



Linear rail type Turning lathe



SUZHOU GUDWAY CNC EQUIPMENT CO.,LTD

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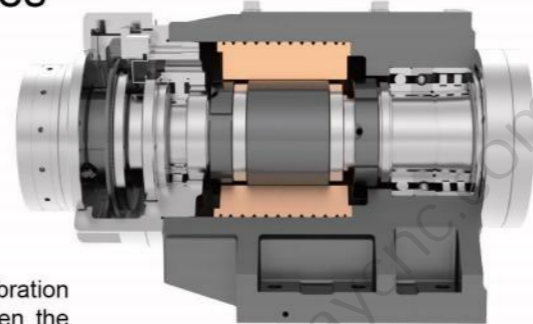
Web : <http://www.gudwaycnc.com>

SUZHOU GUDWAY CNC EQUIPMENT CO.,LTD

Main Components

All spindle parts are made by ourselves

All spindle components are manufactured under constant temperature. High rigidity, high precision spindle, rich configurations, can be selected mechanical spindle or motorized spindle according to your demand



Synchronous built in motor spindle

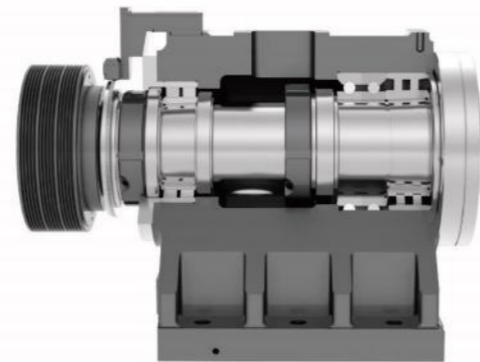
Built-in and middle drive design, compact structure, high efficiency, low vibration and high precision, achieve high-speed cutting and precision cutting. When the spindle runs at high speed, it is more stable and the acceleration and deceleration time is short. The service life of spindle bearings will be much longer.

Spindle accuracy items	International standard	GFIR standard	Compression amount
Spindle radial runout	0.008	0.002	75.00%
Spindle end runout	0.01	0.002	80.00%
Radial runout at 300mm from the spindle end	0.02	0.005	75.00%

Independently developed high rigidity and high efficiency spindle

Mechanical spindle

The spindle bearings adopt ROBUST structure: The front is composed of double row cylindrical roller bearings and double row angular contact thrust ball bearings, and the rear is double row cylindrical roller bearings, ensuring high rigidity and stability of the spindle.



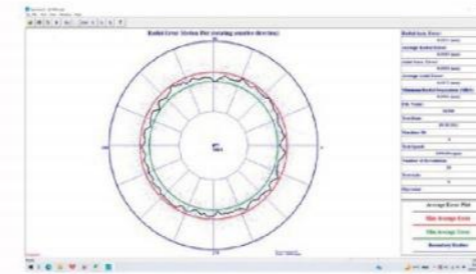
Cutting performance (EX.TT6050)

Heavy cutting		Drill(U drill)		Roughness	
Cutting capacity a×f	6×0.4	Cutting capacity D×f	φ50×0.15	Cutting capacity Ra	0.8
Cutting condition n×d×L	700×φ100×70	Cutting condition n×d	800×φ100	Cutting condition n×f	2000×0.08

*Material: 45#

Speed: n (r/min)	Feed: f(mm/r)	Tool diameter(Drill): D (mm)
Cutting depth: a (mm)	Workpiece diameter: d (mm)	The distance between cutting position and chuck end: L (mm)

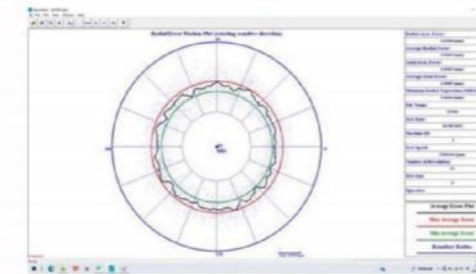
Dynamic Accuracy Spindle dynamic accuracy



Spindle dynamic accuracy detection at speed 1000rpm

Spindle speed: 1000 rpm

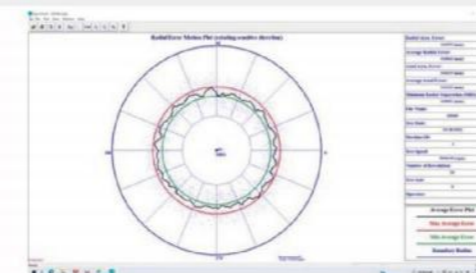
Radial asynchronous error (mm)	0.0221	Axial asynchronous error (mm)	0.0333
Average radial error(mm)	0.0045	Average axial error (mm)	0.00712



Spindle dynamic accuracy detection at speed 2000rpm

Spindle speed: 2000 rpm

Radial asynchronous error (mm)	0.0261	Axial asynchronous error (mm)	0.0366
Average radial error(mm)	0.0061	Average axial error (mm)	0.0069



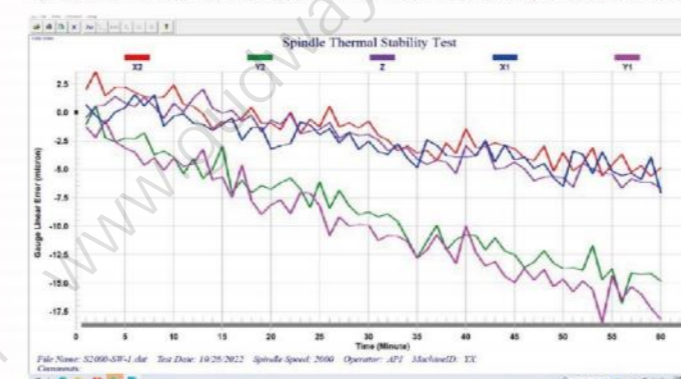
Spindle dynamic accuracy detection at speed 3000rpm

