

How Laser Marking Machines Are Classified?

Introducción detallada :

The common **laser marking machine** on the market is mainly CO2 laser marking machine and YAG laser marking machine. Later, the YAG laser marking machine was gradually replaced by a semiconductor laser marking machine, becoming a market share of more than one model. There is also high-end pump laser marking machines, fiber laser marking machines, UV laser marking machines, etc...

How do we distinguish between them?

1. according to the principle characteristics of the model to classify.

a. According to the laser wavelength: 532nm laser marking machine, 808nm laser marking machine, 1064nm laser marking machine, 10.64um laser marking machine, 266nm laser marking machine. One of the most widely used is the 1064nm.

b. According to the laser divided into a: CO2 laser marking machine, semiconductor laser marking machine, YAG laser marking machine, fiber laser marking machine.

c. According to the laser visibility is divided into ultraviolet laser marking machine, green laser marking machine, infrared laser marking machine



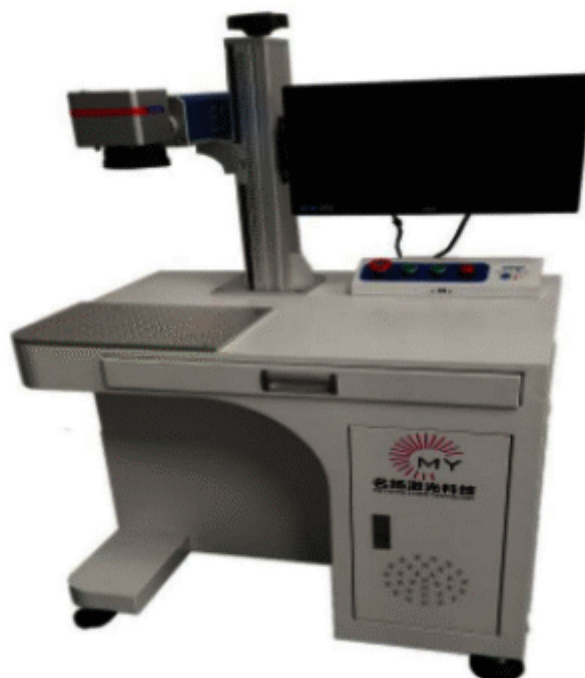
2. according to the laser wavelength classification.

Laser marking machines according to different laser wavelengths can be divided into 532nm laser marking machine, 808nm laser marking machine, 1064nm laser marking machine, 10.64nm laser marking machine, 266nm laser marking machine, 322nm laser marking machine. Semiconductor DP

laser marking machine is small, maintenance-free, simple to use, widely used, etc. Laser marking machine is also known as "laser engraving machine", in agricultural machinery manufacturing "laser engraving machine" role is also very big.

Currently, the following are the main types commonly used.

- a. CO2 laser marking machine. Can engrave a variety of non-metallic materials. They are used in clothing accessories, pharmaceutical packaging, construction ceramics, beverage packaging, fabric cutting, rubber products, shell nameplates, craft gifts, electronic components, leather, and other industries.
- b. YAG Metal Laser Marking Machine. Application industries are particularly suitable to meet the needs of high precision processing. They are used in electronic components, hardware products, tool accessories, integrated circuits (IC), electrical appliances, mobile phones and communications, precision instruments, glasses and clocks, jewelry and ornaments, auto parts, plastic keys, building materials, PVC pipes, medical equipment, and other industries.
- c. Semiconductor laser marking machine (side pump laser marking machine and end pump laser marking machine) Application industries: Mould engraving, hardware products engraving, various plastic keys, mechanical products, electronic original parts, hardware tools, various decorative products, and other engravings.
- d. Fiber laser marking Applicable machine materials: any metal (including rare metal), engineering plastics, electroplating materials, coating materials, spraying materials, plastic rubber, epoxy resin, ceramics, etc.



3. By industry-specific models.

a. Fiber Laser Marking Machine.

It adopts fiber laser output laser and then realizes marking function by ultra-high-speed scanning vibrating mirror system. Fiber laser marking machine has high efficiency of electro-optical conversion,

cooled by air-cooling, compact size, good output beam quality, high reliability, long operation life, energy-saving. It can engrave metal materials and some non-metal materials. Mainly used in the field of high requirements for depth, smoothness, and fineness, such as mobile phone stainless steel trim, clocks and watches, molds, IC, mobile phone keys and other industries, bitmap marking, can be marked on the metal, plastic and other surfaces with a fine picture. The marking speed is 3 to 12 times faster than the traditional first-generation lamp pump machine, the second-generation semiconductor marking machine.

Mainly used in: plastic, electronics, metal, ceramics, tobacco, and other materials marked with the required text, patterns, bar codes and other types of graphics, fiber laser marking machine operation is simple and convenient marking speed, clear and other advantages, making the production efficiency of enterprises more efficient. We commonly use pulse lasers 10W, 20W, 30W, 50W.



b. UV laser marking machine.

The application of the same industry and fiber laser marking machine, but the printed text, patterns, etc., will be more fine, clear. They are mainly used in enterprises on the text, patterns, and other requirements of the main products. Especially some fiber laser marking machines can not be marked out the required effect of UV laser marking machine. Because the UV laser marking machine is a cold light category, many products fiber laser marking machine The UV laser marking machine is generally able to mark out the effect of the UV laser marking machine is not satisfactory. The commonly used UV lasers on the market are 3W, 5W, 7W, 8W, 10W, 15W.

c. Carbon dioxide laser marking machine.

CO₂ laser marking machines are used to permanently mark the surface of various substances with a laser beam. The effect of marking reveals the deep material through the evaporation of the surface material, thus engraving a beautiful pattern, trademark, date, LOGO, or text. At present, the CO₂ laser marking machine is mainly used on some occasions requiring finer and higher precision. It is used in food, medicine, wine, electronic components, integrated circuits (IC), electrical appliances, mobile phone communication, building materials, PVC pipes, and other industries.

d. End pump laser marking machine.

The main application of the industry is also the same as the fiber laser marking machine. Performance and fiber laser marking machine is also similar, but it has a higher peak power.

e. Green laser marking machine.

They are mainly used for surface and internal marking of glass, crystal products, ceramics, metals, electronics, plastics, and other products. It belongs to the category of cold light, which is also suitable for some products that are more responsive to heat and require higher precision.



f. Semiconductor Laser Marking Machines.

Semiconductor laser pumped all-solid-state laser (DPSSL) for laser marking works: by using a high-power semiconductor quantum well laser instead of a gas lamp to pump a solid-state crystal for the gain medium laser resonant cavity, so that it produces a new wavelength of the laser, in the use of crystal preparation, frequency mixing cross should produce SHG, THG and other wavelengths of a laser. The entire laser marking process, operating procedures, and quality standards from incoming material re-inspection, partial assembly production, process inspection, final assembly commissioning to a full inspection of finished products are established through design.

g. Flying Laser Marking Machine.

Is in the above several laser marking machines are based on the development of dynamic marking function. Mainly used in the assembly line operations can be 360 days unlimited marking on the product, but also can automatically generate the flow number and batch number, thus greatly improving the production efficiency of enterprises and saving a lot of labor.

There are many types of laser marking machines. There are also many 3D lasers marking machines for surface marking, handheld laser marking machines for large non-movable laser marking machines, etc. These two are classified according to the type of work, summarized according to the laser's working substance is divided into the fiber, CO₂, and UV laser marking machines.

For the end customer generally need to understand his use, performance to be able to solve the problem. These are the most important. If you are interested in our laser marking machines, please **contact us!**