

GCL-2

SERIES

High Performance CNC Lathe



THE ULTIMATE MACHINING POWER
WOODWAY

From Classic to Evolution

The classic

Our achievement has lasted over 25 years with over 10,000 units sold around the world.

The Evolution

We want to go far beyond our customer's expectations and continuously pursue the ultimate performance.

The GCL-2 series is based on our most advanced turning technology and outstanding manufacturing capability, providing users with a high C/P value and high stability performance.

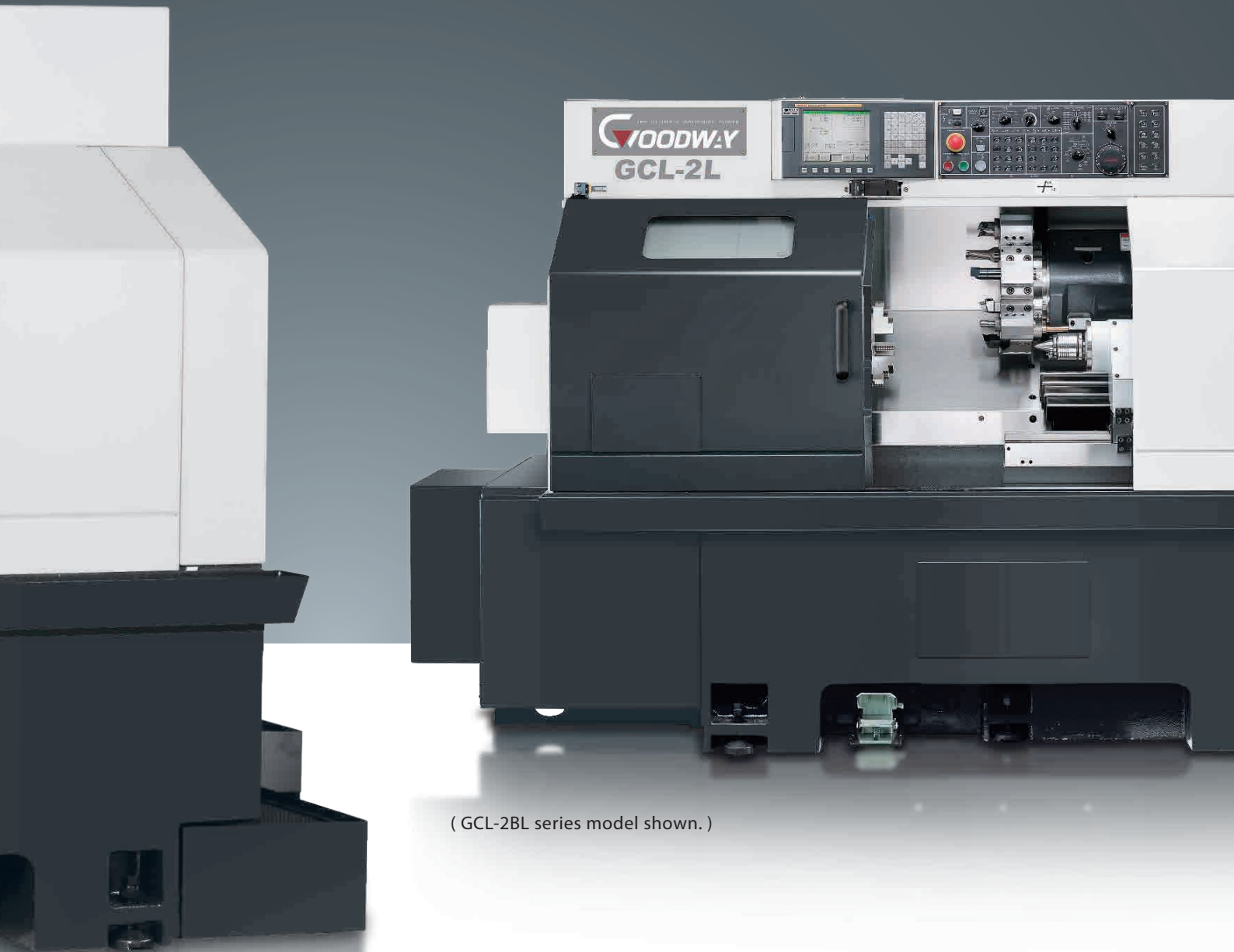


HIGH PERFORMANCE CNC LATHE

Based on over 25 years of manufacturing experience and top CNC turning technology, the all new GCL-2 series provides you with high stability of heavy cutting and precision turning capabilities. With high horse power, super rigidity structure and precision servo indexing turret, the GCL-2 series can meet with all sorts of cutting needs for today and tomorrow.



- ▶ All new series is equipped with high technology servo indexing turret. Tool index is faster and accurate to provide excellent working efficiency.
- ▶ The 4,500 rpm high torque spindle is driven by a 15 kW wide range motor which easily meets all sorts of heavy duty cutting requirements.
- ▶ X and Z axes are of super-rigid box ways with heat treatment and precision machining to provide the needed stability for heavy-duty cutting.
- ▶ The super rigidity tailstock is equipped with MT#4 live center and the spindle thrust can be adjusted by the hydraulic pressure to meet with various cutting requirements.

