OKUMA

2-Saddle CNC Lathes

LU35II/LU45II



2-Saddle CNC Lathes

LU35Ⅱ/LU45Ⅱ

Thermo-Friendly Concept

Collision Avoidance System

Machining Navi

Highly efficient 4-axis machining of mid-/large size components

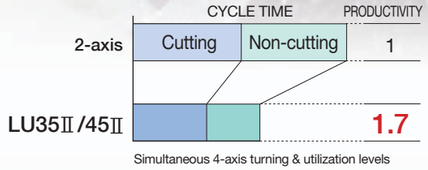
Introducing the LU35Ⅱ/45Ⅱ, highly rated 4-axis CNC Lathes on all fronts—Speed, power, accuracy, even operability and reduced maintenance! These machines use the Thermo-Friendly Concept for highest-in-class dimensional stability.



LU35Ⅱ DBC 1500



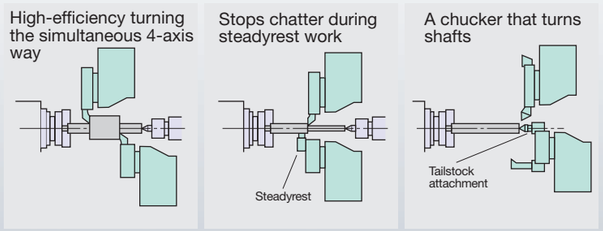
High Productivity by simultaneous 4-axis machining



Simultaneous 4-axis turning & utilization levels

4-Axis Flexibility

Applications abound with 4-axis features



Outstanding dimentional stability

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

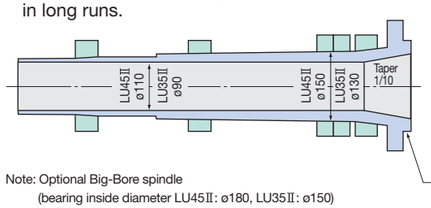
Photos in catalog include optional specifications.

Stable high speed cutting even of heavy workpieces

High rigidity bolster high-accuracy turning



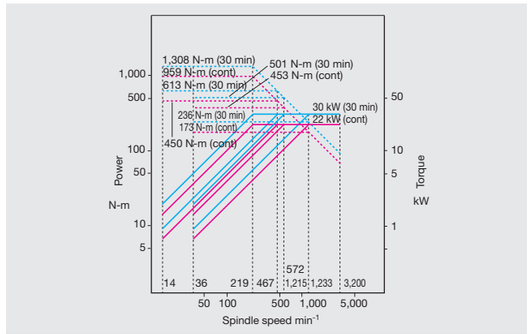
- Heavy hogging at high speeds, thanks to broad-span 3-point bearing support
- Thermally balanced construction of spindlehead from computer-assisted design analysis for consistent accuracies in long runs.



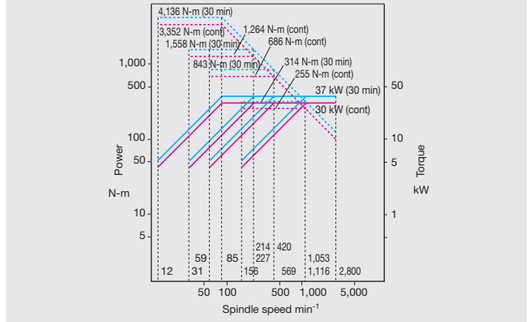
Note: Optional Big-Bore spindle
(bearing inside diameter LU45Ⅱ: ø180, LU35Ⅱ: ø150)

VAC spindle motor for fullpower across wide range

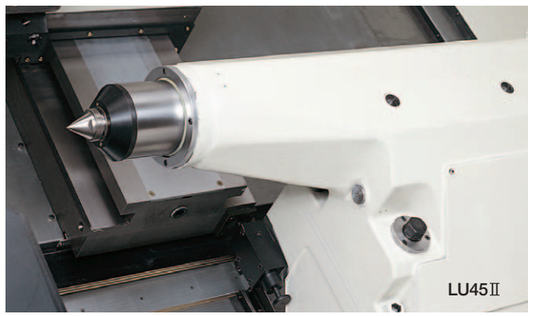
■ LU35Ⅱ
- Spindle speed MAX 3,200 min^{-1}
- Power 30/22 kW (30 min/cont)
- Torque 1,308/959 N-m (30 min/cont)



■ LU45Ⅱ
- Spindle speed MAX 2,800 min^{-1}
- Power 37/30 kW (30 min/cont)
- Torque 4,136/3,352 N-m (30 min/cont)



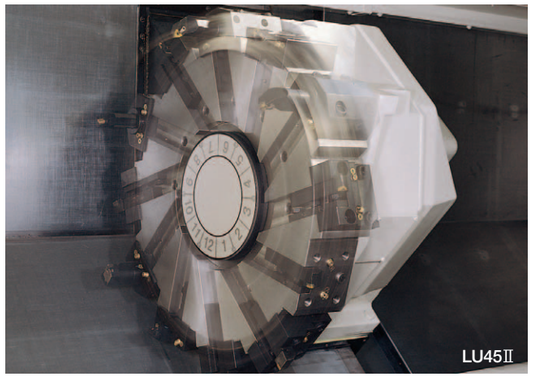
High-rigidty tow-along tailstock (manual)



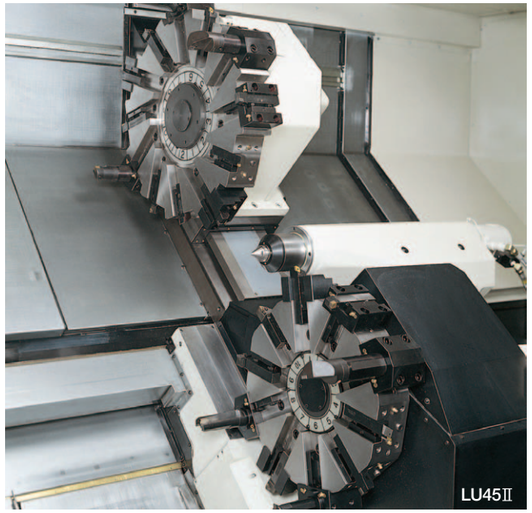
- Standard-equipped with rugged live center:
  LU35Ⅱ ø120 mm quill; MT 5
  LU45Ⅱ ø130 mm quill; MT 5
- Smooth, E-Z tailstock positioning by using upper asddle (clamping/unclamping, coupling of tailstock itself is done manually)

22-tool, high-speed indexing

Faster tool-to-tool times with Okuma field-proven NC turrets



- Non-cutting time slashed dramatically by fast indexing by NC servos:
  LU35Ⅱ: 0.3 sec/1 index (non-lift)
  LU45Ⅱ: 0.7 sec/1 index (lift-up)
- Indexing speed not affected by unbalanced tooling
- Powerful hydraulic clamping mechanism and large-diameter couplings



Upper: v12, Lower: v10

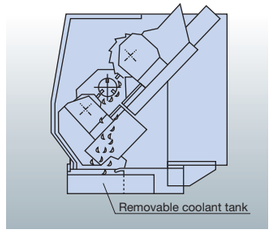
Close-tolerance, robust axial feed mechanism

- Fast rapid traverse by high-precision servos:
  XA and XB axes: 15 m/min
  ZA and ZB axes: 20 m/min
- Standard-equipped direct drive mechanism eliminates backlash
  LU35Ⅱ: for XA, ZA, ZB axes
  LU45Ⅱ: for XA axis

VAC spindle motor for full power across wide range

Smooth, efficient handling of huge amount of chips

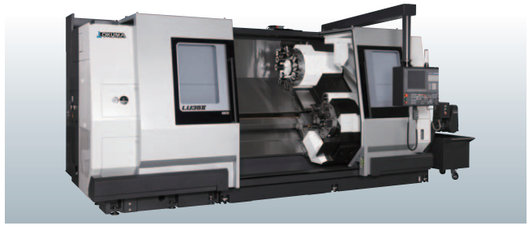
- 45-degree slant bed, equipped with slideway cover for extra-smooth handling of big chip flow



Low maintenance engineered in for far less work

- Servos equipped with NC torque limiters to minimize dam-age from operation error and allow quick resumption of work
- VAC spindle motor requires no brush changes (brushless motor design)
- Removable coolant tank for easier maintenance
- All routine (daily) maintenance can be done from front of machine (chuck hydlaulic adjustment, tailstock pressure adjustment, slideway lubricant supply port)

Fully enclosed design is shop eco-friendly



- Streamlined, sleek appearance
- Easy access inside machine
- Complete enclosure to prevent machining materials, fluids, etc. from exiting the machine.

The unique approach of "accepting temperature "changes."

Manageable Deformation—Accurately Controlled

Thermo-Friendly Concept

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

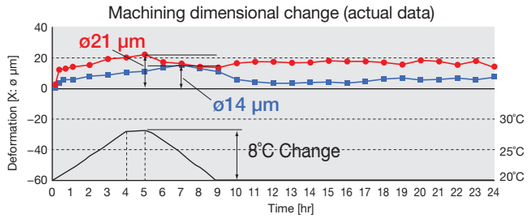
Minimizes dimensional changes from thermal deformation

Accurate control in a wide range of usage situations, including use of coolant and travel stop during noon break.

