide emissions

With ECO suite plus, recording carbon dioxide emissions for each device, and data output is possible.

3 Analyze carbon dioxide emissions and improve machine tool operation

With ECO suite plus, not only the display on the machine but data analysis for each device is also possible on a PC, to see a more detailed carbon dioxide emission analysis.

Example of utilizing One-Touch Spreadsheet (option) to creative visual feedback of machine’s power consumption and carbon dioxide emissions.



Machine Specifications

			LB45Ⅲ (L)				
			T	C × 1000	C × 2000	C × 3000	C × 4000
Capacity	Swing over bed	mm (in)	ø900 (35.43)				
	Swing over carriage	mm (in)	ø550 (21.65)				
	Distance between centers	mm (in)	–	1,060 (41.73)	2,060 (81.10)	3,060 (120.47)	4,060 (159.84)
	Max turning dia	mm (in)	ø660 (25.98)				
	Max turning length	mm (in)	750 (29.53)	1,000 (39.37)	2,000 (78.74)	3,000 (118.11)	4,000 (157.48)
Travels	X-axis	mm (in)	440 {330+110} (17.32 {12.99 + 4.33})				
	Z-axis	mm (in)	1,060 (41.73)		2,060 (81.10)	3,060 (120.47)	4,060 (159.84)
	Y-axis	mm (in)	–				
	C-axis	deg	–				
Spindle	Speed	min^{-1}	12 to 2,800 [{10 to 2,400} <31 to 900>]				
	Speed ranges		4 auto ranges (4 gears) [{4 auto ranges (4 gears)} <Infinitely variable>]				
	Spindle nose		JIS A2-11 [{JIS A2-11} <JIS A2-20>]				
	Bore dia	mm (in)	ø110 [{ø130} <ø260>] (4.33 [{5.12} <10.24>])				
	Front bearing dia	mm (in)	ø150 [{ø180} <ø320>] (5.91 [{7.09} <12.60>])				
Turret	Type		V12 turret (lining)				
	No. of tools		12				
	OD tool shank height	mm (in)	32 × 32 (1-1/4)				
	ID tool shank dia	mm (in)	ø63 (2-1/2)				
	Turret index time	sec/1 index	0.7				
Milling Tool	Spindle speed	min^{-1}	–				
	Speed range		–				
Feed rates	Rapid traverse	mm/min (ipm)	X: 15 (0.59) Z: 20 (0.79)				
Tailstock	Quill dia	mm (in)	–	ø130 (5.12)			
	Quill bore taper		–	MT No. 5 (built-in center)			
	Quill travel	mm (in)	–	170 (6.69)			
Motors	Spindle (30 min/cont)	kW (hp)	37/30, [45/37*1 {37/30, 45/37*1}, <45/37>] (50/40, [60/50*1 {50/40, 60/50*1}, <60/50>])				
	Milling tool spindle (30 min/cont)	kW (hp)	–				
	Axis drive	kW (hp)	X: 3.6 (4.8) Z: 4.6 (6.1)				
	Coolant pump	kW (hp)	0.4 (0.53)				
Machine Size	Height	mm (in)	2,602 (102.44)		2,632 (103.62)	2,584 (101.73)	2,668 (105.04)
	Floor space (tank and operation panel included)	mm×mm (in)	4,260 × 3,190 (167.72 × 125.59)		5,760 × 3,190 (226.77 × 125.59)	7,010 × 2,965 (275.98 × 116.73)	8,570 × 3,227 (337.40 × 127.05)
	Mass (w/ CNC)	kg (lb)	12,000 (26,400)	12,500 (27,500)	14,500 (31,900)	18,000 (39,600)	19,500 (42,900)
CNC			OSP-P500L				

			LB45Ⅲ (M)					LB45Ⅲ (MY)				
			T	C × 1000	C × 2000	C × 3000	C × 4000	T	C × 1000	C × 2000	C × 3000	C × 4000
Capacity	Swing over bed	mm (in)	ø900 (35.43)					ø1,200 (47.24)				
	Swing over carriage	mm (in)	ø550 (21.65)					ø920 (36.22)				
	Distance between centers	mm (in)	–	1,060 (41.73)	2,060 (81.10)	3,060 (120.47)	4,060 (159.84)	–	1,060 (41.73)	2,060 (81.10)	3,060 (120.47)	4,060 (159.84)
	Max turning dia	mm (in)	ø640 (25.20)					ø640 (25.20)				
	Max turning length	mm (in)	750 (29.53)	1,000 (39.37)	2,000 (78.74)	3,000 (118.11)	4,000 (157.48)	750 (29.53)	1,000 (39.37)	2,000 (78.74)	3,000 (118.11)	4,000 (157.48)
Travels	X-axis	mm (in)	440 {330 + 110} (17.32 {12.99 + 4.33})					614 (24.17)				
	Z-axis	mm (in)	1,060 (41.73)		2,060 (81.10)	3,060 (120.47)	4,060 (159.84)	1,060 (41.73)		2,060 (81.10)	3,060 (120.47)	4,060 (159.84)
	Y-axis	mm (in)	–					250 {+150 to –100} (9.84 {+5.91 to –3.94})				
	C-axis	deg	360° (minimum control angle 0.001°)									
Spindle	Speed	min^{-1}	12 to 2,800 [{10 to 2,400} <31 to 900>]									
	Speed ranges		4 auto ranges (4 gears) [{4 auto ranges (4 gears)} <Infinitely variable>]									
	Spindle nose		JIS A2-11 [{JIS A2-11} <JIS A2-20>]									
	Bore dia	mm (in)	ø110 [{ø130} <ø260>] (4.33 [{5.12} <10.24>])									
	Front bearing dia	mm (in)	ø150 [{ø180} <ø320>] (5.91 [{7.09} <12.60>])									
Turret	Type		Multitasking V12 turret (VDI, [radial])					Multitasking V12 turret (radial)				
	No. of tools		12 (L/M)									
	OD tool shank height	mm (in)	32 × 32 (1-1/4)									
	ID tool shank dia	mm (in)	ø63 (2-1/2)									
	Turret index time	sec/1 index	VDI: 0.7 [radial: 0.3]					0.3				
Milling Tool	Spindle speed	min^{-1}	VDI: 40 to 2,000 [radial: 40 to 3,500]					40 to 3,500				
	Speed range		VDI: 2 auto ranges (2 gears) [radial: Infinitely variable]					Infinitely variable				
Feed rates	Rapid traverse	mm/min (ipm)	X: 15 (0.59) Z: 20 (0.79) C: 100min^{-1}					X: 15 (0.59) Z: 20 (0.79) Y: 6 (0.24) C: 100min^{-1}				
Tailstock	Quill dia	mm (in)	–	ø130 (5.12)				–	ø130 (5.12)			
	Quill bore taper		–	MT No. 5 (built-in center)				–	MT No. 5 (built-in center)			
	Quill travel	mm (in)	–	170 (6.69)				–	170 (6.69)			
Motors	Spindle (30 min/cont)	kW (hp)	37/30, [45/37*1 {37/30, 45/37*1}, <45/37>] (50/40, [60/50*1 {50/40, 60/50*1}, <60/50>])									
	Milling tool spindle (30 min/cont)	kW (hp)	VDI: 7.5/5.5 (10/7.5) [radial: 15/11 (20/15)]					15/11 (20/15)				
	Axis drive	kW (hp)	X: 3.6 (4.8) Z: 4.6 (6.1)					X: 3.5 (4.7) Z: 4.6 (8) Ys: 4.6 (6.1)				
	Coolant pump	kW (hp)	0.4 (0.53)									
Machine Size	Height	mm (in)	VDI: 2,602 (102.44), [Radial: 2,822 (111.10)]		VDI: 2,632 (103.62), [Radial: 2,822 (111.10)]	VDI: 2,584 (101.73), [Radial: 2,733 (107.60)]	VDI: 2,668 (105.04), [Radial: 2,844 (111.97)]	3,612 (142.20)		3,612 (142.20)	3,563 (140.28)	3,674 (144.65)
	Floor space (tank and operation panel included)	mm×mm (in)	VDI: 4,260 × 3,190 (VDI: 167.72 × 125.59), [Radial: 4,700 × 3,290 (Radial: 185.04 × 129.53)]		VDI: 5,760 × 3,190 (VDI: 226.77 × 125.59), [Radial: 6,200 × 3,290 (Radial: 244.09 × 129.53)]	VDI: 7,010 × 2,965 (VDI: 275.98 × 116.73), [Radial: 7,590 × 3,065 (Radial: 298.82 × 120.67)]	VDI: 8,570 × 3,227 (VDI: 337.40 × 127.05), [Radial: 9,025 × 3,326 (Radial: 355.31 × 130.94)]	4,858 × 3,655 (191.26 × 143.90)		6,358 × 3,655 (250.31 × 143.90)	7,736 × 3,355 (304.57 × 132.09)	9,076 × 3,617 (357.32 × 142.40)
	Mass (w/ CNC)	kg (lb)	VDI: 12,500 (27,500), [Radial: 13,000 (28,600)]	VDI: 13,000 (28,600), [Radial: 13,500 (29,700)]	VDI: 15,000 (33,000), [Radial: 16,000 (35,200)]	VDI: 18,500 (40,700), [Radial: 19,000 (41,800)]	VDI: 23,500 (51,700), [Radial: 24,000 (52,800)]	17,000 (37,400)	17,500 (38,500)	21,500 (47,300)	25,500 (56,100)	26,000 (57,200)
CNC			OSP-P500L									

