

SHOULD I BUY A CO2 LASER CUTTING MACHINE OR A FIBER LASER CUTTING MACHINE?

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REDSAIL CM1610 AUTO FEEDING LASER CUTTER

Redsail Laser Cutter / Engraving Machine
1610 for Cutting Soft Materials

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In the [laser cutting machine](#) market, there are two types of machines that are very popular. One is fiber laser cutting machine and the other is [Co2 laser cutting machine](#). Co2 laser cutting machines occupy the mainstream position in the traditional sense, but in recent years, fiber optic cutting machines have become popular in the market and are becoming more and more popular. But, do you know the difference between these two machines? Which machines can meet our needs, and how to choose?

1. First of all, let's understand the working principle of these two laser cutting machines

Working principle of fiber laser cutting machine: Fiber laser cutting machine is a kind of laser cutting machine that uses fiber laser generator as light source. Fiber laser cutting machine is a new type of fiber laser, which can output high-energy-density laser beams and gather them on the surface of the workpiece, so that the workpiece is instantly melted and vaporized in the area irradiated by the ultra-fine focus spot, and the position of the spot is moved by the CNC mechanical system, to achieve automatic cutting, high speed and high precision.

The working principle of the CO2 laser cutting machine is that the laser power supply drives the laser tube to emit light, which is refracted by a number of reflectors, so that the light is transmitted to the laser head, and then the focusing mirror installed on the laser head gathers the light into a laser head that can reach a very high level. Temperature point, so that the material is instantly sublimated into gas, which is sucked away by the exhaust fan, so as to achieve the purpose of cutting.

The working principles of the two laser cutting machines determine the application fields they are good at

The CO2 laser has a wavelength of 10.6um, and the fiber laser has a wavelength of 1.06um. The former is easier to be absorbed by non-metal, and can cut wood, acrylic, PP, plexiglass and other non-metal materials with high quality. The fiber laser cutting machine can only cut metal, but cannot cut non-metals such as cloth, leather, stone, etc. The reason is very simple. The wavelength range of the fiber laser cutting machine is not within the absorption range of the above materials, or the absorption is not suitable, and the ideal cutting effect cannot be achieved. At present, the application advantages of fiber laser cutting machines in non-metal cutting are not very obvious.

So which laser cutting machine should we choose?

Of course, we have to choose according to the material and the area where the machine is applied.

Fiber laser cutting machines are widely used in electronics, electrical appliances, mechanical hardware, new energy equipment, solar energy, LED, automobiles and other industries. Good at processing common metal products in daily life, such as advertising metal characters, kitchen utensils, environmental protection equipment, etc. Widely used in stainless steel, carbon steel, alloy steel, copper, brass, silicon steel, galvanized steel, nickel-titanium alloy, inconel, titanium alloy, etc.

CO2 laser cutting machine, capable of engraving and cutting various non-metals, such as acrylic, marble, wood, MDF, plywood, textiles, leather, glass, paper, etc. Widely used in many industries such as crafts and gifts, souvenirs, Chinese paper cutting, billboards, clothing, furniture, etc.

So what to do if you want to cut both metal materials and non-metal materials?

Buying two machines is certainly an option, but the two-in-one machine has more advantages in terms of cost and space occupation.

1. One is a hybrid laser cutting machine. This machine uses CO2 laser as the laser source, and adds a laser head that can cut metal on the basis of the standard CO2 laser machine. This hybrid metal laser cutting machine can be widely used in the cutting of non-metallic materials and metal sheets, with smooth cutting edges and no burrs.

The machine has fast processing speed, high precision and high efficiency. The operation speed is fast, the laser energy can be adjusted in real time, and the operation is very simple. Most custom machine sizes are 1390/1610/1325/1530, but other sizes can be negotiated if required.

2. The other model is a hybrid model, which combines two laser sources, a fiber laser generator and a carbon dioxide laser tube, on one machine for cutting. Two sets of systems are used to

control the fiber laser cutting head and the carbon dioxide laser cutting head respectively to realize metal and non-metal cutting.

CO₂&optical fiber two-in-one metal and non-metallic laser cutting machine adopts double gantry structure, and its advantage is that it can be equipped with two independent control systems to control fiber laser and CO₂ laser respectively.

So with two heads, metal materials can be processed with a fiber laser head, and non-metal materials can be processed with a carbon dioxide laser cutting head. One machine has more functions, which is more cost-effective than buying two machines separately.