董氏机床
DONGS SOLUTIONS

TCK-800 (conventional turret pure Turning)

售前技术资料
Pre sales technical data

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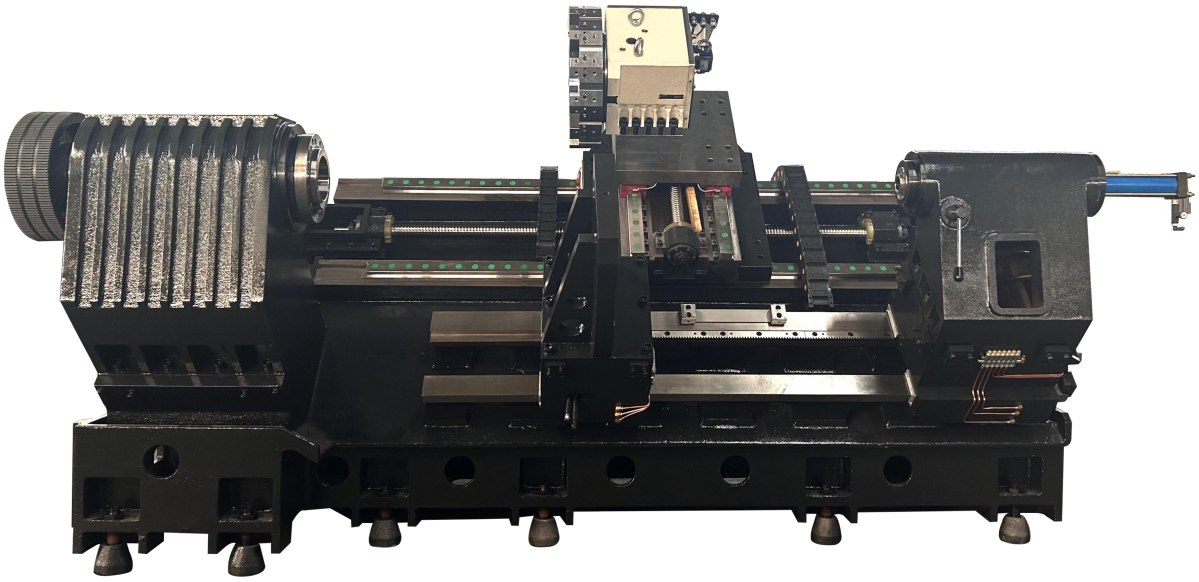
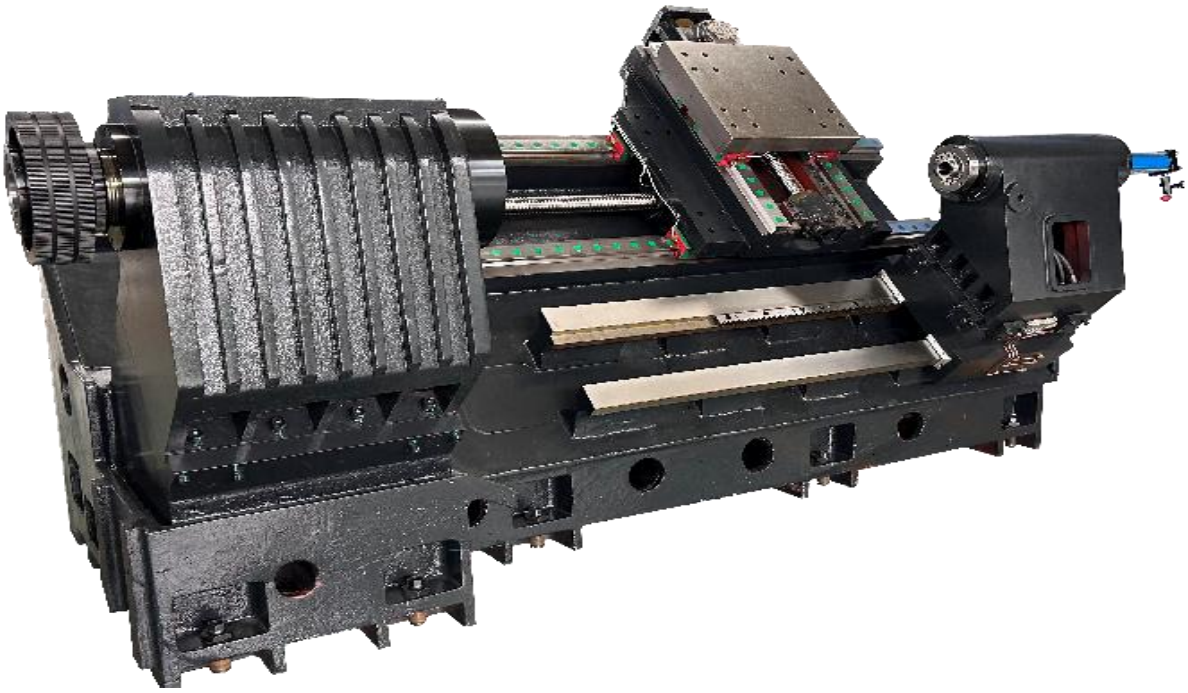
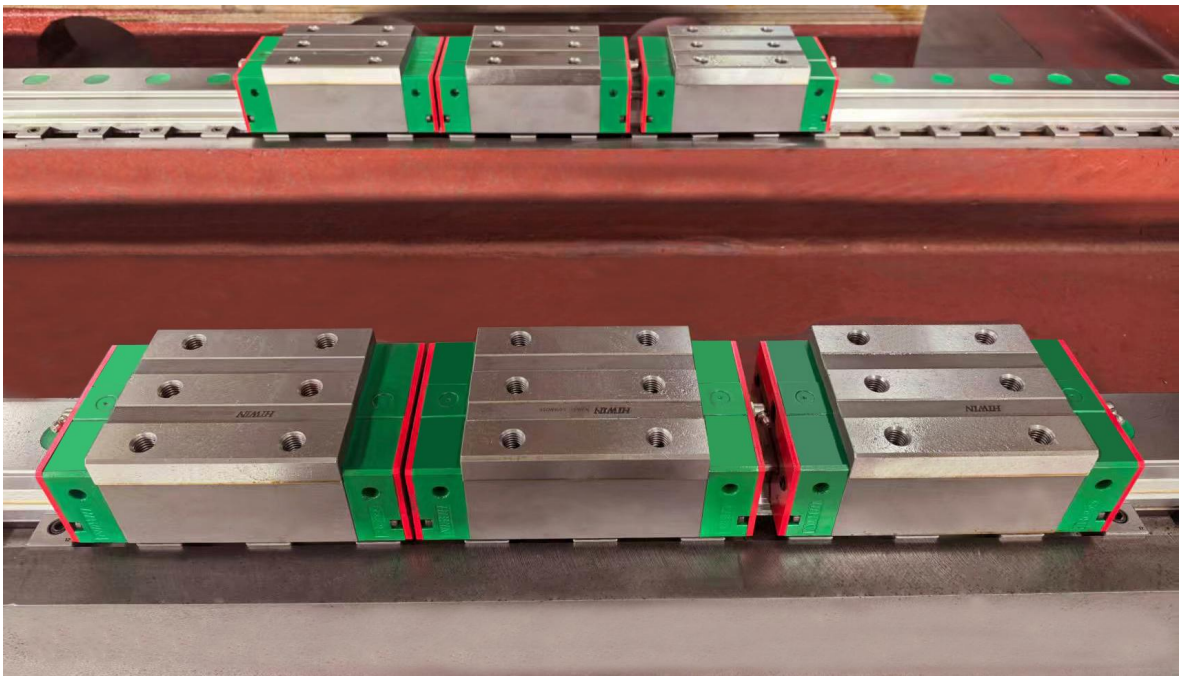
The TCK800 series adopts a 45° inclined bed integral casting, high-strength cast iron casting, finite element analysis to achieve the best arrangement of reinforcement ribs, high-strength cast iron material, resin sand molding, sufficient secondary aging and natural aging, so that the basic parts of the machine tool have high rigidity and ensure the stability of the long-term use of the machine tool.