[ ]: Option { }: Big-Bore specs < >: Super Big-Bore specs *1. High power motor specs

Standard Accessories

			LB45Ⅲ (L)		LB45Ⅲ (M)		LB45Ⅲ (MY)	
			T	C	T	C	T	C
Machine Specs	Spindle motor	37/30 kW (30 min/cont)			●			
	Spindle speed	12 to 2,800 min^{-1}			●			
	Milling tool motor	7.5/5.5 kW (30 min/cont)	–		● (VDI)		–	
		15/11 kW (30 min/cont)		–			●	
	Milling tool speeds	40 to 2,000 min^{-1}	–		● (VDI)		–	
		40 to 3,500 min^{-1}		–			●	
	Turret	V12	●		–			
		Multitasking V12	–		● (VDI)		● (Radial)	
	Hydraulic tailstock	Built-in center, MT No. 5	–	●	–	●	–	●
	Standard equipment	Hydraulic unit	●					
		Coolant system	●					
		Chip shield	●					
		Work lamp (LED)	●					
	Standard accessories	Foundation washers	●					
		Levelling jack bolts	●					
		Hand tools	●					
CNC	OSP-P500L		●					

Chucking / Tooling Kit

		LB45Ⅲ (L)			LB45Ⅲ (M)	
		Chucking Kit	Tooling kit	Tooling E Kit		Chucking Kit
Hydraulic chuck		15"Solid		15"Solid		15"Solid
Hydraulic chuck drive		Solid		Hollow		Solid
Standard soft jaws, A				5		5
Standard soft jaws, B				3		3
Standard hard jaws				1		1
OD	OD-Ⅰ		4	6	OD-A (VDI)	2
	OD-Ⅱ		2	3	OD-B (VDI)	4
					OD-C (VDI)	2
ID	ID-H63		6	6	ID-H63 (VDI)	4
Boring bar sleeve					BS 16-H63 (VDI)	2
					BS 20-H63 (VDI)	2
	BS 25-H63			2	BS 25-H63 (VDI)	2
	BS 32-H63		2	4	BS 32-H63 (VDI)	2
	BS 40-H63		2	2	BS 40-H63 (VDI)	2
					BS 50-H63 (VDI)	2
Drill sleeve	DS MT No. 2-H63			1		
	DS MT No. 3-H63			1		
	DS MT No. 4-H63		1	1	DS MT No. 4-H63 (VDI)	1
Axial mill/drill unit						2
Radiall mill/drill unit						2
Dummy holder						3

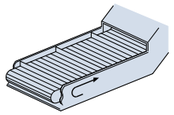
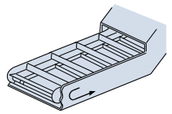
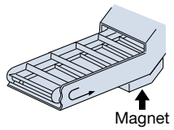
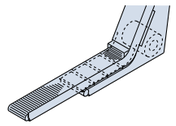
Optional Equipment & Accessories

Spindle　High power motor specs
45/37 kW (30 min/cont)
Big-Bore spindle
A2-11 2,400 min^{-1}
Front bearing ø180, Spindle bore ø130
Big-Bore spindle　High power motor specs
A2-11 2,400 min^{-1}
Front bearing ø180, Spindle bore ø130
45/37 kW (30 min/cont)
Super Big-Bore spindle
JIS A2-20　900 min^{-1}
Front bearing ø320, Spindle bore ø260
45/37 kW (30 min/cont)
Tailstock
Dead center, threaded, MT No. 5
Auto tailstock quill advance/retract confirm
Low tailstock thrust
Tailstock thrust high/low switch
Tailstock quill position detection (multi-sizing, high-accuracy sizing)
Steadyrest
Rollers (fixed position)
Auto steady rest (self-centering)
Cover
Auto front cover open/close*1
Chucking
Chuck auto open/close confirm
Chuck high/low pressure switch

Air blower
Chuck, turret, Tailstock
Coolant blower
Shower type, Saddle cover chip wash
Dust-proof
Spindle air purging, turret air purging,
X-axis double wiper, Z-axis double wiper
Gauging
In-process work gauging
Touch Setter M (manual), A (automatic)
Chip discharge
Chip conveyor, (Side discharge, Rear discharge)*2, chip bucket, chip pan
Coolant pump
0.8 kW, high-pressure coolant unit, coolant sensors
High accuracy optional specifications
Turcite® lining (X-axis, Z-axis)
AbsoScale (X-Z-Y axes)
Temperature regulators (coolant, spindle temperature, hydraulic oil)
Other
Mist collector
High-speed NC double-column loader OGL
Raised machine height

*1. L specs and M specs: Standard with distance between centers of 3000 and 4000. MY specs: Standard with distance between centers of 1000, 2000, 3000, and 4000
*2. Rear discharge available only with distance between centers 1000.

Chip conveyor types and application

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

Notes: It is necessary to select a chip conveyor with hinges + scraper (with drum filter) if the Sludgeless Tank is chosen.
Raised machine arrangements may be necessary depending on the type of conveyor.

Chuck preparation specs per chuck size

		Solid/hollow chuck					
		12 inch	Big bore 12 inch	15 inch	18 inch	21 inch	24 inch
Chuck OD	Standard spindle A2-11		●*1	●	●	●	●
	Big-Bore spindle A2-11			●*1	●	●	●
Hollow chuck through-hole diameter		ø91	ø106	ø117.5*2	ø117.5	ø140	ø165

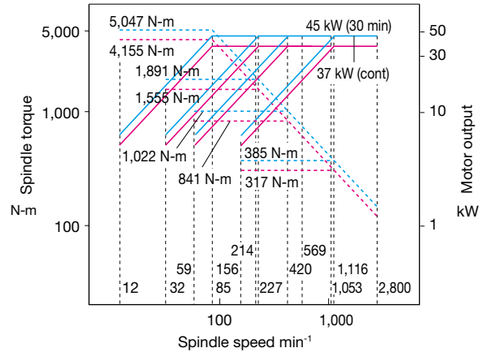
*1. Hollow only　*2. ø100 with standard spindle