Machine startup
Machining restart
Room temp change
→ High dimensional stability

- Machining dimentional change (LU35Ⅱ: actual data)

ø21 µm (Upper turret) **ø14 µm** (Lower turret)



- Room temperature change:
  Rise of 8°C from 20°C over 4 hr, After 1 hr, decline of 8°C over 4 hr
- Cutting conditions: Cold start, coolant used
- Cutting depth: OD 0.2 mm, ID 0.1 mm
- Spindle speed: 2,240 min^{-1}
- Feedrate: 0.05 mm/rev
- Material: BsB

TAS-C [Thermo Active Stabilizer—Construction]

Total thermal deformation control for spindle, turret, and bed

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

ECO² Friendly™ ECOLOGY & ECONOMY

Environmental economic benefits of Okuma’s Thermo-Friendly Concept

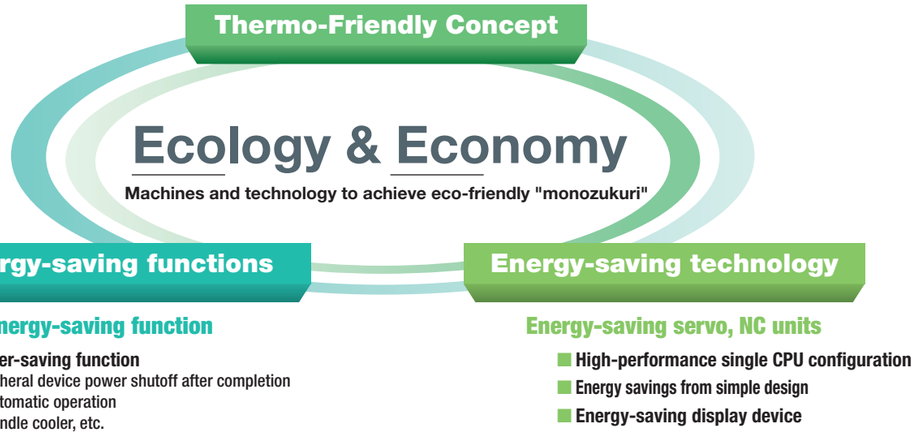
In environments with normal temperature changes, machining accuracies equivalent to those in temperature-controlled rooms are achieved.
As long as the operator is comfortable, no air conditioning is needed to ensure accuracy.

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

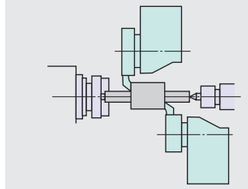




* Calculations are examples only, and may differ from actual circumstances. Temperature-controlled room capacity: 10 m x 10 m x H3 m ±2°C

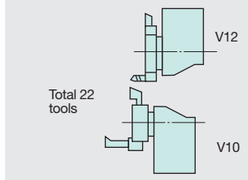
What 4-axis turning can do for you. . .

1 Shorter turning time



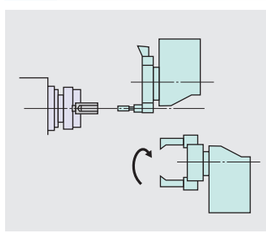
Vastlyimproved productivity and less processing time by simultaneous 4-axis turning with 2 turrets.

2 Set-up time slashed



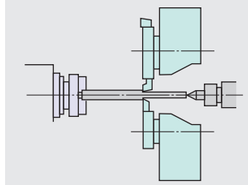
Total of 22 tools on 2 turrets makes permanent tooling possible for far less set-up time.

3 Shorter cycle times



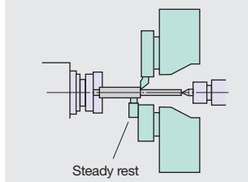
Where interference means small work has to be turned with only one turret, turrets take turns cutting and indexing to minimize total turning time.

4 No chatter with long workpieces thanks to balanced cutting



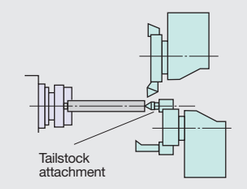
Balanced cuts on both turrets make for chatter-free turning impossible with 2-axis cutting.

5 No chatter with steady rest



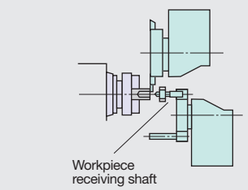
Workpiece is supported by steady rest on one turret, making possible chatter-free turning of even long workpieces or long cantilever workpieces.

6 Shaft turning with a chucker



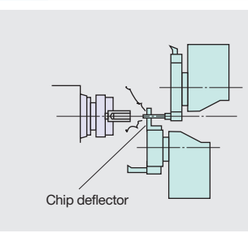
Tailstock attachment on one turret allows shaft turning by the other.

7 Unloading assist lightens operator load



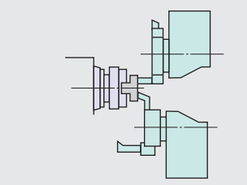
One turret is equipped with a receiving shaft, tray, etc. to receive workpieces on cutoff, then carry to designated position by turret rotation.

8 Good chip handling



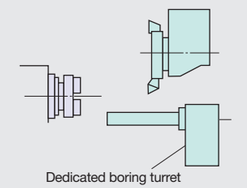
Chip deflector on one turret allows removal of chip curlings from drilling etc.

9 Burr prevention



Simultaneous turning programs for facing or chamfering prevent burrs for improved part quality.

10 Dedicated boring turret (lower turret)

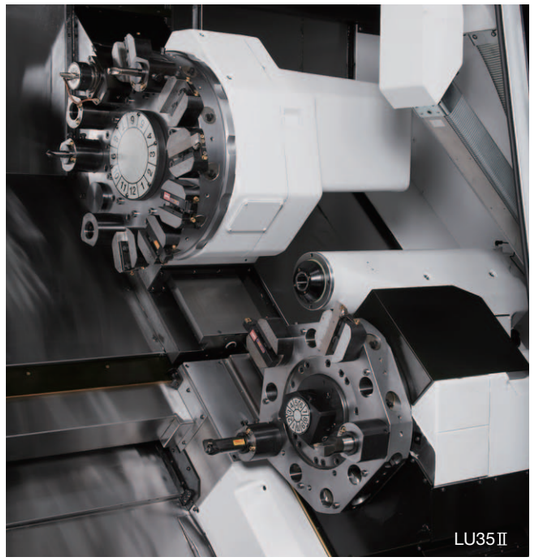


Using a dedicated boring turret (in place of the standard lower turret) allows a variety of different applications.

Do it all in one chucking: turning, drilling, milling and tapping!

High-rigidity V12 multitasking turret

- Every station accepts turning (L) and milling (M) tooling
- Fast-indexing turret under NC servo control: 0.3 sec/1 index for the LU35Ⅱ, 0.7 sec/1 index for the LU45Ⅱ.
- Lower turret: VDI



High-speed, high-accuracy C-axis headstock

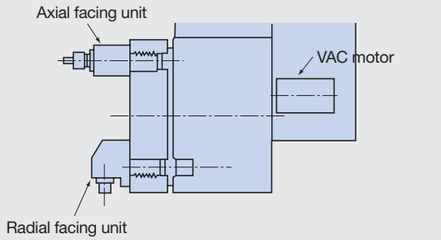
- Fast rapid traverse: 100 min^{-1}
- Repeatability: ±0.005°

- C-axis geometric accuracy (G00 positioning)

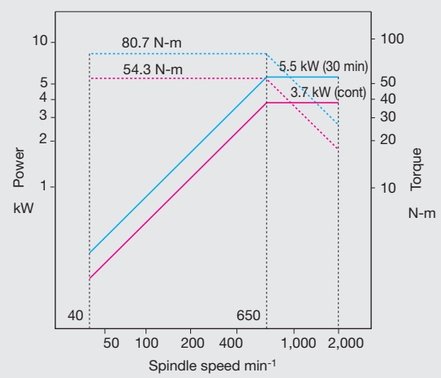
Indexing	± 0.01°
Repeatabillty	± 0.005°

Fast milling tool spindle

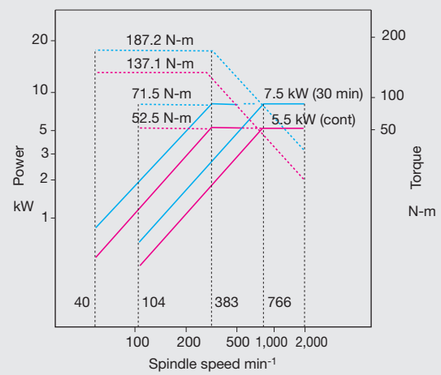
- Spindle speed: MAX 2,000 min^{-1}
- Output: LU35Ⅱ(M): VAC5.5/3.7 kW (30 min/cont)
  LU45Ⅱ(M): VAC7.5/5.5 kW (30 min/cont)
- Torque: LU35Ⅱ(M): 80.7/54.3 N-m (30 min/cont)
  LU45Ⅱ(M): 187.2/137.1 N-m (30 min/cont)



LU35Ⅱ(M)



LU45Ⅱ(M)



Machining capacity / accuracy (actual data)

LU35Ⅱ(M)

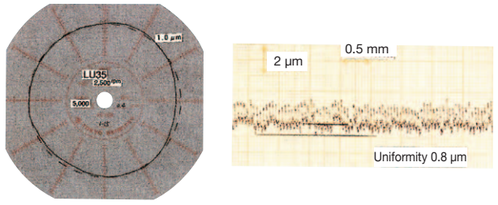
- Turning capacity (Material: S45C)

Heavy-duty turning	Upper turret: 5 mm^2 Lower turret: 4 mm^2

- Milling capacity (Material: S45C)

