

GENOS L2000-e
GENOS L3000-e

1-Saddle CNC Lathes



GENOS L2000-e GENOS L3000-e

1-Saddle CNC Lathes



High quality, high performance

The GENOS lathe is designed for powerful, high precision machining, and since its launch in 2010, the GENOS series of machines have earned an outstanding reputation for quality and performance from customers around the world. The operator-friendly lathes feature solid guideways that handle vigorous cutting with ease and precision.

Okuma's GENOS series has evolved at the leading edge of "Monozukuri"* that seeks to balance high quality and low cost, contributing to improved productivity.

* Craftsmanship-based, sustainable manufacturing



GENOS L2000-e



GENOS L2000-e (MY)



GENOS L3000-e (M)



GENOS L3000-e (MY)

Users can select the best specifications for their work

Models with different distances between centers for turning and milling specifications are available. Users can select the best specifications for their workpiece length and shape.

	Spindle	Turret	Tailstock	DBC
GENOS L2000-e (L)	5,000 min ⁻¹ JIS A2-6 15/11 kW (20 min/cont)	V12	MT No. 5 (revolving center)	500
GENOS L2000-e (M)		V12 VDI multitasking		380
GENOS L2000-e (MY)				

Photos used in this brochure include optional equipment.

	Spindle	Turret	Tailstock	DBC
GENOS L3000-e (L)	3,800 min ⁻¹ JIS A2-8 22/15 kW (20 min/cont)	V12	MT No. 4 (built-in center)	500, 1100
GENOS L3000-e (M)		V12 radial multitasking		450, 1000
GENOS L3000-e (MY)			400, 1000	
GENOS L3000-e (MYW)			—	DBN: 400



Powerful, easy to use and a compact design.

The GENOS L is specifically designed for customers who want high machining capacity, increased efficiency and maximum ease of use. It delivers precise machining and increased productivity, all in a compact body.

Applicable workpieces



Meeting capacity and accuracy requirements with high productivity

An integral spindle is used for low spindle vibration to achieve high accuracy machining. Powerful cutting made possible by highly rigid machine structure that uses a box guideway system on X- and Z-axis. Fixturing work before machining can also be done easily with an NC tailstock (option).

Excellent user-friendliness allows operators to concentrate on the work

The machine design makes it easy to perform routine maintenance. A separate coolant tank is used to greatly reduce maintenance time and effort. Machine down time is reduced with little chip accumulation for machine cleanliness even during long, continuous operation in mass production.

Okuma's Intelligent Technology reduces operator burden

Thermo Active Stabilizer-Construction (TAS-C) is used to support dimensional stability on a high level at cycle start and machining restart. With graphic visualization of machining status on Machining Navi (option), anyone can use the machine and tools to their fullest without difficulty.

Machining dimensional change over time
 GENOS L3000-e actual data
 (ambient temperature: 8°C change)
 $\leq \varnothing 9 \mu\text{m}$

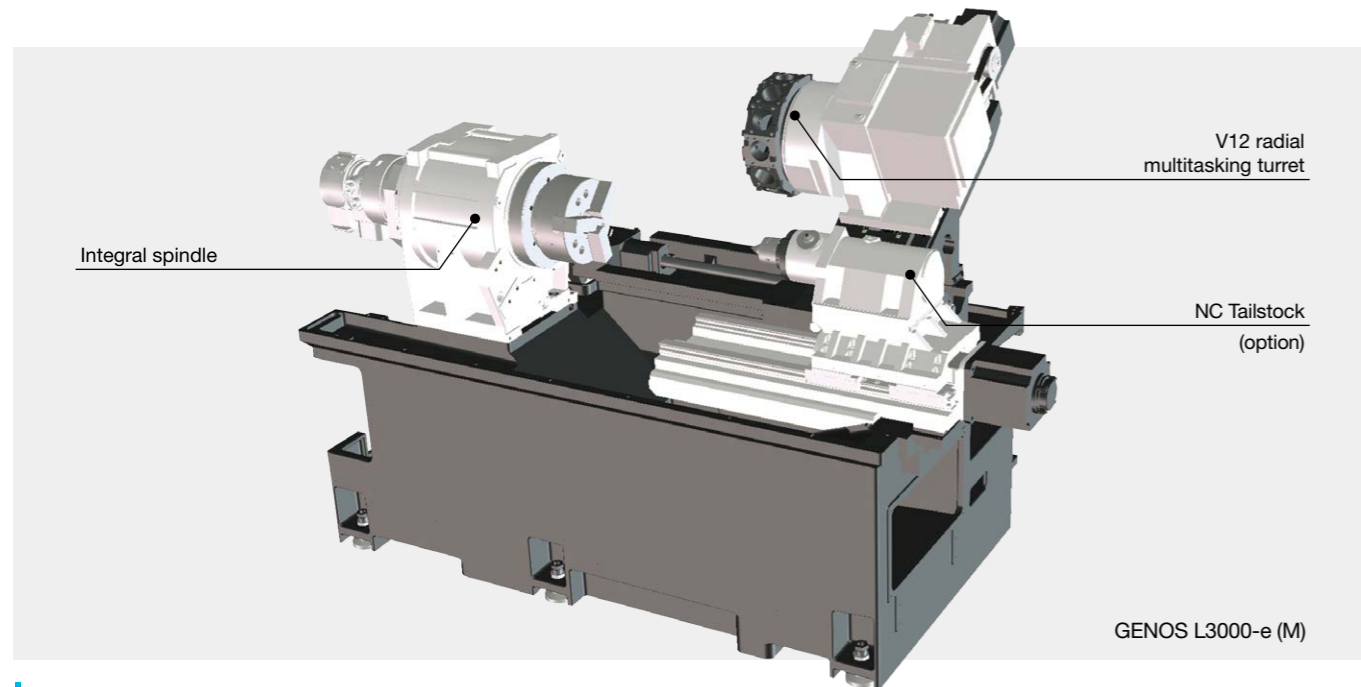
- Machine startup
- Machining restart
- Room temp change

▶ **High dimensional stability**

Meeting capacity and accuracy requirements with high productivity

Achieve powerful, high-quality machining

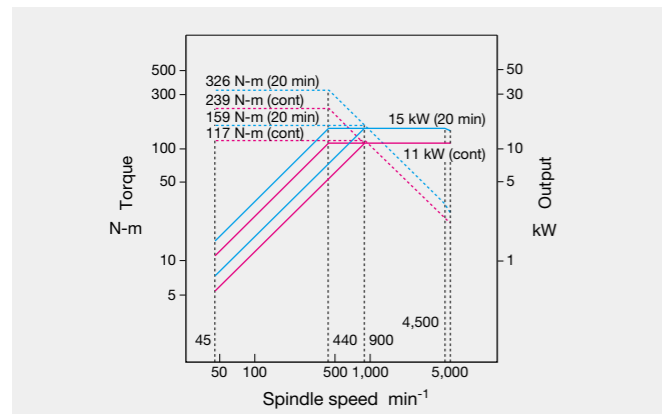
The integral spindle provides fast and high output with high machining capacity—at high quality. And Okuma's legendary slide guideways are highly rigid to handle powerful cutting loads that result in high productivity.



Integral spindle

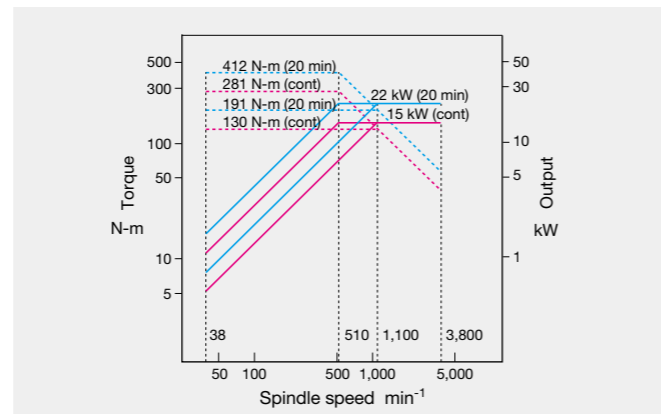
GENOS L2000-e

- Bearing inside diameter: $\phi 100$ mm
- Through-hole diameter: $\phi 62$ mm
- Spindle speed: $5,000 \text{ min}^{-1}$
- Power: 15/11 kW (20 min/cont)
- Torque: 326/239 N-m (20 min/cont)



GENOS L3000-e

- Bearing inside diameter: $\phi 120$ mm
- Through-hole diameter: $\phi 80$ mm
- Spindle speed: $3,800 \text{ min}^{-1}$
- Power: 22/15 kW (20 min/cont)
- Torque: 412/281 N-m (20 min/cont)



High accuracy milling

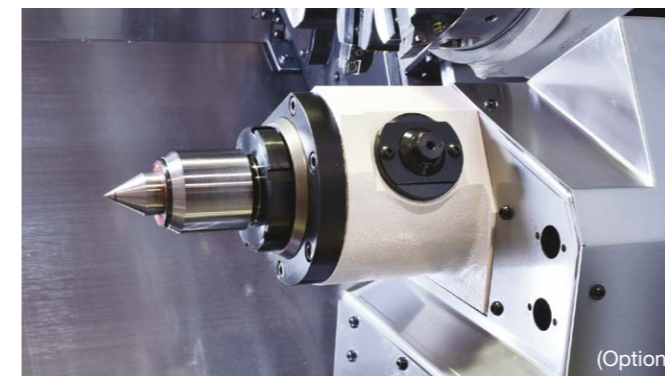
Milling tools can be attached to all locations on turrets with milling specifications. By the 0.001° high-accuracy indexing spindle, milling can be done at any angle.



V12 radial multitasking turret

Simplified shaft work fixturing

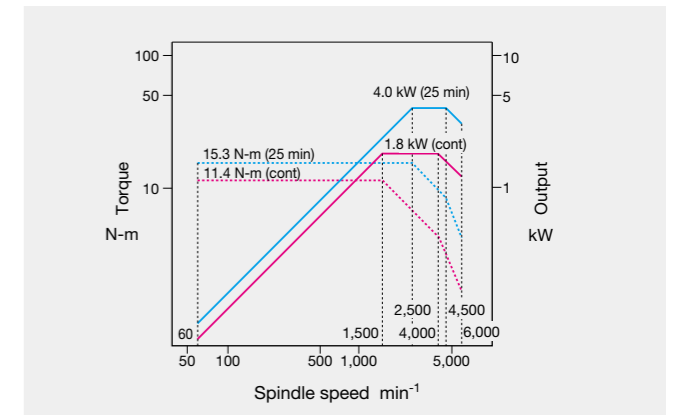
Servomotor control NC tailstock (option) is used for the tailstock. Travel and thrust can be set with program commands, greatly increasing ease of use. Changeover is simplified, reducing set-up times.



