

PROVIDE PROFESSIONAL GALVO SCANNING SOLUTIONS

提供专业振镜
扫描解决方案



HAN'S SCANNER
大族思特

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Kokyo

株式会社光響

Email : info@symphotony.com

Web : <https://www.symphotony.com/>

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INTRODUCTION

公司简介



深圳市大族思特科技有限公司，是一家集技术研发、生产和销售为一体的高科技企业，属于大族集团控股但独立运营的子公司，致力于为全球客户提供场镜、光栅尺以及振镜扫描系统解决方案。

本公司拥有专业的光学、机械、电子、软件、工艺测试等研发团队，拥有数十项实用新型及发明专利和软件著作权。除了研发标准扫描振镜和打标控制卡，还为客户提供定制化的振镜扫描解决方案。现产品有光电系列振镜电机、光栅系列振镜电机，空心杯电机，音圈电机、光电系列扫描振镜方头、光栅系列扫描振镜方头、智能一体扫描振镜系统、三维动态大幅面调焦系统、转镜面扫描系统、四轴联动激光加工系统、五轴微加工钻孔系统，光学相干断层扫描和医疗点阵系统等。

大族思特扫描振镜系统年产量高达10万套；振镜方头和振镜系统解决方案已成功应用于3C电子行业、精密加工行业、PCB加工行业、锂电和汽车焊接行业、光伏新能源行业、显视面板行业、激光演示行业、3D打印行业、食品包装行业、烟草行业以及医疗美容行业等领域。

Shenzhen Han's Scanner S&T Co., Ltd. is a high-tech enterprise integrated with technology R&D, production and sales. It is a subsidiary controlled by Han's group but operated independently. It is committed to providing F-theta Lens, grating ruler and galvanometer scanning system solutions for customers all over the world.

Han's Scanner has a professional R&D team of optics, machinery, electronics, software and process testing, and has dozens of utility models, invention patents and software copyrights. In addition to developing standard scanning galvanometer and marking control card, we also provide customers with customized galvanometer scanning solutions. At present, the products include photoelectric series galvanometer motor, grating series galvanometer motor, hollow cup motor, voice coil motor, photoelectric series scanning galvanometer head, grating series scanning galvanometer head, intelligent integrated scanning galvanometer system, 3D dynamic large format focusing system, polygon scanning system, 4-axis linkage laser processing system, 5-axis micromachining drilling system, optical coherence tomography and medical aesthetic fractional system.

The annual output of Han's Scanner scanning galvanometer system is up to 100000 sets; Galvanometer scanning head and galvanometer system solutions have been successfully applied to 3C electronics industry, precision processing industry, PCB processing industry, lithium battery and automobile welding industry, photovoltaic new energy industry, display panel industry, laser demonstration industry, 3D printing industry, food packaging industry, tobacco industry, medical aesthetic industry and other fields.

GALVANOMETER MOTOR

振镜电机

电机结构

MOTOR STRUCTURE

振镜电机包含高精度位置传感器和基于动磁转子技术的电机部分。电机转子经过优化设计，有极佳的动态属性和响应特性，此外，电机具有高刚性和低摩擦力的特点。另外通过运动学和动力学仿真，针对每个系列电机都匹配了最佳惯量的镜片。

The galvanometer motor contains a high-precision position sensor and a motor part based on moving magnet technology. The motor rotor is optimized for excellent dynamic properties and response characteristics. In addition, the motor features high rigidity and low friction. Moreover, each motor is matched to a certain inertia mirror through the kinematics and dynamics simulation.

光电振镜

ULTRA-GALVO

配置光电传感器作为位置反馈系统的振镜，特点是有较高的重复精度和线性度，而且性价比极高。

Configured photoelectric sensor as position feedback, it has high repeatability and linearity with high cost performance ratio.

光栅振镜

EXTRA-GALVO

配置光栅编码器作为位置反馈系统的振镜，对比光电振镜，具有更高的位置解析度、更好的重复性和更低的漂移，即使在环境温度变化的条件下，也保持极好的重复性。

Configured grating encoder as position feedback, it has higher position resolution, better repeatability and lower drift compared with photoelectric galvanometer. Even if under the temperature variation, it maintains good repeatability.

传感器对比

SENSOR COMPARISON

		Ultra-Galvo	Extra-Galvo
最大角度 ^①	Maximum Angle (°)	±12.5	±12.5
非线性度	Nonlinearity (%)	< 0.4	< 0.1
重复精度	Repeatability (μrad)	< 2	< 1
零位漂移	Offset Drift (μrad/K)	< 15	< 15
增益漂移	Gain Drift (ppm/K)	< 50	< 8
位置解析度	Position Resolution	18 Bit ^②	23 Bit ^②

注：① 以上角度均为机械角度。All angles are in mechanical degrees

② 经过换算，18bit对应为1.7μrad，23bit对应为0.75μrad

After conversion, 18 bit corresponds to 1.7μrad, and 23 bit corresponds to 0.75μrad

