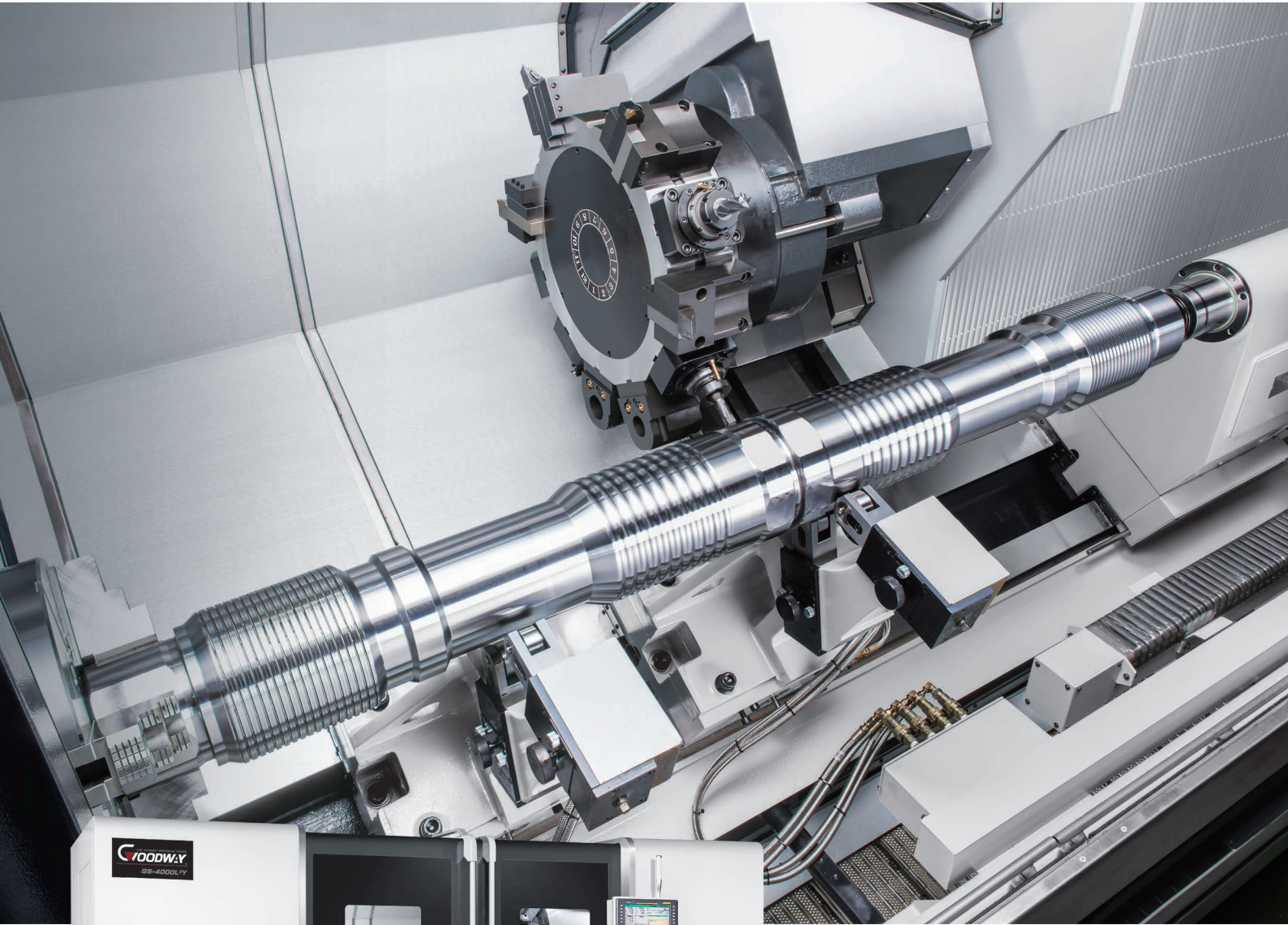


# GS-4000

SERIES

MAXIMUM PERFORMANCE CNC TURNING CENTERS



THE ULTIMATE MACHINING POWER  
**WOODWAY**

# MAXIMUM PERFORMANCE CNC TURNING CENTERS

For those seeking a heavy-duty maximum performance turning center that's packed with the latest technologies, GOODWAY's GS-4000 series is the perfect answer. These machines offer awesome turning power, with the 2-speed gear-head spindles being standard on most models. Live tooling, Y-axis and sub-spindle models further increase machining efficiency and accuracy, while reducing manpower. Furthermore, GOODWAY machines are always fully loaded with standard features that are either not available or are costly options found on other machines. Features such as the chip conveyor, programmable base tailstock, turning tool holders, and many more standards .

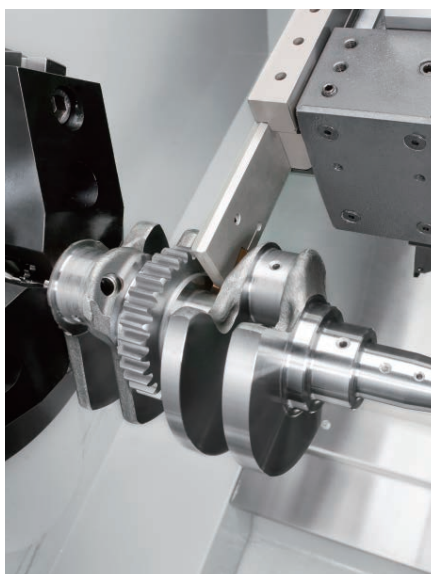
- ▶ 37 kW high horsepower spindle motor drive with 2-speed gear box design provides max. torque 2,920 Nm in 121 rpm ( GS-4300 ) which can meet with heavy cutting requirements.
- ▶ All axes guide ways are designed by high rigid box way with heat treatment and precision grinding which provides the rigidity needed for heavy cutting.
- ▶ Option live tooling turret, sub-spindle, C-axis and Y-axis control allows GS-4000 series to perform multiple tasks on both front and rear side of work-piece, such as turning, off-center milling, drilling and tapping. The machining capability equals the integration of two turning center and a machining center, which all machining process can be done in one GS-4000 machine.





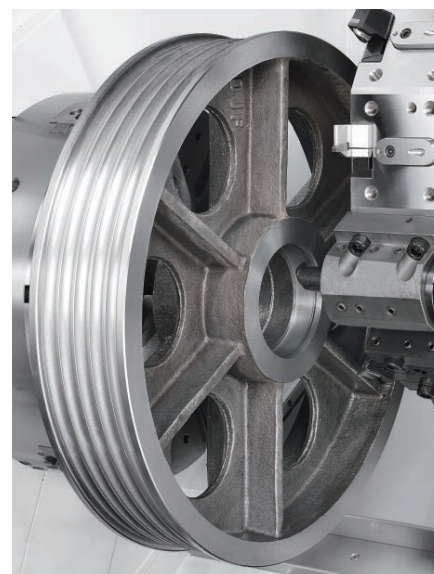
### Machinery Industry

Rotor of air compressor / FCD600



### Automobile Industry

Crankshaft / SCM440



### Electrical Mechanical Industry

Elevator sheave / FCD600

► 4 bed lengths and 2 spindle sizes offer a total of 8 basic model configurations.

Model		GS-4000 series	GS-4300 series
Chuck Size		Ø 15" / 18"	Ø 20" / 24"
Bar Capacity		Ø 115 mm ( 4.5" )	Ø 165 mm ( 6.5" )
Turning Length*1	800 mm ( 31.4" )	GS-4000 / M / Y / S / MS / YS	GS-4300 / M / Y / S / MS / YS
	1,500 mm ( 59" )	GS-4000L / LM / LY / LS / LMS / LYS	GS-4300L / LM / LY / LS / LMS / LYS
	2,300 mm ( 90.5" )	GS-4000L <sup>2</sup> / L <sup>2</sup> M / L <sup>2</sup> Y	GS-4300L <sup>2</sup> / L <sup>2</sup> M / L <sup>2</sup> Y
	3,100 mm ( 122" )	GS-4000L <sup>3</sup> / L <sup>3</sup> M / L <sup>3</sup> Y	GS-4300L <sup>3</sup> / L <sup>3</sup> M / L <sup>3</sup> Y

\*1 Individual models may vary, detail specification please see work range diagram.

「M」 model for optional live tooling turret function. For detail specifications, please see Page 6 & 21.

「Y」 model for optional Y-axis function. For detail specifications, please see Page 9 & 21.

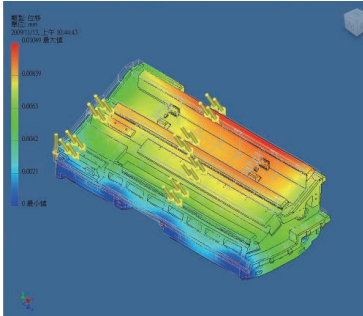
「S」 model for optional sub-spindle function. For detail specifications, please see Page 8 & 22.



- Fully enclosed sheet metal and telescopic cover can keep chips and coolant contained for a clean working environment. The enlarged window and adjustable operation panel design significantly improve the convenience of the operator.
- Standard chip conveyor with enlarged separate coolant tank can ensure the best cooling performance.

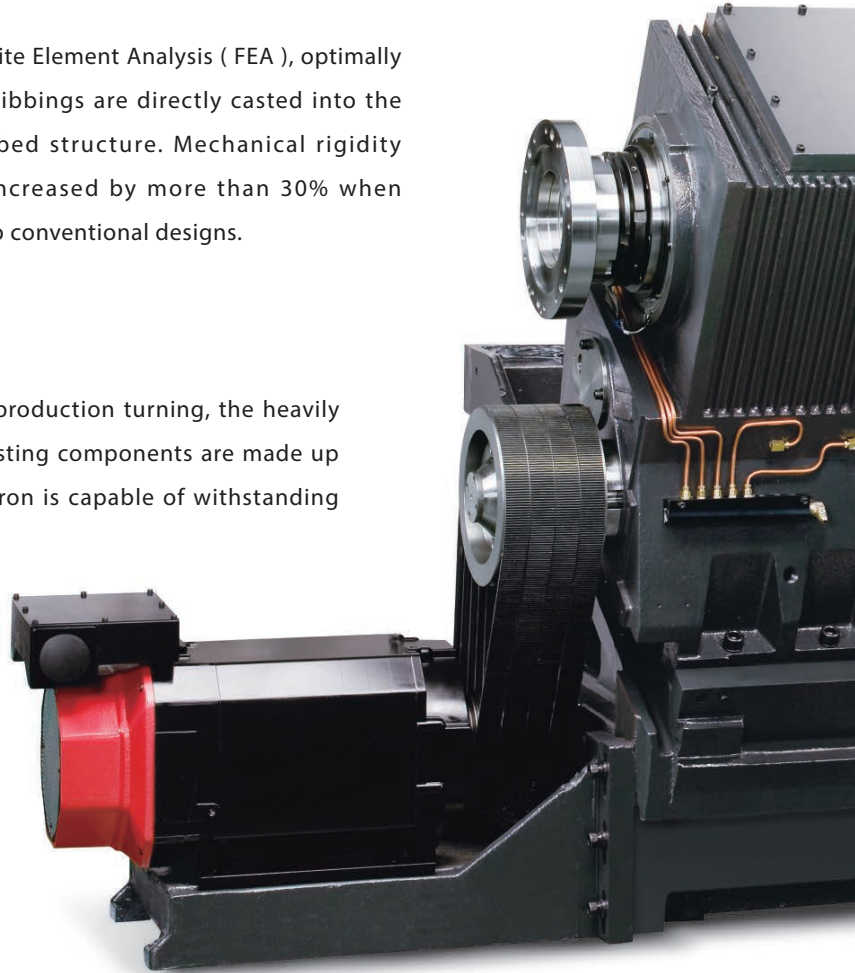
GS-4000L<sup>2</sup>Y equipped with live tooling turret and Y-axis control  
( dual steady rest is option )