Torque diagram

30 min duty rating　Continuous duty rating

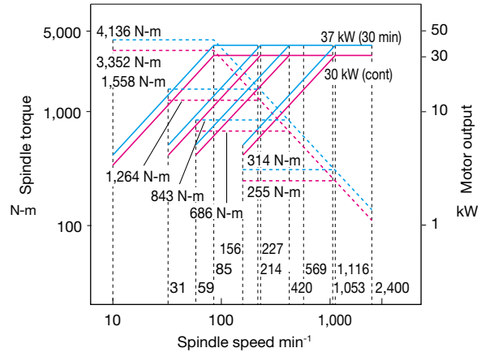
High power standard spindle

- Spindle speed　2,800 min^{-1}
- Max output　45/37 kW (30 min/cont)
- Max torque　5,047/4,155 N-m (30 min/cont)



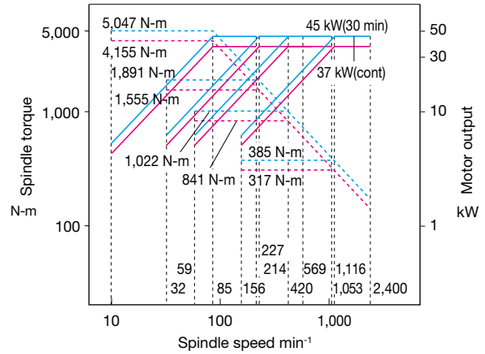
Big-Bore spindle

- Spindle speed　2,400 min^{-1}
- Max output　37/30 kW (30 min/cont)
- Max torque　4,136/3,352 N-m (30 min/cont)



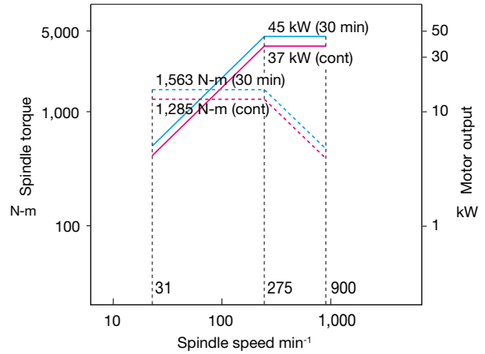
High power Big-Bore spindle

- Spindle speed　2,400 min^{-1}
- Max output　45/37 kW (30 min/cont)
- Max torque　5,047/4,155 N-m (30 min/cont)



Super Big-Bore spindle

- Spindle speed　900 min^{-1}
- Max output　45/37 kW (30 min/cont)
- Max torque　1,563/1,285 N-m (30 min/cont)



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

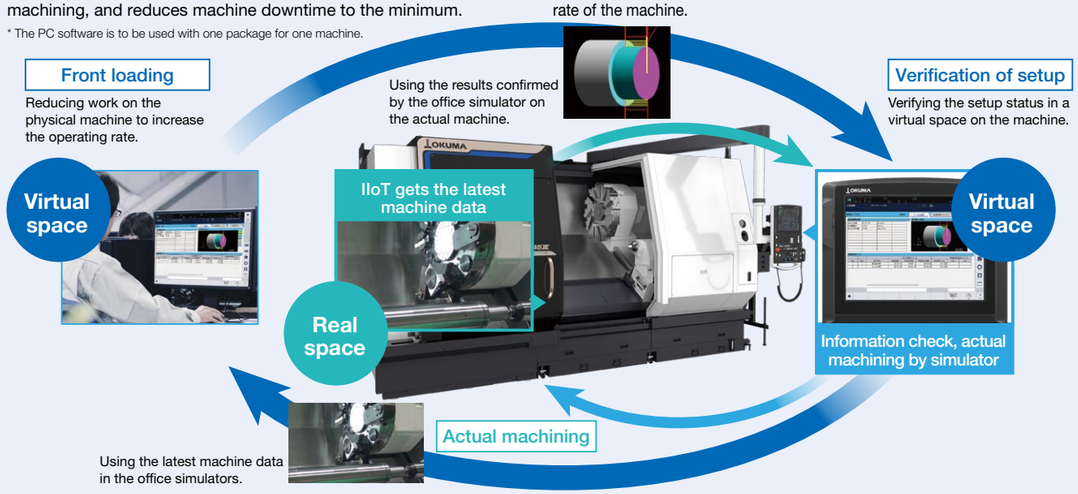
Front loading is performed with the actual status matched with the data on the office PC to further improve productivity.
Highly accurate pre-verification minimizes trial and error in first part machining, and reduces machine downtime to the minimum.

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.

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

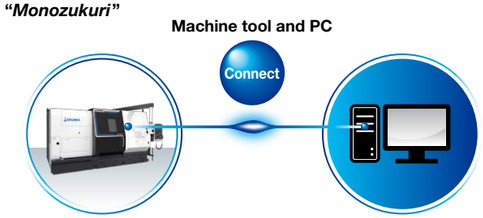


Connect Plan

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.



Standard specifications

Basic specs	Control	Turning: X, Z simultaneous 2-axis. Multitasking: X, Z, C simultaneous 3-axis
	Position feedback	OSP full range absolute position feedback (zero-point return not required)
	Min/max command	±99999.999 mm, 8-digit decimal, command unit: 0.001 mm, 0.01 mm, 1 mm, 0.001°, 0.01°, 1°
	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), TAS-C (Thermo Active Stabilizer—Construction)
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.

Kit specifications/ optional specifications

		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	10 sets		▲		▲		▲		▲
system select	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)	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) [B type]		●	●	●	●	●	●	●	●

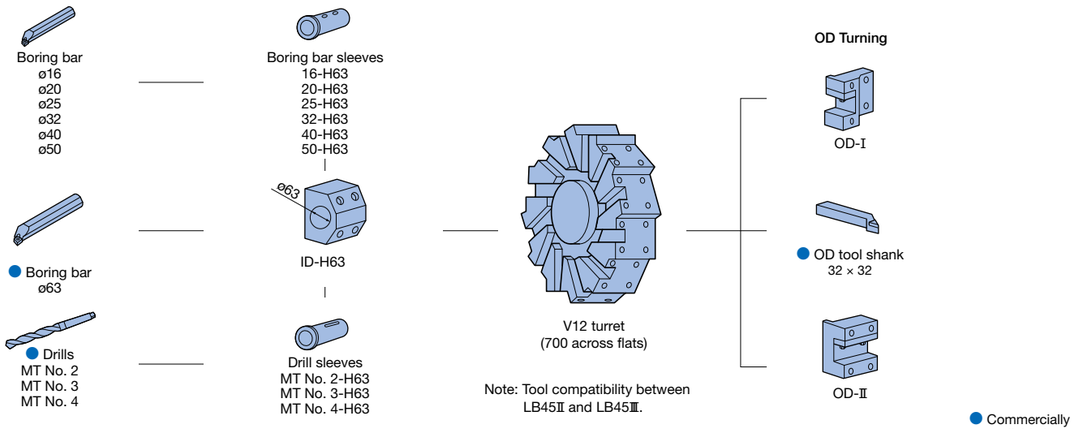
		NML E	NML D	AOT-M E	AOT-M D	DT E	DT D	DT AOT-M E	DT AOT-M D
External Input/Output and Communication Functions									
RS-232C connector									
Ethernet/IP									
Networking	DNC-DT, DNC-T3								
	DNC-C/Ethernet								
Measuring									
In-process workpiece gauging									
Z-axis automatic zero offset									
C-axis automatic zero offset									
Y-axis zero offset and tool offset									
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-*g*Ⅱ, 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.

