



# **DL-2213/2214 Fiber Laser Marking Machine**

## **Product Introduction**

# Fiber Laser Marking Machine DL-2213/2214

## I. Principle of operation

Fiber laser marking machine adopts the domestic top fiber laser, high-quality galvanometer scanning system, stable output power, good optical mode, excellent beam quality, fast marking speed, good results, high efficiency, to fully meet customer demand for mass production.

The machine has a beautiful appearance, simple operation, no consumables, low depreciation costs, long-term operation without failure, maintenance-free, can fully meet the needs of industrialized continuous work.



Fiber Laser Marking Machine DL-2213 DL-2214 Outline Drawing  
(Configuration is subject to the real thing)

Fiber laser marking machine is our company adopts the most advanced international laser pumping technology, directly from the laser from the laser pump to generate high-energy photons, so that the laser medium to produce a large number of particle beam inversion, under the action of the Q switch to form a wavelength of 1064nm giant pulse laser, and then through the optical scanning galvanometer, “F-θ” mirror in the The marking activity is then carried out under the control of computerized marking software program through the optical scanning galvanometer and “F-θ” mirror group.

The laser's high-speed galvanometer scanning system has the advantages of high peak laser power and fast scanning speed, which is especially suitable for laser precision marking.

## **Scanning system and software control system**

The scanning system adopts high-precision and high-reliability scanning galvanometer with high scanning precision, fast speed and stable performance, which has the requirement of long-time continuous work.

Software control system to WINDOWS XP as the operating platform, full Chinese interface, compatible with AUTOCAD, CORELDRAW, PHOTOSHOP, CAXA and other software output files, can be bar code, two-dimensional code, graphic text marking.

Support PLT, PCX, DXF, BMP and other file formats, direct use of SHX, TTF font. The system can automatically encode and print serial number, batch number, date, etc.

## II. Performance Parameters

Performance	Parameters	Power	0.5KW
		Marking Range	Varies depending on the focal length of the selected lens
			F=254mm Marking Range: 175mm×175mm
			F=160mm Marking Range: 110mm×110mm
		Laser engraving speed	linear scan 7000mm/s
		Minimum line width	0.015mm
		Single engraving depth	≤0.05mm
		Repeatability	±0.01mm
	Minimum character	0.3mm	
	Laser	Laser power	20W
		Single pulse energy	< 0.1mJ
Beam quality M <sup>2</sup>		< 1.3	
Laser wavelength		1064nm	
Software control systems	<p>Control software developed by the company itself, control software in the Windows platform, easy to learn, powerful, compatible with AutoCAD, Coreldraw, Photoshop and other software output PLT, BMP and other file formats, you can mark patterns, barcodes, Chinese and English characters, product flow serial number (automatic number skipping), and can be directly used in the software SHX, TTF fonts, can also be very convenient to adjust the size, spacing and layout of the characters. It can mark patterns, bar codes, Chinese and English characters, product serial numbers (automatic number skipping), and can directly use SHX, TTF fonts in the software, and can also be very convenient to adjust the size, spacing, and layout of the characters.</p>		

### **III. Main Features**

- (1) Adopt integrated whole structure, equipped with automatic focusing system, the operation process is humanized.
- (2) The use of imported isolators to protect the fiber laser window, enhance stability and laser life.
- (3) Beam quality than the traditional solid-state laser marking machine is much better than the fundamental mode (TEM00 output, focused spot diameter of less than 20um. divergence angle of the semiconductor pump laser is 1/4. especially suitable for fine, precision marking.
- (4) High efficiency of electro-optical conversion, the whole machine consumes less than 500W, is a lamp pumped solid state laser marking.
- (5) Without any maintenance, long service life, small size, suitable for harsh environments.
- (6) Fast processing speed, is 2-3 times the traditional marking machine.

## **IV. Working Environment Requirements**

- 1) The ambient temperature requirement is between 15 and 40°C.
- 2) The humidity requirement is 40%-80%. No condensation , dehumidifier should be installed.
- (3) Power supply grid requirements: 220V; 50Hz.
- (4) power supply grid fluctuations:  $\pm 5\%$ , the grid ground in line with international requirements. Voltage amplitude of more than 5% of the region, should be installed with electronic automatic voltage regulator, current stabilizer.
- (5) The installation of equipment should be installed near the strong electromagnetic signal interference. Avoid radio transmission stations (or relay stations) around the installation site.
- (6) Foundation amplitude: less than 50um; vibration acceleration: less than 0.05g. Avoid a large number of stamping and other machine tool equipment in the vicinity.
- (7) equipment space requirements to ensure that there is no smoke and dust, to avoid metal polishing and grinding and other dusty work environment.
- (8) Air pressure: 86-106kpa.
- (9) Certain environments should be installed anti-static flooring to strengthen the shielding.