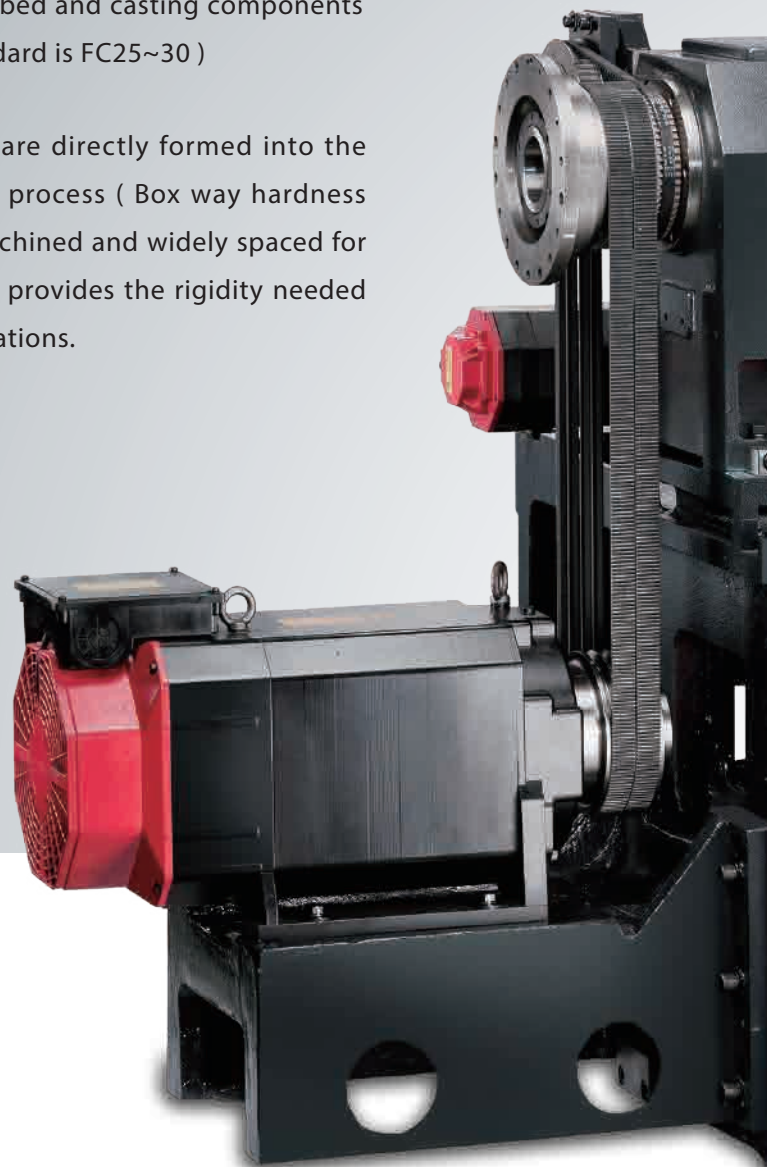


(GCL-2BL series model shown.)

SUPER RIGIDITY CONSTRUCTION

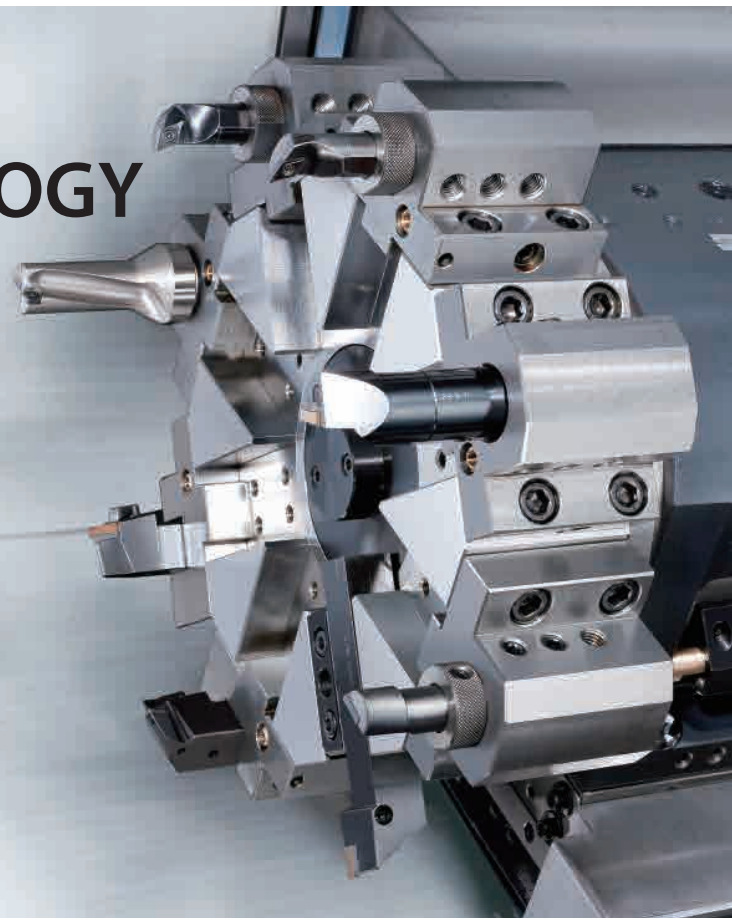
By using Finite Element Analysis (FEA), optimal reinforce ribbings are directly cast into the one-piece bed structure. Mechanical rigidity has been increased by more than 30% when compared to conventional designs. The GCL-2 series is capable of performing super heavy-duty turning and maintain long-term super high-precision accuracy.

- ▶ 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)
- ▶ Extra wide hardened and ground box ways are directly formed into the machine bed and saddle during the casting process (Box way hardness can reach up to HS70). 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.
- ▶ The low center of gravity heavy-duty bed and 30° slant wedge saddle design provides smooth chip disposal under long working hours.
- ▶ All spindle and servo motors, including drives, are FANUC αi series components to ensure peak machining performance and accuracy.





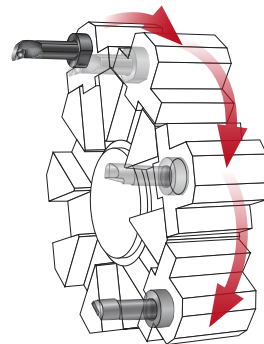
ADVANCED TURNING TECHNOLOGY



- ▶ Ø 180 mm diameter super high precision 2-piece CURVIC couplings accurately position the turret disk and 4,000kg of clamping force ensure abundant turret rigidity for all cutting conditions.
- ▶ The curvic couplings provide a large contact area and are designed with an auto-clean feature not seen on traditional couplings.