Milling tool spindle

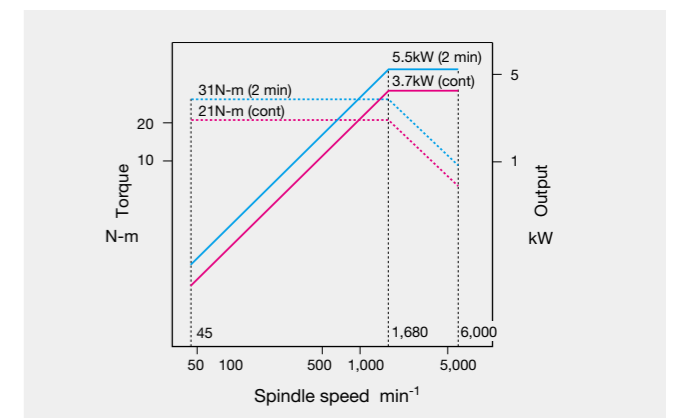
GENOS L2000-e (M), (MY) V12 VDI multitasking turret

- Spindle speed: $6,000 \text{ min}^{-1}$
- Power: 4.0/1.8 kW (25 min/cont)
- Torque: 15.3 N-m



GENOS L3000-e (M), (MY), (MYW) V12 radial multitasking turret

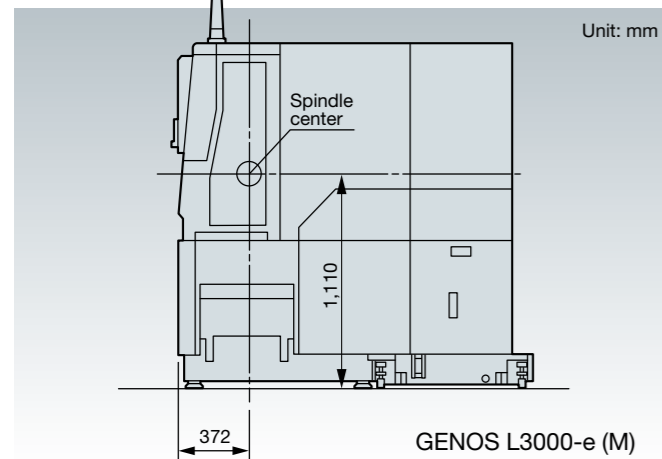
- Spindle speed: $6,000 \text{ min}^{-1}$
- Power: 5.5/3.7 kW (2 min/cont)
- Torque: 31 N-m



Excellent user-friendliness allows operators to concentrate on the work

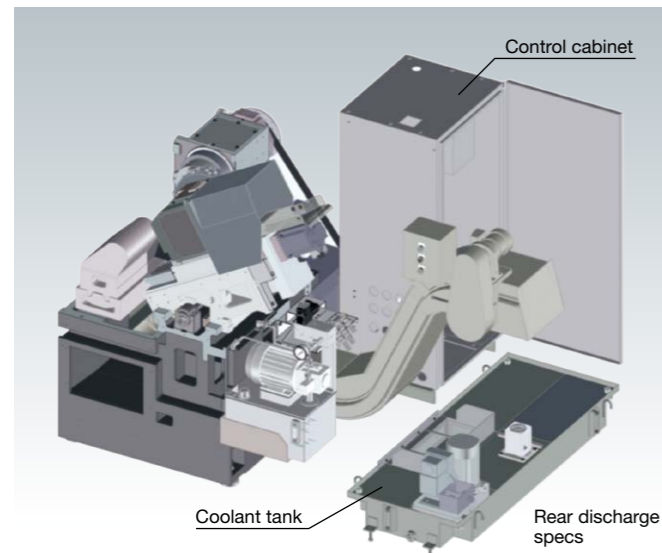
Machine designed for good accessibility

Spindle access is good with 372 mm from the machine front face to the spindle center, reducing the work burden of operators.



Simplified coolant tank maintenance

The coolant tank can be separated away from the machine for easier cleaning. The tank and the control cabinet share the same maintenance space to minimize the machine footprint.



Outstanding chip discharge

The chip discharge outlet is 2 times larger than on previous machines, minimizing chip accumulation. The cleaning frequency is reduced for maximum operation time.

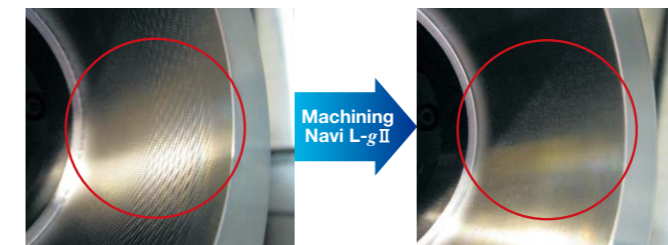
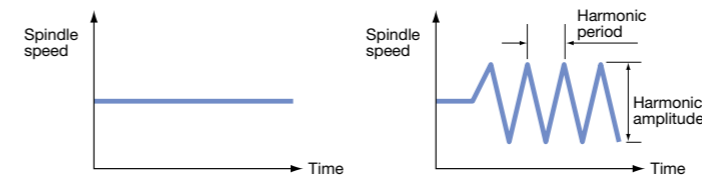


Okuma's Intelligent Technology reduces operator burden



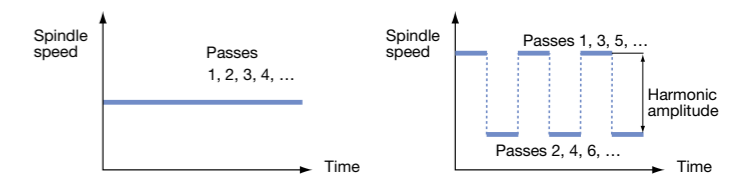
Machining Navi L-gII (guided, harmonic spindle speed control) Cutting condition search function for turning (Option)

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 machining time reduced with use of the optimum cutting conditions, producing significant effects in drilling/boring bar, threading, and grooving applications.



Machining Navi T-g (threading) Cutting condition search in threading (Option)

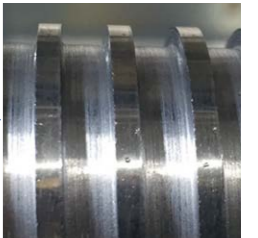
When chatter occurs in threading, general methods to resolve the problem have been to either lower cutting conditions at the expense of productivity, or to use special chatter-resistant tools at some cost. Machining Navi T-g (threading) provides optimum control, increasing or decreasing spindle speed on each pass to inhibit the periodic vibrations that are a cause of chatter.



<Normal threading>



<Machining Navi T-g>



ECO suite Next-Generation Energy-Saving System

A suite of energy saving applications for machine tools

ECO Idling Stop

Operation only when needed

Idling time can be set by individual unit for the spindle, feed drives, and peripheral equipment. By reducing the idling time, power consumption can also be reduced.

- Example of equipment that can use Idling Stop

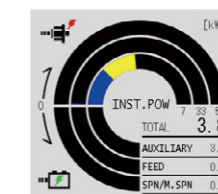
ECO IDLE STOP			
ECO IDLE STOP ELAPSED TIME 0: 0: 0			
	ECO IDLE STOP	DELAY	
1st Spdl. oil temp ctrl.	YES	NO	5min
2nd Spdl. oil temp ctrl.	YES	NO	Immed.
M-spdl. oil temp ctrl.	YES	NO	Immed.
Hydraulic unit	YES	NO	Immed.
Axis lubrication unit	YES	NO	Immed.

ECO Power Monitor

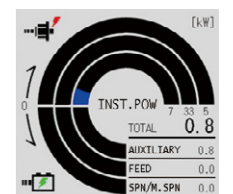
On-the-spot check of energy savings

Power is shown individually for spindle, feed axes, and auxiliaries on the OSP operation screen. In addition to regenerative power, the energy-saving benefits from auxiliary equipment stopped with ECO Idling Stop can be confirmed on the spot.

- Example of Power Monitor check



Before ECO Idling Stop



After ECO Idling Stop

The displayed values are one example.

Machine Specifications

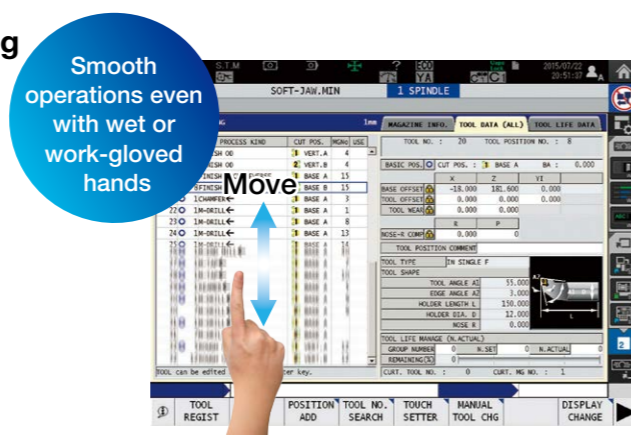
Item	Model name	GENOS L2000-e (L)		GENOS L2000-e (M)	GENOS L2000-e (MY)	GENOS L3000-e (L)			GENOS L3000-e (M)		GENOS L3000-e (MY)		GENOS L3000-e (MYW)				
		T	C DBC 500	C DBC 380	C DBC 380	T	C DBC 500	C DBC 1100	T	C DBC 450	C DBC 1000	T	C DBC 400	C DBC 1000	W DBN 400		
Capacity	Swing over bed	mm (in)	ø450 (17.72)			ø520 (20.47)											
	Swing over saddle	mm (in)	ø350 (13.78)			ø400 (15.75)									ø260 (10.24)		
	Max turning dia	mm (in)	ø230 (9.06)		ø200 (7.87)		ø340 (13.39)			ø300 (11.81)		ø390 (15.35)					
	Max work length	mm (in)	290 (11.42)	500 (19.69)	380 (14.96)		500 (19.69)	1,100 (43.31)	380 (14.96)	980 (38.58)	350 (13.78)	950 (37.40)	150 (5.91)				
Travel	X-axis	mm (in)	165 (6.50)			235 (9.25)											
	Z-axis	mm (in)	330 (12.99)	470 (18.50)	400 (15.75)		520 (20.47)	1,144 (45.04)	460 (18.11)	1,050 (41.34)	450 (17.72)	1,074 (42.28)	460 (18.11)				
	Y-axis	mm (in)	-		80 (+30 to -50) (3.15 (+1.18 to -1.97))		-			100 (3.94) (±50 (1.97))							
	W-axis	mm (in)	-			-									520 (20.47)		
	C-axis control angle	deg	-		360 (minimum control angle 0.001)		-			360 (minimum control angle 0.001)							
Spindle	Speed	min ⁻¹	45 to 5,000			38 to 3,800											
	Speed range		2 auto ranges (2-range motor coil switching)			2 auto ranges (2-range motor coil switching)											
	Nose type		JIS A2-6			JIS A2-8											
	Bore dia	mm (in)	ø62 (2.44)			ø80 (3.15)											
	Front bearing dia	mm (in)	ø100 (3.94)			ø120 (4.72)											
Sub-spindle	Speed	min ⁻¹	-			-									100 to 6,000		
	Speed range		-			-									Infinitely variable		
	Nose type		-			-									ø140 flat		
	Bore dia	mm (in)	-			-									ø53 (2.09)		
	Front bearing dia	mm (in)	-			-									ø80 (3.15)		
Turret	Type		V12		Multitasking V12 VDI		V12			Multitasking V12 radial							
	No. of tools	tool	12		L and M: 12		12			L and M: 12							
	OD tool shank	in	1 square		3/4 square		1 square										
	ID tool shank dia	in	ø1-1/4			ø1-1/2											
	Indexing time	sec/index	0.3		0.1		0.3			0.1							
Milling tool	Spindle speed	min ⁻¹	-			50 to 6,000		-			45 to 6,000						
	Speed range		-			Infinitely variable		-			Infinitely variable						
Feed rate	Rapid traverse	m/min (fpm)	X : 25 (82.03), Z : 30 (98.43)		X: 25 (82.03), Z: 30 (98.43), Y: 10 (32.81)		X: 25 (82.03), Z: 30 (98.43)			X: 25 (82.03), Z: 30 (98.43), Y: 10 (32.81)		X: 25 (82.03), Z: 30 (98.43), Y: 10 (32.81), W: 25 (82.03)					
	Rapid traverse (tailstock)	m/min (fpm)	-	12 (39.37)		-	12 (39.37)		-	12 (39.37)		-	12 (39.37)		-		
	Rapid traverse (C)	min ⁻¹	-		200		-			200							
Tailstock	Tapered bore type		-		MT No. 5 (revolving center)		-	MT No. 4 (built-in center)		-	MT No. 4 (built-in center)		-	MT No. 4 (built-in center)		-	
	Tailstock travel	mm (in)	-		420 (16.54)		-	400 (15.75)	980 (38.58)	-	400 (15.75)	980 (38.58)	-	400 (15.75)	980 (38.58)	-	
Motor	Main spindle	kW (hp)	15/11 (20 min/cont) (20/15)			22/15 (20 min/cont) (30/20)											
	Sub-spindle	kW (hp)	-			-									7.5/5.5 (30 min/cont) (10/7.5)		
	Milling tool spindle	kW (hp)	-		4.0/1.8 (25 min/cont) (5.3/2.4)		-			5.5/3.7 (2 min/cont) (7.5/5)							
	Axis drive (X)	kW (hp)	3.0 (4)		2.8 (3.7)		2.8 (3.7)										
	Axis drive (Z)	kW (hp)	3.0 (4)			3.5 (4.7)		4.6 (6.1)	3.5 (4.7)		4.6 (6.1)	3.5 (4.7)		4.6 (6.1)	3.5 (4.7)		
	Axis drive (Ys)	kW (hp)	-		2.8 (3.7)		-						3.5 (4.7)				
	Tailstock travel	kW (hp)	-		2.9 (3.9)		-	2.9 (3.9)		-	2.9 (3.9)		-	2.9 (3.9)		-	
	Sub-spindle travel	kW (hp)	-			-									2.2 (2.9)		
Coolant motor (50/60 Hz)	kW (hp)	0.55 (3/4) / 0.75 (1)			0.55 (3/4) / 0.75 (1)												
Machine size	Height	mm (in)	1,620 (63.78)		2,087 (82.17)		1,791 (70.51)		2,057 (80.98)	1,791 (70.51)		2,057 (80.98)	2,242 (88.27)		2,489 (97.99)	2,265 (89.17)	
	Floor space (tank included)	mm×mm (in)	1,702 × 1,843 (67.01 × 72.56)	2,480 × 1,832 (97.64 × 72.13)		2,480 × 1,841 (97.64 × 72.48)		2,280 × 1,870 (89.76 × 73.62)	2,545 × 1,870 (100.20 × 73.62)	3,560 × 2,453 (140.16 × 96.57)	2,280 × 1,870 (89.76 × 73.62)	2,545 × 1,870 (100.20 × 73.62)	3,560 × 2,453 (140.16 × 96.57)	Under review	2,545 × 1,991 (100.20 × 78.39)	3,560 × 2,574 (140.16 × 101.34)	3,035 × 1,992 (119.49 × 78.43)
	Mass	kg (lb)	3,000 (6,600)	3,800 (8,360)	3,920 (8,624)	4,200 (9,240)	4,700 (10,340)	5,000 (11,000)	6,600 (14,520)	4,700 (10,340)	5,000 (11,000)	6,950 (15,290)	Under review	5,190 (11,418)	8,700 (19,140)	6,000 (13,200)	
Controller		OSP-P300LA-e						OSP-P300LA-e									

**With revamped operation and responsiveness—
ease of use for machine shops first!**

Smart factories are using advanced digitization and networking (IIoT) in manufacturing to achieve enhanced productivity and added value. The OSP has evolved tremendously as a CNC suited to advanced intelligent technology. Okuma's new control uses the latest CPUs for a tremendous boost in operability, rendering performance, and processing speed. The OSP suite also features a full range of useful apps that could only come from a machine tool manufacturer, making smart manufacturing a reality.

