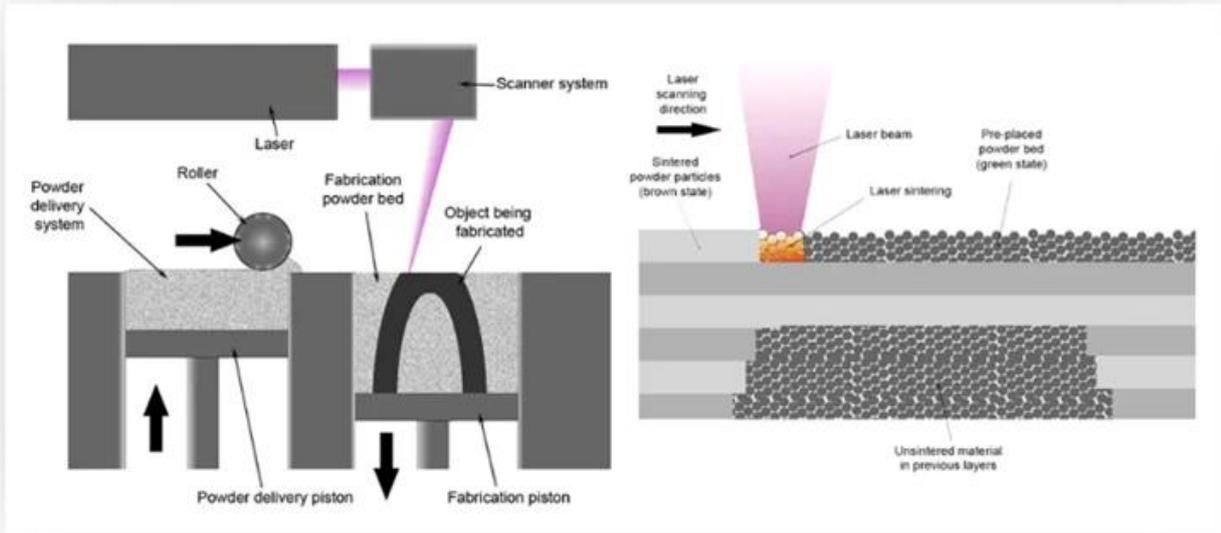


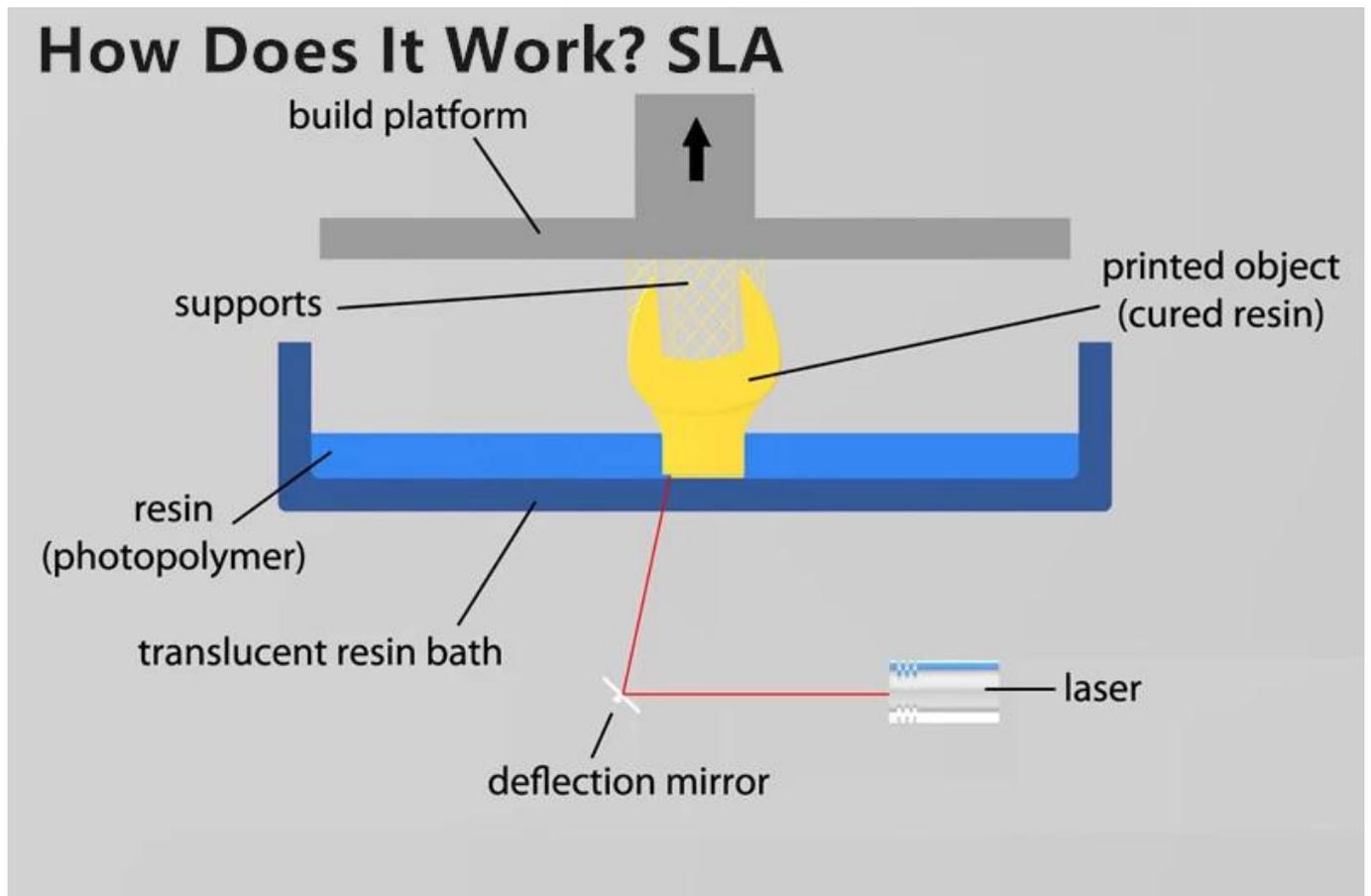


# How Does It Work? SLS



**SLA** (선택적 레이저 소결)는 UV 레이저를 사용하여 분말을 VAT에 선택적으로 소결하여 3D 물체를 생성하는 제조 방법입니다. 이 프로세스는 CAM / CAD 소프트웨어를 사용하여 UV 레이저를 사용하여 VAT에 선택적으로 소결된 분말을 사용하여 3D 물체를 생성합니다. 이 프로세스는 선택적 레이저 소결을 사용하여 3D 물체를 생성하는 데 사용됩니다.

# How Does It Work? SLA



Carmanhaas. [3D 프린팅](#)은 다양한 제조 방법을 포함하며, F-Theta 레이저 Galvo 시스템은 이러한 프로세스를 지원하는 데 사용됩니다.

