GS-6000 SERIES

MAXIMUM PERFORMANCE CNC TURNING CENTERS



MAXIMUM PERFORMANCE CNC TURNING CENTERS

With leading technologies and high quality components, the GS-6000 series maximum performance turning center combines a super rigidity box way bed with super large diameter servo indexing turret and 2-step gear spindle structure that provides great horse power, high speed indexing, and heavy-duty cutting capabilities. The GS-6000 series is available with optional L² model, with up to 3,300 mm turning length and "M" model, with live tooling turret and C-axis, which enables higher cutting flexibility and multi-tasking power to meet most of today and tomorrow's turning applications demands.

- ► The first thing you'll notice inside the door of the GS-6000 series is the massive turret, which boasts a turret disk over 750 mm in diameter. Blazing fast indexing times of 1 seconds from station to station and 2 second for stations at 180 degrees are achieved with servo indexing technology.
- ▶ Under the covers, you'll find a 45 degrees true slant bed with super wide box ways, and an enormous 2-speed head stock driven by a 37 kW (30 min.) FANUC motor.
- ➤ Axes rapids are 20 m/min. on X and 24 m/min. on Z, which are 50 ~ 100 % faster than the competitors.
- ▶ Utilizing the most advanced industrial design, the fully enclosed protection covers isolates cutting chips and coolant inside the machine.





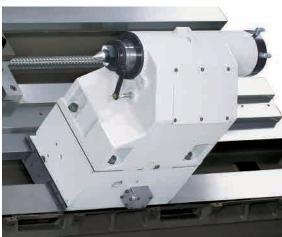
▶ Available live tooling and C-axis capabilities in the GS-6000 series allow the machine to perform multiple tasks on a work-piece, such as turning, milling, drilling, and tapping. This decreases manpower and cycle time as well as eliminates the accuracy lost when a part is moved from machine to machine. (More on P9.)

SERIES		GS-6000 SERIES	GS-6600	SERIES	GS-6800 SERIES		
	Chuck Size	Ø 15" (18")	Ø 20"	Ø 22" *1	Ø 24" *1		
	Bar Capacity	Ø 115 mm (4.52")	Ø 180 mm (7.08") Ø 205 mm (8.07")		m (4.52") Ø 180 mm (7.08") Ø 205 mm (8.07") Ø 260 mm (10.2		Ø 260 mm (10.24")
Turning	950 mm (37.4") GS-6000 / M		GS-66	00 / M	GS-6800 / M		
ing Le	1,980 mm (77.95")	GS-6000L / LM	GS-6600L / LM		GS-6800L / LM		
Length	3,300 mm (129.9")	GS-6000L ² / L ² M	GS-6600)L ² / L ² M	GS-6800L ² / L ² M		

[&]quot;M" model for optional live tooling turret function.

^{*1} Optional Air Chuck





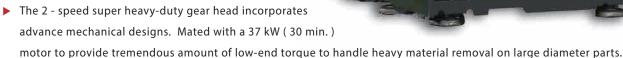
- Positioning of the programmable base tailstock has been simplified through use of custom software interface. The Z-axis carriage automatically locks on to the base of the tailstock and drags it to the desired position.
- The built-in bearing quill provide greater rigidity for heavyloads. The extension and retraction of the quill is programmable and thrust pressure adjustable.

SUPER HEAVY-DUTY CONSTRUCTION

- ▶ Major structural components have been combined into one solid platform. The low center of gravity 45° slant bed design provides the most rigid foundation possible for the headstock, turret, and tailstock.
- ▶ By using Finite Element Methods (FEM), optimal reinforce ribbings are directly cast into the one-piece bed structure. Mechanical rigidity has been increased by more than 40 % when compared to conventional designs. The GS-6000 series is capable of performing super heavy-duty turning and maintain long-term super high precision accuracy. More rigidity also means extended tool life.
- ▶ Built to endure years and years of rigorous high production turning, the heavily ribbed, one-piece thermally balanced bed and casting components are of FC35-MEEHANITE casting (industry standard is FC25~30). FC35 grade cast iron is capable of withstanding much greater stress without deforming and provides maximum vibration damping, which result in a machine



that will outlast and outperform the competition.



- 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.





 \triangleright All spindle and servo motors, including drives, are FANUC alpha i series components to ensure peak machining performance and accuracy.





▶ The L² 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.

▶ Both gears and bearings are lubricated and cooled by an oil mist system, which evenly and efficiently lubricates the components. This system is much more advanced compared to the traditional oil bath system by eliminating the chance of oil contaminating the bearings.





ULTIMATE TURNING POWER

▶ P4 grade (Class 7) super-high precision bearings are directly assembled for maximum level of support and precision. Bearing configuration is designed for heavy-duty cutting with ultra-smooth performance and long term durability with a higher level of accuracy.

▶ With over 2,048 N-m of torque available on low speed of the 2-speed gear head, turning tough material with big diameter is now a simple task.



