

WHAT AFFECTS THE CUTTING SPEED OF PCB LASER CUTTING MACHINE?

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PCB board is mainly used as an important carrier of link circuit electrical appliances. In order to improve production efficiency and good product rate, PCB board is cut into small finished products during use. Milling cutters, walking knives, punching, sawing and laser cutting are methods of cutting PCB circuit boards into small boards.

With the development of science and technology, the requirements for PCB circuits are gradually increasing to meet the needs of consumers and the market. He requires that the cutting edge be free of dust, burrs and deformation. It does not affect edge components and becomes a mainstream requirement. Traditional milling cutter processing, such as milling cutter, walking knife, punching, sawing, etc., will affect PCB circuit boards to varying degrees. However, the non-contact processing mode of laser cutting equipment does not generate stress, dust and processing gaps. These advantages make this processing mode stand out, and it is increasingly favored by major manufacturers. Of course, using a PCB laser cutting machine to cut circuit boards is also flawed, that is, compared with traditional walking knives and milling cutters, the processing speed has lost a lot.

What affects the cutting speed of pcb laser cutting machine?

1. PCB laser cutting machine processing method

The high-energy beam emitted by the laser enters the vibrating mirror through the expander mirror, clicks to drive the mirror to deflect, and the import mirror is focused into a smaller light spot, which scans back and forth on the surface of the PCB circuit board, peeling off layer by layer to form a cut.

2. Factors affecting the processing speed of PCB laser cutting

The speed of laser cutting PCB is closely related to the processing material, material thickness, laser power, and laser type.

A Processing material: Compared with the paper substrate PCB, the processing is relatively easy and the processing efficiency is high, followed by FR4. Fiberglass board etc. , and the aluminum substrate is difficult to cut.

B Material Thickness: The thinner the material, the easier it is to process. Therefore, many manufacturers use v-cuts or stamps. The connection point cutting mode uses laser cutting equipment to process PCB circuit boards.

C laser power: the higher the power, the higher the processing speed, so when using laser cutting equipment to process PCB circuit boards, it is all high-power lasers.

D laser type: The current market is the mainstream cutting PCB processing laser, with high-power ultraviolet laser and high-power green laser. Ultraviolet laser is relatively better, but the processing speed is lower. The processing speed of green laser is fast, and the effect is not as good as that of ultraviolet light.

3. Processing speed of PCB laser cutting machine

Judging from the four points mentioned in the second article above, the processing speed has no fixed value, and the variable is very large. Customers need to consider it according to their actual situation. Here, we only take 1.6mm fiberglass board as an example, and set a fixed value as a reference for customers.

A adopts 20W ultraviolet laser, 3-beam mirror, F=170mm focusing mirror, and cuts the light board without V-groove and stamp hole.

In the case of no black border, the processing efficiency turns to 5mm/s without black border.

The gray edge without black processing efficiency is transformed into millimeter-free processing speed of 8-20mm/s (depending on the actual processing quality)

Using 40W green laser, 3 beam expanders, F=170mm focusing lens, cutting light board without V groove and stamp hole. There is no way to turn it into 10-25mm/s (according to the actual processing quality).

The corresponding speed of FR4 board is relatively fast, and the processing speed of 0.4mm paper substrate can even reach the processing speed of 80mm/s.

The efficiency, thickness, material, laser type and power of PCB laser cutting machine have a great influence on the process of PCB circuit board processing. The processing speed can be determined according to the actual situation, and there is no fixed standard.