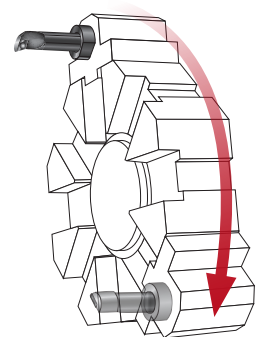
- ▶ The heavy-duty servo indexing turret uses the most advanced turning technology. Index movements are single step, without pauses, no matter how many stations are skipped.
- ▶ Achieving 0.2 second indexing times for adjacent stations and 0.5 second for stations at the opposite end of the disk. Tool change efficiency is 50% greater than the former model.

	Adjacent	Single step
Former Design (Hydraulic Turret)	0.3 Sec.	1 Sec.
New Design (Servo Turret)	0.2 Sec.	0.5 Sec.



Hydraulic Turret

The tool index is in sequence which is less efficient

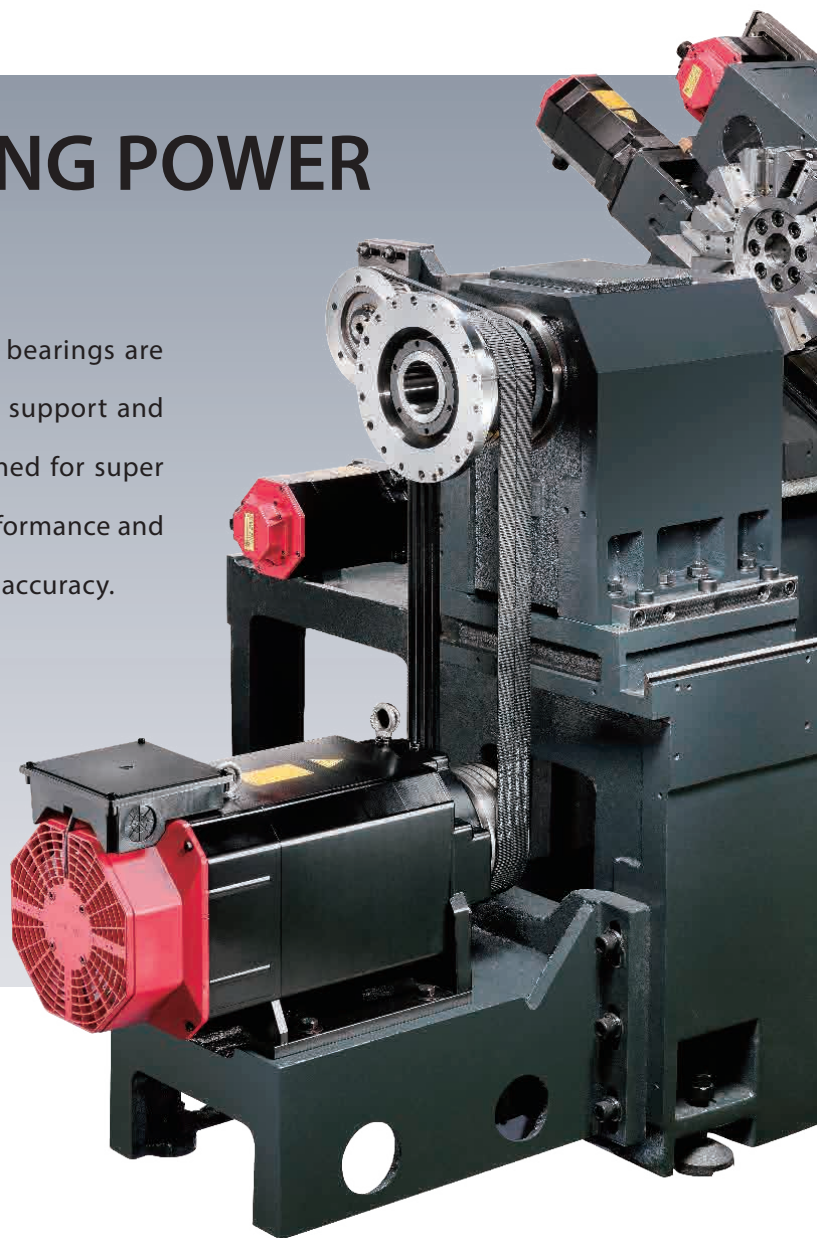


Servo Turret

The tool index is in coherent which is more efficient

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 super heavy-duty cutting with ultra-smooth performance and long term durability with a higher level of accuracy.
- ▶ The heavy-duty headstock is of one-piece casting reinforced with heat dispending fins.

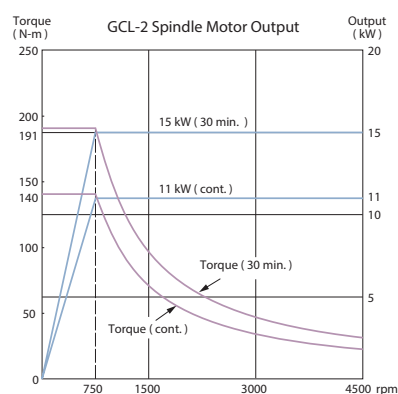
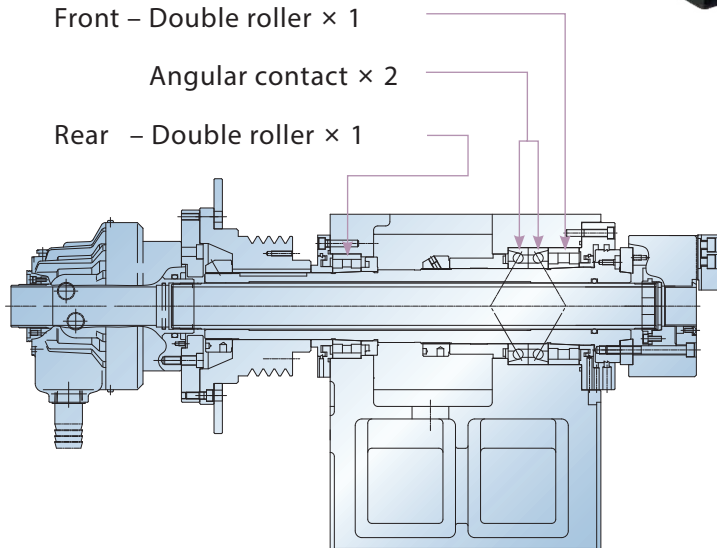


