



# 3D Dynamic Focusing Laser Marking System

Wuhan Huagong Laser Engineer Co.,Ltd

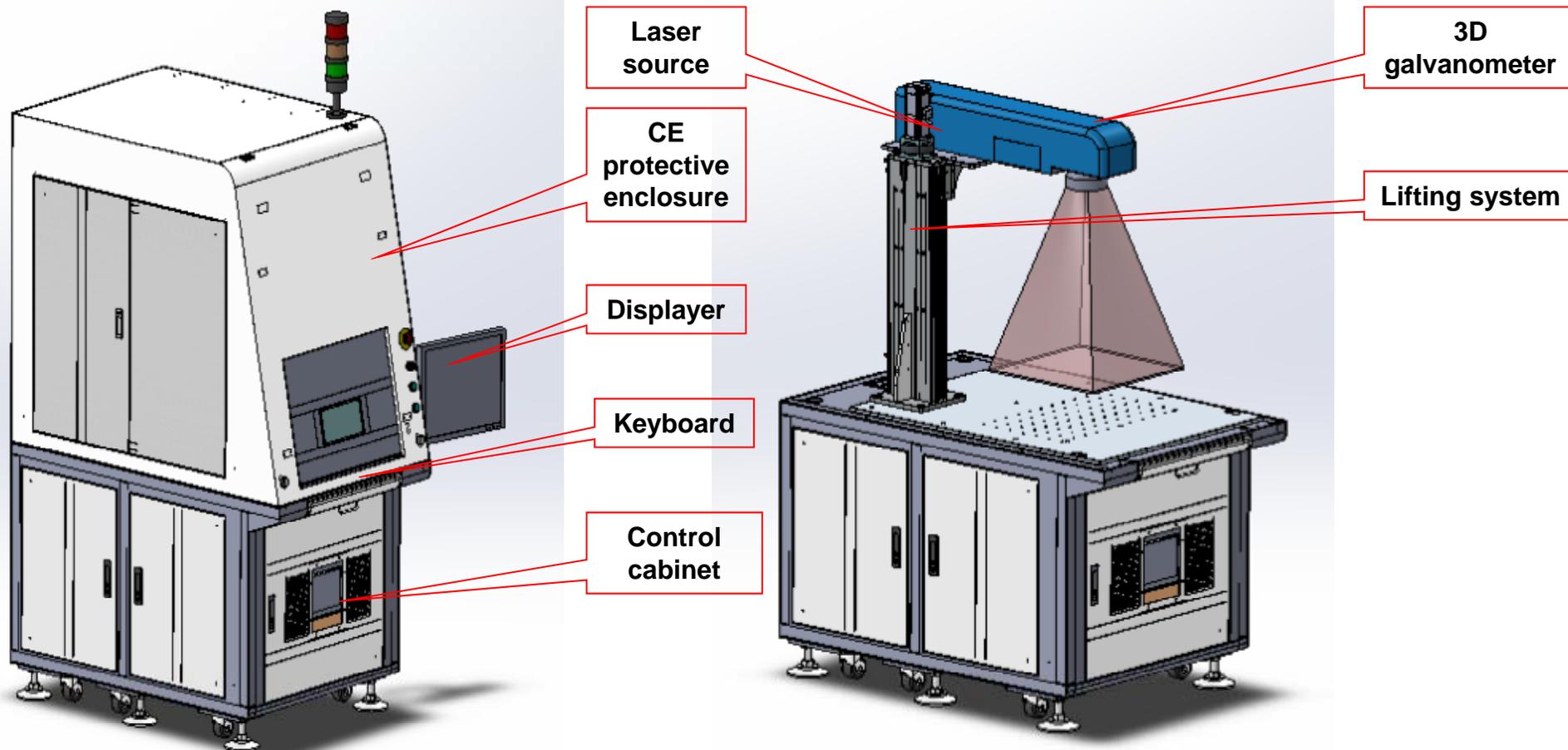


## Features

- Advanced fiber laser source: 15kw peak power, 20w average power, 1mJ pulse energy , average power adjustable without affecting by energy. Output isolator ensures stable output, guarantee advanced performance for highly reflective materials.
- Leading 3D laser marking technology, more precise laser marking in curve surface, no out of focus.
- Patent 3D dynamic focusing laser marking hardware, software, equip specialized 3D galvanometer, fulfill perfect control for any complex 3D structure.
- High precise 3D positioning technology, high speed focusing and scanning system, laser bean, short pulse, high peak power, repeated frequency;