GS-6000

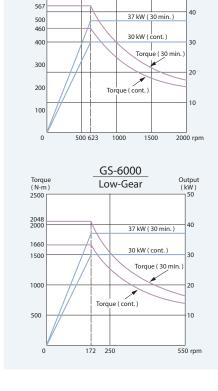
High-Gear

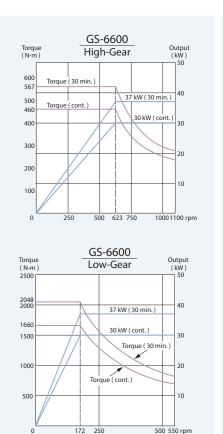
Output (kW)

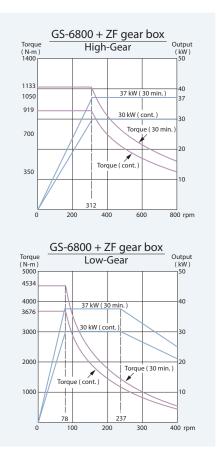


Working with the live tooling turret, the Cf-axis and disk brake system enables the machine to perform multiple tasks, such as drilling, tapping and milling operations including cylindrical and polar coordinate interpolations, resembling a 4th-axis rotary table on a machining center.

Spindle Output

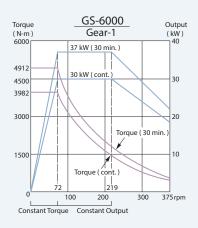


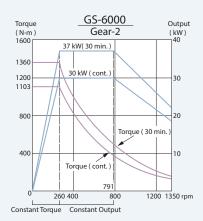


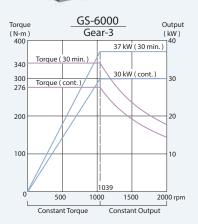


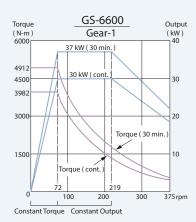
▶ The GS-6000 series is standard with a 2-step gear box. Optional oil bath GERMAN made ZF 3-step gear box is also available providing maximum torque up to 4,912 N-m.

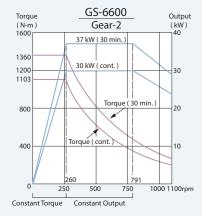
Optional ZF Gear Box Output

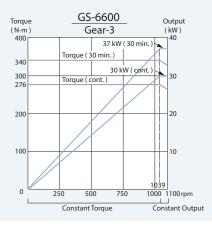










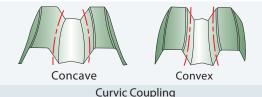


Front + Rear Chuck By installing air or manual chucks on both the front and rear of the spindle, it becomes possible to machine the ends of long work-pieces. This configuration is especially useful in threading pipes. **GS-6000M** Rear chuck Work-piece front chuck

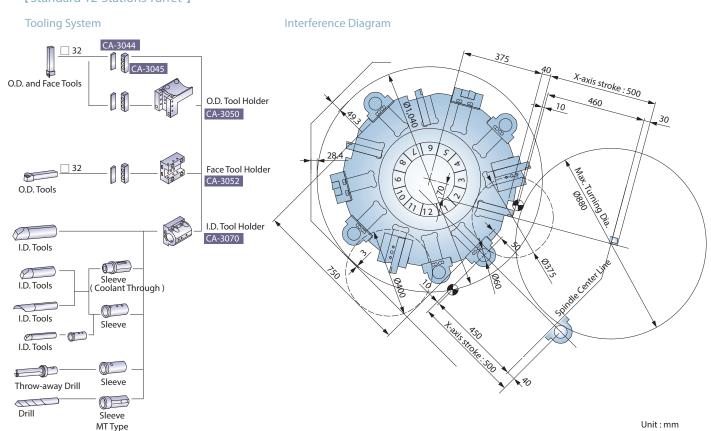
ADVANCED TURRET TECHNOLOGY

- While competitors are cutting cost by using straight couplings on their turrets, we insist on using the finest CURVIC couplings available. The curvature of the CURVIC teeth provides a very unique self-centering feature and wider uniform tooth contact throughout all the teeth, therefore, achieving very high accuracy and rigidity. The CURVIC teeth are hardened to HRC 58, which ensures the coupling retains its high accuracy characteristics over long periods of use.
- ▶ 450 mm (17.7") diameter super high precision CURVIC couplings accurately position the turret disk (± 2 sec. of arc) and 12,000 Kg (26,400 lbs.) of clamping force ensures abundant turret rigidity for all cutting conditions.
- The 12-station heavy-duty servo indexing turret achieves 1 second indexing times for adjacent stations and 2 second times for stations at the opposite end of the disk turret. Index movements are continues, without pauses, and is capable of turning 375 mm diameter work-pieces without interference when using boring tools. The optional 8-station turret even clears up to 584 mm diameter.