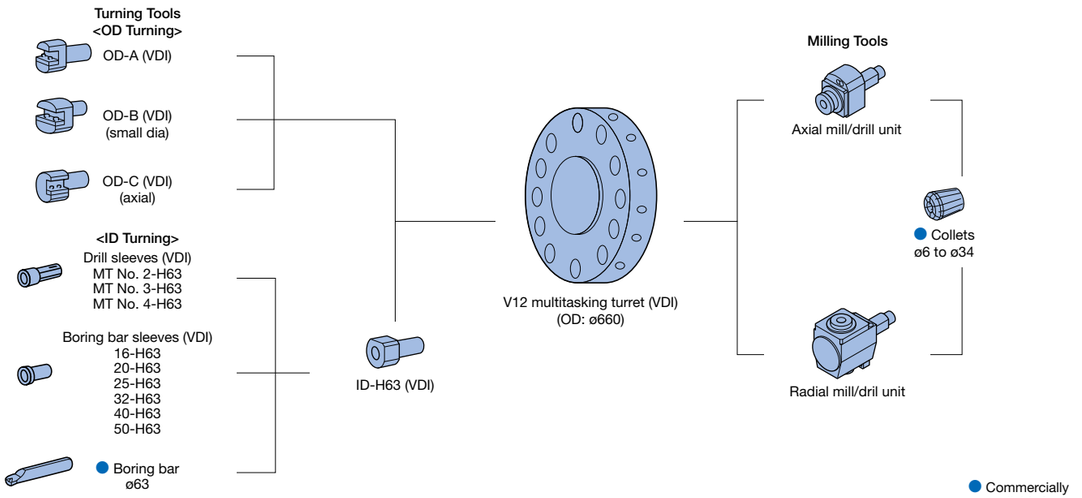
Tooling System

Unit: mm

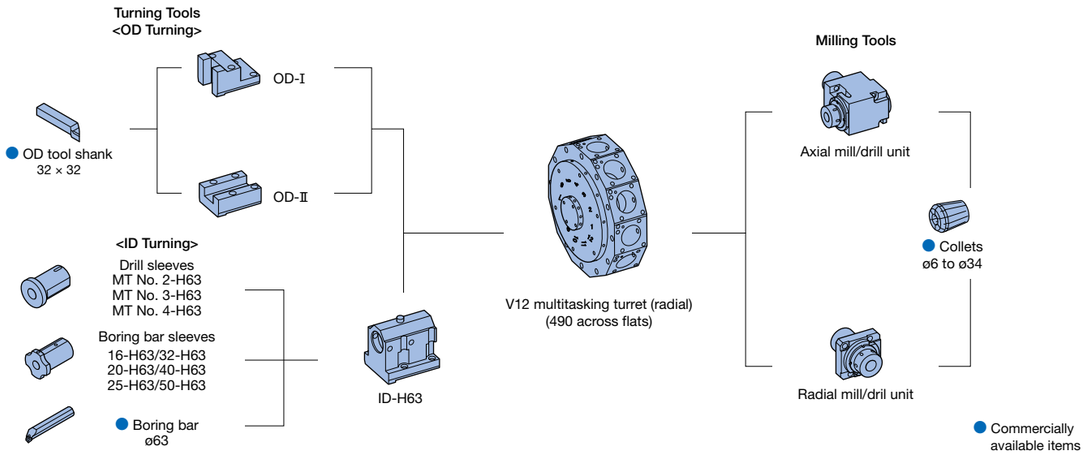
L specs



M specs: VDI turret



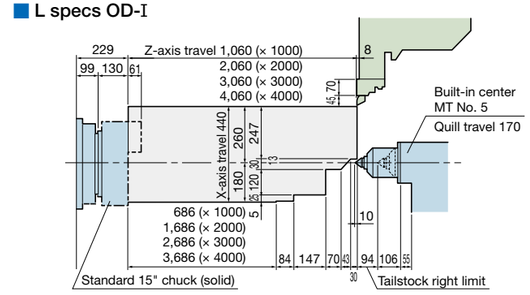
M specs, MY specs: Radial turret



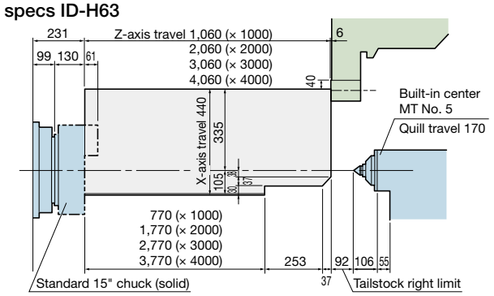
Working ranges

Unit: mm

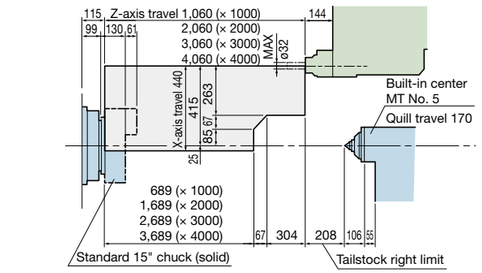
L specs OD-I



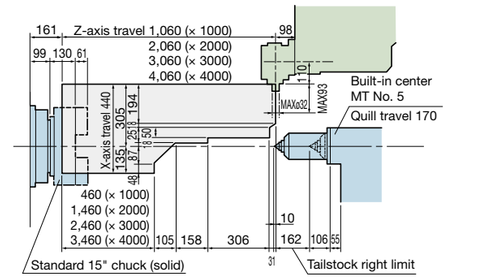
L specs ID-H63



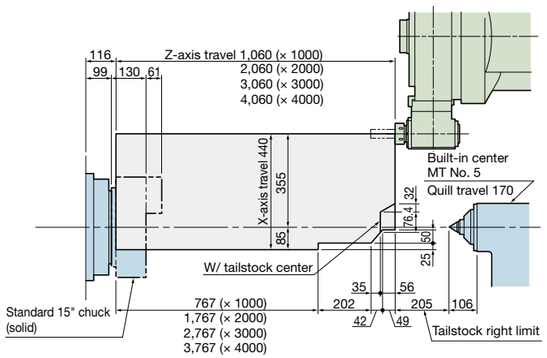
M specs Axial mill/drill unit (VDI)



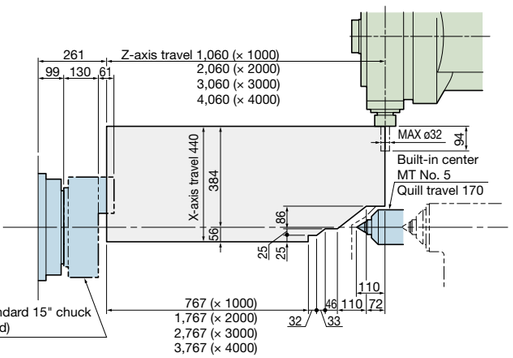
M specs Radial mill/drill unit (VDI)



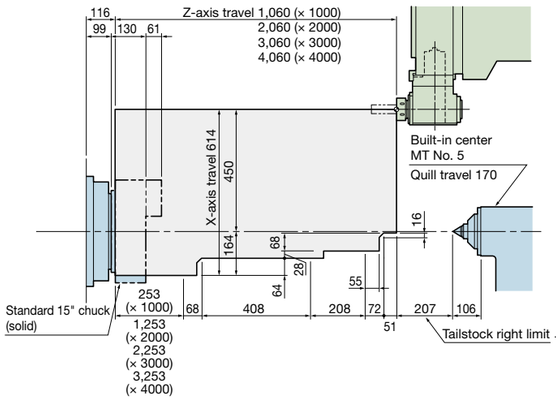
M specs Axial mill/drill unit (Radial)



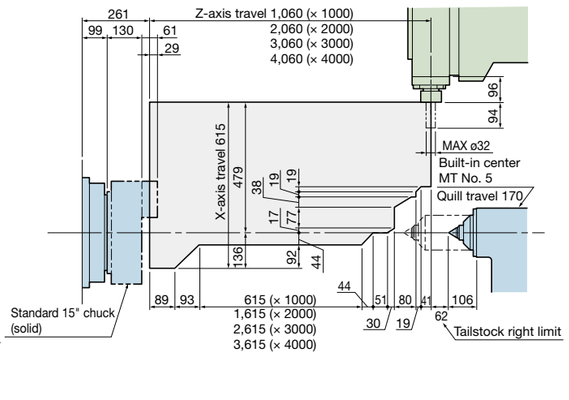
M specs Radial mill/drill unit (Radial)



