

HOW TO REDUCE THERMAL DEFORMATION OF LASER CUTTING MACHINE

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Now, many users will encounter thermal deformation in the process of using [laser cutting machines](#). If it cannot be solved well, the cutting accuracy will be reduced, so everyone hopes that there are some ways to reduce its thermal deformation. Let me share with you:

Customers who often deal with cutting machines often encounter the problem of thermal deformation of laser cutting machines, CNC flame or plasma cutting machines, regardless of CNC flame cutting or plasma cutting, because the width of the cutting edge is affected by many factors such as the cutting nozzle, so no matter how high is the precision of the equipment itself? The precision of the parts cut out by it is generally around $\pm 0.5\text{mm}$, which is several orders of magnitude higher than the equipment itself.

Even with millions of imported laser cutting machines, this is the only way to go, so how to solve it? First of all, this situation is inevitable. Thermal cutting definitely radiates heat. It can only be said to reduce the occurrence of this situation. Datu Laser teaches you three ways to reduce thermal deformation of laser cutting machine cutting.

After controlling the temperature rise and taking a series of measures to reduce the heat source, the thermal deformation will be improved. A more effective method is to force cooling in the heat-generating part of the CNC plasma cutting machine, or to heat in the low-temperature part of the machine tool, so that the temperature at each point of the machine tool is uniform, which can reduce the warpage caused by the temperature difference.

But it is very difficult to completely eliminate this problem, so the only way to reduce the effect of heat source is to control the temperature rise. Due to the left-right symmetry, the main shaft of the heated two-column mechanism hardly deforms in directions other than vertical movement, and the movement of the vertical axis can be easily compensated by coordinate correction.

The heat source of thermal deformation caused by heat inside the machine tool should be separated from the main body. Thermal deformation of the shaft occurs in the vertical direction of the cutting tool. For example, the single-column mechanism used in CNC machine tools in the past can be replaced by a double-column mechanism.

It is necessary to learn more about this knowledge, standardize the operation, and reduce the influence of possible thermal deformation. As a thermal cutting processing equipment, the CNC flame cutting machine may cause structural deformation due to temperature changes during

frequent use and processing.

3. Improve the mechanism of the machine tool. Under the same premise of heating, the mechanism of the machine tool also has a great influence on thermal deformation. In this structure, the distance between the center of the main shaft and the main shaft to the ground should be reduced as much as possible to reduce the total amount of thermal deformation. At the same time, the temperature rise of the main shaft box should be consistent before and after, so as to avoid the main shaft tilting after deformation. This minimizes the effect of thermal deformation of the spindle on the machining diameter.

You can operate according to the content of the above article to reduce the thermal deformation of the fiber laser cutting machine, and you don't have to worry too much afterwards.