



## Main parameters of CK8450

Workpiece processing diameter	Φ50mm ~ Φ650mm
Workpiece length	500mm ~ 3000mm
Spindle speed	1rpm ~ 400rpm Sevro stepless
Spindle center height	1125mm
Spindle motor power	18.5KW ~ 22KW
Z axis motor power	3.2KW
X axis motor power	2.1KW
Z axis feed speed range	1 ~ 6000mm/min
X axis feed speed range	1 ~ 3000mm/min
Spindle center to guide distance	460mm
The distance from the top of the main shaft to the top of the tailstock	3000mm
Spindle center to pallet distance	445mm
Spindle end chuck diameter	Φ630
Spindle top	Mohs 8 No
Tailstock top	Mohs 5 No
Tailstock top bearing	3500Kg
Turret size(LxWxH)	320*40*60mm
Tool mounting dimensions	200*32*32mm
Machine size (LxWxH)	5750*2350*1950mm
Machine tool weight(G.W)	19000Kg



**Description of CK8450**

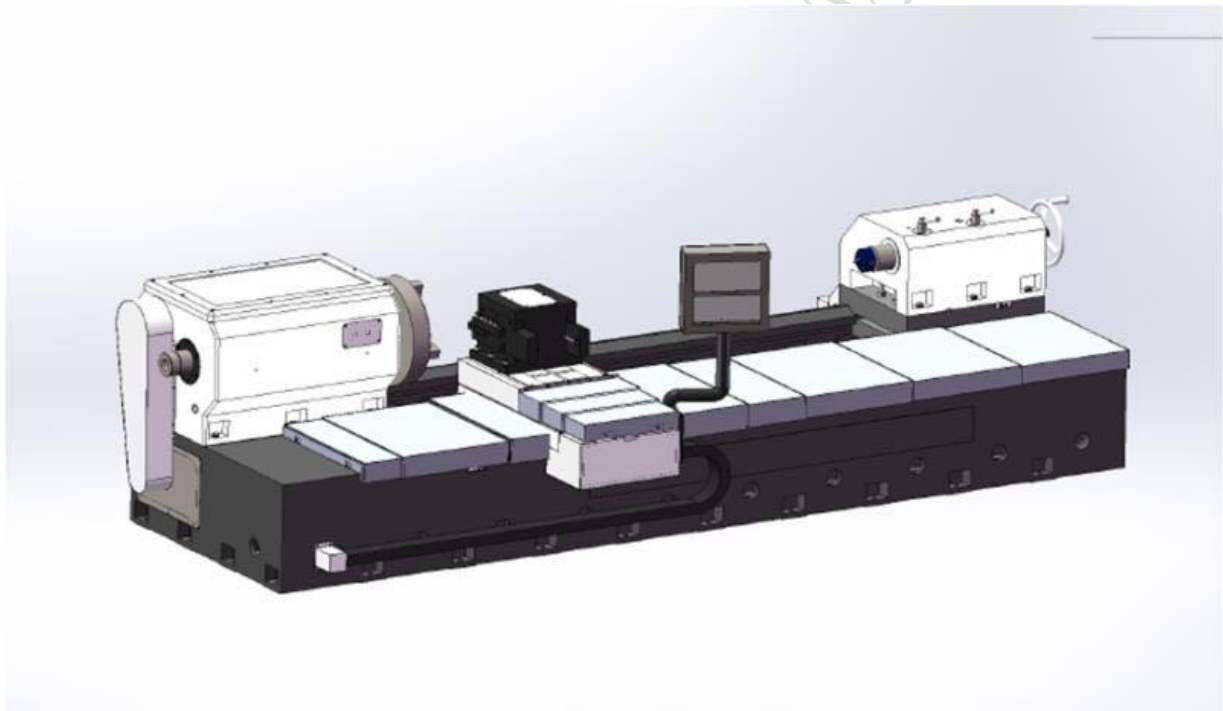
1. Machine use and scope of use

This machine is a customized CNC lathe. Suitable for high-speed steel, carbide or carbide tools for turning and repair of cast iron parts, steel parts and non-ferrous metal parts, cylindrical surfaces, outer curved surfaces, tapered surfaces, grooving, and various hole shapes.

