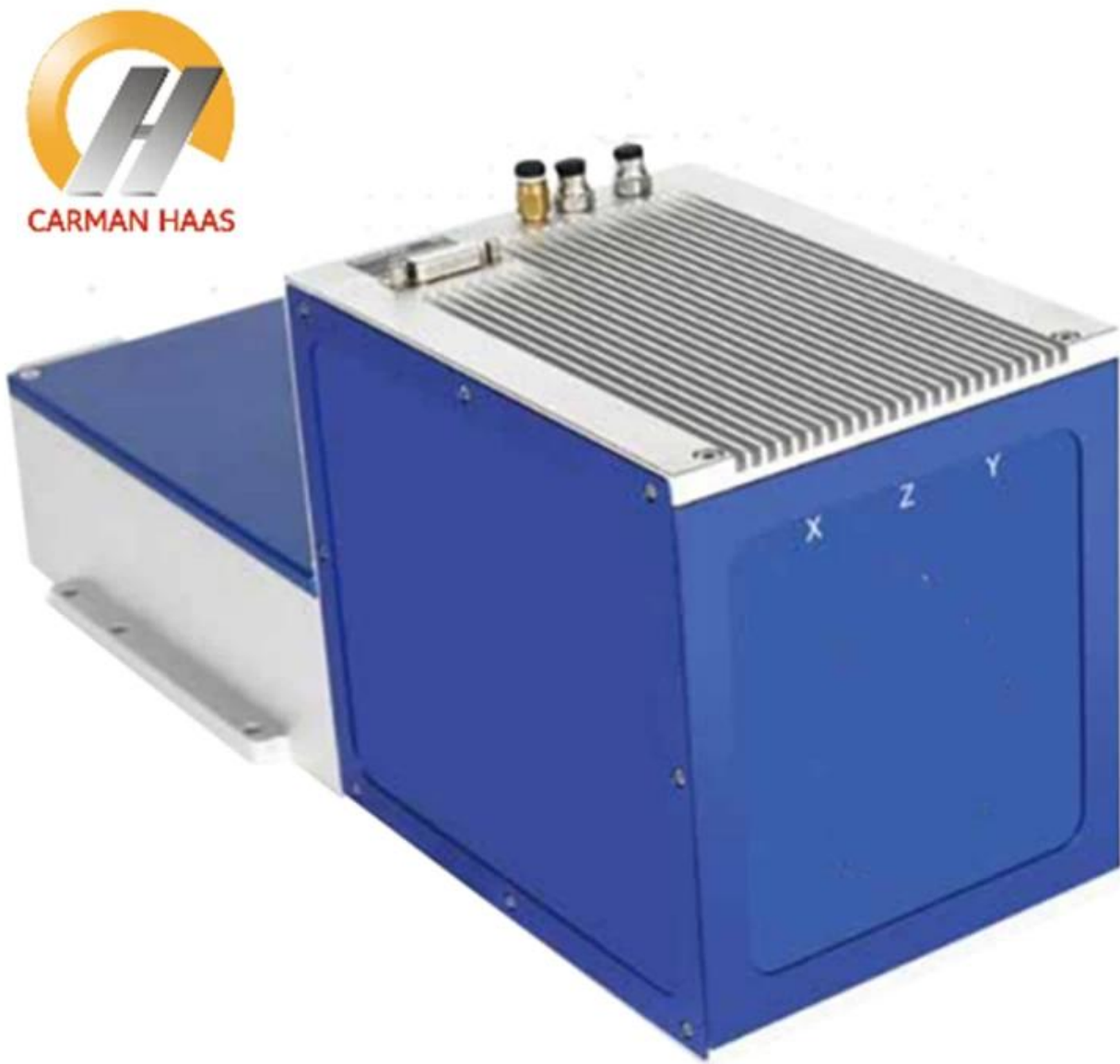


## Product Description

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SLS Printing ([SLS Optical System in China](#)) 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.



CARMANHAAS [China 3D Printer Optical System Manufacturer](#) could offer customer Dynamic optical scanning system with High speed · High precision · High quality function.