- ▶ Bearing configuration:

Front – Double roller × 1

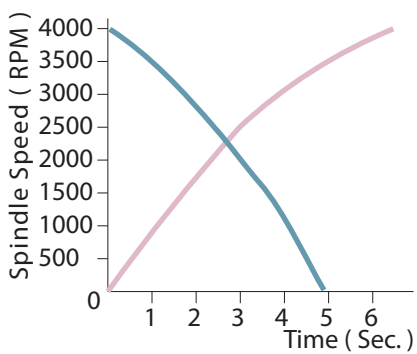
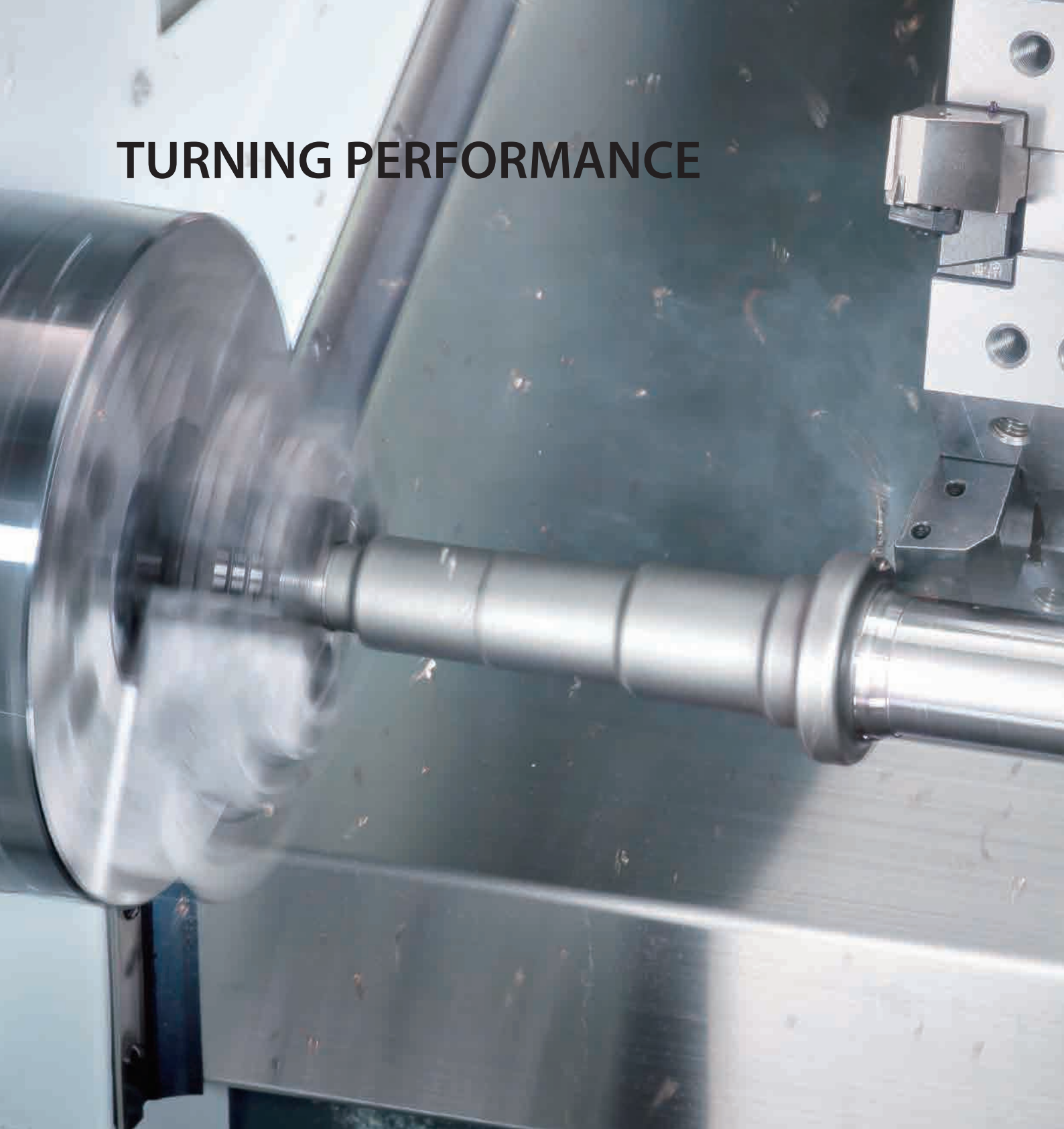
Angular contact × 2

