

GLS-150 SERIES

COMPACT CNC TURNING CENTERS



THE ULTIMATE MACHINING POWER
WOODWAY®

HIGH SPEED CNC TURNING CENTERS

Packed with industry leading technology and top quality components, the GOODWAY GLS-150 series turning centers combine speed, stability and compact machine size to bring you The Ultimate Machining Power®. These high speed machines will easily accomplish the demanding turning applications of today and tomorrow. Furthermore, with optional live tooling, C-axis, and Y-axis, milling, turning applications can be completed in one single machine.

- ▶ GLS-150 series designs for optimal performance of the latest machining needs, motor power and structure rigidity are highly increased.
- ▶ High precision linear guide way design is used in X & Z axes to provide the optimum control and efficient movement. Rapids are up to 30 m/min.
- ▶ Fully enclosed splashguards keep chips and coolant contained for a safe clean working environment.
- ▶ The auto lubrication system delivers metered amounts of lubrication to the slide ways, ball screws, and vital components. Distribution is automatically shut-off during idling to prevent waste.

New GLS-150 series v.s Previous Model

Output **↑40%**
Spindle Motor

Dia. **↑16%**
Turret Disk

Dia. **↑10%**
Curvic Coupling of Turret



(GLS-200 model shown with optional accessories.)

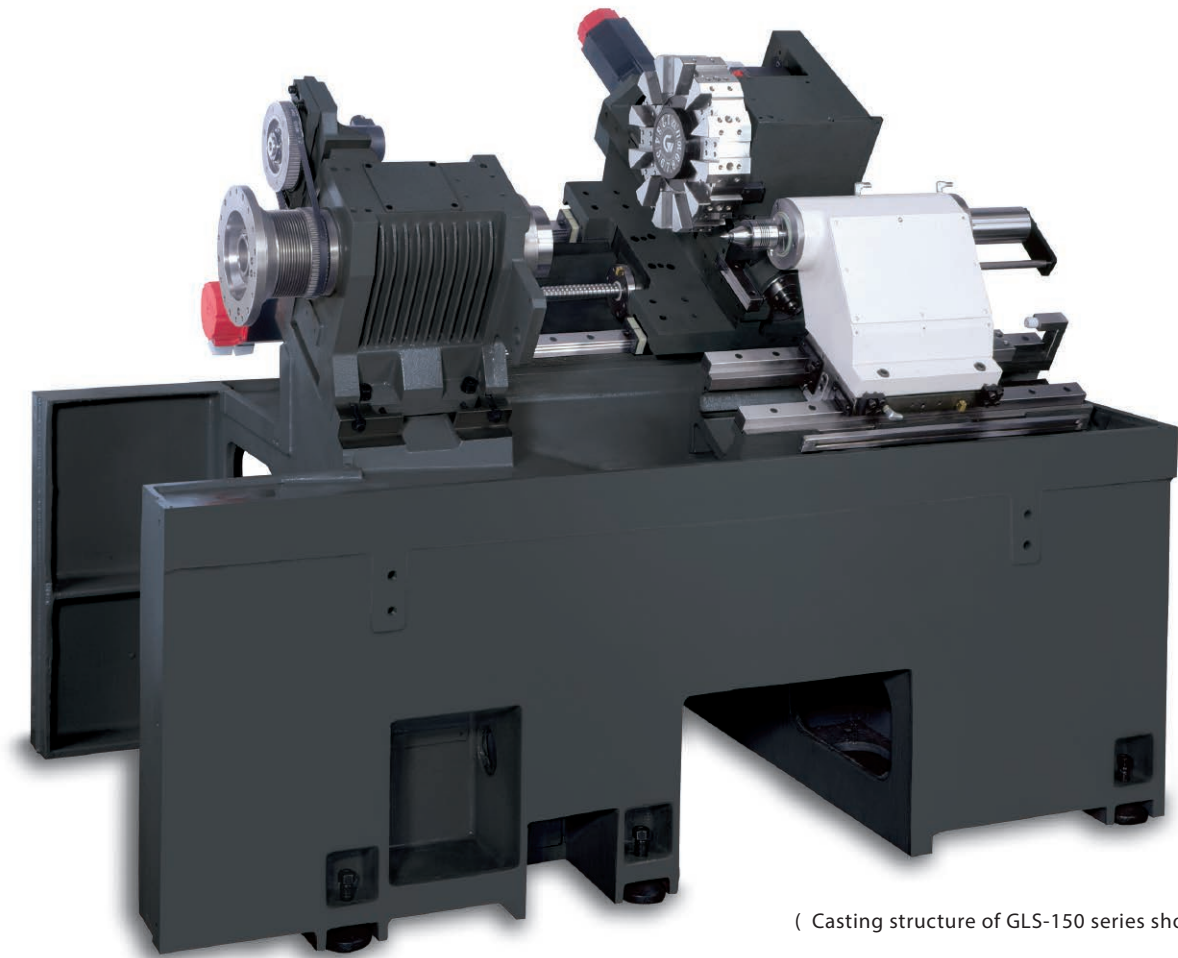
SERIES	GLS-150	GLS-200
Chuck Size	6"	8"
Bar Capacity	Ø 51 mm (2")	Ø 65 mm (2.55")
Max. Turning Length*1	500 mm (19.6")	480 mm (18.9")

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

MAXIMUM STRENGTH CONSTRUCTION

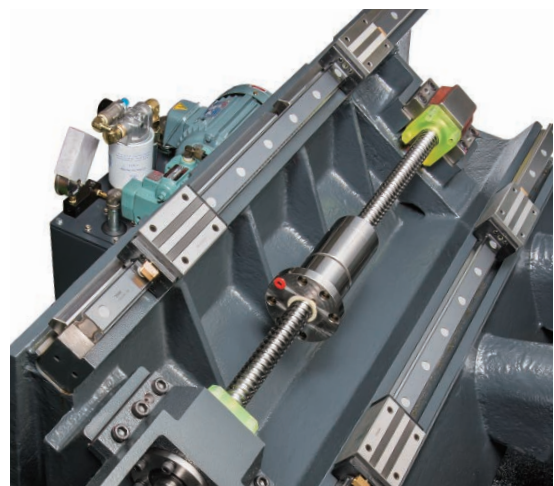
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Built to withstand years and years of rigorous high production turning, the heavily ribbed, one-piece, thermally balanced bed and casting parts are of "MEEHANITE" casting. The 30° true slant bed design further provides superior support for the headstock, turret, and tailstock, thus, creating the rigidity needed for long-term high precision turning and efficient chip removal.



(Casting structure of GLS-150 series shown.)

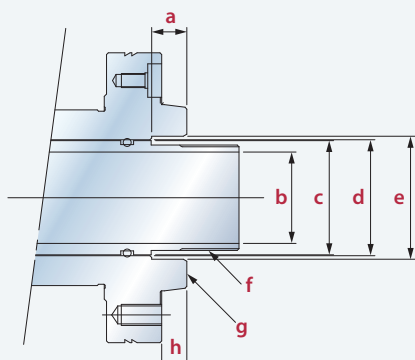
- ▶ Major structural components have been combined into one solid platform. The low center of gravity 30° slant bed design provides the most rigid foundation possible for the headstock, turret, and tailstock.
- ▶ By using Finite Element Analysis (FEA), optimal reinforce ribbings are directly cast into the one-piece bed structure. Mechanical rigidity has been increased by more than 30% when compared to conventional designs. The GLS-150 series is capable of performing heavy-duty turning and maintaining long-term high-precision accuracy. More rigidity also means extended tool life.



ULTIMATE TURNING POWER

- ▶ The heavy-duty headstock is of one-piece casting reinforced with heat dissipating fins.
- ▶ Standard rigid tapping feature provides high-speed precision tapping without the use of floating tap holders. Set-up is easier and depth of thread more accurate, permitting maximum productivity for tapping operations.
- ▶ The precision direct belt drive system provides greater spindle control, flexibility and serviceability. Pulley ratios fine tune the motor's maximum RPM to match the spindle's maximum RPM, which result in full output at the lowest RPM possible. Thus, utilizing the full potential of the spindle motor for maximum cutting power.

