

## Product Description

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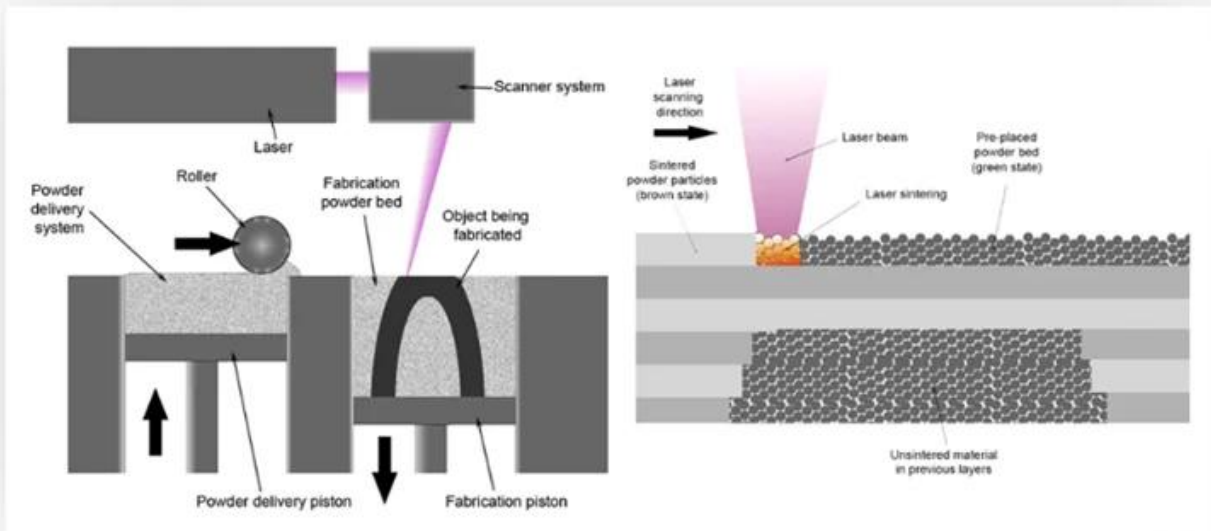
**SLM ( Selective laser melting)** is a type of metal additive manufacturing or 3D printing. Often, the terms SLM and direct metal laser sintering (DMLS) are used interchangeably. However, the two technologies differ slightly, in that SLM melts pure metals while DMLS fuses metal alloys.

SLM is one of the most exciting 3D printing technologies available today and is utilized both for rapid prototyping and mass production. The range of metal alloys available is fairly extensive. The end result has properties equivalent to those manufactured via traditional manufacturing processes. ([SLM Optical System Supplier China](#))



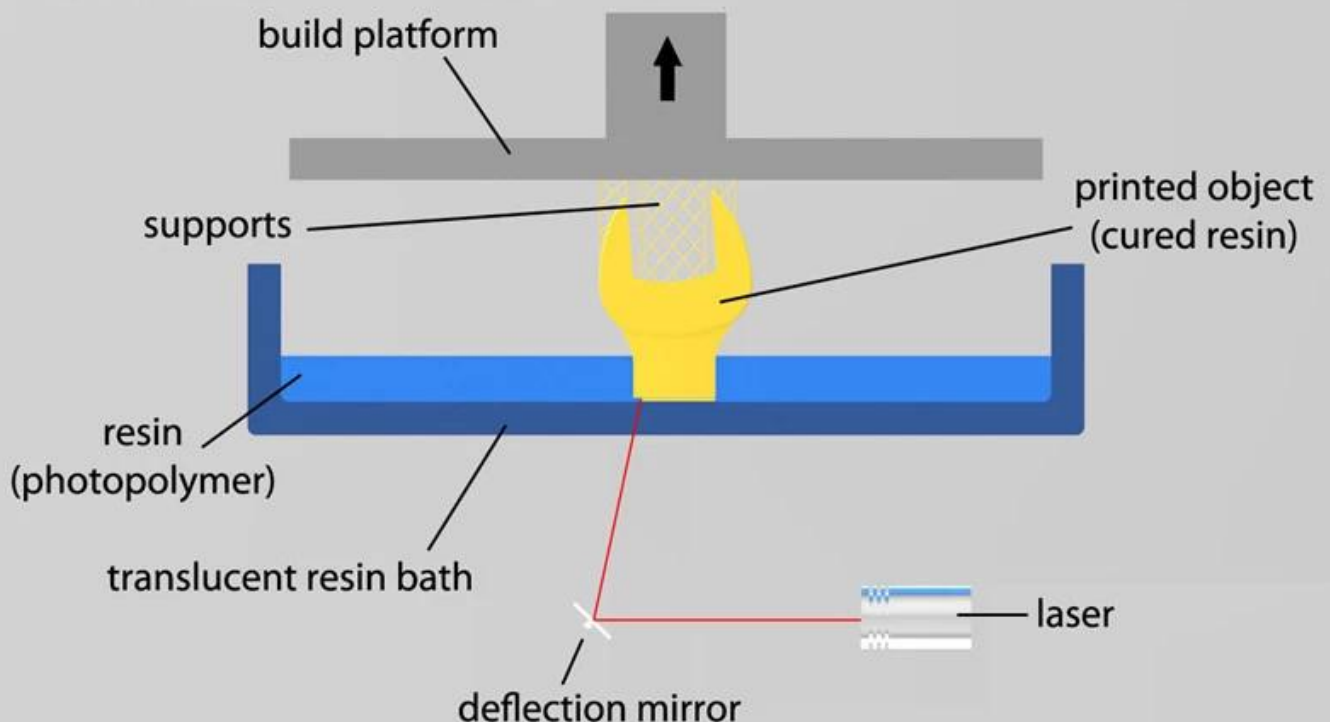
**SLS Printing** uses selective CO<sub>2</sub> laser sintering technology which sinters plastic powders (ceramic or metal powders with binding agent) into solid cross-sections layer by layer until a three-dimensional part is built. Before making the parts, need to fill the build chamber with nitrogen and rise the chamber temperature. When the temperature is ready, a computer controlled CO<sub>2</sub> laser selectively fuses powdered materials by tracing cross-sections of the part on the surface of a powder bed and then a new coat of material is applied for the new layer. The working platform of the powder bed will go one layer down and then the roller will pave a new layer of the powder and the laser will selectively sinter the cross-sections of the parts. Repeat the process until the parts completed.