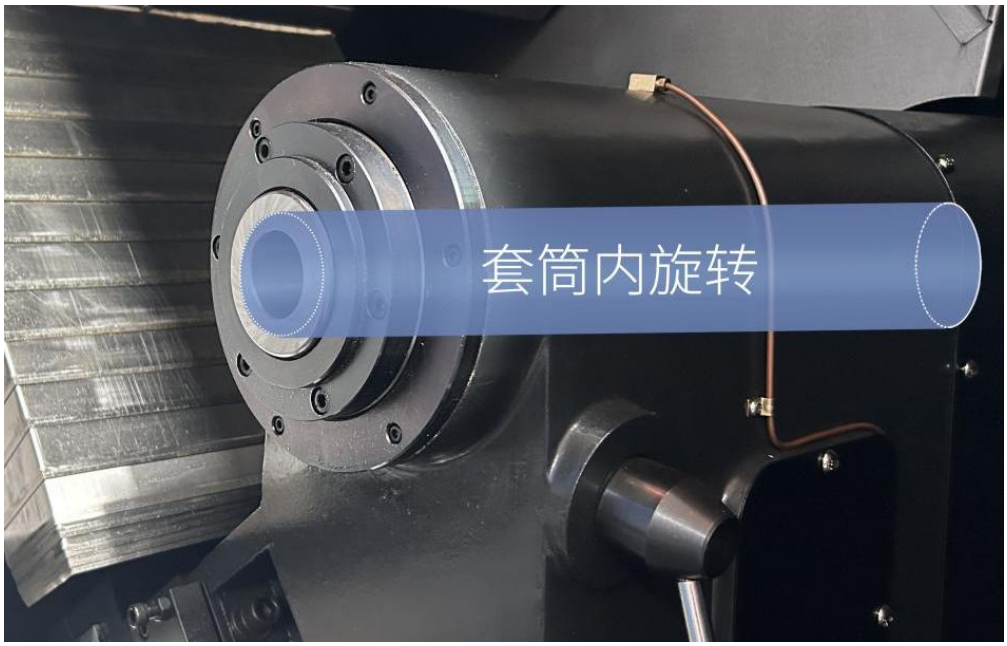


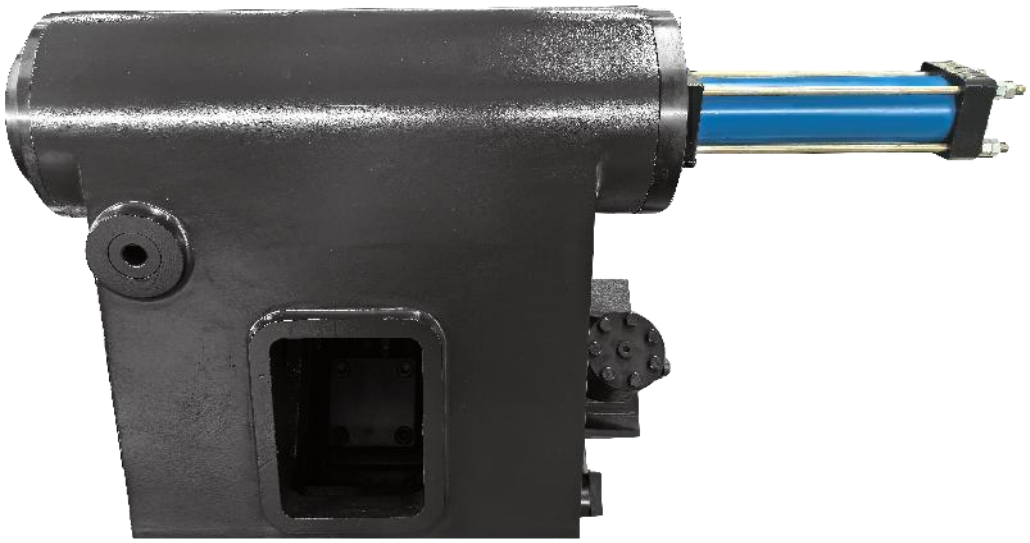
1. Key technologies

(1) Both the X and Z axes use high-precision, high-load capacity, and high-reliability linear rolling guides. The Z axis adopts a 6-slider design to greatly increase rigidity. Combined with automatic forced lubrication, it reduces the friction resistance of the feed movement and improves the accuracy and life of the machine tool. The feed speed and positioning accuracy of the machine tool are higher.



(2) The tailstock is programmable, the sleeve is an internal rotating structure, and the use of a pin can greatly improve the cutting stability and accuracy. The tailstock body is locked by hydraulic automatic locking, and the overall movement is standard hydraulic automatic, and servo motor drive is optional.