MY specs Axial mill/drill unit



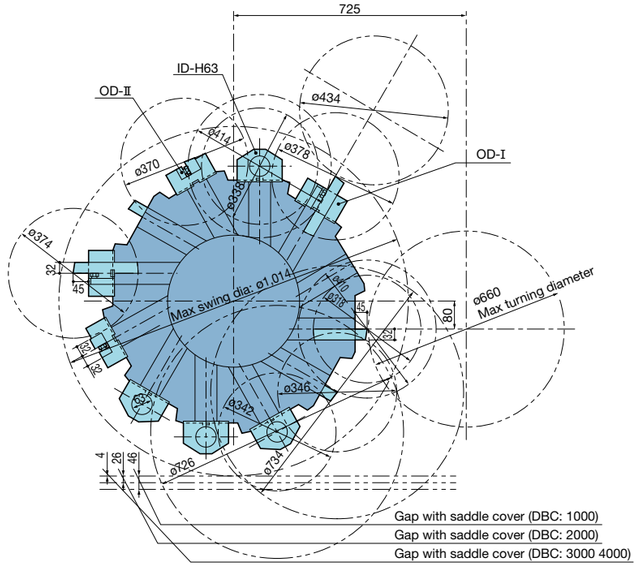
MY specs Radial mill/drill unit



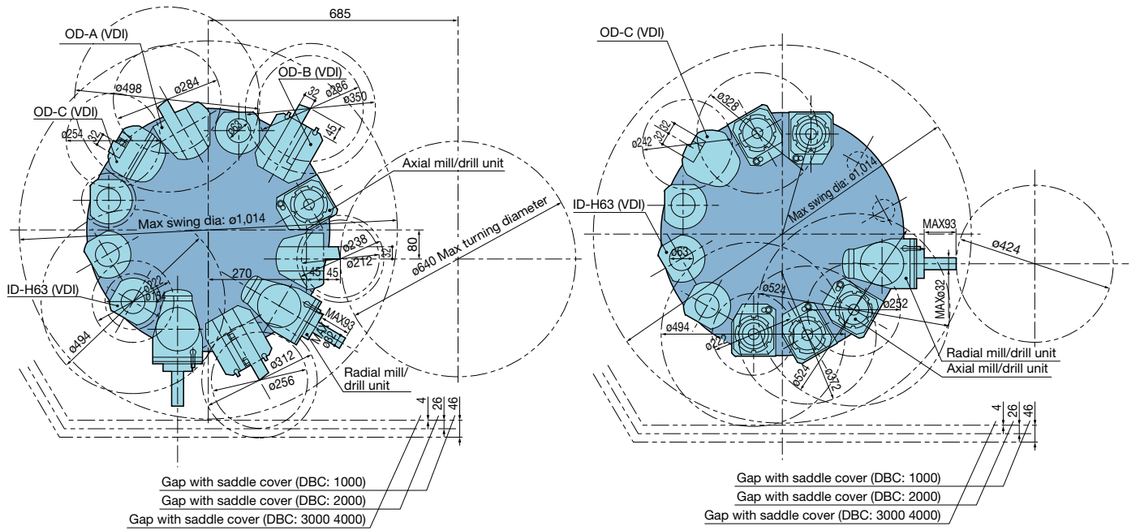
Turret Interference Diagrams

Unit: mm

L specs V12 Turret

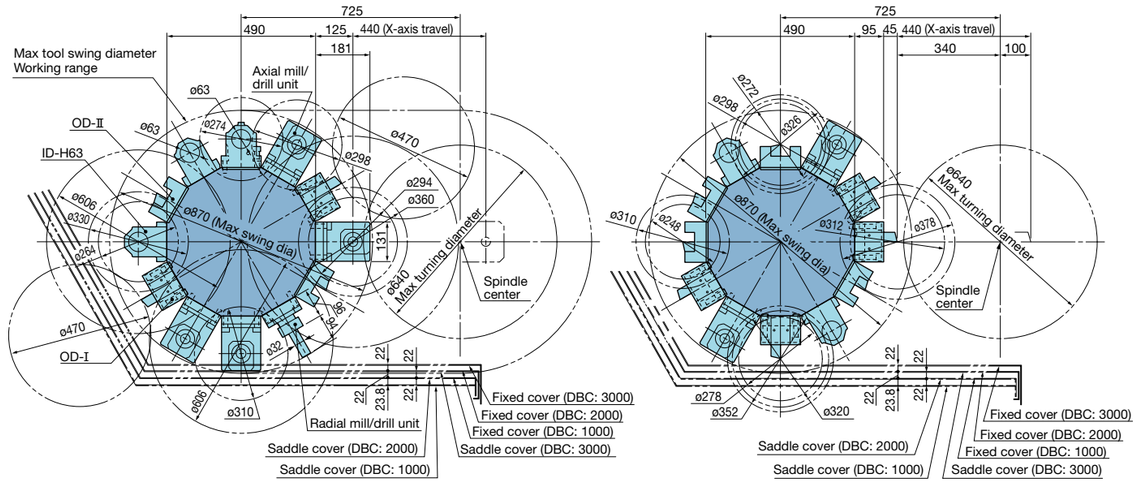


M specs Multitasking V12 Turret (VDI)

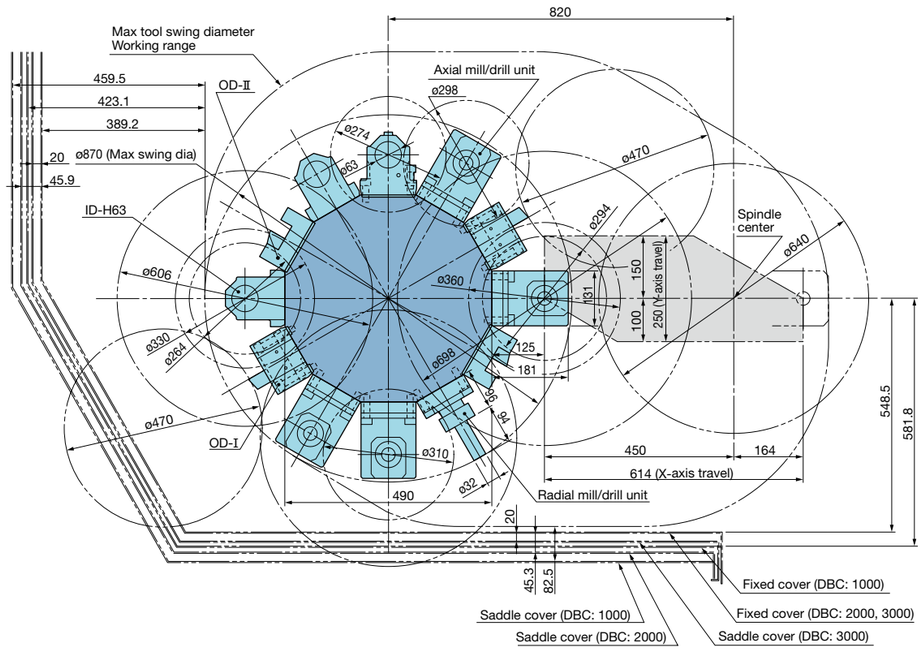


M specs Multitasking V12 Turret (Radial)

Unit: mm



MY specs Multitasking V12 Turret (Radial)

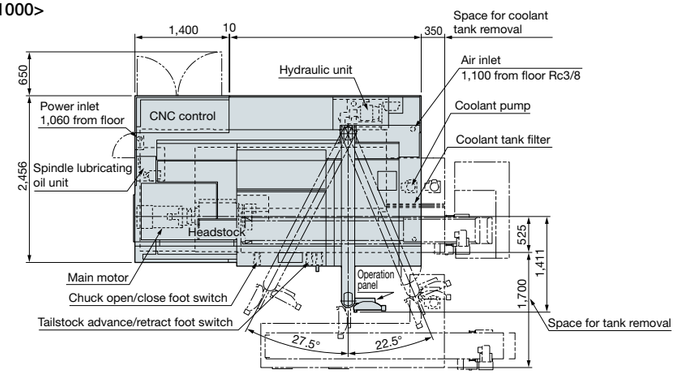


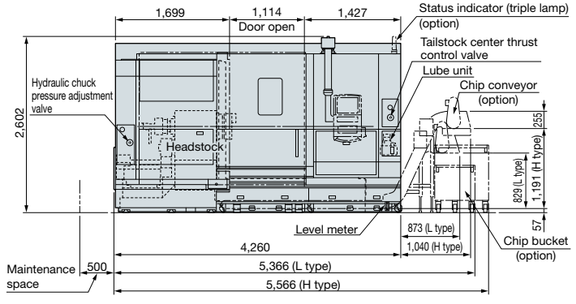
Dimensional / Installation Drawings LB45Ⅲ / LB45Ⅲ M specs (VDI)

