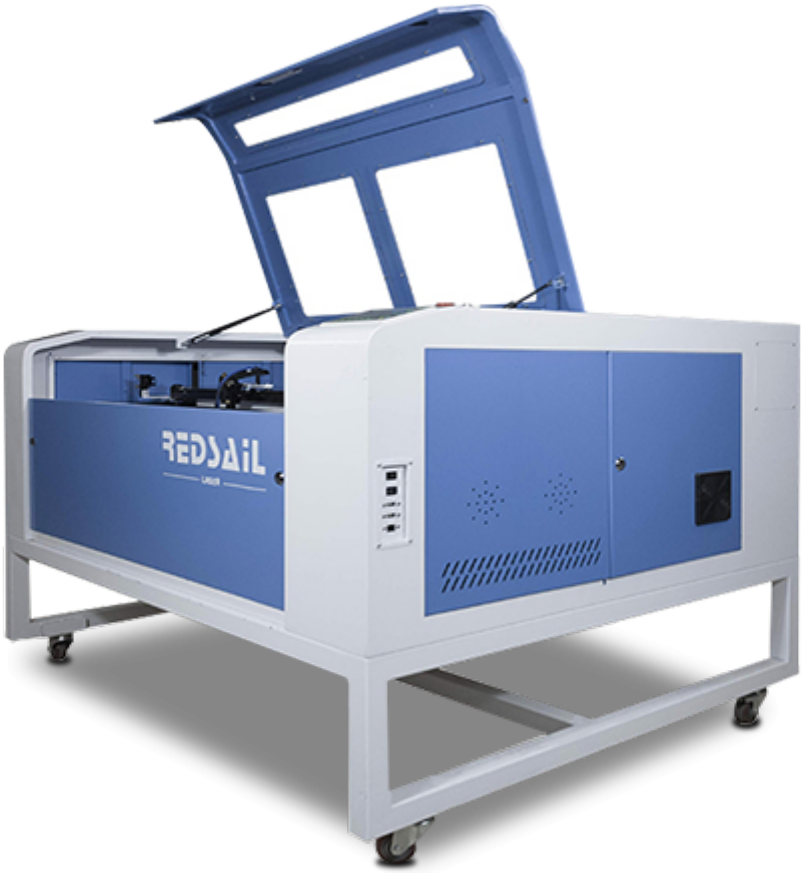
WHAT ARE THE PRECAUTIONS FOR SAFE USE OF LASER CUTTING MACHINES?

Posted on 2023-05-30 by redsail

Category: Laser Cutter News



laser cutting machine

1. Comply with the safety operating procedures of general cutting machines. The laser is strictly started according to the laser startup program.

2. Operators must undergo training, be familiar with equipment structure and performance, and master relevant knowledge of operating systems.

3. Wear labor protective equipment according to regulations, and wear protective glasses that comply with regulations near the laser beam.

4. Before identifying whether a certain material can be irradiated or heated by laser, do not process it to avoid potential hazards such as smoke and steam generation.

5. When the equipment is started, the operator shall not resign or be in custody without authorization. If you need to leave, stop or cut off the power switch.

6. Place the fire extinguisher where you can reach it; Turn off the laser or shutter when not processing; Do not place paper, cloth, or other flammable materials near unprotected laser beams.

7. If any abnormalities are found during the processing, the machine should be immediately shut down, the faults should be promptly eliminated or reported to the supervisor.

8. Keep the laser, bed, and surrounding areas clean, orderly, and free of oil stains, and stack workpieces, plates, and waste materials according to regulations. There is a laser cutting machine for production.

9. When using gas cylinders, it is important to avoid damaging welding wires to prevent leakage accidents. The use and transportation of gas cylinders should comply with gas cylinder monitoring regulations. Do not expose gas cylinders to sunlight or close to heat sources. When opening the bottle valve, the operator must stand on the side of the bottle nozzle.

10. High voltage safety regulations should be followed during maintenance. Every 40 hours or weekly maintenance, every hour or every 6 months maintenance should be carried out in accordance with regulations and procedures.

11. After starting, manually start the machine tool in the X and Y directions at low speeds and check for any abnormalities.

12. After inputting the new workpiece program, it should be tested first and its operation should be checked.

13. Pay attention to the operation of the machine tool during work to avoid accidents caused by effective travel or collision between two cutting machines.

Polarization properties of laser beams. Like any other electromagnetic wave transmission, lasers also have two perpendicular electric and magnetic vectors in two directions, both of which are orthogonal to the direction of laser transmission. It is generally believed that the direction of the electric vector is the polarization direction of the beam. Beam polarization affects the absorption of beam energy by materials. When cutting parallel to the polarization direction of the beam, the incision is narrow and the edge is smooth and straight. If the cutting direction is at an angle to the polarization plane, energy absorption weakens, cutting speed slows down, cutting edges are rough, and there is no right angle to the material surface. Once the cutting direction is perpendicular to the

polarization direction, the edges will not be rough, but the cutting speed is slower and the cutting quality is significantly reduced due to wider damage. Although this is necessary in principle, it is difficult to maintain the cutting direction parallel to the polarization direction during multi axis motion. Equipped with a phase retarder to overcome this instability. Research shows that circularly polarized light is most suitable for cutting metal. Most lasers generate polarized light at 45 degrees from the vertical direction. The phase retarder converts linearly polarized light into circularly polarized light. This method is very effective for cutting metal but not for materials such as plastic and wood.