2. Overall layout, composition and characteristics of machine tools

2.1 Overall layout and composition of machine tools

This machine adopts HT250 casting and layout of horizontal lathes. It consists of bed, headstock, tailstock, carriage, protective device, electronic control system and other functional components. See the figure below:



2.2 Main functions and features of the machine

The machine tool structure is advanced and reliable, and the technology is mature. It has a good appearance, perfect and reliable safety protection device. Reasonable material selection, excellent manufacturing, excellent performance, long precision for a long period, suitable for long-term, continuous, large-load processing; machine tool has a good static, dynamic, thermal stiffness, stable and reliable operation control, simple and smooth operation interface, beautiful, easy maintenance .

The large bed rails of the bed adopt V-shaped positioning guide rails, and the guide rail surface adopts high-frequency quenching. The main drive of the machine tool is driven by



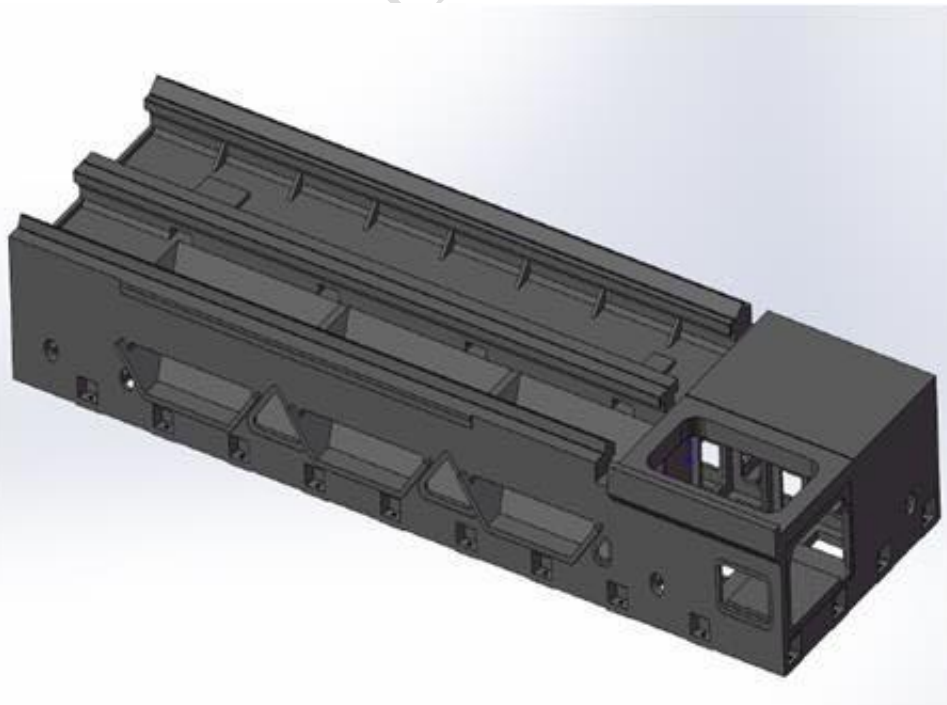
the 22KW servo motor. The spindle can be steplessly regulated within the range of 1 to 400r/min. The front and rear bearings of the main shaft are imported high-precision double-row roller bearings. The rigidity is good, the rotation accuracy is high, and adjustment and maintenance are convenient.

The machine is equipped with a SIMENES 828D control system. The main drive is driven by a servo motor. The longitudinal (Z axis) and transverse (X axis) are ball screw drives. Vertical and horizontal movements of the knife holder are driven by AC servo motor.