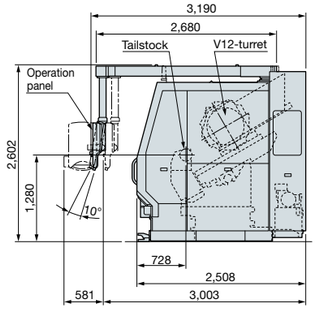
Unit: mm

Unit: mm

<DBC 1000>







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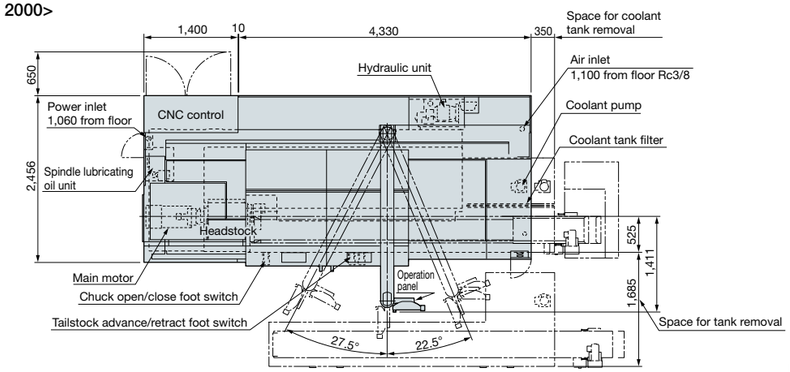

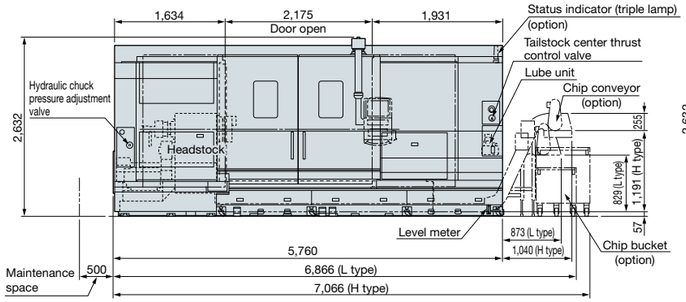

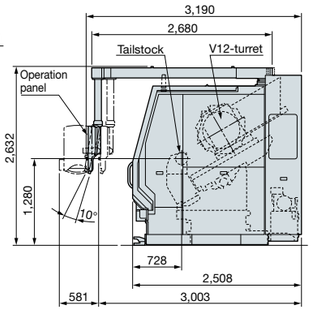

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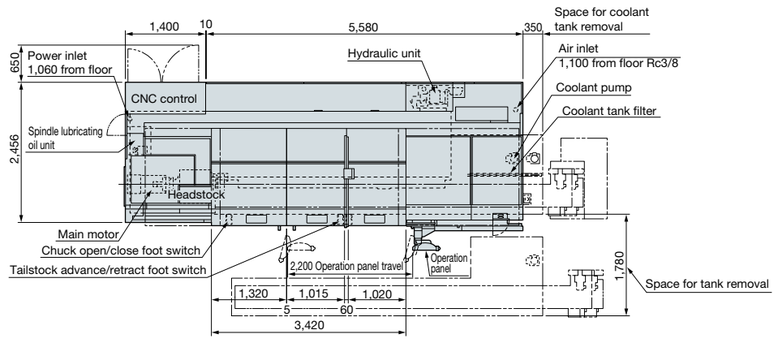

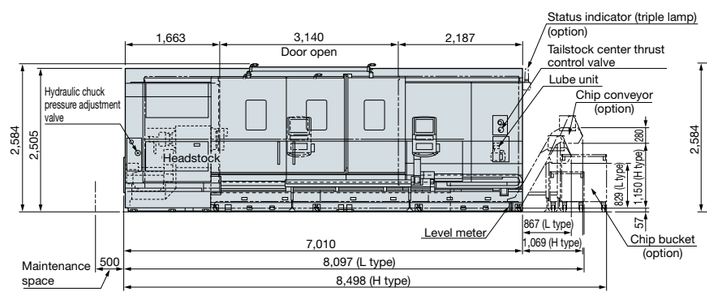

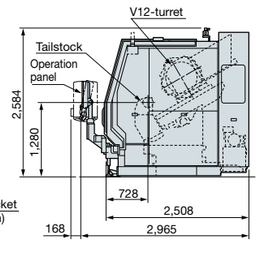

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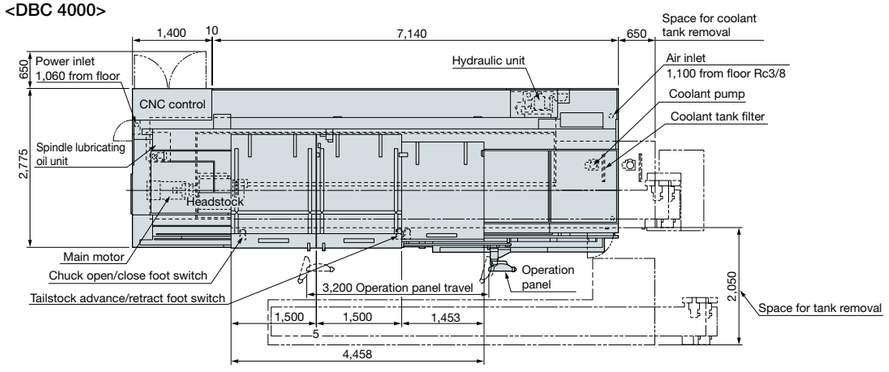
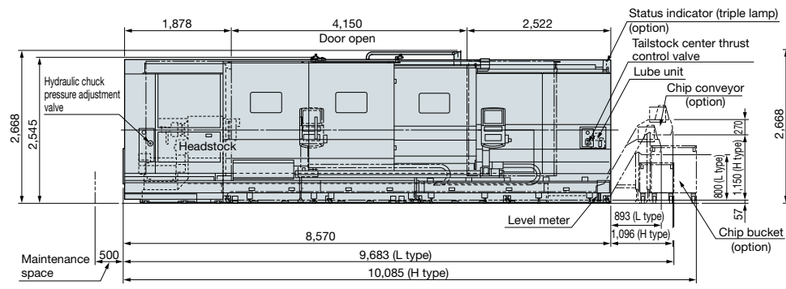
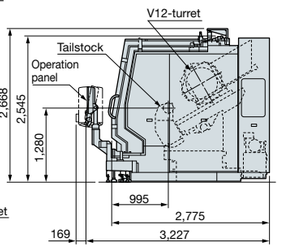