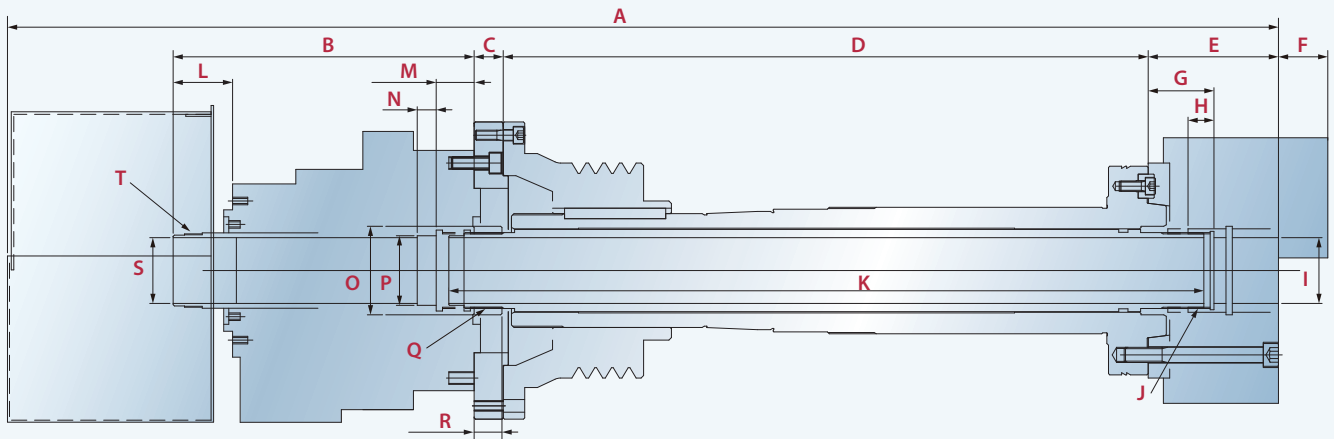
Spindle & Nose Dimension Drawing



Unit : mm

Models	a	b	c	d	e	f	g	h
GLS-150	22	Ø 52	Ø 60	Ø 61	Ø 67	M60 x P2.0	A2-5	12.3
GLS-200	30	Ø 65.5	Ø 75	Ø 76	Ø 82	M75 x P2.0	A2-6	14.3

b : Draw Tube I.D. c : Draw Tube O.D. d : Spindle I.D. e : Spindle I.D. Step



Unit : mm

- ▶ 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.

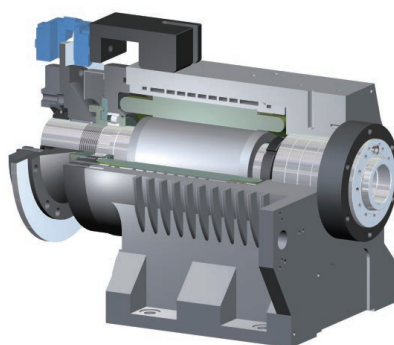
Models	A	B	C	D	E	F	G
GLS-150	1,015	Max. : 237.5 Min. : 215.5	23	505.2	91	37	Max. : 46 Min. : 34
GLS-200	1,031	Max. : 275 Min. : 250	38	510.3	103	38	Max. : 51.5 Min. : 35.5

Models	H	I	J	K	L	M	N	O	P	Q	R	S	T
GLS-150	20	Ø 52	M60xP2.0	590	Max. : 47.5 Min. : 25.5	Max. : 30 Min. : 8	15	Ø 70	Ø 55	M60xP2.0	Max. : 22 Min. : 0	Ø 52	M58xP1.5
GLS-200	20	Ø 66	M75xP2.0	623	Max. : 50 Min. : 25	Max. : 35 Min. : 10	15	Ø 95	Ø 80	M85xP2.0	Max. : 25 Min. : 0	Ø 75	M84xP2.0

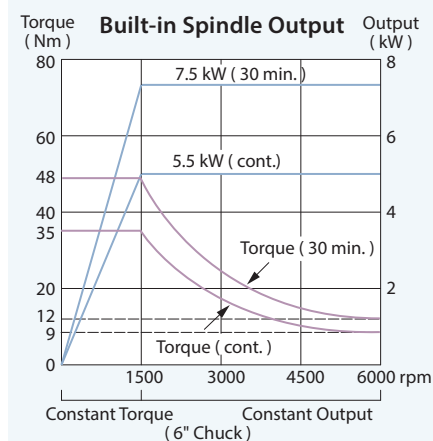
GLS-150 Spindle Acc. / Dec. Time
Chuck : 6" + hard jaws

RPM	1,000	1,500	2,000	2,500	3,000	4,000	5,000	6,000
Accelerate (sec.)	1.3	1.6	1.8	2.2	2.6	3.6	5.2	7.3
Decelerate (sec.)	1.0	1.2	1.6	2.0	2.5	3.1	4.1	4.8

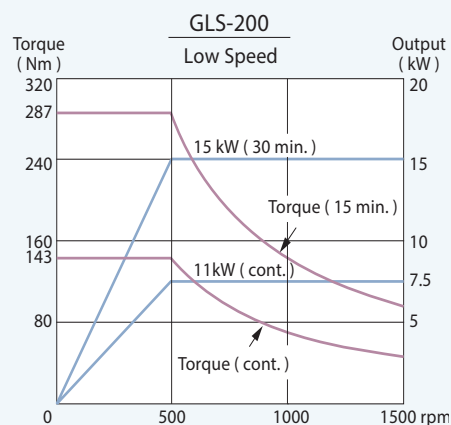
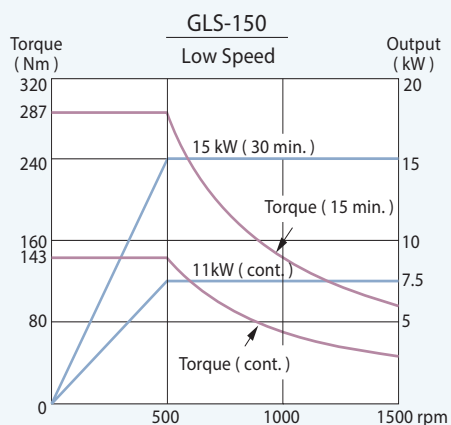
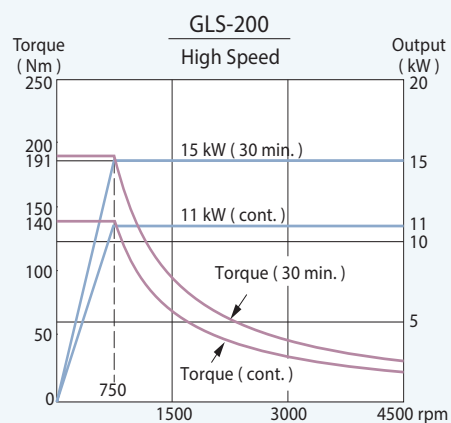
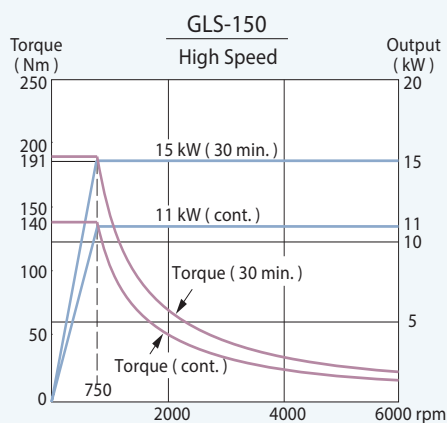
- GLS-150 models are available with high-speed, high-precision built-in spindle motors, which provides faster spindle response, reduces vibration and power loss, which translate to faster cycle times.



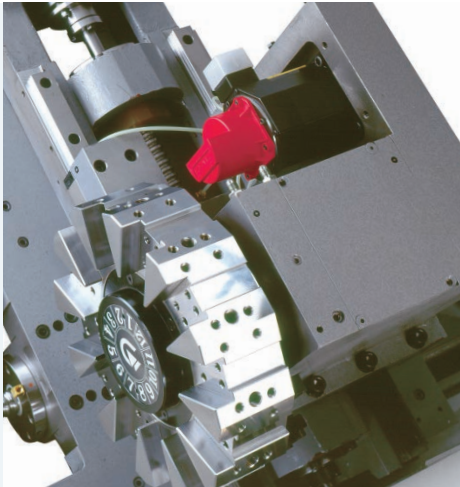
(Built-in spindle construction)