- Leading 3D image processing technology, friendly interface, suitable for dxf, plt, cnc, step, iges, etc.
- High photo-electro transition rate, long life time, low running cost and free of maintenance.
- Fast marking speed, increase production efficiency rapidly.

# Structure

20W 3D dynamic focusing fiber laser marking machine LSF20DS is consist of laser source, galvanometer scanning system, electric control system, PC system, lifting and cabinet, CE protective enclosure, etc.



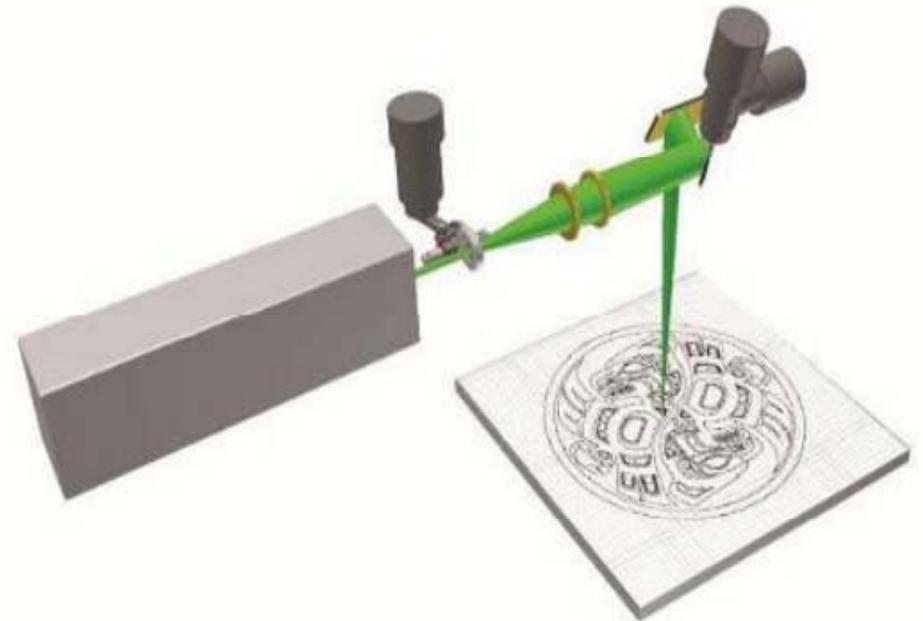
## 3D Dynamic Focusing Principle

### Dynamic focusing principle model

Dynamically control laser source output by specialized optic mirrors, fulfill all points uniformity in complex curve surface.