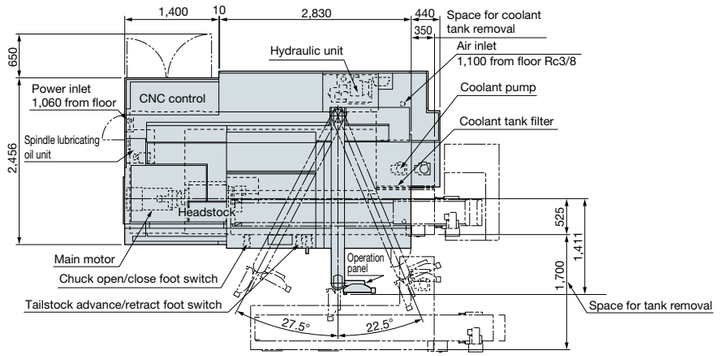


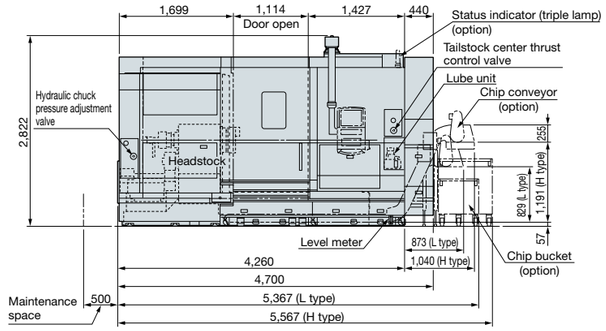


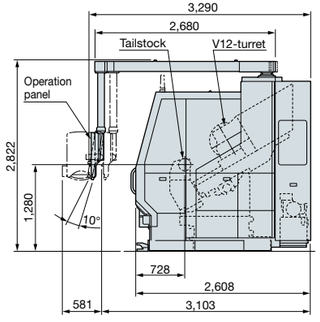
Dimensional / Installation Drawings LB45Ⅲ M specs (radial)

Unit: mm

<DBC 1000>







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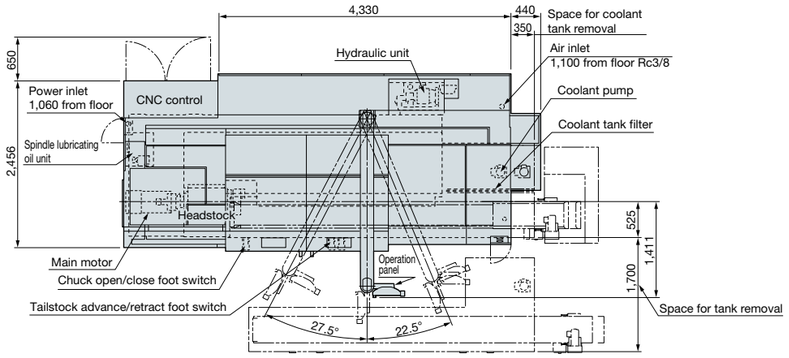

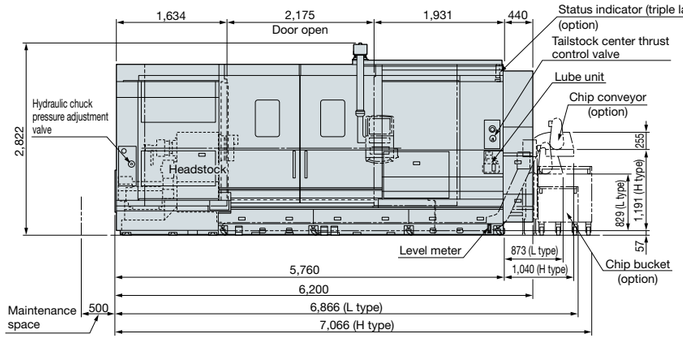

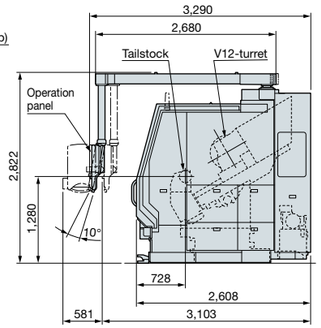

Unit: mm

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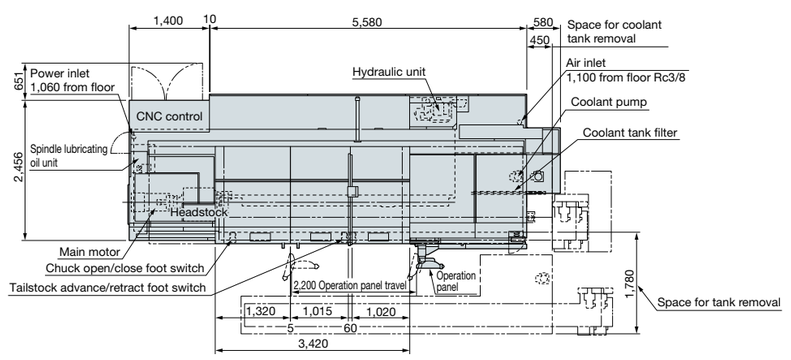

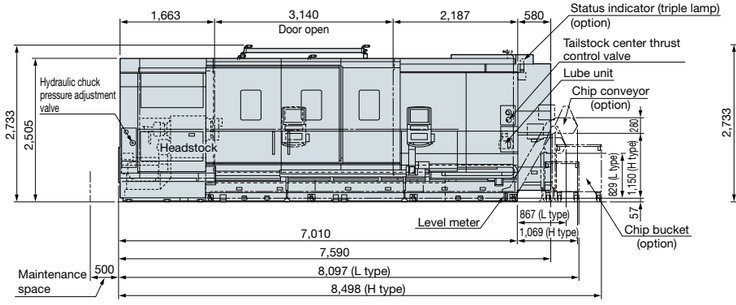

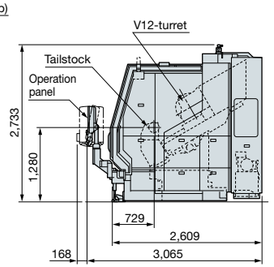

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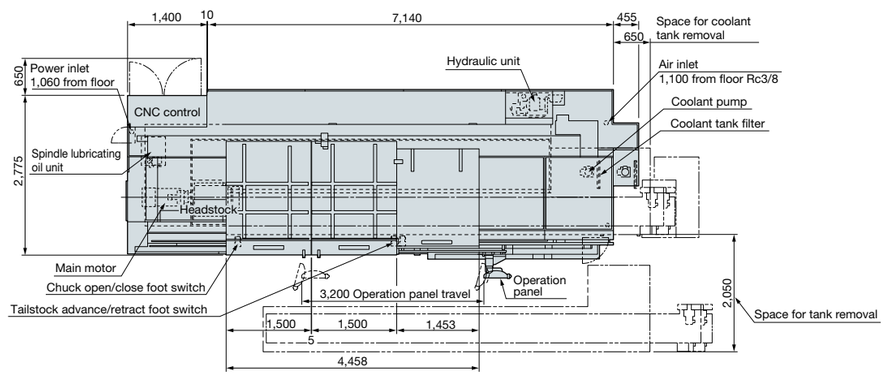
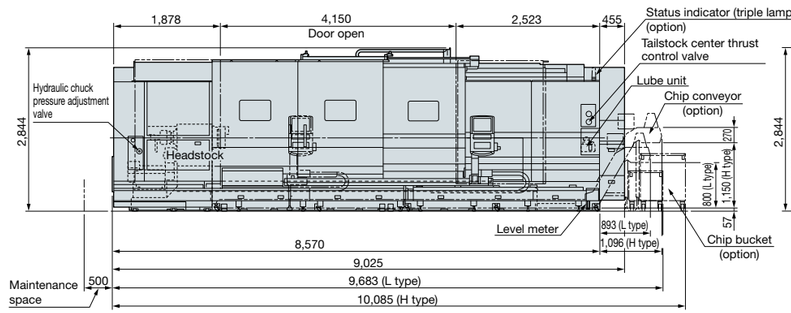
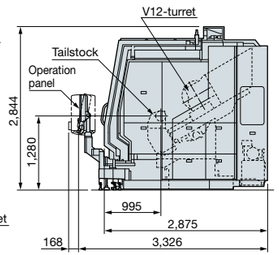