End milling	ø30 6-flute end mill (roughing) Milling depth t: 12 mm Feedrate f: 0.1 mm/flute
Tapping	M24 P3 (Synchronized Tapping)

- Machining Accuracy (Material: BsB)



- Roundness
  1.0 µm/at 2,500 min^{-1}
- Surface roughness (tool nose uniformity)
  0.8 µm/at 2,500 min^{-1}

LU45Ⅱ(M)

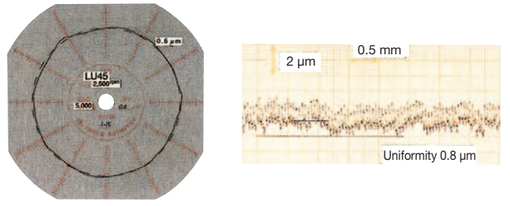
- Turning capacity (Material: S45C)

Heavy-duty turning	Upper turret: 6 mm^2 Lower turret: 5 mm^2

- Milling capacity (Material: S45C)

End milling	ø40 6-flute end mill (roughing) Milling depth t: 15 mm Feedrate f: 0.1 mm/flute
Tapping	M33 P3.5 (Synchronized Tapping)

- Machining Accuracy (Material: BsB)



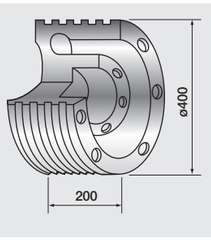
- Roundness
  0.6 µm/at 2,500 min^{-1}
- Surface roughness (tool nose uniformity)
  0.8 µm/at 2,500 min^{-1}

- Machining example (Material: S45C)



Machine : LU35Ⅱ(M)
Material : FC200
Part size : ø155 × 120 mm
Cycle time : 11 min 20 sec
Featuring : X-C axes generated

- Machining example (Material: S45C)

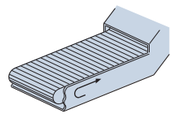
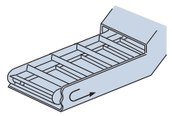
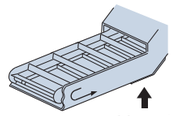
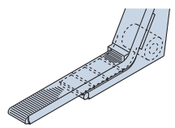


Machine : LU45Ⅱ(M)
Material : FC250
Part size : ø400 × 200 mm
Cycle time : 35 min
Featuring : Complete machining pulley mount holes

*Data listed in the catalog are actual data. These values may not be obtained depending on specifications, tooling, and cutting conditions and other factors.

Various chip conveyors

Chip conveyor types and application

Name	Hinge type	Scraper type	Magnet scraper type	Hinge scraper type (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				

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

LU35Ⅱ/LU35Ⅱ(M)

Machine specifications

Model			LU35Ⅱ				LU35Ⅱ (M)			
			2ST × 600	2SC × 850	2SC × 1500	2SC × 2000	2ST × 600	2SC × 850	2SC × 1500	2SC × 2000
Capacity	Swing over bed	mm (in.)	ø740 (29.13)							
	Swing over saddle	mm (in.)	ø480 (18.90)							
	Distance between centers	mm (in.)	–	850 (33.46)	1,500 (59.06)	2,000 (78.74)	–	850 (33.46)	1,500 (59.06)	2,000 (78.74)
	Max turning diameter	mm (in.)	ø550 (21.65)				ø550 (21.65)			
	Max work length	mm (in.)	920 (36.22)	920 (36.22)	1,750 (68.90)	2,070 (81.50)	920 (36.22)	920 (36.22)	1,750 (68.90)	2,070 (81.50)
	Max work weight	kg	Single support: 210 [270], double-centered support: 1,000							
Travels	X axis	mm	UT: 380 {275+105}/LT: 250 {180+70}				UT: 380 {275+105}/LT: 250 {180+70}			
	Z axis	mm	UT: 920 LT: 875		UT: 1,570 LT: 1,525	UT: 2,070 LT: 2,025	UT: 920 LT: 875		UT: 1,570 LT: 1,525	UT: 2,070 LT: 2,025
	C axis		–				360°			
Spindle	Speed range	min^{-1}	14 to 3,200 [12 to 2,800]							
	Speed ranges		4 ranges (2 gear ranges x 2 VAC motor coil switched ranges)							
	Spindle nose		JIS A2-8 [JIS A2-11]							
	Spindle bore dia	mm (in.)	ø90 (3.54) [ø110 (4.33)]							
	Front bearing dia	mm (in.)	ø130 (5.12) [ø150 (5.91)]							
Turret (NC)	Type		UT: V12 / LT: V10				UT: M-V12 / LT: VDI-V10			
	No. of tools		UT: V12 / LT: V10				UT: 12 (L, M) / LT: 10			
	OD tool shank	mm (in.)	25 x 25 (1 x 1)							
	ID tool shank dia	mm (in.)	ø50 (1.97)							
	Indexing time	sec.	0.3/index (non-lift)							
Milling Tool	Spindle speed	min^{-1} (rpm)	–				40 to 2,000			
Feedrates	Rapid traverse	mm/min (ipm)	X: 15,000 (591) Z: 20,000 (787)				X: 15,000 (591) Z: 20,000 (787) C: 150 min^{-1} (rpm)			
	Cutting feedrate	mm/rev (ipr)	X, Z: 0.001 to 1,000.000 (0.0001 to 40.0000)							
Tailstock	Quill diameter	mm (in.)	–	ø120 (4.72)			–	ø120 (4.72)		
	Quill bore taper		–	MT 5 (built-in)			–	MT 5 (built-in)		
	Quill travel	mm (in.)	–	170 (6.69)			–	170 (6.69)		
Motors	Spindle (30 min/cont)	kW (hp)	Wide range VAC 30/22 (40/30) 37*/30 (50/40) (30 min/cont)							
	Milling tool (30 min/cont)	kW (hp)	–				VAC 5.5/3.7 (7/5) (30 min/cont)			
	Axis drives	kW (hp)	XA: 3.6 (4.8); XB: 3.0 (4); ZA/ZB: 4.2 (5.6)							
	Coolant pump	kW	Side discharge: 0.4 × 2, rear discharge: 0.4 + 0.8							
Machine Size	Height	mm	2,590							
	Floor space (including tank)	mm×mm	4,535 × 2,872	5,185 × 3,040	5,935 × 3,095		4,535 × 2,872	5,185 × 3,040	5,935 × 3,095	
	Weight (w/CNC system)	kg (lb)	9,000 (19,800)	9,500 (20,900)	14,000 (30,800)	15,800 (34,760)	96,00 (21,120)	10,100 (22,220)	14,600 (32,120)	16,400 (36,080)
CNC			OSP-P300L							

UT: Upper Turret LT: Lower Turret [ ]: Big-bore spindle * High-power motor

Standard accessories & Specifications

Model			LU35Ⅱ		LU35Ⅱ (M)	
			2ST	2SC	2ST	2SC
Machine Specs	Spindle motor	VAC30/22 kW (30 min/cont)	●		●	
	Spindle speeds	14 to 3,200 min^{-1}	●		●	
	Milling tool motor	VAC5.5/3.7 kW (30 min/cont)	–			●
	Milling tool speeds	40 to 2,000 min^{-1}	–			●
	Turret	Upper: V12 NC	●		–	
		Lower: V10 NC	●		–	
		Upper: M-12	–			●
		Lower: VDI-V10	–			●
	Hyd tailstock	Built-in MT 5	–	●	–	●
	Standard Equipment	Hydraulic unit	●		●	
		Coolant system	●		●	
		Chip shield	●		●	
	Standard Accessories	Work lamp (LED)	●		●	
		Foundation washers	●		●	
		Levelling jack screws	●		●	
		Hand tools	●		●	
CNC	OSP-P300L		●		●	

Chucking & Tooling kit

Model		LU35Ⅱ						LU35Ⅱ (M)					
		2ST			2SC			2ST			2SC		
Chucking	12" hyd chuck	1	1	–	1	1	–	1	1	–	1	1	–
	12" hollow hyd chuck	–	–	1	–	–	1	–	–	1	–	–	1
	Standard soft jaws, A	–	5	5	–	5	5	–	5	5	–	5	5
	Standard soft jaws, B	–	3	3	–	3	3	–	3	3	–	3	3
	Standard hard jaws	–	1	1	–	1	1	–	1	1	–	1	1
Turret Tooling	OD Ⅰ	6	8	8	8	10	10	–	–	–	–	–	–
	OD Ⅱ	4	6	6	2	4	4	–	–	–	–	–	–
	OD A	–	–	–	–	–	–	4	6	6	2	4	4
	OD B	–	–	–	–	–	–	2	4	4	4	6	6
	OD C	–	–	–	–	–	–	2	2	2	2	2	2
	ID H50	8	10	10	8	10	10	8	10	10	8	10	10
	BS 12-H50	–	2	2	–	2	2	–	2	2	–	2	2
	BS 16-H50	–	2	2	–	2	2	–	2	2	–	2	2
	BS 20-H50	–	2	2	–	2	2	–	2	2	–	2	2
	BS 25-H50	4	4	4	4	4	4	4	4	4	4	4	4
	BS 32-H50	4	4	4	4	4	4	4	4	4	4	4	4
	BS 40-H50	–	2	2	–	2	2	–	2	2	–	2	2
	DS MT 2	–	1	1	–	1	1	–	1	1	–	1	1
	DS MT 3	1	1	1	1	1	1	1	1	1	1	1	1
	DS MT 4	–	1	1	–	1	1	–	1	1	–	1	1
	Axial drill/mill unit	–	–	–	–	–	–	2	4	4	2	3	3
	Radial drill/mill unit	–	–	–	–	–	–	2	3	3	2	4	4
	Dummy holder	–	–	–	–	–	–	3	3	3	3	3	3
Tailstock	Dead center MT 5	–	–	–	1	1	1	–	–	–	1	1	1

