

CCD Visual

Laser Marking Machine

DLM-ACF

Laser Type:

Fiber Laser

Marking Range:

110*110 / 150*150 / 175*175 /
220*220 / 300*300mm (Optional)



Machine Introduce

DLM-ACF visual laser marking machine uses CCD to identify the product contour and marking position, achieving automatic recognition and marking, and reducing manual time.

High adaptability: Automatically compensates for workpiece position offset, Angle tilt or dimensional tolerance without the need for precision fixtures

High efficiency: Eliminates the time for manual positioning and supports continuous operation on assembly lines.

High precision: The positioning accuracy can reach $\pm 0.01\text{mm}$, making it suitable for micro and small parts.

Application areas:

CCD vision positioning laser marking machines are widely used in various industries and are good at handling products with irregular positions and shapes. It is suitable for various processing occasions with large workloads, difficult feeding and positioning, and diverse and complex workpieces.

It is widely apply in the electronics industry, precision hardware, automotive manufacturing industry, medical device industry, food/beverage/daily chemical packaging industry, and various production and manufacturing industries.

Machine Size



Machine Front



Machine Side



Component Introduction

Model	DLM-ACF
Machine Size	600*800*1340mm
Machine Weight	72kg
Packing Size	750*900*1150mm
Packing Weight	109kg

机型尺寸



	机器	水箱
型号	DLM-ACU	3DUL-05
尺寸	650*800*1640mm	580*290*520mm
重量	115.4kg	20kg
包装尺寸	760*960*1200mm	650*360*560mm
包装重量	159kg	22kg

机器正面



部件介绍

CCD Visual Series

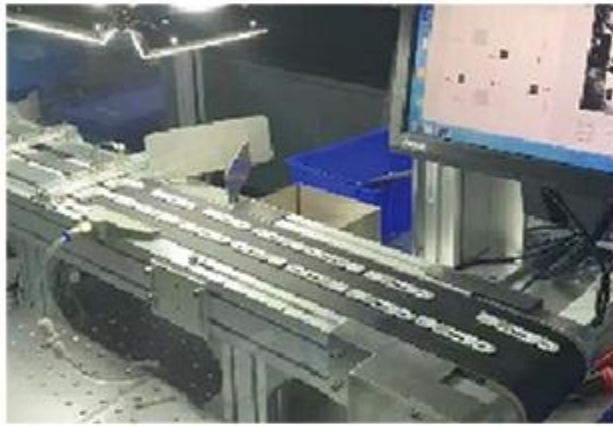
Fiber Laser Marking Machine

The DLM-ACF model is composed of a standard 1064nm fiber laser marking machine combined with a CCD vision dynamic positioning system. It can collect product location information in real time and achieve high-precision positioning and marking under the condition of incoming materials from any Angle, any quantity and any position. At the same time, it can be combined with automated equipment such as assembly lines, vibrating discs, and XY-axis platforms to completely replace manual labor, significantly enhancing production efficiency and saving a considerable amount of costs for the factory.