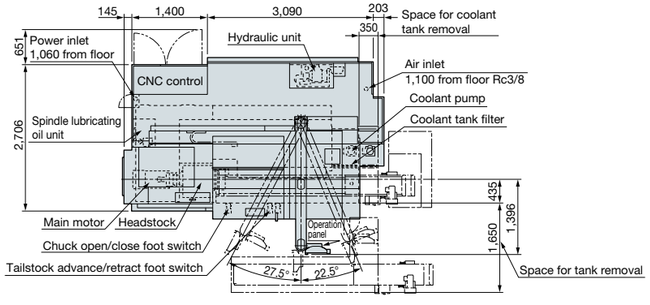


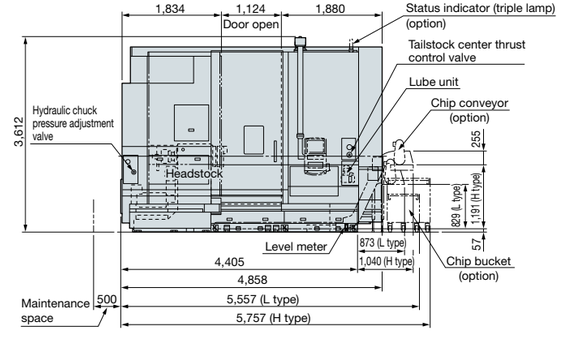


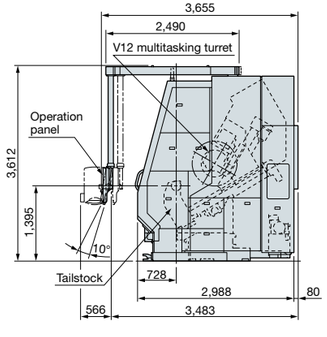
Dimensional / Installation Drawings LB45Ⅲ MY specs

Unit: mm

<DBC 1000>







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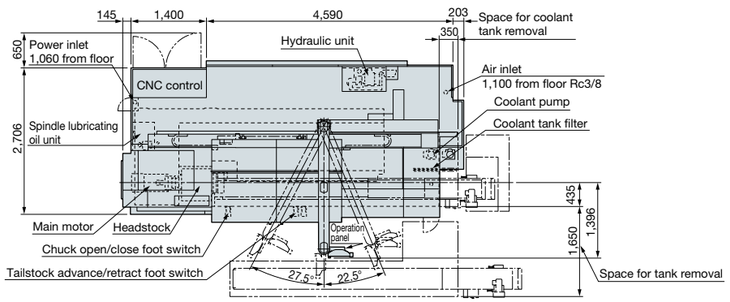

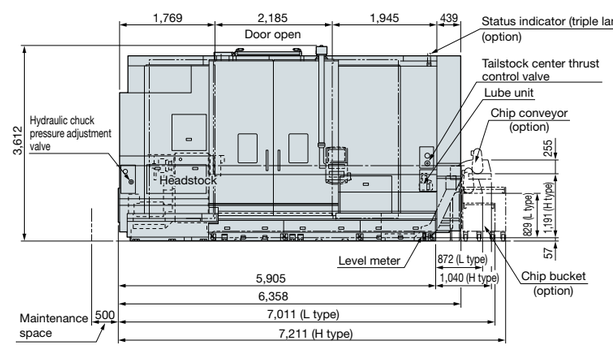

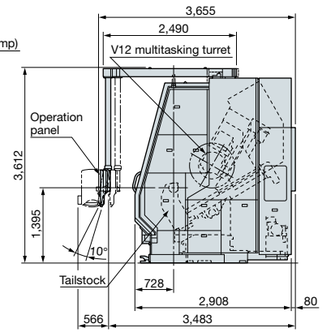

Unit: mm

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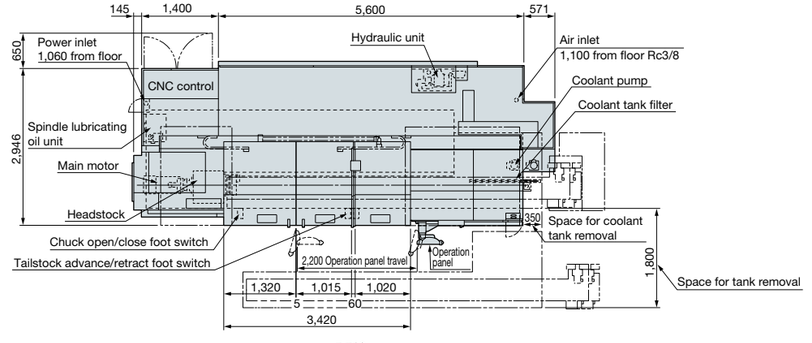

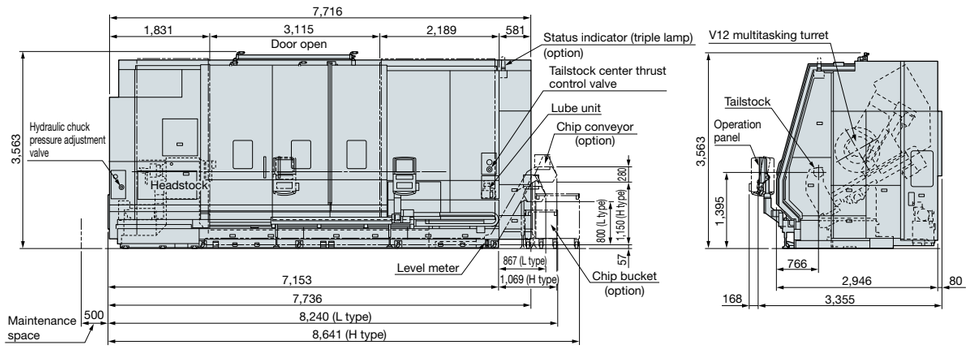

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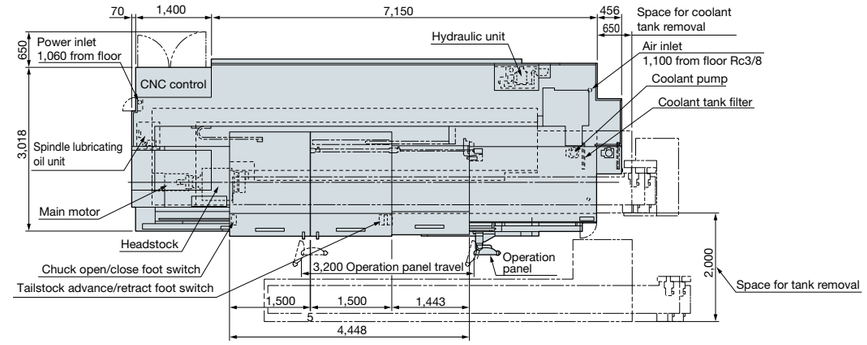

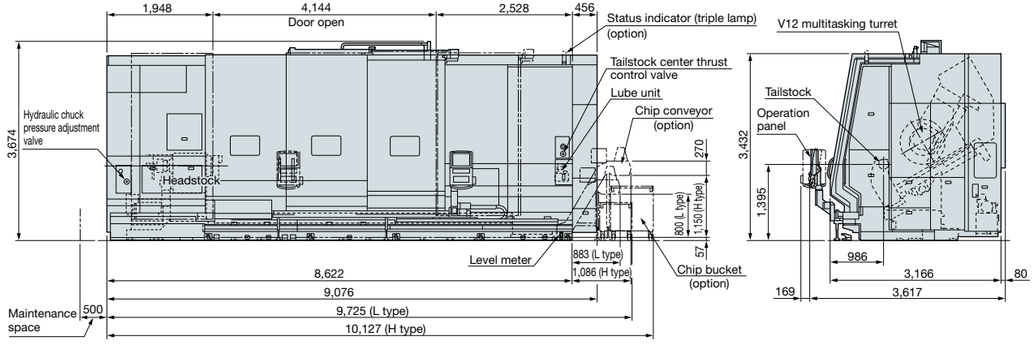

LB45Ⅲ

When using Okuma products, always read the safety precautions mentioned in the instruction manual and attached to the product.

Pub.No. LB45III-E-(1a)-Non (Sep 2025)

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