**Smooth, comfortable operation with the feeling
of using a smartphone**

Improved rendering performance and use of a multi-touch panel achieve intuitive graphical operation. Moving, enlarging, reducing, and rotating 3D models, as well as list views of tool data, programs, and other information can be accomplished through smooth, speedy operations with the same feel as using a smartphone. The screen display layout on the operation screen can also be changed to suit operator preferences and customized for the novice and/or veteran machinists.



“Just what we wanted.”— Refreshed OSP suite apps

This became possible through the addition of Okuma's machining expertise based on requests we heard from real, machine-shop customers. The brain power packed into the CNC, built by a machine tool manufacturer, will “empower shop floor” management.

Spindle Output Monitor
Increased productivity through visualization of motor power reserve

The specified spindle output (red line: short time rating, green line: continuous rating) and the spindle output in current cutting (blue circle) are simultaneously displayed on the screen, for real-time view of power reserve during cutting. This allows speeding up cutting by increasing the spindle speed or feed rate while monitoring the graph to ensure that the blue circle does not cross the lines.



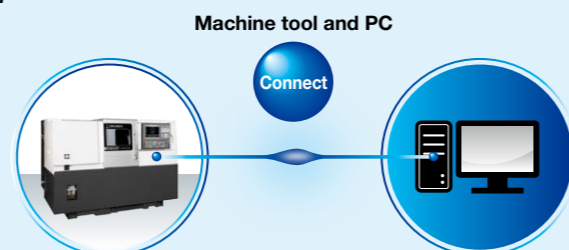
Scheduled Program Editor
Easy programing without keying in code

E-mail Notification
Monitoring utilization status even when away from the machine

Connect Plan Get Connected, Get Started, and Get Innovative with Okuma “Monozukuri”

Connect, Visualize, Improve

Okuma's Connect Plan is a system that provides analytics for improved utilization by connecting machine tools and visual control of factory operation results and machining records. Simply connect the OSP and a PC and install Connect Plan on the PC to see the machine operation status from the shop floor, from an office, from anywhere. The Connect Plan is an ideal solution for customers trying to raise their machine utilization.



Standard Specifications

Name	Description
------	-------------

Features

Axis control	X, Z simultaneous 2-axis running, X, Z, C simultaneous 3-axis multi-processing
Position feedback	Full range absolute position (zero point return not required)
Tape format	N4.G3, X+53, Z+53, I+53, K+53, F+53, S4, T6, M3
Programming	Auto ISO/EIA code recognition, absolute, incremental or both
Min and Max command	±99,999.999 mm, 99,999.999°, 8-digit decimal, command units: 0.001 mm, 0.01 mm, 1 mm, 0.001°, 0.01°, 1°
Feedrates feed	Feedrates are listed in the machine specs; override: 0 to 200%
Tooling	Tool selection: 8/12 sets, tool offset(compensation): 32 sets, max compensation value: 99999.999 mm Auto tool compensation: calculated from manually input wear and tear measurement values
Spindle VAC motor operation	Direct spindle speed commands (S4), constant cutting speed Spindle speed override (50 to 200%), optimum turning speed designation
M-spindle motor operation (multi-machining)	Direct motor speed input
Display	15" Color display panel, multi-touch panel.
Manual operation	Spindle (inching, CW, CCW), tool rotation, pulse handle, X/Z-axis manual feed
Multitasking	Program writing, editing during work
Self-diagnostics	Automatic diagnostics and display of program, operation, machine and NC system problems
Door interlock	Safety function to interlock machine movement when the door is opened or closed
NC torque limiter	Instant detection of machine collision to reduce machine damage
Hi-G control	Calculates of the speed control and torque properties of a motor for high-speed, high-stability positioning
Thermal deformation prevention	Extremely accurate deformation control
Energy-saving function	ECO suite ECO Idling Stop, ECO Power Monitor
Other	Buffer resister, zero offset, tool interference, software limit, chuck barrier, turret barrier, droop control, single block, machine lock, block delete, optional stop, dry-run, stroke end-limit cancel, etc.

Operation

“suite apps”	Applications to graphically visualize and digitize information needed on the shop floor
“suite operation”	Highly reliable touch panel suited to shop floors. One-touch access to suite apps.
Easy Operation	“Single-mode operation” to complete a series of operations
Sequence number search	Cursor advances to a specified sequence number in the selected program
Sequence restart	Restart from an interrupted sequence
Manual interrupt/auto return	Manual operation during automatic operation; return to interrupt point
Threading slide hold	Slide hold during threading (optional for G34/G35 non-fixed cycles)
Programming	Two programs can be edited simultaneously on one screen.
Memory operation*	Tapeless operation: Program storage capacity: 4 GB, Operation buffer: 2 MB
Useful help	Alarm help, G/M-code help, variable help, operation help, diagram display
PLC monitor	Display of PLC ladder drawings and PLC data

Output Management Function

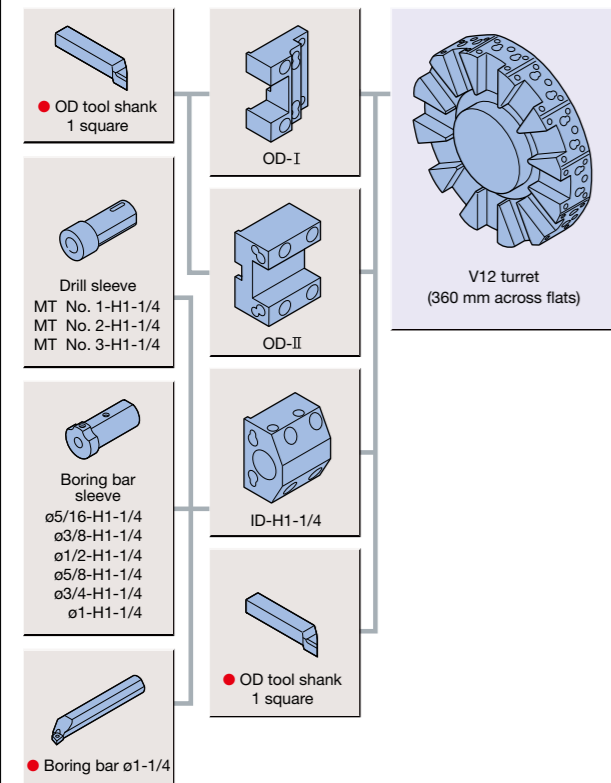
Display	Finished work list, operation results and alarm records
External output	Output above items to a USB port.

Programming Function

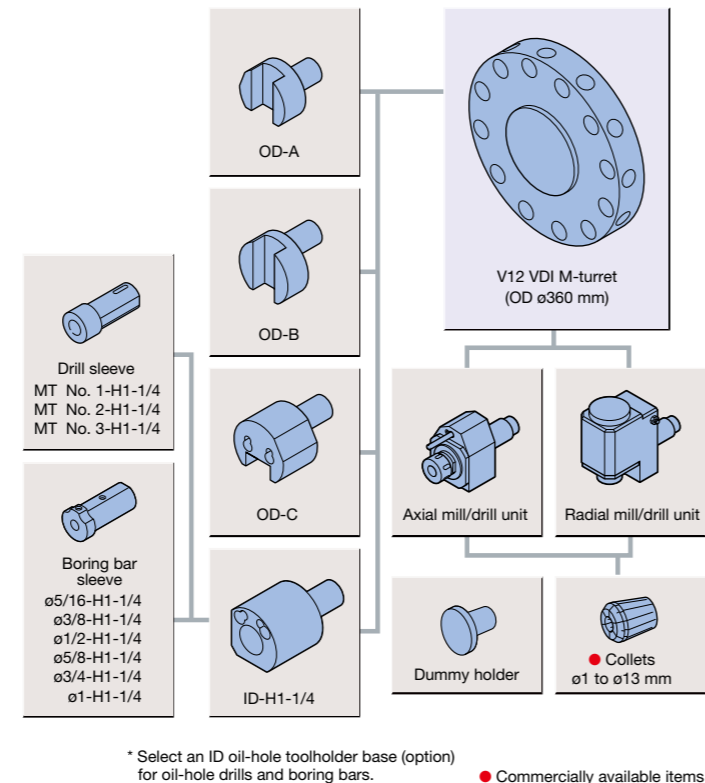
Nose R compensation	Auto compensation for nose R dimension errors including arbitrary shapes and arcs
Arc radius designation	Circular interpolation by ordering the radius L and end points X and Z
Arbitrary angle chamfering	Simple programming of arbitrary angle chamfers (C, R)
Taper angle designation	Taper interpolation by designating either the X or Z-axis and the starting point angle
mm/min (ipm) programming	Both mm/rev and mm/min feedrate units are possible
Program schedule	Non-stop operation possible by setting the sequence order of several work programs
Zero offsets via G-codes	Program zero point offsets are possible
Threading	Thread lead: 0.001 to 1000.000 mm; possible to set the threading lead pitch Chamfering on/off, fix cycle threading, non-fixed threading cycle (the thread lead indicates the CNC limit value, the max thread lead differs per machine specification)
Custom fixed cycle	Threading cycle, grooving cycle, drilling cycle
Fixed drilling cycle (multi-machining)	Drill, deep-hole drilling, boring
User task 1	GOTO, IF statements, arithmetic, common variable, local variable, system operation variables
Program notes	Comments can be added to programs

Tooling System

GENOS L2000-e (L)