LU45Ⅱ/LU45Ⅱ(M)

Machine specifications

Model			LU45Ⅱ				LU45Ⅱ (M)			
			2ST × 750	2SC × 1000	2SC × 2000	2SC × 3000	2ST × 750	2SC × 1000	2SC × 2000	2SC × 3000
Capacity	Swing over bed	mm (in.)	ø840 (33.07)			ø780 (30.71)	ø840 (33.07)			ø780 (30.71)
	Swing over saddle	mm (in.)	ø555 (21.85)							
	Distance between centers	mm (in.)	–	1,000 (39.37)	2,000 (78.74)	3,000 (118.11)	–	1,000 (39.37)	2,000 (78.74)	3,000 (118.11)
	Max turning diameter	mm (in.)	ø650 (25.59)	ø555 (21.85)			ø650 (25.59)	ø555 (21.85)		
	Max work length	mm (in.)	750 (29.53)	1,000 (39.37)	2,000 (78.74)	3,000 (118.11)	750 (29.53)	1,000 (39.37)	2,000 (78.74)	3,000 (118.11)
	Max workpiece weight (including chuck)	kg	Single support: 300 [450], double-centered support: 1,500							
Travels	X axis	mm	UT: 440 {330+110}/LT: 305 {230+75}				UT: 440 {325+115}/LT: 305 {230+75}			
	Z axis	mm	UT: 1,090 LT: 1,025		UT: 2,090 LT: 2,025	UT: 3,090 LT: 3,025	UT: 1,090 LT: 1,025		UT: 2,090 LT: 2,025	UT: 3,090 LT: 3,025
	C axis		–				360°			
Spindle	Speed range	min^{-1}	12 to 2,800 [12 to 2,400]							
	Speed ranges		Infinitely variable × Auto 4-speed							
	Spindle nose		JIS A2-11 [JIS A2-11]							
	Spindle bore dia	mm (in.)	ø110 (4.33) [130 (5.12)]							
	Front bearing dia	mm (in.)	ø150 (5.91) [180 (7.09)]							
Turret (NC)	Type		UT: V12 / LT: V10				UT: M-V12 / LT: VDI-V10			
	No. of tool		UT: 12 / LT: 10				UT: 12 (L, M) LT: 10			
	Tool shank height	mm (in.)	32 x 32 (1.26 x 1.26)							
	Boring bar shank dia	mm (in.)	ø63 (2.48)							
	Indexing time	sec.	0.7/index (lift-up)							
Milling Too	Spindle speed	min^{-1} (rpm)	–				40 to 2,000			
Feedrates	Rapid traverse	mm/min (ipm)	X: 15,000 (591) / Z: 20,000 (787)				X: 15,000 (591) / Z: 20,000 (787) / C: 100 min^{-1} {rpm}			
	Cutting feedrate	mm/rev (ipr)	X, Z: 0.001 to 1,000.000 (0.0001 to 40.0000)							
Tailstock	Quill diameter	mm (in.)	–	ø130 (5.12)			–	ø130 (5.12)		
	Quill bore taper		–	MT 5 (built-in)			–	MT 5 (built-in)		
	Quill travel	mm (in.)	–	170 (6.69)			–	170 (6.69)		
Motors	Spindle (30 min/cont)	kW (hp)	VAC 37/30 (50/40) (30 min/cont), 45/37*(60/50) (30 min/cont)							
	Milling tool (30 min/cont)	kW (hp)	–				VAC 7.5 / 5.5 (10/7) (30 min/cont)			
	Axis drives	kW (hp)	XA: 3.6 (4.8), XB: 3.0 (4), ZA/ZB: 4.6 (6.13),							
	Coolant pump	kW	Side discharge: 0.4 × 2, rear discharge: 0.4 + 0.8							
Machine Size	Height	mm	3,042	3,040	2,822		3,042	3,040	2,822	
	Floor space (including tank)	mm×mm	4,750 × 3,340	6,060 × 3,355	8,020 × 3,005		4,750 × 3,340	6,060 × 3,355	8,020 × 3,005	
	Weight (w/CNC system)	kg (lb)	16,000 (35,200)	16,500 (36,300)	20,700 (45,540)	23,000 (50,600)	16,500 (36,300)	17,000 (37,400)	21,200 (46,400)	23,500 (51,700)
CNC			OSP-P300L							

UT: Upper Turret LT: Lower Turret [ ]: Big-bore spindle * High-power motor

Standard accessories & Specifications

Model			LU45Ⅱ		LU45Ⅱ (M)	
			2ST	2SC	2ST	2SC
Machine Specs	Spindle motor	VAC37/30 kW (30 min/cont)	●		●	
	Spindle speeds	12 to 2,800 min^{-1}	●		●	
	Milling tool motor	VAC7.5/5.5 kW (30 min/cont)	–			●
	Milling tool speeds	40 to 2,000 min^{-1}	–			●
	Turret	Upper: V12 NC	●		–	
		Lower: V10 NC	●		–	
		Upper: M-12	–			●
		Lower: VDI-V10	–			●
	Hyd tailstock	built-in MT 5	–	●	–	●
	Standard Equipment	Hydraulic unit	●		●	
		Coolant system	●		●	
		Chip shield	●		●	
	Standard Accessories	Work lamp (LED)	●		●	
		Foundation washers	●		●	
		Levelling jack screws	●		●	
		Hand tools	●		●	
CNC	OSP-P300L		●		●	

Chucking & Tooling kit

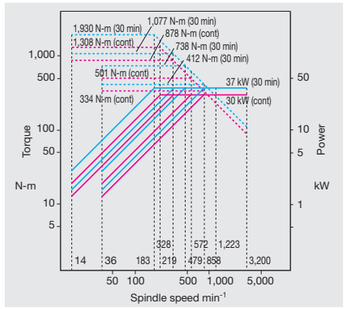
Model		LU45Ⅱ						LU45Ⅱ (M)					
		2ST			2SC			2ST			2SC		
Chucking	15" hyd chuck	1	1	–	1	1	–	1	1	–	1	1	–
	15" hollow hyd chuck	–	–	1	–	–	1	–	–	1	–	–	1
	Standard soft jaws, A	–	5	5	–	5	5	–	5	5	–	5	5
	Standard soft jaws, B	–	3	3	–	3	3	–	3	3	–	3	3
	Standard hard jaws	–	1	1	–	1	1	–	1	1	–	1	1
Turret Tooling	OD Ⅰ	6	8	8	8	10	10	–	–	–	–	–	–
	OD Ⅱ	4	6	6	2	4	4	–	–	–	–	–	–
	OD A	–	–	–	–	–	–	4	6	6	2	4	4
	OD B	–	–	–	–	–	–	2	4	4	4	6	6
	OD C	–	–	–	–	–	–	2	2	2	2	2	2
	ID H63	8	10	10	8	10	10	8	10	10	8	10	10
	BS 16-H63	–	2	2	–	2	2	–	2	2	–	2	2
	BS 20-H63	–	2	2	–	2	2	–	2	2	–	2	2
	BS 25-H63	–	2	2	–	2	2	–	2	2	–	2	2
	BS 32-H63	4	4	4	4	4	4	4	4	4	4	4	4
	BS 40-H63	4	4	4	4	4	4	4	4	4	4	4	4
	BS 50-H63	–	2	2	–	2	2	–	2	2	–	2	2
	DS MT 2	–	1	1	–	1	1	–	1	1	–	1	1
	DS MT 3	1	1	1	1	1	1	1	1	1	1	1	1
	DS MT 4	–	1	1	–	1	1	–	1	1	–	1	1
	Axial drill/mill unit	–	–	–	–	–	–	2	4	4	2	3	3
	Radial drill/mill unit	–	–	–	–	–	–	2	3	3	2	4	4
	Dummy holder	–	–	–	–	–	–	3	3	3	3	3	3
Tailstock	Dead center MT 5	–	–	–	1	1	1	–	–	–	1	1	1

