

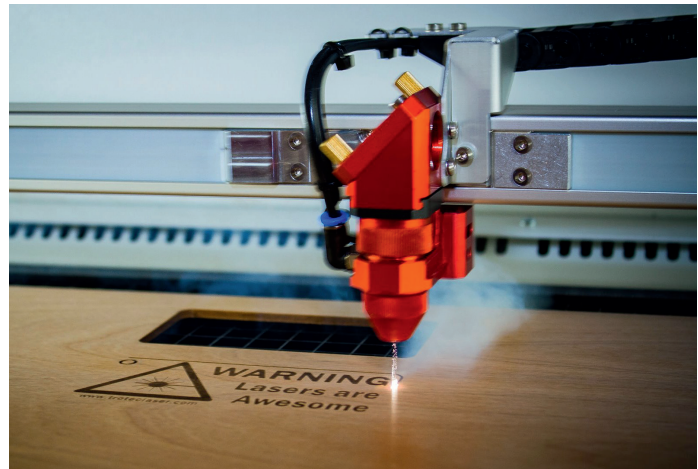
CO₂ or Fiber?

→ How to determine which laser source is right for you

At the heart of every laser system, there is a laser source. The laser source, in a nutshell, is what stimulates light particles, causing them to emit energy in the form of light, which makes up a laser beam. There are different types of laser sources, including CO₂, fiber and vanadate (though CO₂ and fiber are the most common). Each laser source has its own set of unique capabilities. With the right laser source, you can take full advantage of the many benefits a laser can offer your business, including increased efficiency, precision and flexibility, to name a few. The following guide will help you determine which type of laser source would be best for you.

CO₂ Lasers

CO₂ lasers are arguably the most widely used laser type because they are highly versatile. The CO₂ laser based on a carbon dioxide gas mixture that is stimulated electrically. A CO₂ laser works by vaporizing the material, leaving an indentation or cut into the material. It can cut and engrave a wide range of materials such as plastics, wood, paper, fabric, rubber and cardboard. The CO₂ laser can also engrave on glass, ceramic, stone, and coated metals such as anodized aluminum or paint-coated metals. You can even engrave bare metals on a CO₂ laser using a coating or spray that will adhere permanently to the metal where the laser hits it. (After processing, you simply wipe away the coating or spray.)



Processing Capabilities

Cut and Engrave:

- plastics
- acrylic
- wood
- cardboard
- paper
- fabric
- rubber

Engrave:

- glass
- ceramic
- stone
- coated metal
- bare metal*

**Requires use of coating or spray.*

Key Features of CO₂ Lasers

- Broad system capabilities
- Efficient and feature a very good beam quality
- Usually available with many power options and bed sizes
- Wavelength of 10.6 micrometers
- Most widely used

→ Examples of what you can do with a CO₂ laser



Signs and displays



Cut and engrave acrylic



Personalized gifts and toys



Trophies and awards

Fiber Lasers

The fiber or YAG laser is used for marking or engraving bare metals and marking plastics. Fiber lasers are optimally suited for metal marking methods such as annealing, metal engraving, and high-contrast plastic markings. Instead of vaporizing the material like the CO₂ laser, the fiber laser marks materials by changing the chemical composition of the material being processed using a laser source made of rare earth metals. Fiber lasers produce an extremely small focal diameter. As a result, their intensity is up to 100 times higher than that of lasers with the same emitted average power. Fiber lasers are also generally maintenance-free and feature a long service life of at least 25,000 laser hours.



Marking Capabilities

Metals:

- aluminum
- bronze
- copper
- gold
- platinum
- silver
- stainless steel
- titanium

Plastics:

- ABS
- polyamide
- polycarbonate
- PMMA
- plastics with laser additives

Key Features of Fiber Lasers

- Smaller focal diameter provides high intensity
- Best beam quality (can mark 1-point characters)
- Has a wavelength of 1.064 micrometers
- Extremely low maintenance
- Long service life (at least 25,000 service hours)

→ Examples of what you can do with a fiber laser



Promotional items



High-contrast marking on plastic



Barcodes and dataplates



Direct part marking



Laser Systems



Materials



Expertise



www.troteclaser.com

www.engraving-supplies.com

Trotec Laser Inc.
44747 Helm Ct, Plymouth, MI 48170
Tel: 866-226-8505

www.facebook.com/TrotecLaserInc
twitter.com/TrotecLaser