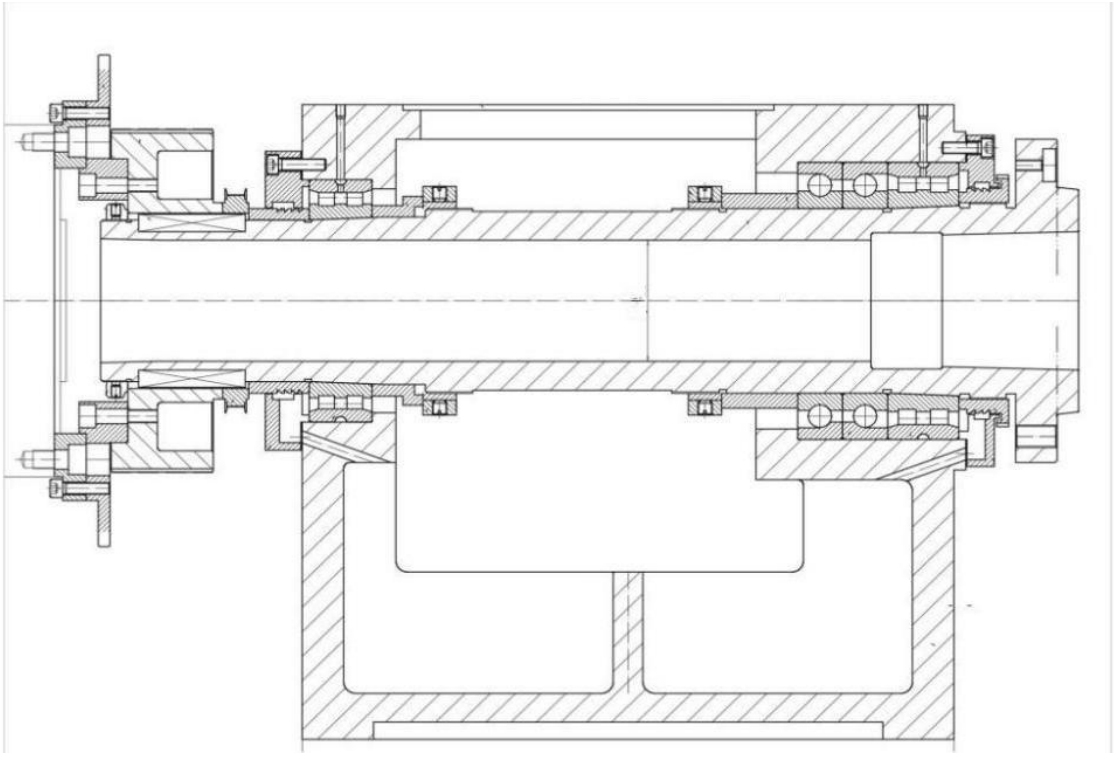




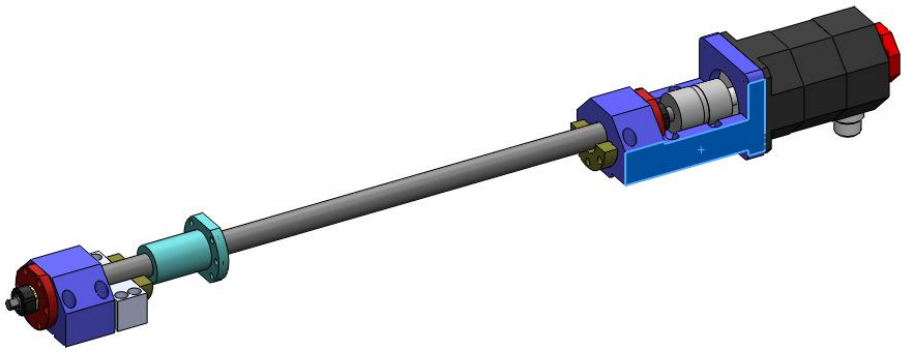
2.Structure description

(1) The spindle adopts a combination of large-diameter precision

angular contact thrust ball bearings and double-row cylindrical roller bearings. The high-power and high-torque servo motor drives the spindle, which has excellent rigidity and high torque at low speed.



(2) The X and Z axis ball screws adopt a pre-stretched internal circulation nut structure, and the screw support bearings use special ball bearings with a contact angle of 60°, which can withstand higher axial loads and ensure the rigidity and precision of the feed transmission device.



(3) The electrical unit cabinet of the machine tool has good sealing performance and is equipped with an electrical cabinet air conditioner to ensure that the CNC system works normally in a high temperature and high humidity environment of the machine tool.

(4) A side-mounted chain plate chip conveyor is used. The operation of the chip conveyor is programmable and can be pushed in from the front of the machine tool, making it easy to adjust.

In addition, the chip conveyor can be equipped with an oil-water separation mechanism, which can separate the lubricating oil in the cutting fluid, reduce the generation of oil mist, enhance the cooling effect of the coolant on the tool, and extend the service life of the tool.

1. The machine tool is equipped with a water gun to clean iron chips.

2. The chip conveyor is arranged reasonably and does not interfere with the machine bed.

(5) Hydraulic system

The hydraulic system uses Taiwan hydraulic components; the oil tank is fixed on the back of the bed, and each valve group and corresponding pressure gauge are installed on the left and right front covers of the machine tool to facilitate the observation and adjustment of the pressure of each working circuit.

