WHAT ARE THE WAYS OF LASER CUTTING FOCUS POSITION ERROR?

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In the process of [laser cutting](#), there are many factors that cause the relative position between the focus and the surface of the processed object to change. Thermal deformation during processing will cause the laser focus position to deviate from the ideal given position (programmed position).

Some errors (such as geometric errors of machine tools) are regular and can be compensated by quantitative compensation methods, but some errors are random errors that can only be eliminated by online detection and control. These errors are:

1. Workpiece geometric error

The object of laser cutting is a plate or a cover part. Due to various reasons, the surface of the processed object has undulations, and the influence of thermal effects during the cutting process will also cause surface deformation of the thin plate part. For laser processing cover parts in Surface unevenness will also occur during the press molding process, all of which will cause random changes in the position and ideal position of the laser focus and the surface of the processed object.

2. The error generated by the workpiece clamping device

The workpiece processed by laser cutting is placed on the needle-shaped worktable. Due to processing errors, long-term wear and tear between the workpiece and laser burns, the needle bed will appear uneven, and this unevenness will also cause gaps between the thin steel plate and the laser focus. The random error in the position between.

3. Programming errors

In the laser cutting process, the processing trajectory on the complex surface is fitted by straight lines, arcs, etc. There are certain errors between these fitting curves and the actual curves. These errors make the relative position of the actual focus and the surface of the processing object consistent with the ideal programming There is a certain error in the position. And some teaching programming systems will introduce some deviations.