Optional specifications and accessories

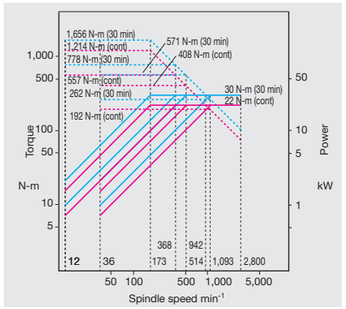
High power specs	**Tailstock**	**Gauging**
LU35Ⅱ A2-8 3,200 min^{-1}	Dead center screw MT No. 5	In-process work gauging, workpiece auto gauging compensation
VAC37/30 kW (30 min/cont)	Auto tailstock quill advance/retract confirm	(in-machine, off-machine)
LU45Ⅱ A2-11 2,800 min^{-1}	Tailstock thrust high/low switch	Touch Setter M (manual), A (automatic)
VAC45/37 kW (30 min/cont)	Tailstock quill position detection	**Chip discharge**
Big-bore spindle	(multi-sizing, high-accuracy sizing)	Chip conveyor, chip bucket, chip pan
LU35Ⅱ A2-11 2,800 min^{-1}	**Steadyrest**	**For coolant**
Spindle boa dia ø150/Front bearing dia ø110	Lower turret, lower cross-slide	Turret coolant pump 0.8 kW (side, rear),
LU45Ⅱ A2-11 2,400 min^{-1}	**Cover**	Chip flusher pump 0.8 kW (side, rear),
Spindle boa dia ø180/Front bearing dia ø130	Auto front cover open/close	Upper/lower turret coolant outlet control (simultaneous, individual),
Big-bore spindle High power specs	**Chucking**	Coolant level sensor, coolant flow sensor,
LU35Ⅱ A2-11 2,800 min^{-1}	Chuck auto open/close confirm	High pressure coolant unit, coolant high/low pressure switch (upper/lower turret)
Spindle boa dia ø150/Front bearing dia ø110	Chuck high/low pressure switch, chucking miss detection	**Face plate**
VAC37/30 kW (30 min/cont)	**Air blower**	ø350, ø400
LU45Ⅱ A2-11 2,400 min^{-1}	Chuck, upper turret	**High accuracy optional specifications**
Spindle boa dia ø180/Front bearing dia ø130	(internal piping, external piping, common coolant nozzle)	Turcite® lining
VAC45/37 kW (30 min/cont)	Lower turret	(XA axis, XB axis, ZA axis, ZB axis)
Super big-bore spindle	(external piping, common coolant nozzle)	AbsoScale
LU35Ⅱ JIS A2-15 1,400 min^{-1}	Upper/lower turret air blower outlet control	(XA axis, XB axis, ZA axis, ZB axis)
Spindle boa dia ø220/Front bearing dia ø180	(simultaneous, individual)	Temperature regulators
LU45Ⅱ JIS A2-20 900 min^{-1}	**Coolant blower**	(coolant, spindle temperature, hydraulic oil)
Spindle boa dia ø320/Front bearing dia ø260	Shower type (A, B), in-machine chip washer (A, B)	**Other**
Turret	**Dust-proof**	Mist collector
LU35Ⅱ/45Ⅱ Upper V12 + Lower V10 Wedge clamp	Spindle air purging, turret air purging,	Workrest, high-speed NC double-column loader OGL
LU35Ⅱ/45Ⅱ Upper V12 + Lower V10 VDI	X-axis double wiper (XA only, XB is standard)	Raised machine height (50, 100, 150 mm)
	Z-axis double wiper (ZA only, ZB is standard)	

Spindle torque / output diagram

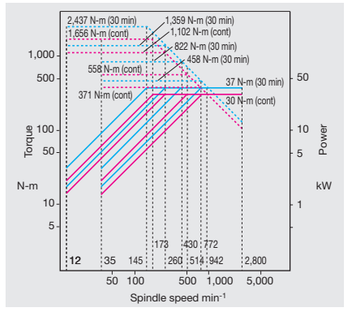
LU35Ⅱ High power specs
- Spindle speed 3,200 min^{-1}
- Power VAC37/30 kW (30 min/cont)
- Torque 1,930/1,308 N-m (30 min/cont)



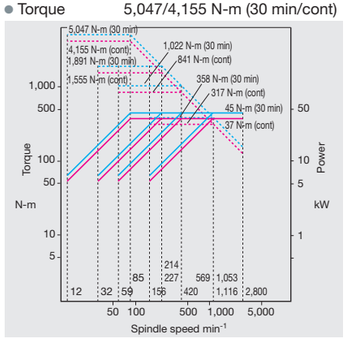
LU35Ⅱ Big-bore spindle
- Spindle speed 2,800 min^{-1}
- Power VAC30/22 kW (30 min/cont)
- Torque 1,656/1,214 N-m (30 min/cont)



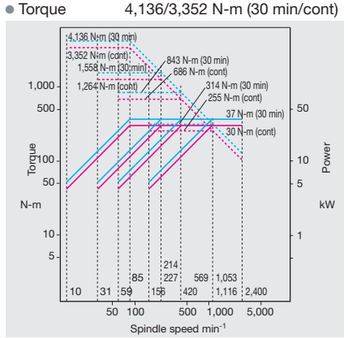
LU35Ⅱ High power big-bore spindle
- Spindle speed 2,800 min^{-1}
- Power VAC37/30 kW (30 min/cont)
- Torque 2,473/1,656 N-m (30 min/cont)



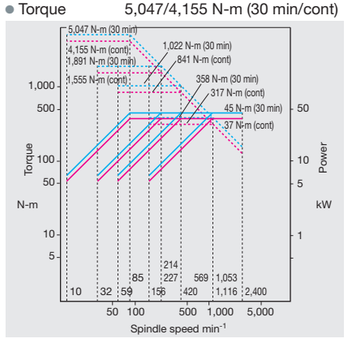
LU45Ⅱ High power specs
- Spindle speed 2,800 min^{-1}
- Power VAC45/37 kW (30 min/cont)
- Torque 5,047/4,155 N-m (30 min/cont)



LU45Ⅱ Big-bore-spindle
- Spindle speed 2,400 min^{-1}
- Power VAC37/30 kW (30 min/cont)
- Torque 4,136/3,352 N-m (30 min/cont)



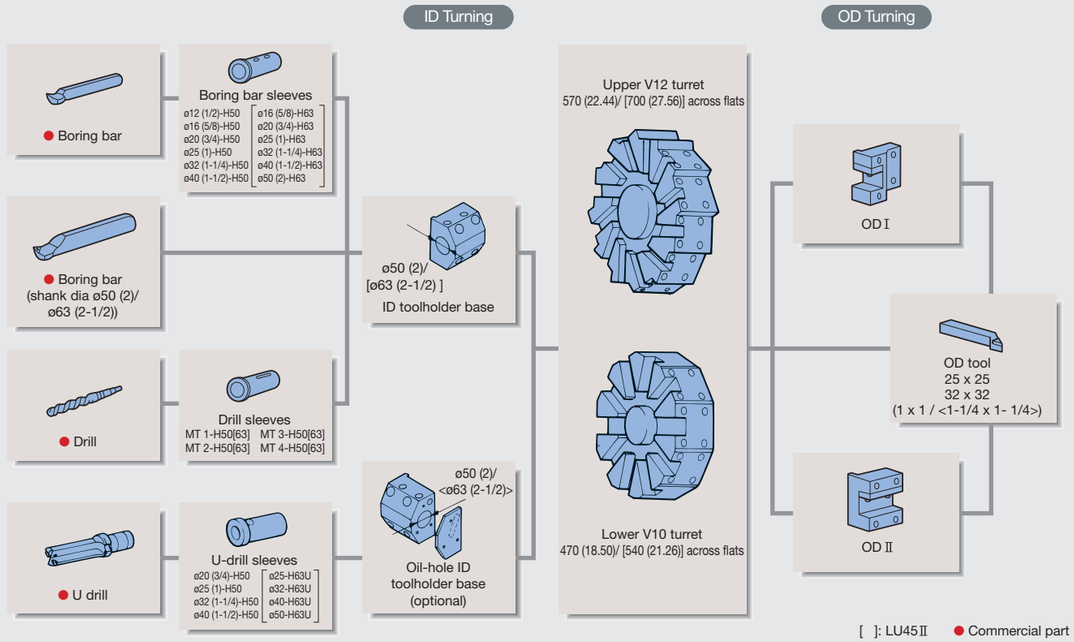
LU45Ⅱ High power big-bore spindle
- Spindle speed 2,400 min^{-1}
- Power VAC45/37 kW (30 min/cont)
- Torque 5,047/4,155 N-m (30 min/cont)



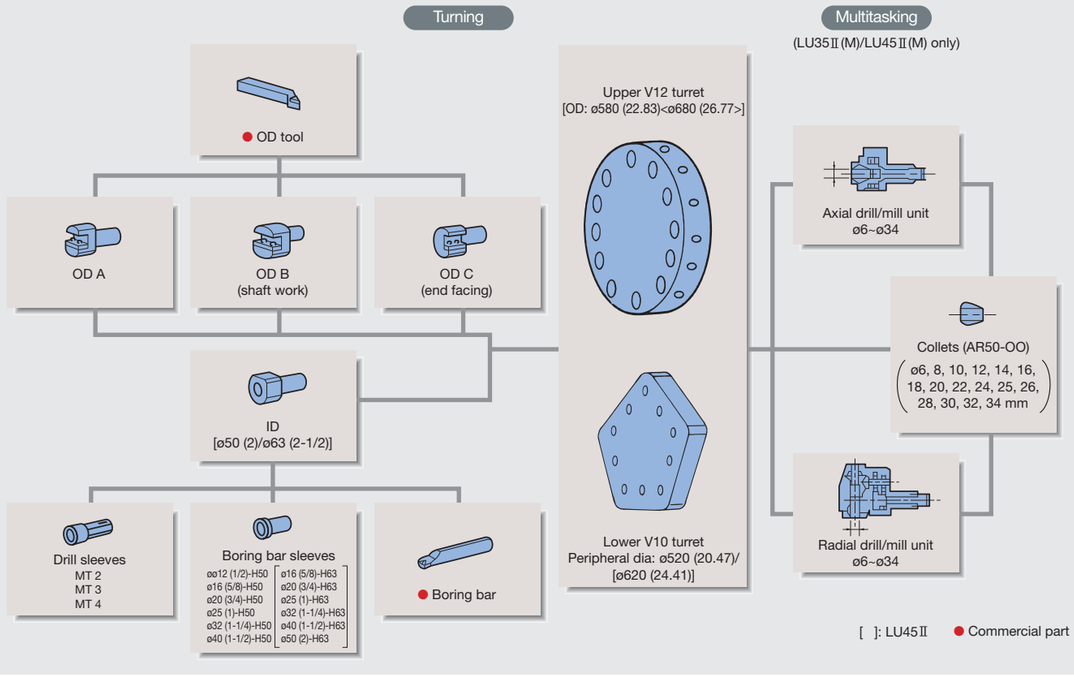
LU35Ⅱ/LU45Ⅱ

TOOLING SYSTEM

Standard Turret Tooling



VDI Turret Tooling (Optional)