Spindle speed: 3000 rpm

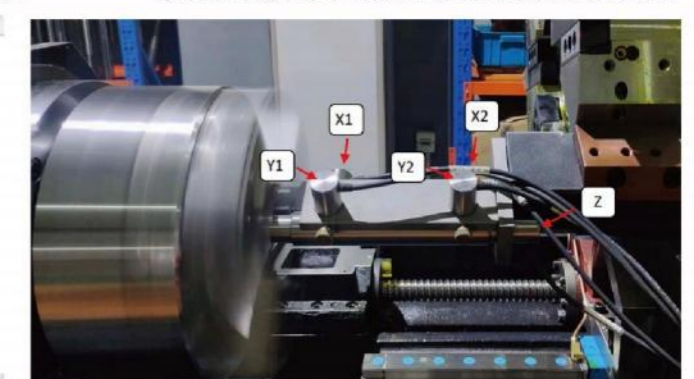
Radial asynchronous error (mm)	0.0353	Axial asynchronous error (mm)	0.0415
Average radial error(mm)	0.0063	Average axial error (mm)	0.0101

Spindle thermal deformation detection

Spindle thermal deformation diagram of 1 hour continuous running at the speed of 2000rpm



Spindle rotating analyzer measures spindle axis thermal deformation

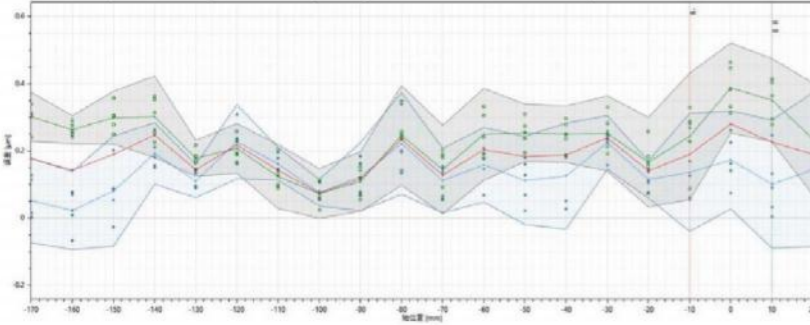


	X axis yaw angle	Y axis yaw angle	X axis offset	Y axis offset	Z axis offset
1 Hour heat up	-2.1 "	-3.4 "	+5.9 μm	+16.5 μm	+6.6 μm

X/Z Direction Accuracy

High Accuracy

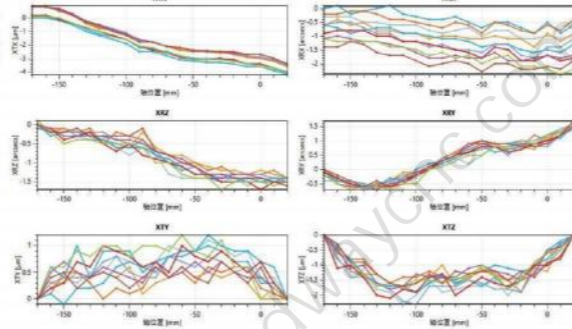
Linear positioning accuracy diagram after X axis compensation



最高精度 (A) 3.1 μm, 最低精度 (B) 0.5 μm, 平均精度 (R) 2.1 μm
 最高精度 (A) 3.1 μm, 最低精度 (B) 0.5 μm, 平均精度 (R) 2.1 μm

X axis pitch compensation	Positioning accuracy (A)	Repeatability accuracy (R)	Backlash (B)
	3 μm	2 μm	0.5 μm

X axis geometric accuracy error image



Positioning accuracy

XTX linear positioning	5.3 μm
XRX rolling angle	3.1 "
XRZ depression angle	1.9 "
XRY yaw angle	2.6 "

U maximum value

XTY vertical alignment	1.6 μm
XTZ horizontal alignment	2.5 μm

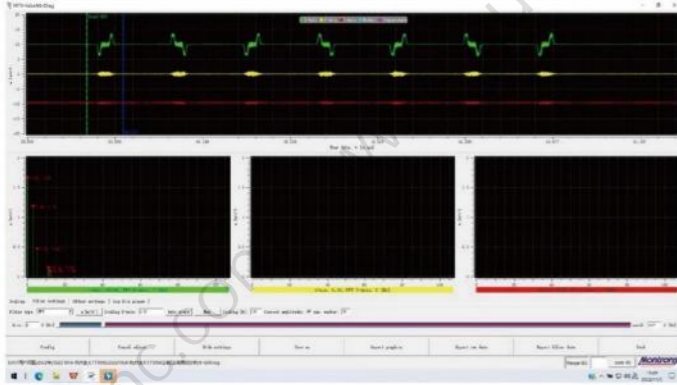
X/Z axis interpolation roundness detection

Testing by laser ball-bar

Detection radius: 50mm Feed rate: 1000mm/min

Roundness Accuracy 7.1 μm

Vibration frequency and amplitude when making G00 movement on X axis



	Vibrational frequency	Vibration amplitude
First characteristic frequency	7.24Hz	1.62m/S2=0.165g
Second characteristic frequency	7.54Hz	1.15m/S2=0.12g
Third characteristic frequency	7.82Hz	0.45m/S2=0.046g

Vibration frequency and amplitude when making G00 movement on Z axis



	Vibrational frequency	Vibration amplitude
First characteristic frequency	6.24Hz	0.94m/S2=0.096g
Second characteristic frequency	7.79Hz	0.83m/S2=0.085g
Third characteristic frequency	6.38Hz	0.59m/S2=0.06g

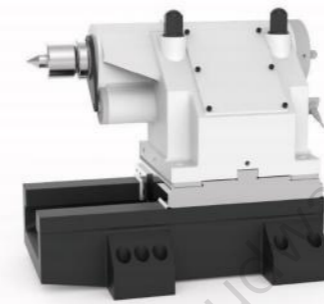
TURRET

High Rigidity And High Efficiency
Servo turret/ Live turret

Turret X/Z axis positioning accuracy	0.005 mm
Turret X/Z axis repeatability accuracy	0.002mm
Indexing time(Adjacent tool position)	0.15 s
High pressure	10MPa



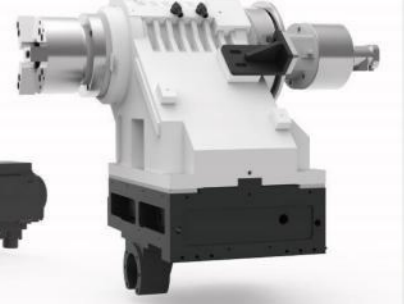
TAILSTOCK



Hydraulic tailstock



Programmable tailstock



Sub-spindle

FOR GLT SERIES

The tailstock quill is driven by oil pressure,with high stability and reducing vibration.There is a drag device on the tailstock which can be dragged by the movement of slide,and the tailstock can be moved to the required position according to the workpiece length.