Rear – Double roller × 1



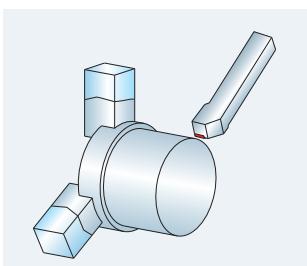
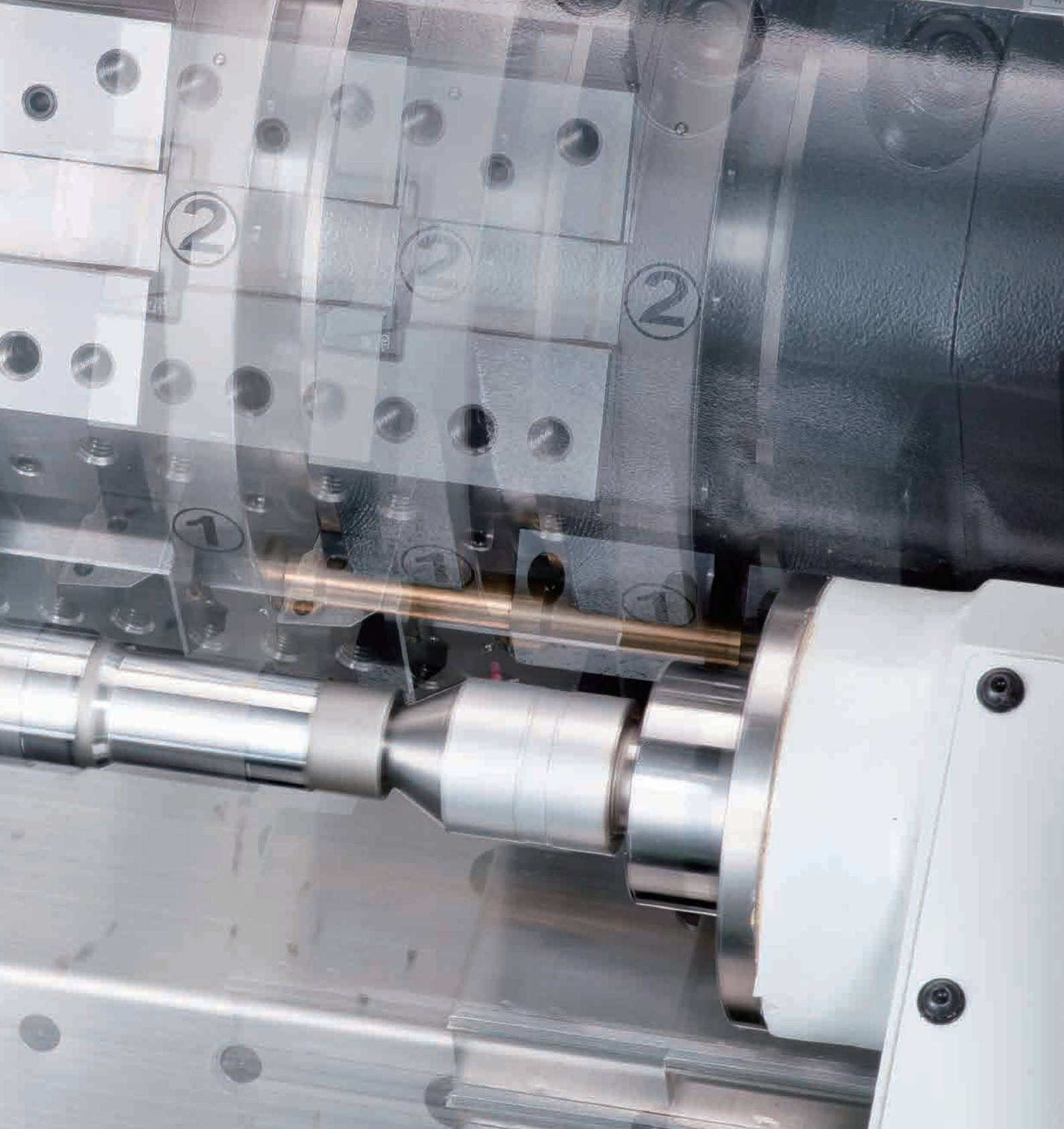
- ▶ Generating twice the torque output of standard motors, the A/C, constant output, wide-range FANUC α P22 high-torque *i* series motor is rated at 15 kW (30 min). This double bind motor is designed to reach full output at 1/2 the RPM of standard motors, providing the ability to take heavier cuts in the lower RPM ranges.

TURNING PERFORMANCE



GCL-2 Spindle Acc. / Dec. Times
Chuck: 8" + Hard Jaws

	Unit : Sec.									
RPM	500	1000	1500	2000	2500	3000	3500	4000		
— Acc.	0.7	1.3	1.7	2.3	3.0	3.6	5.0	6.4		
— Dec.	0.5	0.8	1.3	1.8	2.5	3.1	4.0	4.8		



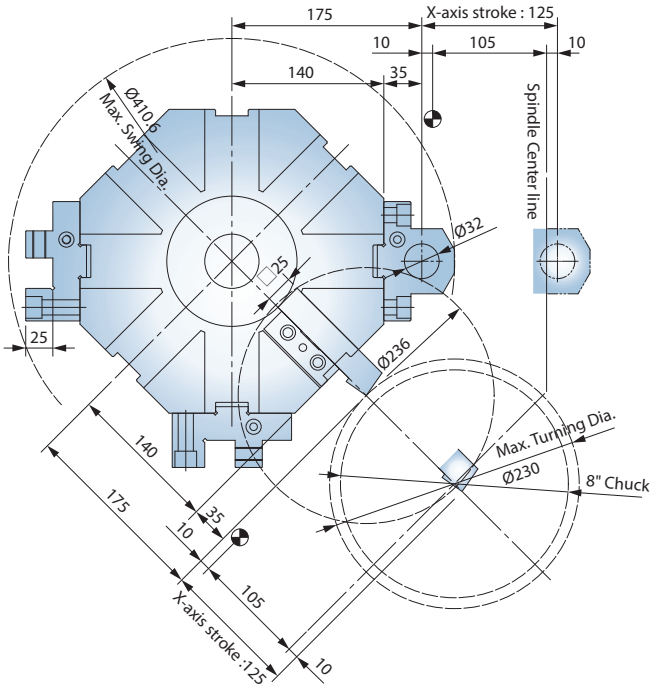
OD Heavy Cutting Example

	OD Before Cut	OD After Cut	Spindle Speed	F / Rev.	Depth of Cut	Spindle Load
1	108 mm	96 mm	500 RPM	0.30 mm	6 mm	97%
2	96 mm	82 mm	550 RPM	0.32 mm	7 mm	112%