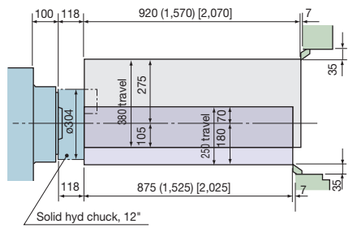


LU35Ⅱ

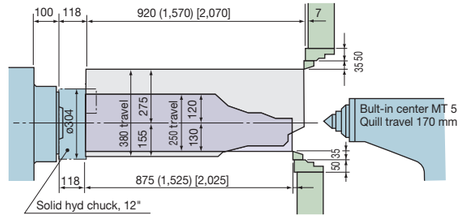
Working ranges

( ): DBC 1,500
[ ]: DBC 2,000

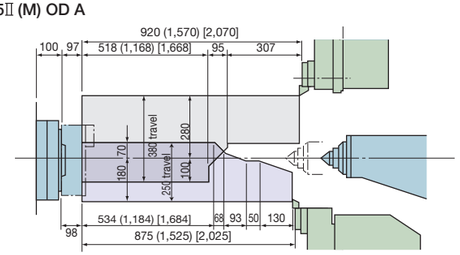
LU35Ⅱ 2ST OD tools directly mounted



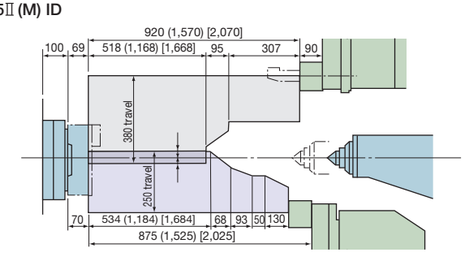
LU35Ⅱ OD Ⅰ



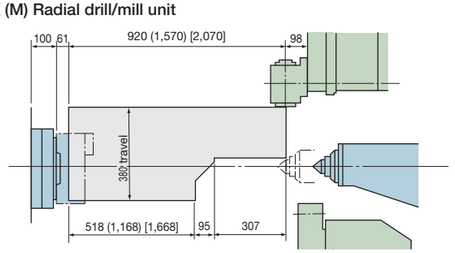
LU35Ⅱ (M) OD A



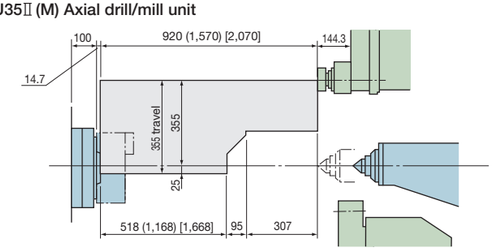
LU35Ⅱ (M) ID



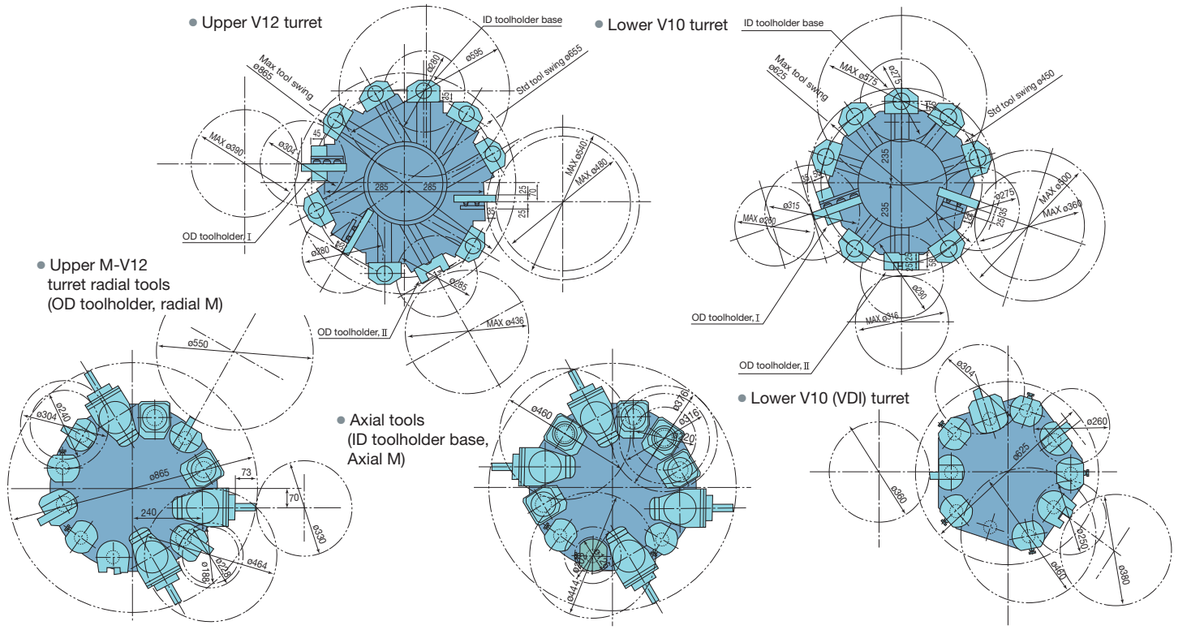
LU35Ⅱ (M) Radial drill/mill unit



LU35Ⅱ (M) Axial drill/mill unit



Tool Interference Drawings

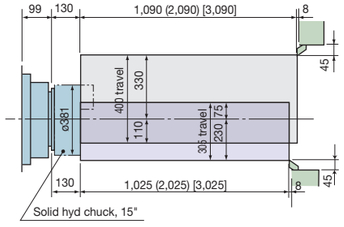


LU45Ⅱ

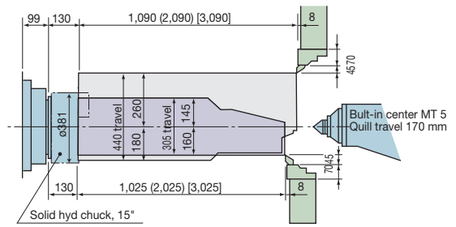
Working ranges

( ): DBC 2,000
[ ]: DBC 3,000

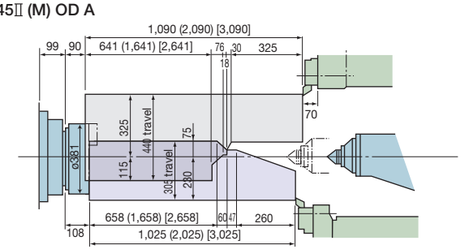
LU45Ⅱ 2ST OD tools directly mounted



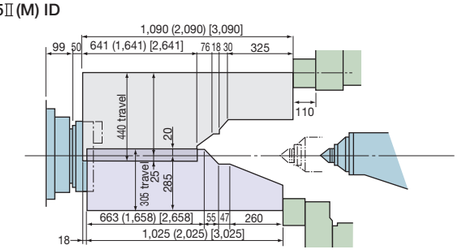
LU45Ⅱ OD Ⅰ



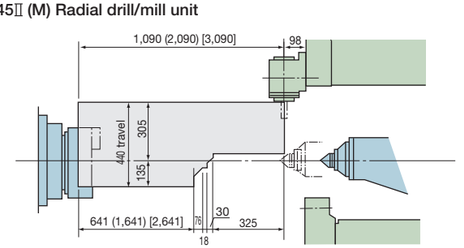
LU45Ⅱ (M) OD A



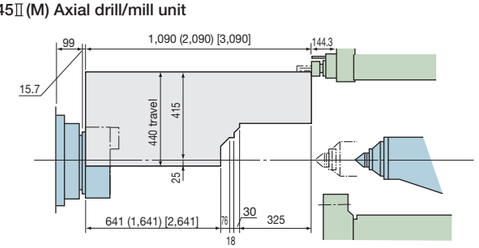
LU45Ⅱ (M) ID



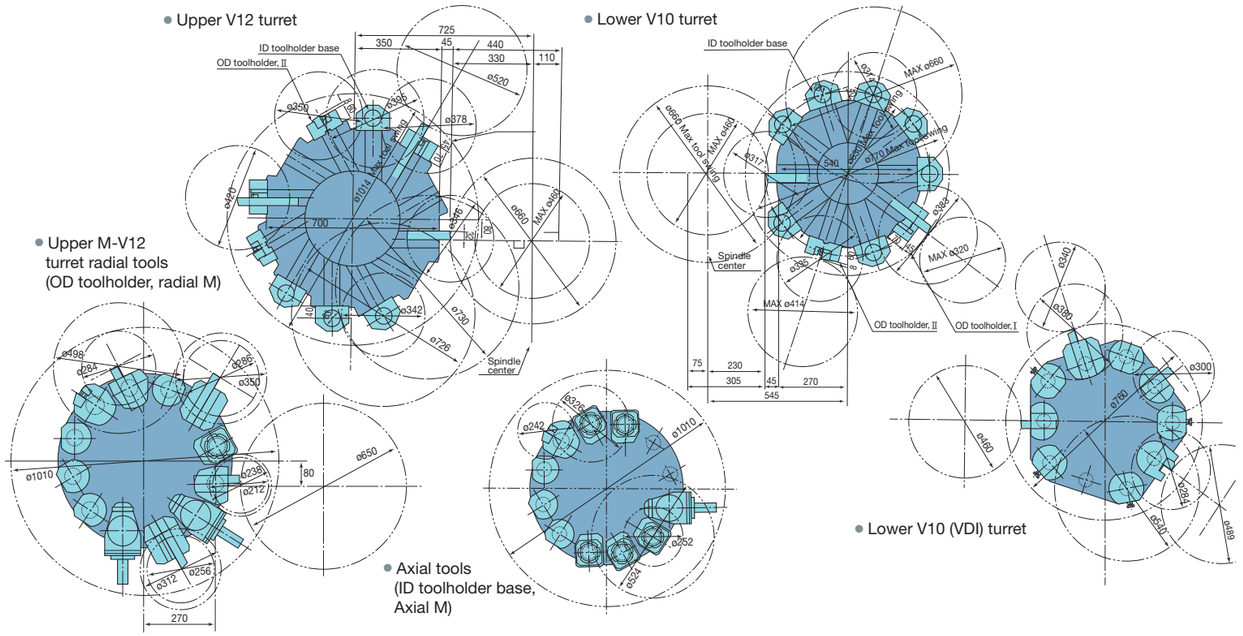
LU45Ⅱ (M) Radial drill/mill unit



LU45Ⅱ (M) Axial drill/mill unit



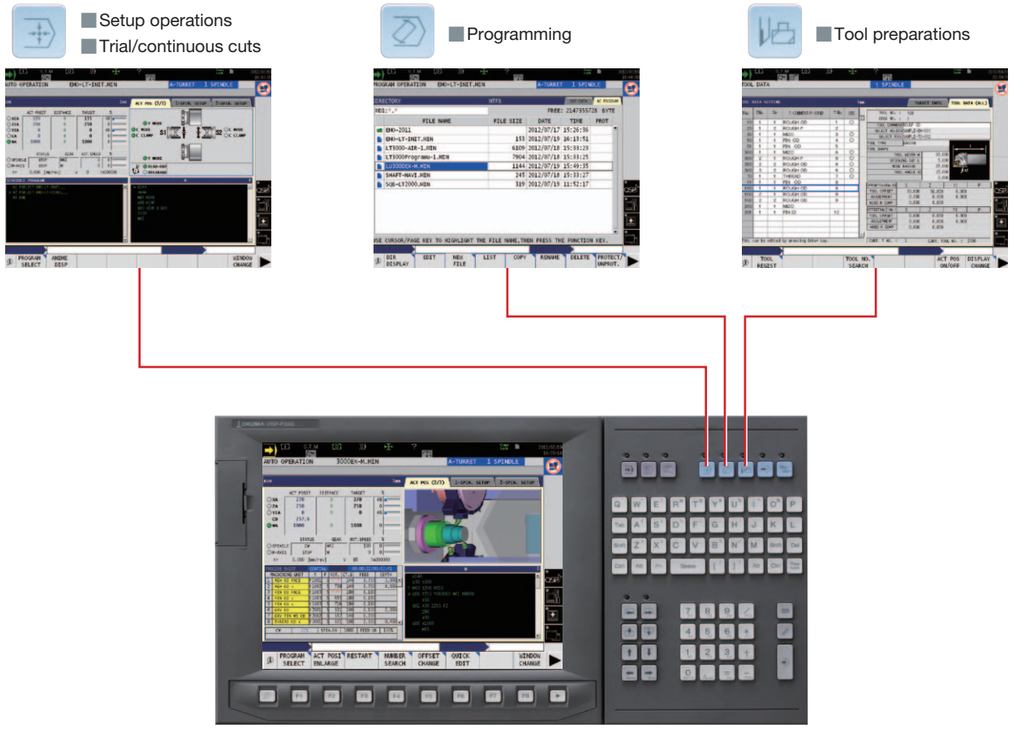
Tool Interference Drawings



Okuma Control OSP-P300L

Satisfaction from complete control of a machine tool

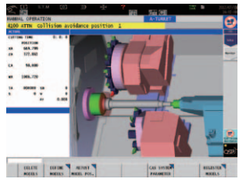
As a “machine & control” builder, Okuma makes further strides in machine tool manufacturing with this superb Control featuring “Easy Operation.” Okuma took a close look at the way machinists actually operate machine tools, to help them create smoother and more effective ways of producing parts. Novice 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.



Collision prevention
Collision Avoidance System (Optional)

World’s first “Collision-Free Machines”

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

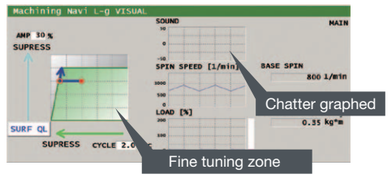


Virtual machine (collision check)

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, 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 (W/O G34, G35), 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, Thermo Active Stabilizer—Construction TAS-C

Optional Specifications

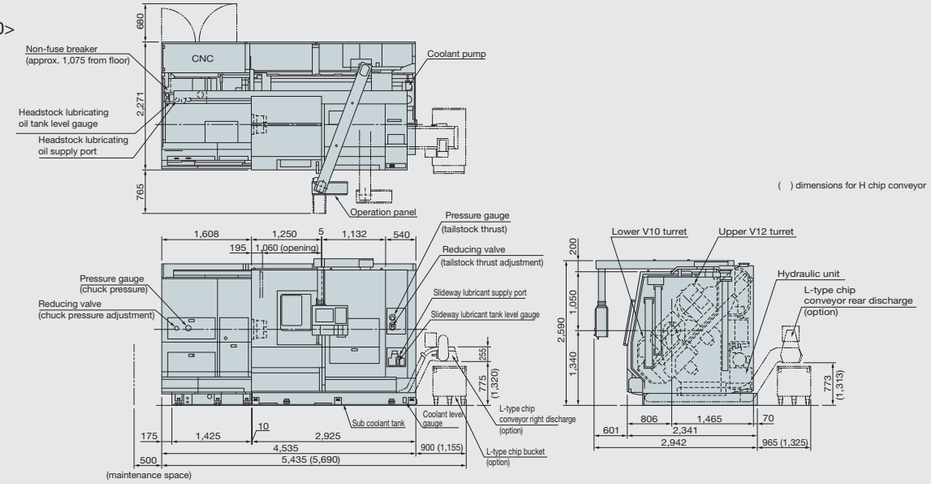
