

# Precision and Complex Parts Processing/Batch Parts Processing

## Specifications :

Price	Contact us
Brand Name	ETCN
Place of Origin	Shanghai
Min.Order Quantity	100
Payment Terms	T/T,L/C,D/P
Supply Ability	3 days
Delivery Detail	3days--7days
Packaging Details	Wooden case or wooden pellets depended on clients' require

## Detail Introduction :

# Precision and Complex Parts Processing/Batch Parts Processing

## Classification of machining centers:

**Vertical machining center:** plates, shells, cams, molds

**Horizontal machining center:** boxes, molds

**Gantry machining center:** large, heavy and complex shape parts

**Compound Machining Center (Pentahedron Machining Center)**

## Machining center tool and processing range:

### Milling

Milling is a common metal cold processing method. The difference from turning is that the tool rotates at high speed under the drive of the spindle in the milling process, while the workpiece is relatively stationary. Mainly can mill planes, stepped surfaces, various grooves, and complex curved surfaces.

### Drilling

Drilling processing is a method of processing mold parts holes on a drilling machine with a drill or a reaming drill. It is easy to operate, has strong adaptability, and is widely used.

It can drill holes of various specifications, including threaded holes.

### Boring

Boring is a cutting process in which the machined surface of the workpiece is cut by the relative movement between the boring tool on the equipment and the workpiece so that a layer of metal is cut

off the machined surface obtains a certain machining accuracy and surface roughness. Compared with other hole machining processes, boring is not limited by tool size. Boring has a strong error correction ability. It can correct the error of the original coarse hole axis through multiple passes, and it can keep the boring and positioning datum with high position accuracy.

## Grinding

Grinding is the use of grinding wheels, oilstones, and abrasives (alumina, silicon carbide, and other particles) to cut the surface of the workpiece.

It can process materials with higher hardness, such as hardened steel, cemented carbide, etc.; it can also process brittle materials, such as glass and granite. The grinder can perform high-precision and small surface roughness grinding, and can also perform high-efficiency grinding, such as powerful grinding.

## FAQ

### 1. What does CNC lathe?

CNC lathes, computer numerically controlled lathes, are currently the most widely used CNC machine tools with the widest coverage, accounting for about 25% of the total number of CNC machine tools. CNC machine tools are mechatronics products that integrate multiple technologies such as machinery, electricity, hydraulics, pneumatics, microelectronics, and information. It is a machine tool with the advantages of high precision, high efficiency, high automation, and high flexibility in mechanical manufacturing equipment. The technical level of CNC machine tools and the percentage of their output and total ownership of metal cutting machine tools are important indicators to measure a country's national economic development and the overall level of industrial manufacturing. CNC lathe is one of the main varieties of CNC machine tools. It occupies a very important position in CNC machine tools. For decades, it has been widely valued by countries worldwide and has been rapidly developed.

CNC lathes and turning centers are high-precision and high-efficiency automated machine tools. It has a wide range of processing properties and can process straight cylinders, oblique cylinders, arcs, and various threads. It has various compensation functions of linear and circular interpolation and has played a good economic effect in the mass production of complex parts.

### 2. What is the difference between CNC machine tools and CNC lathes?

#### (1) Different definitions

**CNC machine tool:** The CNC machine tool is the abbreviation of digital control machine tool, an automated machine tool equipped with a program control system.

The control system can logically process a program with a control code or other symbolic instructions, decode it with a coded digital representation, and input it into the numerical control device through an information carrier. After arithmetic processing, the numerical control device sends out various control signals to control the action of the machine tool and automatically processes the parts according to the shape and size required by the drawing.

**CNC lathe:** CNC lathe is one of the most widely used CNC machine tools. It is mainly used to cut inner and outer cylindrical surfaces of shaft parts or disc parts, inner and outer conical surfaces with arbitrary cone angles, complex revolving inner and outer curved surfaces, cylinders, and conical threads. It can also perform slotting, drilling, reaming, reaming, and boring.

## (2) Different features

**Numerical control machine tool:** It has strong adaptability to processing objects, adapts to the characteristics of single-piece production of molds and other products, and provides suitable processing methods for mold manufacturing; high processing accuracy and stable processing quality; multi-coordinate linkage can be performed, and it can process parts with complex shapes; when the processed parts are changed, generally only the NC program needs to be changed, which can save production preparation time.