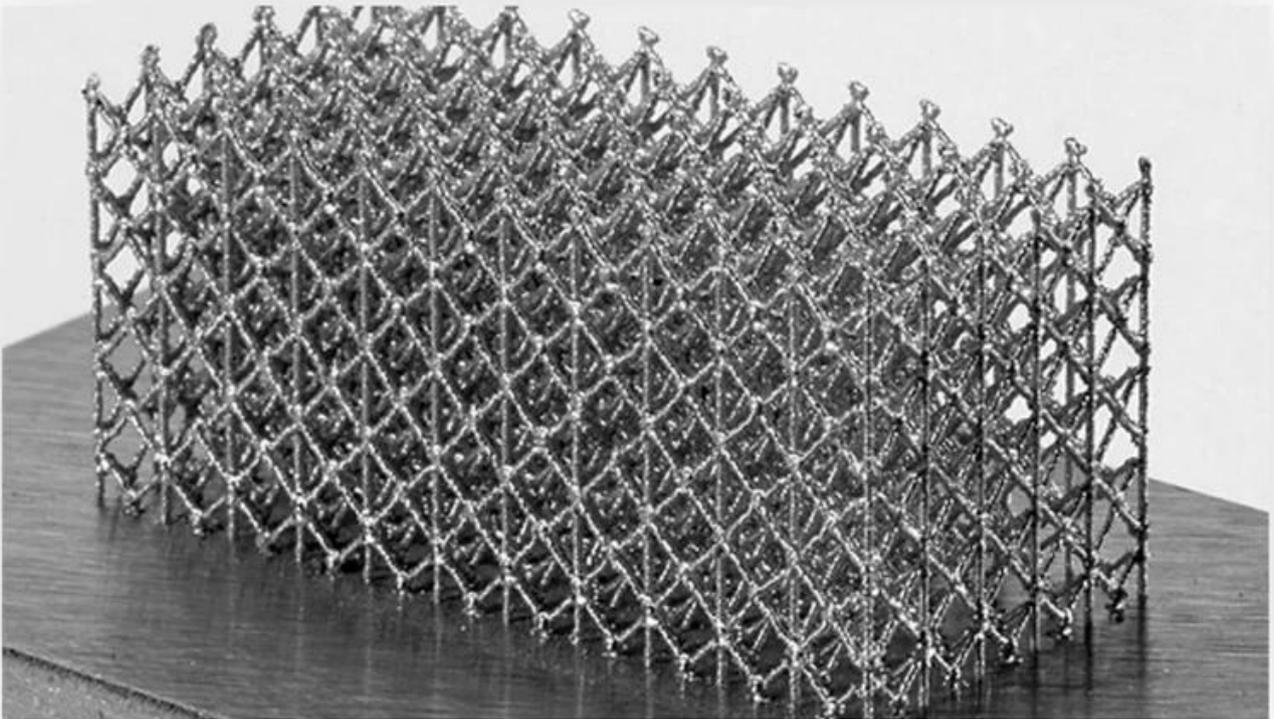
□□ □□ :

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- (1) □□ □□ □□□□ □□□ M2□ □□□□ □ □□□ □□ □□ □ □□□ < 0.04;
- (2) □□□□ □□□ 1.5 □ □□□ □□□ 93 %□□ □□.
- (3) □□ □□ □□□□ □□ □□ □□ 2000W □□ □□ □□□□ □□ □□□ 50J / cm2□□□□.
- (4) □□ □□ □□□ □□ □□□□□ 95 % □□ □□□□□.
- (5) □□□□ □□ □ □□ □□ □□□□ □ □□ □□□;

SELECTIVE LASER MELTING (SLM)

## Pros and Cons



# Stainless Steel



Desktop FDM



Industrial FDM



Desktop SLA



Industrial SLA



Industrial SLS

## ZRPA12 ( PA12 Nylon Powder )



<b>PHYSICAL CHARACTERISTICS</b>	Grain Size: 50~55 $\mu$ m Shape: Spherical Apparent density: $\geq 0.40$ g/cm <sup>3</sup>
<b>THERMAL PROPERTY</b>	Melting Point: 182~185°C (10°C/min) Melting Enthalpy: $\geq 90$ J/g HDT: 83.8°C @1.8MPa / 146.1°C @0.45MPa
<b>MOLDING PERFORMANCE</b>	Density: 0.97 g/cm <sup>3</sup> Tensile Modulus: 1600 MPa Tensile Strength: 43 MPa Elongation at break: $\geq 15$ % Un-notched Impact Strength: 20.7 KJ/m <sup>2</sup> Notched Impact Strength: 3.8 KJ/m <sup>2</sup> Bending Modulus: 1432 MPa Bending Strength: 57 MPa