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:

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(1)Extremely low temperature drift (over 8 hours long-term offset drift  $\leq 30 \mu\text{rad}$ );

(2)Extremely high repeatability ( $\leq 3 \mu\text{rad}$ );

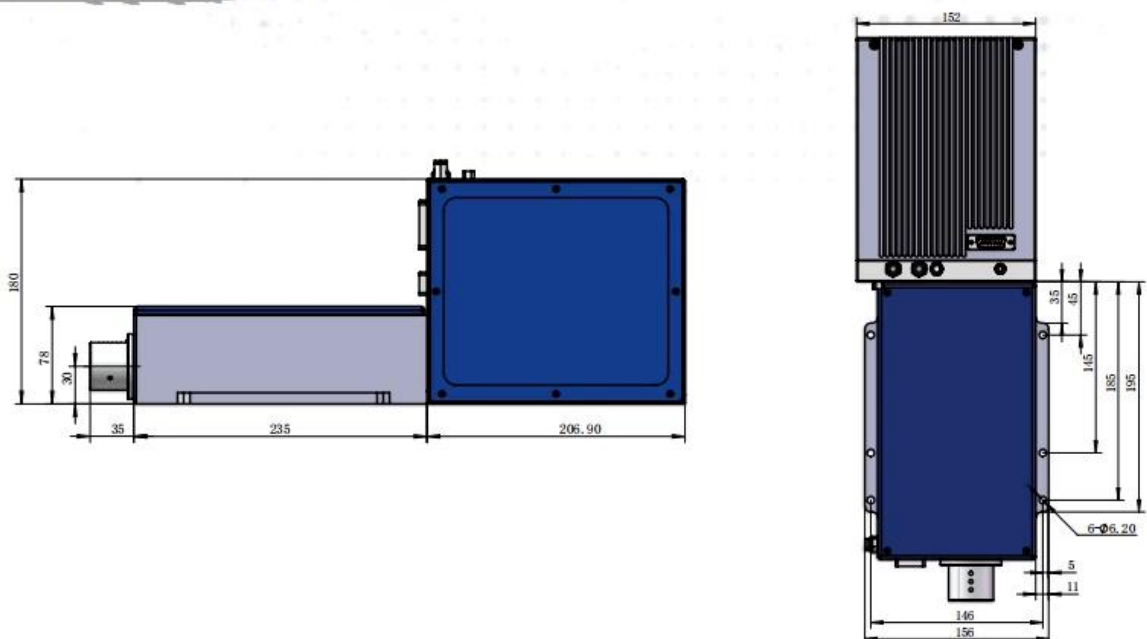
(3)Compact and reliable;

## Typical applications:

3D scan heads provided by CARMANHAAS ([3D Galvo Scanner Company China](#)) 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

## Mechanical Drawings (Dimensions in mm)



## Specifications Specifications:

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### 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

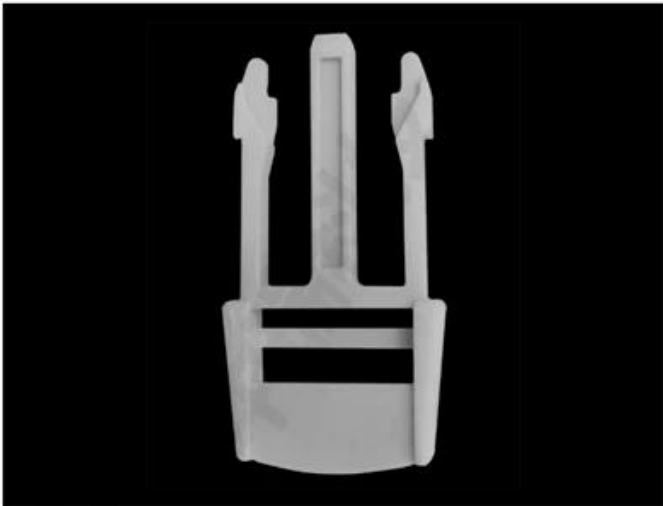
Diameter(mm)	Thickness(mm)	Coating
80	3	AR/AR@10.6um
90	3	AR/AR@10.6um
110	3	AR/AR@10.6um
90*60	3	AR/AR@10.6um
90*70	3	AR/AR@10.6um

GF100 ( Glass Fiber Composite Nylon Powder )



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

MF100 ( Mineral Fiber Composite Nylon Powder )