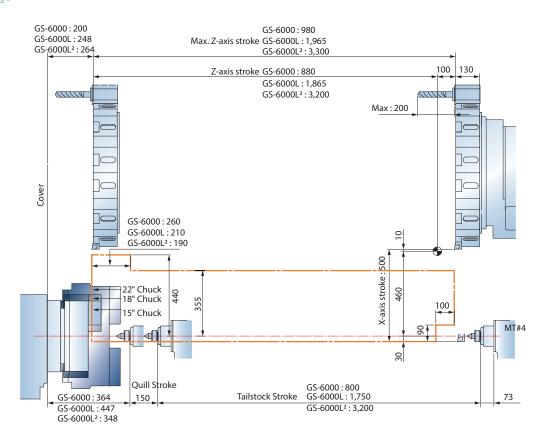


【Standard 12-Stations Turret 】



Performance Features Dimensions Specifications

Work Range



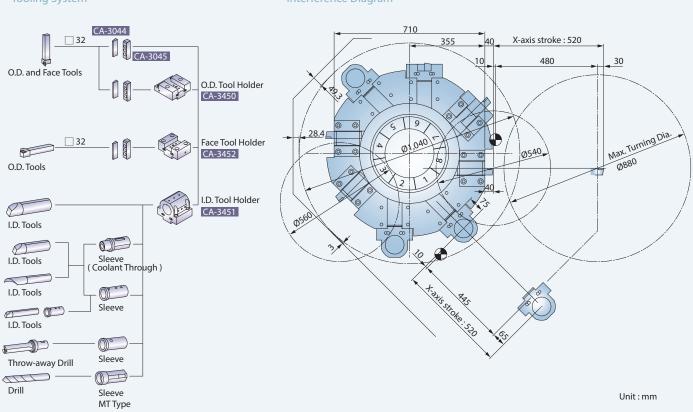
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【 Optional 8-Stations Turret 】

Tooling System

Interference Diagram



^{*1} Work range with 8-Stations Turret ,please contact Goodway.

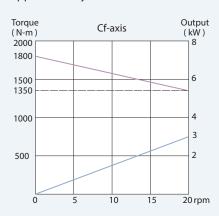
LIVE TOOLING TURRETS

- ▶ Live tooling and C-axis control capabilities on the GS-6000 series allows 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 accuracy lost, which will occur if the part is moved from machine to machine.
- More powerful than a standard 50-taper machining center, the GS-6000 series live tooling turret is driven by a 9 kW (30 min.) AC double wound high torque spindle motor to provide ample power, now, even the toughest of jobs may be tackled without a sweat. (Please see page 12 for motor spec.)
- ► The 12-station GOODWAY live tooling turret offers 12 stations available for live tooling, live tools rotate in working position only to reduce power loss and heat.
- ► GOODWAY live tooling turret utilizes advance servo indexing technology to achieve 1 second indexing times for adjacent stations and 2 second for stations at the opposite end of the disk.



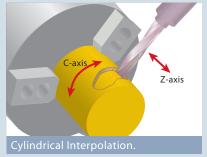
ULTIMATE C-AXIS SPINDLE

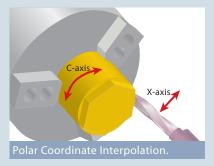
▶ The Cf-axis and disk brake system available on the GS-6000 series provide the most rigid and powerful type of C-axis on the market today. In Cf-axis mode, a servo motor is engaged and drives the rotation of the spindle; engagement time is approximately 1 second.



- ▶ Working with the live tooling turret, the Cf-axis and disk brake system enables the machine to perform multiple tasks, such as drilling, tapping, and milling operations, including cylindrical and polar coordinate interpolations, resembling a 4th-axis rotary table on a machining center.
- ▶ With the FANUC servo motor generating an ultra high resolution of 1,000,000 pulses per spindle rotation and 1,800 N-m of spindle torque (Cont.), machined surface finishes are much superior than Cs-axis (driven by spindle motor) equipped machines. Plus, dynamic accuracy is within ± 0.02° even under heavy cutting loads.