## ZRTPU ( Thermoplastic Polyurethanes Powder )



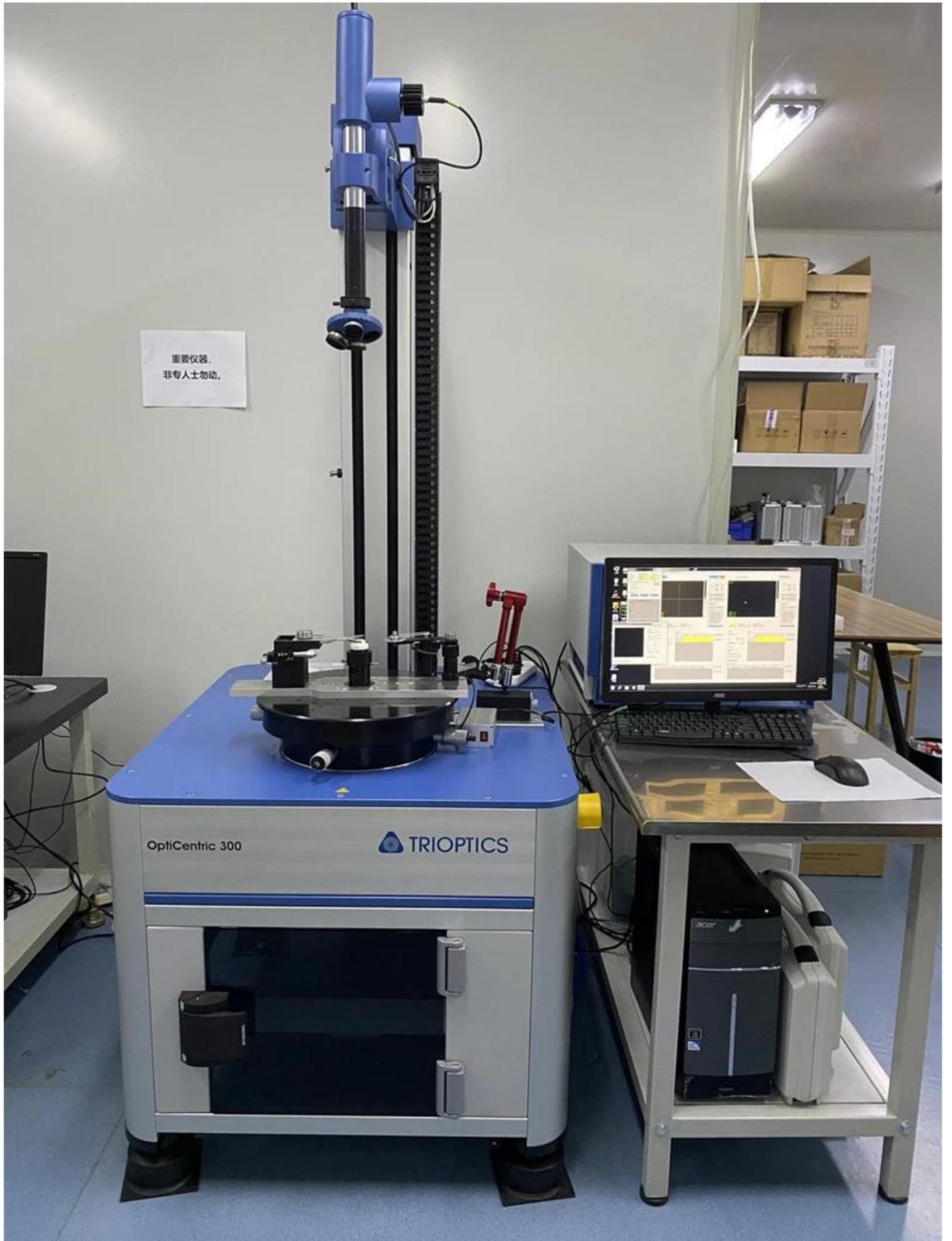
<b>PHYSICAL CHARACTERISTICS</b>	Grain Size: 60 $\mu$ m Shape: Spherical Apparent density: 0.47 g/cm <sup>3</sup>
<b>THERMAL PROPERTY</b>	Melting Point: 165°C HDT Heat deflection temperature: -25°C
<b>MOLDING PERFORMANCE</b>	Density: 1.15 g/cm <sup>3</sup> Tensile Modulus: 61 MPa Tensile Strength: 21 MPa Elongation at break: 310 % Tear strength: 101 N/mm Bending Modulus: 74 MPa Bending Strength: 3.3 MPa