Spindle Output



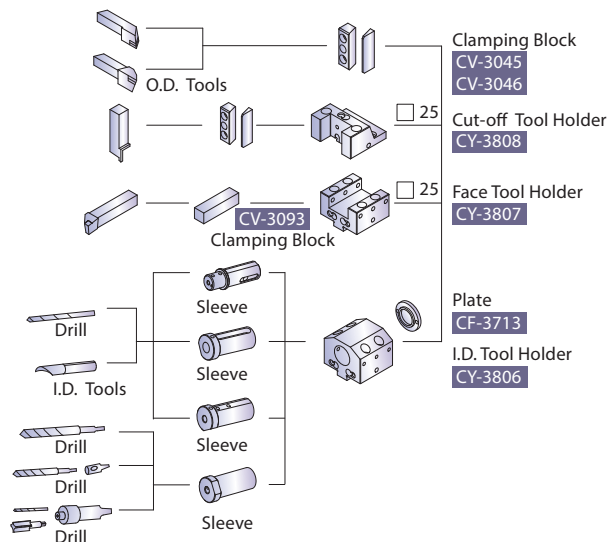
ADVANCED TURRET TECHNOLOGY



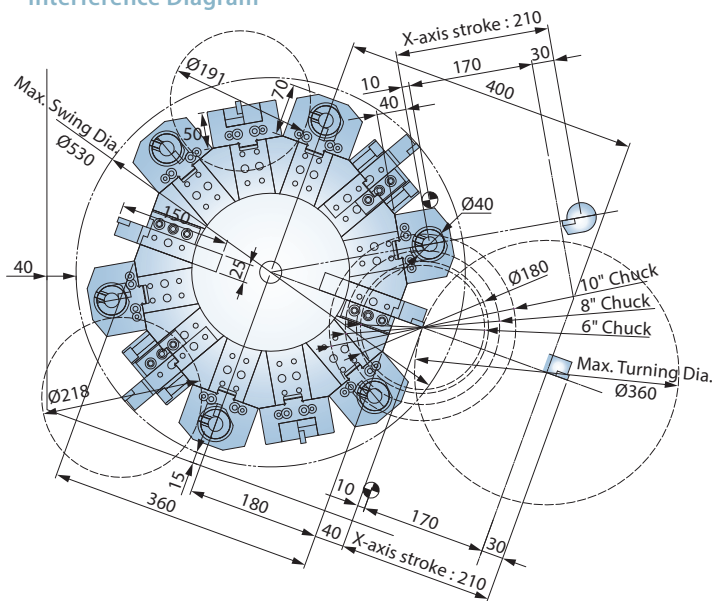
- ▶ A high-speed servo motor indexing system provides the 10 or 12-station turret with a 0.2 sec. indexing time.
- ▶ High precision curvic couplings and hydraulic clamping are used to enhance tool indexing accuracy and turret disk rigidity.
- ▶ The standard 12-station turret clears 180 mm (7.08") diameter work holding devices without interference while the opt. 10-station turret clears 224 mm (8.8") diameter.

Standard 12-Stations Turret

Tooling System

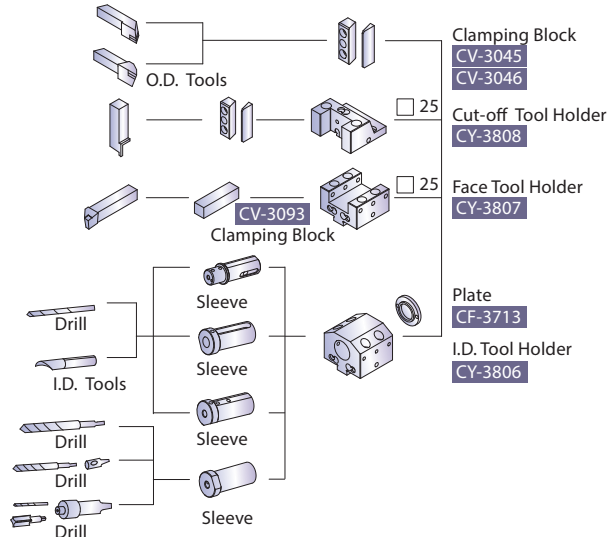


Interference Diagram

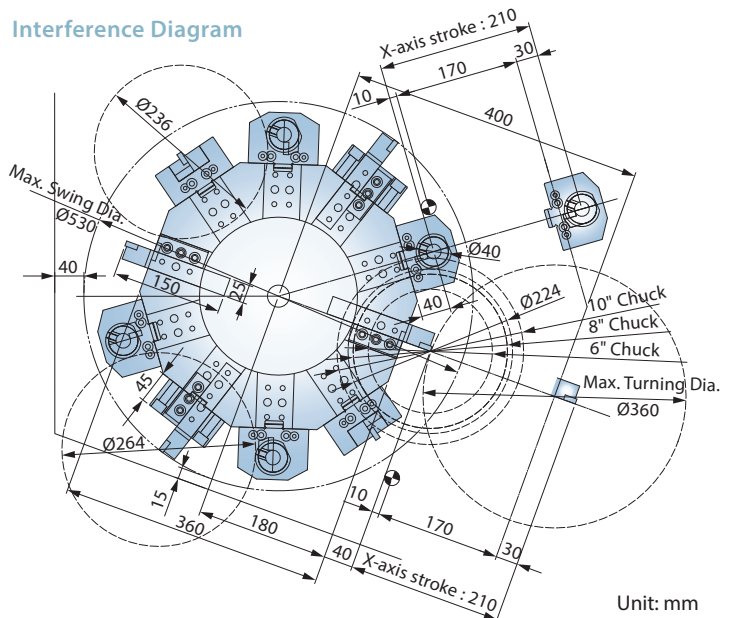


Optional 10-Stations Turret

Tooling System

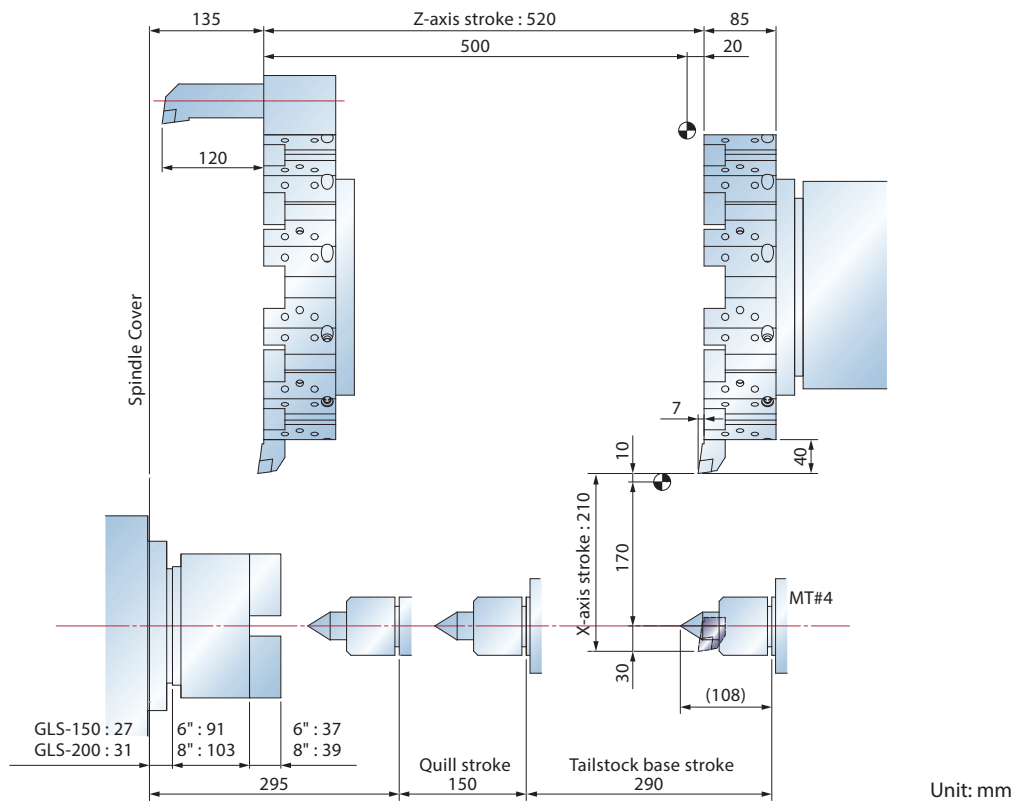


Interference Diagram

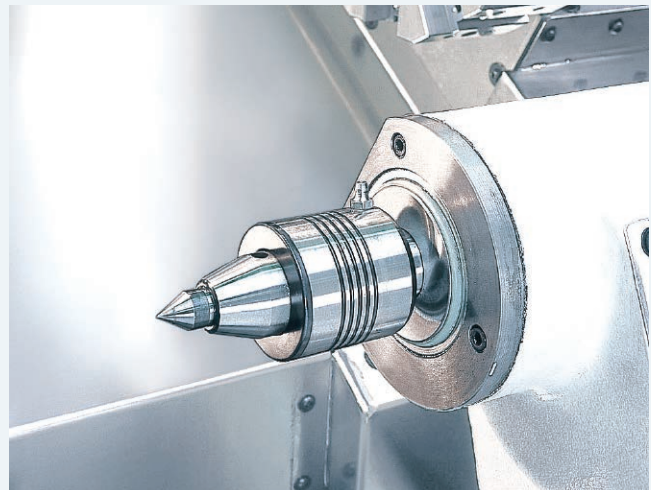
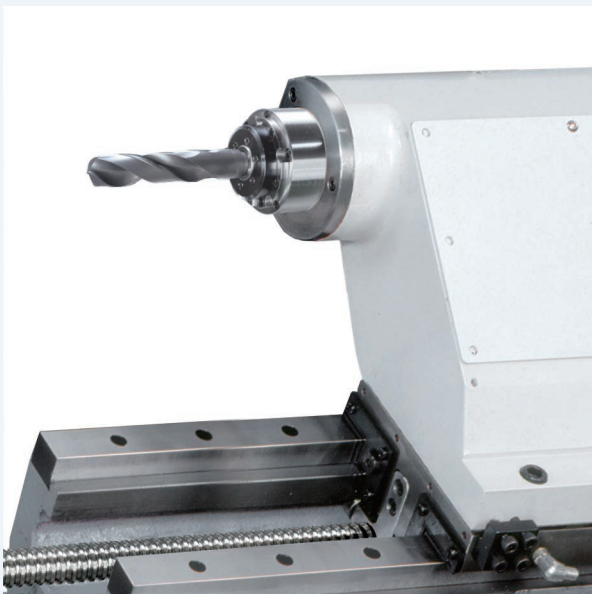