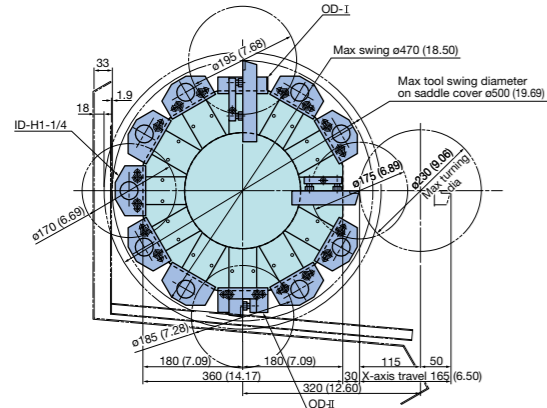


GENOS L2000-e (M/MY) V12 VDI multitasking turret

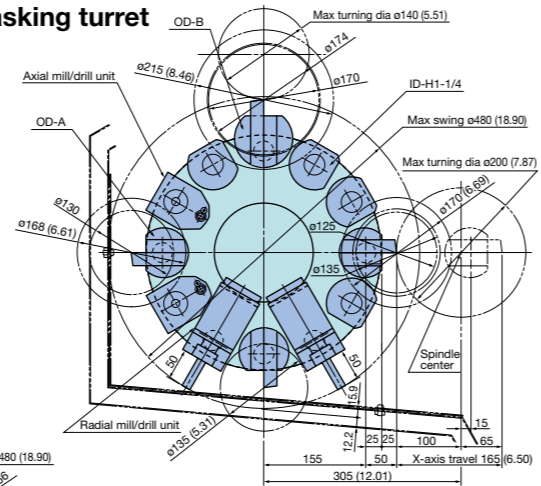


Tool Interference Drawings

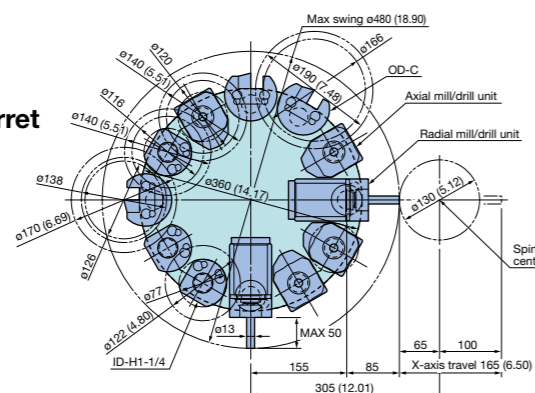
GENOS L2000-e (L) V12 turret



GENOS L2000-e (M) V12 VDI multitasking turret



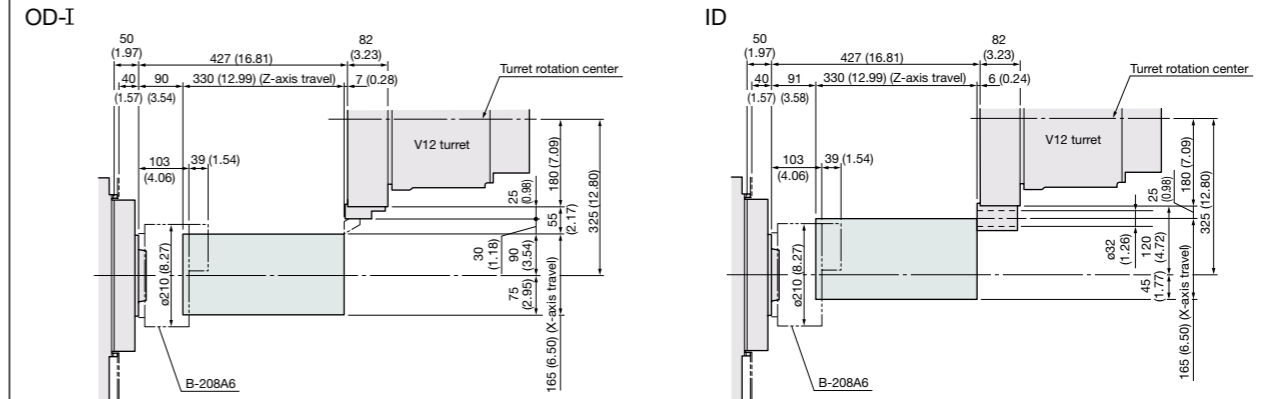
GENOS L2000-e (MY) V12 VDI multitasking turret



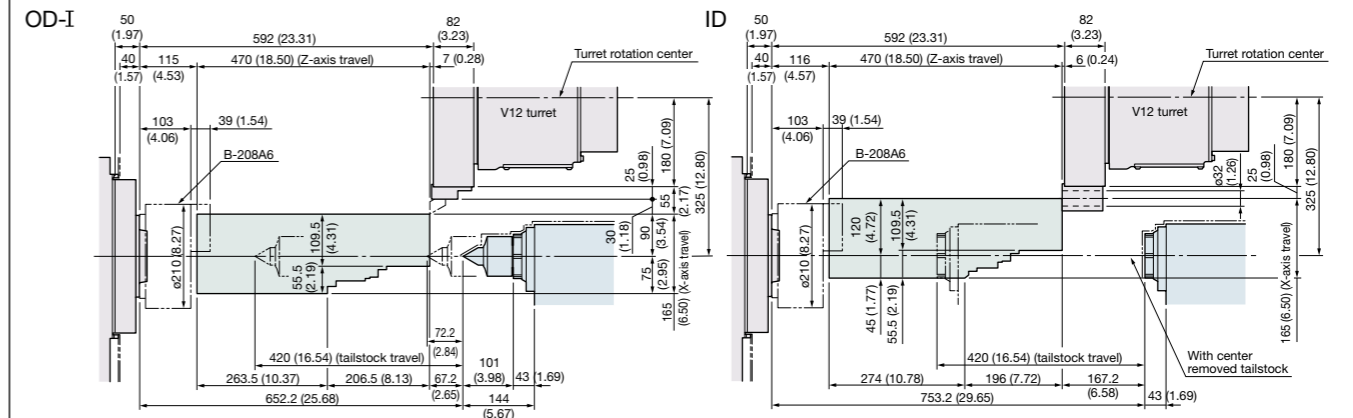
Working Ranges

Unit: mm (in)