(6) The machine tool focuses on the design of edge technology and has reliable protection. During strong cutting and high-pressure coolant spraying, no iron chips or coolant splashes out of the machine tool.

(7) The clamping and releasing of the hydraulic chuck can be controlled by foot, which is convenient and quick.

(8) The machine tool has a novel appearance design and convenient panel operation. Combined with its high power, high precision, high performance and other characteristics, this series of machine tools is undoubtedly the most powerful product among similar models.

3. Technical Description

Technical specifications		unit	TCK800		
Processing range	Maximum swing diameter on the bed	mm	960		
	Maximum swing diameter on saddle	mm	650		
	Maximum turning diameter	mm	620		
	Center distance	mm	1100/1600/2100/3100/4100/5100		
Spindle	Spindle nose specification	mm	A2-11	A2-15	
	Spindle diameter	mm	132	181	220
	Spindle through hole diameter	mm	116	166	220

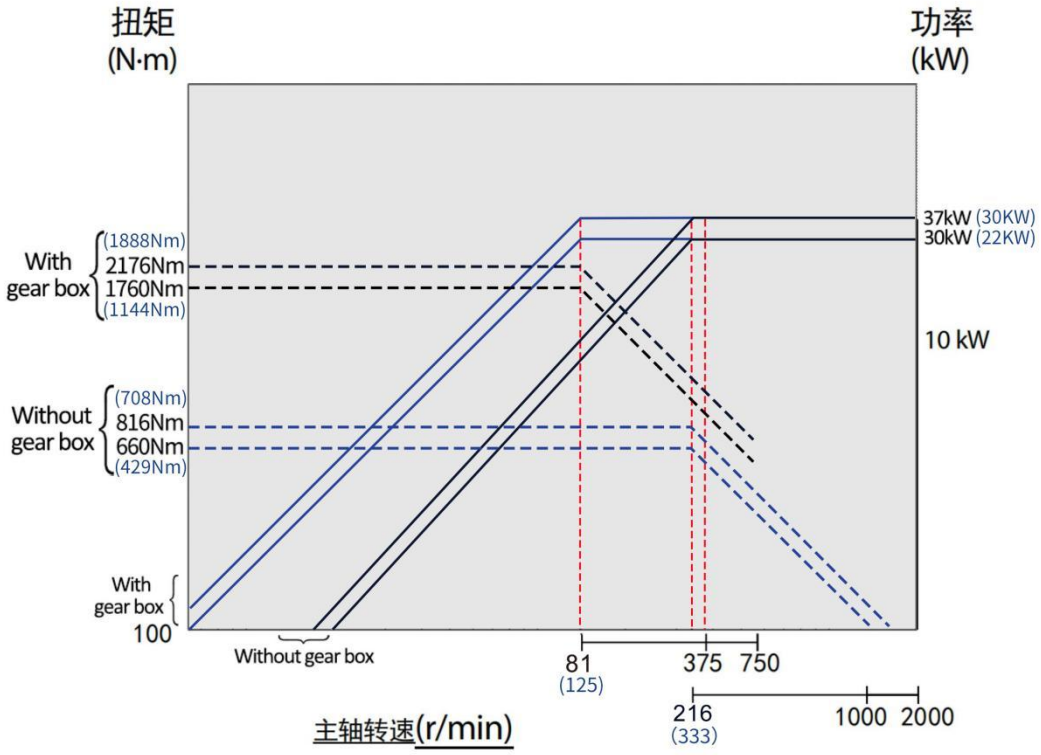
	Spindle speed	r/min	1800	1600	1200
	Main motor power	K	30		
Fixture	Chack size	inch	15/18/21/24		
Tailstock	Tailstock sleeve diameter	mm	1100/1600MT5 ， 2100 and above MT6		
	Sleeve stroke	mm	180		
	Tailstock movement form	/	Hydraulic programmable		
Saddle	Tilt Angle	DEG	45°		
	X axis travel	mm	380		
	Z axis travel	mm	1090/1590/2090/3090/4090/5090		
	Fast moving speed X/Z	m/min	16/16		
	Servo motor X/Z	KW	2.5/2.5		
Dota	Turret Type	Servo Hydraulics	12-station servo hydraulic turret		
	Tool change time	S	0.5		
	Number of tool positions	/	12 stations		
	Cutter diameter	mm	480		
	Tool size (turning/boring)	mm	32×32/50		
Center distance	Dimensions	Net weight/gross weight			
1100	4000X2300X2400mm (chip conveyor + 1400mm)	7600/7900KG			
1600	4700X2650X2400mm (chip conveyor + 1400mm)	8800/9500KG			
2100	5000X2600X2400mm (chip conveyor + 1400mm)	9800/10500KG			