Unit: mm

Work Range



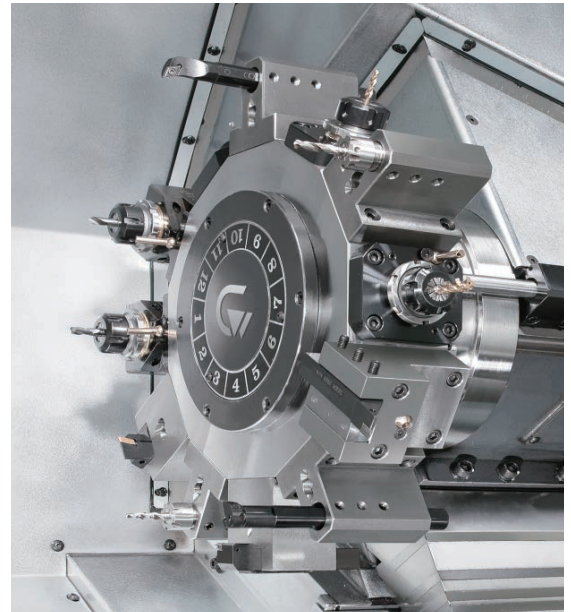
- The standard hydraulic tailstock uses live centers to provide support for long work-pieces. Quill pressure is adjustable and movement is programmable.



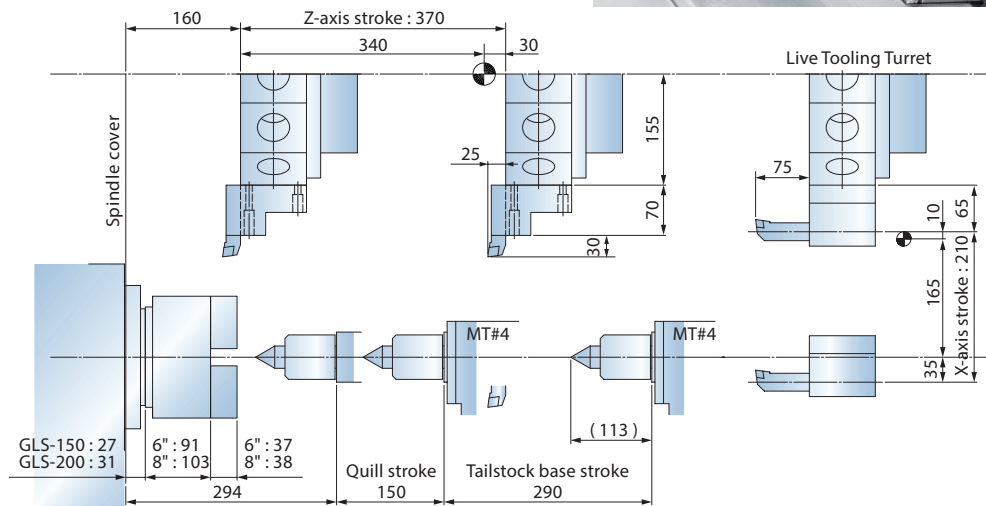
- The optional servo driven tailstock uses a servo motor and ball screw to position the tailstock and generate pressure to support the work-piece. Pressure against a work-piece is adjustable by increasing or decreasing the load of the servo motor, which can be programmed to provide variable and precise pressure during the machining process. This type of tailstock can also be used to drill the work- piece during the O.D. turning process.

LIVE TOOLING TURRET

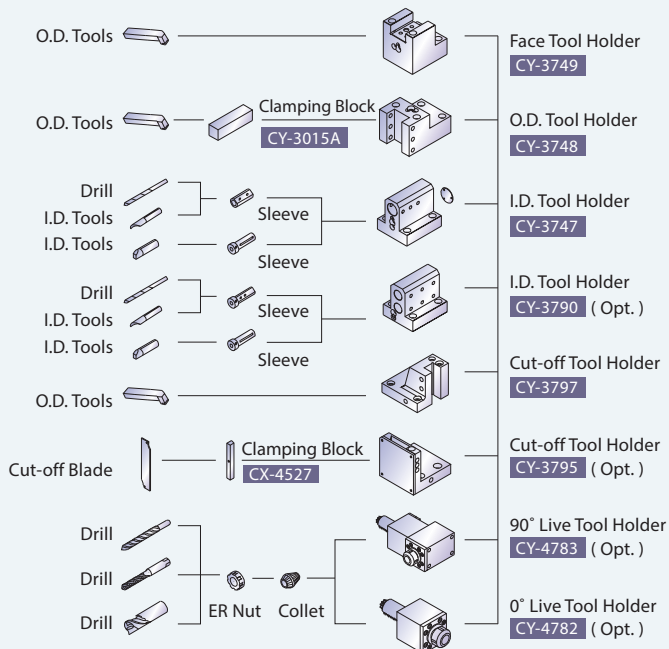
- ▶ The 12-station GOODWAY live tooling turret offers 12 stations available for live tooling (live tooling tools rotate in working position only) and features a non-lifting turret disk.
- ▶ GOODWAY live tooling turret utilizes advanced servo indexing technology to achieve 0.2 second indexing time for adjacent stations and 0.5 second for stations at the opposite end of the disk.
- ▶ With the latest technology, live tooling is driven by an AC servo motor to provide ample power, in the form of torque. Now, even the toughest of jobs may be tackled without a sweat.



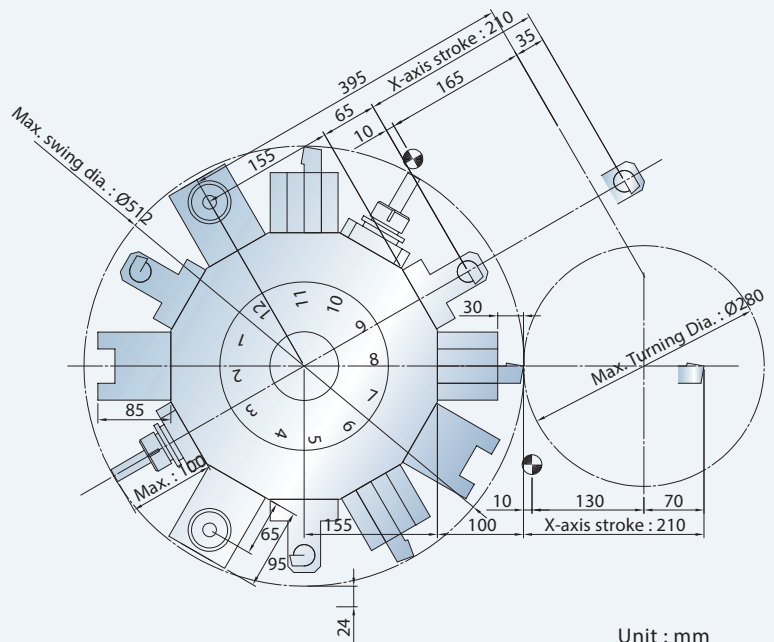
Work Range



Tooling System



Interference Diagram

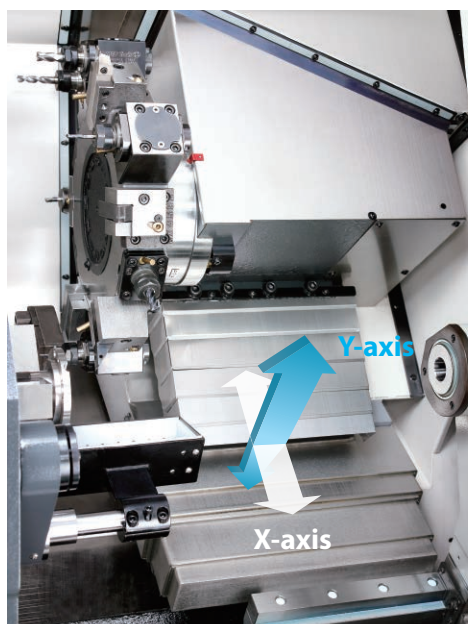


Y-AXIS MACHINING CAPABILITY

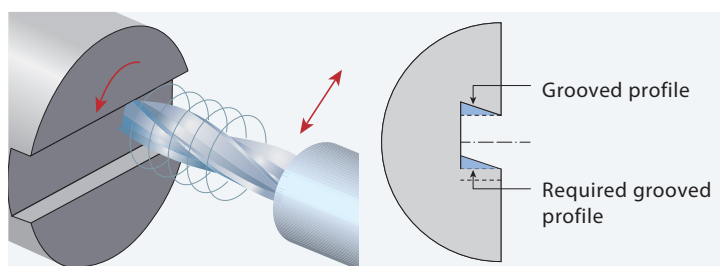
- ▶ Y-axis models perform virtually the same way as machining centers equipped with 4th-axis rotary tables, but with the benefit of built-in turning capability. The C-axis acts as the 4th-axis. This configuration replaces a turning center and machining center equipped with 4th-axis with one machine, thus, saving money, time, floor space, manpower and fixture costs, while reducing accuracy lost by eliminating the part from being moved to another machine.
- ▶ 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.
- ▶ With an abundant amount of Y-axis travel, 70 mm = ± 35 mm (2.75" = ± 1.37 "), a wide variety of parts may be efficiently machined.