PHYSICAL CHARACTERISTICS	Apparent density: $\geq 0.53 \text{ g/cm}^3$
THERMAL PROPERTY	Melting Point: $180^\circ\text{C}$ ( $10^\circ\text{C/min}$ ) HDT: $125^\circ\text{C}$ @1.8MPa / $170^\circ\text{C}$ @0.45MPa
MOLDING PERFORMANCE	Density: $1.18 \text{ g/cm}^3$ Tensile Modulus: $6128 \text{ MPa}$ Tensile Strength: $50 \text{ MPa}$ Elongation at break: $4.6 \%$ Un-notched Impact Strength: $20.75 \text{ KJ/m}^2$ Notched Impact Strength: $5.58 \text{ KJ/m}^2$ Bending Modulus: $4630 \text{ MPa}$ Bending Strength: $74 \text{ MPa}$

ZRTPU ( Thermoplastic Polyurethanes Powder )



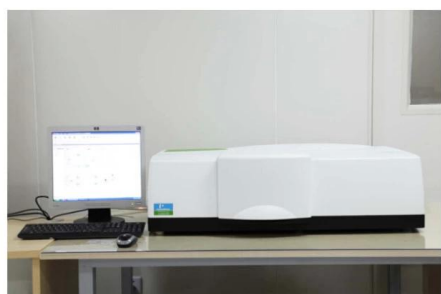
PHYSICAL CHARACTERISTICS	Grain Size: $60\mu\text{m}$ Shape: Spherical Apparent density: $0.47 \text{ g/cm}^3$
THERMAL PROPERTY	Melting Point: $165^\circ\text{C}$ HDT Heat deflection temperature: $-25^\circ\text{C}$
MOLDING PERFORMANCE	Density: $1.15 \text{ g/cm}^3$ Tensile Modulus: $61 \text{ MPa}$ Tensile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

# Factory

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**TRIOPTICS OptiSpheric 2000 AF**  
---Testing EFL、R、Centering Error、Wedge Angle、BFL、MTF



**PerkinElmer Lambda 950**---Testing Transmission and Reflectivity

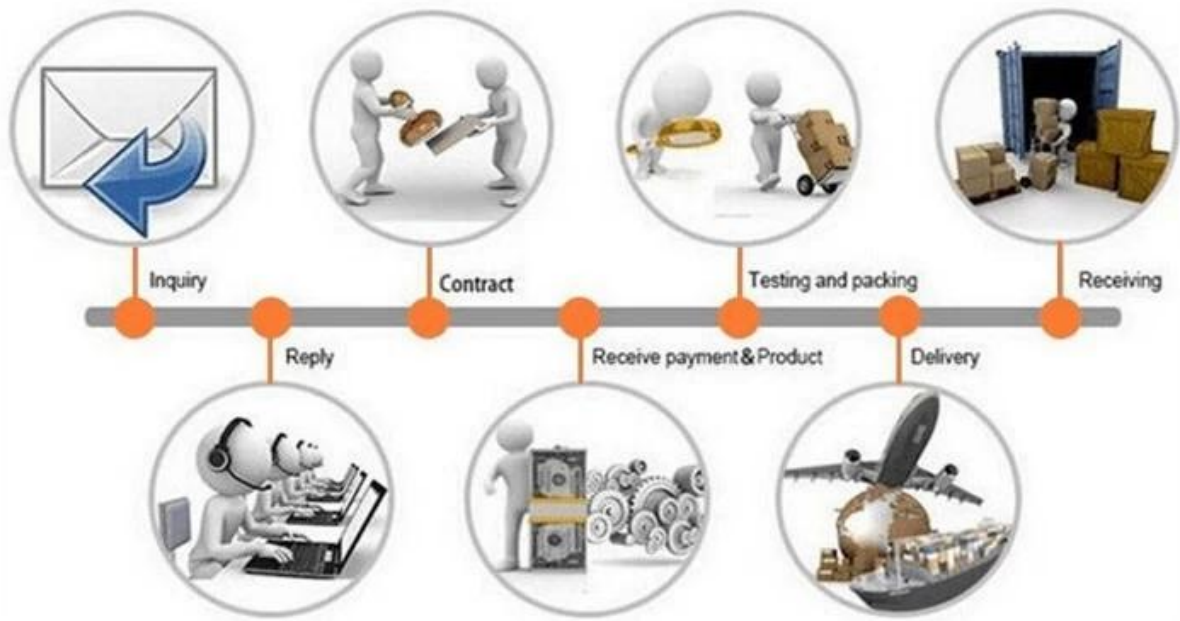


**Carmanhaas Coating Machine**

# Certificate&Exhibition



# 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**

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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.