# SUPER HEAVY-DUTY CONSTRUCTION



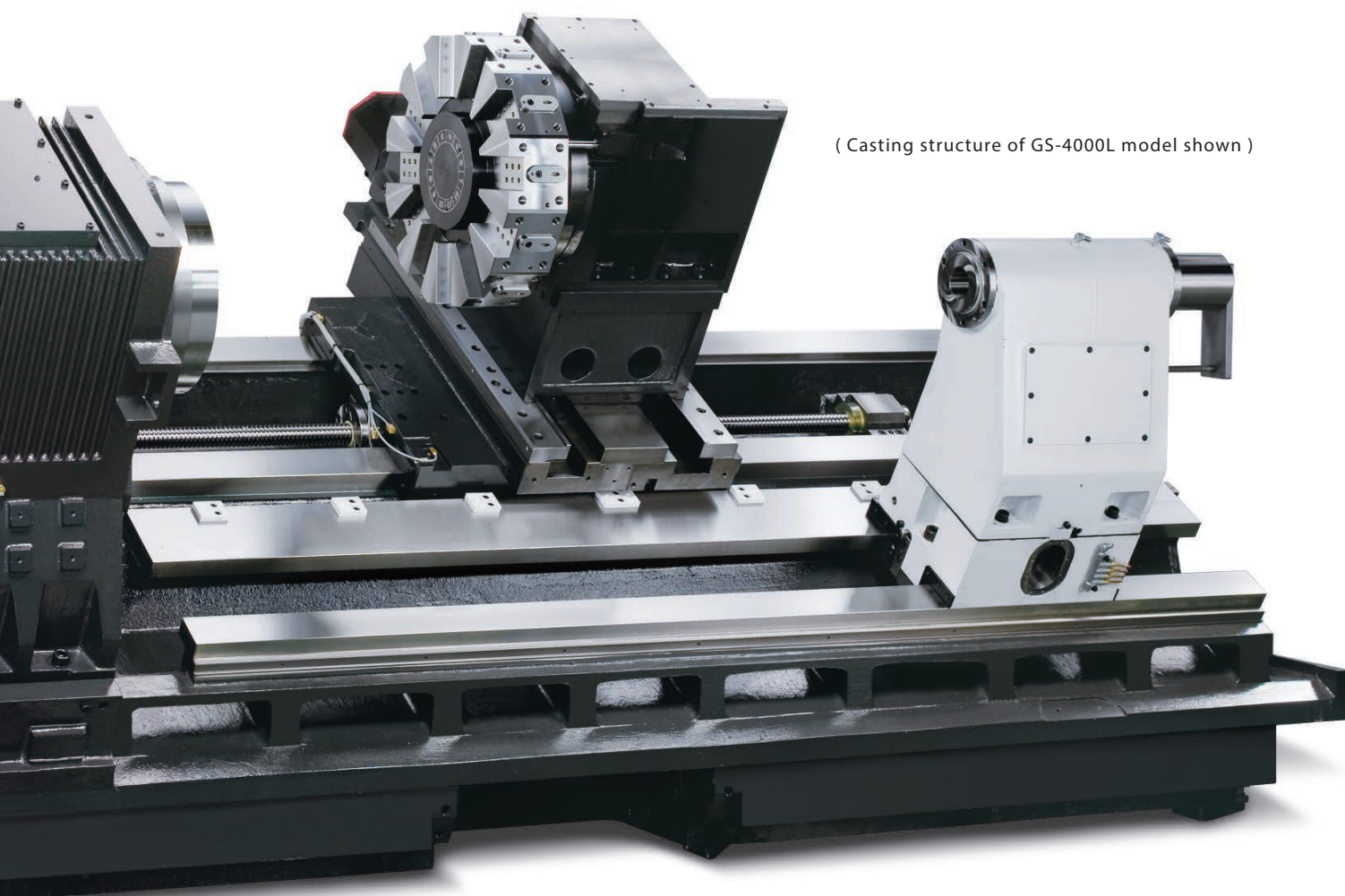
- ▶ By using Finite Element Analysis ( FEA ), optimally reinforced ribbings are directly casted into the one-piece bed structure. Mechanical rigidity has been increased by more than 30% when compared to conventional designs.

- ▶ Built to endure years and years of rigorous high production turning, the heavily ribbed, one-piece thermally balanced bed and casting components are made up of FC350 MEEHANITE casting. FC350 grade cast iron is capable of withstanding much greater stress without deformation and provides maximum vibration damping, resulting in a machine that will outlast and outperform competition.
- ▶ With its low center of gravity, the heavy-duty bed and 30° slant bed design provides a super rigid foundation for the headstock, turret, and tailstock. This creates the rigidity needed to perform super heavy-duty turning and maintain long-term high precision accuracy.



- ▶ Contact surfaces of all slides, headstock, turret, tailstock, and ball screw bearing housings with the machine bed are hand scraped to provide maximum assembly precision, structural rigidity, and load distribution.

- ▶ Extra wide hardened and ground box ways are directly formed into the machine bed and saddle during the casting process. They are precision machined and widely spaced for maximum strength. The box way design also provides the rigidity needed for heavy duty and interrupted turning applications.
- ▶ C3 class hardened and precision ground ball screws ensure the highest accuracy and durability possible. Plus, pretension on all axes minimizes thermal distortion.
- ▶ The L<sup>3</sup> series Z-axis, equipped with independent supporting mechanism, prevents long-sized ball screws from deforming and ensures excellent performance for the axial feed and turning accuracy.



( Casting structure of GS-4000L model shown )

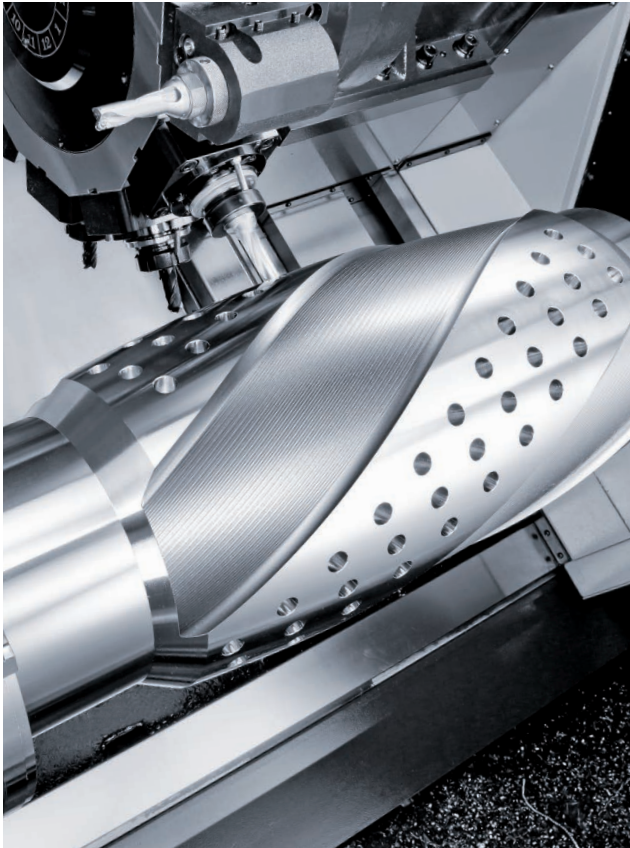
- ▶ X and Z axes are driven by over-sized FANUC  $\alpha i$  series absolute AC servo motors, providing tremendous thrust outputs with faster acceleration and deceleration. Absolute encoder technology saves time and money by eliminating the use of limit switches, thus, eliminating referencing axes to home positions and replacing broken limit switches.



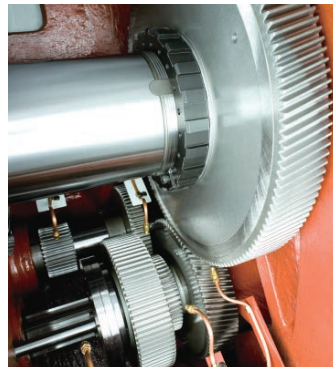
#### Programmable tailstock design, both tailstock positioning and quill are programmable.

- ▶ Manual mode quill-jog function allows the quill to be inched forward, which makes it easier to insert the center into the center hole.
- ▶ Movement of the base and quill in auto mode are controlled by M-codes and thrust pressure is manually adjustable.
- ▶ Z-axis carriage automatically locks onto the tailstock base and moves it to the desired position with precision accuracy.

# ULTIMATE TURNING POWER

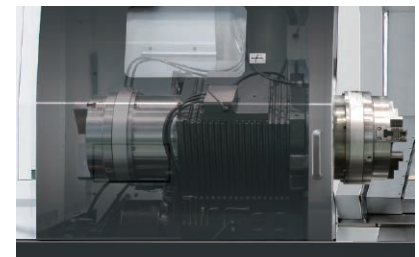
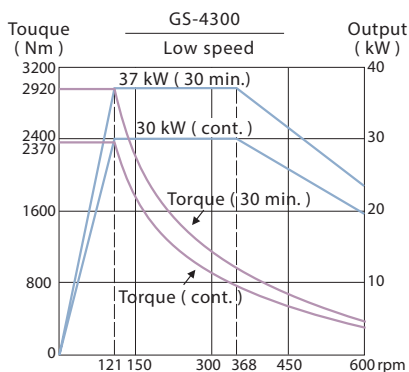
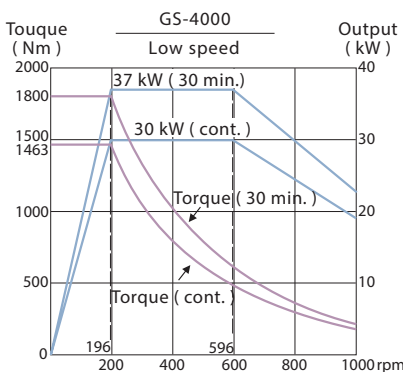
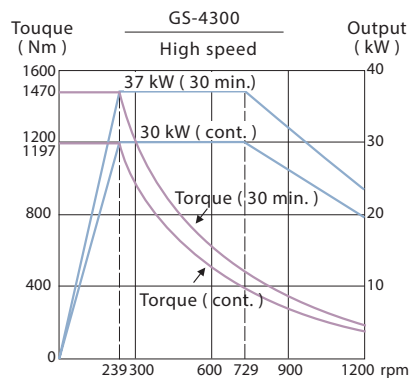
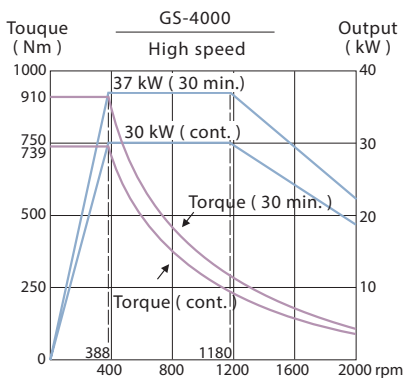


- ▶ The heavy-duty headstock is made up of one-piece casting, reinforced with heat dissipating fins.
- ▶ P4 grade ( Class 7 ) super-high precision bearings are directly assembled for maximum level of support and precision. Bearing configuration is designed for super heavy-duty cutting with ultra-smooth performance, long term durability and a high level of accuracy.



- ▶ The 2-speed, super heavy-duty gear head incorporates advanced mechanical designs. Mated with a 37 kW ( 30 min. ), a tremendous amount of low-end torque is provided to handle heavy material removal on large diameter parts.

## Spindle Output

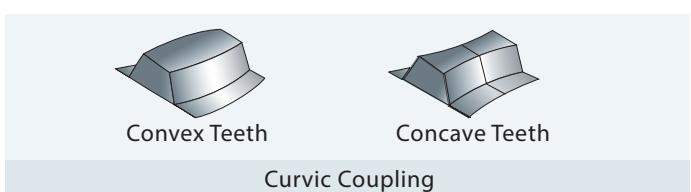


## Dual-chucks ( Optional )

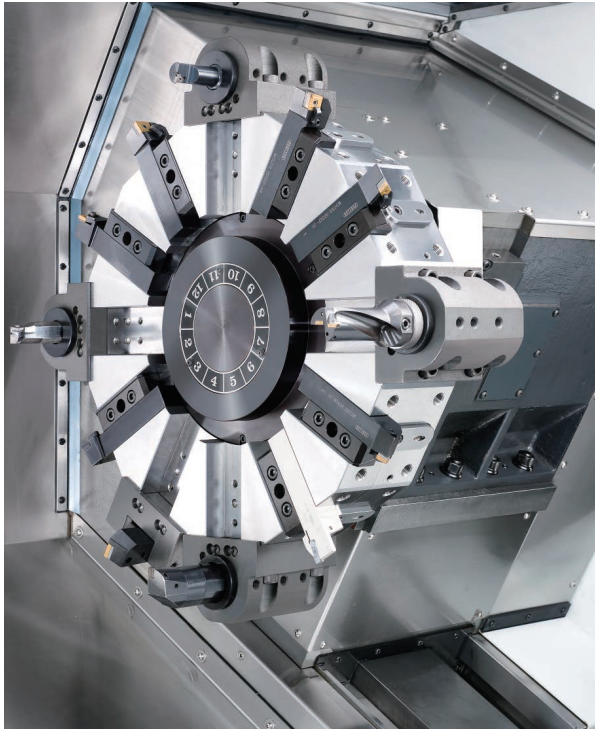
- ▶ The front-end of the spindle can be installed with an air chuck or a manual chuck to easily apply operations such as thread cutting and machining long work-pieces.

# ADVANCED TURRET TECHNOLOGY

- ▶ Ø 320 mm diameter super high precision CURVIC couplings accurately position the turret disk and 6,400 kg of clamping force ensure abundant turret rigidity for all cutting conditions.
- ▶ The 12-station heavy-duty servo indexing turret achieves 0.3 second indexing times for adjacent stations. Index movements are continuous, without pauses, and is capable of turning Ø 260 mm (Ø 10.5") diameter work-pieces without interference when using boring tools. The optional 10-station turret even clears a diameter up to Ø 330 mm (Ø 13").