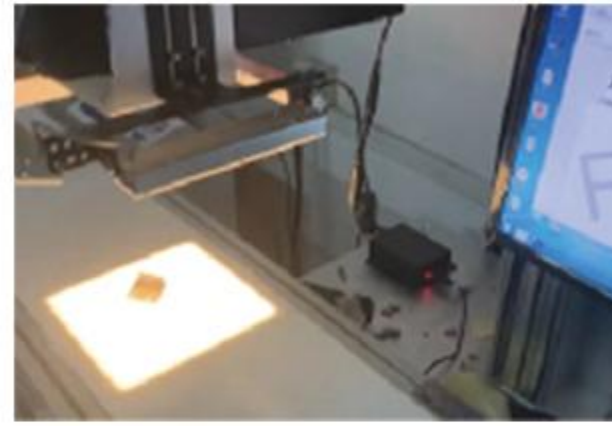
Parameter Information

Model	DLM-ACF					
Laser Parameter	Laser wavelength	1064nm				
	Brand	Raycus / MAX / JPT				
	Laser power	20W	30W	50W	60W	100W
	Repetition frequency	30~60kHz	40~60kHz	50~100kHz	55~100kHz	20~200kHz
	Pulse width	120~150ns	130~160ns	120~150ns	120~150ns	50~110ns
	Power adjustable range	10~100%				
CCD Visual Parameter	Brand	HIKVISION / DAHENG				
	Camera pixel	12 million pixel / 20 million pixel				
Galvanometer Parameter	Brand	SINO-GALVO / ZBTK				
	Marking Speed	≤7000mm/s @ F=163mm				
Laser Output Parameter	Focal length	F=163mm	F=210mm	F=254mm	F=330mm	F=420mm
	Marking range	110*110mm	150*150mm	175*175mm	220*220mm	300*300mm
	Min line width	0.06mm @ F=163mm (View materials)				
	Min character	0.2mm @ F=163mm				
	Repeatability accuracy	0.01mm				
Control System	Brand	JCZ-Multi-Axis Motion Control Card				
	Software	Ezcad2,ADD CCD				
	Support system	Windows				
	Support file format	JPE JPEG BMP GIF PNG AI PLT DXF SVG				
	Software language	CN/EN/DE/FR/ES/TC/JA/KOR etc.				
Other	Lifting method	Manual lifting (Optional electric lifting)				
	Computer	Industrial control computer (Intel I5+8G+128G;19"LCD)				
	Cooling method	Air cooling				
	Power supply	110~220V 50Hz~60Hz				

