

ADVANTAGES AND DEVELOPMENT PROSPECTS OF FIBER LASER CUTTING EQUIPMENT

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As one of the core equipment of high-end manufacturing equipment, fiber laser conforms to the background of industrial manufacturing transformation and meets the requirements of difficult and varied multi-dimensional processing applications. The advantages of fiber laser material processing are very popular in the market, effectively solving the pain points of high production cost and low production efficiency, and have a huge market space.

Through the application examples of laser cutting, the comparison and analysis of fiber laser cutting equipment, [CO2 laser cutting equipment](#) and YAG solid-state laser cutting equipment are carried out, and the advantages and development prospects of fiber laser cutting equipment in laser cutting applications are discussed.

The advantages of low-cost and high-efficiency fiber laser cutting are prominent.

1.Operation requirements and maintenance

The CO2 laser needs to adjust the optical path, and the effect of the optical path adjustment will affect the cutting quality, so the operator needs to have certain technical requirements and need to maintain the external optical path; the YAG solid-state laser hot mirror has obvious effects and needs frequent maintenance.

And fiber laser fiber transmission, free of adjustment, free of maintenance, high stability, easier to operate.

2.Cutting speed and effect

The cutting speed of fiber laser is 2~3 times that of CO2 laser with the same power, especially in metal sheet cutting, the cutting speed of fiber laser cutting machine has obvious advantages among the three kinds of laser cutting machines. The fiber laser cutting machine has good beam quality, small cutting gap and flat cutting edge.

Material applicability and application industry

Fiber laser is more in line with the processing requirements of sheet metal manufacturing, 3C home appliances, new energy and other industries.

Energy Consumption and Comprehensive Cost

The photoelectric conversion rate of fiber laser is more than 30%, the photoelectric conversion rate of CO₂ laser cutting machine with the same power is about 10-15%, and the photoelectric conversion rate of solid-state laser is about 3%. The power consumption of fiber laser is only 20-30% of that of CO₂ laser with the same power, and the overall cost is lower.

Fiber laser cutting is more precise, the focus point can reach 25um, the heat-affected zone is small, the cutting seam is small, and the deformation of the workpiece is small. Dineng laser cutting machine is a flexible processing method, combined with automatic control system, the system realizes automatic tracking, automatic edge finding, automatic nesting, greatly improves production efficiency, and is widely used in metal cutting, with better performance and better performance Fully meet the requirements of fine cutting processing.