(GLS-150Y model shown with optional accessories.)

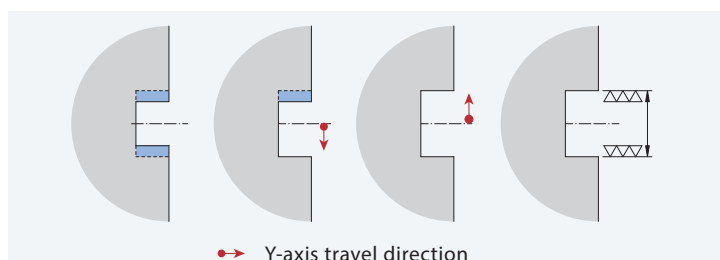


- ▶ On Y-axis equipped machines, the turret is mounted on a secondary 30 degrees wedge saddle on top of the X-axis slide. Guide ways are widely spaced for maximum strength.

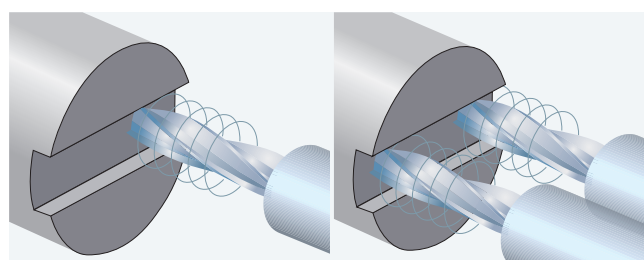


Grooving by Polar Coordinate Interpolation (C-axis)

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



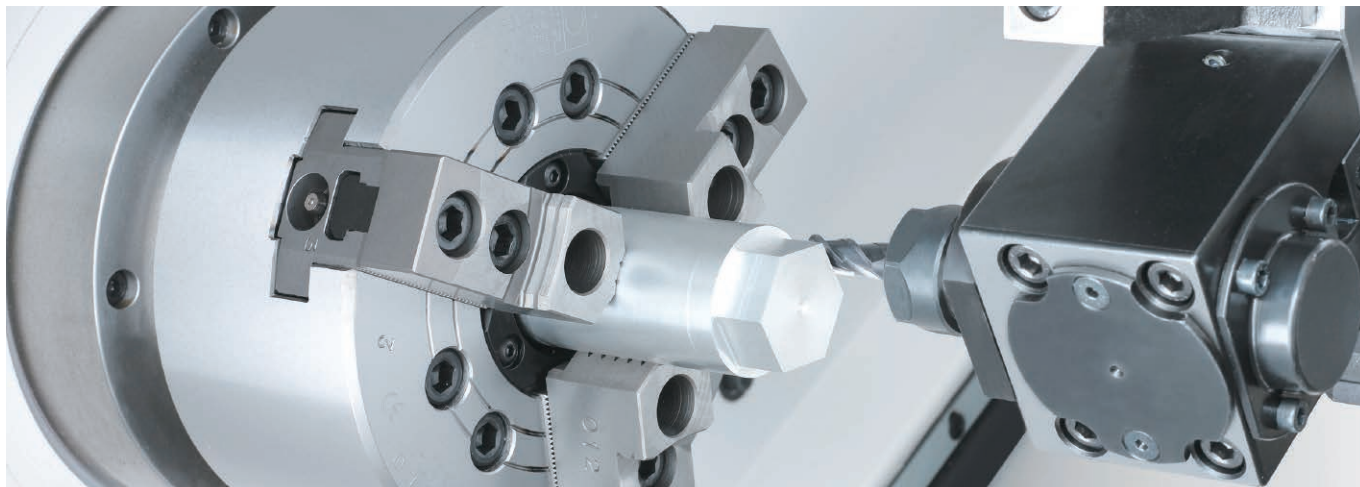
Grooving with Finish Pass Using Y-axis



Rough Grooving

Finish Grooving

MACHINING PERFORMANCE



Machining Capability

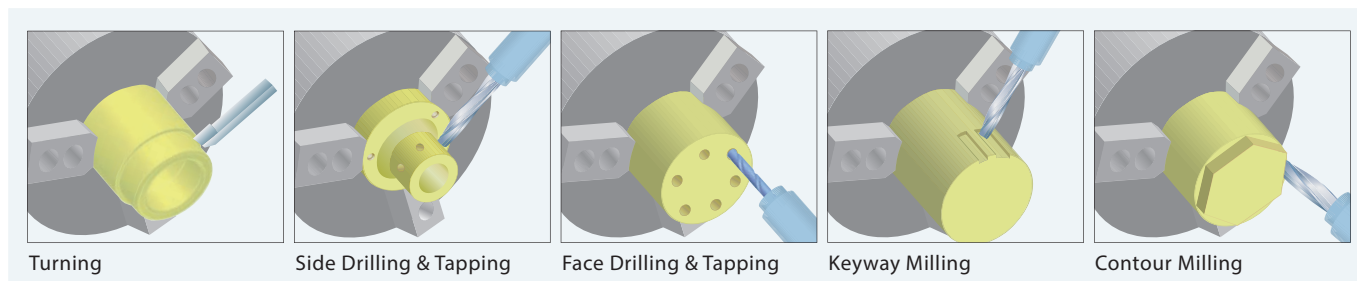
	Tools	Spindle Speed (rpm)	Feedrate (mm/min.)	Cutting Speed (m/min.)	Cutting Depth (mm)
Drill	Ø13 HSS	1,225	183	50	N/A
End mill	Ø14 HSS end drill	680	108	N/A	15
Tapping	M12	400	700	12	N/A

Material : S45C Testing Model : GLS-150M

Live Tooling Turret Specification

Drive Motor Power	2.5 kW (3.3 HP)
Drive Motor	FANUC α 8 / 4000 is
Max. Tapping Capacity	M8 * P1.25
Max. Milling Capacity	Ø12 * 10
Gear Ratio	1 : 1

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



Sample Work-Pieces



GLINC 350 Option

9
10

Makes Your Machine Smarter

- ▶ Advanced Hardware
- ▶ Outstanding Operability
- ▶ Streamlined Programming
- ▶ High Security and Shortened Machining Setting
- ▶ Reliable Continuous Operation
- ▶ Shortened Troubleshooting Time
- ▶ Improved Utilization Rate
- ▶ 3D cutting simulation preview



Significant Production Efficiency

General Production Process

Setting

Test-Run

Actual Production

Using 3D Simulation Inspection

Setting

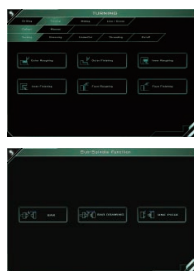
Test-Run

Actual Production

Utilization Rate **↑ 30 %**

Comprehensive Functions

Programming	Setting	Test-Run	Actual Production	Daily Used
- Dynamic graphic display - Program management - Friendly programing environment - Programming auxiliary - Manual Guide <i>i</i> - Embedded E-manual	3D advance tool path and cutting simulation	- Tool load monitor - Program check - Smart balance etection 3D Real-time cutting simulation and interference check	- Tool load monitor 3D Real-time cutting simulation and interference check - load monitoring	- Safety signal viewer - Fast alarm check productivity - Productivity management - Twin operation system switch - Maintenance management - NFC apply authority management and record



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.