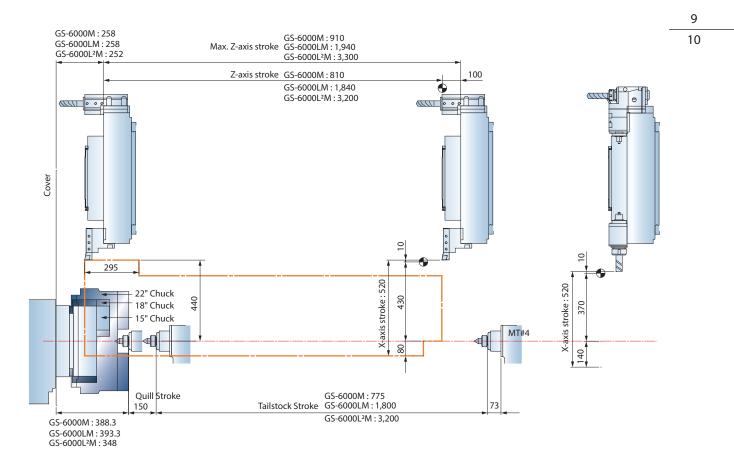


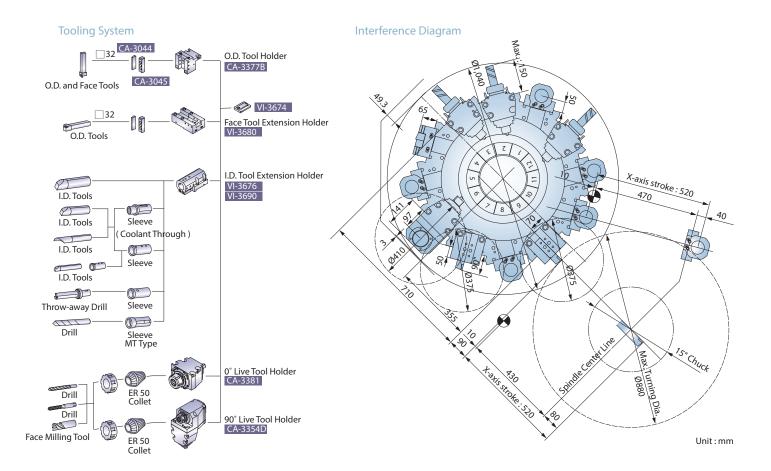


Performance Features Dimensions Specifications

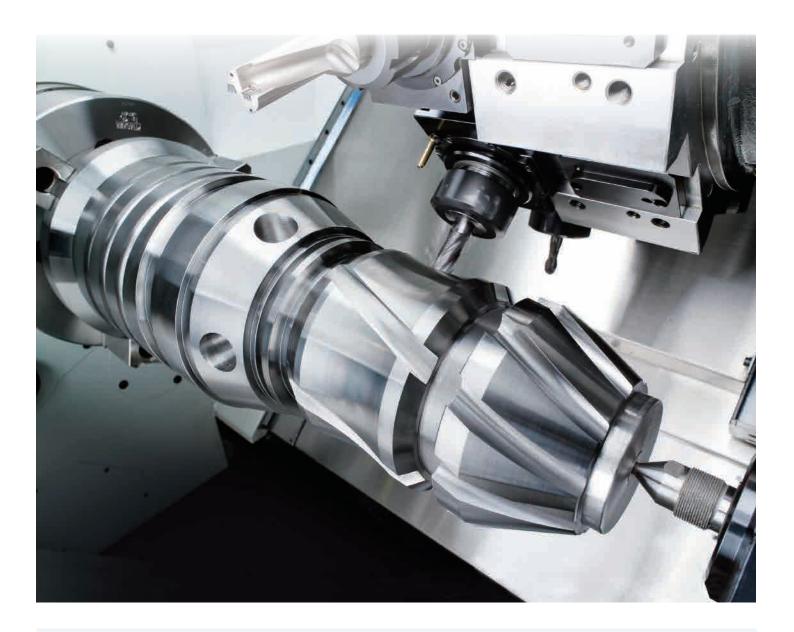
【 Optional Live Tooling Turret 】

Work Range





MACHINING PERFORMANCE



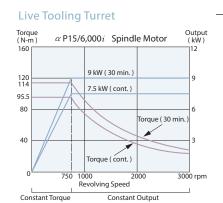


Tools	O.D. Before Cut	O.D. After Cut	Depth of Cut	Spindle Speed	•		Z-axis Load			
(mm)	(mm)	(mm)	(mm)	(rpm)	(mm/rev.)					
□32	Ø 215 Ø 195		10	195	0.8	97 % 60 %				
Raw Material : S45C Model : GS-600										

Drill Example

Tools	I.D. Before Cut	I.D. After Cut	Spindle F/Rev. T Speed		Tap Diameter	Spindle Load	Z-axis Load
(mm)	(mm)	(mm)	(rpm)	(mm/rev.)	(mm)		
Ø 58	-			0.3	– Raw Material :	123 % S45C Model	110 % : GS-6000M

	Tools	Spindle Speed	Feedrate	Cutting Speed	Cutting Depth
	(mm)	(rpm)	(mm/min.)	(m/min.)	(mm)
Drill	Ø 40 HSS	200	48	25	_
End mill	Ø 32 HSS 4-flute Rough End mill	375	120	30	25
Tapping	Tapping M24 * P3.0		318	8	30
		Material : S45C Mod	el : GS-6000M		



Specification of Live Tooling Turret

Drive Motor Power (cont.)	Drive Motor Power (30 r	min.) Drive Motor	Max. tapping Capacity	Max. Milling Capacity	Gear Ratio
7.5 kW (10 HP)	9 kW (12 HP)	FANUC α P15 / 6,000	i M 24 mm	Ø 40 mm	1:1

GOODWAY Multi-tasking machine can perform the functions below in one setup:



Sample Work-pieces



11 12

FEATURES

Standard Features



Chip Conveyor

► The standard chip conveyor features adjustable timers that allow the operator to set operation intervals according to the amount of chips generated by the machine. Thus, reducing coolant loss to a minimum.



