

COMPARISON BETWEEN CO2 LASER AND FIBER LASER

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1. Fiber optic technology utilizes solid gain media instead of gas or liquid. The 'seed laser' generates a laser beam and amplifies it inside the glass fiber. The wavelength of a fiber laser is only 1.064 microns, which can generate extremely small spot sizes (up to 100 times smaller than CO₂), making it an ideal choice for cutting reflective metal materials.

Fiber optic laser sources can output high-power laser beams, which are focused on the material surface, causing the focused area to vaporize or melt instantly. Controlled by CNC and mechanical systems, the laser head is moved to change the laser spot, achieving automatic cutting with fast speed and high accuracy. Fiber laser cutting has developed into the highest precision laser cutting method today, widely used in the metal parts processing industry.

The optical fiber laser cutting machine can process a variety of metal materials, including stainless steel, carbon steel, alloy steel, aluminum, galvanized sheet, copper, silver, gold, etc. Different optical fiber laser sources can be selected according to the characteristics of the metal.

In addition to sheet metal cutting, fiber laser cutting machines can also process irregular metals and steel pipes. The machine can be equipped with a steel pipe cutting system to expand cutting capacity. The blade is neat and smooth, meeting the high requirements of industry.

2. Advantages of fiber laser cutting machines

Fiber laser has a higher energy conversion rate, up to 30%, saving operation and maintenance costs.

The laser cutting machine adopts semiconductor modular and redundant design, and there is no optical lens in the resonant cavity. Therefore, there is no need to spend a lot of time starting and adjusting the machine before cutting work, which is incomparable to traditional laser machines.

The fiber optic laser head is equipped with protective lenses to protect the focusing lens and reduce component consumption.

The laser head will not directly contact the material to avoid scratching it and ensure the cutting effect.

Fiber laser generates minimal cutting seams and hot zones, maintaining cutting stability and

avoiding material deformation.

The cutting accuracy of 0.2mm/min and fast cutting speed significantly improve the machining efficiency of metal parts.

The fiber laser cutting machine operates in a safe and environmentally friendly manner. The pollution and noise generated are low, and the workshop environment can be well protected.

As a professional manufacturer of fiber laser equipment, Redsail Laser focuses on the manufacturing and technical services of fiber laser cutting machines and fiber laser marking machines. To learn more about the selection and operation of fiber laser cutting machines, please contact us for customized laser solutions to upgrade your business.