3100	6400X3000X2600mm (chip conveyor + 1400mm)	12500/13300KG
4100	7500X2750X2600mm (chip conveyor + 1400mm)	14800/15800KG
5100	8700X2750X2600mm (chip conveyor + 1400mm)	17000/18000KG

Main accuracy

TCK700			
X axis /mm linear guide		Positioning accuracy	0.007
		Re-Positioning accuracy	0.004
Y axis /mm box guideway		Positioning accuracy	0.012
		Re-Positioning accuracy	0.008
C axis	105 bore	Positioning accuracy	24″
		Re-Positioning accuracy	10″
	132 bore	Positioning accuracy	28″
		Re-Positioning accuracy	12″
	182 bore	Positioning accuracy	32″
		Re-Positioning accuracy	15″
Z axis /mm	TCK700-1000 linear guide	Positioning accuracy	0.007
		Re-Positioning accuracy	0.005
	TCK700-1500 linear guide	Positioning accuracy	0.008
		Re-Positioning accuracy	0.006
	TCK700-2000 linear guide	Positioning accuracy	0.012
		Re-Positioning accuracy	0.008
	TCK700-3000 linear guide	Positioning accuracy	0.018
		Re-Positioning accuracy	0.008
	TCK700-4000 linear guide	Positioning accuracy	0.02
		Re-Positioning accuracy	0.01
	TCK700-5000box guideway	Positioning accuracy	0.024
		Re-Positioning accuracy	0.01

Main motor output power diagram



CNC system

brand	Drive position	Motor Model	Torque	Rated Power
FANUC	X-axis motor	β22/2000rpm	20-45Nm	2.5KW
	Z-axis motor	β22/2000rpm	20-45Nm	2.5KW
CTB	Spindle motor	CTB/1500-6000rpm	191-235.6Nm	30KW

4. Standard configuration

name		Specification	Manufacturer
CNC system		tf	FANUC
Servo feed motor		X-2.5KW Z-2.5KW	
Spindle motor		30KW	CTB
Spindle bearings	Top 4	NN3032K NN3028	Germany NTUS
A2-11-105	After 2	7032AC	
Ball screw bearings	X-axis	40TAC90B	Japan NACHI

	Z-axis	40TAC90B	
Ball screw pair	X-axis	R50-08B2-FWC-C3	Japan THK
	Z-axis	R63-12B2-FWC-C4	
X/Z axis linear guide		55 Roller Guide Rail	Taiwan Hiwin
12-station turret		Servo Hydraulics	Taiwan Diamond Heart
Hydraulic chuck		12/15/18/21/24 inch hollow	Taiwan HARDFORD
Hydraulic rotary cylinder		Hollow	
Hydraulic station		2.2kw	Taiwan ZP
Cooling pump		750W 50M head	VISEN
Automatic lubrication device		1.5L tailstock + 2L XZ axis	GOLDKA
		1.5L center frame	
Temperature and humidity air conditioner		500W	Fly together
Chip conveyor and chip collection car			Domestic famous brands

5. Select the configuration table

Optional Configuration	
Hydraulic center stand	C-type self-centering
Power turret	BMT65
Servo programmable tailstock	Servo motor control precise positioning
Sub-spindle	A2-6/A2-8
CNC system (domestic)	Guangzhou CNC/Wuhan Huazhong/Beijing Kaiendi/Taiwan Xindai
CNC system (imported)	Siemens/Mitsubishi

6. List of accessories

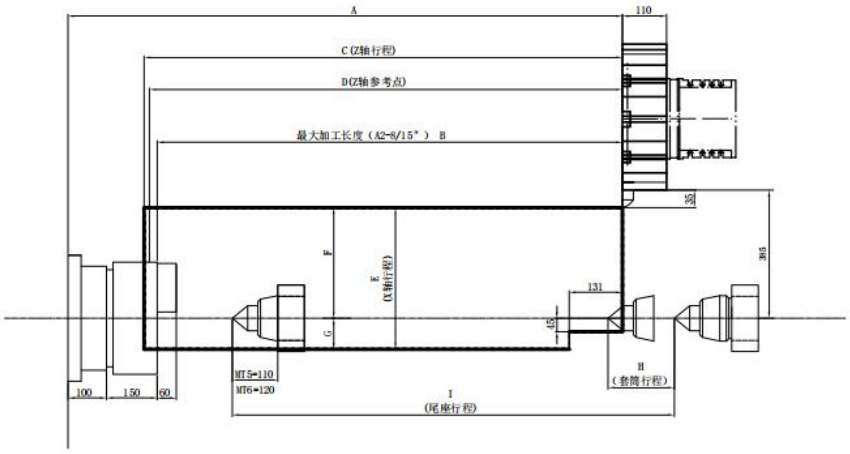
name	model	quantity	Remark
tool	Hexagonal Tool Box	1 set	
Shroud	Cone	1 set	
Hydraulic chuck wrench	Sleeve	1 set	
End knife seat		2	
Boring tool holder		2	
water gun		1 set	