ULTRA-GALVO

光电振镜电机



□ 技术参数

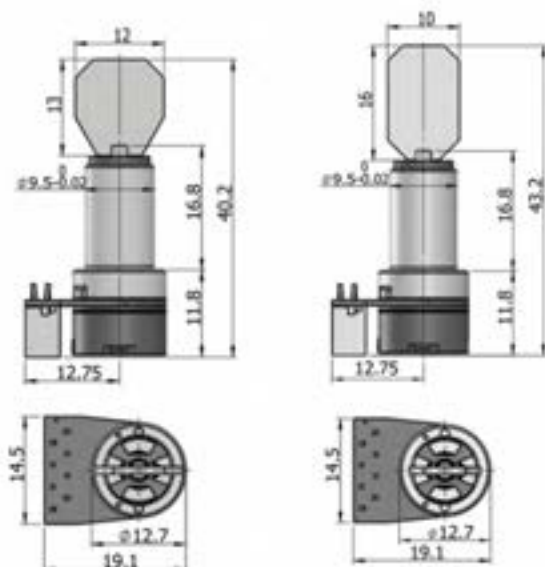
TECHNICAL PARAMETERS

ULTRA-GALVO		XXXS	XXS	XS	S	M	L	XL
入口光斑	Input Beam Aperture (mm)	<7	7	8.5	10	14	20-30	50-80
转动惯量	Moment Of Inertia (g·cm ²)	0.013	0.018	0.174	0.34	1.2	5.1	14.3
力常数	Force Constant (N·mm/A)	1.2	2.7	5.3	7.5	15	24	35
线圈电阻	Coil Resistance (Ω)	2.1	3.6	2.1	2.7	2.6	1.58	0.9
线圈电感	Coil Inductance (μH)	35	70	63.5	165	275	300	343
最大连续电流	Maximum Continuous Current (A)	2.3	2.3	2.3	2.5	3.5	5	7
峰值电流	Peak Current (A)	6	8	10	10	10	10	10
上升时间	Rise Time (ms)	0.13	0.1	0.15	0.18	0.3	0.7	1.5
质量	Weight (g)	13	18	50	220	300	400	460