## Co-Cr Alloy ( MP1 )







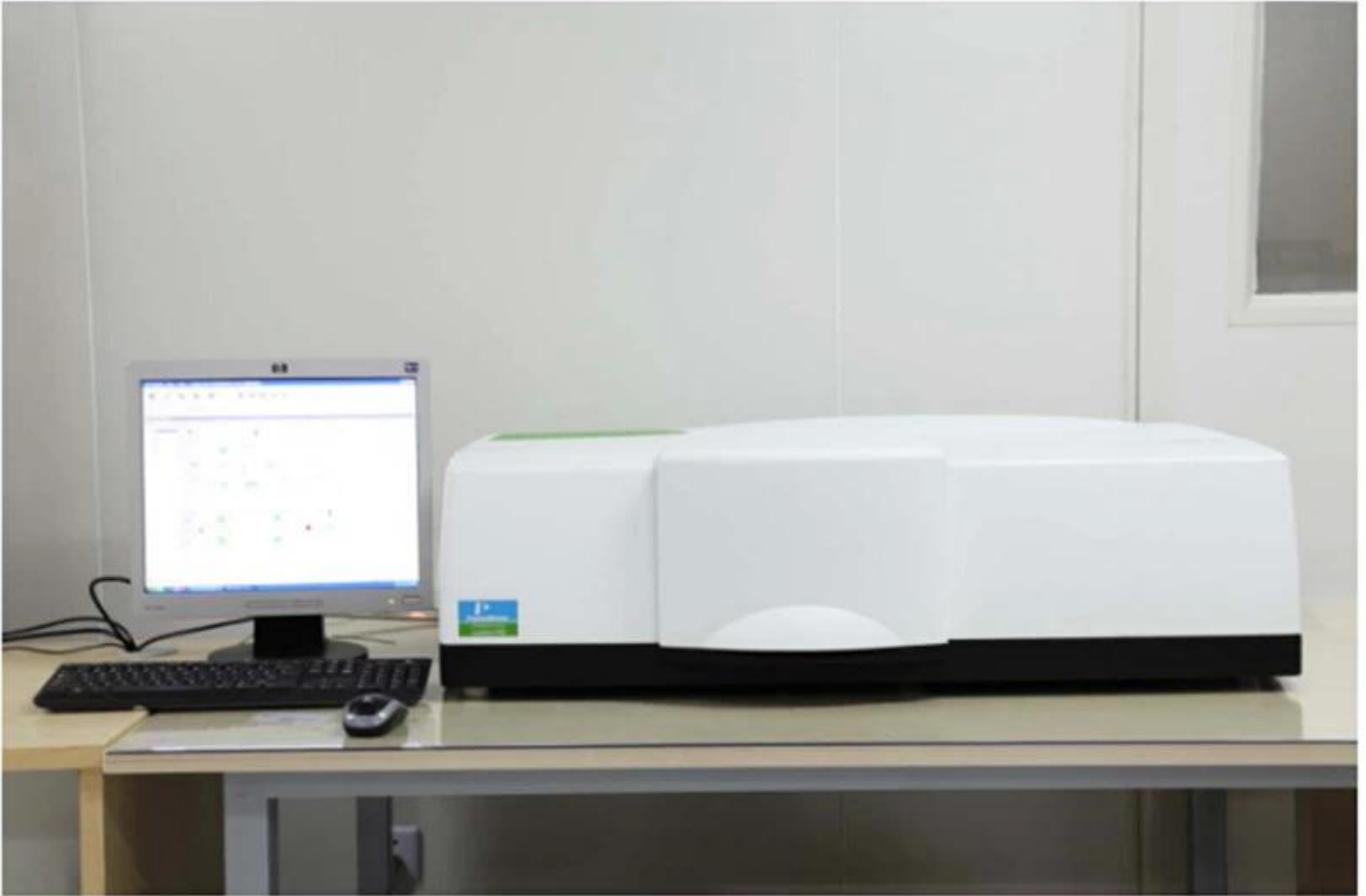


重要仪器,  
非专业人士勿动。

OptiCentric 300

TRIOPTICS





PerkinElmer Lambda 950---Testing Transmission and Reflectivity







# C E R T I F I C A T E

## ATTESTATION CERTIFICATE OF MACHINERY AND LOW VOLTAGE DIRECTIVES

Technical file of the company mentioned below has been observed and audit has been completed successfully. 2006/42/EC Machinery Directive and 2014/ 35/EU Low Voltage Directive have been taken as references for these processes