OPTIONAL FOR GLT505/605/758

Drive by servo motor and ball screw,through the NC system program to control the movement and support of tailstock.Can realize the automation and intelligence of tailstock,just input the tailstock support force into the system,the system can control the servo motor output the corresponding torque after reading the value of support force.

Optional

Optional Configuration



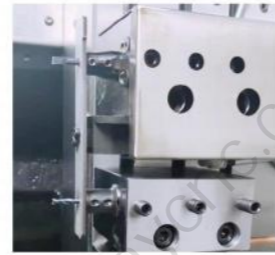
Tool setter



Hydraulic brake



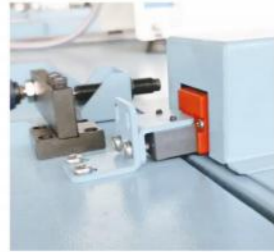
Part catcher



Chip pushing device



Indexing chuck



Auto door



Conveyor belt



Chuck blow



Oil-mist collector



Oil-water separator



Chip conveyor with cart (side or rear)



Bar feeder



Workpiece probe



Electric cabinet air condition



Oil cooler



Light curtain

Machinable Parts



Pump case



Motor end cover



Aluminum end cover



Aluminum ring



Screw shaft



Bearing



Military industry



Cutting sample



Cutting sample



Cutting sample



Cutting sample



Cutting sample



Cutting sample



Cutting sample



Cutting sample

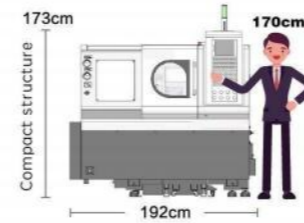


GLT-352

GLT-503

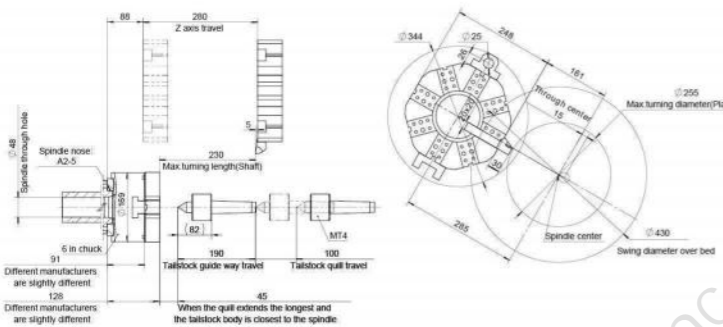
Integral bed, stepped roller guide arrangement

- Synchronous built-in motor spindle, compact structure and strong rigidity
- Built-in hydraulic tailstock with detachable tailstock guide way
- Chip removal smooth, the iron chip box is separated from the water tank
- Ergonomic appearance design, easy to operate
- Servo turret, fast tool change



▲ Change due to different configurations. "*" As a selection.

Chuck size	6 inch	Main motor power	12.4 kW	Tailstock type	Hydraulic
Swing diameter over bed	Ø430mm	Clamping	Hydraulic	Tailstock quill diameter	Ø65mm
Swing diameter over slide	Ø170mm	X/Z axis rapid travel speed	20/20m/min	Tailstock quill travel	100mm
Max turning length ▲	230mm	X/Z servo motor torque	8.4/8.4N.m	Tailstock quill taper	MT4
X/Z axis travel	150/ 280 mm	Tools	8T-63servo turret/12T-70powered turret*	Coolant pump power	480W
Bar through hole	Ø35 mm	Tool shank dimension	20X20mm	Total power consumption ▲	19.5KVA
Spindle speed ▲	5000 r/min	Boring tool size	Ø25mm	Overall dimensions(L*W*H)	1920X1720X1735mm
Spindle nose	A2-5	Repeatability accuracy X/Z axis	0.004/0.006mm	Weight	2200kg