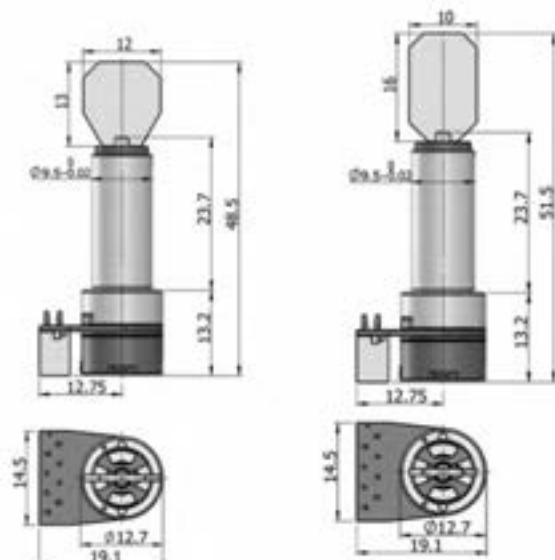
□ 外形尺寸图

TECHNICAL DRAWING

UltraGalvo < 7mm

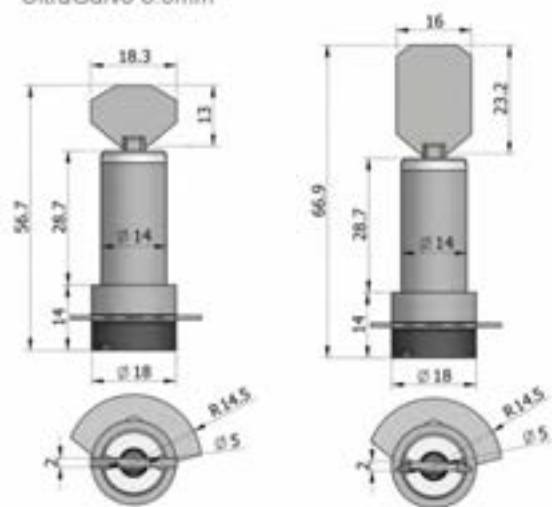


UltraGalvo 7mm

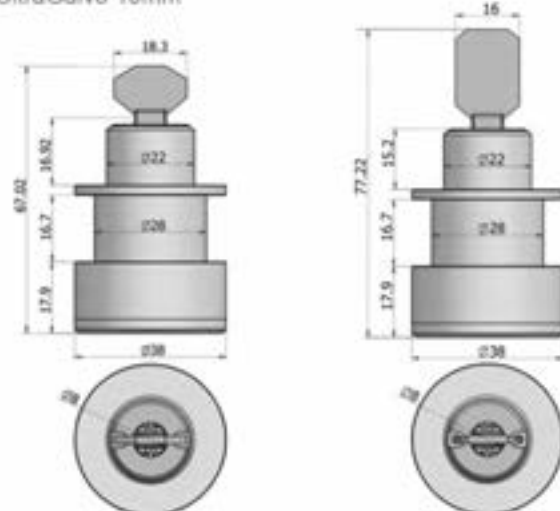


□ 外形尺寸图
 TECHNICAL DRAWING

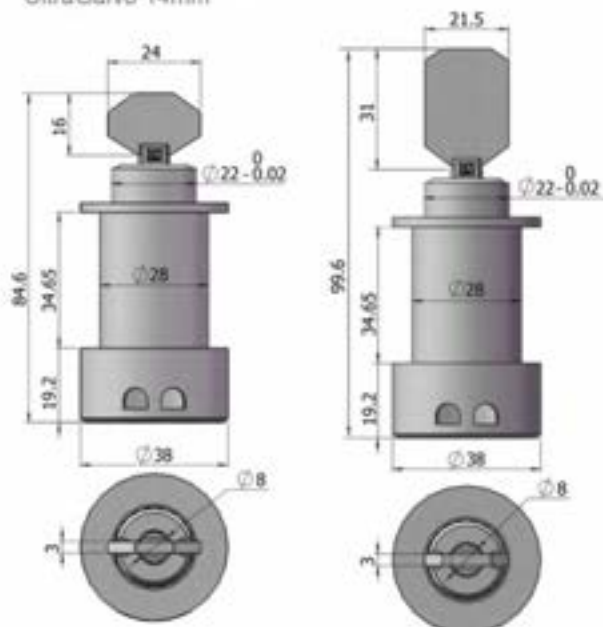
UltraGalvo 8.5mm



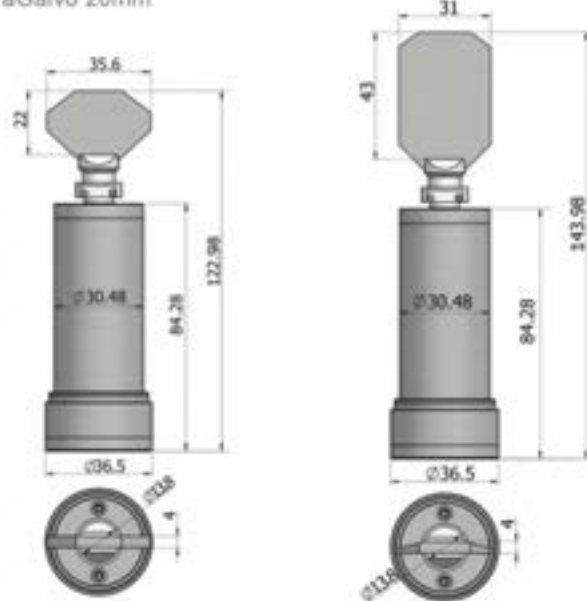
UltraGalvo 10mm



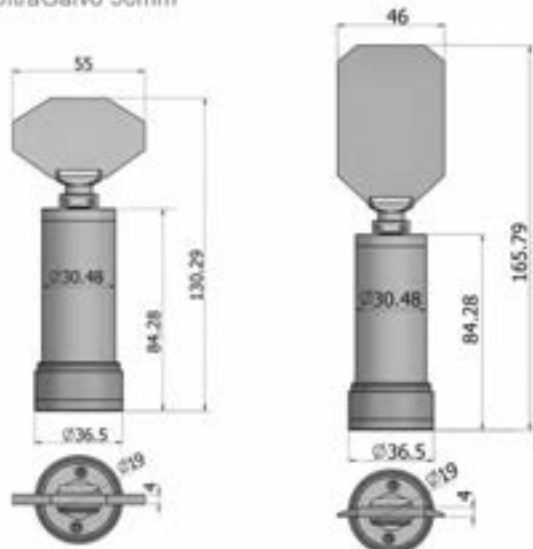
UltraGalvo 14mm



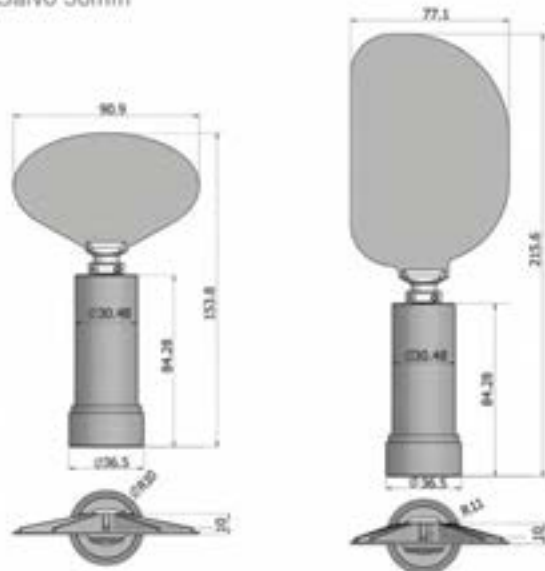
UltraGalvo 20mm



UltraGalvo 30mm



UltraGalvo 50mm



EXTRA-GALVO

光栅振镜电机



□ 技术参数

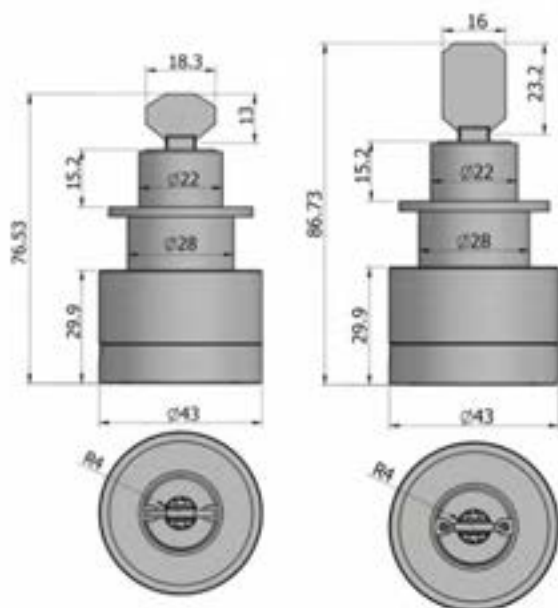
TECHNICAL PARAMETERS

EXTRA-GALVO		S	M	L
入口光斑	Input Beam Aperture (mm)	10	14	20-30
转动惯量	Moment Of Inertia (g·cm ²)	0.6	1.5	7.2
力常数	Force Constant (N·mm/A)	7.5	15	24
线圈电阻	Coil Resistance (Ω)	2.7	2.6	1.58
线圈电感	Coil Inductance (μH)	155	275	385
最大连续电流	Maximum Continuous Current (A)	2.5	3.5	5
峰值电流	Peak Current (A)	10	10	10
上升时间	Rise Time (ms)	0.2	0.3	0.7
质量	Weight (g)	220	300	400