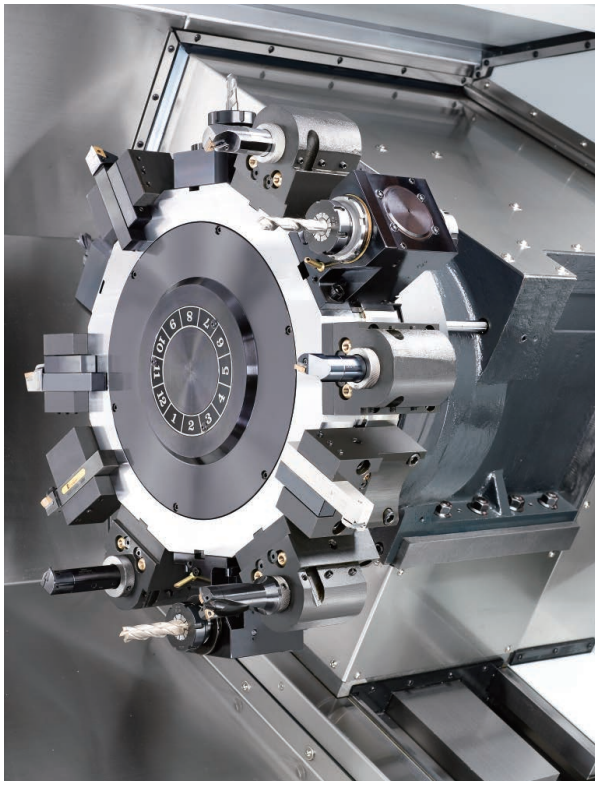
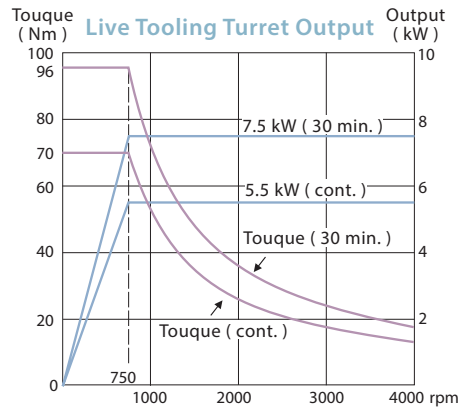
- ▶ The curvic couplings provide a large contact area and are designed with an auto-clean feature not seen on traditional couplings.



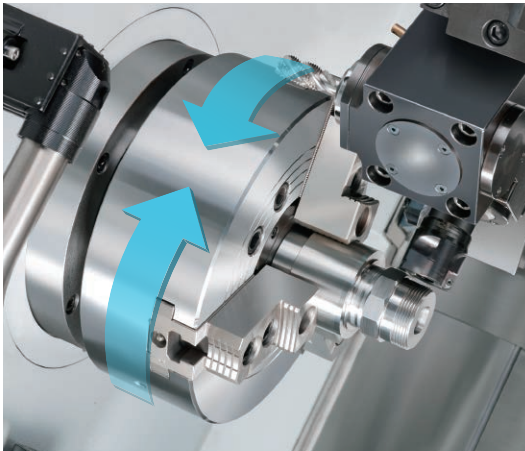
# LIVE TOOLING TURRET

- ▶ Live tooling and C-axis control capabilities on the GS-4000 series allow the machine to perform multiple tasks on a work-piece, such as turning, milling, drilling, and tapping. It eliminates manpower and cycle time while reducing in loss of accuracy, which will occur if the part is moved from machine to machine.
- ▶ The GS-4000 series live tooling turret is driven by a large 7.5 kW ( 30 min. ) motor. Combined with a powerful gear driven spindle, it provides ultra-high power to complete any difficult milling, drilling, and tapping applications.

▶ The 12-station GOODWAY live tooling turret offers 12 stations available for live tooling, and the live tools only rotate in working position in order to reduce power loss and heat.

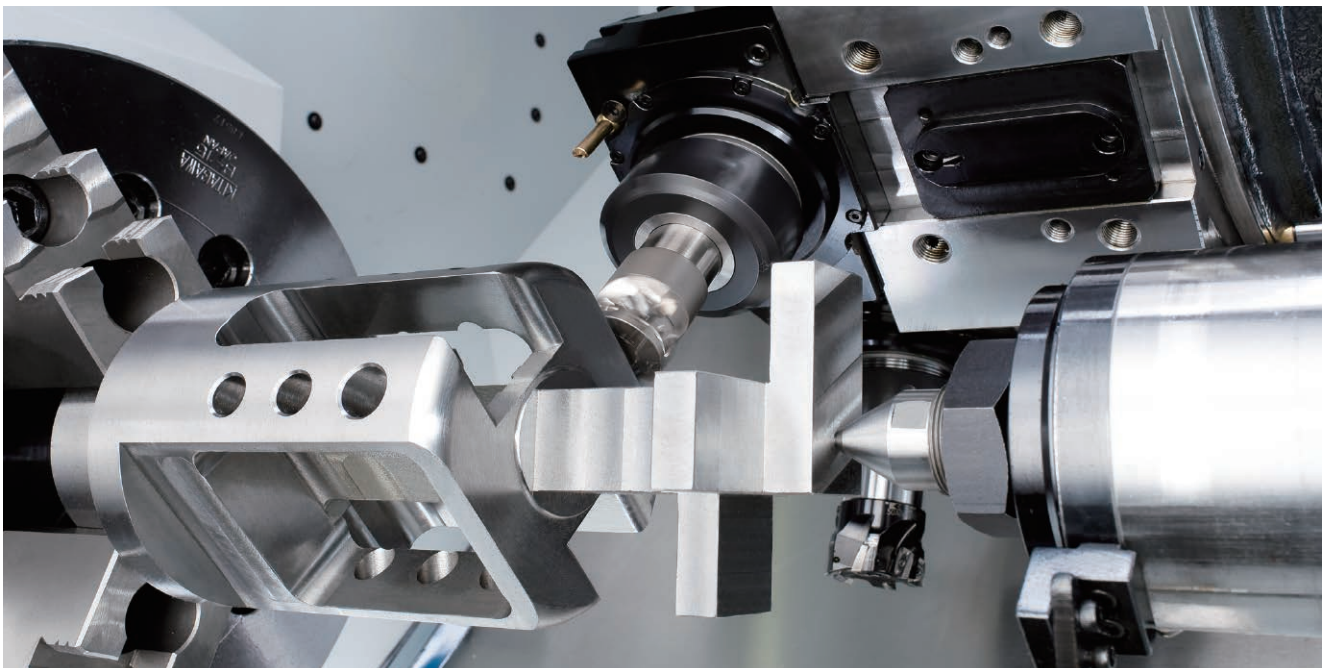


# ULTIMATE C-AXIS SPINDLE



- ▶ By C-axis contouring control mode, C-axis indexing is driven by FANUC spindle motor with disc brake system and high resolution encoder. It can execute linear interpolation and circular interpolation with other feeding axes to obtain the required precise contour curve.
- ▶ With C-axis extremely high dynamic performance, spindle mode can directly switch to C-axis servo mode. The fast indexing speed ( 33 rpm/min.) and min. indexing angle is 0.001°, which can effectively meet the machining need on GS-4000 series.

# MACHINING PERFORMANCE



## Turning Capability

Model	Work-piece		Cutting condition				Power requirement	
	Material	Diameter (mm)	Spindle Speed (rpm)	Cutting Speed (m/min)	Cutting Depth (mm)	Feedrate (mm/rev)	Spindle Load (%)	
GS-4000	Heavy Cutting	S45C	Ø 175	310	170	10	0.6	102/70
	Drill	S45C	Ø 58	741	135	—	0.18	62/85

## Machining Capability

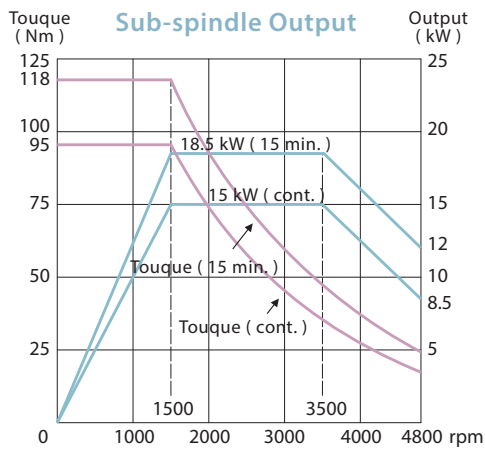
Model	Work-piece		Cutting condition				Power requirement	
	Material	Diameter (mm)	Spindle Speed (rpm)	Cutting Speed (m/min)	Cutting Depth (mm)	Feedrate (mm/rev)	Spindle Load (%)	
GS-4000M	Drill	S45C	Ø 25	249	20	—	90	—
	End Mill	S45C	Ø 25	510	40	15	290	—



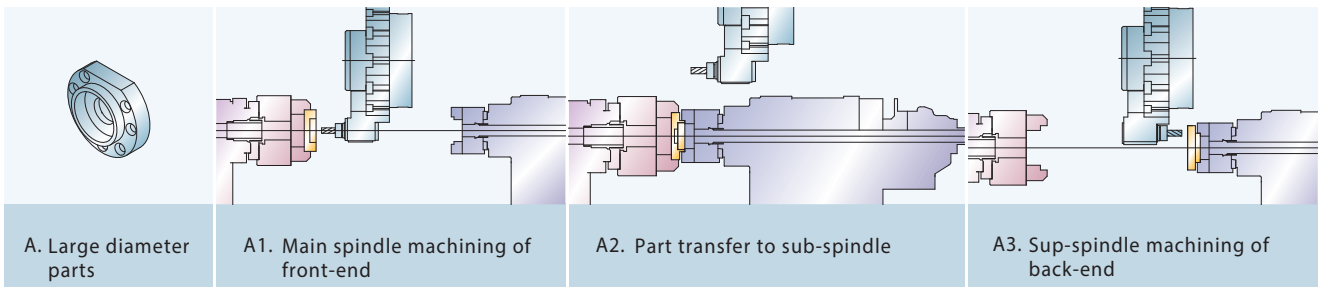
# BACK-END MACHINING CAPABILITY

- ▶ An 8" chuck size sub-spindle, driven by a powerful 18.5 kW ( 15 min. ) built-in type FANUC motor ( Integrated Motor ), is available on the GS-4000 series for back-end machining.
- ▶ The sub-spindle travels on the B-axis are used with roller linear guide ways, featuring both heavy cutting capability and fast movement.

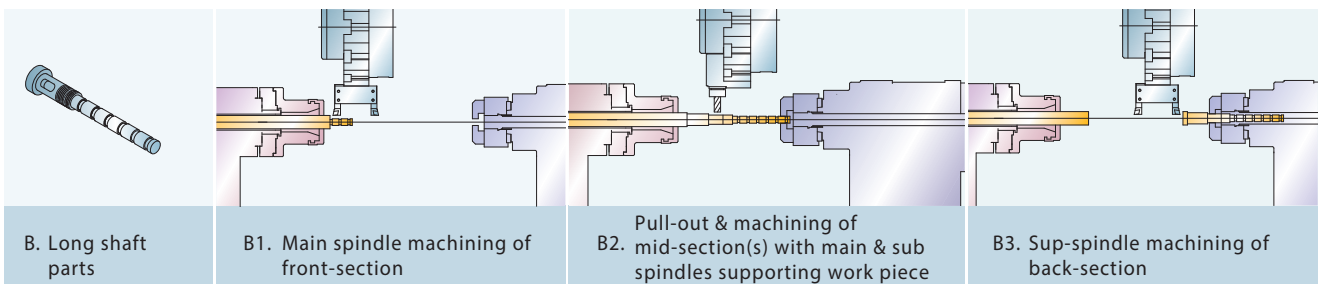
( Sub-spindle is not available on L<sup>2</sup> / L<sup>3</sup> series. )



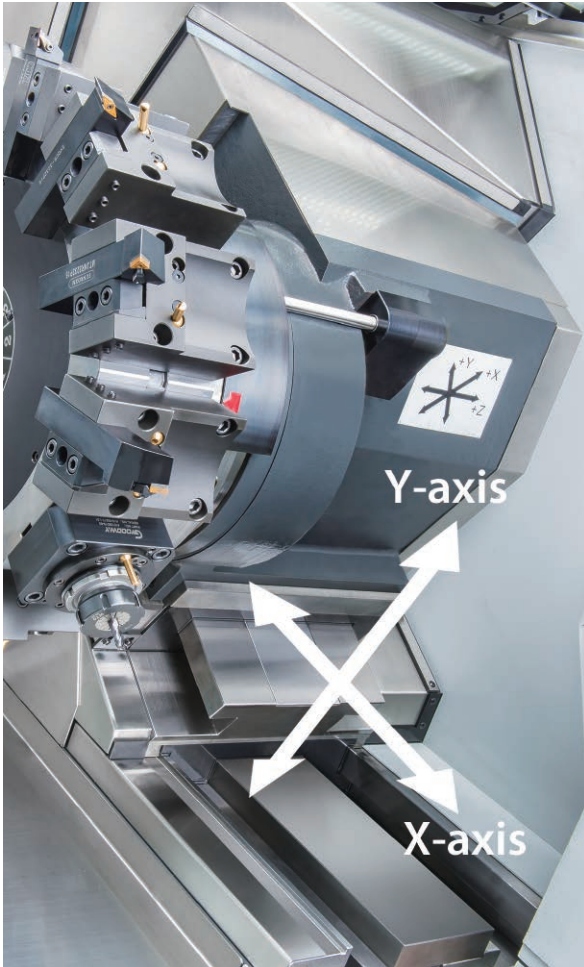
- ▶ Automatic part transfer of work piece from main spindle to sub-spindle saves manpower and cycle time, while reducing accuracy lost, which will occur if manually handling the part from machine to machine.