# How Does It Work? SLS



**SLA (Stereolithography)** is an additive manufacturing process that works by focusing an UV laser on to a vat of photopolymer resin. With the help of computer aided manufacturing or computer aided design(CAM/CAD) software, the UV laser is used to draw a pre-programmed design or shape on to the surface of the photopolymer vat. Photopolymers are sensitive to ultraviolet light, so the resin is photochemically solidified and forms a single layer of the desired 3D object. This process is repeated for each layer of the design until the 3D object is complete.

## How Does It Work? SLA



CARMANHAAS could offer customer the optical system ([SLM Laser Lenses on Sales](#)) mainly

includes QBH optical module or Beam Expander, Galvo Scanner with F-THETA Lens or Dynamic optical scanning system with High speed · High precision · High quality function.

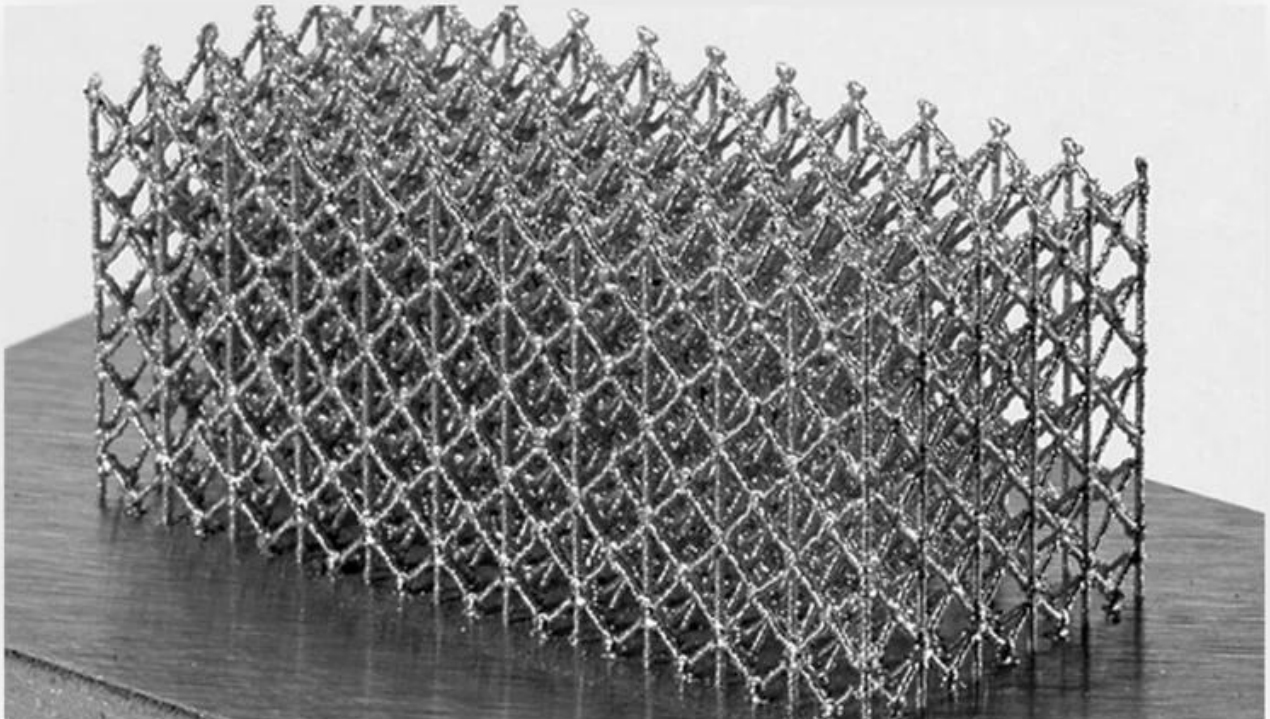
## Product Features :

