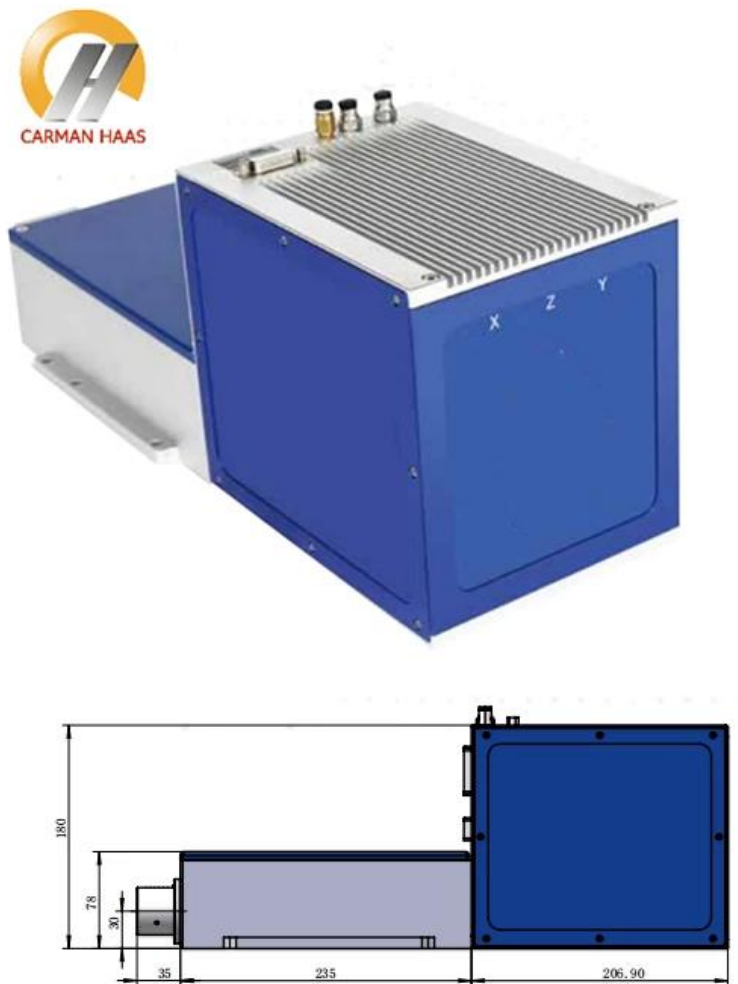


Product Description

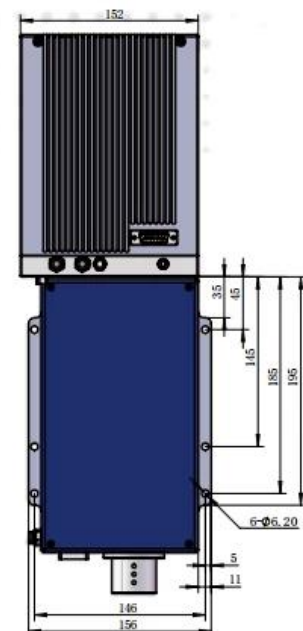
SLS Optical System in China uses selective CO₂ laser sintering technology which sinters plastic powders (ceramic or metal powders with binding agent) into solid cross-sections layer by layer until a three-dimensional part is built. Before making the parts, need to fill the build chamber with nitrogen and rise the chamber temperature. When the temperature is ready, a computer controlled CO₂ 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.

CARMANHAAS (**China SLS Optical System Manufacturer**) could offer customer Dynamic optical scanning system with High speed · High precision · High quality function.



Mechanical Drawings

(Dimensions in mm)



Dynamic optical scanning system means front focusing optical system, achieves zooming by a single lens movement, which consists of a moving small lens and two focusing lenses. The front small lens expands the beam and the rear focusing lens focuses the beam. The use of the front focusing optical system, because the focal length can be elongated, thereby increasing the scanning area, is currently the best solution for large-format high-speed scanning. Generally used in large-format machining or changing

working distance applications, such as large-format cutting, marking, welding, 3D printing, etc.