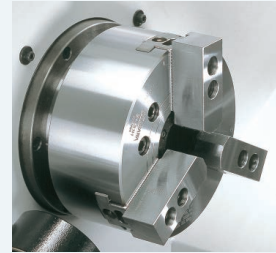
Built-in lub. oil collection system



Tri-color status light



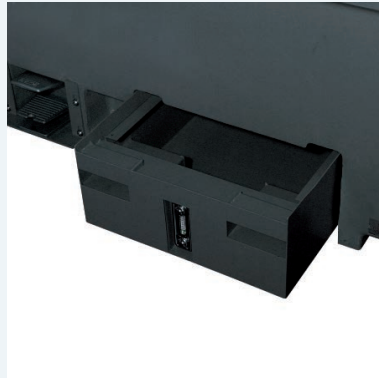
3-Jaw chuck w/ Soft Jaws x 1 set



Coolant Pump



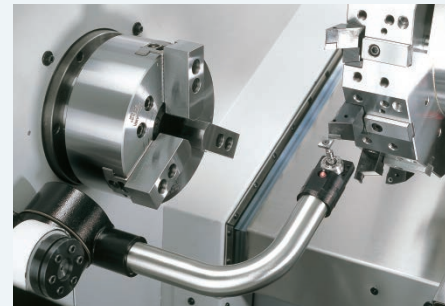
Coolant Tank



- Coolant system features a roll-out coolant tank for easy maintenance and high-pressure coolant pump for increased cooling power.

Tool Setter (Opt.)

- The optional RENISHAW HPMA tool presetter utilizes a motorized arm to lower the tool probe into position. An auto tool check function further increases tool touch-off efficiency.



Load Monitoring (Opt.)

- The optional 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.

LOAD MONITOR SETTING									
TOOL NO.	AXIS	MEAN	BREAK	INITIAL	LOAD	STATUS			
1	SP1	40	60	0					NORMAL
	X	30	35	0					NORMAL
	C	20	25	0					NORMAL
	SP2	55	60	0					NORMAL
2	Y	30	40	0					NORMAL
	Z	40	55	0					NORMAL
	SP2	20	33	0					NORMAL
	X	60	65	0					NORMAL
3	Y	30	50	0					NORMAL
	Z	33	40	0					NORMAL
	SP1	40	45	0					NORMAL
	Y	50	55	0					NORMAL
4	Z	33	40	0					NORMAL
	SP1	44	50	0					NORMAL
	C	75	100	0					NORMAL
	Y	80	85	0					NORMAL
5	SP1	10	20	0					NORMAL
	X	15	20	0					NORMAL
	Y	30	45	0					NORMAL
	SP1	40	45	0					NORMAL

S : Standard O : Option
 - : Not Available C : Contact Goodway

		GLS-150	GLS-200
SPINDLE			
Main spindle motor configuration	Single-speed	S	S
Rigid tapping & spindle orientation		S	S
Main spindle disk brake		O	O
Cs-axis & disk brake for main spindle*1		O	O
WORK HOLDING			
Hydraulic hollow cylinder for chuck	8"	S	-
	10"	-	S
	6"	S	-
	10"	-	S
Hollow 3-jaws chuck & 1 set soft jaws	8"	-	S
	10"	-	-
Hard jaws		O	O
Collet chuck		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 quill hydraulic tailstock		O	O
Servo driven tailstock		O	O
MT#4 live center		O	O
Foot switch for tailstock operation		O	O
Two-stage programmable pressure	Chuck clamping	O	O
	Tailstock thrust	O	O
TURRET			
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)*1		O	O
MEASUREMENT			
RENISHAW HPMA tool presetter	Motorized arm	O	O
COOLANT			
Coolant pump	3 kg/cm ²	S	S
	5 kg/cm ²	O	O
	10 kg/cm ²	O	O
High-pressure coolant system	20 kg/cm ²	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
CHIP DISPOSAL			
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
Coolant gun		O	O
Oil mist collector		O	O
AUTOMATIC OPERATION SUPPORT			
Parts catcher		O	O
Work-piece transport conveyor		O	O
Bar feeder		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
SAFETY			
Fully enclosed guarding		S	S
Door interlock (incl. Mechanical lock)		S	S
Tailstock stroke out-end check		S	S
Chuck cylinder stroke out-end check		S	S
Chuck cylinder check valve		S	S
Low hydraulic pressure detection switch		S	S
Over travel (soft limit)		S	S
Load monitoring function		O	O

Above standard & optional features also apply to L models.

*1 For M (live tooling turret) & Y (Y-axis) models only.

*2 For servo motor driven power turret only.

		GLS-150	GLS-200
OTHERS			
Work light		S	S
External work light		O	O
Electrical cabinet	Heat exchanger	S	S
	A/C cooling system	O	O
Complete hydraulic system		S	S
Advanced auto lubrication system		S	S
Foundation leveling & maintenance tool kit		S	S
Emergency maintenance electrical part package		S	S
Operation & maintenance manuals		S	S

		Oi-TF	31i
FANUC CONTROL FUNCTIONS			
Display	10.4" color LCD	S	S
Graphic function	Standard	S	S
	Dynamic	O	O
Part program storage size	512K bytes	S	-
	1M bytes	O	S
	Oi-TF : each path	O	O
	31i : total	-	O
	8M bytes	-	O
Registerable programs	400	S	-
	Oi-TF : each path	O	S
	31i : total	-	O
	99	-	S
	128	S	-
Tool offset pairs	200	O	O
	400	-	O
	499	-	O
	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
Tool radius / Tool nose radius compensation		S	S
Multi-language display		S	S
Polygon turning		S	S
Helical interpolation		O	O
Direct drawing dimension programming		S	S
Thread cutting retract		S	S
Variable lead threading		S	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*2		S	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

OPTIONAL AUTOMATION FEATURES

Gantry Loading Systems

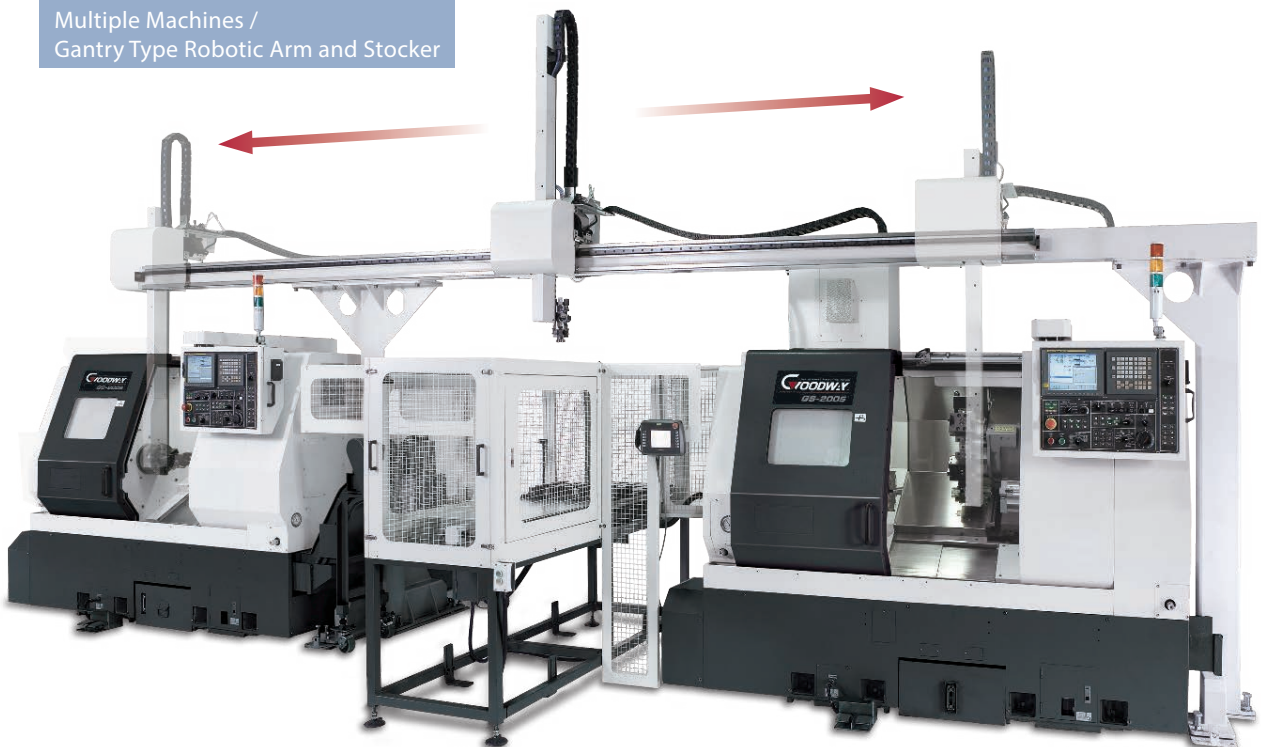
- Available standardized or custom gantry loading / unloading systems provide automatic operation for chucking operations. These flexible systems can be intergraded onto one or more machines to suit a wide range of applications.