**Optical beam expander group is consist of 3pcs of focusing lens:**

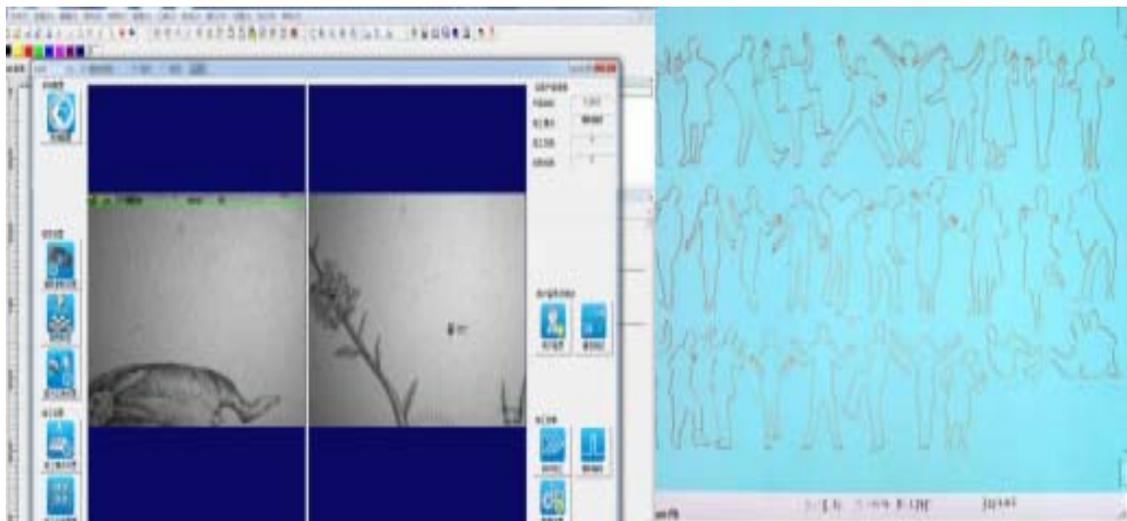
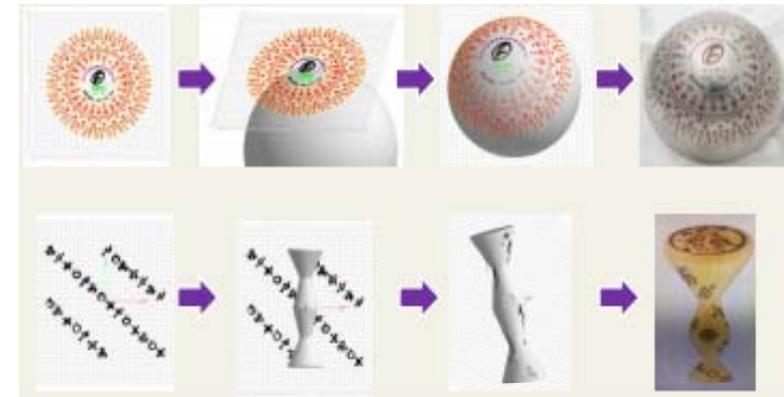
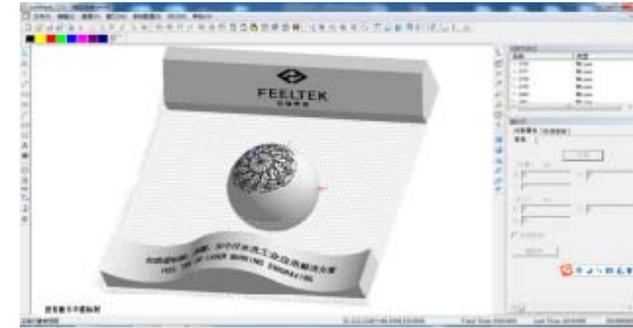
- Two pieces of positive focusing distance lens are non-spherical mirrors, two mirrors work together could eliminate spherical aberration and get better laser beam quality;
- Negative focusing distance lens is controlled by software, provide compensation point by point;



# Patent 3D Laser Marking Software

3D Dynamic focusing laser marking software adopts leading Newton aberration revise and dynamic laser point compensation, ensure all marking surface uniformity, low anamorphose.

Acquire proprietary intellectual property rights 3D curve surface arithmetic and database, low 3D curve surface deformation, could edit directly on 3D diagram; 3D model lay cutting technology could be used in **curve surface embossment** and **3D printing**;