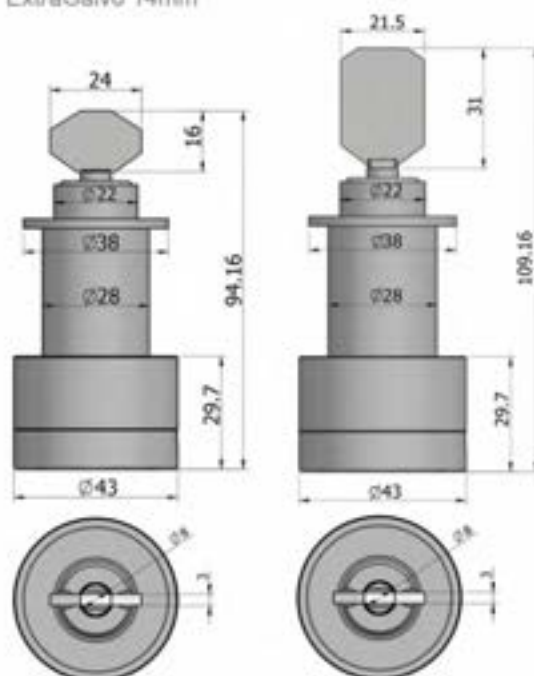
□ 外形尺寸图

TECHNICAL DRAWING

ExtraGalvo 10mm

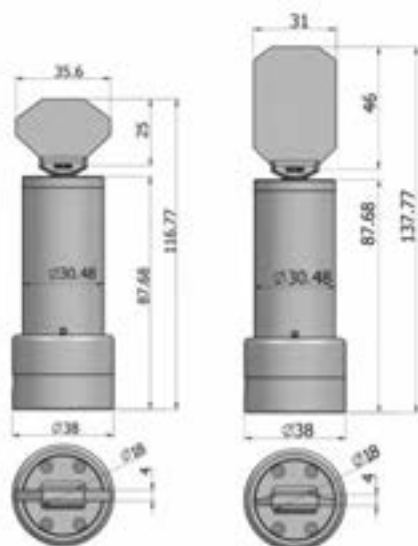


ExtraGalvo 14mm

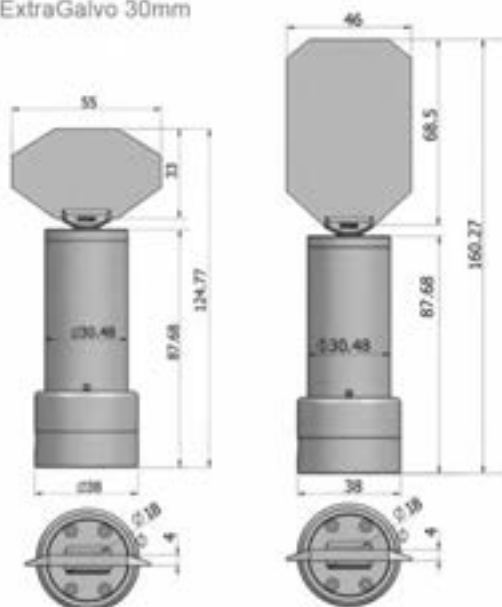


□ 外形尺寸图
TECHNICAL DRAWING

ExtraGalvo 20mm



ExtraGalvo 30mm



□ 驱动器
DRIVER



数字驱动器
Digital Driver



医疗模拟驱动器
Medical Analog Driver



模拟驱动器
Analog Driver



三合一模拟驱动器
3-in-1 Analog Driver

DYNAMIC FOCUS MODULE

动态聚焦模块

产品特点

FEATURES



采用高精度的光栅编码器作为反馈，位置解析精度为25位。

High-precision grating encoder as feedback with 25 bit position resolution.



极低的噪声、极好的线性度和最低的漂移。

Extremely low noises, excellent linearity and minimal drift.



采用基于FPGA的数字处理驱动器技术，极好的抗干扰能力和优秀的动态性能。

FPGA-based digital processing driver technology with excellent anti-interference ability and dynamic performance.



能与扫描头结合组成3D模组，广泛用于3D打标、大幅面加工等激光标记应用。

Able to compose 3D module with galvanometer scanner and successfully used in laser marking applications such as 3D marking, large format processing, etc.

行业应用

INDUSTRY APPLICATIONS

能与扫描头结合组成3D模组，广泛用于3D打标、大幅面加工等激光标记应用，更可应用于超快速3D加工、微加工、曲面标记和深度雕刻。

Able to compose 3D module with galvanometer scanner and has been successfully used in laser marking applications such as 3D marking, large format processing, etc. It can also be used in ultra fast 3D machining, micro machining, surface marking and depth carving.



3D打标
3D marking



3D打印
SLM



激光模切
Laser module cutting

以上图片来源于网络
The above pictures are from the Internet

VCM F1 & VCM Z & VCM G2

□ 技术参数

TECHNICAL PARAMETERS

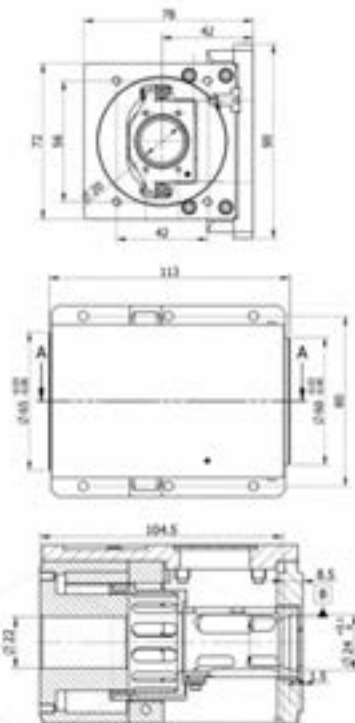


		VCM F1	VCM G2	VCM Z
入口光斑	Input Beam Aperture (mm)	20	≤22	14
出口光斑	Output Beam Aperture (mm)	40	/	14
行程	Travel Length (mm)	≤20	9	±15 (Focus Range)
跟随误差	Tracking Error (ms)	0.7	1.5 (≤16mm镜片) 2.2 (18mm~22mm镜片)	≥0.15
典型速度	Typical Speed (mm/s)	≤180	≤100	/
调焦速度	Focus Speed (m/s)	/	/	up to 20m/s (F=160mm)
重复精度	Repeatability (μm)	<0.5	<1	<1
非线性度	Nonlinearity (%)	0.05	2	0.4
8小时以上漂移	Long-term Drift over 8 hours (μm)	<3	<10	<6
电源要求	Power Requirements	±15VDC, ≥3A	±15VDC, ≥3A	±15VDC, ≥3A
通讯协议	Communication Protocol	XY2-100	XY2-100	XY2-100
工作温度	Operation Temperature (°C)	25±10	25±10	25±10

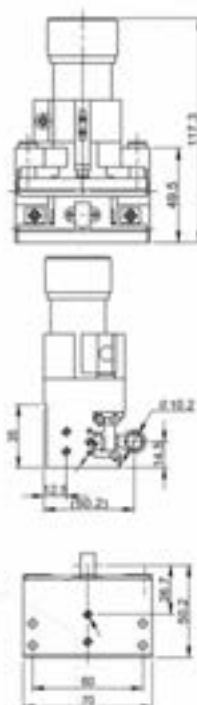
□ 外形尺寸图

TECHNICAL DRAWING

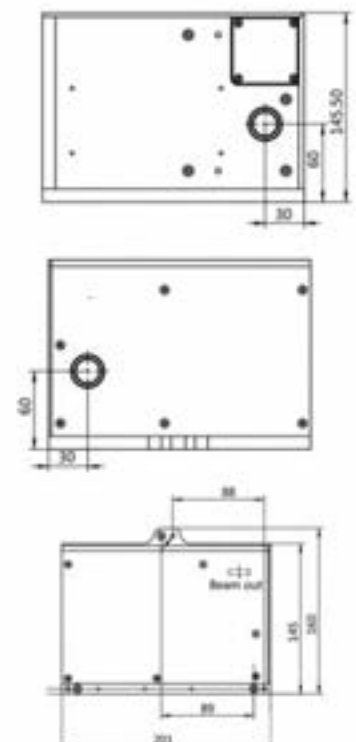
VCM F1



VCM G2



VCM Z



ULTRASCAN

光电振镜方头



产品特点

FEATURES



低噪声、高线性度和低漂移。
Low noises, high linearity and low drift.