Application Scenarios



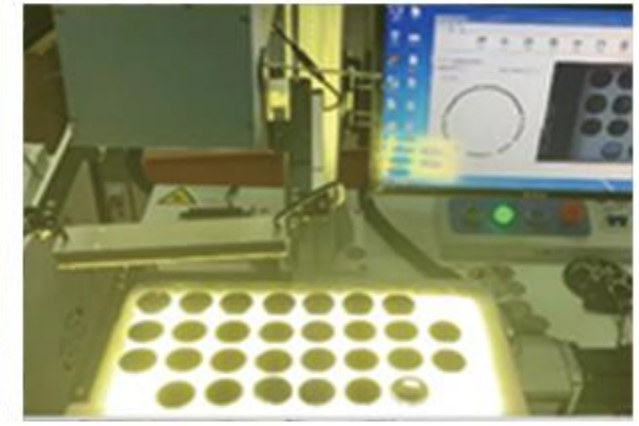
- Fluorescent film visual laser marking



- Chip visual laser marking



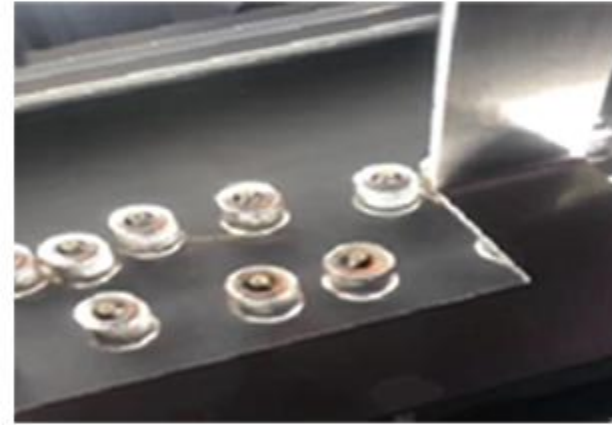
- Control panel visual laser marking



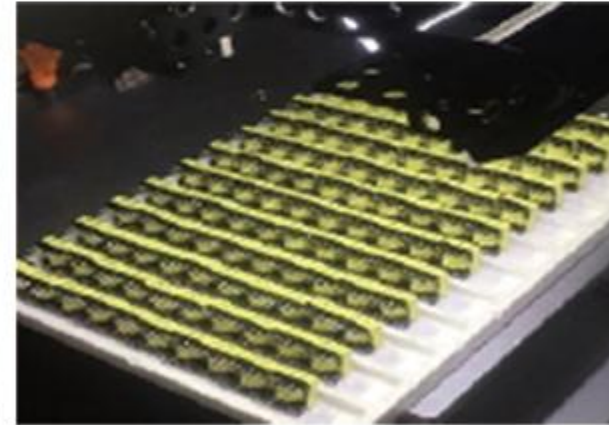
- Dial visual laser marking



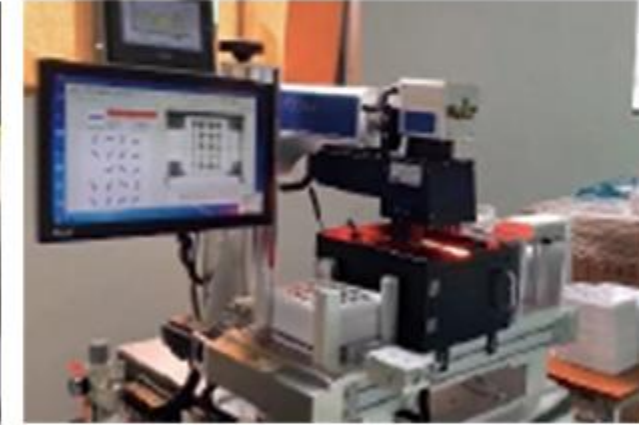
- Food sealing visual laser marking



- Plug visual laser marking



- Transformer visual laser marking



- Button battery visual laser marking

Sample



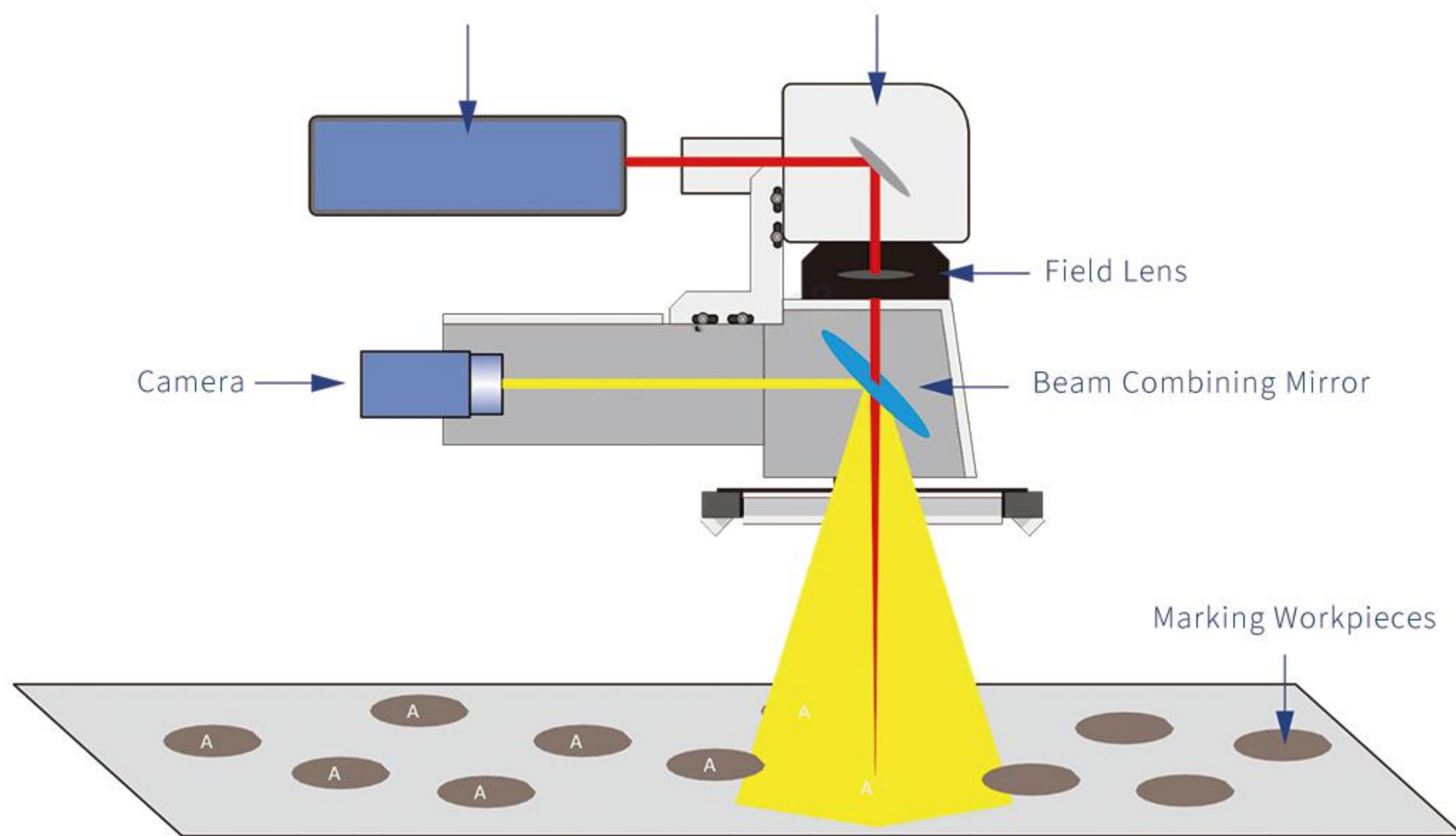
Working Principle

Through machine vision technology, automatic identification, positioning and coordinate correction of workpieces are achieved, thereby guiding the laser beam to precisely mark at the predetermined position. Its workflow can be decomposed into the following key steps:

1. Visual positioning: By taking pictures of the workpiece with a high-precision CCD camera, the preset reference points (Mark points) or contour features are identified.

2. Coordinate conversion: The software system compares the actual position of the workpiece with the theoretical coordinates and automatically calculates the position offset (translation/rotation/scaling).

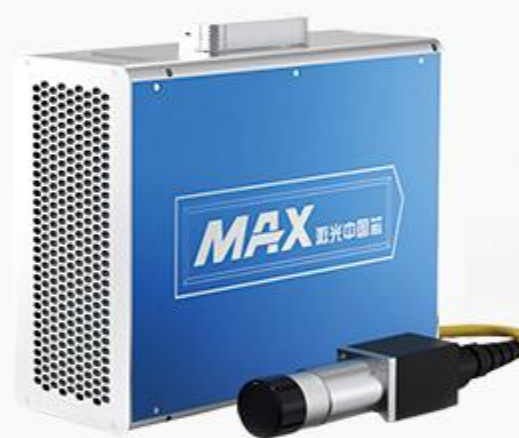
3. Dynamic correction: Laser path is corrected in real time based on the offset data to ensure that the marking accurately lands at the target position.