Tri-color status light



【 Optional Features 】





The air chuck can work with soft or thin materials to prevent from deforming rather than using a hydraulic chuck.

Steady Rest (Apply for Long Work-piece)

► The manual steady rest is adjusted manually which increases accuracy and requires less space than hydraulic steady rests.





▶ The automatic steady rest is controlled by a program which increases working efficiency.

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Load Monitoring

► The load monitoring function is used to detect abnormal load of tools by monitoring the variation in spindle motor and servo motor loads during the cutting process. When abnormal loads are detected, the machine will stop at program end (M30) or immediately (feed hold status) according to tool life value or tool break value respectively.



Oil Skimmer

► The optional oil skimmer removers lubrication oil from the coolant tank, thus, keeping the coolant fresh and minimizes manual cleaning.

Tool Setter

► The optional Renishaw HPRA tool presetter simplifies machining setup.



S : Standard O : Option - : Not Available C : Contact G	oodway ୍ ବ	5,6000	5,6600
SPINDLE		30	00
Main spindle configuration	2-Speed Gear	S	S
Rigid tapping & spindle orientation	'	S	S
Main spindle disk brake		0	0
Cs-axis & disk brake for main spindle*1			
WORK HOLDING		0	0
WORK HOLDING	118 mm l.D.	c	
Hydraulic hollow cylinder for chuck		S	
·	180 mm l.D.	-	0
	15"	S	
	18"	Ο	_
	20" (180 mm I.D.)	_	0
Hollow 3-jaws chuck & 1 set soft jaws	21"	0	
	24" *2	0	0
	Air Chuck		
	All Chuck	0	0
Hard jaws		0	0
Special work holding chuck		C	C
n spindle work stopper		0	0
Spindle liner (guide bushing)		0	0
oot switch for chuck operation		S	S
Programmable base & quill hydraulic t	ailstock	S	S
	alistock		
MT#4 dead center quill		S	S
MT#5 live center quill		0	0
Foot switch for tailstock operation		Ο	0
Manual steady rest		0	0
Self-centering hydraulic steady rest		0	0
oot switch for steady rest operation		0	0
oot switch for steady rest operation	Chuck clamping		
Two-stage programmable pressure	Chuck clamping	0	0
	Tailstock thrust	0	0
TURRET		_	_
8-station turret		0	0
12-station turret		S	S
12-station live tooling turret		0	0
Tool holder & sleeve package		S	S
Live tooling tool holders (0° x 2, 90° x 2) *1	0	0
MEASUREMENT			
RENISHAW HPRA tool presetter	Removeable	0	0
COOLANT			Ū
2002/111	3 Kg/cm ²	0	0
Coolant pump	5 Kg/cm ²		
		S	S
ligh-pressure coolant system	20 Kg/cm ²	C	С
Roll-out coolant tank		S	S
Dil skimmer		0	0
Coolant flow switch		0	0
Coolant level switch		0	0
Coolant intercooler system		0	0
	Dialet dia de como		_
CHIP DISPOSAL	Right discharge	S	S -
	Rear discharge		_
Chip conveyor with auto timer		0	0
Thip conveyor with auto timer Thip cart with coolant drain			
Chip conveyor with auto timer Chip cart with coolant drain Chuck air blow		0	0
Chip conveyor with auto timer Chip cart with coolant drain Chuck air blow Tailstock air blow		0	0 0
Chip conveyor with auto timer Chip cart with coolant drain Chuck air blow Cailstock air blow Coolant gun		0 0 0	0 0 0
Chip conveyor with auto timer Chip cart with coolant drain Chuck air blow Cailstock air blow Coolant gun Dil mist collector	Rear discharge	0	0
Chip conveyor with auto timer Chip cart with coolant drain Chuck air blow Gailstock air blow Coolant gun Dil mist collector AUTOMATIC OPERATION SUPPOR	Rear discharge	0 0 0	0 0 0
Chip conveyor with auto timer Chip cart with coolant drain Chuck air blow Failstock air blow Coolant gun Dil mist collector AUTOMATIC OPERATION SUPPOR	Rear discharge	0 0 0	0 0 0
Chip conveyor with auto timer Chip cart with coolant drain Chuck air blow Failstock air blow Coolant gun Dil mist collector AUTOMATIC OPERATION SUPPOR Bar feeder	Rear discharge	0 0 0	0 0 0
Chip conveyor with auto timer Chip cart with coolant drain Chuck air blow Failstock air blow Coolant gun Dil mist collector AUTOMATIC OPERATION SUPPOR Bar feeder Bar feeder	Rear discharge	0 0 0 0	0 0 0 0
Chip conveyor with auto timer Chip cart with coolant drain Chuck air blow Failstock air blow Coolant gun Dil mist collector AUTOMATIC OPERATION SUPPOR Bar feeder Bar feeder Gantry-type loader / unloader	Rear discharge	0 0 0 0	0 0 0 0
CHIP DISPOSAL Chip conveyor with auto timer Chip cart with coolant drain Chuck air blow Failstock air blow Coolant gun Oil mist collector AUTOMATIC OPERATION SUPPOR Bar feeder Bar feeder Gantry-type loader / unloader Auto door	Rear discharge	0 0 0 0 0	0 0 0 0 0
Chip conveyor with auto timer Chip cart with coolant drain Chuck air blow Tailstock air blow Coolant gun Dil mist collector AUTOMATIC OPERATION SUPPOR Bar feeder Bar feeder Gantry-type loader / unloader	Rear discharge	0 0 0 0	0 0 0 0

Specifications are	subject to ch	ange without notice.