可以适配多种F-theta镜头。
Support varieties of F-theta lenses.



模块化设计，易于安装维护。
Modular design, easy integration and maintenance.



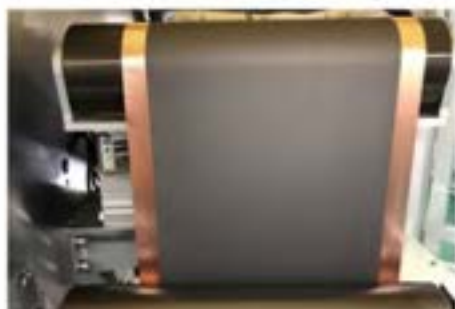
XY2-100通讯协议，其他协议可选。
XY2-100 communication protocol, other protocols available.

行业应用

INDUSTRY APPLICATIONS

可应用于非金属和部分金属材料加工，现广泛应用于多个领域，如食品包装、饮料包装、医药包装、建筑陶瓷、纽扣、工艺礼品、电子元件、手机外壳、笔记本及平板外壳、剥线、薄膜切割、PCB条码、外壳铭牌等领域。

Our scanner systems can process non-metallic and partial metallic materials. It is widely used in many industries, such as food packaging, beverage packaging, pharmaceutical packaging, architectural ceramics, buttons, craft gifts, electronic components, mobile phone casings, notebook and flat casing, stripping, film cutting, PCB bar code, shell nameplate, etc.



极耳切割
Laser pole ear cutting



PCB



IC打标
IC Marking

以上图片来自网络
The above pictures are from the Internet

□ 技术参数

TECHNICAL PARAMETERS

UltraScan I	7mm	10mm ^①	10mm ^②	10mm ^③	14mm	20mm	30mm	50mm
入口光斑 Input Beam Aperture (mm)	7	10	10	10	14	20	30	50
光柱位移 Beam Displacement (mm)	9.77	12.54	12.54	12.54	16.42	25.25	35.61	62.25
跟踪误差 Tracking Error (ms)	0.15	0.18	0.14	0.16	0.23	0.45	0.70	1
重复精度 Repeatability (μrad)	<2	<2	<3	<2	<2	<2	<2	<2
零位漂移 Offset Drift (μrad/K)	<20	<15	<15	<15	<15	<15	<15	<15
增益漂移 Gain Drift (ppm/K)	<100	<80	<80	<80	<80	<80	<80	<80
8小时以上漂移 Long-term drift over 8 hours (mrad)	<0.4	<0.3	<0.4	<0.15	<0.3	<0.3	<0.3	<0.3
1%全行程 1% of full scale (ms)	0.22	0.40	0.30	0.35	0.65	0.80	1.20	1.5
10%全行程 10% of full scale (ms)	0.8	1.20	1.00	1.10	1.60	2.50	4.50	6.5
定位速度 ^④ Positioning Speed (m/s)	25	10.0	20.0	15.0	10.0	5.0	3.0	1
扫描角度 ^⑤ Typical Scan Angle (°)	±25							
增益误差 Gain Error (mrad)	<5							
零位误差 Zero Offset (mrad)	<5							
非线性度 Nonlinearity (%)	<0.4							
电源要求 Power Requirements	±15VDC, ≥3A							
通讯协议 Communication Protocol	16bit: XY2-100			20bit: ST2-100 ^⑥				
工作温度 Operation Temperature (°C)	25±10							
重量 Weight (kg)	1.6	1.9	1.9	1.9	2.3	5.0	5.2	8.8

注：① 针对精密打标定制 Customized for precision marking

② 针对飞行打标定制 Customized for marking on the fly

③ 针对FPC及SLA应用定制 Customized for FPC and SLA applications

④ 使用焦距F=160mm的透镜测试 Test with F=160mm F-theta lens

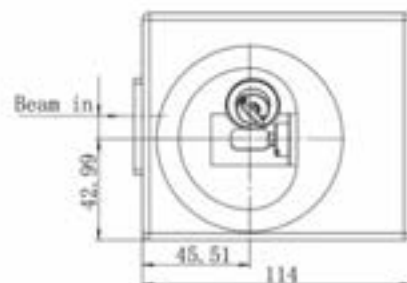
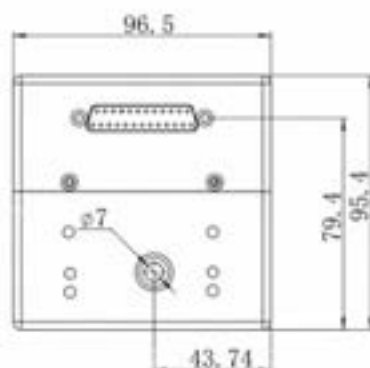
⑤ 以上角度均为光学角度 All angles are in optical degrees