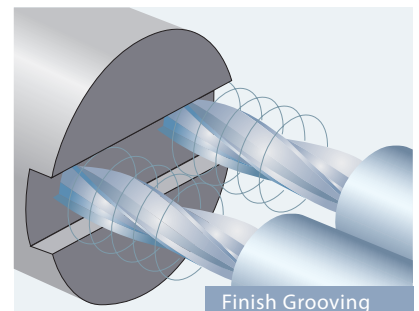
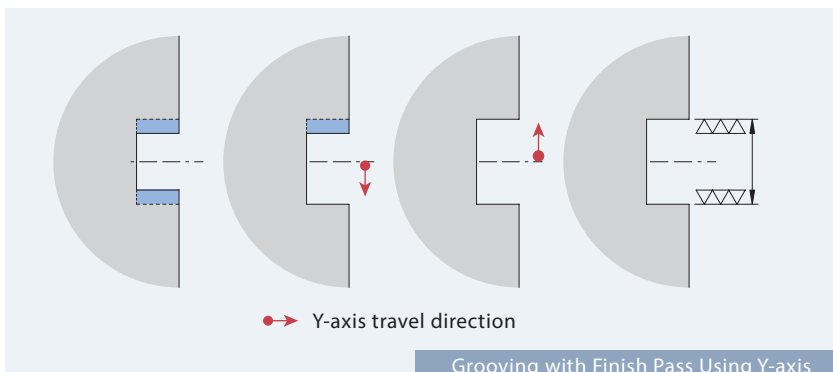
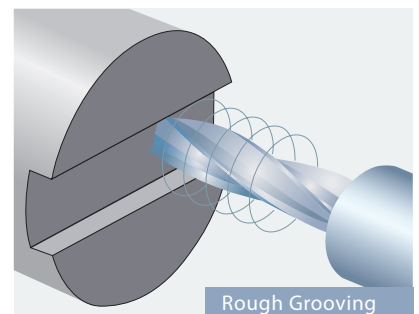
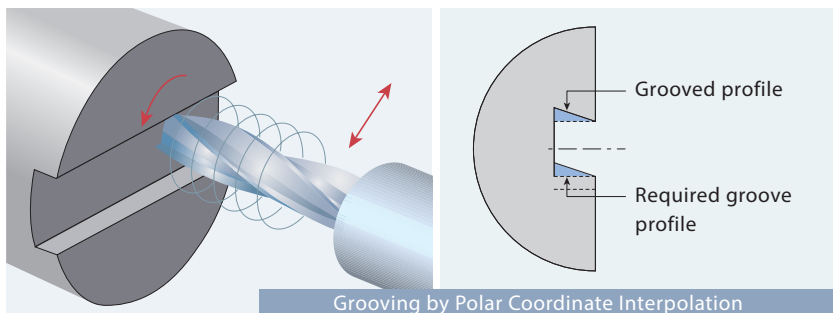
- ▶ With  $\varnothing$  45 mm ( 1.77" ) bar capacity, the sub-spindle configuration is also ideal for machining long work pieces such as small diameter shafts. Both ends of the work piece can be supported by the main and sub spindles, allowing the middle section(s) to be accurately machined.



# Y-AXIS MACHINING CAPABILITY



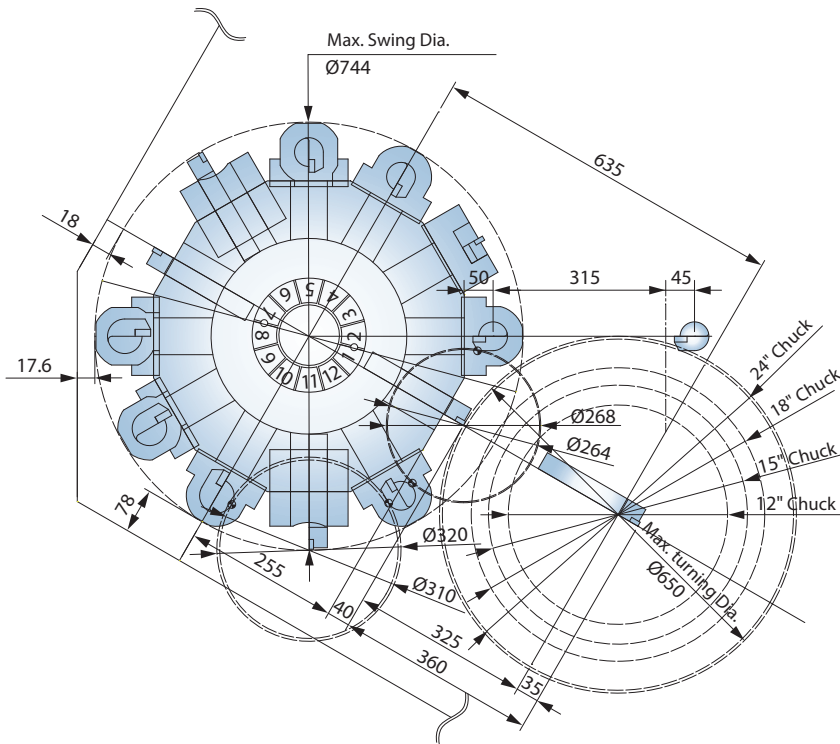
- ▶ The Y-axis control further enhances multi-tasking live tooling capabilities and improves various machining precision. High precision grooving and X-axis off-center drilling are enabled.
- ▶ On Y-axis equipped machines, the turret is mounted on a secondary 30 degrees wedge saddle on top of the X-axis slide. Both X and Y axes have extra wide hardened and ground box way that are directly formed onto the saddles during the casting process. They are precision machined and widely spaced for maximum strength.
- ▶ With an abundant amount of Y-axis travel, 120 mm = ± 60 mm ( 4.72" = ± 2.36" ), a wide variety of parts may be efficiently machined.
- ▶ Live tooling turret for Y-axis machine is equipped with 5.5 kW output, high precision built-in spindle turret.



- ▶ Grooving with Y-axis control produces grooves with higher accuracy.

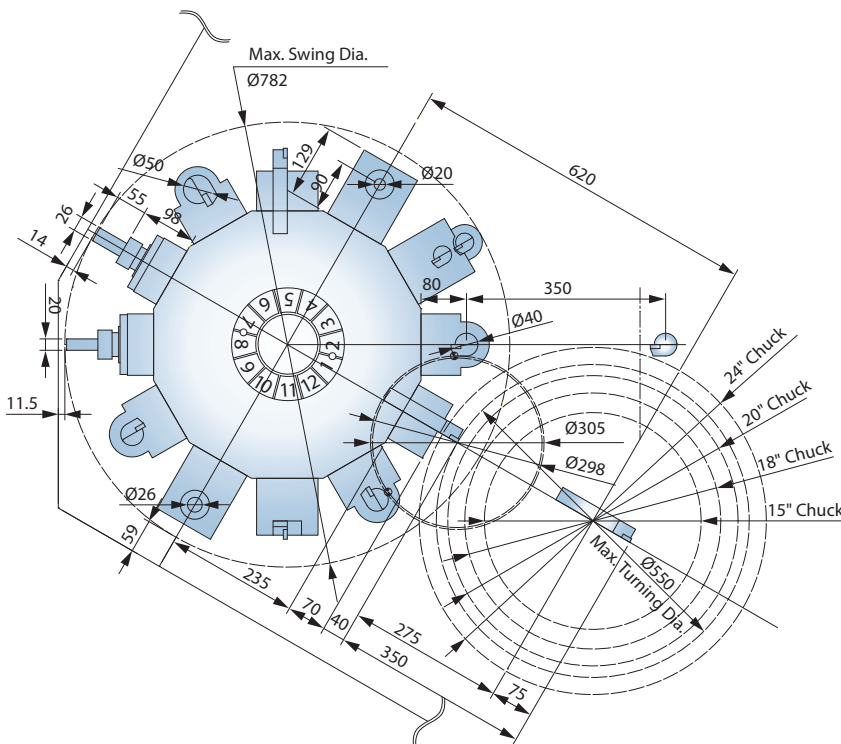
## Standard 12-Stations Turret

### Interference Diagram



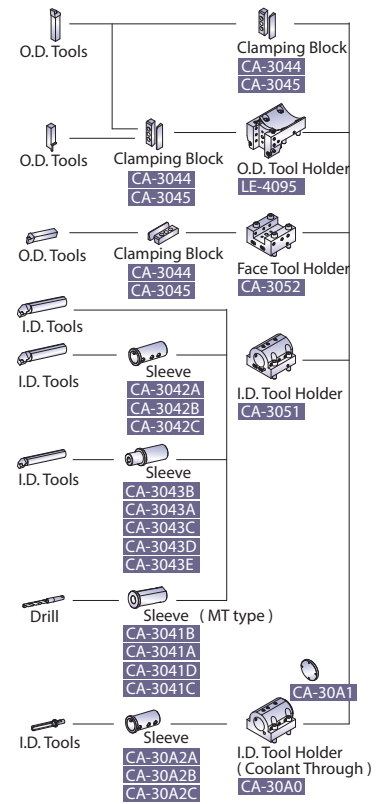
## Optional 12-Stations Live Tooling Turret

### Interference Diagram

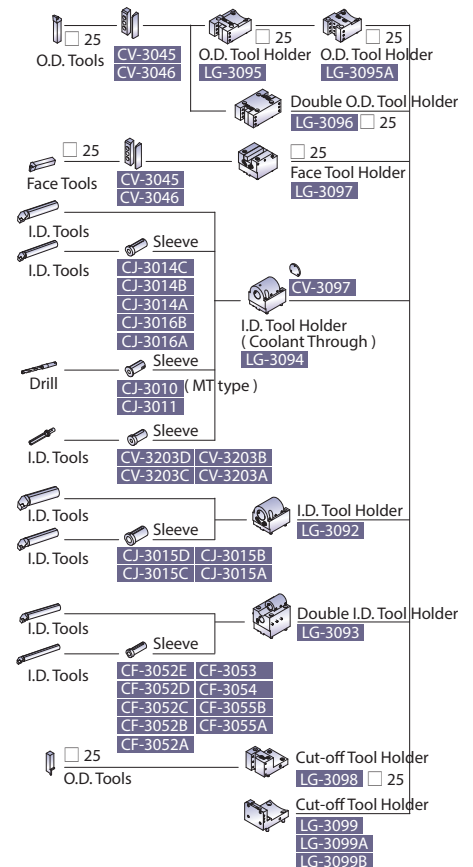


Unit : mm

### Tooling System

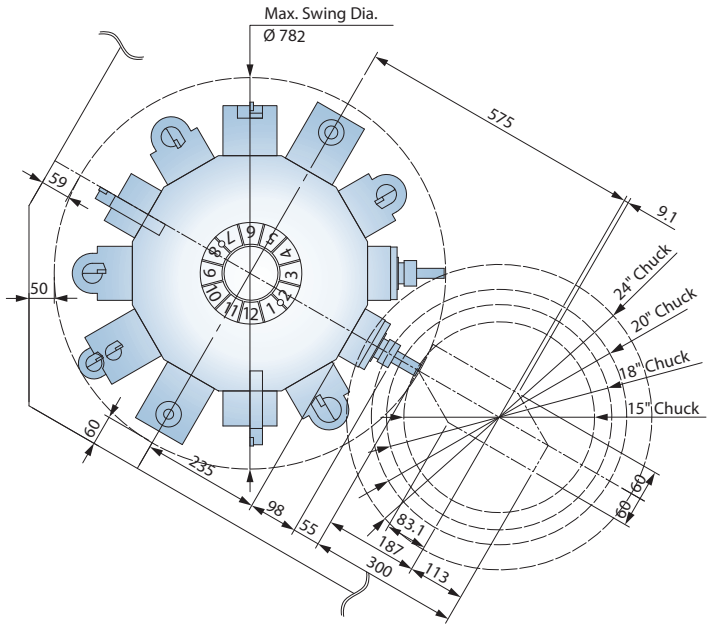
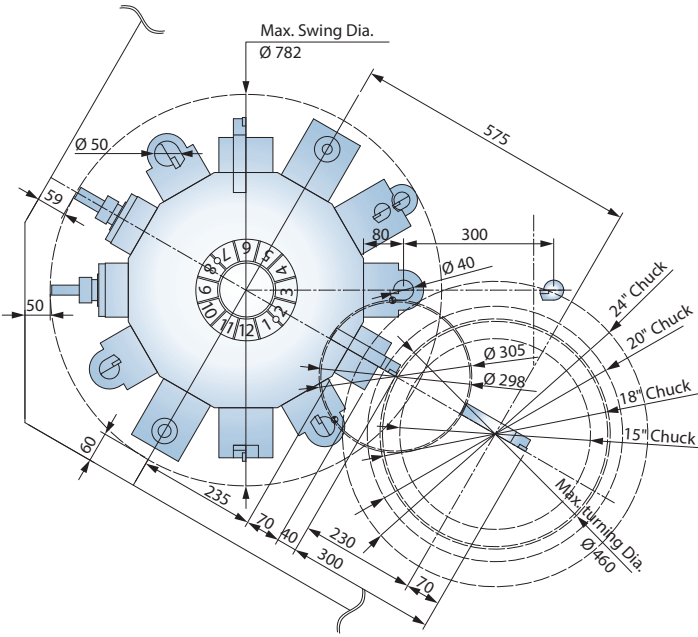