Common Brand



● Raycus Laser



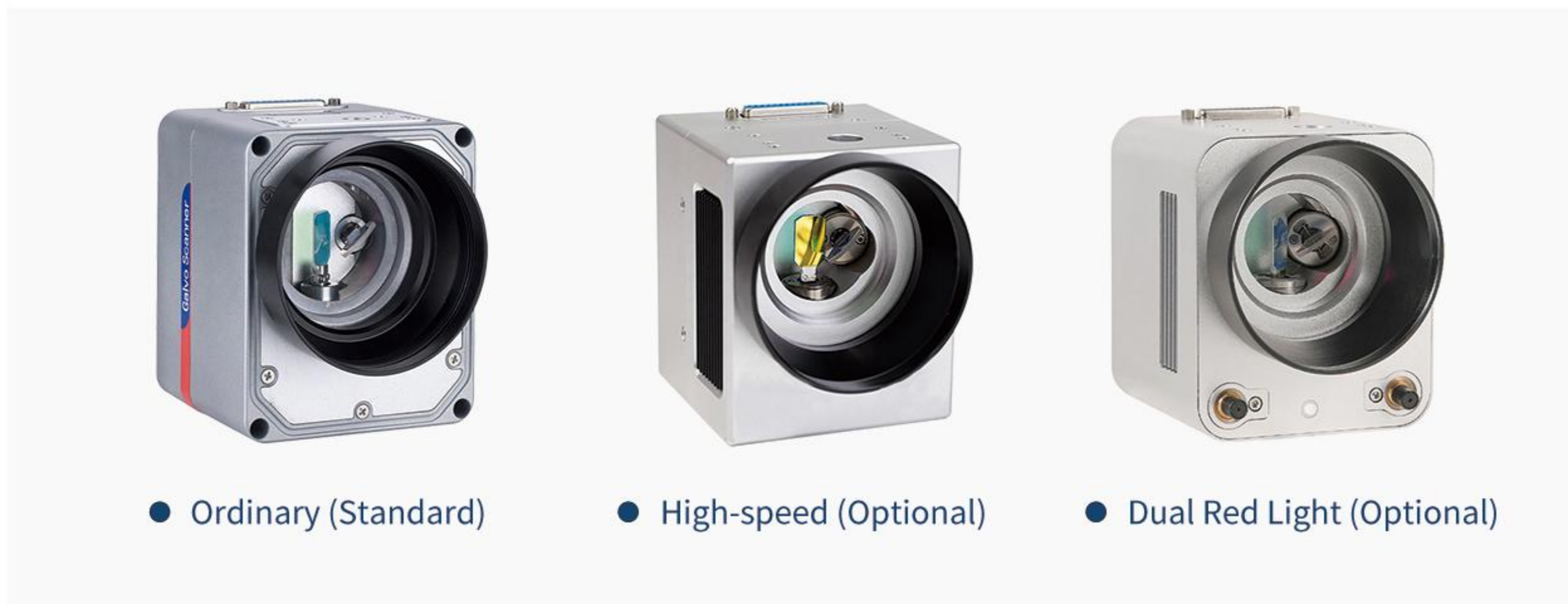
● Max Laser



● JPT Laser

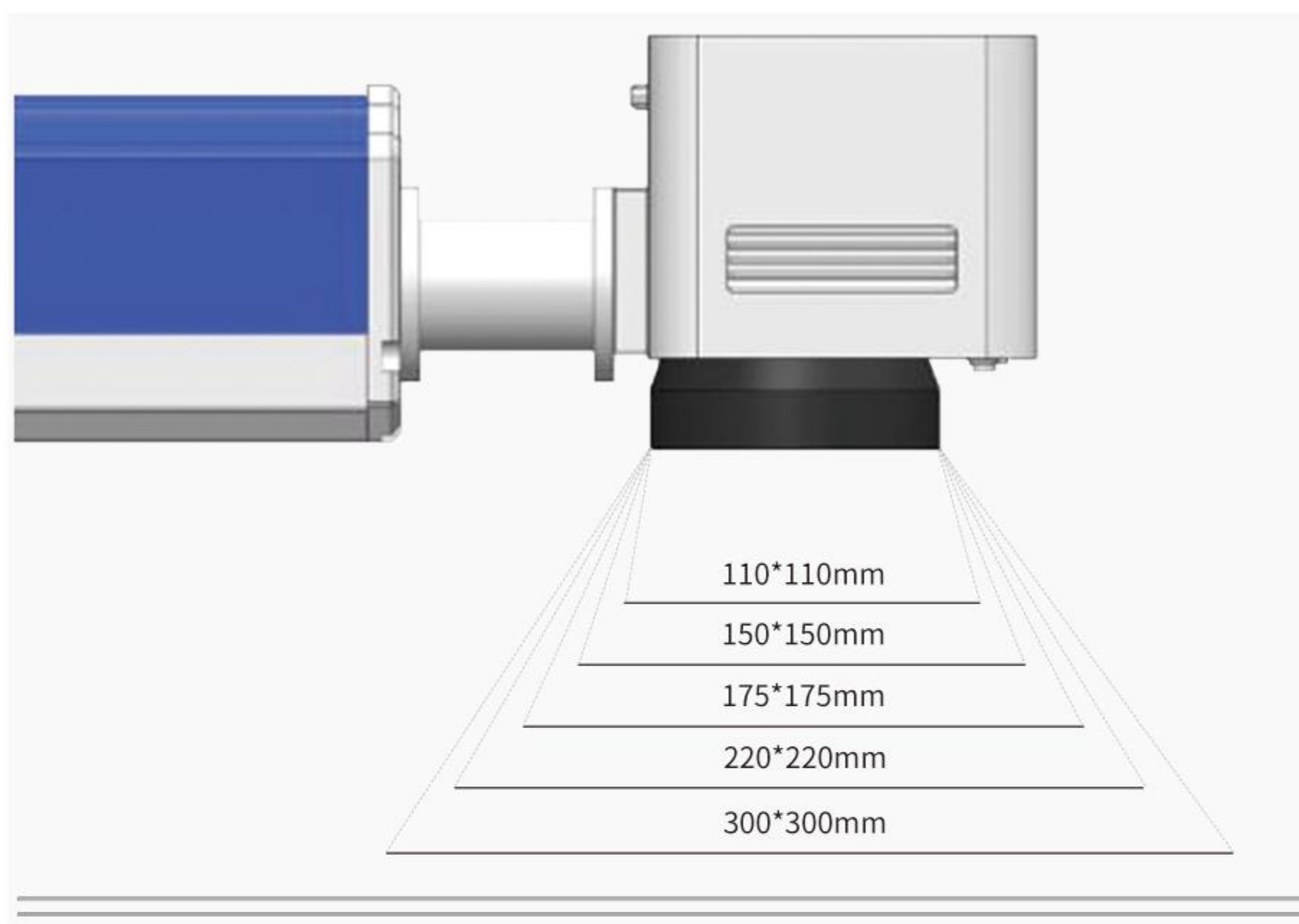
Galvanometer

After computer sends instructions, the control card drives the high-speed deflection of the galvanometer, thereby changing the angle of the lens. The fixed laser beam is continuously reflected by the lens and finally focused by the field lens to form a controllable motion spot on the surface of the workpiece, which is combined into the desired pattern.



Field Lens

The incident laser reflected by the galvanometer at different angles is focused on the same plane to ensure the accuracy of the process pattern throughout the entire area. Meanwhile, focal length of the field lens directly determines marking range. The shorter the focal length, the smaller the marking range, the smaller the light spot, and the clearer the marking effect.