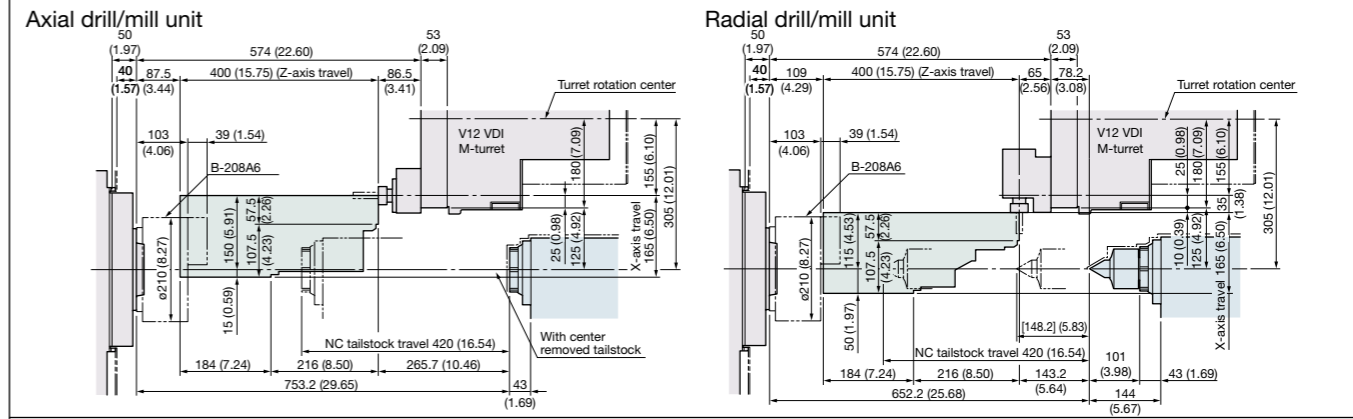
GENOS L2000-e (L) T V12 turret



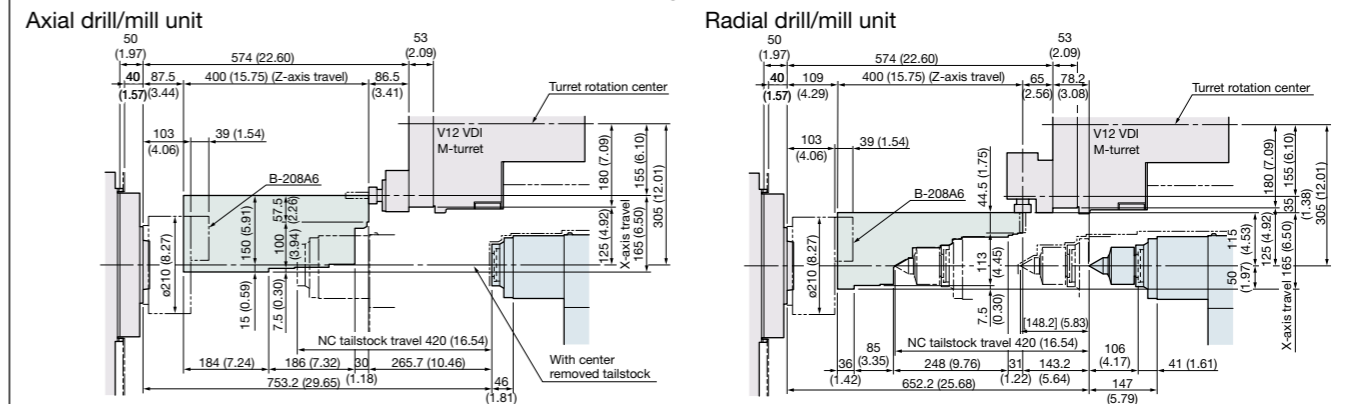
GENOS L2000-e (L) DBC 500 V12 turret



GENOS L2000-e (M) DBC 380 V12 VDI multitasking turret

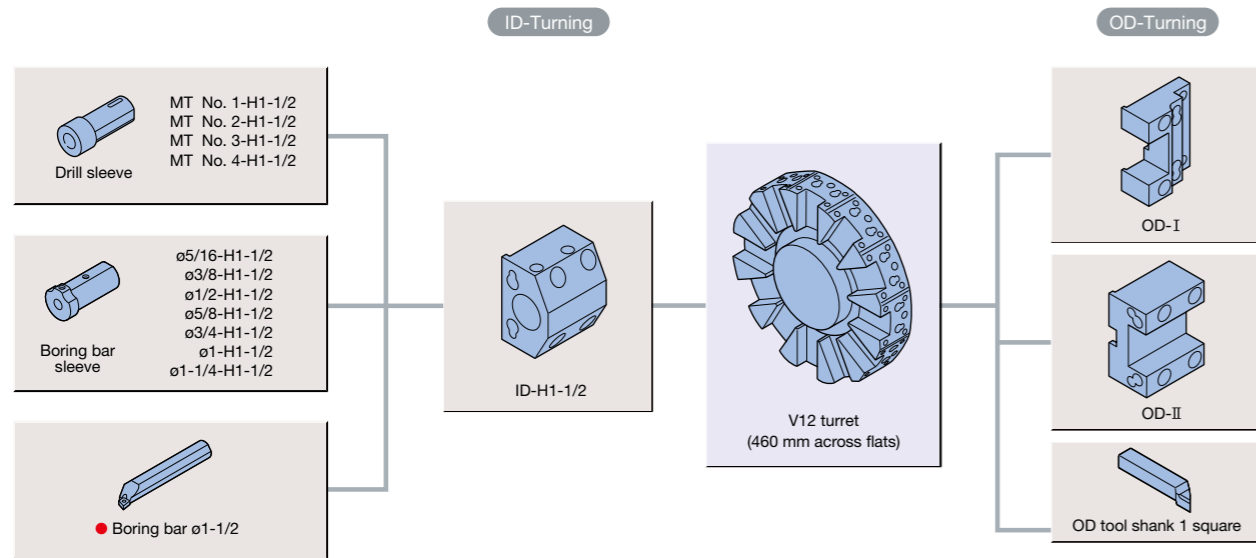


GENOS L2000-e (MY) DBC 380 V12 VDI multitasking turret



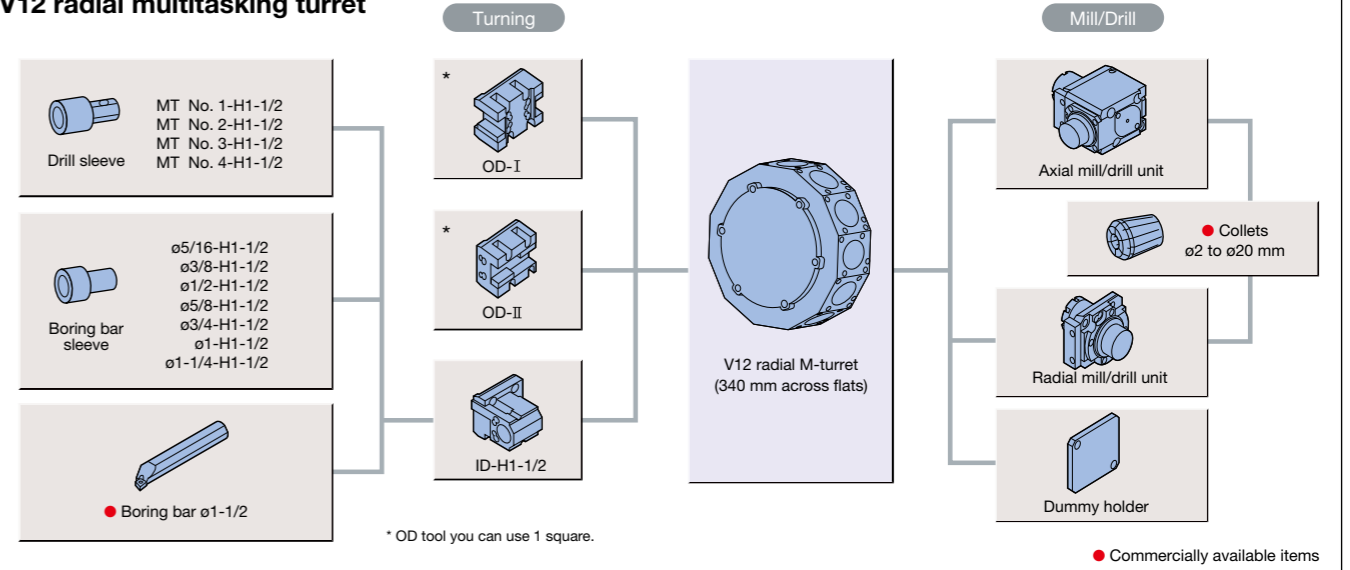
Tooling System

GENOS L3000-e (L) V12 turret



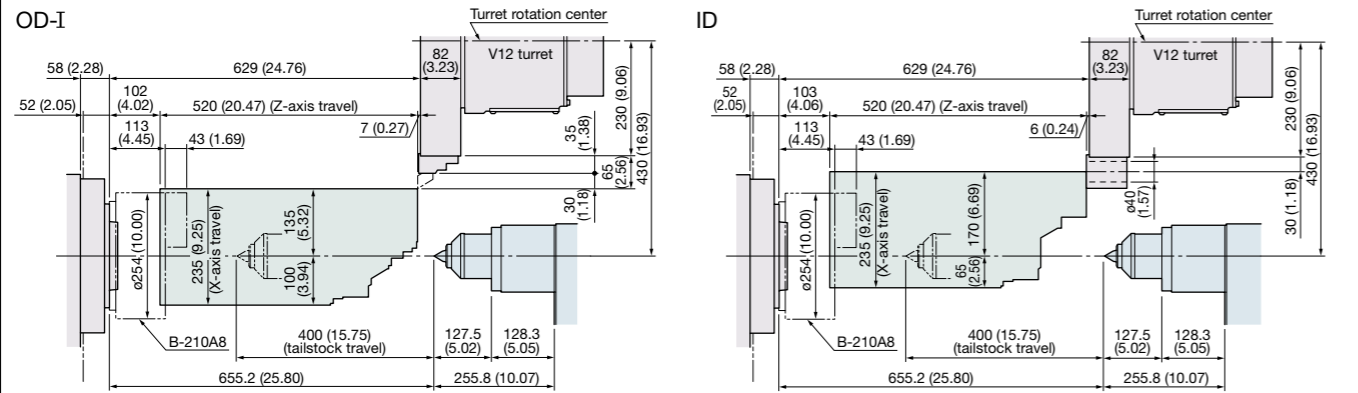
Tooling System

GENOS L3000-e (M, MY) V12 radial multitasking turret

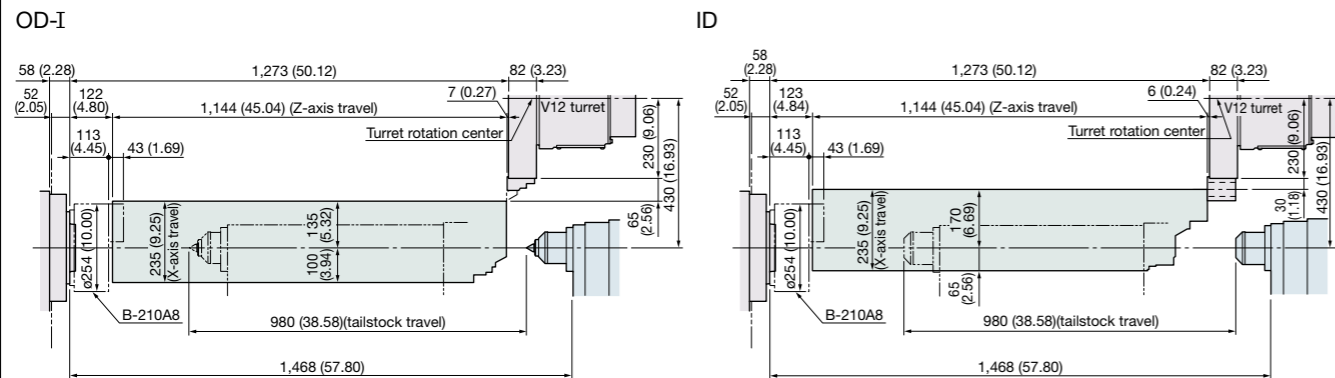


Working Ranges

GENOS L3000-e (L) DBC 500 V12 turret



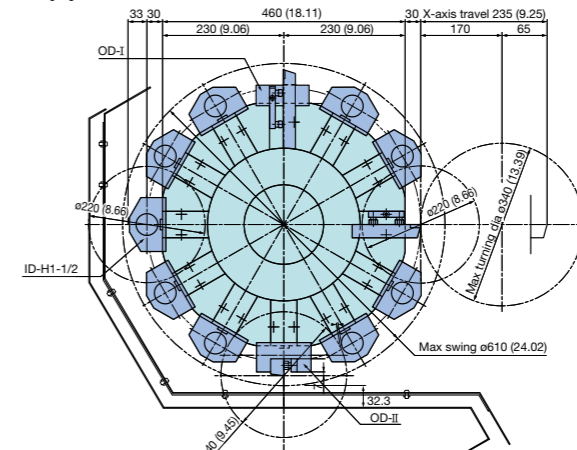
GENOS L3000-e (L) DBC 1100 V12 turret



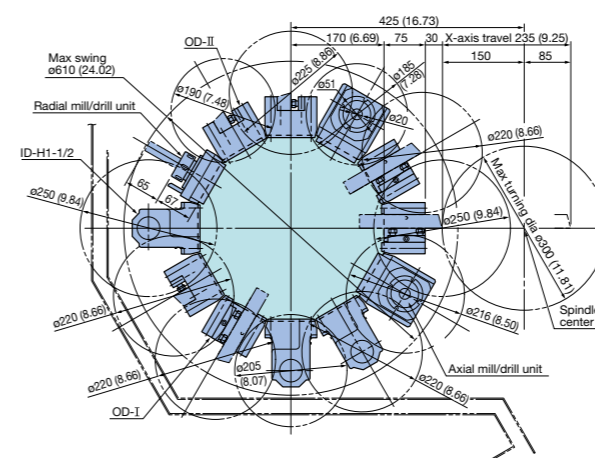
Tool Interference Drawings

Unit: mm (in)

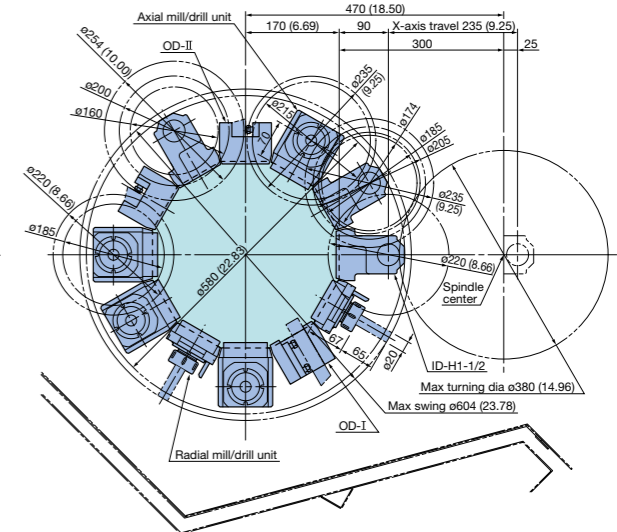
GENOS L3000-e (L) V12 turret



GENOS L3000-e (M) V12 radial multitasking turret



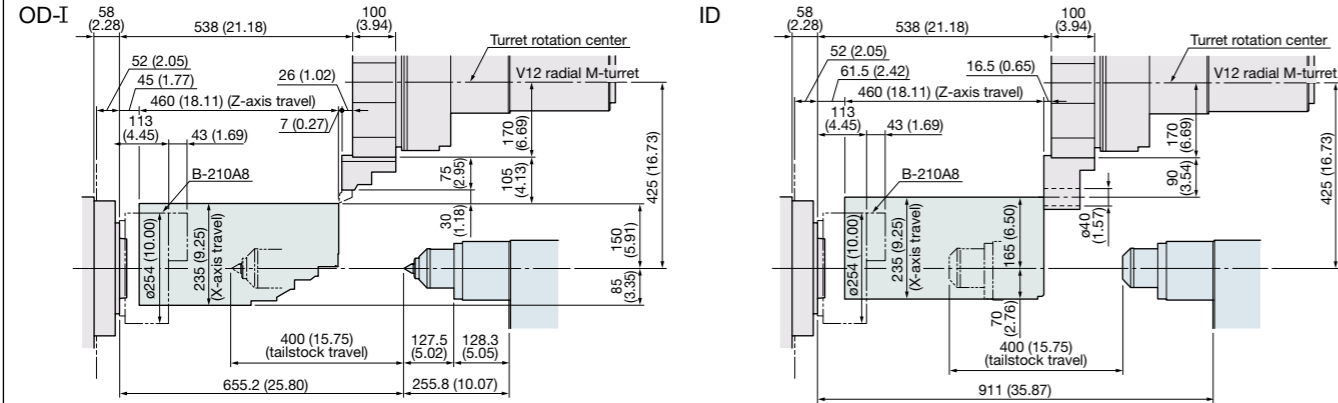
GENOS L3000-e (MY) V12 radial multitasking turret



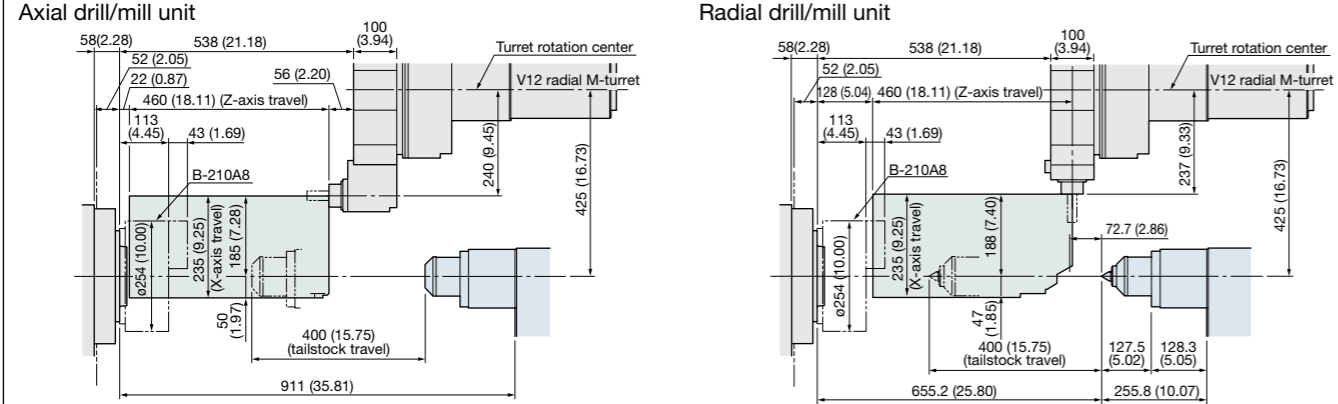
Working Ranges

Unit: mm (in)

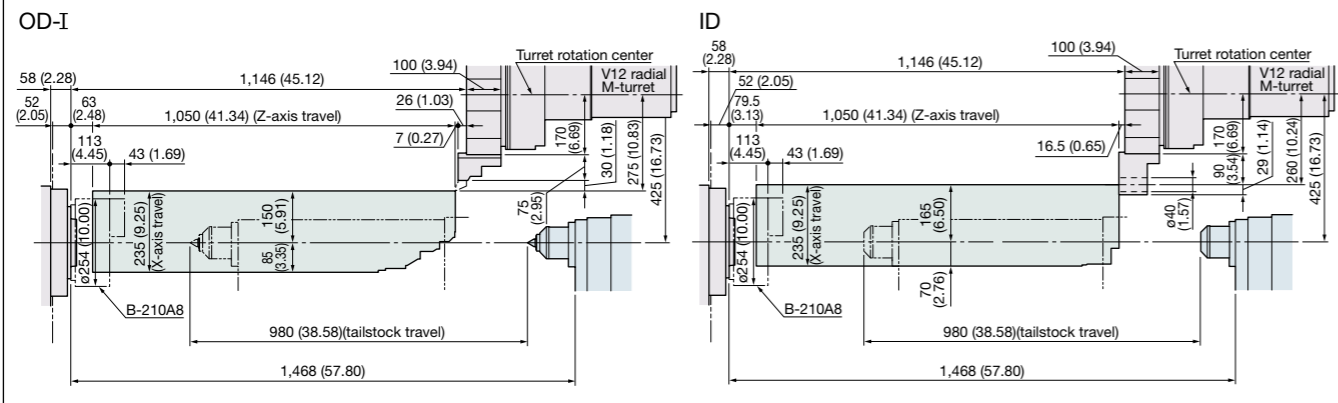
GENOS L3000-e (M) DBC 450 V12 radial multitasking turret