The machine tool itself has high precision, high rigidity, can choose a good processing amount, and high productivity (generally 3 to 5 times that of standard machine tools); the machine has a high degree of automation, which can reduce labor intensity; it is conducive to the modernization of production management. CNC machine tools use digital information and standard codes to process and transmit information, and computer control methods are used to lay the foundation for the integration of computer-aided design, manufacturing, and management; Higher requirements for the quality of operators and higher technical requirements for maintenance personnel; High reliability.

**Numerical control lathe:** high processing accuracy and stable processing quality; multi-coordinate linkage can be used to process parts with complex shapes; when the processed parts are changed, generally only the numerical control program needs to be changed, which can save production preparation time;

## (3) Different composition

**CNC machine tool:** The basic composition of a CNC machine tool includes a processing program carrier, a numerical control device, a servo drive device, the main body of the machine tool, and other auxiliary devices.

**CNC lathe:** CNC lathe comprises CNC device, bed, headstock, tool post feed system, tailstock, hydraulic system, cooling system, lubrication system, chip conveyor, and other parts.

## 3. What is the difference between CNC machine tools and ordinary machine tools?

### (1) Different definitions

The spindles of ordinary machine tools need to be in the spindle box, and the motor transmits the torque through the belts and gears with different transmission ratios to realize the processing of the workpiece.

A CNC machine tool is a digital control machine tool, an automated machine tool equipped with a program control system.

### (2) Different structure

Ordinary lathes use gears to change speed, which requires the shifting handle to change speed. CNC lathes generally use numerical control programs to change speed.

Ordinary lathes use trapezoidal threaded screws to process threads and polished rods for cutting. CNC lathes all use ball screws.

The tool post of an ordinary lathe is generally on the operator's side. The tool post of a CNC lathe is mostly on the opposite side of the operator, and the tool post of an economical CNC lathe is on the operator's side.

The guide rails of ordinary lathes are hard, and the guide rails of CNC lathes have hard rails and linear rails.

Ordinary lathes have large carriage handles, middle carriage handles, and small carriage handles. CNC lathes do not have these handles and do not have small carriages.

### **(3) Different operating efficiency**

Ordinary lathes are driven by gears and ordinary lead screws and nuts due to the gap between the motion pairs and the faulty manual operation. Ordinary lathes need to be manually measured after the machine is stopped during measurement. The measurement error is large, and the efficiency is low. It is suitable for small batches, low precision requirements, and zero-working parts. It has a lower investment than CNC but requires higher operating skills for workers, so the wage level is higher. The scrap rate and productivity of low-level workers will give you a headache. To provide you with a high standard of CNC Machining Services.

The CNC lathe adopts a fully enclosed or semi-enclosed protective device. Use automatic chip removal device. The spindle speed is high, and the workpiece clamping is safe and reliable. The hydraulic chuck is adopted, the clamping force adjustment is convenient and reliable, and the operator's labor intensity is also reduced. The tool can be changed automatically.

The CNC lathes all adopt the automatic rotary tool post, which can automatically change the tool during the machining process, and continuously complete multiple procedures. The CNC lathe's main drive and feed drive adopt independent servo motors to make the transmission chain simple and reliable. At the same time, each motor can move independently or realize multi-axis linkage.

## **4. Compared with ordinary machine tools, what are the characteristics of CNC machine tools?**

The operation and monitoring of the CNC machine tool are all completed in this CNC unit, which is the brain of the CNC machine tool. Compared with common machine tools, CNC machine tools have the following characteristics:

1. High processing precision and stable processing quality;
2. Multi-coordinate linkage can be carried out, and parts with complex shapes can be processed;
3. When machining parts change, generally only need to change the NC program, which can save production preparation time;

4. The machine tool itself has high precision and high rigidity, can choose favorable processing dosage and has high productivity (generally 3 to 5 times that of ordinary machine tools);
5. The machine tool has a high degree of automation, which can reduce labor intensity;
6. The requirements for the quality of the operators are higher, and the technical requirements for the maintenance personnel are higher.