Optional Specifications \ Kit Specs *1		NML E	NML D	3D E	3D D	OT-IGF E	OT-IGF D	OT-IGF-M E	OT-IGF-M D
New Operations									
Advanced One-Touch IGF-L *2						●	●		
Advanced One-Touch IGF-L Multitasking *2								●	●
Programming									
Circular threading			●		●		●		●
Program notes			●		●		●		●
User task 2	I/O variables, 8 ea								
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)									
Inch/metric conversion									
Thread matching (spindle orientation required)									
Threading slide hold (G34, G35)									
Variable spindle speed threading (VSST)									
Inverse time feed									
Spindle synchronized tapping (rigid tapping)									
Chuk open/close during spindle rotation									
Auto tailstock advance/retract during spindle rotation									
Milling machine specs	Coordinate convert	▲	▲	▲	▲			●	●
	Profile generate	▲	▲	▲	▲			●	●
	Flat turning								
	Coordinate calculate (NCYL commands incl)								
	Moving, rotating and copying coordinates								
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									
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							

Optional Specifications \ Kit Specs *1			NML E	NML D	3D E	3D D	OT-IGF E	OT-IGF D	OT-IGF-M E	OT-IGF-M 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									
	FL-Net									
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									
Cycle time reduction *3	Operation time reduction		●	●	●	●	●	●	●	●
High-Speed/High-Accuracy Functions										
1/101µm control *3										
Pitch error compensation (X-axis, Z-axis)										
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										
Manual cutting feed										
Spindle power peak cutting										
Short circuit breaker										
External M signals [2 sets, 4 sets, 8 sets, 16 sets]										
Edit interlock										
OSP-VPS (virus protection system)										

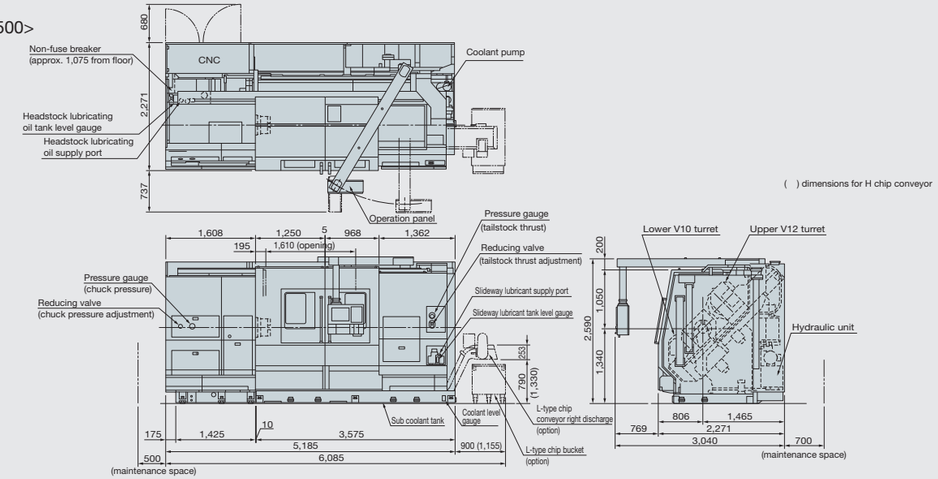
*1. NML: Normal, 3D: Real 3D simulation, OT-IGF: One-Touch IGF, OTM: One-Touch M
E: Economy, D: Deluxe
*2. Real 3-D Simulation included
*3. Engineering discussions required.
Note: ▲ Triangle items for M function (milling tool) machines only.