Above standard & optional features also apply to "L" models.
*1 Standard on "M" (live tooling) models.
*2 Tool setter must be deleted.

		્ જુ જ	× -
SAFETY		300	600
Fully enclosed guarding		S	S
Door interlock (incl. Mechani	ical lock)	S	S
Impact resistant viewing wind	dow	S	S
Tailstock stroke out - end che	ck	S	S
Chuck cylinder stroke out - er	nd check	S	S
Chuck cylinder check valve		S	S
Low hydraulic pressure detec	tion switch	S	S
Over travel (soft limit)		S	S
Load monitoring function		S	S
OTHERS			
Tri-color machine status light	tower	S	S
Work light		S	S
External work light		0	0
EL	Heat exchanger	S	S
Electrical cabinet	A/C cooling system	0	0
Complete hydraulic system		S	S
Advanced auto lubrication sy	stem	S	S
Foundation leveling & mainte	enance tool kit	S	S
Emergency maintenance elec	ctrical part package	S	S
Operation & maintenance ma	anuals	S	S
CONTROL			
Fully enclosed guarding Door interlock (incl. Mechanical lock) Impact resistant viewing window Tailstock stroke out - end check Chuck cylinder stroke out - end check Chuck cylinder check valve Low hydraulic pressure detection switch Over travel (soft limit) Load monitoring function S OTHERS Tri-color machine status light tower Work light External work light S External work light Heat exchanger A/C cooling system Complete hydraulic system Advanced auto lubrication system Foundation leveling & maintenance tool kit Emergency maintenance manuals CONTROL FANUC Oi-TF S		S	
FANCU 31i		0	0

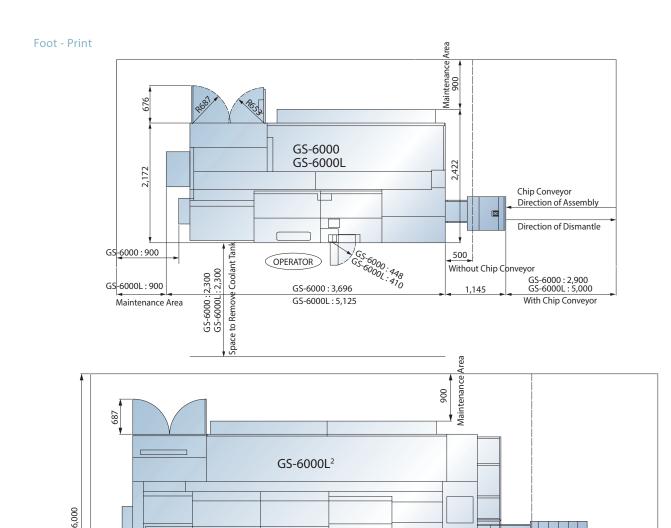
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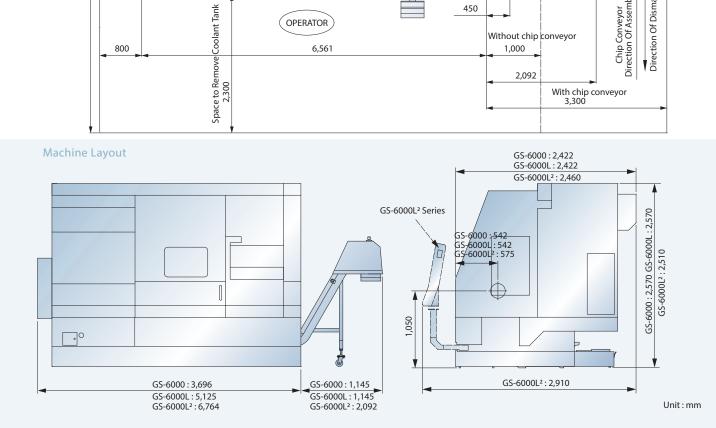
FANUC CONTROL FUNCT			υ) _] .
Display	8.4" color LCD	S	
	10.4" color LCD	0	S
Graphic function	Standard	S	S
	Dynamic	0	0
Full keypad	Small - 44 keys	S	
	Large - 56 keys	O*3	S
	512K byte	S	
	1M byte		S
Part program storage length		0	0
	4M byte		0
	8Mbyte		0
	400	S	
Registerable programs	800		
	1,000	0	S
	4,000		0
	64		0
	99	-	S
	128	S	
Tool offset pairs	200	0	0
1001 offset pairs	400		0
	499		0
	999		0
	2,000		0
Servo control	HRV 3	S	S
Conversational	Manual Guide Oi	S	
programming	Manual Guide i	O*3	S
Servo motors	αi	S	S
Spindle motors	αi	S	S
Run hour & parts counter		S	S
Auto power off function		S	S
RS-232 port		S	S
Memory card input /output		S	S
USB memory input / output	:	S	S
Fthernet		S	S

 $^{^{*}}$ 3 10.4" color LCD option needed.