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- (1) Integrated design and optimization of the complete system to ensure that the impact of the entire optical system on  $M2 < 0.04$ ;
- (2) The roundness within 1.5 times of the sharp length is greater than 93%;
- (3) The damage threshold of the whole optical system is  $50\text{J}/\text{cm}^2$ , which can withstand 2000W Single Mode Laser;
- (4) The focal spot size is more than 95% consistent across the entire frame;
- (5) Low focus drift and good stability after long-term use;

SELECTIVE LASER MELTING (SLM)

## Pros and Cons



# Stainless Steel



Desktop FDM



Industrial FDM



Desktop SLA



Industrial SLA



Industrial SLS



ZRPA12 ( PA12 Nylon Powder )



PHYSICAL CHARACTERISTICS	Grain Size:	50~55μm
	Shape:	Spherical
	Apparent density:	≥0.40 g/cm³
THERMAL PROPERTY	Melting Point:	182~185°C (10°C/min)
	Melting Enthalpy:	≥90 J/g
	HDT:	83.8°C @1.8MPa / 146.1°C @0.45MPa
MOLDING PERFORMANCE	Density:	0.97 g/cm³
	Tensile Modulus:	1600 MPa
	Tensile Strength:	43 MPa
	Elongation at break:	≥15 %
	Un-notched Impact Strength:	20.7 KJ/m²
	Notched Impact Strength:	3.8 KJ/m²
	Bending Modulus:	1432 MPa
	Bending Strength:	57 MPa

ZRTPU ( Thermoplastic Polyurethanes Powder )



PHYSICAL CHARACTERISTICS	Grain Size:	60μm
	Shape:	Spherical
	Apparent density:	0.47 g/cm³
THERMAL PROPERTY	Melting Point:	165°C
	HDT Heat deflection temperature:	-25°C
MOLDING PERFORMANCE	Density:	1.15 g/cm³
	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 )



**Factory**

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PerkinElmer Lambda 950---Testing Transmission and Reflectivity









# CERTIFICATE

## 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**

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: Mithakent Mahallesi 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@udemtd.com.tr](mailto:info@udemtd.com.tr) [www.udem.com.tr](http://www.udem.com.tr)

*Signature*  
UDem International Certification  
Auditing Training Centre Industry  
and Trade Inc. Co.



## 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 ZhongLianTianRun 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>)



**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>)

ISO 9001

ISO 9001



## Packing List

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## Return Policy:

Should returns be required:



- Step 1) Contact us with this website email.  
Step 2) Provide as much detail as possible about the problem you are having.  
Step 3) Authorization to return the item will be issued.  
Step 4) Return the item for the agreed replacement or refund.

### **Logistics:**

- (1)For Laser Optics order delivery,can be optional with DHL,UPS,FedEx,TNT,EMS,ets  
(2)For Laser machine order delivery,can be optional with terms of EXWork FOB,CNF,CIF By Air or by Sea based on the buyer's forwarders or ours.

## **FAQ**

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Q1.Are you a manufacturer?

A1: Yes, we are professional and experienced manufacturer with our own molds and production lines.

Q2.How about quality of products?

A2: Our technicians and QC teams test the products one by one using aging line, professional devices and instruments to ensure the quality for all products.

Q3.How about price?

A3: We are a manufacturer and always offer our customers the most competitive prices.

Q4.How to place an order?

A4: Contact with online service, or sent email to us directly, we will reply to you with product price, specifications, packing etc. soon. Thank you.

Q5.May I send material to test marking performance?

A5: Yes! You are welcome to send material to test our superior quality and service.

Q6.Can I visit your factory?

A6: Yes, welcome to visit our factory at your convenient time.

Q7.How can I make OEM or ODM orders?

A7: We have different print processing for different OEM/ODM orders. Please contact us with online service or send email to us directly.

Q8. How should I pay for my orders?

A8: You can pay by T/T would be available for qualified bank and MOQ required for each order.