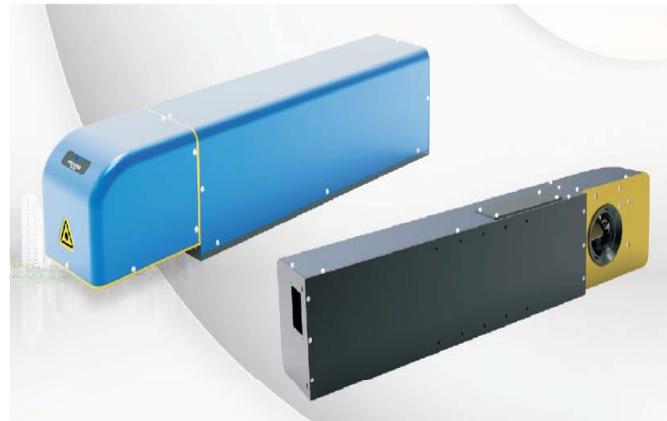
Based on this software, HGLaser has developed more applications, like inline laser marking, visual identify, curve surface embossment, texturing, 3D printing, etc.

# Standard Configuration

**Model: LSF20DS**



20W fiber laser source



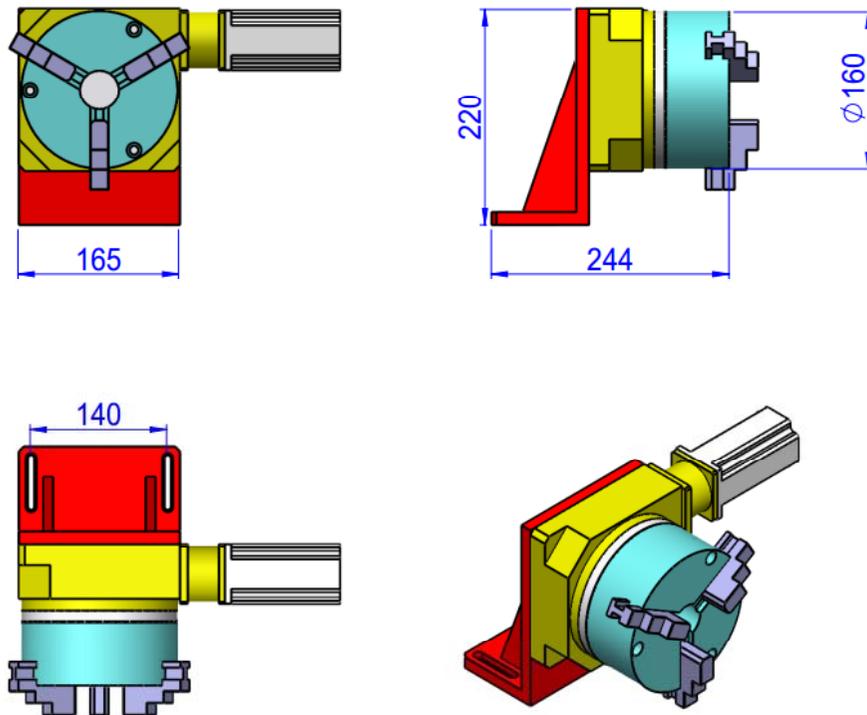
American CTi 3D dynamic focusing system



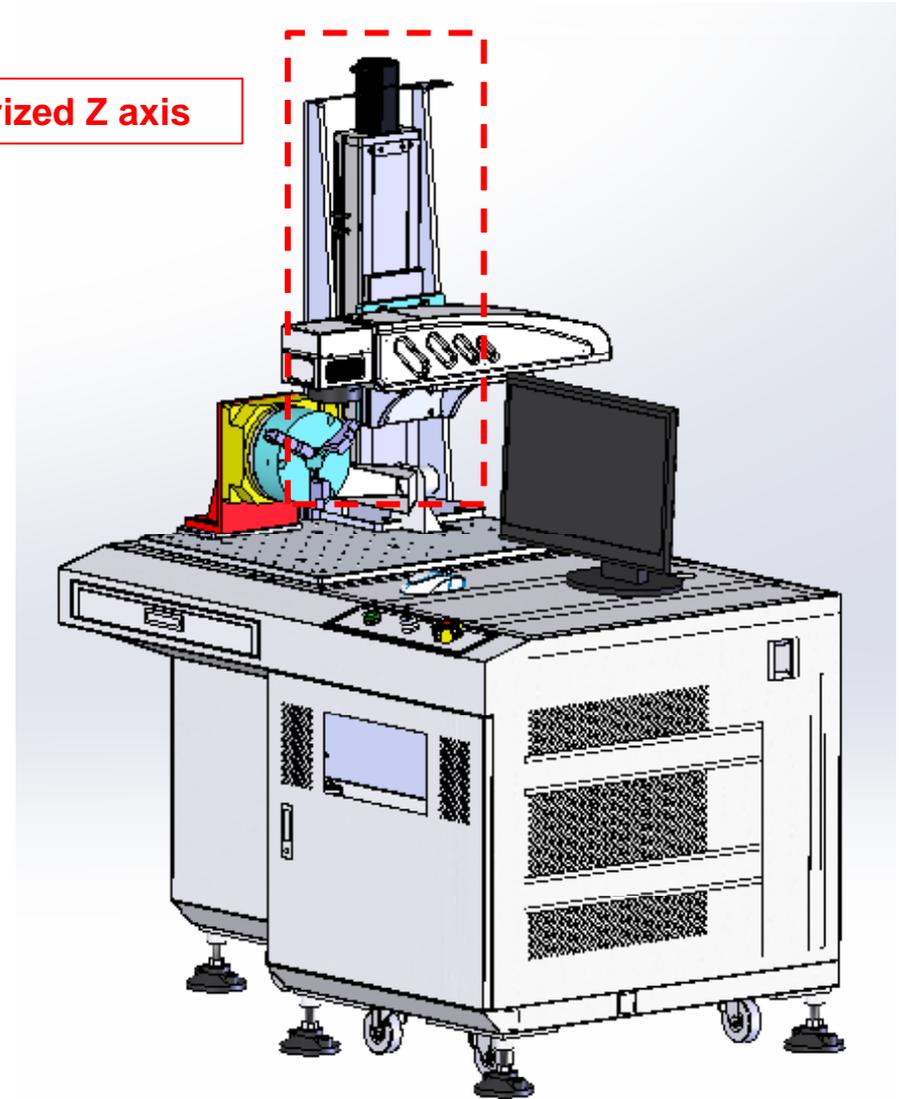
Mechanical system