Company Name : **Camman HAAS Laser Technology (Suzhou) Co., Ltd.**

Company Address : No 155, West Road Suhong, Suzhou Industrial Park, Suzhou City, Jiangsu , P.R.China

Related Directives and Annex : **Low Voltage Directive 2014/35/EU  
Machinery Directive 2006/42/EC**

Related Standards : **EN ISO 12100:2010; EN 60204-1:2006+A1:2009-AC:2010**

Product Name : **Laser Marking Machine**

Report No and Date : SD-90049717:09.08.2018

Product Brand/Model/Type : LMCH-3W,LMCH-5W,LMCH-10W,LMCH-15W,LMCH-20W,LMCH-25W,  
LMCH-30W,LMCH-50W,LMCH-60W,LMCH-70W,LMCH-100W,  
LMCH-120W,LMCH-150W,LMCH-200W,LMCH-300W,LMCH-500W

Certificate Number : **M.2018.201.N6073**

Initial Assessment Date : 10.08.2018

Registration Date : 13.08.2018

Reissue Date/No :

Expiry Date : **12.08.2023**

  
UDEM International Certification  
Auditing Training Centre Industry  
and Trade Inc. Co.

The validity of the certificate can be checked through [www.udem.com.tr](http://www.udem.com.tr). The CE mark shown on the right can only be used under the responsibility of the manufacturer with the completion of EC Declaration of Conformity for all the relevant Directives. This certificate remains the property of UDEM International Certification Auditing Training Centre Industry and Trade Inc. Co. to whom it must be returned upon request. The above named firm must keep a copy of this certificate for 15 years from the registration of certificate. This certificate only covers the product(s) stated above and UDEM must be notified in case of any changes on the product(s)  
Address: Muthakent Mahalleli 2073 Sokak (Eski 93 Sokak) No:10 Çankaya - Ankara - TURKEY  
Phone: +90 0312 443 03 90 Fax: +90 0312 443 03 70  
E-mail: [info@udemild.com.tr](mailto:info@udemild.com.tr) [www.udem.com.tr](http://www.udem.com.tr)



## Certificate of Approval

Certificate No.: 10119Q12565ROM

Awarded to

**Carman Haas Laser Technology(SuZhou)  
Co., Ltd.**

Organization Code Certificate No. / Unified Social Credit Code:91320594MA1MF4EP56  
Add.:No.155, West Road Suhong, Suzhou Industrial Park, Suzhou City, Jiangsu Province, P.R. China. 215000

Beijing ZhongLian TianRun Certification Center (ZLTR) certify that the  
Quality Management System of the above organization has been assessed and found to be  
in accordance with the requirements of the standard:  
**GB/T19001-2016 / ISO9001:2015**

### SCOPE OF CERTIFICATION/REGISTRATION

The Research and Development and Production of Optics Lenses (Except the limits of national laws and regulations.)

This certificate is made valid when used with certification scopes and the requirements of applicable laws and regulations. These requirements include, but are not limited to, administrative permits, scopes of qualifications, and CCC requirements.

Subject to operation conditions in requirements conformity with Quality Management System,

This Certificate is valid for a period of three years only,

**Date from: Mar 13th,2019 To: Mar 12th,2022**

The effectiveness of this Certificate shall be Validated by periodic surveillance audit of ZLTR for maintenance.