### Tooling System

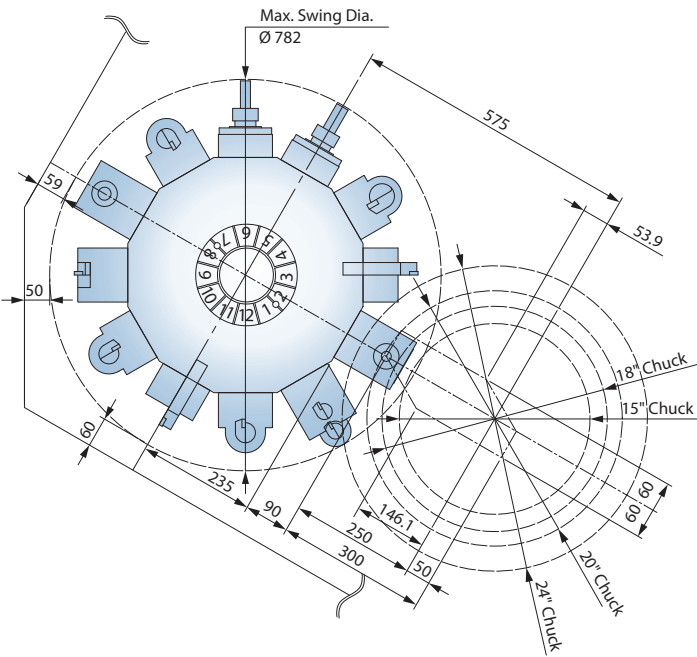


Optional Y-axis

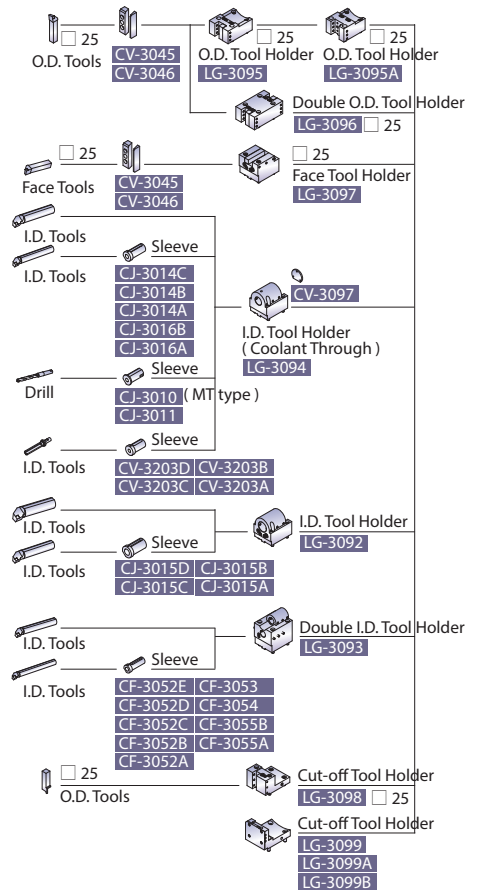
Interference Diagram



Interference Diagram



Tooling System

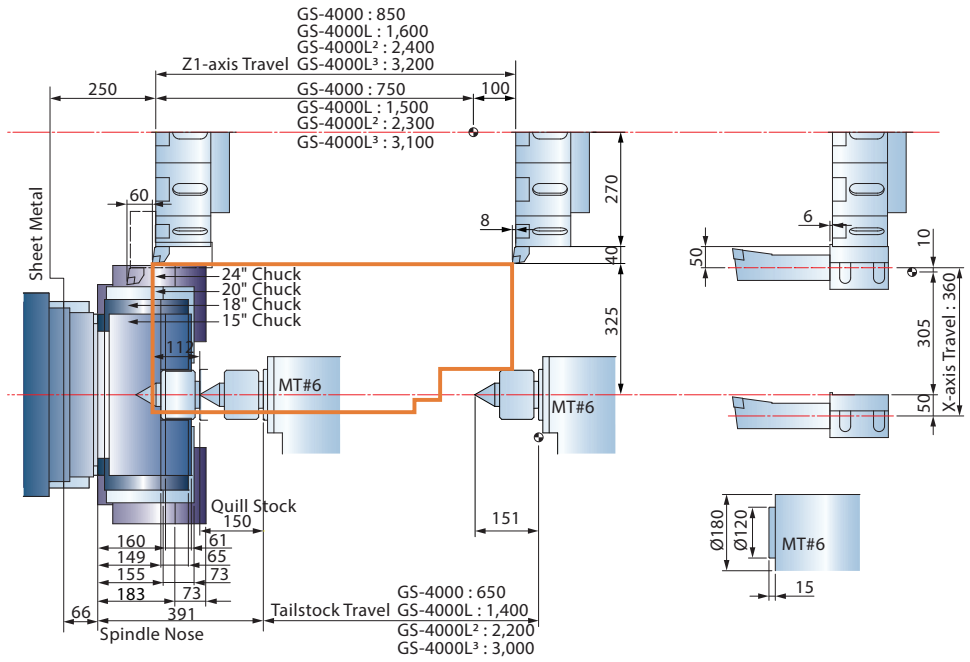


Unit : mm

Standard 12-Stations Turret

[ Work Range ]

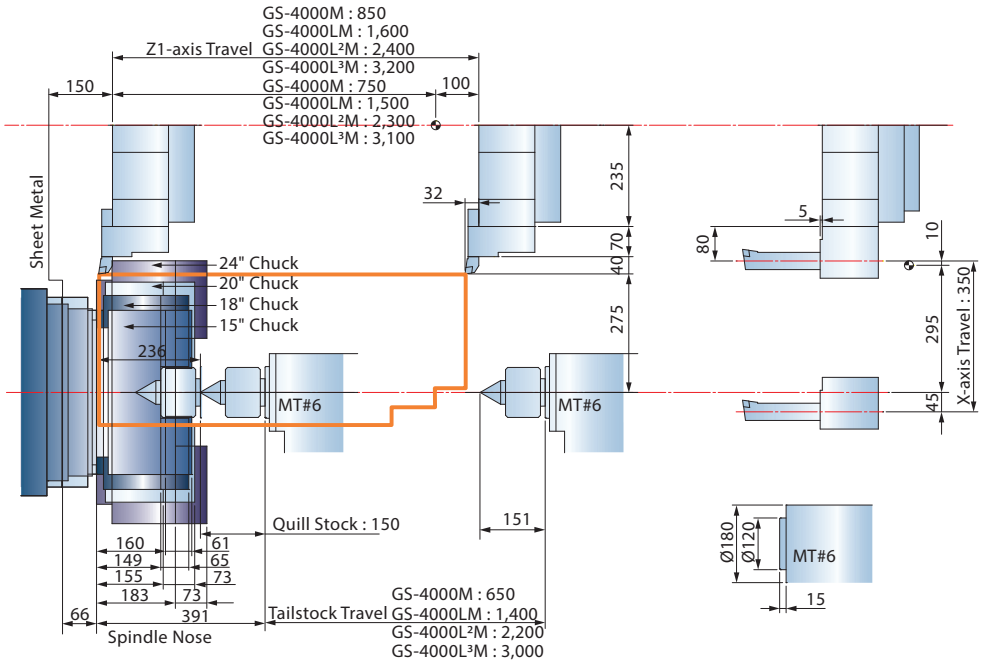
MT#6 Live Center



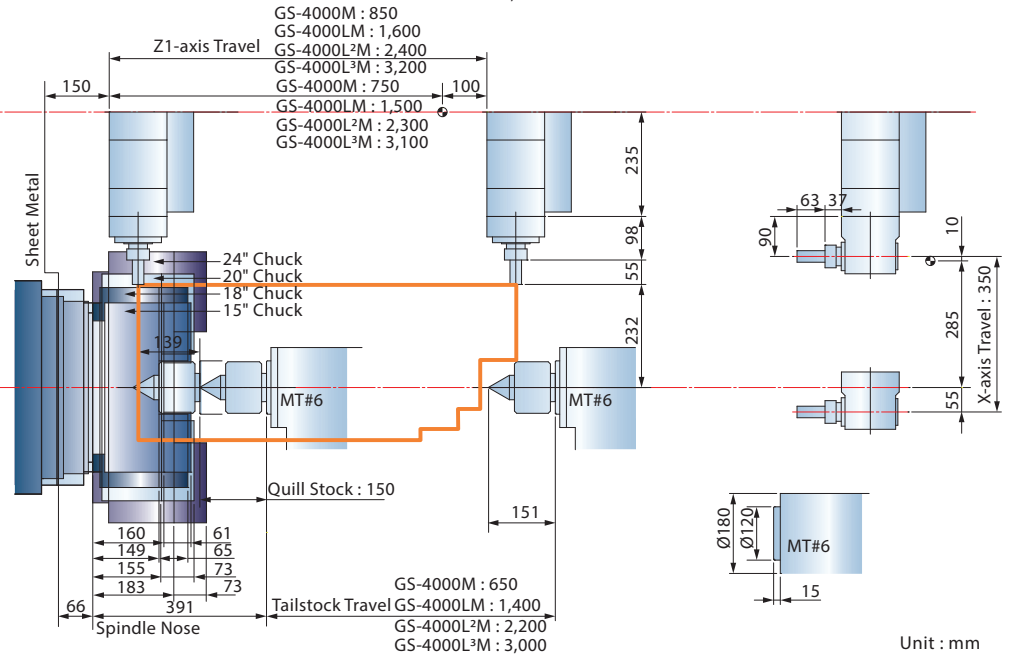
Optional Live Tooling Turret

[ Work Range ]

MT#6 Live Center ( I.D. / O.D. Tools )



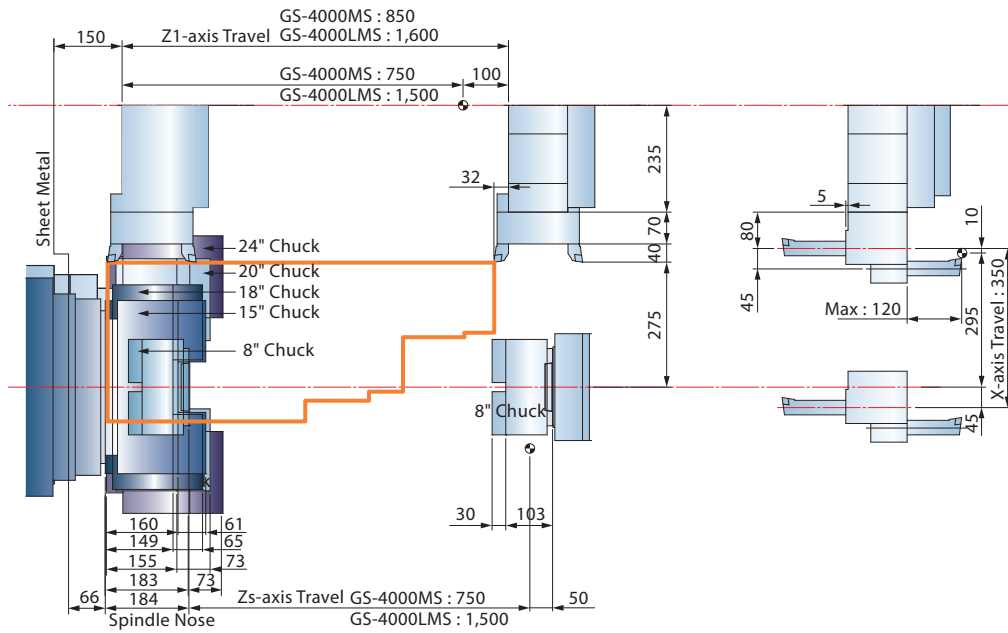
MT#6 Live Center ( Live Tooling )



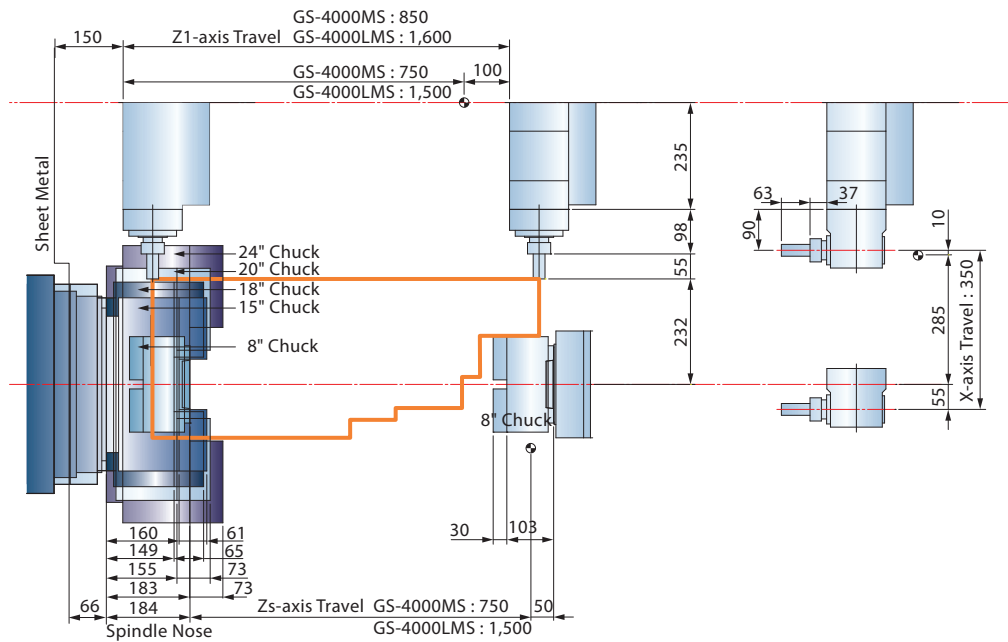
Optional Live Tooling Turret & Sub-spindle