7. List of random materials

Serial number	name	Specification or mark	quantity	Remark
1	Mechanical Instructions		1 set	Mechanical, electrical and hydraulic combined volume
2	Certificate of Compliance		1 volume	
3	Machine Tool Packing List		1 volume	
4	System Parameters Manual		1 volume	
5	System Operation Manual		1 volume	

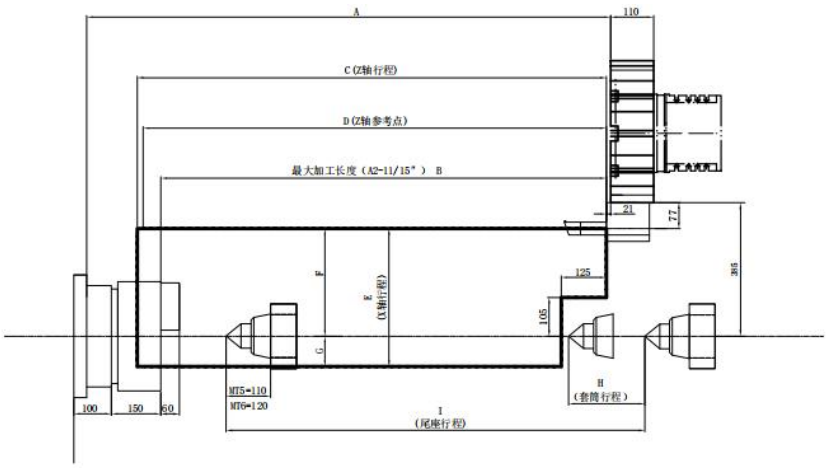
8. Processing itinerary diagram

Outer circle machining stroke diagram



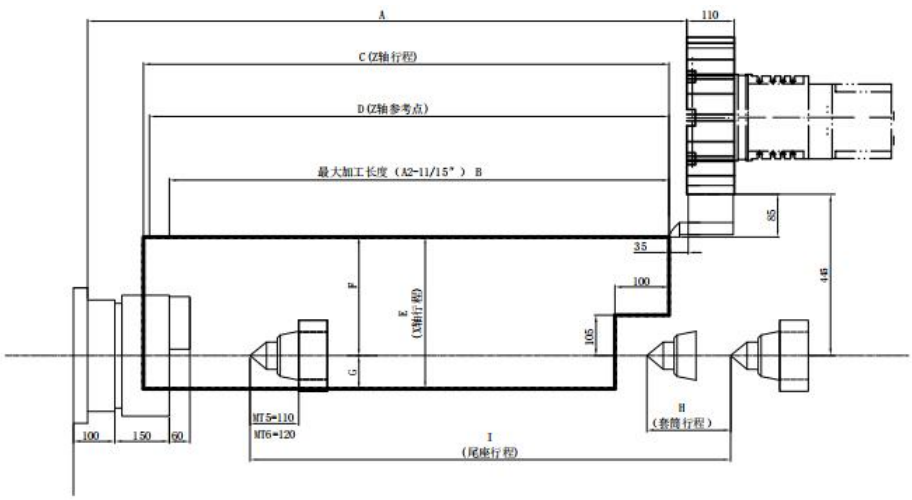
	A	B	C	D	E	F	G	H	I	最大回转	溜板回转
TCK800D-1000	1240	990	1090	1080	380	310	70	200	1100	960	650
TCK800D-1500	1740	1490	1590	1580	380	310	70	200	1600	960	650
TCK800D-2000	2240	1990	2090	2080	380	310	70	200	2100	960	650
TCK800D-3000	3240	2990	3090	3080	380	310	70	200	3100	960	650
TCK800D-4000	4240	3990	4090	4080	380	310	70	200	4100	960	650
TCK800D-5000	5240	4990	5090	5080	380	310	70	200	5100	960	650