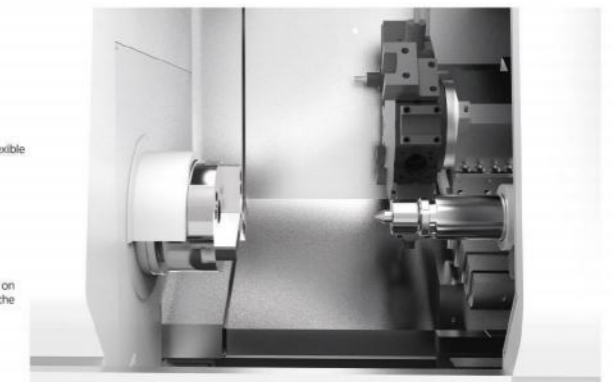
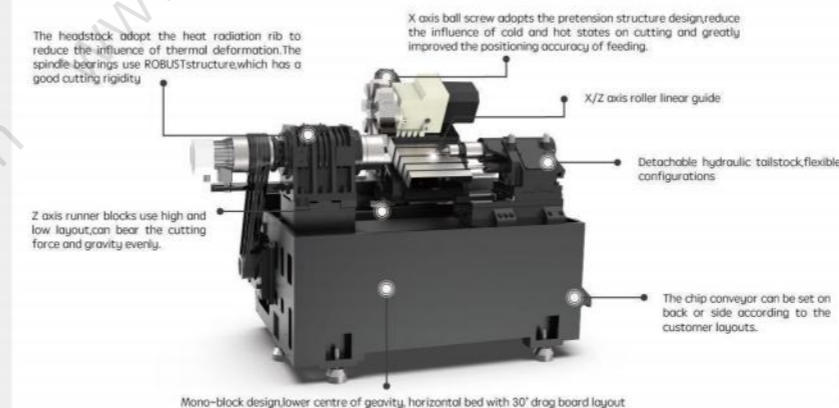
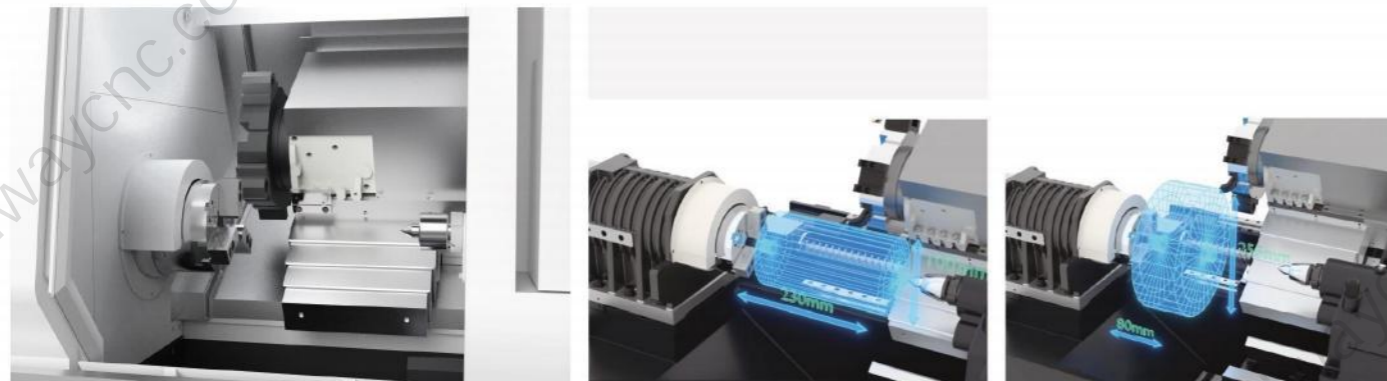
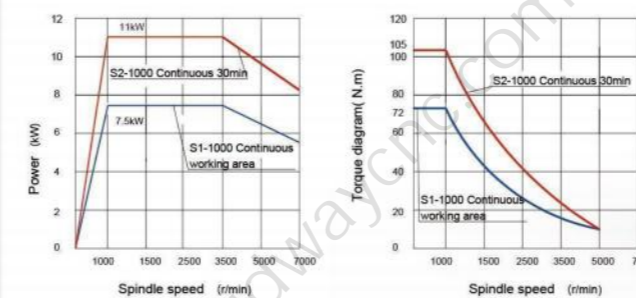
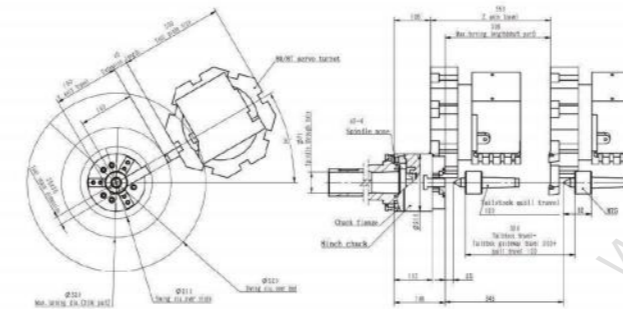


Integral bed, stepped roller guide arrangement

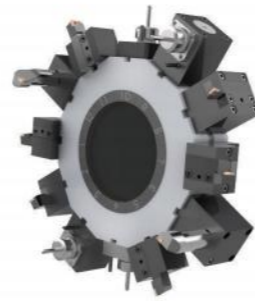
- Spindle bearing adopts high rigidity ROBUST structure
- High rigidity tailstock, shaft processing expert within 300mm
- Excellent chip removal performance, optional side and rear chip removal
- Green environmental protection design concept, independent collection of waste oil
- Servo/power turret can be configured

▲ Change due to different configurations. "*" As a selection.

Chuck size	8 inch/10 inch*	Main motor power	7.5 kW	Tailstock type	Hydraulic
Swing diameter over bed	Ø520mm	Clamping	Hydraulic	Tailstock quill diameter	Ø85mm
Swing diameter over slide	Ø210mm	X/Z axis rapid travel speed	24/24m/min	Tailstock quill travel	120mm
Max turning length ▲	300mm	X/Z servo motor torque	10/10N.m	Tailstock quill taper	MT5
X/Z axis travel	190/ 350 mm	Tools	8T-80servo turret/12T-80powered turret*	Coolant pump power	480W
Bar through hole	Ø50 mm	Tool shank dimension	25X25mm	Total power consumption ▲	16KVA
Spindle speed ▲	4000 r/min	Boring tool size	Ø32mm	Overall dimensions(L*W*H)	2010X1810X1735mm
Spindle nose	A2-6	Repeatability accuracy X/Z axis	0.004/0.005mm	Weight	3250kg