[ Work Range ]

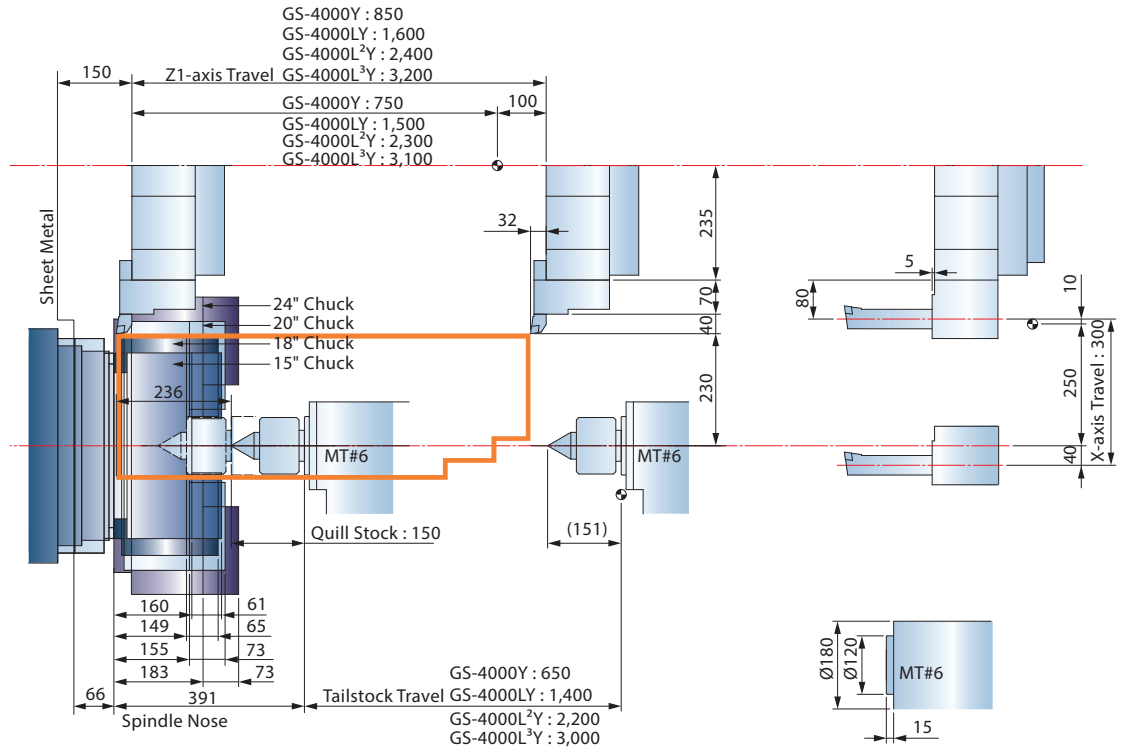
( I.D. / O.D. Tools )



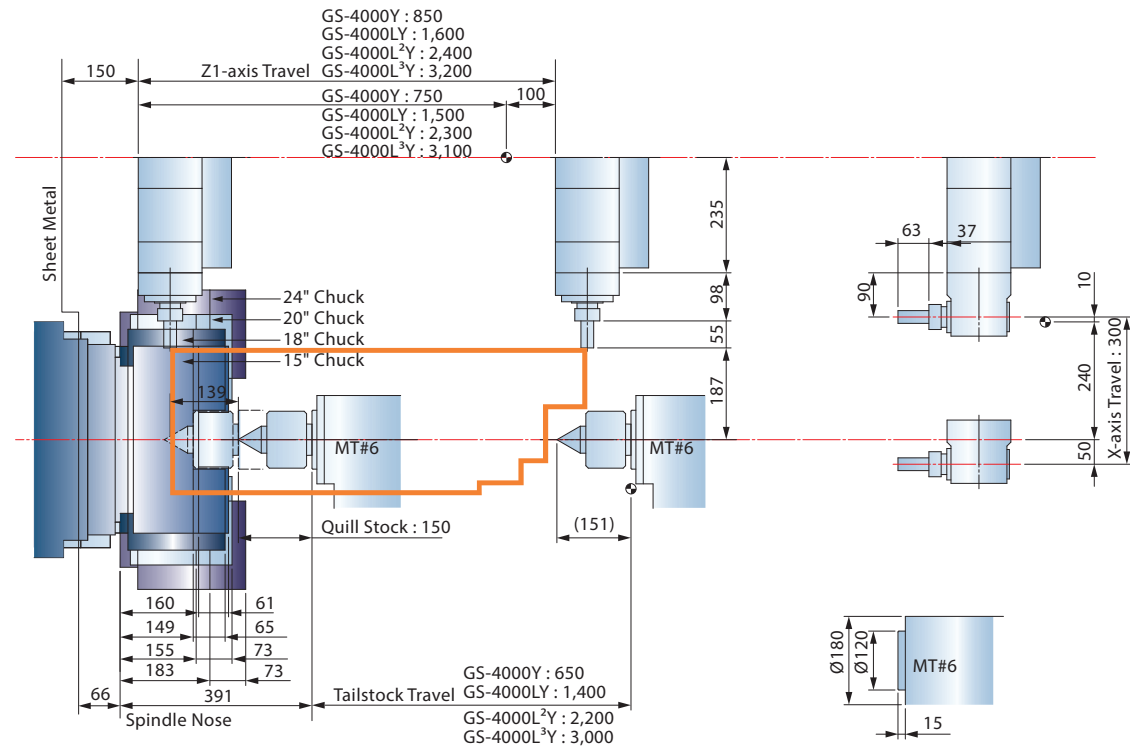
( Live Tooling )



( I.D. / O.D. Tools )



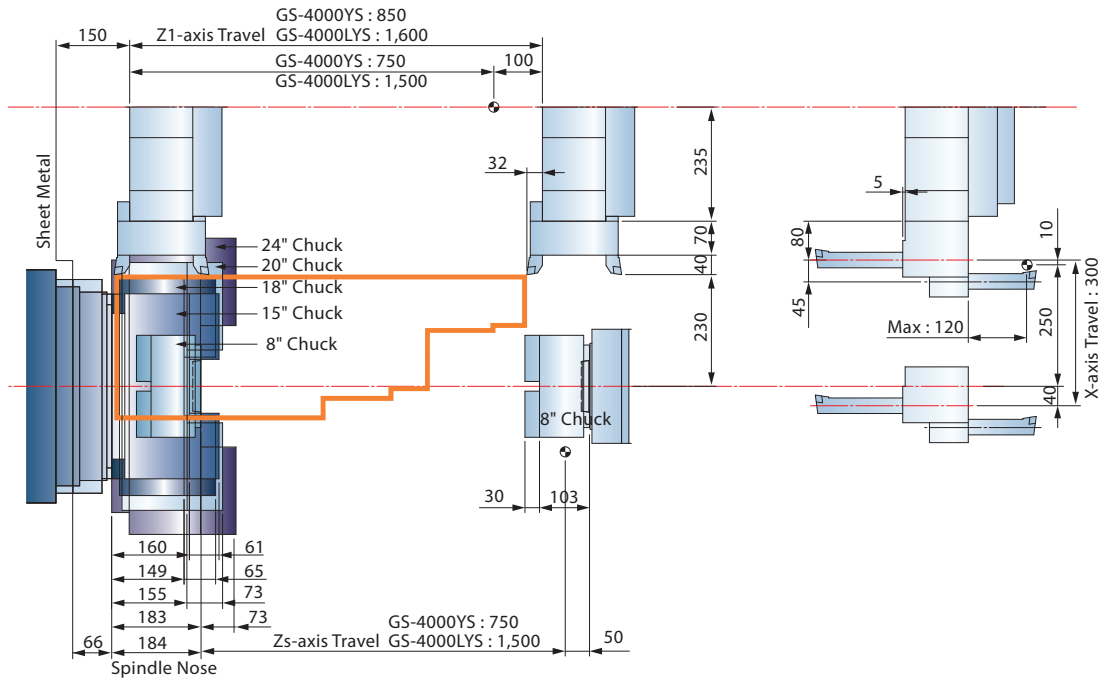
( Live Tooling )



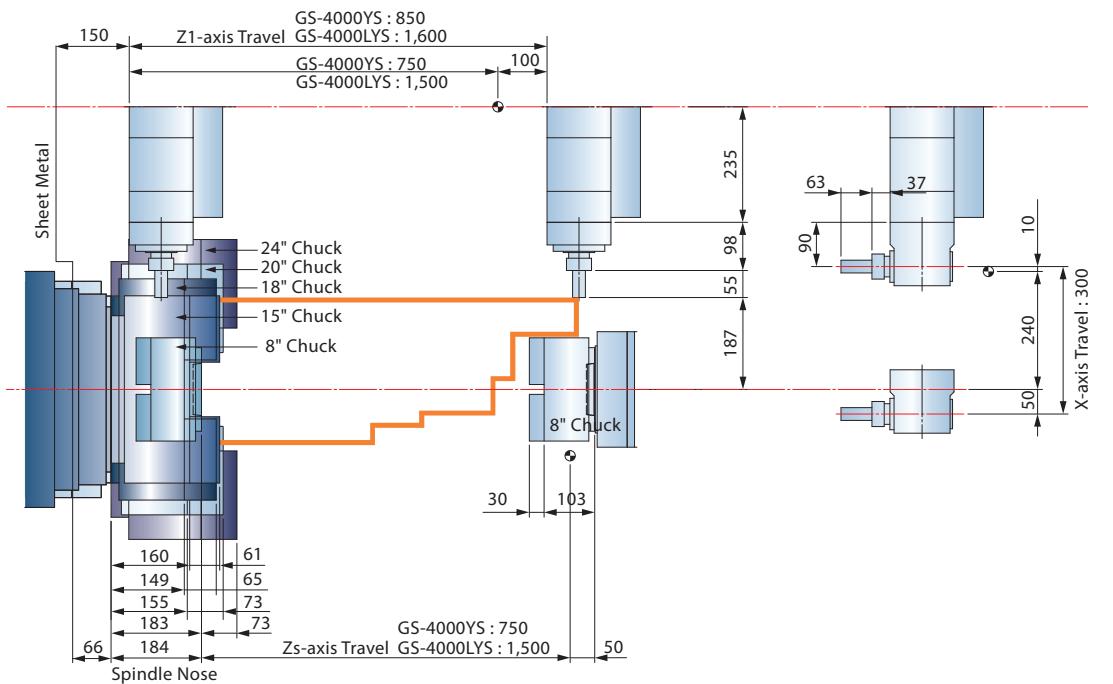
Optional Y-axis & Sub-spindle

[ Work Range ]

( I.D. / O.D. Tools )



( Live Tooling )

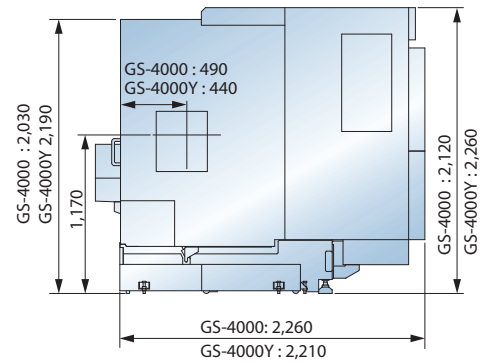
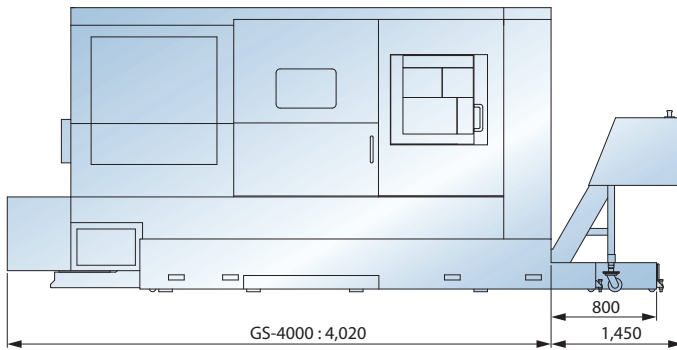
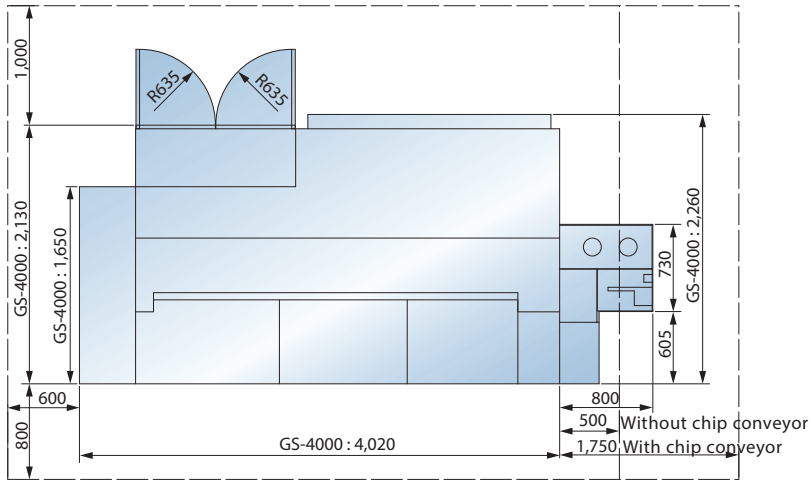