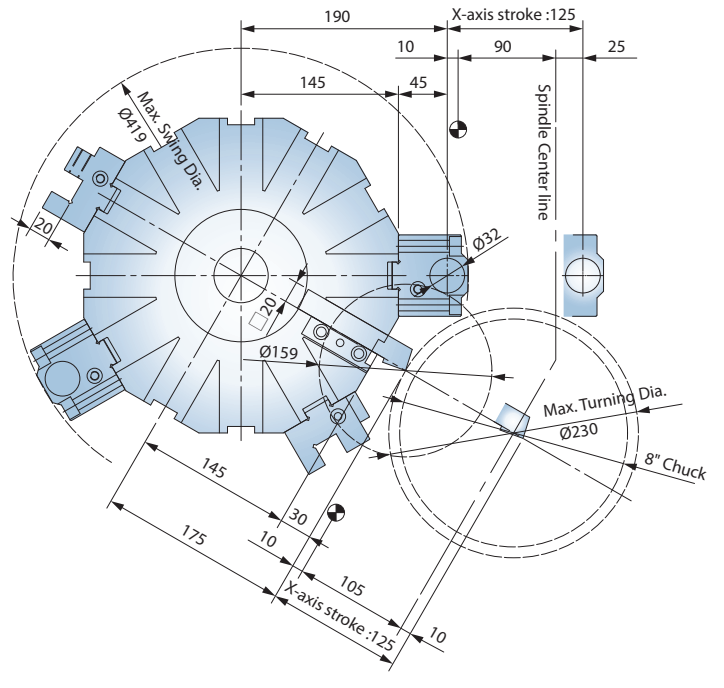
GENERAL DIMENSION

Interference Diagram

【8-Stations Turret】



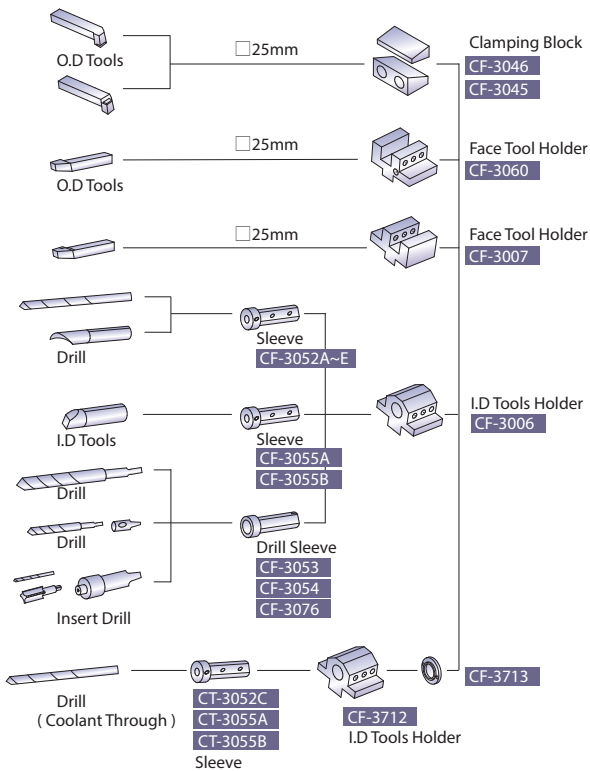
【12-Stations Turret】



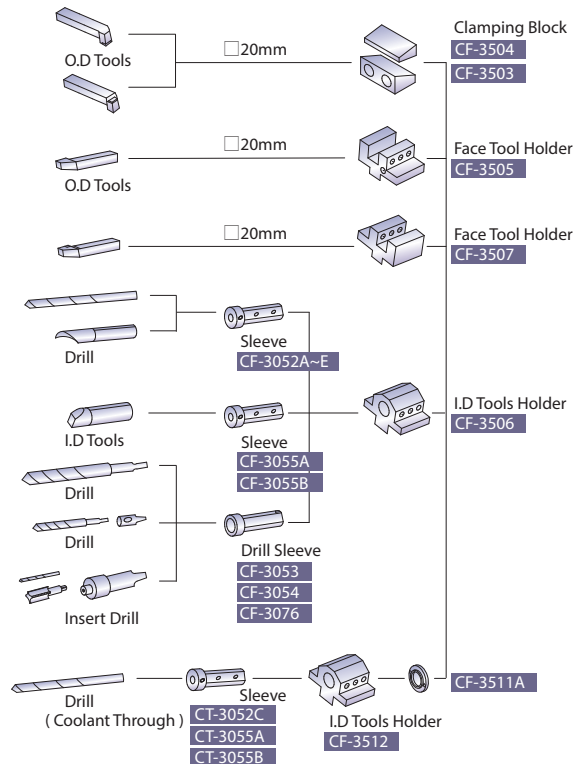
Unit : mm

Tooling System

【8-Stations Turret】



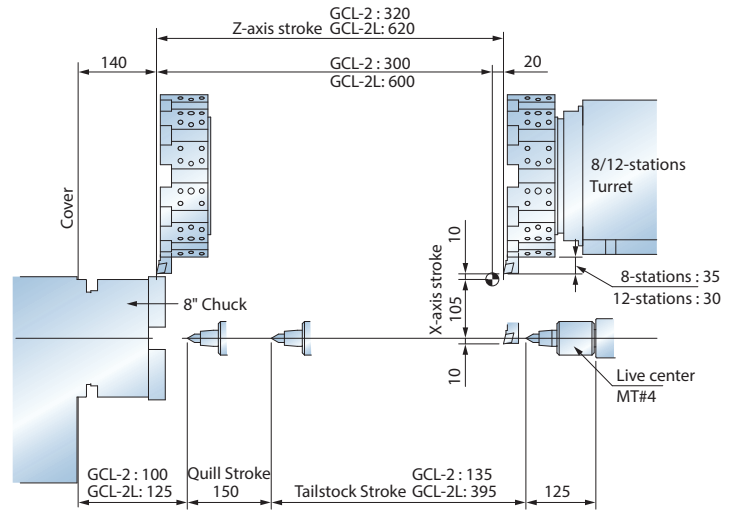
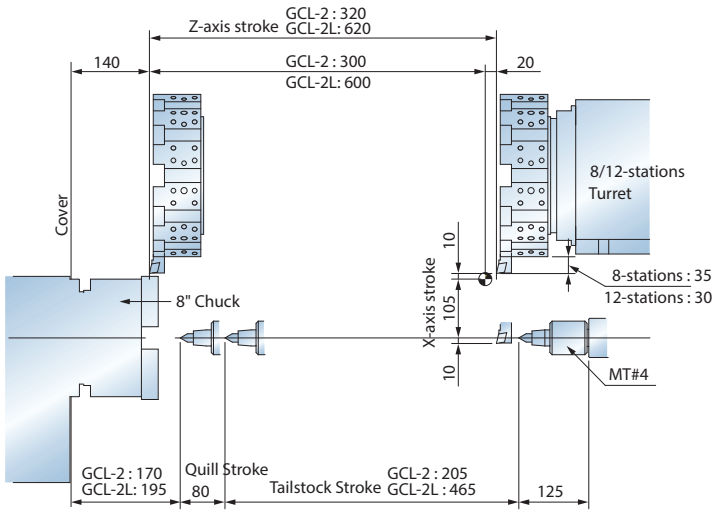
【12-Stations Turret】



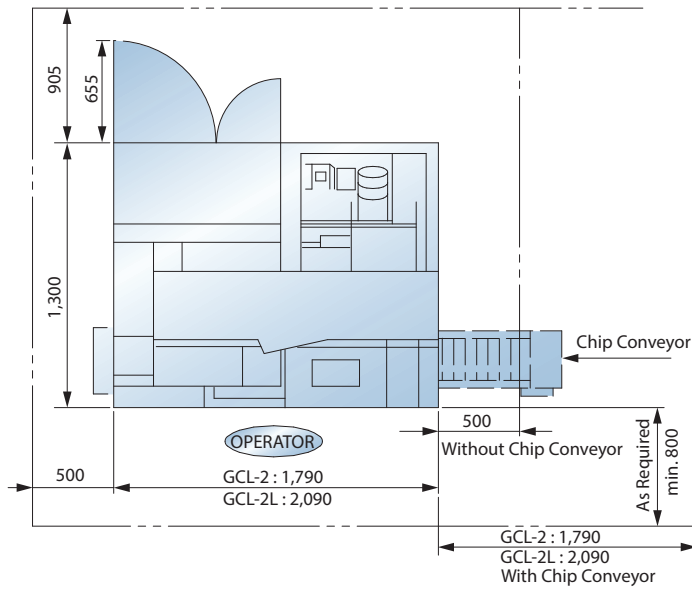
Work Range

【w/ 80 mm quill travel standard tailstock】

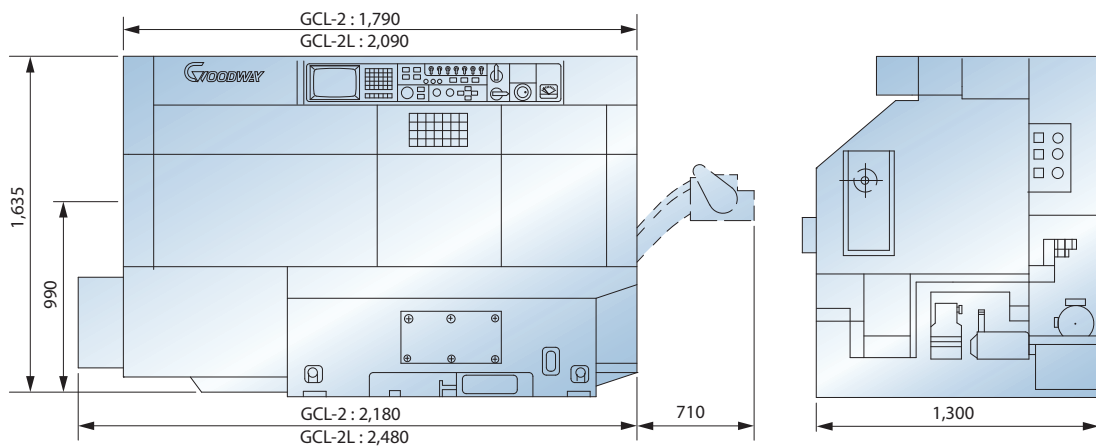
【w/ 150 mm quill travel long tailstock】



Space Requirement



Machine Layout



STANDARD & OPTIOANL FEATURES

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

SPINDLE		GCL-2
Main spindle motor configuration	Belt	S
Rigid tapping & spindle orientation		S
Main spindle disk brake		O
WORK HOLDING		
Hydraulic hollow cylinder for chuck	8"	S
Hollow 3-jaws chuck & 1 set soft jaws	8"	S
Hard jaws		O
Collet chuck		O
Special work holding chuck		C
In spindle work stopper		O
Spindle liner (guide bushing)		O
Foot switch for chuck operation		S
Quill hydraulic tailstock		O
MT#4 live center		O
Foot switch for tailstock operation		O
Two-stage programmable pressure	Chuck clamping	O
	Tailstock thrust	O
TURRET		
8-station turret		S
12-station turret		O
Tool holder & sleeve package		S
MEASUREMENT		
Renishaw HPRA tool presetter		O
COOLANT		
Coolant pump	3 Kg/cm ²	S
	5 Kg/cm ²	O
	10 Kg/cm ²	O
High-pressure coolant system	20 Kg/cm ²	C
Roll-out coolant tank		S
Oil skimmer		O
Coolant flow switch		O
Coolant level switch		O
Coolant intercooler system		O
CHIP DISPOSAL		
Chip conveyor with auto timer	Right discharge	S
	Rear discharge	C
Chip cart with coolant drain		O
Chuck air blow		O
Tailstock air blow		O
Coolant gun		O
Oil mist collector		O
AUTOMATIC OPERATION SUPPORT		
Parts catcher		O
Work piece transport conveyor		O
Bar feeder		O
Bar feeder interface		O
Gantry-type loader / unloader		O
Auto door		O
External M-code output	4 sets (8)	O
	8 sets (16)	O

Specifications are subject to change without notice.