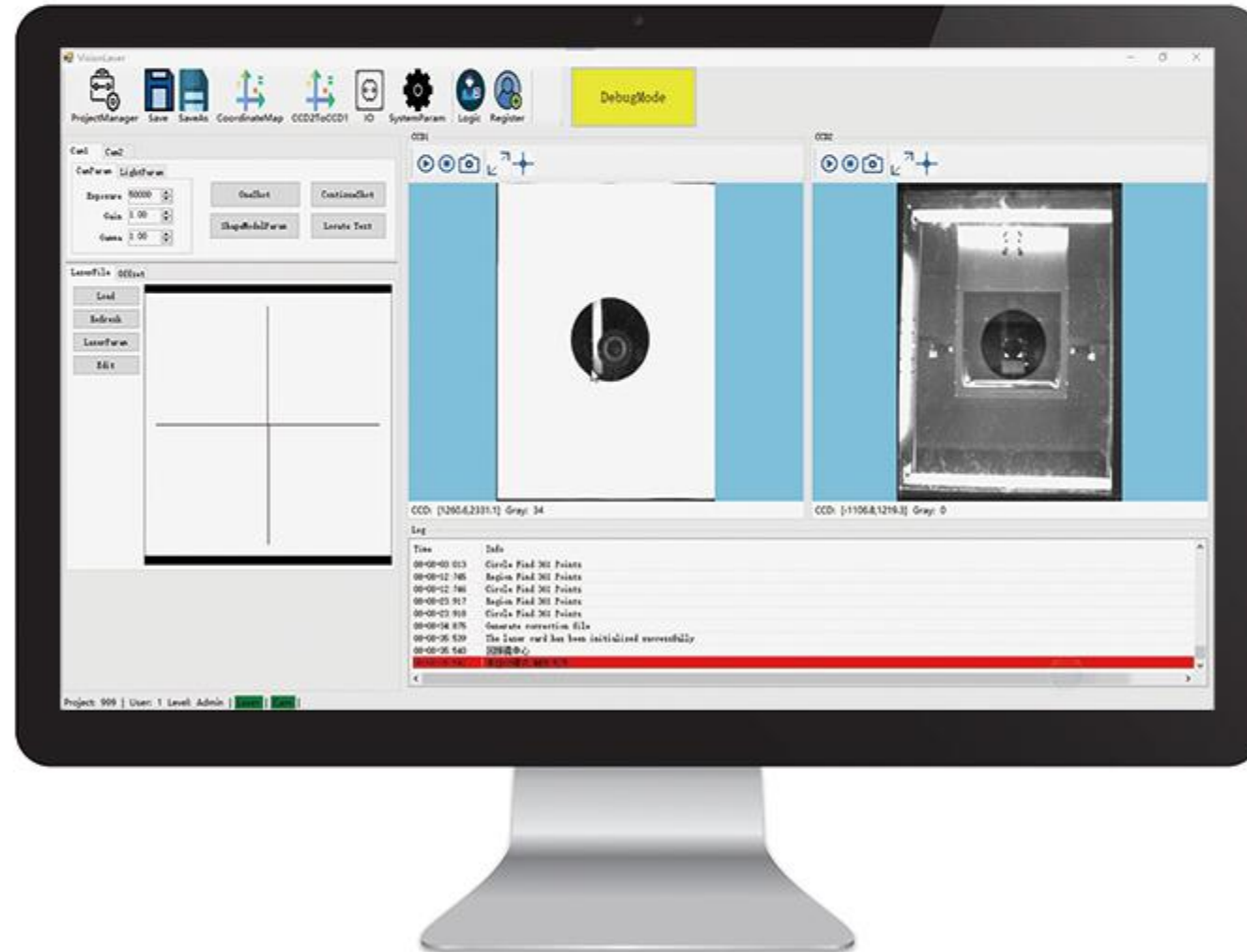


Comparison Table Of Field Lens Optional Range

Focal Length	F=163mm (Standard)	F=210mm	F=254mm	F=330mm	F=420mm
Scanning Range	110*110mm	150*150mm	175*175mm	220*220mm	300*300mm
Working Range	176.94mm	228.63mm	271.98mm	352.47mm	438mm

Ezcad2

Based on the JCZ Ezcad2 marking software and other marking systems, this secondary development focuses on the application of visual positioning marking. Through the all-reflective/all-transparent optical path design, the visual module can be easily installed and debugged quickly without changing the original mechanical structure of the equipment and the laser optical path, achieving high-precision visual positioning and laser correction functions.



Standard Accessory



Protective glasses



USB flash drive



Calibration paper



Focusing film



Foot switch



Ruler



Hexagonal wrench



Positioning bar



Data line



Power cord

Optional Type



- Add X-axis laser marking machine



- Flow line laser marking machine



- UV CCD Visual laser marking machine



- Closed laser marking machine