Unit : mm

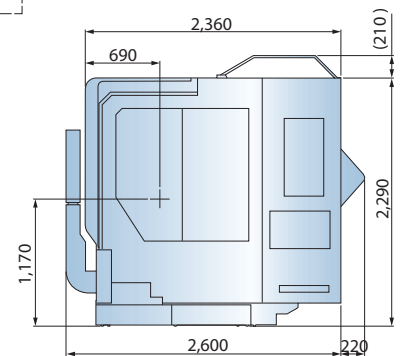
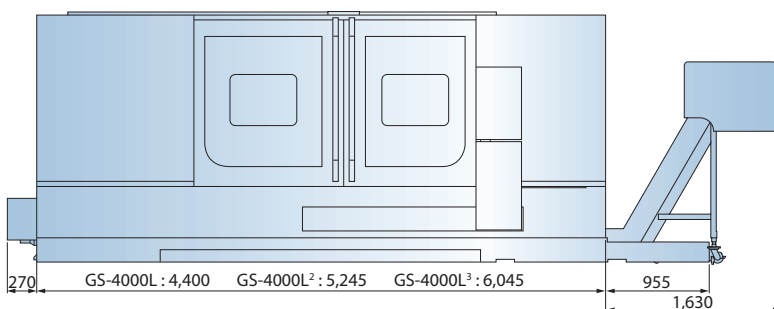
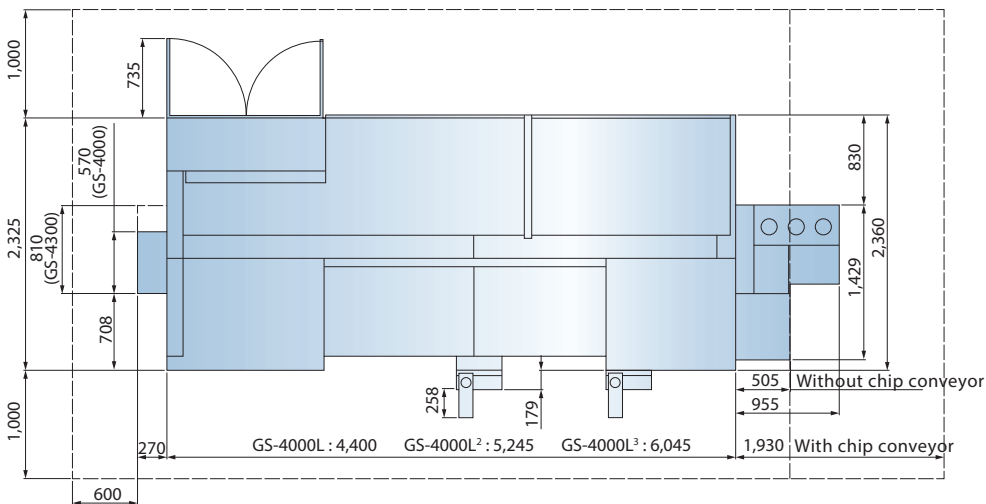


## Space Requirement

### GS-4000 series



### GS-4000L / GS-4000L<sup>2</sup> / GS-4000L<sup>3</sup> series



Unit : mm

# STANDARD FEATURES

## Fully Enclosed Guarding

▶ GS-4000 series



▶ GS-4000L / GS-4000L<sup>2</sup> / GS-4000L<sup>3</sup> series



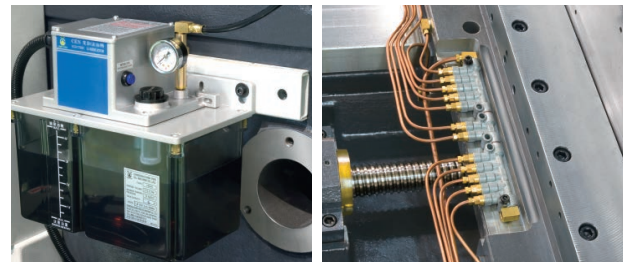
## Chip Conveyor

▶ GOODWAY can provide the best solution according to different material. Hinge type chip conveyor for iron chips. Scraper type chip conveyor for cooper, aluminum and cast iron chips.



## Lubrication System

- ▶ The lubrication unit monitors preset pressure levels detect leaks in the system.
- ▶ Copper lubrication lines will not corrode or become brittle over time.



## 3-Jaw Chuck w/ Soft Jaws x 1 set

▶ Standard 3-jaw hydraulic chuck with soft jaws is able to work with various types of work-pieces.



## Heat Exchanger

▶ The heat exchanger provides the electrical box with good air circulation to efficiently lower the interior temperature and stabilize the electrical devices.



## Tri-color Status Light

▶ The tri-color status light enables the machine's status to be checked without having to stand at the control panel, and the screen and work lights are shut off to conserve power.



## OPTIONAL FEATURES

### Bar Feeder

- ▶ The optional bar feeding systems feed bars with a diameter up to Ø105 mm, and the BF-65 can handle bar diameters of up to Ø 65 mm.



### Larger Coolant Tank Capacity

- ▶ The Coolant tank allows the connection of compressed air to circulate coolant and keep it fresh when the machine is not in use. ( opt. )

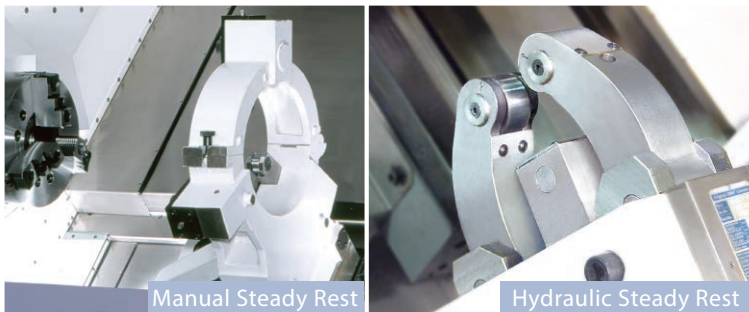


Separate coolant tank & Oil skimmer shown



### Tool Setter

- ▶ The optional Renishaw HPRA tool presetter simplifies the machining setup.



Manual Steady Rest

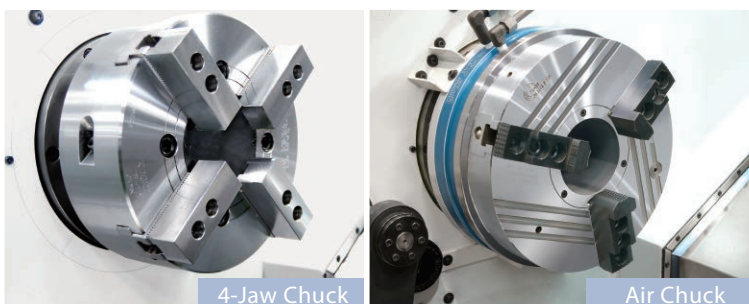
Hydraulic Steady Rest

### Manual Steady Rest

- ▶ It can be manually adjusted and requires less space than hydraulic steady rests.

### Hydraulic Steady Rest

- ▶ The hydraulic pressure is controlled by the program to increase working efficiency.



4-Jaw Chuck

Air Chuck

### 4-Jaw Chuck

- ▶ The 4-jaw chuck can work with complex-shaped or non-circular materials that cannot be done by 3-jaw chucks.

### Air Chuck

- ▶ As opposed to a hydraulic chuck, the air chuck can work with soft or thin material to prevent deformation.

# STANDARD & OPTIONAL FEATURES

S: Standard      O: Optional  
 -: Not Available      C: Contact GOODWAY

		GS-400	GS-4300
<b>SPINDLE</b>			
Main spindle motor configuration	2-Speed Gear	S	S
Rigid tapping & spindle orientation		S	S
Disk brake for main		O	O
Sub-spindle & 8" hydraulic cylinder <sup>*1</sup>		O	O
Cs-axis & disk brake for Sub-spindle <sup>*1</sup>		O	O
<b>WORK HOLDING</b>			
Hydraulic hollow cylinder for chuck	117.5 mm ID.	S	-
	166.5 mm ID.	-	S
	15"	S	-
	18"	O	-
	20"	-	S
Hollow 3-jaws chuck & 1 set soft jaws	24"	-	O
	Hard jaws	O	O
	Special work holding chuck	C	C
	In spindle work stopper	O	O
Spindle liner ( guide bushing )	O	O	
Foot switch for chuck operation	S	S	
Programmable base & quill hydraulic tailstock	S	S	
MT#4 dead center <sup>*1</sup> ( servo tailstock )	O	O	
MT#5 live center <sup>*1</sup> ( servo tailstock )	O	O	
MT#6 live center	S	S	
Manual steady rest	O	O	
Self-centering hydraulic steady rest	O	O	
Foot switch for steady rest operation	O	O	
Two-stage programmable pressure	Chuck clamping	O	O
	Tailstock thrust	O	O
<b>TURRET</b>			
10-station turret		O	O
12-station turret		S	S
12-station live tooling turret		O	O
Tool holder & sleeve package		S	S
Live tooling tool holders ( 0°x2, 90°x2 )		O	O
<b>MEASUREMENT</b>			
Renishaw HPRA tool presetter	Removeable	O	O
<b>COOLANT</b>			
Coolant pump	3 Kg/cm <sup>2</sup>	S	S
	5 Kg/cm <sup>2</sup>	O	O
High-pressure coolant system	20 Kg/cm <sup>2</sup>	C	C
Roll-out coolant tank		S	S
Oil skimmer		O	O
Coolant flow switch		O	O
Coolant level switch		O	O
Coolant intercooler system		O	O
<b>CHIP DISPOSAL</b>			
Chip conveyor with auto timer	Right discharge	S	S
Chip cart with coolant drain		O	O
Chuck air blow		O	O
Tailstock air blow		O	O
Oil mist collector		O	O
<b>AUTOMATIC OPERATION SUPPORT</b>			
Work-piece transport conveyor		O	O
Bar feeder & interface		O	O
Gantry-type loader / unloader		O	O
Auto door		O	O
External M-code output	4 sets ( 8 )	O	O
	8 sets ( 16 )	O	O

Specifications are subject to change without notice.

\*1 Not available on L<sup>2</sup> / L<sup>3</sup> series.

\*2 Standard with tailstock option.

		GS-400	GS-4300
<b>SAFETY</b>			
Fully enclosed guarding		S	S
Tailstock stroke out - end check <sup>*2</sup>		S	S
Chuck cylinder stroke out - end check		S	S
Low hydraulic pressure detection switch		S	S
Load monitoring function		O	O
<b>OTHERS</b>			
External work light		O	O
	Heat exchanger	S	S
Electrical cabinet	A/C cooling system	O	O
Complete hydraulic system		S	S
Advanced auto lubrication system		S	S
<b>FANUC CONTROL FUNCTIONS</b>			
Display	10.4" color LCD	S	S
	Standard	S	S
Graphic function	Dynamic <sup>*3</sup>	O	O
Part program storage size	1M bytes	-	S
	2M bytes	S	O
O <sub>i</sub> -TF : total	4M bytes	-	O
31i : total	8M bytes	-	O
Registerable programs	1,000	S	S
	4,000	-	O
O <sub>i</sub> -TF : total / 31i : total	99	-	S
	128	S	-
Tool offset pairs	200	O	O
O <sub>i</sub> -TF : total	400	-	O
	499	-	O
31i : total	999	-	O
	2000	-	O
Servo HRV control	HRV 3	S	S
Automatic data backup		S	S
Synchronous / Composite control		O	O
Inch / metric conversion		S	S
Polar coordinate interpolation		S	S
Cylindrical interpolation		S	S
Multiple repetitive cycle		S	S
Rigid tapping		S	S
Unexpected disturbance torque detection function		S	S
Spindle orientation		S	S
Spindle speed fluctuation detection		S	S
Embedded macro		O	O
Spindle synchronous control		S	S
Run hour and parts count display		S	S
Tool radius / Tool nose radius compensation		S	S
Polygon turning		S	S
Helical interpolation		O	O
Direct drawing dimension programming		S	S
Thread cutting retract		S	S
Variable lead threading		O	S
Multiple repetitive cycle II		S	S
Canned cycles for drilling		S	S
Tool nose radius compensation		S	S
Chamfering / Corner R		S	S
AI contour control I		O	S
Multi part program editing		O	S
Manual handle retrace		O	O
Manual intervention and return		S	O
External data input		S	S
Addition of custom macro		S	S
Increment system C		S	S
Run hour & parts counter		S	S
Auto power-off function		S	S
RS-232 port		S	S
Memory card input / output ( CF + USB )		S	S
Ethernet		S	S

\*3 Dynamic graphic display conflict to MANUAL GUIDE *i*, only can choose one to have.

MANUAL GUIDE *i* is standard on 31i controller.