⑥ 10-50mm支持ST2-100协议 10-50mm supports ST2 protocol

□ 外形尺寸图

TECHNICAL DRAWING

UltraScan I 7mm



技术参数

TECHNICAL PARAMETERS

UltraScan II	10mm	14mm	20mm	30mm
入口光斑 Input Beam Aperture (mm)	10	14	20	30
光柱位移 Beam Displacement (mm)	12.54	16.42	25.25	35.53
跟踪误差 Tracking Error (ms)	0.12	0.15	0.35	0.6
重复精度 Repeatability (μ rad)	<2	<2	<2	<2
零位漂移 Offset Drift (μ rad/K)	<12	<12	<12	<12
增益漂移 Gain Drift (ppm/K)	<50	<50	<50	<50
8小时以上漂移 Long-term drift over 8 hours (mrad)	<0.15	<0.15	<0.15	<0.15
1%全行程 1% of full scale (ms)	0.3	0.35	0.70	1.10
10%全行程 10% of full scale (ms)	0.8	0.90	2.40	4.40
定位速度 ^① Positioning Speed (m/s)	18.0	14.0	6.0	4.0
扫描角度 ^② Typical Scan Angle ($^{\circ}$)		± 25		
增益误差 Gain Error (mrad)		<5		
零位误差 Zero Offset (mrad)		<5		
非线性度 Nonlinearity (%)		<0.4		
电源要求 Power Requirements		$\pm 15\text{VDC}, \geq 3\text{A}$		
通讯协议 Communication Protocol		16bit: XY2-100		
工作温度 Operation Temperature (C)		25 ± 10		
重量 Weight (kg)	1.9	2.3	5.0	5.2

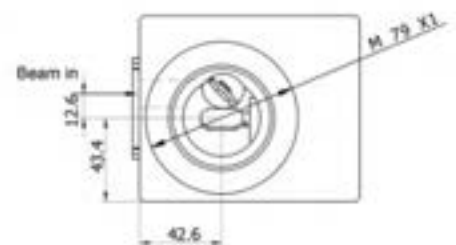
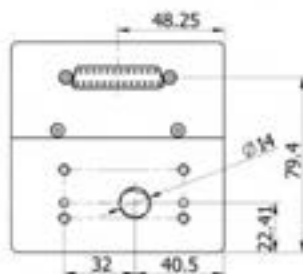
注: ① 使用焦距F=160mm的场镜测试 Test with F=160mm F-theta lens

② 以上角度均为光学角度 All angles are in optical degrees

外形尺寸图

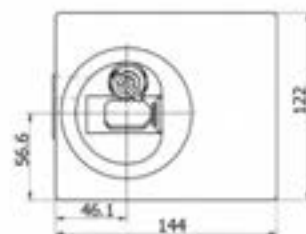
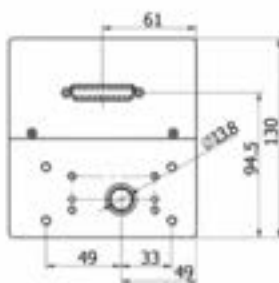
TECHNICAL DRAWING

UltraScan I(II)10mm

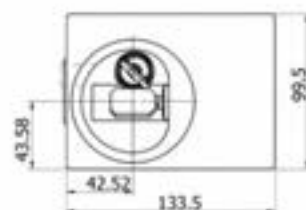
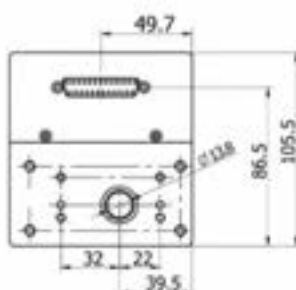


□ 外形尺寸图
 TECHNICAL DRAWING

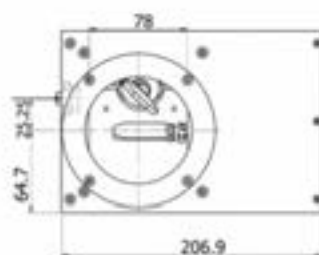
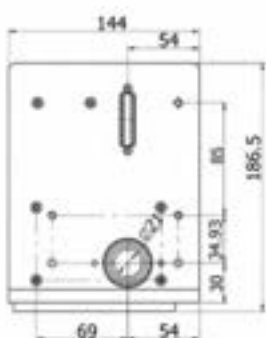
UltraScan I 14mm



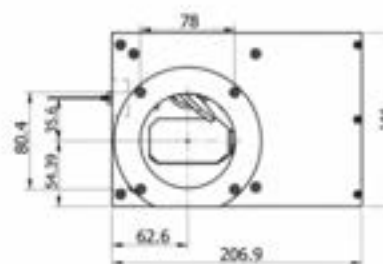
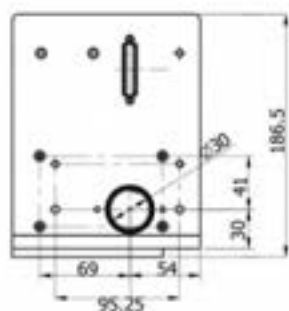
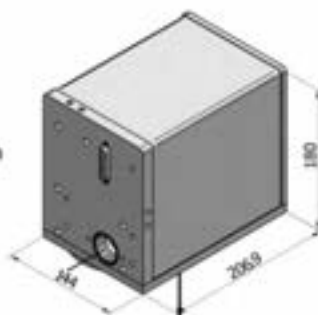
UltraScan II 14mm



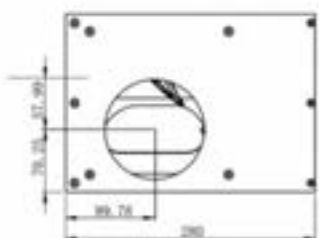
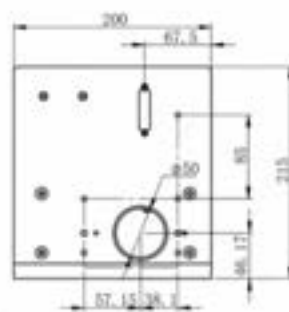
UltraScan I 20mm



UltraScan I 30mm



UltraScan 50mm



EXTRASCAN

光栅振镜方头



产品特点

FEATURES



自主研发高精度光栅编码器。
Independent research and development of high precision grating encoder



23bit分辨率数字电机实现卓越的定位精度和重复定位精度。
23bit resolution digital galvo to achieve excellent positioning accuracy and repeat positioning accuracy.



实时检测振镜状态，确保振镜安全可靠运行。
Real-time detection of galvanometer status to ensure safe and reliable operation of the galvanometer.



全数字设计保证极低的漂移和极高的稳定性。
All digital design guarantees extremely low drift and extremely high stability.