## **V. Industry Applications**

Any metal material and most of the plastics on the wavelength of 1064nm laser has a very good absorption, so it is particularly suitable for metal, plastic products surface engraving, such as hardware, precision instruments, automobile parts, glasses and clocks, sanitary ware, medical equipment, instruments, spray paint products, ABS plastic, resin material capacitors, inductors, computer keyboards, various types of meters and control panels, nameplates, ceramics, plastics and so on. It can be used in electronics, handicrafts, car audio and other industries. Because of its high efficiency and environmental protection, it is an ideal solution to improve the traditional process.

With the double environmental protection measures under the ventilation system so that the smoke generated in the process can be quickly and thoroughly discharged out of the processing area; and smoke and dust purification machine (optional), so that the smoke and dust discharged in the process of processing by the treatment of this auxiliary equipment, does not pollute the atmosphere, so as to basically meet the requirements of the “zero emission”.

# VI. Processing Sample Pictures





## **VII. Technical Support**

Our technical support to customers is all-round, including pre-sale, sale and after-sale series of technical support and services, different services by different departments to be responsible for, technical support, including but not limited to the operation of the equipment application training, equipment, routine maintenance training and spare parts, spare parts of the continuous supply.

### **1) Application Support**

Our experienced engineers in the Laser Applications Research and Development Department, equipped with a wide range of state-of-the-art laser equipment, are committed to the continuous development of the world's leading laser applications. We provide our customers with scientifically sound laser applications support upon request, assisting in the engraving of a wide range of specialized materials, as well as programming skills to help you achieve the highest quality cuts and maximum throughput per shift. We provide our customers with scientific and rational laser application support upon request, assisting them in engraving a variety of special materials, as well as providing programming skills to help you obtain the highest quality cuts and maximize the output per shift.

Due to the continuous development of new laser marking application technologies, the Laser Application Process R&D Department will launch a series of application process support for customers, so that users can easily solve all kinds of application process problems encountered in production.

## **2) Systematic Training**

As the laser equipment is a technology-intensive product integrating light, machine, electricity, gas and refrigeration, the operator is required to have a certain technical foundation. In order to enable your operators to master the operation skills of the equipment, the operation training of the equipment shall be carried out simultaneously with the installation of the equipment and the on-line debugging at the customer's end-use site when the equipment arrives at the customer's site, and the training will mainly be conducted on the operation and programming of the machine, the maintenance of the equipment and the relevant cutting process. The main purpose is to train your operators in the operation and programming of the machine tools, maintenance of the equipment and related cutting technology, the training time is 3~7 working days, so that your equipment operators can basically achieve the purpose of skillful operation and programming.

## **VIII. Quality Assurance and After-sales Service**

Since the arrival of the equipment to the demand side of the use of the site, installation and commissioning is completed and accepted by the demand side, twelve months for the equipment warranty period.

We attach great importance to the after-sales service of the product, once the product is delivered to the user, the company immediately set up a user after-sales service file, and regular tracking of the user's use of the product, to solve and answer all the user's questions, received from the user on the equipment failure notification information, the company's customer service team within 2 hours to make a rapid response.

### **1) Installation and Commissioning**

Before the installation of the equipment, we will provide a sketch of the infrastructure of the equipment installation site, equipment installation plan shall be submitted to the customer in advance.

### **2) Service Support**

Our well-trained service engineers are available by telephone should any part of the system fail during the warranty period.

We may request the supporting suppliers to provide support to your company for the parts they provide according to the actual situation. For all the support services within the warranty period, users can contact us directly and we will take full responsibility.

The final interpretation of this project proposal belongs to Guangzhou Ailaser Technology Co., Ltd. and the final product configuration is subject to the product sales contract.

## **IX. Manufacturing Standards**

GB 7247.1-2001 Radiation safety of laser products, classification of equipment, requirements and user guide

GB10320-1995 Electrical safety of laser equipment and facilities

GB/T15490-1995 General Specification for Solid-State Lasers

GB/T13740-1992 Test methods for laser radiation divergence angle

GB/T13741-1992 Test Method for Beam Diameter of Laser Radiation

GB 8702-1988 Electromagnetic Radiation Protection Regulations

The quality standard of Ailaser's products is ISO9001:2000.