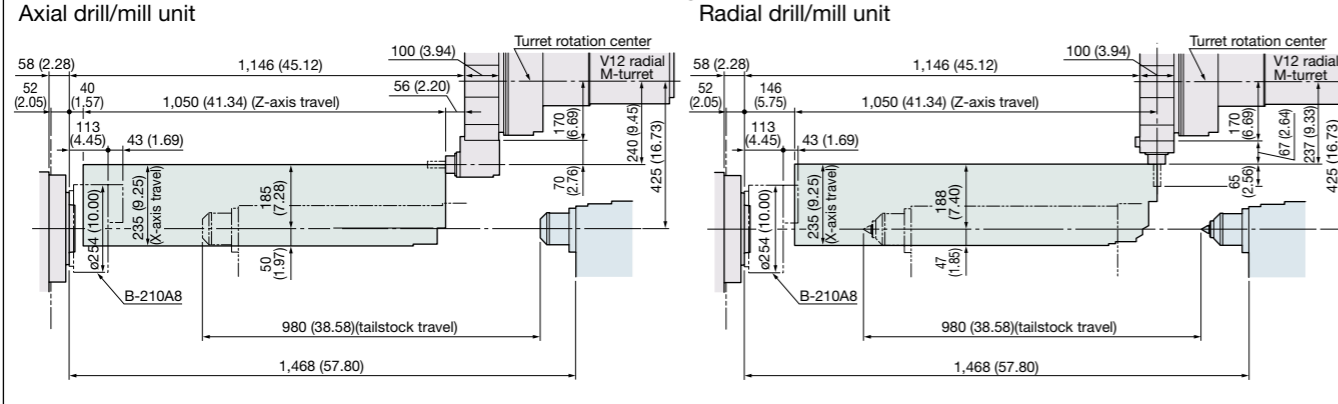
GENOS L3000-e (M) DBC 450 V12 radial multitasking turret



GENOS L3000-e (M) DBC 1000 V12 radial multitasking turret

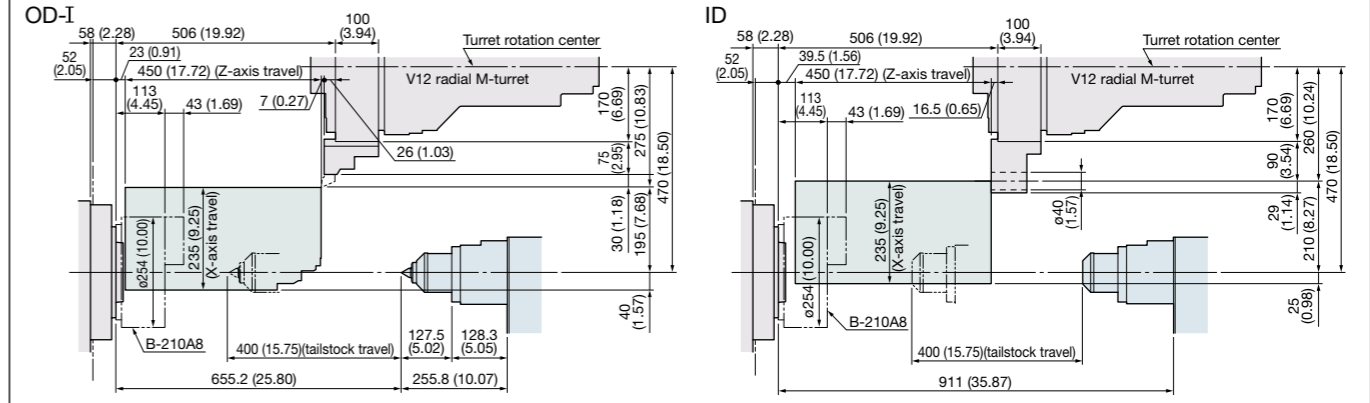


GENOS L3000-e (M) DBC 1000 V12 radial multitasking turret

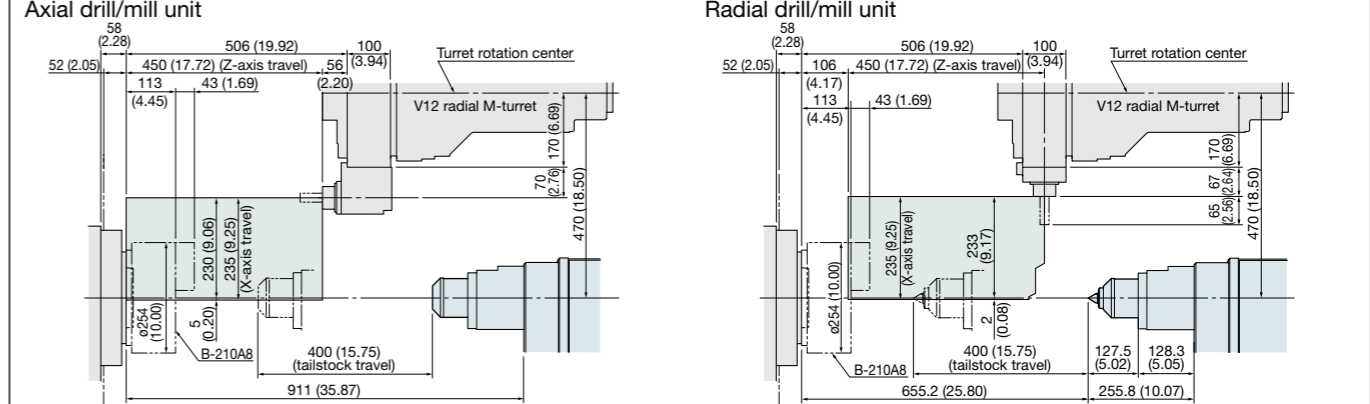


Unit: mm (in)

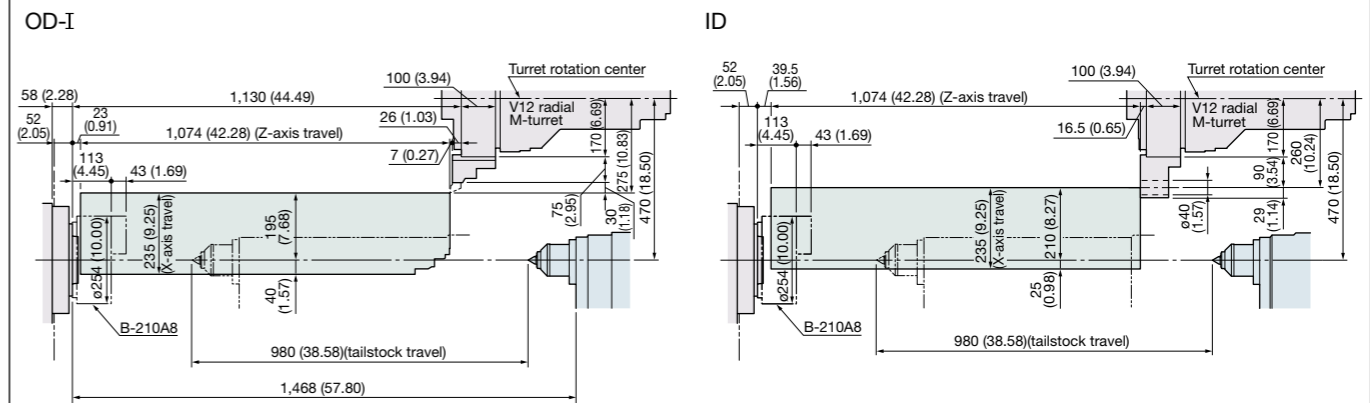
GENOS L3000-e (MY) DBC 400 V12 radial multitasking turret



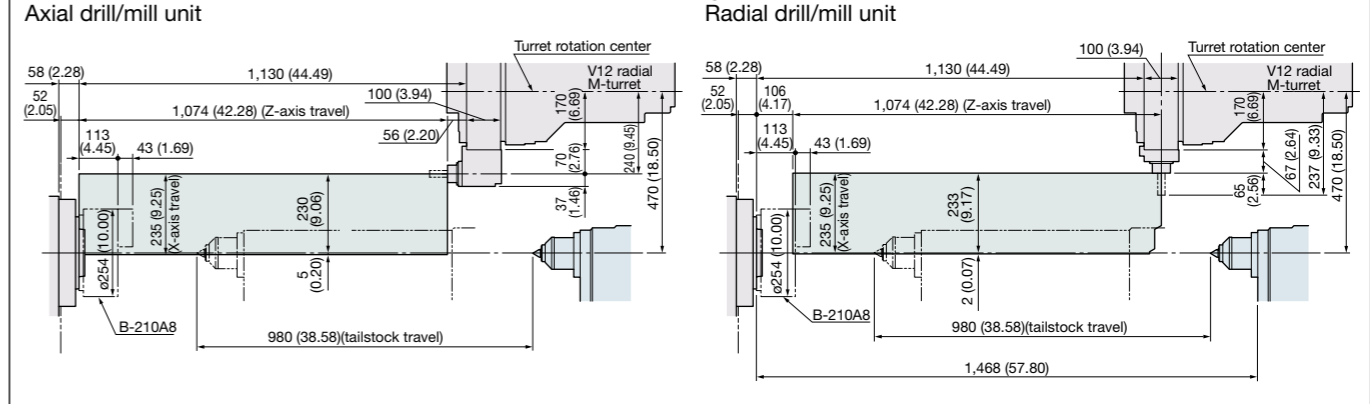
GENOS L3000-e (MY) DBC 400 V12 radial multitasking turret



GENOS L3000-e (MY) DBC 1000 V12 radial multitasking turret

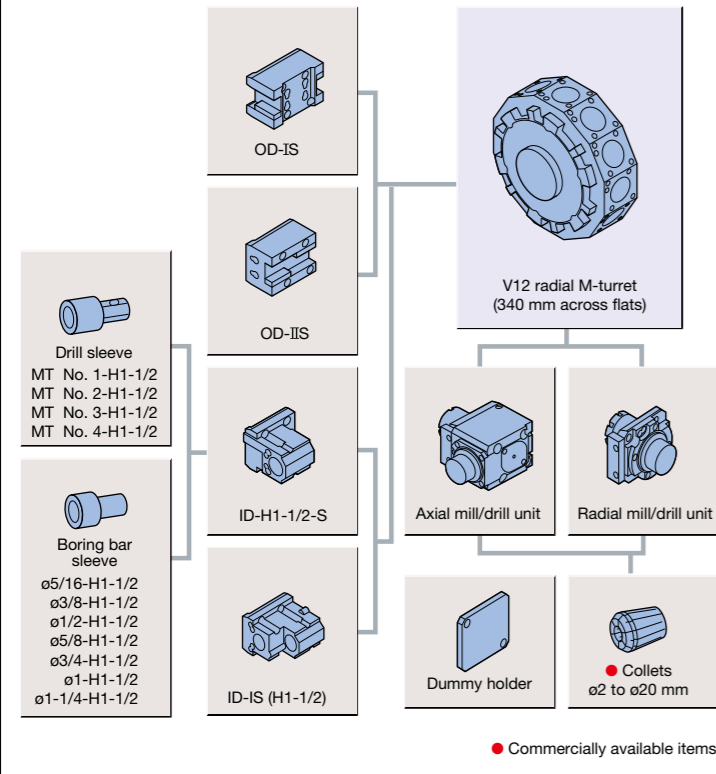


GENOS L3000-e (MY) DBC 1000 V12 radial multitasking turret



Tooling System

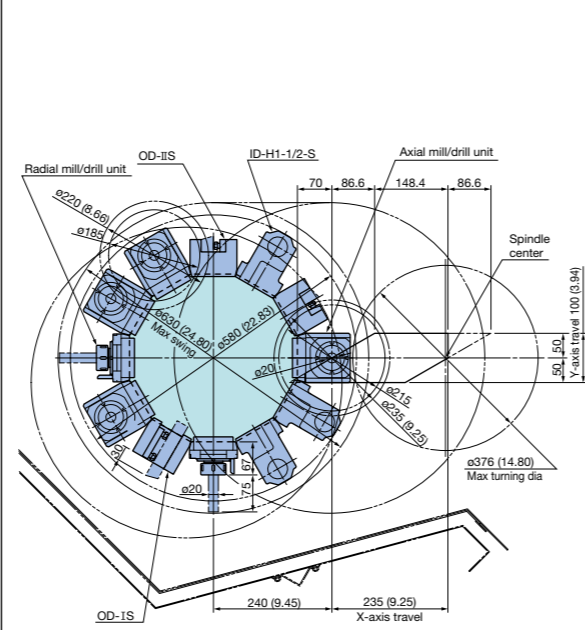
GENOS L3000-e (MYW) V12 radial multitasking turret