Single Machine /
Gantry Type Robotic Arm and Stocker



(Gantry Loading with GOODWAY GA-2000/300 series)

Multiple Machines /
Gantry Type Robotic Arm and Stocker



(Gantry Loading with GOODWAY GS-200 series)

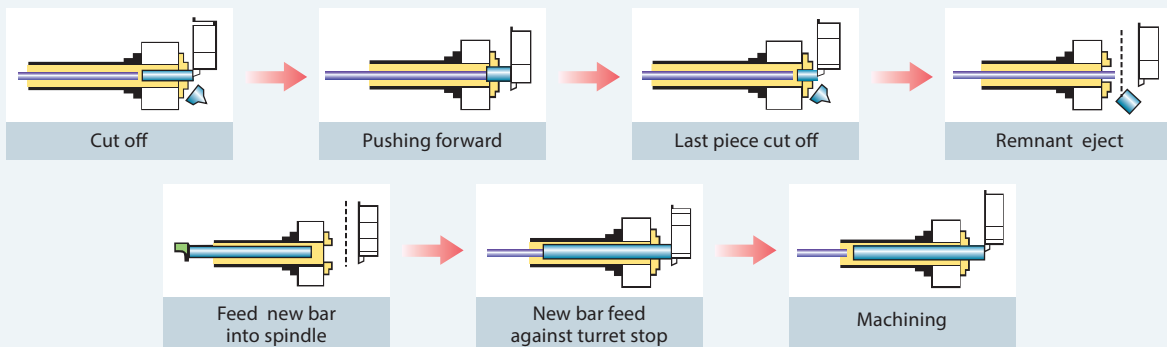


Bar Feeder

Models	BF-65C	BF-80C
Bar diameters	Ø 5 ~ 65 mm	Ø 6 ~ 80 mm
Maximum bar lengths* ¹	1,220 mm	1,525 mm
Magazine capacity	65 mm x 10 bars	80 mm x 7 bars
Control / drive type	SIEMENS / Pneumatic	MITSUBISHI / Servo
Foot print	1,600 x 1,118 mm	2,210 x 1,448 mm
Weight	250 kg	500 kg

*1 Actual bar length limited by total spindle + work-piece length (work-piece + chuck + spindle + cylinder + rear spindle cover lengths). A bar supporting device must be used if bar extends past the rear spindle cover, otherwise, the bar may bend during machining causing serious machine damage and injury or death to operator.

► Bar Feeding & Bar Change Cycle

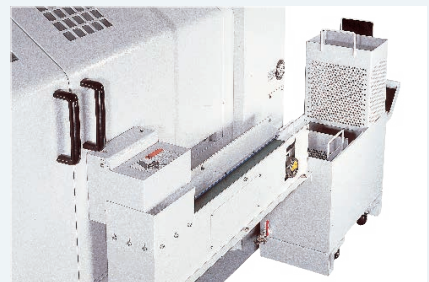


Parts Catchers



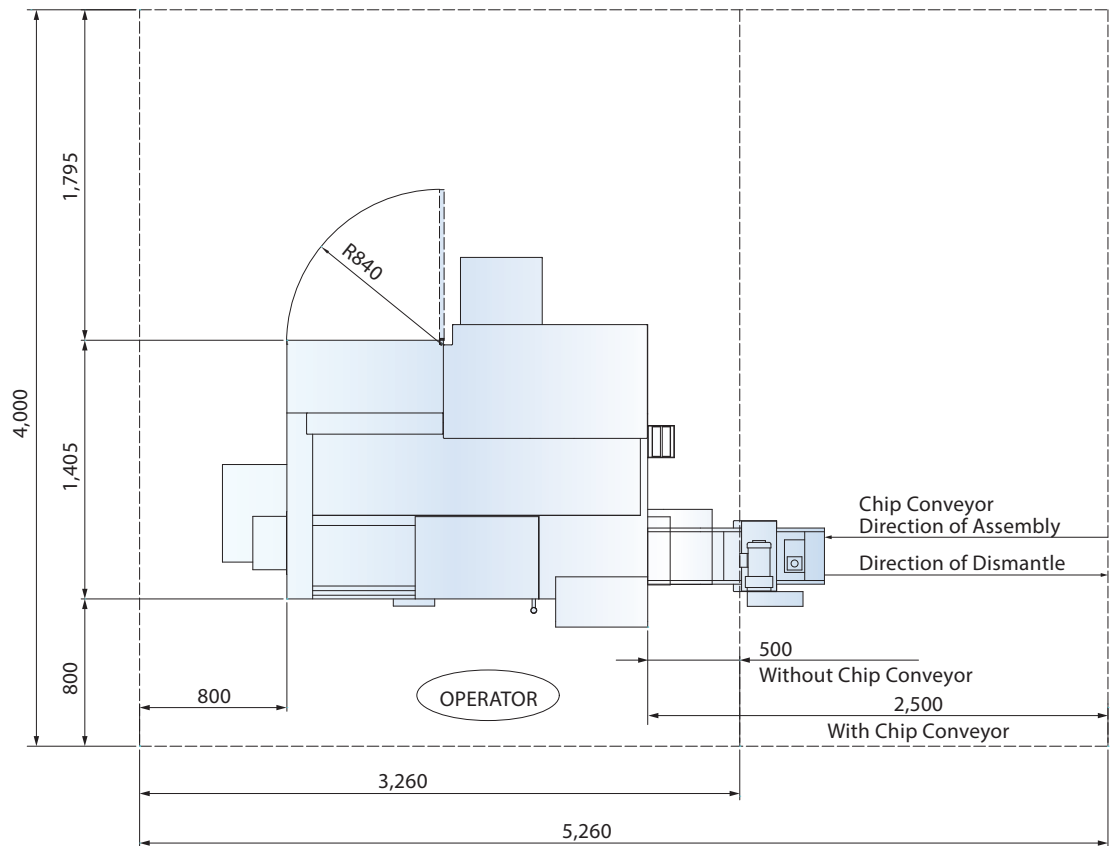
► Optional hydraulic parts catchers can be programmed to catch finished parts after cut-off. Parts conveyor systems are also available.

Parts Conveyor



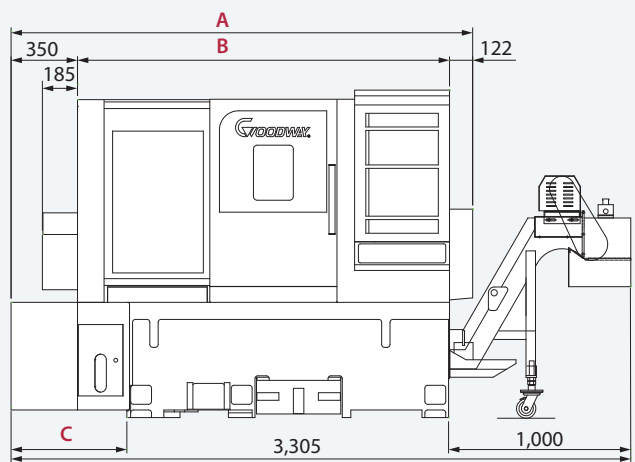
GENERAL DIMENSION

Foot - Print

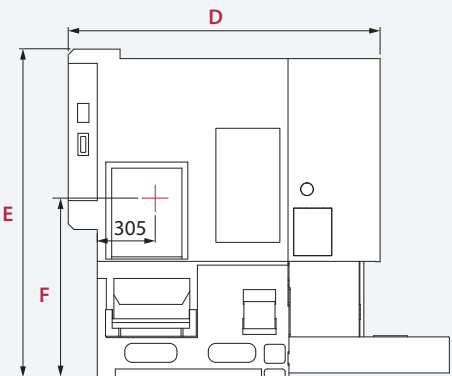


Unit : mm

Machine Layout



< Front >

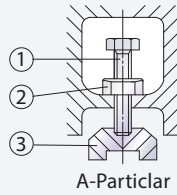


< Side >

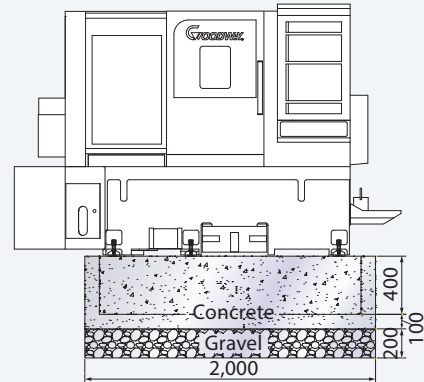
MODELS	A	B	C	D	E	F
GLS-150 / 200	2,432	1,960	610	1,643	1,727	940
GLS-150 / 200 (Y-axis)	2,480	2,288	650	1,652	2,057	1,053