Advantage:

- (1)Extremely low temperature drift (over 8 hours long-term offset drift $\leq 30 \mu\text{rad}$);
- (2)Extremely high repeatability ($\leq 3 \mu\text{rad}$);
- (3)Compact and reliable;

Typical applications:

3D scan heads provided by CARMANHAAS offers ideal solutions for high end industrial laser applications. Typical applications include cutting, precise welding, additive manufacturing (3D printing), large scale marking, laser cleaning and deep engraving etc..

CARMANHAAS is committed to offering best price/performance ratio products and working out the best configurations according to customers' needs

Specifications Specifications:

DFS30-10.6-WA, Wavelength: 10.6um

| Scan filed (mm x mm) | 500x500 | 700x700 | 1000x1000 |
|---|---------|---------|-----------|
| Average spot size $1/e^2$ (μm) | 460 | 710 | 1100 |
| Working distance (mm) | 661 | 916 | 1400 |
| Aperture (mm) | 12 | 12 | 12 |

Note:

(1) Working distance: distance from the lower end of the beam exit side of the scan head to the surface of the workpiece.

(2) $M^2 = 1$

Protective Lens

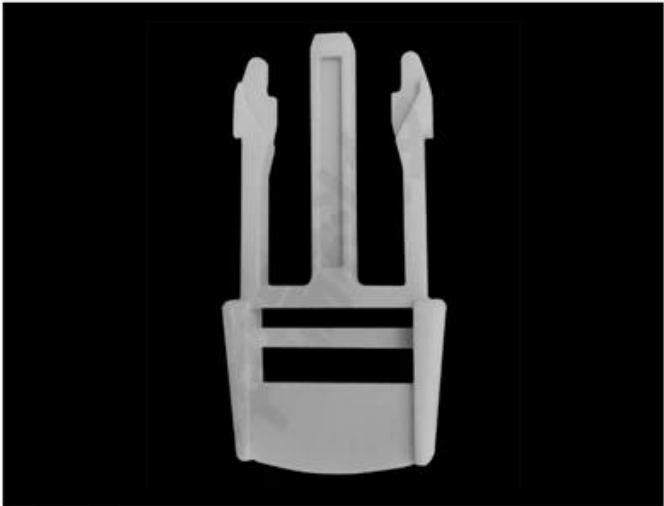
| Diameter(mm) | Thickness(mm) | Coating |
|--------------|---------------|--------------|
| 80 | 3 | AR/AR@10.6um |
| 90 | 3 | AR/AR@10.6um |
| 110 | 3 | AR/AR@10.6um |
| 90*60 | 3 | AR/AR@10.6um |
| 90*70 | 3 | AR/AR@10.6um |

GF100 (Glass Fiber Composite Nylon Powder)



| | |
|--------------------------|--|
| PHYSICAL CHARACTERISTICS | Apparent density: $\geq 0.66 \text{ g/cm}^3$ |
| THERMAL PROPERTY | Melting Point: 183°C (10°C/min) HDT: 89°C @1.8MPa / 163°C @0.45MPa |
| MOLDING PERFORMANCE | Density: 1.24 g/cm^3 Tensile Modulus: 3498 MPa Tensile Strength: 43 MPa Elongation at break: 5 % Un-notched Impact Strength: 19.26 KJ/m^2 Notched Impact Strength: 4.11 KJ/m^2 Bending Modulus: 2413 MPa Bending Strength: 67 MPa |

MF100 (Mineral Fiber Composite Nylon Powder)



| | |
|--------------------------|---|
| PHYSICAL CHARACTERISTICS | Apparent density: ≥0.53 g/cm³ |
| THERMAL PROPERTY | Melting Point: 180°C (10°C/min) HDT: 125°C @1.8MPa / 170°C @0.45MPa |
| MOLDING PERFORMANCE | Density: 1.18 g/cm³ Tensile Modulus: 6128 MPa Tensile Strength: 50 MPa Elongation at break: 4.6 % Un-notched Impact Strength: 20.75 KJ/m² Notched Impact Strength: 5.58 KJ/m² Bending Modulus: 4630 MPa Bending Strength: 74 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 |

Factory









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**

The validity of the certificate can be checked through 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 noticed in case of any changes on the product(s).
Address: Murkikent Mahallesi 2073 Sokak (Eski 93 Sokak) No:10 Çankaya - Ankara - TURKEY
Phone: +90 0312 443 03 90 Fax: +90 0312 443 03 76
E-mail: info@udemtd.com.tr www.udem.com.tr

UDEM
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



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

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.