Information of this certificate can be found on the official website of Beijing Zhonglian Tianrun Certification center (<http://www.zltr.com.cn>)

ISO 9001

ISO 9001



Beijing Zhongliantianrun Certification Center

Room2603, 22nd Floor, 2nd Unit, Block 1, No.4 Yard, Qiyang Road, Chaoyang District, Beijing, P.R. China 100102

Information of this certificate can be found on the official website of Certification and Accreditation Administration of the People's Republic of China (<http://www.cnca.gov.cn>)





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- 1 問) 〇 〇〇〇 〇〇〇〇 〇〇〇〇〇〇.
- 2 問) 〇〇〇 〇〇〇 〇〇 〇〇〇 〇 〇〇 〇〇 〇〇〇〇〇〇.
- 3 問) 〇〇〇 〇〇〇〇 〇〇 〇〇〇 〇〇〇〇〇.
- 4 問) 〇〇 〇 〇〇 〇〇 〇〇〇 〇〇 〇〇〇 〇〇〇〇〇.

問 問:

- (1) 〇〇〇 〇〇 〇〇 〇〇〇 〇〇 DHL, UPS, FedEx, TNT, EMS, ETS 〇 〇〇〇 〇 〇〇〇〇.
- (2) 〇〇〇〇〇〇〇〇〇〇〇, 〇 〇 〇〇〇〇~〇〇〇〇〇 〇〇~〇 〇〇〇〇〇NS 〇〇FOB, CNF, CIF. 〇 〇〇〇〇〇〇〇~〇 〇〇〇〇〇〇〇〇 〇~〇NS 〇〇〇〇〇〇〇〇〇〇〇〇 〇.

〇〇〇〇 〇〇

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Q1. 〇〇〇〇〇〇?

A1 : 〇, 〇〇〇 〇〇 〇〇〇 〇〇 〇 〇〇 〇〇〇 〇〇 〇〇〇〇〇 〇〇 〇 〇〇〇〇〇〇〇.

Q2. 〇〇〇 〇〇〇 〇〇〇〇?

A2 : 〇〇〇 〇〇〇〇 QC 〇〇 〇〇 〇〇〇 〇〇〇 〇〇〇〇 〇〇 〇〇 〇, 〇〇 〇〇 〇 〇〇〇 〇〇〇〇 〇〇〇 〇〇〇 〇〇〇〇〇.

Q3. 〇〇〇 〇〇〇〇〇?

A3 : 〇〇〇 〇〇 〇〇〇〇 〇〇 〇〇〇〇 〇〇 〇〇〇〇〇 〇〇〇 〇〇〇〇〇.

Q4. 〇〇〇 〇〇〇 〇〇〇 〇〇〇〇?

A4 : 〇〇〇 〇〇〇〇〇 〇〇 〇〇 〇〇 〇〇〇〇 〇〇 〇〇〇 〇〇 〇〇, 〇〇, 〇〇 〇〇 〇 〇〇 〇〇〇〇〇. 〇〇〇〇〇.

Q5. May MARKING 〇〇〇 〇〇〇〇〇 〇〇 〇〇〇 〇〇〇 〇?

A5 : 〇! 〇〇〇 〇〇〇 〇〇〇 〇〇〇〇 〇〇〇〇〇 〇〇 〇〇〇 〇〇 〇〇 〇 〇〇〇〇.

Q6. 〇〇〇 〇〇 〇 〇 〇〇〇?

A6 : 〇, 〇〇〇 〇〇〇 〇〇〇 〇〇〇 〇〇〇〇 〇〇 〇〇〇〇.

Q7. OEM 〇〇 ODM 〇〇〇 〇〇〇 〇 〇 〇〇〇?

A7 : 〇〇 OEM / ODM ORD 〇〇 〇〇 〇〇〇 〇〇ers. 〇〇〇 〇〇〇〇 〇〇〇〇〇 〇〇〇〇 〇〇 〇〇 〇〇〇〇〇.

Q8. 〇〇〇 〇〇〇 〇〇〇〇〇?

A8 : 〇 〇〇〇 〇〇〇 〇〇〇 〇〇 〇〇 〇 MOQ 〇〇〇 〇〇〇 T / T 〇〇 〇 〇 〇〇〇.