# Optional Configuration

Rotary marking platform



Luxury motorized Z axis

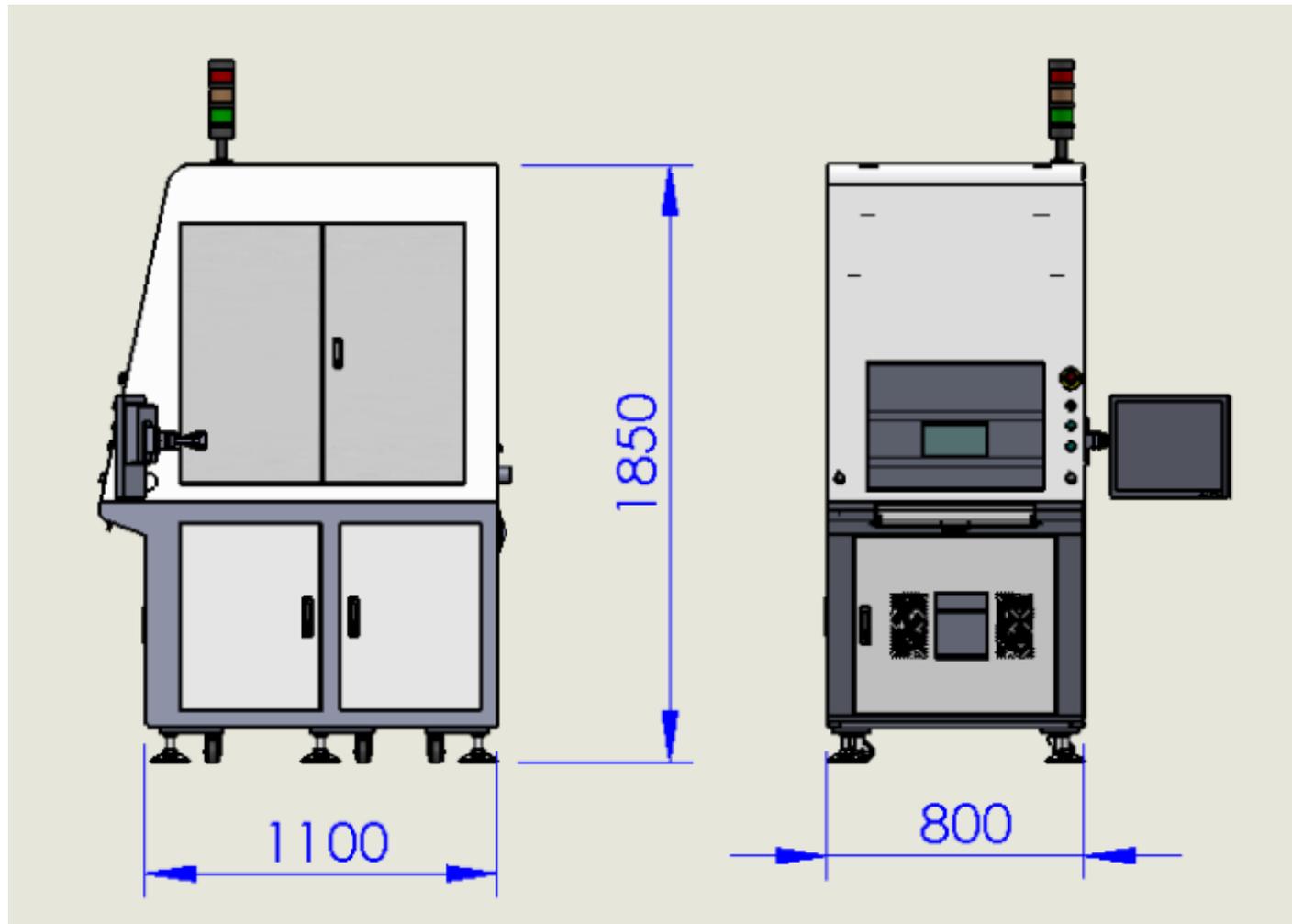


## Configuration list (standard)

### LSF20DS

Name	Item	Description	Note
1	<b>Laser source</b>	<b>Racyus/IPG 20W</b>	<b>Optional</b>
2	3D galvanometer	<b>American Cti, Marking area 600X600X80mm</b>	High precision, fast speed, high stability.
3	Industrial computer	HGLaser	High-end configuration
4	Control card	LMC USB	/
5	3D marking software	HGLaser	Easy operation and edit, support multiple softwares.
6	Lifting device	Stroke: 1000mm	4 guide-bars lifting system, high reliability.
7	Control cabinet	Compact cabinet, dimension: 1240mmX800mmX1850mm	Reinforce cabinet, heavy load, inside components sealed, good grounding and antijamming capability
8	CE enclosure	HGLaser	Specialized for laser protection
9	Cooling system	HGLaser	Air cooling