Inner circle machining stroke diagram



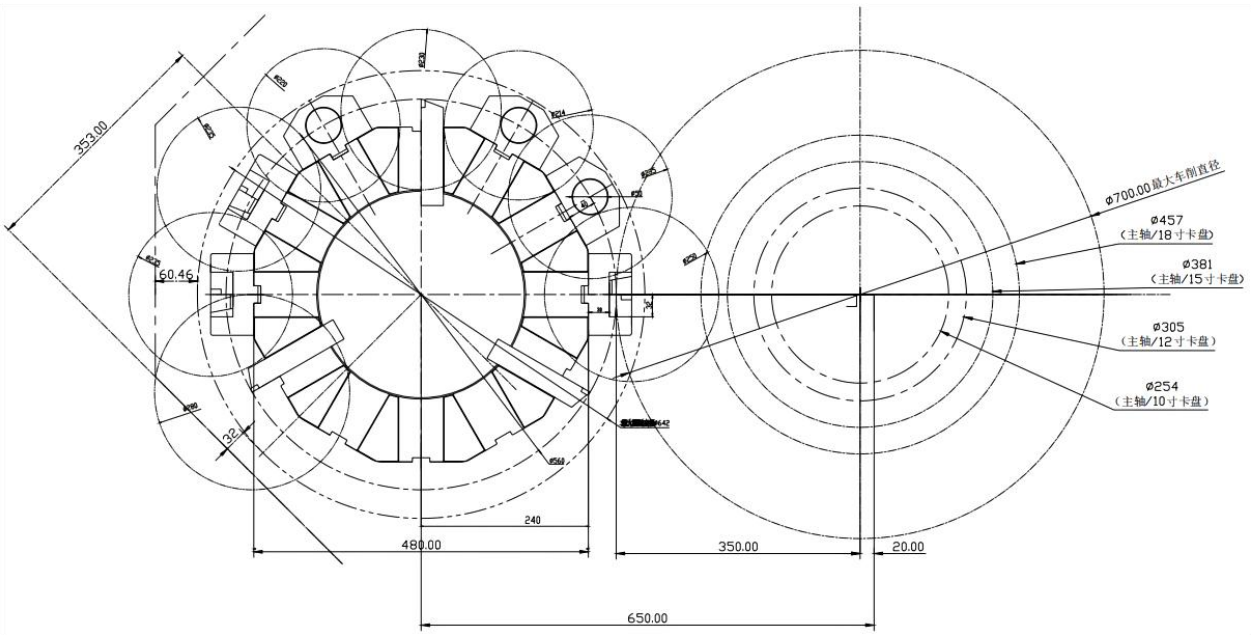
	A	B	C	D	E	F	G	H	I	最大回转	溜板回转
TCK800D-1000	1240	970	1090	1080	380	365	15	200	1100	960	650
TCK800D-1500	1740	1470	1590	1580	380	365	15	200	1600	960	650
TCK800D-2000	2240	1970	2090	2080	380	365	15	200	2100	960	650
TCK800D-3000	3240	2970	3090	3080	380	365	15	200	3100	960	650
TCK800D-4000	4240	3970	4090	4080	380	365	15	200	4100	960	650
TCK800D-5000	5240	4970	5090	5080	380	365	15	200	5100	960	650

End face machining stroke diagram



	A	B	C	D	E	F	G	H	I	最大回转	溜板回转
TCK800D-1000	1240	955	1090	1080	380	350	30	200	1100	960	650
TCK800D-1500	1740	1455	1590	1580	380	350	30	200	1600	960	650
TCK800D-2000	2240	1955	2090	2080	380	350	30	200	2100	960	650
TCK800D-3000	3240	2955	3090	3080	380	350	30	200	3100	960	650
TCK800D-4000	4240	3955	4090	4080	380	350	30	200	4100	960	650
TCK800D-5000	5240	4955	5090	5080	380	350	30	200	5100	960	650

9. Pure turret interference diagram



10. Recommended oil and grease table

Use Components	name	capacity	Brand	Manufacturer Recommendation	Maintenance recommendations
Hydraulic station	Hydraulic oil	80L	32# anti-wear hydraulic oil	PetroChina Kunlun	Replace it after 3 months of initial use; replace it every 6 months thereafter
Workpiece cooling	Cutting fluid	TCK800-1000=200L TCK800-1500=225L TCK800-2000=250L TCK800-3000=290L			Replace it 3 months after initial use;
Lubrication pump	Guideway oil	2L	T68# Guide rail lubricating oil	PetroChina Kunlun	When the oil level is below the minimum level line, add

11. Factory real shot