GENERAL DIMENSION

800





OPERATOR

6,561

450

Without chip conveyor

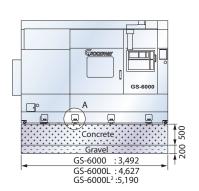
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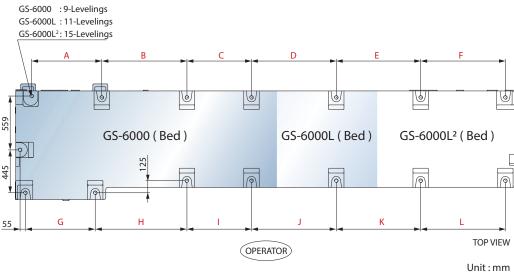
With chip conveyor 3,300

Direction Of Dismantle Chip Conveyor Direction Of Assembly

Performance Features Dimensions Specifications



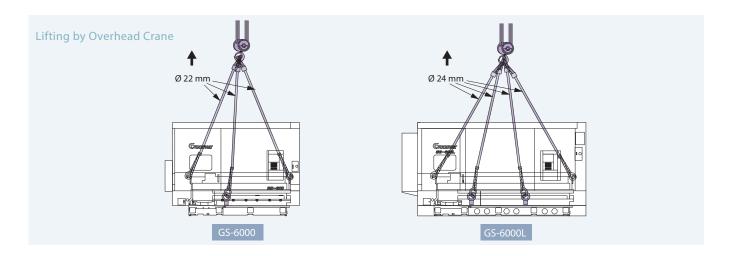


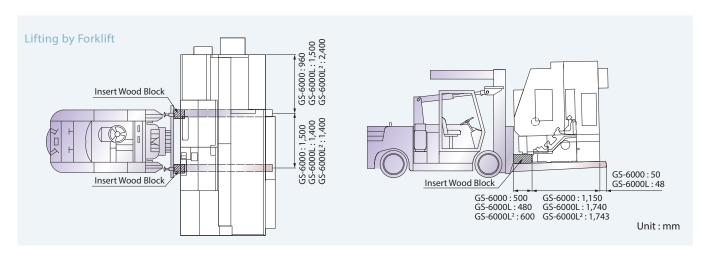




N0.	Part NO	Part name							
1	CA-1029	Levelling Bolt							
2	NA3900BA	Hex. Nut M39							
3	CA-1030	Levelling Block							

Model	Α	В	С	D	E	F	G	Н	1	J	K	L
GS-6000	718	804	895	_	_	_	725	862	895	_	_	_
GS-6000L	718	884	976	879			725	942	976	879		_
GS-6000L ²	718	884	980	730	716	879	728	942	980	730	716	879