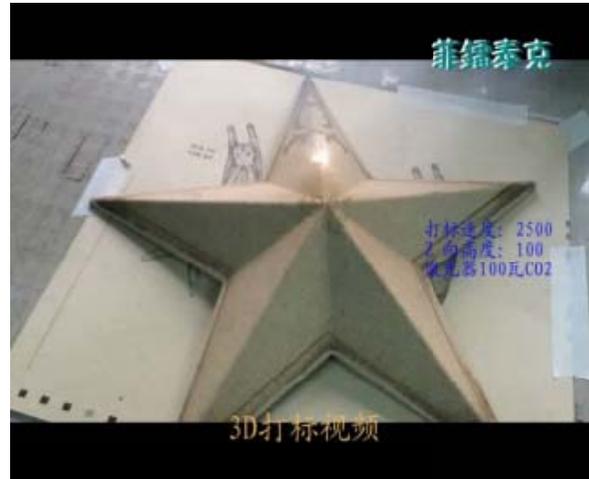
## Machine dimension



Standard CE standard dimension

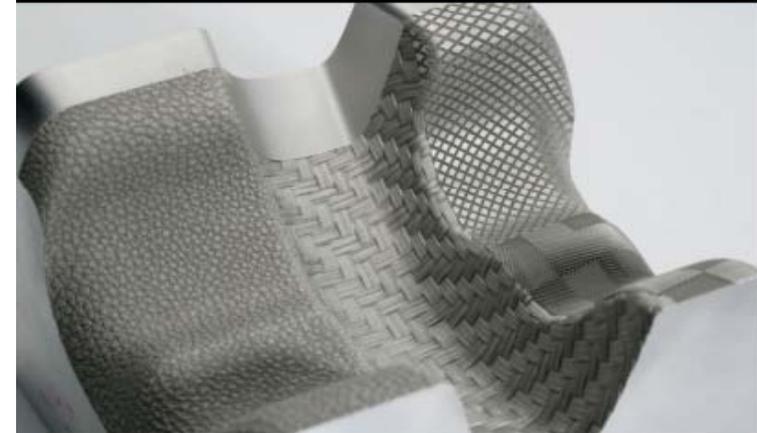
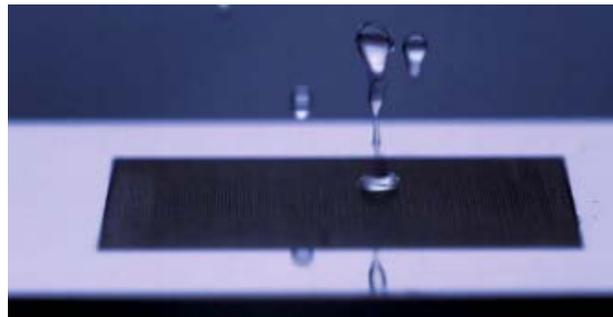
# Typical Projects

3D dynamic focusing laser marking in **COMPLEX 3D CURVE SURFACE**



## Typical projects

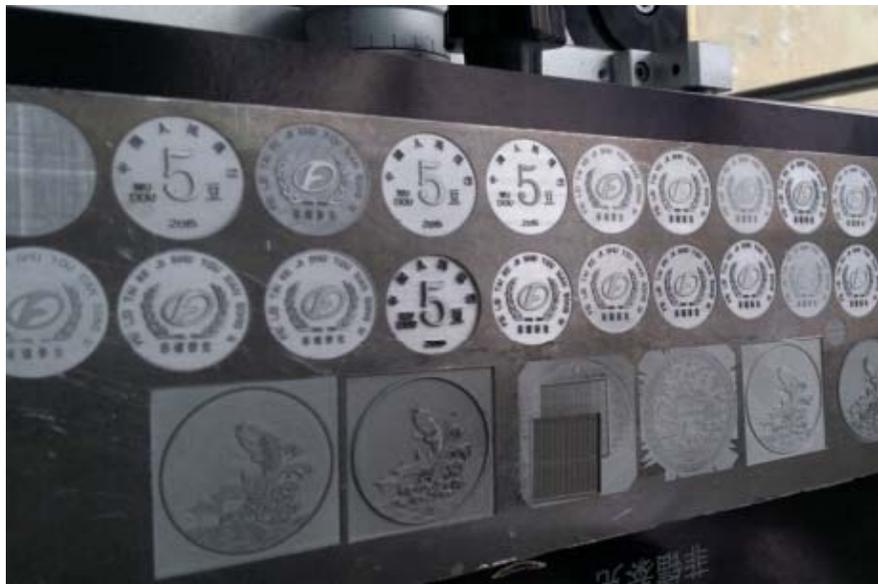
3D dynamic focusing laser marking in **PRECISE DIE**