# MACHINE SPECIFICATIONS

■ : Metric ■ : Inch

CAPACITY		GS-4000	GS-4300
Max. swing diameter		Ø 770 mm 30.3"	
Swing over saddle		Ø 940 mm 37"	
Max. turning diameter		Ø 650 mm 25.5"	
Std. turning diameter		Ø 260 mm 10.2"	
Max. turning length		800 / 1,500 / 2,300 / 3,100 mm [ 15" Chuck ] <sup>*1*2</sup> 31.4" / 59" / 90.5" / 122"	
Chuck size		15" ( 18" )	20" ( 24" )
Bar capacity		Ø 115 mm 4.5"	Ø 165 mm 6.4"
SPINDLE			
Hole through draw tube		Ø 117 mm 4.6"	Ø 165.5 mm 6.5"
Hole through spindle		Ø 131 mm 5.1"	Ø 181 mm 7.1"
Spindle bearing diameter ( Front / Rear )		Ø 180 / 160 mm 7" / 6.2"	Ø 240 / 220 mm 9.4" / 8.6"
Hydraulic cylinder		15" ( 18" )	20" ( 24" )
Spindle nose		A2-11	A2-15
Motor output ( Cont. / 30 min. )		30 / 37 kW 40 / 50 HP	
Motor full output speed		1,150 rpm	
Motor full output speed		2-Speed Gear box	
Spindle drive system		1: 3 / 1: 6	1: 5 / 1: 10
Spindle speed ranges	L	10 ~ 1,000 rpm	6 ~ 600 rpm
	H	20 ~ 2,000 rpm	12 ~ 1,200 rpm
Spindle full output speed	L	196 rpm	121 rpm
	H	388 rpm	239 rpm
Spindle torque ( Cont. / 30 min. )	L	1,463 / 1,800 Nm 1,080 / 1,330 lb-ft	2,370 / 2,920 Nm 1,750 / 2,155 lb-ft
Spindle torque ( Cont. / 30 min. )	H	739 / 910 Nm 545 / 670 lb-ft	1,197 / 1,470 Nm 880 / 1,090 lb-ft
C-AXIS SPINDLE ( OPTIONAL )			
Drive type		Cs	
Torque output		1,800 Nm 1,330 lb-ft	2,900 Nm 2,140 lb-ft
X & Z AXES			
Max. X-axis travel		360 mm 14.1"	
Max. Z-axis travel		850 / 1,600 / 2,400 / 3,200 mm <sup>*2</sup> 33.4" / 62.9" / 94.4" / 125.9" <sup>*2</sup>	
Max. Zs-axis travel		800 / 1,550 / — / — mm <sup>*2</sup> 31.4" / 61" / — / — <sup>*2</sup>	
X-axis rapids		24 m/min. 945 IPM	
Z-axis rapids		24 / 24 / 16 / 12 m/min. <sup>*2</sup> 945 / 945 / 629 / 472 IPM	
Zs-axis rapids		24 / 24 / — / — m/min. <sup>*2</sup> 945 / 945 / — / — IPM	
Slide way type		Hardened & Ground Box Ways <sup>*3</sup>	
Feed rates		1 ~ 4,800 mm/min. 1 ~ 189 IPM	
X-axis servo motor		7 kW 9 HP	
Z1-axis servo motor		7 kW 9 HP	
Zs-axis servo motor		3 kW 4 HP	
X-axis ball screw Ø pitch		Ø 36 mm [ 10 mm ] 1.4" [ 0.39" ]	
Z1-axis ball screw Ø pitch		Ø 45 mm [ 10 mm ] / Ø 45 mm [ 10 mm ] / Ø 63 mm [ 16 mm ] / Ø 63 mm [ 16 mm ] <sup>*2</sup> Ø 1.7" [ 0.39" ] / Ø 1.7" [ 0.39" ] / Ø 2.4" [ 0.62" ] / Ø 2.4" [ 0.62" ] <sup>*2</sup>	
Zs-axis ball screw Ø pitch		Ø 36 mm [ 10 mm ] / Ø 40 mm [ 10 mm ] / — / — <sup>*2</sup> Ø 1.4" [ 0.39" ] / Ø 1.5" [ 0.39" ] / — / — <sup>*2</sup>	
X-axis thrust ( Cont. )		1,920 Kg <sup>f</sup> 4,232 lbf	
Z-axis thrust ( Cont. )		1,920 / 1,920 / 1,800 / 1,800 Kg <sup>f</sup> <sup>*2</sup> 4,230 / 4,230 / 3,970 / 3,970 lbf <sup>*2</sup>	
Zs-axis thrust ( Cont. )		770 / 770 / — / — Kg <sup>f</sup> <sup>*2</sup> 1,697 / 1,697 / — / — lbf <sup>*2</sup>	

Specifications are subject to change without notice.

\*1 Individual models may vary, detail specification please see work range diagram or contact with Goodway.

\*2 GS-4000 / 4000L / 4000L<sup>2</sup> / 4000L<sup>3</sup>

\*3 Zs-axis is adopted with linear guideway design.

# MACHINE SPECIFICATIONS

TURRET	GS-4000		GS-4300			
Stations	12 ( Opt. 10 )					
Indexing speed	0.3 sec. Adjacent / 0.8 sec. ( Single step )					
Accuracy	Positioning : ± 0.00069°, Repeatability : ± 0.00027°					
OD tool shank size	□ 32 mm 1-1/4"					
ID tool shank size	∅ 60 mm 2-1/2"					
LIVE TOOLING TURRET ( OPTIONAL )						
Max. turning diameter	∅ 550 mm 21.6"					
Std. turning diameter	∅ 305 mm 12"					
Max. turning length	695 / 1,445 / 2,245 / 3,045 mm [ 15" Chuck ] <sup>*1*2</sup> 27.3" / 56.8" / 88.3" / 119.8" [ 15" Chuck ] <sup>*1*2</sup>					
Stations	12					
Live tooling stations	12					
Live tooling drive motor ( Cont. / 30 min. )	5.5 / 7.5 kW ( decelerate 1 : 2 ) [ Y-axis : 3.7 / 5.5 kW built-in motor ]					
Index speed	0.3 sec. Adjacent / 0.8 sec. ( Single step )					
OD tool shank size	□ 25 mm 1"					
ID tool shank size	∅ 50 mm 2"					
Live tooling shank size	ER 40					
Live tooling RPM range	4,000 rpm [ Y-axis : 6,000 rpm ]					
Y-AXIS ( OPTIONAL )						
Max. swing diameter	∅ 700 mm 27.5"					
Swing over saddle	∅ 900 mm 35.4"					
Max. turning diameter	∅ 460 mm 18.1"					
Max. turning length	695 / 1,445 / 2,245 / 3,045 mm [ 15" Chuck ] <sup>*2</sup> 27.3" / 56.8" / 88.3" / 119.8" [ 15" Chuck ] <sup>*2</sup>					
Max. X-axis travel	300 mm 11.8"					
Max. Y-axis travel	120 mm = ± 60 mm 4.7" = ± 2.3"					
X / Y axes rapids	24 / 10 m/min. 945 / 393 IPM					
Slide way type	Hardened & Ground Box Ways					
Feed rates	1 ~ 4,800 mm/min. 1 ~ 189 IPM					
X-axis servo motor	7 kW 9 HP					
Y-axis servo motor	4 kW 5 HP					
X-axis ball screw ∅ / pitch	∅ 36 mm / 10 mm 1.4" / 0.39"					
Y-axis ball screw ∅ / pitch	∅ 36 mm / 8 mm 1.4" / 0.31"					
X / Y axes thrust ( Cont. )	1,920 / 1,760 Kgf 4,230 / 3,880 lbf					
TAILSTOCK						
Quill center taper	MT#4		MT#5		MT#6	
Tailstock	Servo tailstock <sup>*3</sup>		Programmable tailstock		Programmable tailstock	
Center	Dead center	Live center	Live center	Dead center	Live center	Dead center
Quill diameter	–	–	∅120mm 4.7"	∅160mm 6.2"	∅120mm 4.7"	∅160mm 6.2"
Quill travel	–	–	150mm 5.9"	150mm 5.9"	150mm 5.9"	150mm 5.9"
Programmable quill / base	– / Yes	– / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
Tailstock base travel	GS-4000L	800 mm 31.4"			650 mm 25.5"	
	GS-4000L	1,550 mm 61"			1,400 mm 55.1"	
	GS-4000L <sup>2</sup>	–			2,200 mm 86.6"	
	GS-4000L <sup>3</sup>	–			3,000 mm 118"	

Specifications are subject to change without notice.

\*1 Individual models may vary, detail specification please see work range diagram or contact with Goodway

\*2 GS-4000 / 4000L / 4000L<sup>2</sup> / 4000L<sup>3</sup>

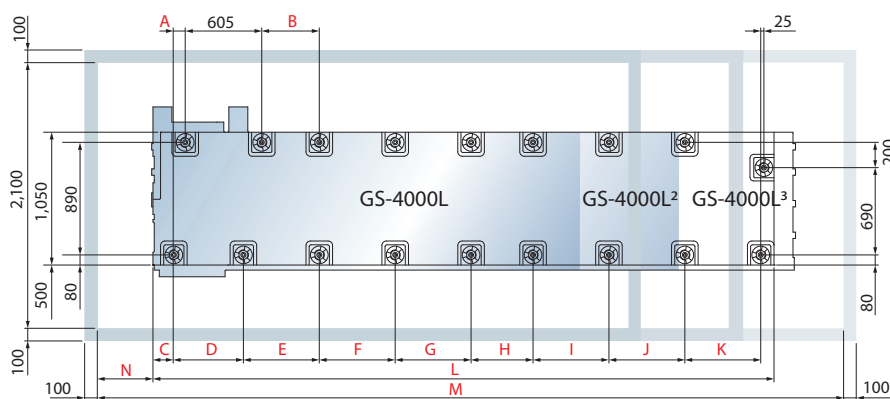
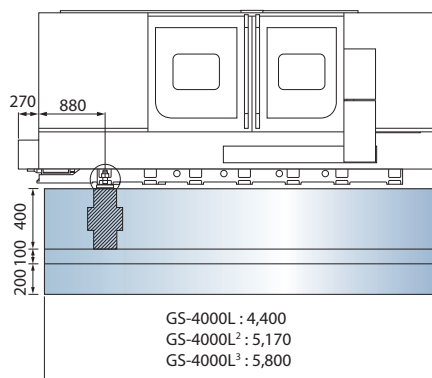
\*3 Option

\*4 Not available on L<sup>2</sup> and L<sup>3</sup> series.

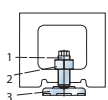
SUB-SPINDLE ( OPTIONAL ) <sup>*4</sup>	GS-4000	GS-4300
Chuck size	8"	
Hole through spindle	Ø 55 mm 2.16"	
Spindle bearing diameter	Front : Ø 100 mm 3.93" / Rear : Ø 70 mm 2.75"	
Spindle nose	A2-6	
Motor output ( Cont. )	15 kW 20 HP	
Motor output ( 15 min. )	18.5 kW 25 HP	
Motor full output speed	5,000 rpm	
Spindle drive system	Direct built-in motor ( Integrated Motor )	
Spindle drive ratio	1 : 1	
Spindle speed range	4,800 rpm	
Spindle torque ( Cont. )	95 Nm 70 lb-ft	
Spindle torque ( 15 min. )	118 Nm 87 lb-ft	
Zs-axis travel	800 / 1,550 / — / — mm 31.5" / 61" / — / —	
Zs-axis rapid	24 / 24 / — / — m/min. 945 / 945 / — / — IPM	
Slide way type	Hardened & Ground Box Ways	
Zs-axis servo motor	3.0 kW 4 HP	
Zs-axis ball screw Ø [ pitch ]	Ø 36 mm [ 10 mm ] / Ø 40 mm [ 10 mm ] / — / — <sup>*2</sup> Ø 1.4" [ 0.39" ] / Ø 1.5" [ 0.39" ] / — / — <sup>*2</sup>	
Zs-axis thrust ( Cont. )	770 / 770 / — / — Kgf 1,697 / 1,697 / — / — lbf	
ACCURACY / GENERAL		
Positioning accuracy	0.015 mm 0.0002"	
Repeatability	± 0.003 mm ± 0.0001"	
Standard CNC control	FANUC Oi-TF Plus ( 31i Opt. )	
Voltage / Power requirement	AC 200/220 + 10% to - 15% 3 phase / 65 KVA	
Hydraulic tank capacity	45 L 11 gal	
Coolant tank capacity	330 / 410 / 540 / 670 L <sup>*2</sup> 87 / 108 / 142 / 176 gal <sup>*2</sup>	
Coolant pump	0.7 kW 0.93 HP ( 60 Hz ) rated at 3 bar ( 44 PSI )	
Machine weight	8,000 / 11,000 / 13,500 / 16,000 Kg <sup>*2</sup> 17,700 / 24,300 / 29,800 / 35,300 lb <sup>*2</sup>	
Dimensions L × W × H	4,020 × 2,260 × 2,120 mm 159" × 89" × 84"	
	L : 4,400 × 2,360 × 2,290 mm 134" × 93" × 92"	
	L <sup>2</sup> : 5,245 × 2,360 × 2,290 mm 207" × 93" × 92"	
	L <sup>3</sup> : 6,045 × 2,360 × 2,290 mm 238" × 93" × 92"	

Specifications are subject to change without notice.

### Foundation Requirement



Unit : mm



NO.	Part No	Part Name
1	CA-1029	Levelling Bolt
2	NA3900BA	Hex. Nut M39
3	CA-1030	Leveling Block

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
GS-4000L	90	455	165	550	600	600	600	600	—	—	—	3,220	4,200	560
GS-4000L <sup>2</sup>	90	505	165	600	600	647	647	646	700	—	—	4,110	5,170	590
GS-4000L <sup>3</sup>	90	455	165	550	600	600	600	490	600	600	600	4,910	5,800	420



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