Tool Interference Drawings

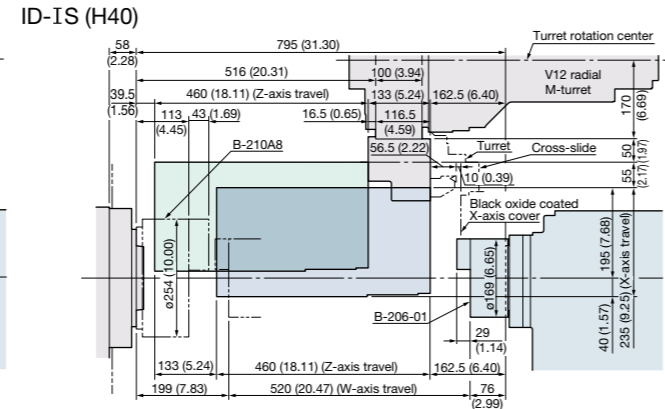
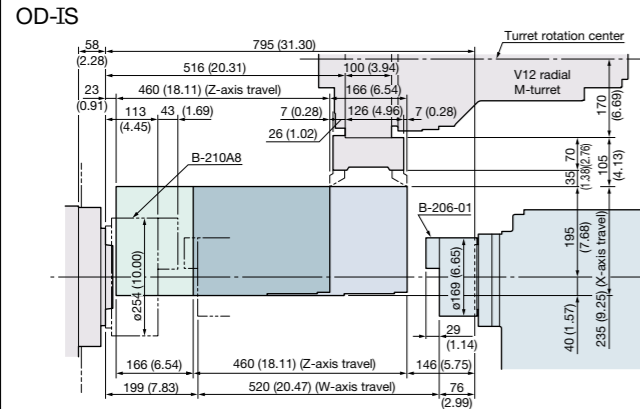
Unit: mm (in)

GENOS L3000-e (MYW) V12 radial multitasking turret

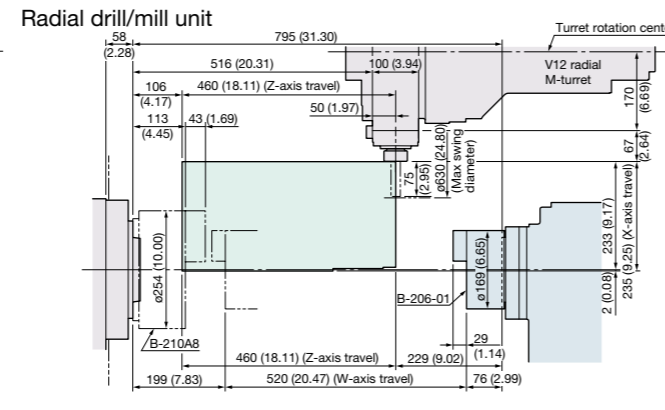
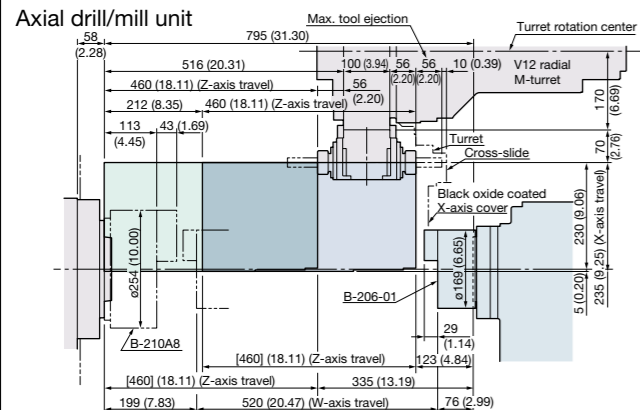


Working Ranges

GENOS L3000-e (MYW) V12 radial multitasking turret



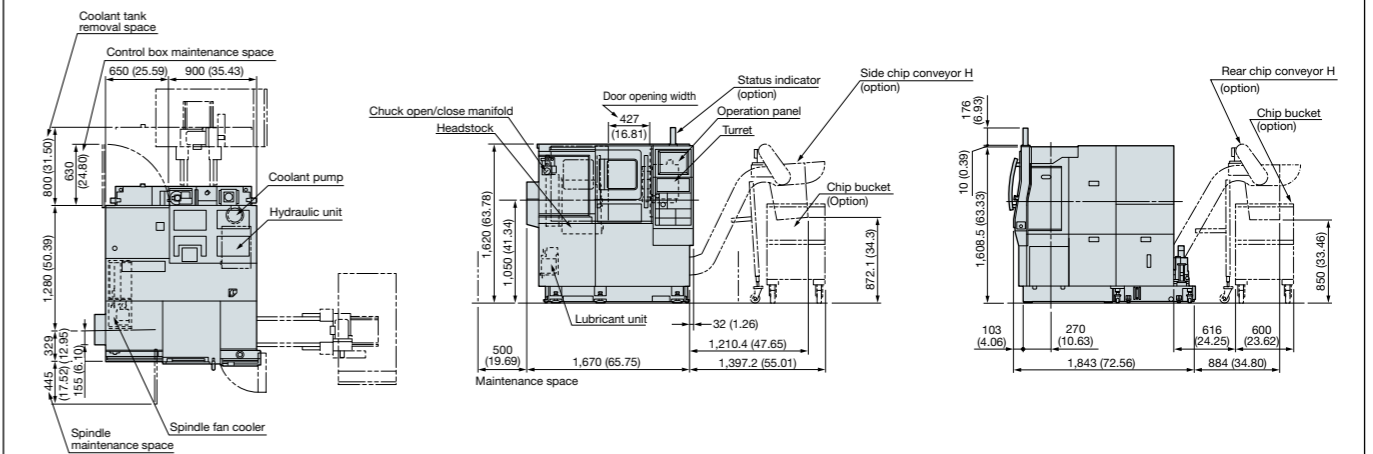
GENOS L3000-e (MYW) V12 radial multitasking turret



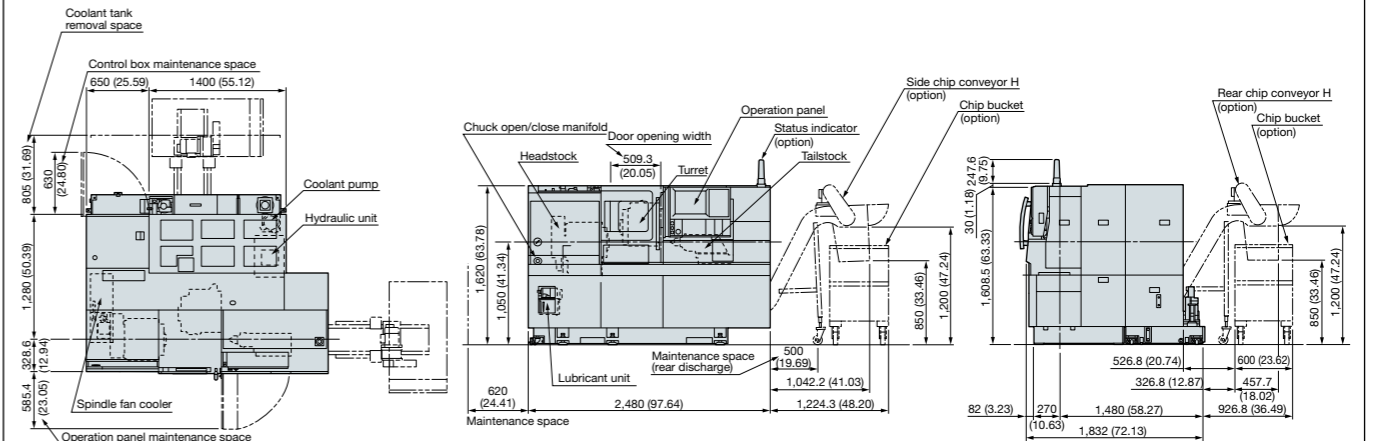
Dimensional Drawing

Unit: mm (in)

