

COMPOSITION AND MAINTENANCE OF LASER CUTTING HEAD

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The laser cutting head is one of the core accessories of a laser cutting machine. The quality of the cutting head directly affects the processing quality and efficiency of the laser machine. Therefore, it is very important for us to maintain the laser cutting head in daily use. The following large image shows you the composition and maintenance method of the laser cutting head.



Laser cutting head

Component:

Nozzle: The selection of nozzle type and nozzle size has a significant impact on cutting quality, mainly in three forms: parallel, convergent, and tapered,

Focusing lens: Using the energy of the laser beam to cut, the original beam emitted by the laser is focused through a lens to form a high energy density spot. According to Gaussian optical theory, the power density at the focal point is the highest. The longer the focal length of the lens, the larger the focal spot, and the lower the power density

Focus and tracking system: The focus and tracking system of a laser cutting machine is generally composed of a focus cutting head and a tracking sensor system. The cutting head comprises a light guiding and focusing part, a water cooling part, a blowing part, and a mechanical adjustment part;

The sensor is composed of a sensing element and an amplification control part. Tracking systems are completely different depending on the sensing elements. Here, there are mainly two forms of tracking systems. One is a capacitive sensor tracking system, also known as a non-contact tracking system. One is an inductive sensor tracking system, also known as a contact tracking system.

Maintenance part:

1. Before starting the machine, it is necessary to check whether the position of the cutting head is accurate to ensure the accuracy of the starting point, height, and other data of the laser cutting head, and to avoid accidents such as collisions during the working process
2. Check whether the amount of cutting gas is sufficient, and if air is used, check whether the pressure of the air compressor pump is sufficient.
3. Check whether the water volume and temperature of the cooler meet the setting requirements of the equipment. During operation, the water volume should be sufficient to avoid damage to the laser cutting head due to insufficient cooling water.
4. Check whether the pipelines and joints of oil, gas, water, and pneumatic components have leaks, and whether the components are in good condition.
5. Regularly check the wear of the cutting nozzle of the cutting head, and replace it in a timely manner if the wear is serious
6. Check the clarity of the lenses at each part of the cutting head and conduct reasonable cleaning
7. Check the cleanliness and smoothness of all pipes and joints - ensure that there are no impurities or blockages
8. Check whether the fixed components of the cutting head are loose