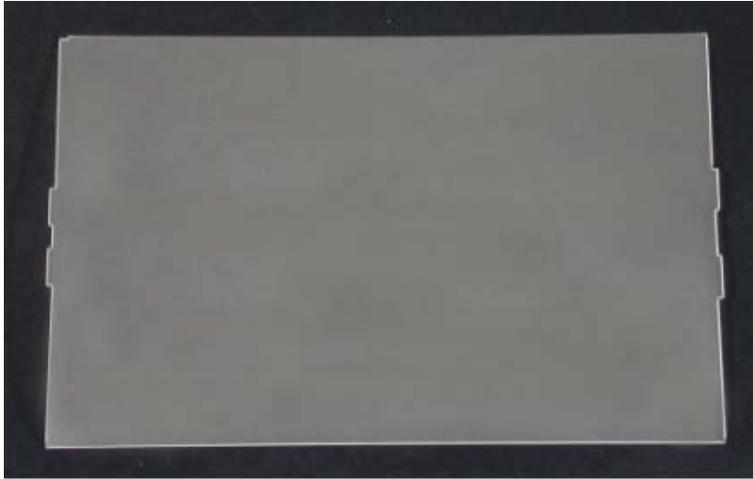
# Typical projects

3D dynamic focusing laser marking in

**EMBOSSMENT**

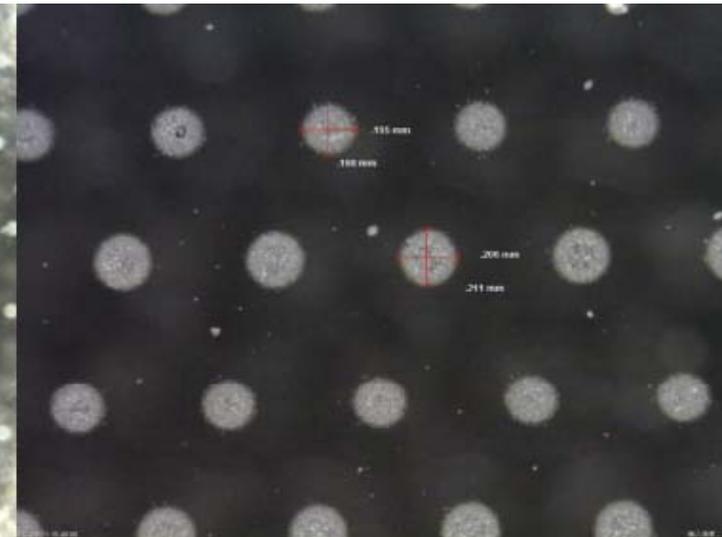


## Typical projects



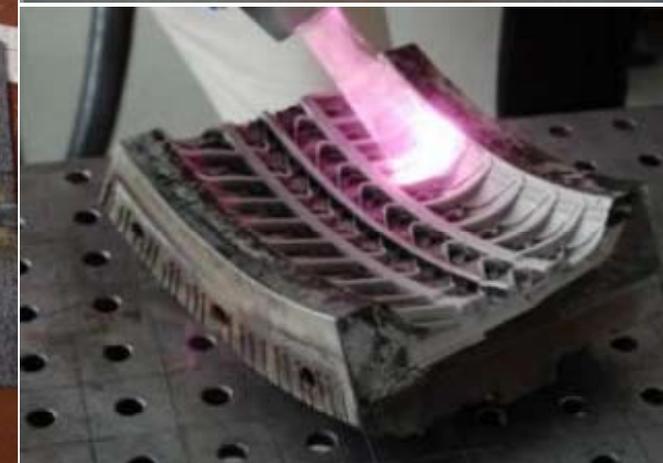
### 3D dynamic focusing laser marking in **Large Area Light Guide Plate(LGP) :**

- Trough diameter is 0.15~0.85 adjustable, roundness is higher than 90%;
- Overall uniformity is more than 85%, trough acceptable rate is more than 90%;
- Highest speed reach 10,000 points/second;
- No weak laser area in central area;



## Typical projects

3D dynamic focusing laser marking in: **Laser Cleaning**



## Typical projects

3D dynamic focusing laser marking in: **3D PRINTING**