GLT-505

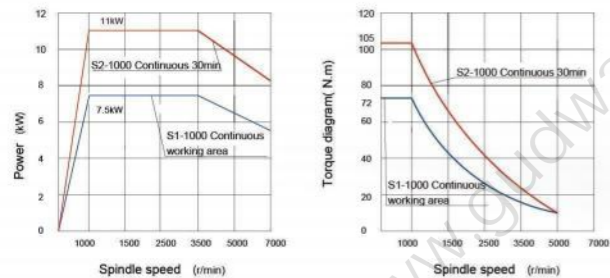
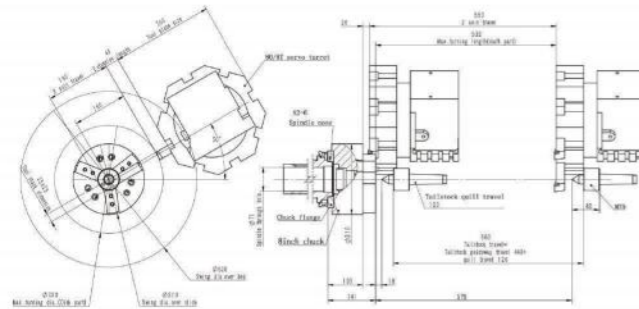


Integral bed, stepped roller guide arrangement

- Spindle bearing adopts high rigidity ROBUST structure
- High rigidity tailstock, shaft processing expert within 500, optional servo tailstock
- Servo/power turret can be configured
- Excellent chip removal performance, optional side and rear chip removal
- Green environmental protection design, independent collection of waste oil

▲ Change due to different configurations. "*" As a selection.

Chuck size	8 inch/10 inch*	Main motor power	7.5 kW	Tailstock type	Hydraulic
Swing diameter over bed	Ø520mm	Clamping	Hydraulic	Tailstock quill diameter	Ø85mm
Swing diameter over slide	Ø210mm	X/Z axis rapid travel speed	24/24m/min	Tailstock quill travel	120mm
Max turning length ▲	500mm	X/Z servo motor torque	10/10N.m	Tailstock quill taper	MT5
X/Z axis travel	190/ 550 mm	Tools	8T-80servo turret/12T-80powered turret*	Coolant pump power	480W
Bar through hole	Ø50 mm	Tool shank dimension	25X25mm	Total power consumption ▲	16KVA
Spindle speed ▲	4000 r/min	Boring tool size	Ø32mm	Overall dimensions(L*W*H)	2525X1810X1890mm
Spindle nose	A2-6	Repeatability accuracy X/Z axis	0.004/0.005mm	Weight	3500kg



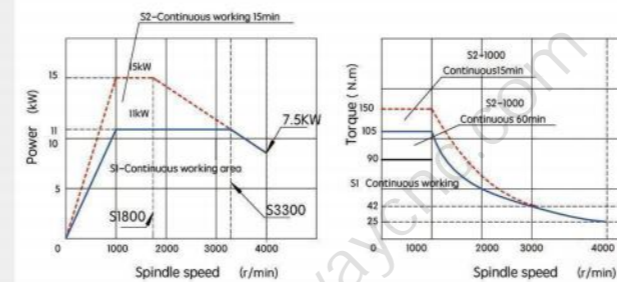
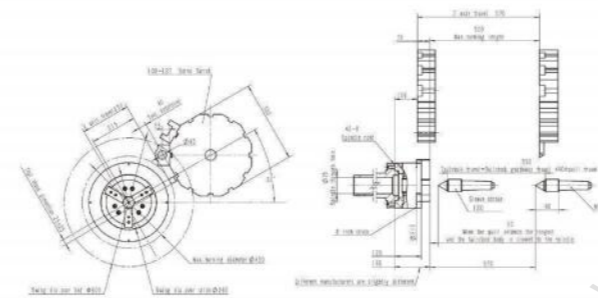
GLT-605

Wide section integral bed, stepped large-span roller guide arrangement

- Spindle bearing adopts high rigidity ROBUST structure
- Equipped with high rigid turret, servo/power turret can be configured at will
- High rigidity tailstock, optional servo tailstock
- Bidirectional pre-stretching structure, high repeated positioning accuracy
- Superior heavy turning performance

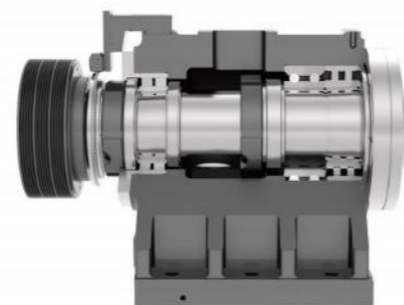
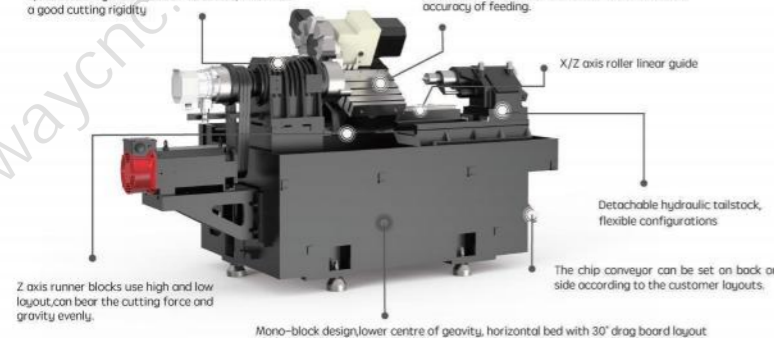
▲ Change due to different configurations. "*" As a selection.

Chuck size	8 inch/10 inch*	Main motor power	11 kW	Tailstock type	Hydraulic/Servo*
Swing diameter over bed	Ø600mm	Clamping	Hydraulic	Tailstock quill diameter	Ø85mm
Swing diameter over slide	Ø260mm	X/Z axis rapid travel speed	24/24m/min	Tailstock quill travel	120mm
Max turning length ▲	500mm	X/Z servo motor torque	18/18N.m	Tailstock quill taper	MT5
X/Z axis travel	230/ 510 mm	Tools	12T-100servo turret/12T-100powered turret*	Coolant pump power	480W
Bar through hole	Ø75 mm	Tool shank dimension	25X25mm	Total power consumption ▲	23KVA
Spindle speed ▲	4000 r/min	Boring tool size	Ø40mm	Overall dimensions(L*W*H)	2700X2050X1850mm
Spindle nose	A2-8	Repeatability accuracy X/Z axis	0.004/0.005mm	Weight	4200kg

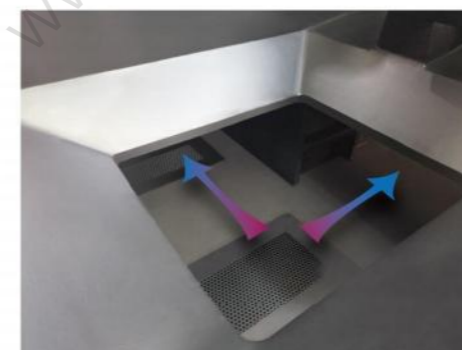


The headstock adopt the heat radiation rib to reduce the influence of thermal deformation. The spindle bearings use ROBUST structure, which has a good cutting rigidity.

