Product Description

Laser metal 3D printing technology mainly includes SLM (laser selective melting technology) and LENS (laser engineering net shaping technology), among which SLM technology is the mainstream technology currently used. This technology uses laser to melt each layer of powder and produce adhesion between different layers. In conclusion, this process loops layer by layer until the entire object is formed. SLM technology overcomes the troubles in the process of manufacturing complex-shaped metal parts with traditional technology. It can directly form almost completely dense metal parts with good mechanical properties, and the precision and mechanical properties of the formed parts are excellent.(**SLM laser lenses on sales**)

In recent years, CARMANHAAS Laser has also actively explored the application field of metal 3D printing. With years of technical accumulation in the optical field and excellent product quality, it has established stable cooperative relations with many 3D printing equipment manufacturers.The single-mode 200-500W 3D printing laser optical system solution launched by the 3D printing industry has also been unanimously recognized by the market and end users. It is currently mainly used in auto parts, aerospace (engine), military products, medical equipment, dentistry, etc.

(**Wholesales 3D Galvo scanner head for engraving**)

Compared with the low precision of traditional 3D printing (no light is needed), laser 3D printing is better in shaping effect and precision control. The materials used in laser 3D printing are mainly divided into

metals and non-metals□Metal 3D printing is known as the vane of the development of the 3D printing industry. The development of the 3D printing industry largely depends on the development of the metal printing process, and the metal printing process has many advantages that the traditional processing technology (such as CNC) does not have.

Advantages of metal 3D printing:

1. One-time molding: Any complicated structure can be printed and formed at one time without welding;

2. There are many materials to choose from: titanium alloy, cobalt-chromium alloy, stainless steel, gold, silver and other materials are available;

3. Optimize product design. It is possible to manufacture metal structural parts that cannot be manufactured by traditional methods, such as replacing the original solid body with a complex and reasonable structure, so that the weight of the finished product is lower, but the mechanical properties are better;

4. Efficient, time-saving and low cost. No machining and molds are required, and parts of any shape are directly generated from computer graphics data, which greatly shortens the product development cycle, improves productivity and reduces production costs.

Galvo Scanner key Advantages:

1.Extremely low temperature drift (over 8 hours long-term offset drift ≤ 30 μrad);

2.PSH14E : High repeatability (≤ 5 μrad)

3.PSH14 : Extremely high repeatability (≤ 3 μrad), High speed (15 m/s)

4.PSH20 : Extremely high repeatability (≤ 3 μrad), High speed (15 m/s) and high power (1kW)

Technical Parameters:

Model	PSH14E	PSH14	PSH20
Maximum allowed average laser power (1)	200W	300W	500W
Damage threshold for pulsed operation(1)	30J/cm2	30J/cm2	30J/cm2
Aperture	14mm	14	20
Effective scan angle(2)	±12°	±12°	±12°
Tracking Error	≤ 0.22ms	≤ 0.2ms	≤ 0.28ms
Step Response Time(1% of full scale)	≤ 0.5 ms	≤ 0.4 ms	≤ 0.7 ms
Speed			
Positioning / jump(3)	< 12 m/s	< 15 m/s	< 9 m/s
Precision marking speed(4)	< 2.5 m/s	< 3 m/s	< 2 m/s
Good Writing quality(3)(5)	600 cps	650 cps	450 cps
High writing quality(3)(5)	450 cps	500 cps	300 cps
Precision			
Linearity	99.8%	99.9%	99.9%
Repeatability	5 urad	3 urad	3 urad
Temperature drift			
Qver 8 hours long-term offset drift （after 10min warn-up）	30 urad	30 urad	30 urad
Qver 8 hours long-term gain drift （after 10min warn-up）	100 urad	80 urad	80 urad
Operating Temperature Range	25℃±10℃	25℃±10℃	25℃±10℃
Signal Interface	Analog: ±10V Digital: XY2-100	Analog: ±10V Digital: XY2-100	Analog: ±10V Digital: XY2-100
Input Power Requirement (DC)	±15V@ 4A Max RMS	±15V@ 4A Max RMS	±15V@ 4A Max RMS

Note:

1.For laser wavelength 1030-1090nm;

2. All angles are in mechanical degrees;

3.With F-Theta objective f = 163mm. Speed value varies correspondingly with different focal lengths;

4.Repeatability and temperature drift are measured within this speed;

5.Single-stroke font with 1 mm height.

