

HOW TO USE A LASER CUTTING MACHINE?

Posted on 2023-04-20 by redsail



Category: [Laser Cutter News](#)



A friend who often buys a machine asks, 'I have bought a laser cutting machine and received pre training from the manufacturer. How do I use it?'. Especially for novice friends. Everyone knows that only by mastering the specific operating steps and methods of laser cutting machines can we better apply them and better serve our production needs.



Laser cutting machine

Firstly, we must make the following preparations before using the laser cutting machine:

Check all connections of the laser machine (including power supply, PC, and exhaust system) for correctness and proper insertion.

1. Before use, please check whether the power supply voltage matches the rated voltage of the machine to avoid unnecessary damage.
2. Check if there are air outlets in the exhaust pipe to avoid obstructing air convection.
3. Check if there are any other foreign objects on the machine.
4. Ensure that the work area and optical components are clean, and clean them if necessary.
5. Visually inspect the condition of the laser machine. Ensure that all institutions can freely flow.

Adjustment of optical path during hardware operation of laser cutting machine

The operation of the hardware part mainly focuses on the focusing part. This part of the work is very important. Although the manufacturer has adjusted the focal length before the machine leaves the factory, it is inevitable that the laser cutting machine will experience misalignment in the optical path during long-term operation, which can affect the cutting effect. Only the perfect combination of laser tubes, reflective frames (A, B, C), focusing lenses, and corresponding adjustment devices can achieve the best results and produce the best products. This is the core part used by laser cutting machines. Therefore, it is very necessary to check the optical path and make regular adjustments.

Let's take a look at the method of adjusting the optical path of the laser cutting machine:

1. Adjust the first light by pasting masking paper on the dimming target hole of reflector A, manually tapping the light (note that the power should not be too high at this time), fine tuning the base reflector A and laser tube bracket of the first light, so that the light hits the center of the target hole, and be careful not to block the light.
2. Adjust the second light, move the reflector B onto the remote control, use a piece of cardboard to emit light from near to far, and guide the light to the cross beam target. Because the high beam is

inside the target, the near end must be inside the target. Then, adjust the near and high beam points to the same position, that is, how far the near end is and how far the far end is, so that the position of the cross at the near and high beam points is the same, that is, near (far), indicating that the optical path is parallel to the Y-axis guide rail

3. Adjust the third lamp (note: the cross divides the light spot equally between the left and right), move the reflector C to the remote control, guide the light to the light target, shoot once at the near and far ends, and adjust the position. The position of the cross following the cross at the near point is the same, which means that the beam is parallel to the X-axis. At this point, when the light path enters and exits, it is necessary to loosen or tighten the M1, M2, and M3 on frame B until they reach the left and right halves.

4. Adjust the fourth light, stick a piece of masking paper on the light outlet, leave a circular mark on the adhesive paper for the light hole, light the light, remove the adhesive paper, observe the position of the light hole, and adjust the frame according to the situation. M1, M2, and M3 are on C until the point becomes circular and straight.

Software operation process of laser cutting machine

In the software part of the laser cutting machine, different parameters need to be set due to the different materials and sizes being cut. These parameter settings generally require professional personnel to set, and may require a lot of time to explore on your own. Therefore, the settings of the parameter section should be recorded during the manufacturer's training.

The usage steps of the laser cutting machine are as follows:

Before cutting materials, the steps to start the laser cutting machine are as follows:

1. Strictly follow the regulations, follow the start stop principle, and open the machine without forcibly closing or opening it;
2. Turn on the air switch, emergency stop switch, and key switch (check if there is an alarm display for the water tank temperature);

3. Turn on the computer, and then turn on the start button after the computer is fully started;
4. Turn on the motor in sequence, enable, follow, laser, and red light buttons;
5. Start the machine and import CAD drawings;
6. Adjust parameters such as initial processing speed and tracking delay;
7. Adjust the focus and center of the laser cutting machine.

When starting cutting, the laser cutting machine operates as follows:

1. Fix the cutting material on the workbench of the laser cutting machine;
2. Adjust equipment parameters accordingly based on the material and thickness of the metal plate;
3. Select appropriate lenses and nozzles, and check their integrity and cleanliness before starting the inspection;
4. Adjust the focal length and adjust the cutting head to the appropriate focusing position;
5. Check and adjust the center of the nozzle;
6. Calibration of cutting head sensors;
7. Select a suitable cutting gas and check if its spraying state is good;
8. Try cutting the material. After cutting the material, check whether the cutting end face is smooth and check the cutting accuracy. If there are errors, adjust the equipment parameters accordingly until the sample meets the requirements;

9. Program the workpiece drawings and corresponding layout, and import them into the equipment cutting system;
10. Adjust the position of the cutting head and start cutting;
11. During the operation, there must be staff present and carefully observe the cutting situation. If there is an emergency situation that requires quick response, press the emergency stop button;
12. Check the cutting quality and accuracy of the first sample.