X axis ball screw adopts the pretension structure design to reduce the influence of cold and hot states on cutting and greatly improved the positioning accuracy of feeding.



Spindle components



X/Z 向丝杆均采用预拉伸结构，减小冷热变形，极大提高切削精度。大跨距阶梯式滚柱导轨布置。

排屑方式灵活，可任意选配侧、后排屑器。



GLT-755

■ The overall inclination of the bed is 30 ° large-span roller guide way

- Spindle bearing adopts high rigidity ROBUST structure
- Large size servo turret, standard configuration 32 tool shank, Φ 50 ID tool holder
- Suitable of disk parts processing within Φ 500
- High rigidity mandrel-type tailstock, with the center bearing embedded in the sleeve
- Floor separated water tank and chip conveyor, convenient for cleaning

▲ Change due to different configurations, "*" As a selection.

Chuck size	10 inch/12 inch*	Main motor power	15 kW	Tailstock type	Hydraulic/Servo*
Swing diameter over bed	Φ 650mm	Clamping	Hydraulic	Tailstock quill diameter	Φ 130mm
Swing diameter over slide	Φ 400mm	X/Z axis rapid travel speed	24/24m/min	Tailstock quill travel	150mm
Max turning length ▲	500mm	X/Z servo motor torque	18/18N.m	Tailstock quill taper	MT5
X/Z axis travel	280/ 600 mm	Tools	12T-125servo turret/12T-125powered turret*	Coolant pump power	480W
Bar through hole	Φ 92 mm	Tool shank dimension	32X32mm	Total power consumption ▲	27KVA
Spindle speed ▲	3000 r/min	Boring tool size	Φ 32mm	Overall dimensions(L*W*H)	4400X2100X1900mm
Spindle nose	A2-8	Repeatability accuracy X/Z axis	0.004/0.005mm	Weight	4900kg



GLT-758

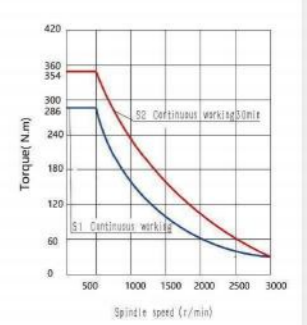
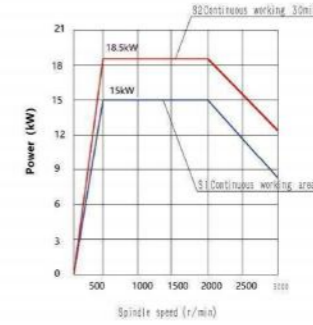
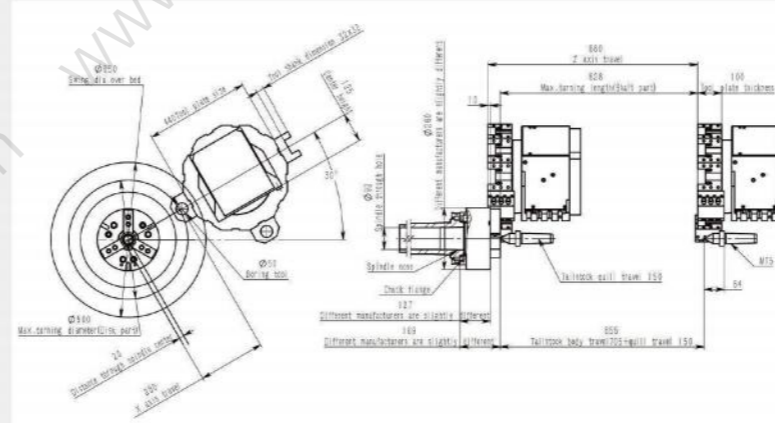
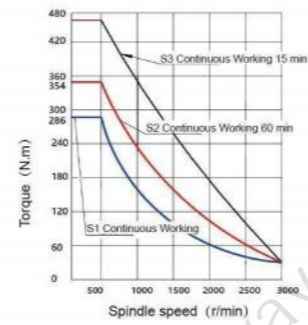
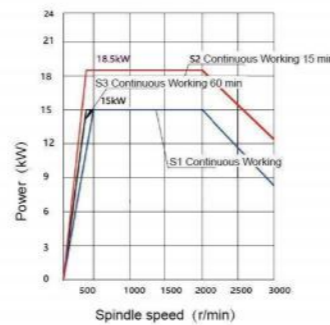
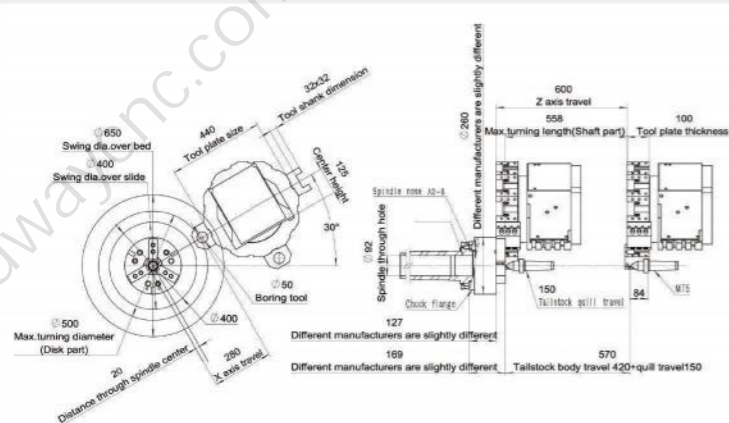
■ The overall inclination of the bed is 30 ° large-span roller guide way

- Spindle bearing adopts high rigidity ROBUST structure
- Optional servo tailstock and hydraulic center frame
- High-rigid mandrel tailstock, shaft processing expert within 800
- Floor separated water tank and chip conveyor, convenient for cleaning
- Superior heavy turning performance



▲ Change due to different configurations, "*" As a selection.

