

# What are the Main Purposes of CNC Lathes?

## Detail Introduction :

What is a CNC Lathe?

What is the Principle of CNC Lathe?

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CNC Lathe Machine is a kind of industrial equipment with a very high usage rate in modern industry. It is an indispensable equipment in industrial processing. It provides various industries with superior performance workpieces. Operated with Computer Numerical Control (CNC) systems and provided with precise design instructions, CNC Lathes are machine tools where the material or part is clamped and rotated by the main spindle, while the cutting tool that work on the material, is mounted and moved in various axis.



## What is a CNC Lathe?

It is a computerized manufacturing process in which pre-programmed software and code controls the movement of production equipment. CNC machining controls a range of complex machinery, such as grinders, lathes, and turning mills, all of which are used to cut, shape, and create different parts and prototypes. The CNC lathe is also an automated machine tool, which mainly refers to the technology that uses digital instructions composed of numbers, characters, and symbols to control the motion of one or more mechanical equipment. Generally speaking, general-purpose or special-purpose computers are generally used to realize digital program control, so numerical control is also called computer numerical control, that is, CNC, which is the origin of numerical control lathes.

## What is the Working Principle of CNC Lathe?

When using a CNC lathe for processing and production, you only need to compile the machining process route, process parameters, tool motion trajectory, displacement, cutting parameters and auxiliary functions of the part into a machining program list in accordance with the instruction code and program format specified by the CNC machine tool. , And then record the content of the program list on the control medium and input it into the numerical control device of the numerical control

machine tool, so that the control machine tool can automatically process the parts according to the pre-programmed degree.

Such an automated processing method has obvious advantages over traditional mechanical processing. Traditional machining usually requires the operator to manually operate the machine tool, cutting metal, measuring the accuracy of the workpiece, etc. rely on labor, which often leads to problems with the accuracy of the workpiece processing, and the processing efficiency is also very low.

It is well known that a fully automated production method has been achieved for some mass-processed parts, but for single-piece or small-batch production parts, automated production is always a big problem. The CNC lathe realizes automated production and processing methods. It is the most used industrial equipment in modern industrial production. It has the advantages of high precision, high efficiency, high automation, and high flexibility, especially for some complex shapes and processing accuracy. For relatively high parts, CNC lathes show a very powerful advantages.



### **What are the Main Purposes of CNC Lathes?**

After more than 20 years of development, CNC technology has been widely used in various types of machine tools. Nowadays, there are many types of CNC lathes. Like other types of CNC machines, CNC lathes have found a solid niche in the machining sphere over the last several years, effectively replacing manual and conventional models thanks to the versatility, accuracy, cost efficiency, and easy automation offered.

As less manual labor is involved, the chances of achieving optimal accuracy are pretty high with CNC lathes. This makes these machines a top choice in industries requiring high precision — such as the aerospace, health care, and hospitality sectors. Plus, CNC lathes work with almost every type of material. That said, one can never eliminate all errors, manually or otherwise. That's why we've kept that 0.01% aside.

The CNC lathe realizes high-precision processing and very stable processing quality. It has a very outstanding performance for the processing of some complex workpieces. It has a high degree of automation during processing and a short processing time, but the same requirements for the quality of operators. It is also relatively high and requires higher technical requirements for maintenance personnel.

Highly versatile, allowing for use in the creation of all kinds of products and parts

Unlike manual lathes, CNC lathes are versatile enough to produce nearly any kind of product or part, from sturdy furniture pieces and car parts to delicate lamps and crockery. Shaping cylinders or spheres is easy with CNC lathes, which can even be used to produce replacement parts for other machines.

The emergence of CNC lathes has provided a new path for industrial processing and has become an important development direction in mechanical processing. It is believed that under the continuous promotion of science and technology, CNC Lathe Machine will have more superior performance in the future. Make outstanding contributions to development!