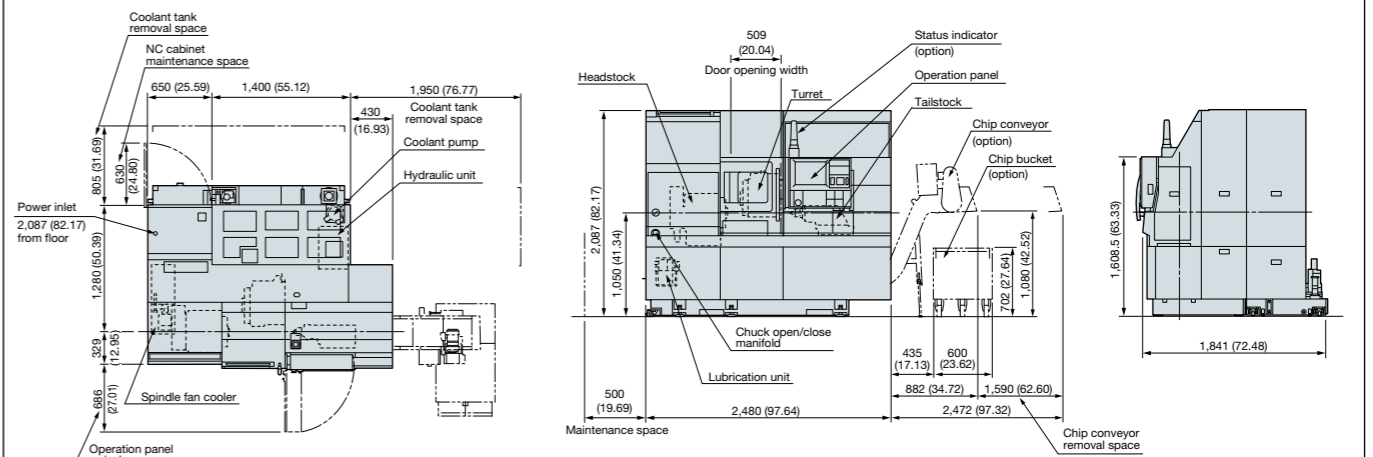
GENOS L2000-e (L) T



GENOS L2000-e (L) DBC 500 (M) DBC 380



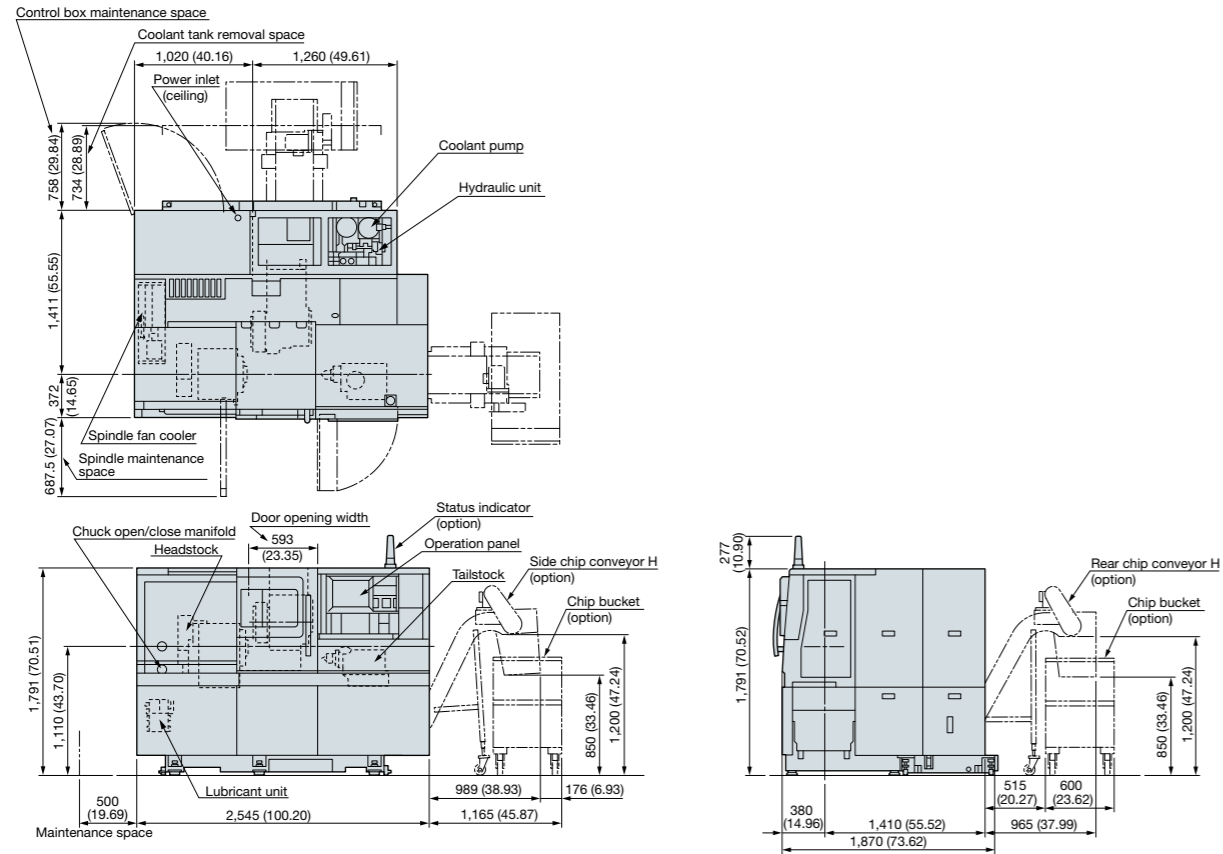
GENOS L2000-e (MY) DBC 380



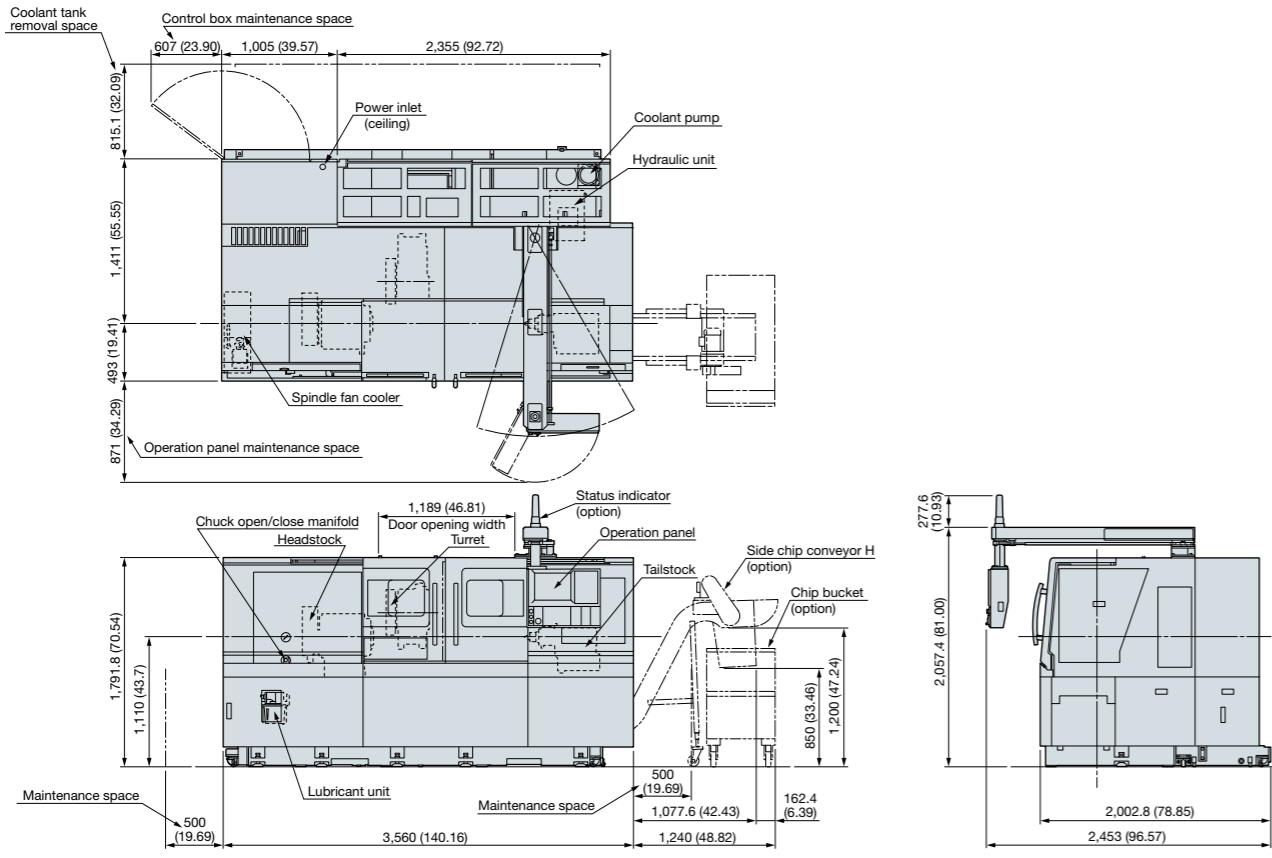
Dimensional Drawing

Unit: mm (in)

GENOS L3000-e (L) DBC 500 (M) DBC 450

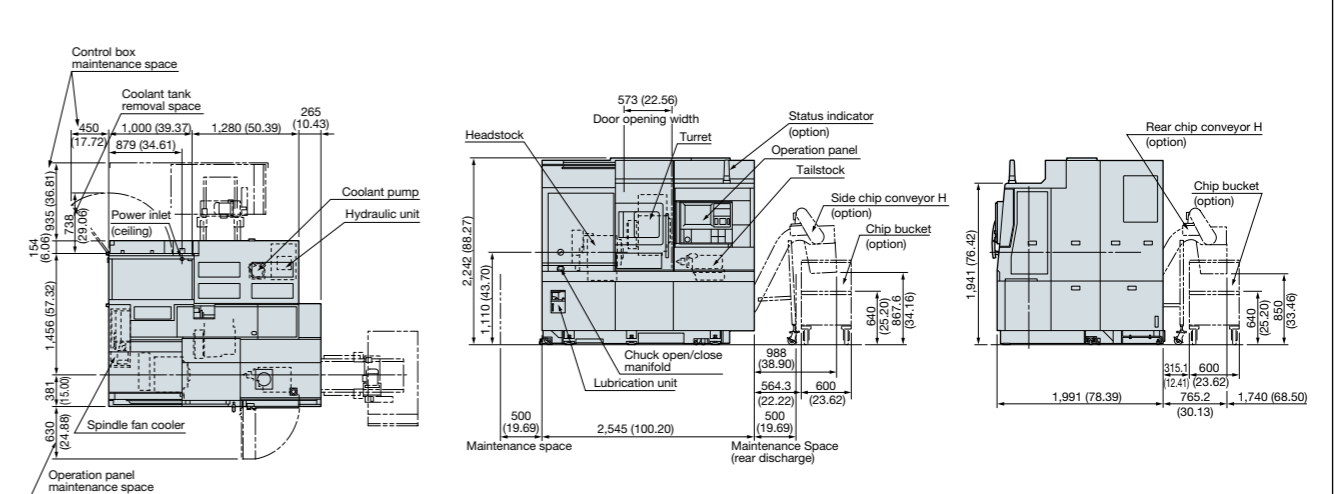


GENOS L3000-e (L) DBC 1100 (M) DBC 1000

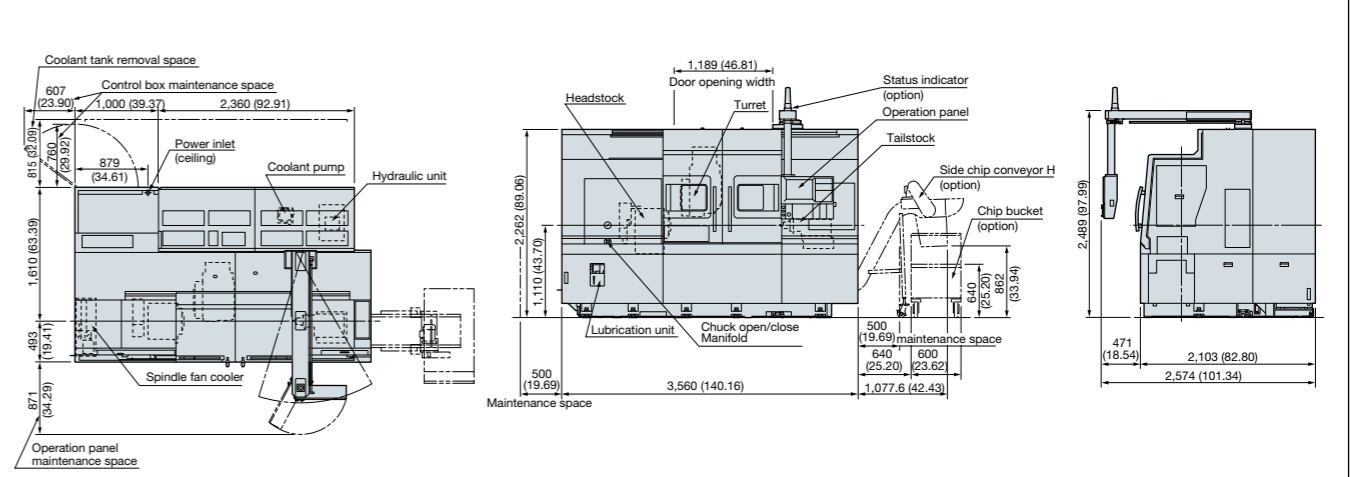


Unit: mm (in)

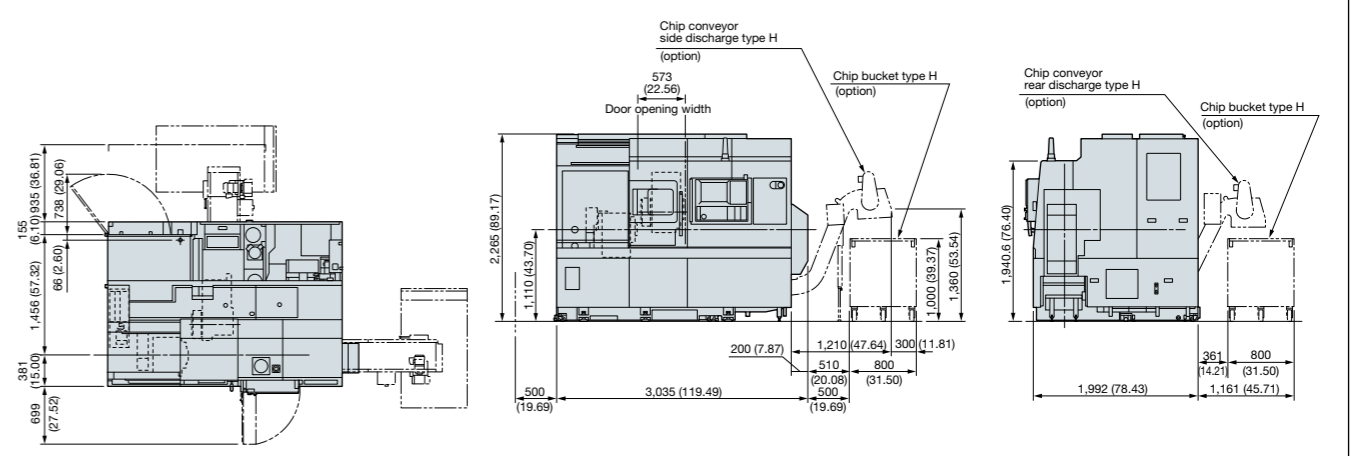
GENOS L3000-e (MY) DBC 400



GENOS L3000-e (MY) DBC 1000



GENOS L3000-e (MYW) DBN 400



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

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

The origin of gene, from Greek *genos*
meaning race, offspring, origin
(pronounced “γένος” as in “generous”)

Global
Efficient
No.1
Standard



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