Chuck size	10 inch/12 inch*	Main motor power	15 kW	Tailstock type	Hydraulic/Servo*
Swing diameter over bed	Φ 650mm	Clamping	Hydraulic	Tailstock quill diameter	Φ 130mm
Swing diameter over slide	Φ 400mm	X/Z axis rapid travel speed	24/24m/min	Tailstock quill travel	150mm
Max turning length ▲	800mm	X/Z servo motor torque	18/18N.m	Tailstock quill taper	MT5
X/Z axis travel	280/ 860 mm	Tools	12T-125servo turret/12T-125powered turret*	Coolant pump power	480W
Bar through hole	Φ 92 mm	Tool shank dimension	32X32mm	Total power consumption ▲	27KVA
Spindle speed ▲	3000 r/min	Boring tool size	Φ 50mm	Overall dimensions(L*W*H)	4630X2190X1800mm
Spindle nose	A2-8	Repeatability accuracy X/Z axis	0.004/0.005mm	Weight	5500kg



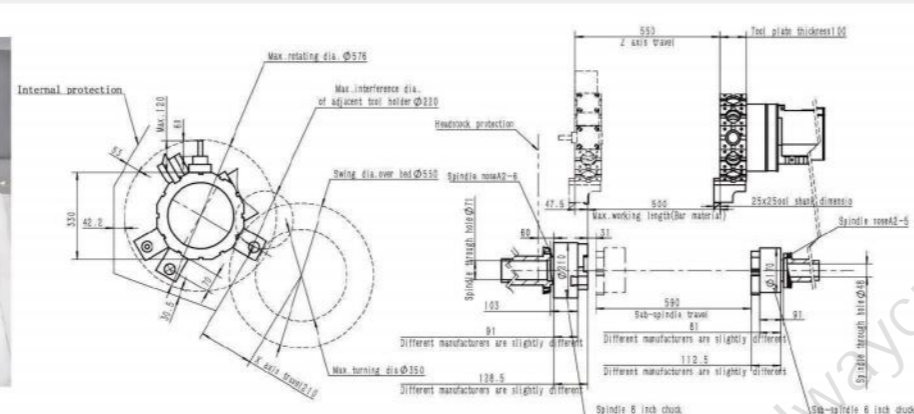
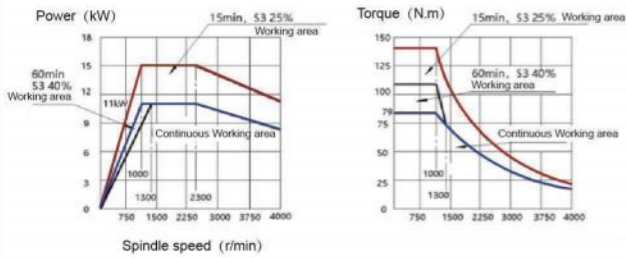
GLT-505D

15° overall inclined bed with large guide rail span

- Built-in motor spindle type auxiliary spindle, realizing accurate docking of main and auxiliary spindles
- High-precision angular contact ball bearing is adopted for the spindle bearing, with high speed and precision
- Cylinder reinforcement, high seismic resistance, shock absorption
- 12-station power turret to meet turn-milling complex processing
- Floor separated water tank, easy to clean

▲ Change due to different configurations.*** As a selection.

Swing diameter over bed	Ø550mm	Chuck size	8 inch	Tools	12T-100 powered turret
Swing diameter over slide	Ø390mm	Spindle speed ▲	4000r/min	Tool shank dimension	25X25mm
Max turning length ▲	500mm	Spindle nose	A2-6	Boring tool size	Ø40mm
Clamping	Hydraulic	Spindle through hole	Ø71mm	Powered turret drive motor power	3.7/5.5 kW
X/Z axis travel	210/ 550 mm	Chuck size	6 inch	Powered turret drive motor torque	24 N.m
X/Z axis rapid travel speed	24/24/min	Spindle speed ▲	5000r/min	Total power consumption ▲	46KVA
X/Z servo motor torque	20/20 N.m	Spindle nose	A2-5	Overall dimensions(L*W*H)	3148x1926x1860mm
Repeatability accuracy X/Z axis	0.003/0.005	Sub-spindle	Spindle through hole Ø48mm	Weight	3850kg



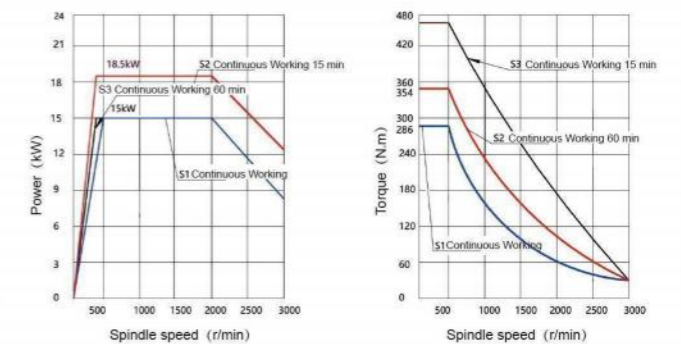
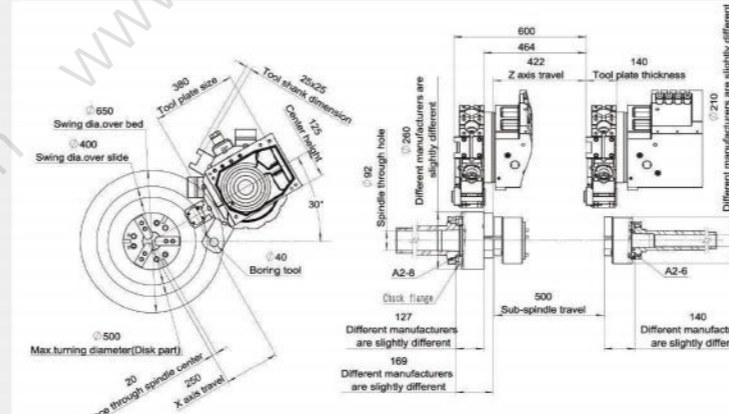
GLT-755D