Dimensional drawing, installation drawing LU35Ⅱ/LU35Ⅱ(M)

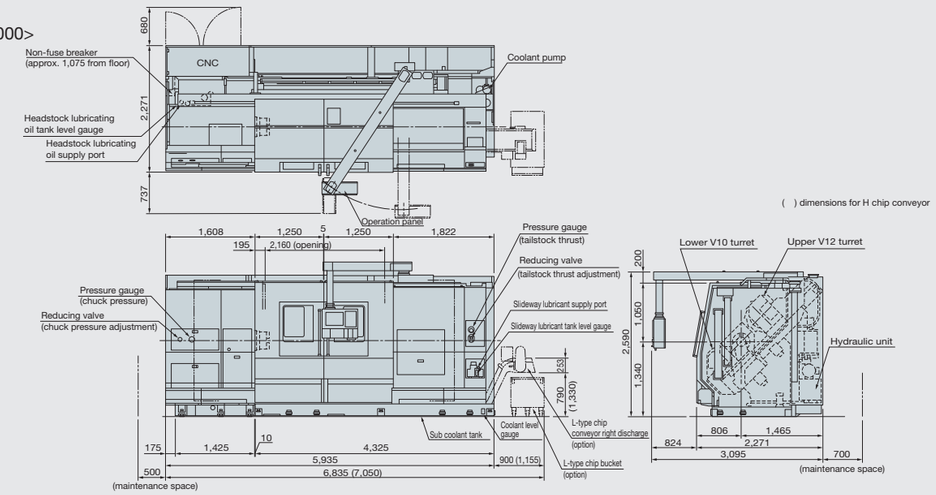
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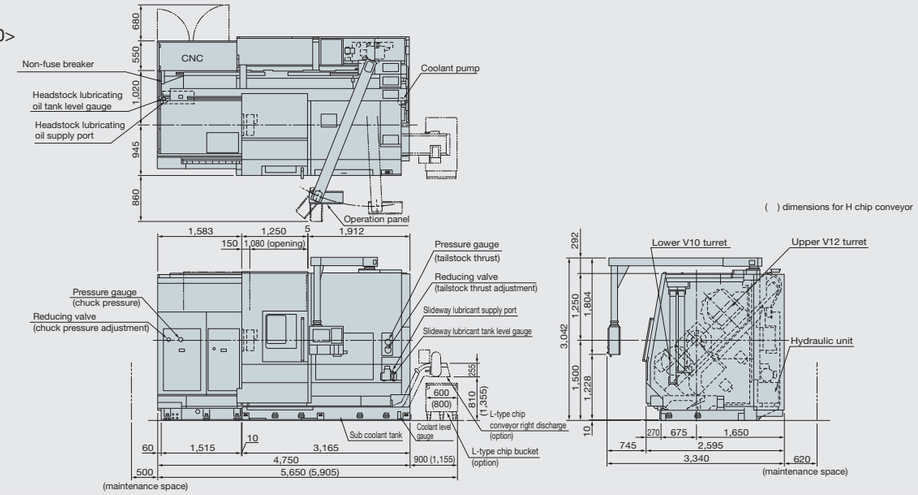


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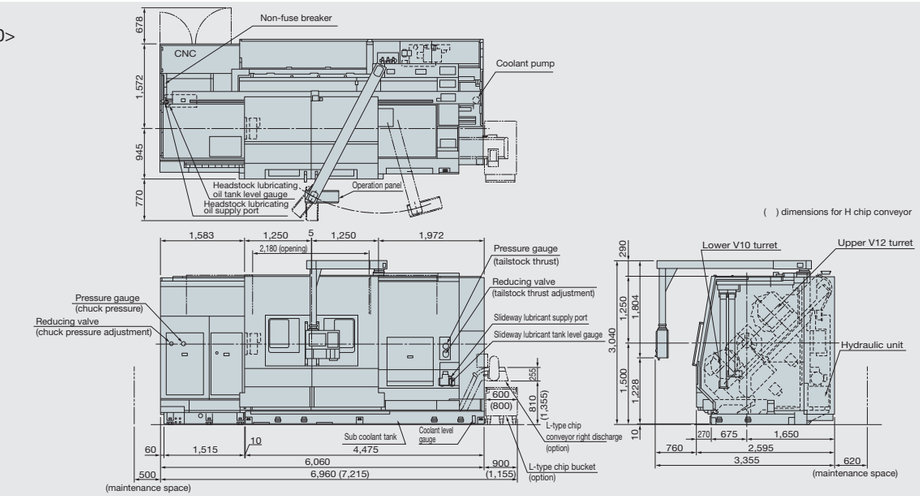


Dimensional drawing, installation drawing LU45Ⅱ/LU45Ⅱ(M)

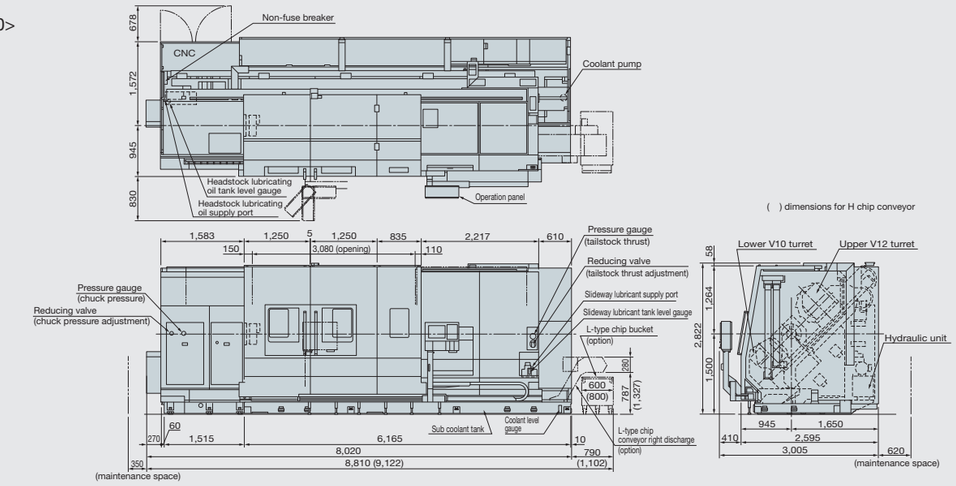
<DBC 1,000>



<DBC 2,000>



<DBC 3,000>



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

⚠ Fire Safety Precautions

To protect your factory and equipment from fire and assure continued safe operation, observe the following fire safety precautions whenever you operate machinery.
Whenever possible, avoid the use of oil-based coolants for cutting operations.
Sparks caused by hot chips, tool friction, and grinding can cause fires.
Always observe the following safety measures to ensure safe operation when machining flammable materials or when performing dry machining.

1. Oil-based coolant
   (1) Use nonflammable cutting fluid coolant.
   (2) When the use of an oil-based coolant is unavoidable:
   - **Before** you begin machining, check cutting tools to make sure of their service life and the condition of the tool edge, and choose cutting conditions that will not cause a fire.
   - Periodically clean the coolant filter to maintain sufficient coolant discharge, and frequently verify that coolant is discharging normally.
   - Take measures to control the outbreak of fire: Place a fire extinguisher near the machine, have an operator constantly monitor operation, and install an automatic fire extinguishing system.
   - Do not place flammable materials near the machine.
   - Do not allow chips to over accumulate.
   - Periodically clean the inside of the machine and the area surrounding it.
   - Check that the machine is operating normally.
   - Never run the machine unattended.
   - Since an automatic fire extinguishing system and other peripherals are needed for grinding operations, please let us know as soon as possible if you plan to perform such operations.
2. Precautions regarding machining of potentially flammable materials
   Before machining any material designated by law as a flammable substance, e.g., plastic, rubber, wood, acquaint yourself with the special characteristics of the material in terms of fire prevention, and observe the precautions given in (2) above to ensure safe operation.
   Example: When machining magnesium, there is a danger that magnesium chips and water-soluble coolants will react to produce hydrogen gas, resulting in an explosive fire if any chip should ignite.
3. Dry machining
   Dry machining is a fire hazard because workpieces, tools, and chips are not cooled. To ensure safe operation, do not place any flammable objects near the machine and do not allow chips to over accumulate.
   In addition, be sure to check cutting tools to make sure of their service life and the condition of the tool edge, and observe the precautions regarding oil-based coolants given in (2) above.

OKUMA

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.

OKUMA Corporation, OGUCHI-CHO, NIWA-GUN, AICHI 480-0193, JAPAN • TEL (0587) 95-7825 • FAX (0587) 95-6074

● The specifications, illustrations, and descriptions in this brochure vary in different markets and are subject to change without notice.
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