Aluminum Alloy Hydrazine Bottle Adapter

The product is thin in wall thickness with lattice structure inside, and the overall size is too large to be made by traditional manufacturing. However, precise laser forming technology can be integrated into one piece, with short manufacturing cycle and controllable deformation.

Stainless Steel Excellent Thermal-stable structure

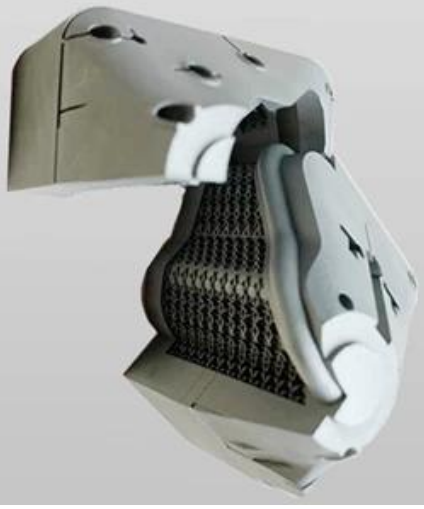
The product is an Excellent Thermal-stable joint structure part for satellites with topological configuration and lattice structure inside. It was made of invar alloy which has low coefficient of linear expansion.

Breathable Steel Mold

The product is printed in one piece, with high precision of special-shaped structure and smooth surface roughness, which reduces the post procedures. Due to the light-weight process, the waste of material is significantly reduced compare to the traditional manufacturing.

Mobile Fixture Mold

The production and inspection jig of electronic products can be completed by laser forming. The product with high precision can be put into use by simple process which reduces the work-hour to only 10 hours. It is suitable for rapid iteration of R&D and trials as well as spare parts fast production. The light-weight design can be added into it for material save.



Light-weight water route mold

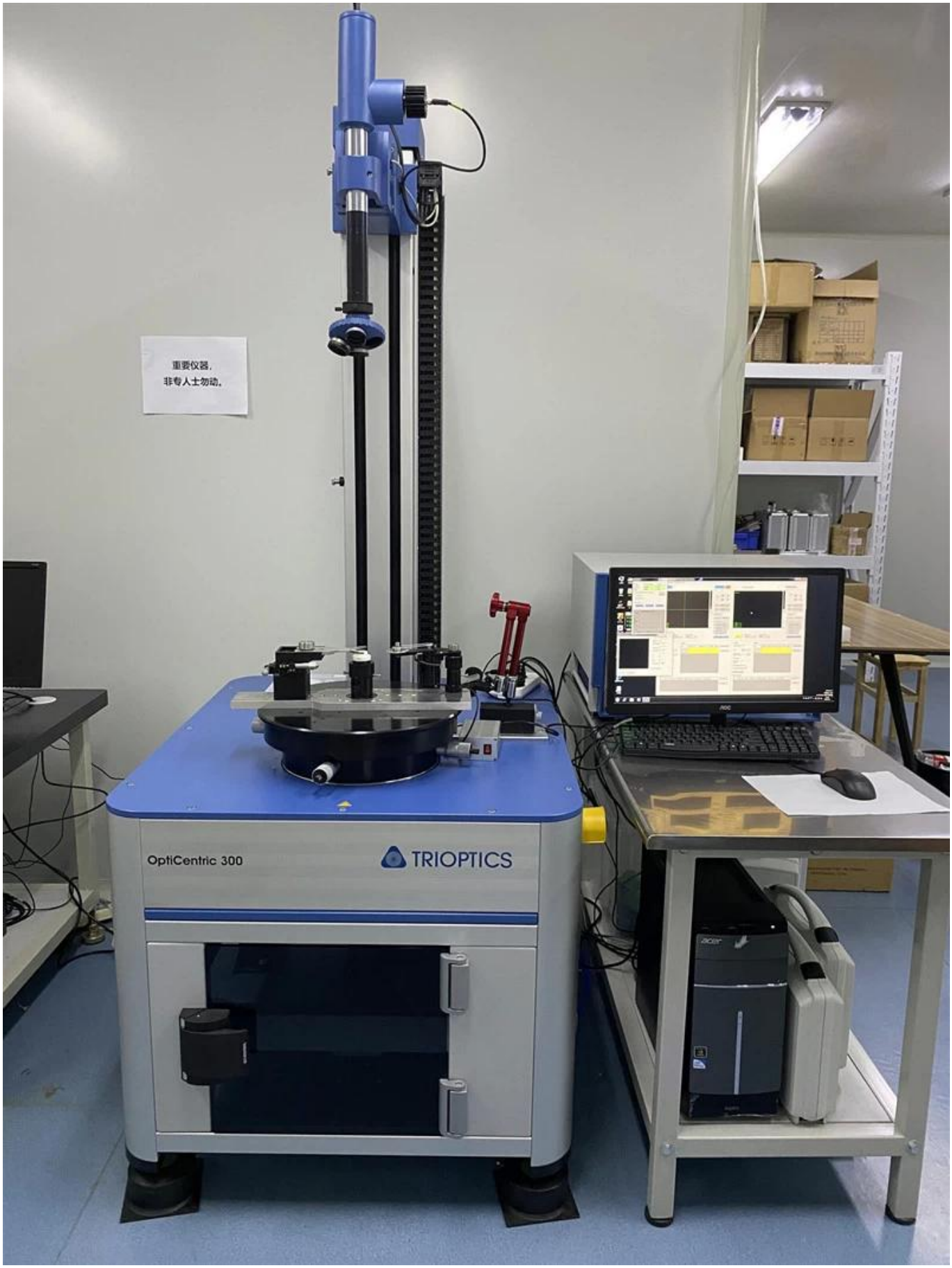
Conformal cooling water channels are distributed under the product surface, which improves the cooling efficiency and uniformity. Most areas of the parts are light-weighted design ,and reduce the overall weight by 24% which saves raw materials, shortens the production cycle, and reduces production costs.