Wide section integral bed, large span guide rail layout

- Spindle bearing adopts high rigidity ROBUST structure, high rigidity
- Built-in motor spindle type auxiliary spindle, realizing accurate docking of main and auxiliary spindles
- High precision, flexible and adjustable action
- Floor separated water tank, easy to clean
- 12-station power turret, capable of processing complex parts in multiple processes

▲ Change due to different configurations.*** As a selection.

Swing diameter over bed	Ø650mm	Chuck size	10 inch	Tools	12T-125 powered turret
Swing diameter over slide	Ø400mm	Spindle speed ▲	3000r/min	Tool shank dimension	25X25mm
Max turning length ▲	350mm	Spindle nose	A2-8	Boring tool size	Ø40mm
Clamping	Hydraulic	Spindle through hole	Ø92mm	Powered turret drive motor power	3.7/5.5 kW
X/Z axis travel	250/ 420 mm	Chuck size	8 inch	Powered turret drive motor torque	24 N.m
X/Z axis rapid travel speed	24/24/min	Spindle speed ▲	4000r/min	Total power consumption ▲	51KVA
X/Z servo motor torque	20/20 N.m	Spindle nose	A2-6	Overall dimensions(L*W*H)	4400x2100x1900mm
Repeatability accuracy X/Z axis	0.004/0.005	Sub-spindle	Spindle through hole Ø56mm	Weight	5050kg



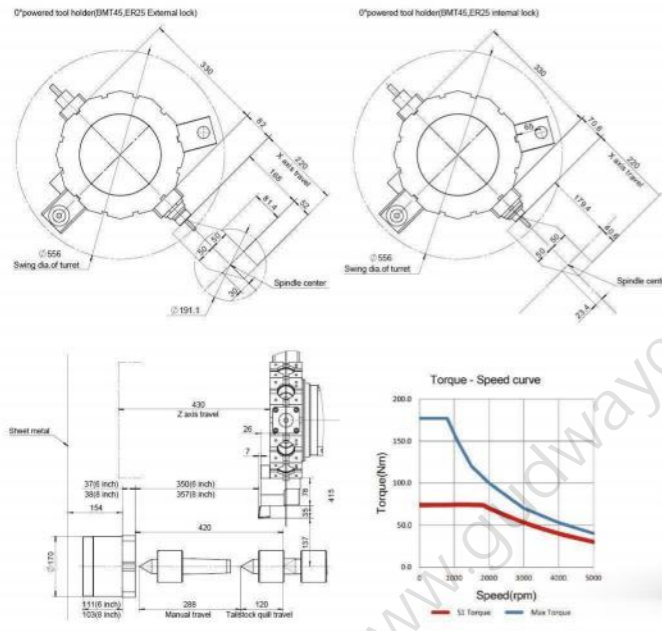
GLT-453YF

Composite Y-axis layout structure

- Arrangement of large-span roller guide rail
- High-precision oil-cooled synchronous built-in motor spindle
- Equipped with high rigid power turret and Y-axis interpolation to perfectly realize composite machining
- All axis lead screws adopt pre-stretching structure to improve the accuracy of repeated positioning
- High-precision hydraulic tailstock, tailstock guide rail removable

▲ Change due to different configurations.** As a selection.

Chuck size 6 inch/8 inch*		Spindle	Powered turret (12T)
Swing diameter over bed	Ø620mm	Spindle speed ▲	5000 r/min
Swing diameter over slide	Ø350mm	Spindle nose	A2-6
Max turning diameter	DiscØ270mm	Spindle through hole	Ø56 mm
Max turning length ▲	350mm	Tailstock	
Bar through hole	Ø45 mm	Tailstock type	Hydraulic
X/Z/Y/C axis travel	220mm/385mm/±50 ▲/360°	Tailstock quill taper	MT5
X/Z/Y axis rapid travel speed	24/24/10m/min	Tailstock quill diameter	Ø85mm
Repeatability accuracy X/Z/Y axis	0.003/0.005/0.005 mm	Tailstock quill travel	120mm
		Weight	3880kg



GLT-505YF

Composite Y-axis layout structure

- Modular design, standard servo tailstock, optional auxiliary spindle
- High-precision spindle bearing structure
- Realize the accurate docking of main and auxiliary spindles and carry out back turning
- 12-position high rigid power turret, fast tool change
- Floor separated water tank, easy to clean

▲ Change due to different configurations.** As a selection.

Chuck size 8 inch		Spindle	Powered turret
Swing diameter over bed	Ø550mm	Spindle speed ▲	4000 r/min
Swing diameter over slide	Ø450mm	Spindle nose	A2-6
Max turning diameter	DiscØ340mm	Spindle through hole	Ø71 mm
Max turning length ▲	500mm	Sub-spindle* (optional)	
Bar through hole	Ø50 mm	Spindle speed	4000 r/min
X/Z/Y/C axis travel	220mm/600mm/±50 ▲/360°	Spindle nose	A2-5
X/Z/Y axis rapid travel speed	24/24/10m/min	Spindle through hole	Ø48mm
Repeatability accuracy X/Z/Y axis	0.003/0.005/0.005 mm	Travel	550mm
		Weight	4500kg