行业应用

INDUSTRY APPLICATIONS

可应用于非金属和部分金属材料加工，现广泛应用于多个领域，如食品包装、饮料包装、医药包装、建筑陶瓷、纽扣、工艺礼品、电子元件、手机外壳、笔记本及平板外壳、剥线、薄膜切割、PCB条码、外壳铭牌等领域。

Our scanner systems can process non-metallic and partial metallic materials. It is widely used in many industries, such as food packaging, beverage packaging, pharmaceutical packaging, architectural ceramics, buttons, craft gifts, electronic components, mobile phone casings, notebook and flat casing, stripping, film cutting, PCB bar code, shell nameplate, etc.



3D打印
SLM



光伏
Photovoltaic



半导体
semiconductor

以上图片来源于网络
The above pictures are from the Internet

□ 技术参数

TECHNICAL PARAMETERS

ExtraScan I	10mm	14mm	20mm	30mm
入口光斑 Input Beam Aperture (mm)	10	14	20	30
光柱位移 Beam Displacement (mm)	12.54	16.42	25.25	35.53
跟踪误差 Tracking Error (ms)	0.3	0.40	0.65	1.2
重复精度 Repeatability (μrad)	<1	<1	<1	<1
零位漂移 Offset Drift (μrad/K)	<15	<15	<15	<15
增益漂移 Gain Drift (ppm/K)	<8	<8	<8	<8
8小时以上漂移 Long-term drift over 8 hours (mrad)	<0.1	<0.1	<0.1	<0.1
1%全行程 1% of full scale (ms)	0.55	0.85	1	1.50
10%全行程 10% of full scale (ms)	1.4	1.80	3	5
定位速度① Positioning Speed (m/s)	7	5	3	2
扫描角度② Typical Scan Angle (°)		±25		
增益误差 Gain Error (mrad)		<5		
零位误差 Zero Offset (mrad)		<5		
非线性度 Nonlinearity (%)		<0.1		
电源要求 Power Requirements	±15VDC, ≥3A			
通讯协议 Communication Protocol	16bit: XY2-100		20bit: ST2-100	
工作温度 Operation Temperature (C)	25±10			
重量 Weight (kg)	1.9	2.3	5.0	5.2

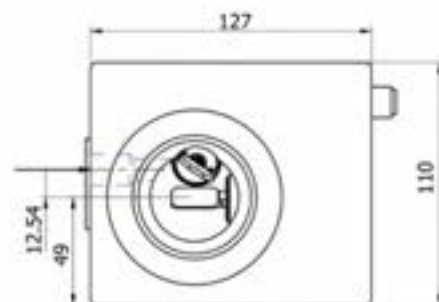
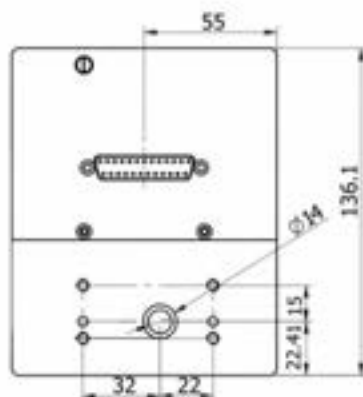
注：① 使用焦距F=160mm的场镜测试 Test with F=160mm F-theta lens

② 以上角度均为光学角度 All angles are in optical degrees

□ 外形尺寸图

TECHNICAL DRAWING

ExtraScan 10mm



□ 技术参数

TECHNICAL PARAMETERS

ExtraScan II	10mm	14mm	20mm	30mm
入口光斑 Input Beam Aperture (mm)	10	14	20	30
光柱位移 Beam Displacement (mm)	12.54	16.42	25.25	35.53
跟踪误差 Tracking Error (ms)	0.2	0.25	0.5	0.80
重复精度 Repeatability (μ rad)	<1	<1	<1	<1
零位漂移 Offset Drift (μ rad/K)	<15	<15	<15	<15
增益漂移 Gain Drift (ppm/K)	<8	<8	<8	<8
8小时以上漂移 Long-term drift over 8 hours (mrad)	<0.08	<0.08	<0.08	<0.08
1%全行程 1% of full scale (ms)	0.45	0.6	0.85	1.30
10%全行程 10% of full scale (ms)	1.30	1.50	2.60	4.80
定位速度① Positioning Speed (m/s)	10.0	7.0	5.0	3.0
扫描角度② Typical Scan Angle ($^{\circ}$)		± 25		
增益误差 Gain Error (mrad)		<5		
零位误差 Zero Offset (mrad)		<5		
非线性度 Nonlinearity (%)		<0.1		
电源要求 Power Requirements	± 15 VDC, ≥ 3 A			
通讯协议 Communication Protocol	16bit: XY2-100		20bit: ST2-100	
工作温度 Operation Temperature (C)	25 \pm 10			
重量 Weight (kg)	1.9	2.3	5.0	5.2

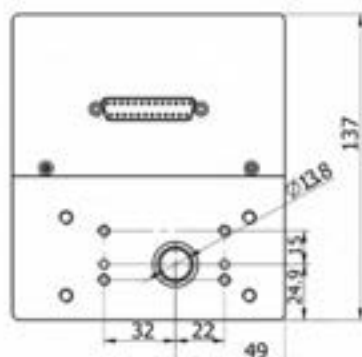
注: ① 使用焦距F=160mm的场镜测试 Test with F=160mm F-theta lens

② 以上角度均为光学角度 All angles are in optical degrees

□ 外形尺寸图

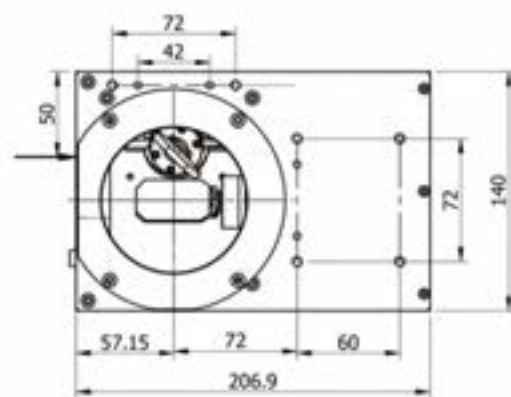
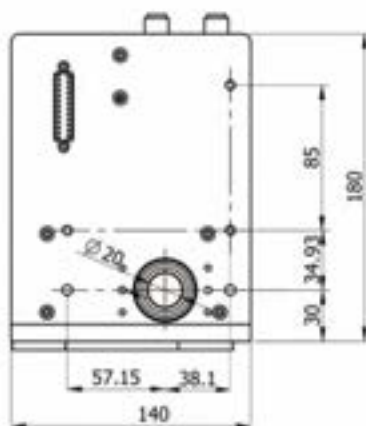
TECHNICAL DRAWING