MACHINE SPECIFICATIONS

CAPACITY		GS-6000 / L / L ²	GS-6600 / L / L ²		GS-6800 / L / L ²	
Max. swing diameter		Ø 980 mm (38.58")				
Swing over saddle		Ø 710 mm (27.95")				
Max. turning diameter		Ø 880 mm (34.64")				
Max. turning length		950 / 1,980 / 3,300 mm (37.40" / 77.95" / 129.92")				
Chuck size		15" (Opt. 18")	20" (Opt. Hyd. Chuck)	22" (Opt. Air Chuck)	24" (Opt. Air Chuck)	
Bar capacity		Ø 115 mm (4.52")	Ø 180 mm (7.08")	Ø 205 mm (8.07")	Ø 260 mm (10.24")	
SPINDLE						
Hole through spindle		Ø 130 mm (5.11")	Ø 205 mm (8.07")		Ø 260 mm (10.24")	
Spindle bearing diameter		Ø 180 mm (7.08")	Ø 260 mn	า (10.24")	Ø 340 mm (13.38")	
Hydraulic cylinder		Ø 15"	Ø 20"	_	_	
Spindle nose		A2-11	A2	-15	A2-15	
Motor output (Cont.)		30 kW (40 HP)				
Motor output (30 min.)		37 kW (50 HP)				
Motor full output speed		1,150 rpm				
Spindle drive system		V-Belt + Gear Box				
	L	0.15	0.	15	0.068	
Spindle drive ratio	Н	0.54	0.	54	0.271	
Spindle speed range	L	550 rpm	550 rpm		400 rpm	
	Н	2,000 rpm	1,100 rpm		800 rpm	
Spindle full output speed	L	2,048 N-m (1,510 lb-ft)	2,048 N-m (1,510 lb-ft)		4,533 N-m (3,343 lb-ft)	
(30 min.)	Н	567 N-m (418 lb-ft)	567 N-m (418 lb-ft)		1,133 N-m (835 lb-ft)	
X & Z AXES						
Max. X-axis travel*1			500 mm	(19.68")		
Max. Z-axis travel*1		980 / 1,965 / 3,300 mm (38.58" / 77.36" / 129.92")				
X-axis rapids		20 m/min. (788 IPM)				
Z-axis rapids		24 / 24 / 12 m/min. (945 / 945 / 472 IPM)				
Slide way type		Box Way				
Feed rates		1~ 4,800 mm/min. (1~189 IPM)				
X-axis servo motor		AC 6 kW (8 HP)				
Z-axis servo motor		AC 7 kW (9.4 HP)				
X-axis ball screw Ø [pitch]		Ø 40 (1.57") [8 (0.31")] mm				
Z-axis ball screw Ø [pitch]		Ø 45 (1.77") [12 (0.47")] / Ø 50 (1.96") [16 (0.62")] / Ø 63 (2.48") [16 (0.62")] mm				
X / Z axes thrust (Cont.)		3,046 / 2,404 Kg (6,715 / 5,301 lb)				
TURRET						
Stations		12				
Indexing drive		FANUC AC Servo motor				
Indexing speed		1 sec. (Adjacent) / 2 sec. 180° (Single step)				
Accuracy		Positioning: ± 0.00069°, Repeatability: ± 0.00027°				
O.D. tool shank size		☐ 32 mm (1-1/4")				
I.D. tool shank size		Ø 60 mm (2-1/2")				

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LIVE TOOLING TURRET (OPT.)	GS-6000 / L / L ²	GS-6600 / L / L ²	GS-6800 / L / L ²		
Max. turning length	830 / 1,860 / 3,200 mm (32.67" / 73.22" / 125.98")				
Max. turning diameter	Ø 880 mm (34.64")				
Stations		12			
Live tooling stations	12 (Live to	oling tools rotate in working pos	sition only)		
Live tooling drive motor (Cont. / 30 min.)	AC 7.5 / 9 kW (10 / 12 HP)				
Live tooling torque	120 N-m (88.5 lb-ft) @ 750 rpm (30 min.)				
Indexing drive type	FANUC AC Spindle motor				
Index speed	1 sec. (Adjacent) / 2 sec. 180 degree (Single step)				
O.D. tool shank size	☐ 32 mm (1-1/4")				
I.D. tool shank size	Ø 60 mm (2-1/2")				
Live tooling shank size	ER 50 [Ø 30 mm (1.18")]				
Live tooling RPM range	10 ∼ 3,000 rpm				
Cf-AXIS SPINDLE (OPT.)					
Cf-axis drive ratio	1:150				
Cf-axis rapids	20 rpm				
Cf-axis torque output (Cont.)	1,800 N-m (1,328 lb-ft)				
Min. spindle indexing angle	0.001°				
Dynamic accuracy	± 0.02°				
TAILSTOCK					
Quill center taper	MT#4 (Dead center) [Opt. MT#5 (Live center), MT#5 (Dead center), MT#6 (Live center)]				
Quill diameter / travel	Ø 110 / 150 mm (4.3" / 5.9") [Opt. Ø 160 / 150 mm (6.2" / 5.9")*² Ø 120 / 150 mm (4.7" / 5.9")*³]				
Tailstock base travel	800 / 1,750 / 3,200 mm (31.49" / 68.89" / 125.98")				
Programmable quill / base	Yes / Yes				
Programmable base type	Position by Z-axis				
GENERAL					
Positioning accuracy (X / Z)	0.015 / 100 mm* ⁴				
Repeatability (X / Z)	± 0.003 mm*4				
CNC control	FANUC Oi-TF (Opt. 31 i)				
Voltage / Power requirement	AC 200 / 220 +10% to -15% 3 phase / 55 KVA				
Air pressure	6 Kg / cm² (85.2 PSI)				
Hydraulic tank capacity	15 L (3.3 gal)				
Coolant tank capacity	240 / 320 / 680 L (63.3 / 84.4 / 179.5 gal)				
Coolant pump	1 kW (1.5 HP) rated at 5 bar (71 PSI)				
Machine weight	12,000 / 14,000 / 18,000 Kg (26,400 / 30,800 / 39,600 lb)				
Dimensions L×W×H	3,696 x 2,422 x 2,570 / 5,060 x 2,422 x 2,570 / 6,764 x 2,910 x 2,510 mm (145.6" x 95.4" x 101.2" / 199.3" x 95.4" x 101.2" / 266.3" x 114.6" x 98.9")				

Specifications are subject to change without notice.

^{*1} The specification of each model may be slightly different, please refer to the interference diagram.

^{*2} Option dead center MT#5.

^{*3} Option live center MT#6.

^{*4} Measurement is based on JIS B 6331.





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