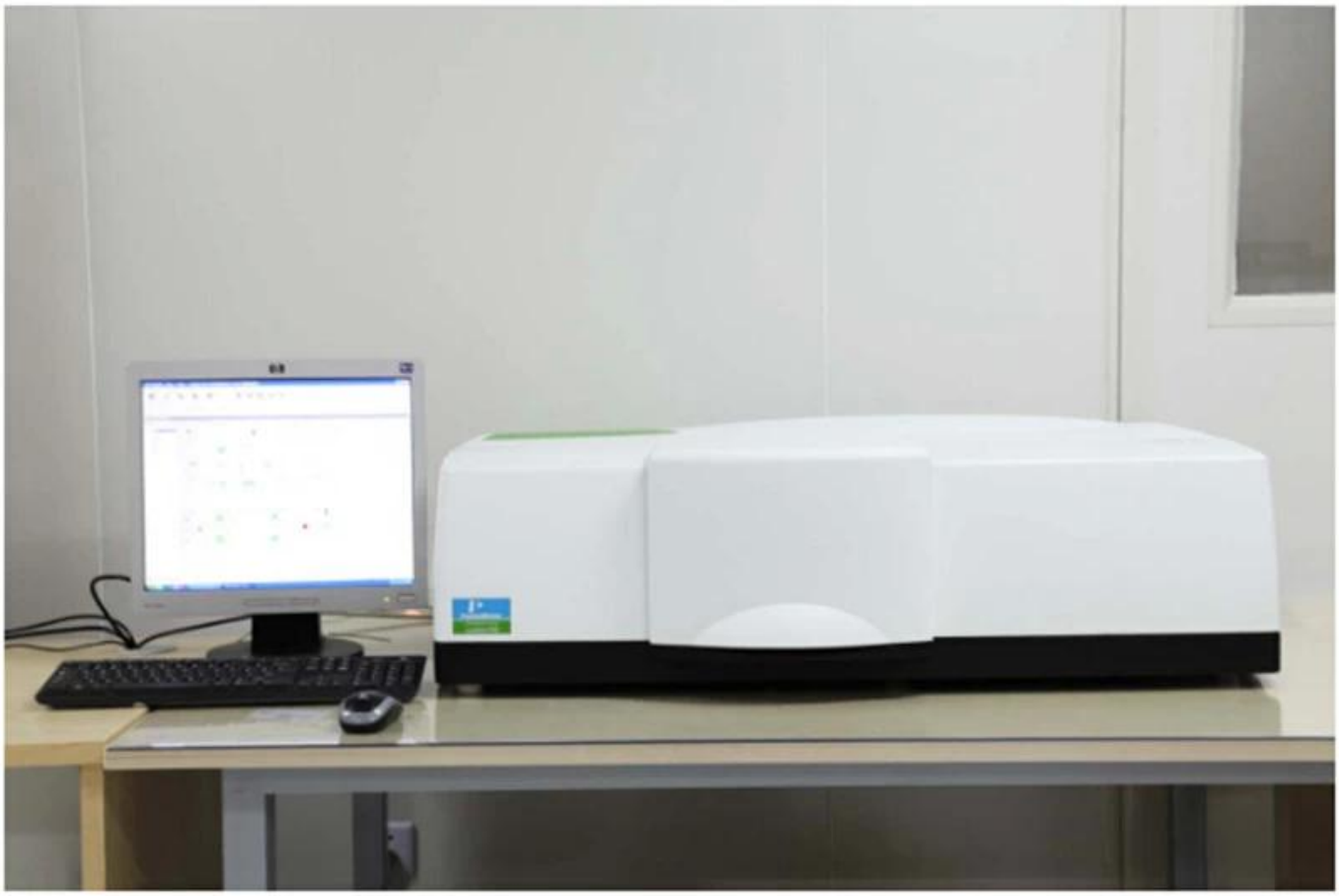
Factory


卡门哈斯（苏州）
CARMAN HAAS


CARMAN HAAS
企业愿景：致


verifire
zygo


重要仪器，
非专人士勿动。
OptiCentric 300
TRIOPTICS



PerkinElmer Lambda 950---Testing Transmission and Reflectivity

Certificate&Exhibition

CERTIFICATE

ATIESTATION
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	: **Carman 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. 