Unit : mm

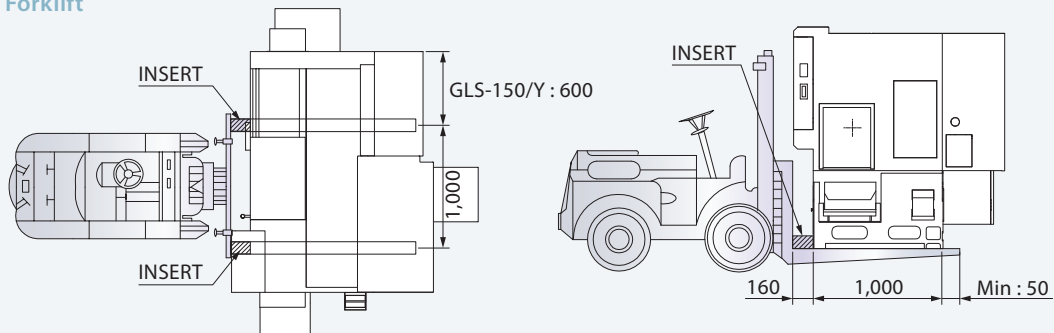
Requirements of the Foundation



N0.	Part No	Part name
1	CF-1048	Levelling Bolt
2	NA2200BA	Hex.Nut M22
3	CF-1047A	Levelling Pad

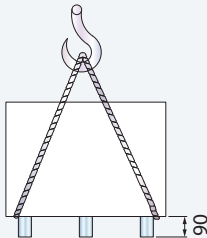


Lifting by Forklift

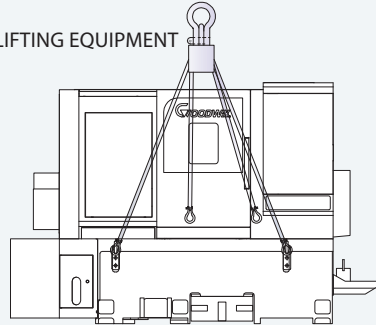


Lifting by Overhead Crane

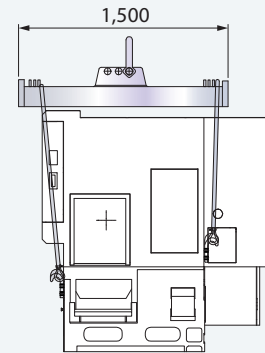
STRENGTH AS REQUIRE



LIFTING EQUIPMENT

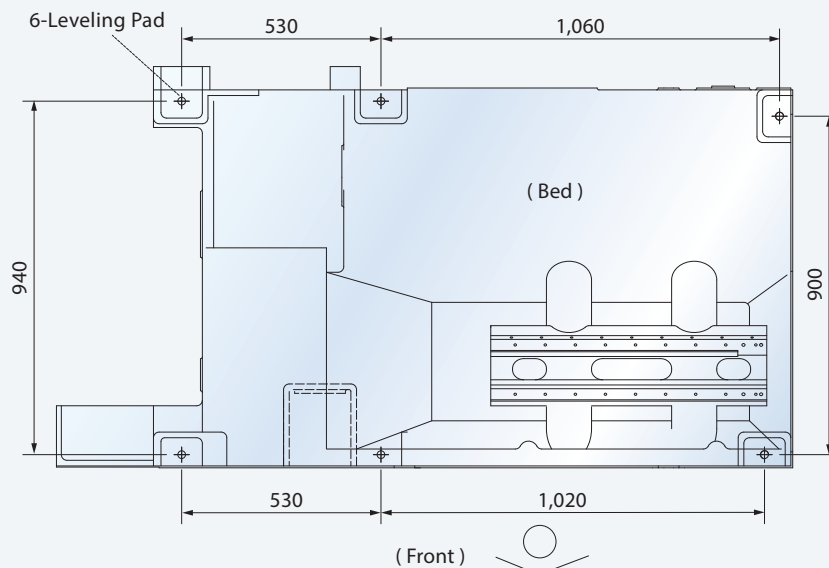


LOOP ROPE SLING BETWEEN CASTLLATIONS



Unit : mm

Foundation



Unit : mm

MACHINE SPECIFICATIONS

■ : Metric ■ : Inch

CAPACITY	GLS-150	GLS-200
Max. swing diameter	Ø 500 mm 19.68"	
Swing over saddle	Ø 310 mm 12.2"	
Max. turning diameter* ¹	Ø 360 / 250 mm* ² 14.17" / 9.84"	
Standard turning diameter* ¹	Ø 185 mm 7.28"	
Max. turning length* ¹	500 mm 19.68"	
Max. weight load* ³	85 kg 187 lb	
Chuck size	6"	8"
Bar capacity	Ø 51 mm 2"	Ø 65 mm 2.55"
SPINDLE		
Hole through spindle	Ø 61 mm 2.4"	Ø 76 mm 2.9"
Spindle bearing diameter	Ø 90 mm 3.54"	Ø 110 mm 4.33"
Hydraulic cylinder	8"	10"
Spindle nose	A2-5	A2-6
Motor output (Cont.)	11 kW 15 HP	
Motor output (30 min.)	15 kW 20 HP	
Motor full output speed	750 rpm	
Spindle drive system	Direct Belt Drive	
Spindle drive ratio	1 : 1 (Opt. 211 : 151)	1 : 1 (Opt. 211 : 171)
Spindle speed range	60 ~ 6,000 rpm	45 ~ 4,500 rpm
Spindle full output speed	750 rpm	750 rpm
BUILT-IN SPINDLE MOTOR (OPTIONAL)		
Motor output (Cont.)	5.5 kW 7.4 HP	—
Motor output (30 min.)	7.5 kW 10 HP	—
Bar capacity	Ø 45 mm 1.77"	—
Cs-AXIS SPINDLE (OPTIONAL)		
Cs-axis drive motor	Bz-sensor	
Min. spindle indexing angle	0.001°	
Dynamic accuracy	± 0.02°	
X & Z AXES		
X / Z axes travel* ¹	210 / 520 mm 8.26" / 20.47"	
X / Z axes rapids	30 m/min. 1,181 IPM	
Slide way type	Linear Guide Way	
Feed rates	1 ~ 4,800 mm/min. 1 ~ 189 IPM	
X / Z axes servo motor	AC 2.7 kW 3.6 HP	
X / Z axes ball screw Ø / pitch	Ø 32 mm 1.25" / Pitch 10	
X / Z axes thrust (Cont.)	769 kg 1,695 lb	
TURRET		
Stations	12 / 10	
Indexing drive	FANUC AC Servo motor	
Indexing speed	0.2 sec. Adjacent / 0.5 sec. 180 degrees (Single step)	
Accuracy	Positioning : ± 0.00069°, Repeatability: ± 0.00027°	
O.D. tool shank size	□ 25 mm 1"	
I.D. tool shank size	Ø 40 mm 1-1/2"	

LIVE TOOLING TURRET (OPT.)	GLS-150	GLS-200
Max. turning length	340 mm	13.38"
Stations	12	
Live tooling stations	12	
Live tooling drive motor	AC 2.5 kW	3.3 HP
Live tooling torque	8 Nm	5.9 lb-ft
Indexing drive type	FANUC AC Servo motor	
Index speed	0.2 sec. Adjacent / 0.5 sec. 180 degrees (Single step)	
OD tool shank size	□ 20 mm	3/4"
ID tool shank size	Ø 25 mm	1"
Live tooling shank size	1 ~ 16 mm ER 25	
Live tooling RPM range	10 ~ 4,000 RPM	
Y-AXIS (OPT.)		
Max. turning diameter	Ø 250 mm	9.84"
Max. X-axis travel	190 mm	7.48"
Max. Y-axis travel	70 mm = ± 35 mm	2.75" = ± 1.37"
X / Y axes rapids	24 / 10 m/min.	945 / 393 IPM
Slide way type	Linear Guide Way	
Feed rates	1 ~ 4,800 mm/min.	1 ~ 189 IPM
X / Y axes servo motor	AC 2.7 kW	3.6 HP
X / Y axes ball screw Ø / pitch	Ø 32 mm	1.25" / Pitch 6
X / Y axes thrust (Cont.)	1,282 kg	28 lb
TAILSTOCK (OPT.)		
Quill center taper	MT#4 (Live center)	
Quill diameter / travel	Ø 70 mm / 150 mm	2.75" / 5.9"
Tailstock base travel	290 mm	11.41"
Programmable quill / base	Yes / No	
Programmable base type	Hydraulic motor + Guide way [Servo motor + Ball screw (Upon request)]	
GENERAL		
Repeatability (X / Y / Z)	± 0.002 mm	±0.000078"
NC controller	FANUC Oi-TF	
Voltage / Power requirement	AC 200 / 220 +10% to -15% 3 phase / 25 kVA	
Hydraulic tank capacity	50 L	13.2 gal
Coolant tank capacity	100 L	26.4 gal
Coolant pump	0.5 kW (3/4 HP , 60 Hz) rated at 3 bar (43.5 PSI)	
Machine weight	3,200 kg	7,100 lb
Machine weight (Y models)	3,500 kg	7,800 lb
Dimensions L × W × H	2,432 x 1,643 x 1,727 mm	96" x 65" x 68"
	Machine w/ Y-axis : 2,480 x 1,655 x 2,060 mm	98" x 66" x 82"

Specifications are subject to change without notice.

*1 Individual models may vary, please see interference drawings.

*2 For M (Live-tooling turret) models only.

*3 Work-piece supported by chuck & tailstock.



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