3.Main structure of machine tool

3.1. Lathe Bed

The lathe bed is the basic part of the machine. It is equipped with a headstock at the top of the left side, a rectangular parallel guide rail, two V-shaped guide rails on the lathe bed, a medium-frequency hardened guide rail for the turret guide rail, and a retractable protective cover for protection. The tailstock guide rail can be quenched by contact resistance. Hard, turret, tailstock mounted on the bed and can move longitudinally along its guide rails. A vertical rolling ball screw is installed in the middle of the carriage moving rail. There is a chip evacuation channel between the tailstock moving rails, and iron chips can be discharged to the ground through the channel. See the figure below:

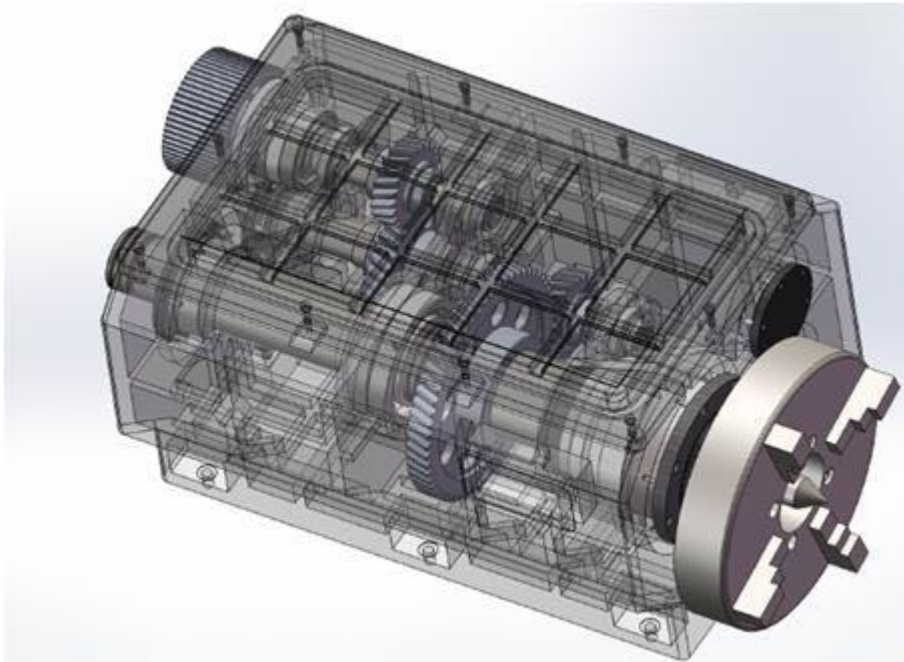


3.2. Headstock

The spindle drive mechanism uses a servo motor to connect the gears to drive the spindle drive so that the spindle can achieve stepless speed regulation of 1 to 400 r/min. Between



the spindle motor and the transmission mechanism, the belt is connected with a belt, and the power is transmitted to the faceplate through the mechanism transmission gear so that the faceplate reaches the specified torque. The main shaft consists of a faceplate, spindle bearings, and a spindle. The bearings of the main shaft adopt high-precision double-row centripetal short cylindrical roller bearings with adjustable radial clearance, so the main shaft rotates smoothly and with high precision. In addition, the headstock has a special lubrication mechanism to ensure that all lubrication points are fully lubricated. See the figure below:

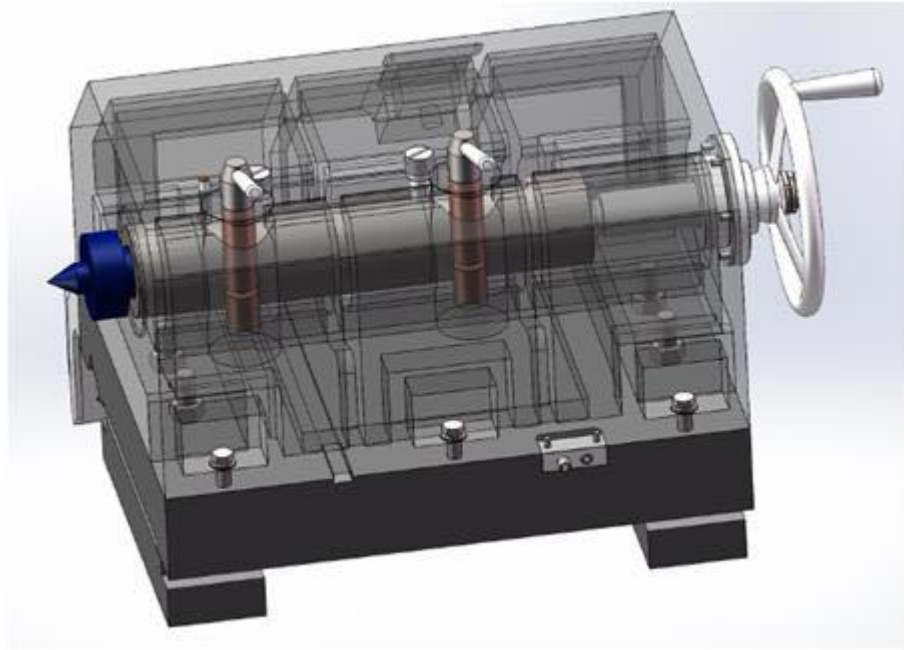


### 3.3 Tailstock

The tailstock is composed of an upper body and a lower body. The upper body has a tailstock spindle, a sleeve, and a spindle centerline adjustment mechanism. The lower body is equipped with a tailstock moving gear box and a tailstock positioning device. The tailstock is mounted on the two rails of the bed and can move longitudinally along the bed rails.

Tailstock spindle bearings use high-precision radial clearance adjustable double row radial short cylindrical roller bearings, installed in the sleeve.

Behind the tailstock spindle is mounted a disc spring that prevents damage to the mechanism due to thermal expansion of the workpiece. See the figure below:



### 3.4 Feed box

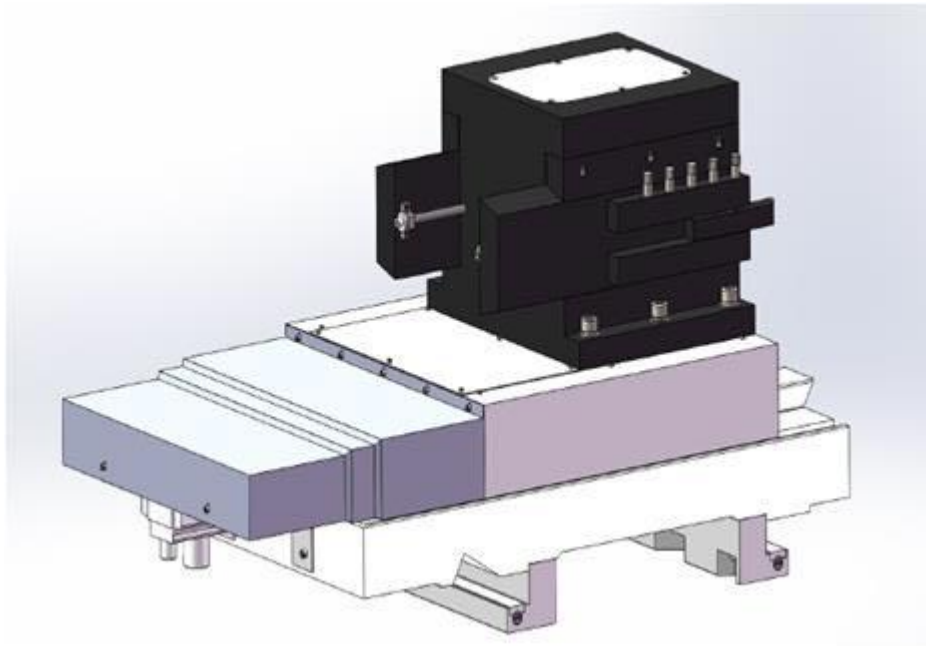
The feed box is a simple closed gear box driven by an AC servo motor that transmits power to the longitudinal ball screw, allowing longitudinal (Z-axis) movement of the machine.

### 3.5 Turret

According to the customer's independent selection, the Turret can use a four-station numerically-controlled rotary turret or a double-row deep-cutting mine-type turret.

The turret is equipped with longitudinal (Z) and transverse (X) movements in two directions. The power for longitudinal movement is provided by the feed box and is transmitted to the turret through the ball screw on the bed. The power of the lateral movement is directly transmitted by the AC servo motor mounted on the turret, and is transmitted to the transverse ball screw through the speed reduction mechanism to achieve horizontally stepless feed and rapid movement.