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: Mutlukent 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@udemltd.com.tr www.udem.com.tr

ISO 9001

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)

SCC Accredited CB-MS OCSM Accredité CCN

ISSUED BY

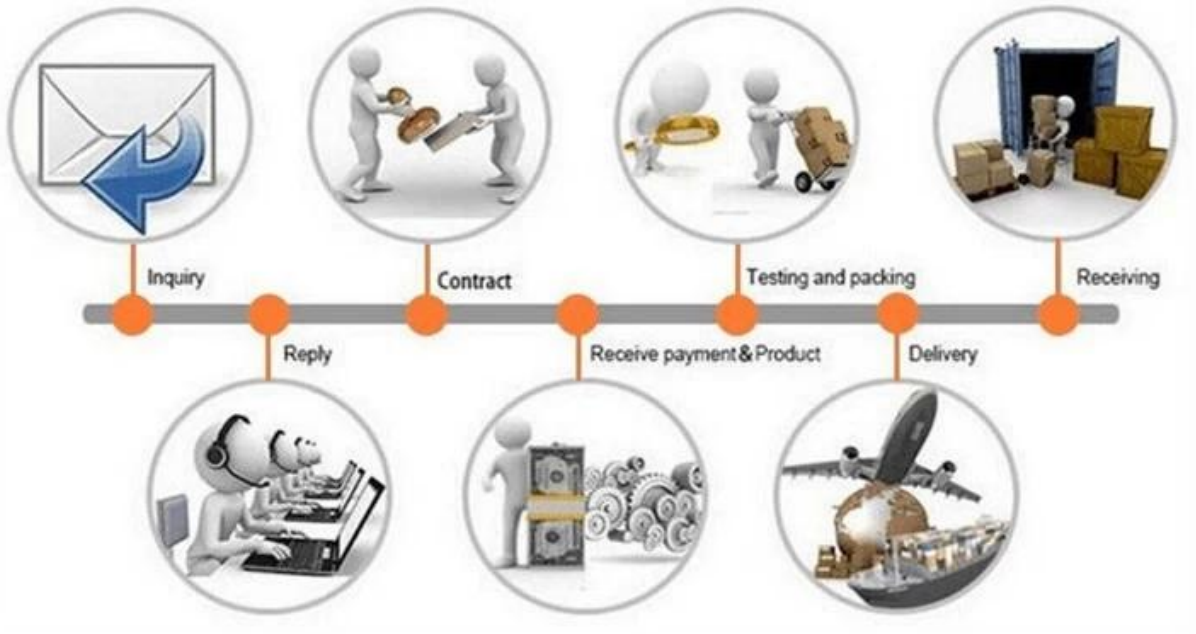
Beijing Zhongliantianrun Certification Center

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

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.