

HOW TO PROLONG THE SERVICE LIFE OF LASER CUTTING MACHINE?

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Laser cutting machine is a device used to process metal materials. The price is often not low, ranging from hundreds of thousands to millions. Therefore, prolonging the service life of the laser cutting machine as much as possible can better save production costs. So how to maintain the laser cutting machine? How to prolong the service life of laser cutting machine?

Before understanding the daily maintenance of the laser cutting machine, we need to understand the main components of the laser cutting machine, which are mainly divided into: circuit system, transmission system, cooling system, light source system, and dust removal system. The daily key parts that need to be maintained are mainly the cooling system (to ensure the constant temperature effect), the dust removal system (to ensure the dust removal effect), the optical path system (to ensure the beam quality), and the transmission system (to ensure normal operation). In addition, a good working environment and correct operating habits are also conducive to extending the service life of the equipment.

Laser cutting machine maintenance - how to prolong the service life of laser cutting machine?

How to prolong the service life of laser cutting machine? First of all, when we need to use the cutting machine for work, we need to push the crossbeam before starting the machine, try to move it back and forth, and there is no abnormal sound when moving left and right before turning on the power. After finishing the work of the day, clean up the materials and waste generated in the machine that day. This can protect the machine motion system from being damaged by foreign objects. Clean up its moving parts to keep the machine in good working condition. The specific methods are as follows:

1. Cooling system maintenance

The water inside the water chiller must be replaced regularly, and the general replacement frequency is one week. Make sure that the laser tube is filled with circulating water before the machine works. The water quality and temperature of the circulating water directly affect the service life of the laser tube. It is recommended to use pure water or distilled water, and keep the water temperature below 35°C. If the water is not changed for a long time, it is easy to form scale and block the waterway, so it is necessary to change the water regularly.

Keep water flowing at all times. The cooling water is responsible for taking away the heat generated by the laser tube. The higher the water temperature, the lower the optical output power (15-20°C water temperature is the best); when the water is cut off, the heat in the laser cavity will cause the end of the tube to burst and even damage the laser power supply. Therefore, it is very necessary to check whether the cooling water is unblocked at any time. When the water pipe is hard bent (dead

bend) or falls off, so that the water pump fails, it must be repaired in time to avoid power drop or even equipment damage.

2. Dust removal system maintenance

After a long period of use, the fan will accumulate a lot of dust, which will affect the exhaust and deodorization effects, and will also generate noise. When it is found that the suction power of the fan is insufficient and the smoke exhaust is not smooth, it is necessary to clean the fan. First turn off the power, remove the air inlet and outlet pipes on the fan, remove the dust inside, then turn the fan upside down, move the blades inside until they are clean, and then install the fan. Fan maintenance cycle: about one month.

3. The optical path system maintains the cleaning of the lens

After the machine works for a period of time, the surface of the lens will be covered with a layer of dust due to the working environment, thereby reducing the reflectivity of the reflective lens and the light transmittance of the lens, and finally affecting the working power of the laser. At this time, use absorbent cotton dipped in ethanol to carefully wipe along the center of the lens and rotate it to the edge.

When wiping the lens, pay attention to:

- a. The lens should be wiped gently, and the surface coating should not be damaged;
- b. The wiping process should be handled with care to prevent falling;
- c. When installing the focusing lens, please keep the concave side downward

In addition, the use of ultra-high-speed perforation should be minimized at ordinary times, and the use of conventional perforation can prolong the service life of the focusing lens

4. Transmission system maintenance

During the long-term cutting process of the equipment, smoke and dust will be generated. The fine smoke and dust will enter the equipment through the dust cover, and thus adhere to the guide rail rack. Long-term accumulation will increase the wear of the guide rail rack. The rack guide rail is a relatively precise accessory. A large amount of dust deposits on the surface of the guide rail and linear shaft for a long time, which has a great impact on the processing accuracy of the equipment, and will form corrosion spots on the surface of the linear shaft of the guide rail, shortening the service life of the equipment. Therefore, in order to ensure the normal and stable operation of the equipment and ensure the processing quality of the products, it is necessary to do a good job in the daily maintenance of the guide rails and linear axes, and to do dust removal and cleaning regularly. After cleaning the dust, put butter on the rack, and lubricate the guide rail with lubricating oil. Each bearing should also be oiled regularly, so as to maintain flexible driving, precise processing and prolong the service life of the machine tool.

5. Working environment

The environment of the workshop should be kept dry and well ventilated. The ambient temperature should be between 4°C and 33°C. In summer, pay attention to prevent condensation on the equipment, and in winter, prevent the laser equipment from freezing.

The equipment should be kept away from electrical equipment sensitive to electromagnetic interference to prevent the equipment from being subjected to electromagnetic interference for a long time. Stay away from sudden large power interference from large power and strong vibration equipment. Large power interference sometimes causes machine failure. Although it is rare, it should be avoided as much as possible. Therefore, such as large welding machines, giant electric mixers and large power transmission and transformation equipment, etc., should be kept away. It goes without saying that strong vibration equipment, such as forging presses, vibration caused by short-distance motor vehicles, etc., the obvious vibration of the ground is very unfavorable for accurate engraving.

6. Other matters needing attention

1. Add a little lubricating oil to the screws, including the screws on the laser tube support and the first reflector, to facilitate disassembly and assembly during maintenance. Note: Do not add lubricating oil to the timing belt, drag chain, air pipe, motor, sensor and lens, wire.
2. No items can be placed in the machine, so as not to cause unnecessary damage to the machine.
3. Clean up with cotton cloth: Dust and foreign matter on the metal tanker, metal shaft, slider and linear guide rail, add lubricating oil, and perform reciprocating motion in empty line.

During the working process of the equipment, the operator must observe the working conditions of the equipment at any time, cut off all power supplies immediately in case of abnormal conditions, eliminate the fault in time or report it to the supervisor, and actively take corresponding measures.

Regularly count the usage of the machine, and keep records of each part of the laser cutting machine on a regular basis. If the effect is not good, replace it in time to prevent problems before they happen.

Do not process a material before it is clear whether it can be irradiated or heated by a laser, so as to avoid the potential danger of smoke and vapor and damage the laser equipment.

If you make good use of the above maintenance skills, I believe that your equipment will last longer and work more efficiently!