*1 Please contact GOODWAY for complete control specification list.

*2 10.4" color LCD option needed.

SAFETY		GCL-2
Fully enclosed guarding		S
Door interlock (incl. Mechanical lock)		S
Impact resistant viewing window		S
Tailstock stroke out - end check		O
Chuck cylinder stroke out - end check		O
Chuck cylinder check valve		S
Low hydraulic pressure detection switch		S
Over travel (soft limit)		S
Load monitoring function		O
OTHERS		
Tri-color machine status light tower		S
Work light		S
External work light		O
Electrical cabinet	Heat exchanger	S
	A/C cooling system	O
Complete hydraulic system		S
Advanced auto lubrication system		S
Foundation leveling & maintenance tool kit		S
Emergency maintenance electrical part package		S
Operation & maintenance manuals		S
CONTROL		
FANUC Oi-TD		S

FANUC CONTROL FUNCTIONS*1		Oi-TD
PMC system	Oi-TD PMC : 25n sec/step	S
Display	8.4" color LCD	S
	10.4" color LCD	O
Graphic function	Standard	S
	Dynamic	O
Full keypad	Small - 44 keys	S
	Large - 56 keys	O*2
Part program storage length	512K bytes	S
Registerable programs	400	S
Tool offset pairs	64	S
	99	O
Servo control	HRV2 (3)	S
Conversational programming	Manual Guide Oi	S
Servo motors	αi	S
Spindle motors	αi	S
Tool Life Management		S
Tool Nose Radius Compensation		S
Background editing		S
Variable Lead Thread Cutting		S
Unexpected disturbance torque detection function		S
Multiple Threading		S
Run hour & parts counter		S
Auto power off function		S
Custom macro B		S
RS-232 port		S
Memory card input /output		S
Ethernet		S
Fast ethernet		O

MACHINE SPECIFICATIONS

Capacity		GCL-2 / L
Max. swing diameter		Ø 400 mm
Swing over saddle		Ø 280 mm
Max.turning diameter		Ø 230 mm
Std.turning diameter		Ø 220 mm
Max.turning length		300 mm / 600 mm
Chuck size		Ø 8"
Bar capacity		Ø 51 mm
Spindle		
Hole through spindle		Ø 66 mm
Spindle bearing diameter		Ø 100 mm
Spindle nose		A2-6
Motor output (Cont. / 30 min.)		11 kW / 15 kW
Motor full output speed		750 rpm
Spindle drive ratio		Direct Belt Drive
Max. spindle speed		4,500 rpm
Spindle torque		35.8 N-m
X & Z Axes		
Max. X-axis travel		125 mm
Max. Z-axis travel		320 mm / 620 mm
X / Z axes rapids		20 m/min.
Slide way type		Hardened & Ground Box Ways
Feed rates		1 ~ 4,800 mm / min.
X-axis servo motor		AC 2.7 kW (3.6 HP)
Z-axis servo motor		AC 2.7 kW (3.6 HP)
X-axis ball screw Ø [pitch]		Ø 32 mm [Pitch 6]
Z-axis ball screw Ø [pitch]		Ø 32 mm [Pitch 6] / Ø 36 mm [Pitch 6]
X / Z axes thrust (Cont.)		1,282 Kg
Turret		
Stations		8 (Opt. 12)
Indexing drive		FANUC AC servo motor
Indexing speed		0.2 sec. (Adjacent) / 0.5 sec. (Single step)
Accuracy		Positioning : ± 0.00069° , Repeatability : ± 0.00027°
O.D. tool shank size		<input type="checkbox"/> 25 mm (<input type="checkbox"/> 20 mm*1)
I.D. tool shank size		Ø 32 mm
TAILSTOCK (OPTIONAL)		
Quill center taper		MT#4 (Live center)
Quill diameter [travel]		Ø 70 mm [Standard : 80 mm / Long : 150 mm]
Tailstock base travel		Standard : 205 mm / 465 mm / Long : 135 mm / 395 mm
Programmable quill / base		Yes / No
Programmable base type		Manual
GENERAL		
Positioning accuracy (X / Y / Z)		0.005 mm
Repeatability (X / Y / Z)		± 0.003 mm
Standard CNC control		FANUC Oi -TD
Voltage / Power requirement		AC 200 / 220 +10% to -15% 3 phase / 25 KVA
Hydraulic tank capacity		40 L
Coolant tank capacity		80 L
Coolant pump		0.5 kW (0.65 HP , 60 Hz) rated at 3 bar (43.5 PSI)
Machine weight		3,000 Kg / 3,500 Kg
Dimensions (L x W x H)		2,180 x 1,300 x 1,635 mm / 2,480 x 1,300 x 1,635 mm

Specifications are subject to change without notice.

*1 Optional 12-station turret



GOODWAYCNC.com

GOODWAY MACHINE CORP.

HEADQUARTERS

No.13, 5th Road,
Taichung Industrial Park,
Taichung City, 407, Taiwan, R.O.C.
E-mail : goodway@goodwaycnc.com

CENTRAL TAIWAN SCIENCE PARK BRANCH

No. 38, Keyuan Road,
Central Taiwan Science Park.Taichung,
Taichung City, 407, Taiwan, R.O.C.
TEL : + 886-4-2463-6000
FAX : + 886-4-2463-9600

GOODWAY MACHINE (WUJIANG) CO.,LTD

No. 4888, East Lake Taihu Avenue, Wujiang
Economic and Technological Development Zone,
Jiangsu, China
Sales Hotline : + 86-512-8286-8068
Service Hotline : + 86-512-8286-8066
FAX : + 86-512-8286-8620
E-mail : goodway.wj@goodwaycnc.com