Vertical and horizontal servo motors are equipped with absolute position encoders. See the figure below:



3.6 CNC system and electrical control system of CK8450

3.6.1. The SINUMERIK 828D CNC system manufactured by the German SIEMENS company is used for this machine tool. Is a high-performance general-purpose numerical control system. In combination with the Siemens SIMODRIVE digital servo controller and its AC servo motor, the excellent dynamic response ensures high machining accuracy. The adoption of this system enables this machine to reach a higher level in machining accuracy and machining efficiency.

The X axis, Z axis, and S axis are defined in the following table :

The name of the axis	Axis definition	Note
X	Tool holder horizontal	Participate in linkage
Z	Tool holder	Participate in linkage
S	Spindle rotation	Main movement

3.6.2 The X and Z axes adopt semi-closed loop control. The

All parameters are adjusted or entered via a keyboard and display unit.

With programmable analog output function, select different parameters, can get the corresponding internal signal output.

With system fault signal output. The

With zero speed detection signal output.

With speed arrival signal output.



Hand pulse generator: equipped with movable hand wheel, with axis selection, emergency stop and other functions, which is convenient for user's use of knife;

Spindle speed limit, constant speed cutting.

The feed control can be given in mm/min, or it can be given in mm/r, with constant linear speed cutting function.

With standard CNC operation panel and machine operation panel.

3.7.3 The machine tool has complete and reliable various protection functions and detailed machine failure alarm information. The interpretation of fault alarm information should indicate to the detailed fault point.

3.7.4 The electrical design of the machine tool follows the relevant standards such as GB5226.1.

3.7.5 The slot board wiring structure is used in the electrical cabinet, and the component layout and wiring are reasonable, orderly, beautiful and easy to maintain. The cabinet is equipped with a full set of interior lighting, sockets for commissioning and other related ancillary facilities, with safety warning lights.

3.7.6 The electric cabinet adopts a fully-enclosed wall-mounted air conditioner to ensure a good working environment for other electrical components such as the CNC system and the CNC axis power module. All electrical components use domestic joint venture or wholly-owned enterprises' products. Electrical cabinet protection class is IP51.

3.7.7 All wiring in the electrical cabinet shall be cold-pressed at the ends and the cables shall be connected with industrial rectangular sockets. The CNC system cable uses SIEMENS products.

**4、Machine Tool Parts List**

No.	Name	Model number	Quantity	Uses	Band
1	Precision.bearings		1 SET	Tailstock	Japan NSK
2	Precision.bearings		1 SET	Spindle	Japan NSK
3	CNC system	SIEMENS 828D	1 SET	control	SIEMENS
4	Servo motor		1 SET	X axis	SIEMENS
5	Servo motor		1 SET	Z axis	SIEMENS
6	Servo main motor		1 SET	Spindle	Taiwan Futian/Beijing Chaotongbu
7	Frequency converter		1 SET	Spindle	Kaidien/Beijing Chaotongbu

**CK8450 Roller lathe****Nantong Yichuang Machine**

8	Ball screw rod		1 SET	Lathe bed	HIWIN
9	Ball screw rod		1 SET	Carriage	HIWIN
10	Electric appliances		1 SET		Schneider

**5. Machine tool supply scope****5.1 Main Parts**

No	Name	Unit	Qty	Remark
1	Lathe bed	Set	1	
2	Headstock	Set	1	
3	Turret	Set	1	
4	Tailstock	Set	1	
5	Feed box	Set	1	
6	Main motor	Set	1	
7	Cables device	Set	1	
8	Button device	Set	1	
9	Accessory box	Set	1	
10	Electric box	Set	1	

**5.2 Documents**

No	Name	Unit	Qty	Remark
1	Packing list	Pcs	1	
2	Mechanical part of instructions (including transmission system diagram, lubrication chart and explanation)	Set	1	
3	Electrical part of instructions (including electrical schematic diagram, electrical layout, I/O address table, PLC alarm information and explanation)	Set	1	
4	CNC system operation, programming manual, installation and start-up manual, diagnostic manual, PLC programming, parameter manual	Set	1	
5	Product certification	Set	1	
6	Foundation drawings	Set	1	





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