ExtraScan 14mm

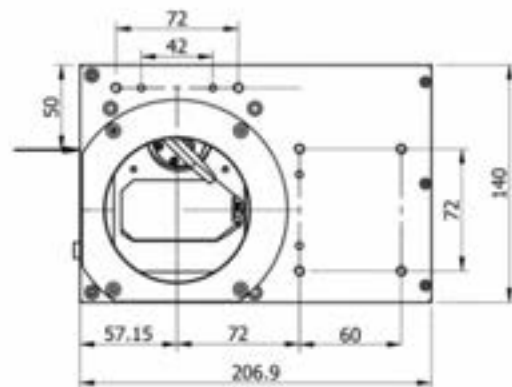
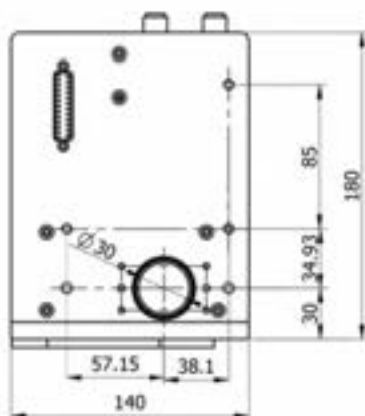


□ 外形尺寸图
TECHNICAL DRAWING

ExtraScan 20mm



ExtraScan 30mm



INTELLIGENT INTEGRATED SCANNING SYSTEM

智能一体扫描系统

产品特点

FEATURES



使用方便，无需安装打标控制卡。
Easy to use without extra control card.



连接线缆简单，可靠性高。
Simplify cable connection with high reliability.



实现了振镜和激光器的实时同步控制。
Simultaneously real-time control of galvanometer and laser.



可实现局域网内的远程控制，支持SD卡存储，可实现脱机打标。
Remotely control in LAN, Support SD card storage and offline marking.

产品组成

PRODUCT COMPOSITION

● 激光加工扫描头 (Laser processing head)

采用双核ARM架构，主频800MHz，配备512MB DDR3内存，板载256 Mbit。

Adopt dual-core ARM architecture and dominant Frequency 800MHz, equipping with 512MB DDR3 memory and onboard 256 Mbit.

● 激光打标软件 (Laser marking software)

具有高精度BOX校正功能，校正精度可达 $6\mu\text{m}$ ，同时支持3D焦点校正功能。

High-precision BOX correction function with calibration precision up to $6\mu\text{m}$ and support 3D focus calibration.



二维界面
2D Interface

HASHUSCAN

智能扫描头

□ 技术参数

TECHNICAL PARAMETERS



		HaShuScan 10mm	HaShuScan 14mm
入口光斑	Input Beam Aperture (mm)	10	14
光柱位移	Beam Displacement (mm)	12.54	16.42
跟随误差	Tracking Error (ms)	0.18	0.30
重复精度	Repeatability (μ rad)	< 2	< 2
零位漂移	Offset Drift (μ rad/K)	< 15	< 15
增益漂移	Gain Drift (ppm/K)	< 80	< 80
8小时以上漂移	Long-term drift over 8 hours (mrad)	< 0.3	< 0.3
1%全行程	1% of full scale (ms)	0.40	0.65
10%全行程	10% of full scale (ms)	1.20	1.60
定位速度 ^①	Positioning Speed (m/s)	10.0	7.0
扫描角度 ^②	Typical Scan Angle ($^{\circ}$)	± 25	
增益误差	Gain Error (mrad)	< 5	
零位误差	Zero Offset (mrad)	< 5	
非线性度	Nonlinearity (%)	< 0.4	
电源要求	Power Requirements	± 15 VDC, ≥ 3 A	
工作温度	Operation Temperature ($^{\circ}$ C)	25 ± 10	
重量	Weight (kg)	1.9	2.3

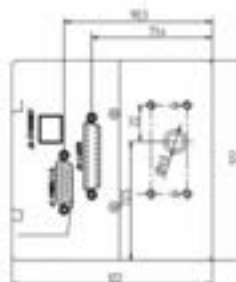
注：① 使用焦距F=160mm的场镜测试 Test with F=160mm F-theta lens

② 以上角度均为光学角度 All angles are in optical degrees

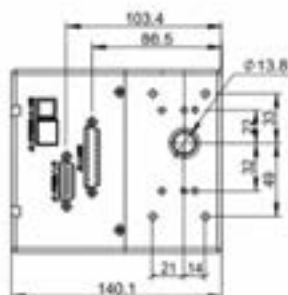
□ 外形尺寸图

TECHNICAL DRAWING

HaShuScan 10mm



HaShuScan 14mm



HIGH POWER GALVANOMETER WELDING SYSTEM

高功率振镜焊接系统



产品特点

FEATURES



采用高精度高速度的数字光栅振镜，焊接速度可达3000mm/s。

Adopt high precision and high speed digital grating galvanometer, welding speed up to 3000mm/s.



采用闭环控制系统，时刻监控振镜位置状态。

Adopt closed-loop control system to monitor the position and status of the galvanometer at real time.



采用高级别的系统安全机制，可10ms内关掉激光。

Adopt high level system safety mechanism, turn off laser within 10ms.



拥有水冷、气冷双系统，和高端厚重的机柜。

Support both water cooling and air cooling system. With high-end and dignified cabinet.



具有多种摇摆功能：波浪形轨迹、螺旋线轨迹、8轨迹、∞轨迹。

With a variety of swing functions: wave-shaped trajectory, spiral trajectory, 8 trajectory and ∞ trajectory.



自主设计上位机软件，有能量波形、摆动功能、焊接参数等功能，具有调试、自动焊接模式。

Independent design PC software, it sets energy waveform, swing function, welding parameters, with debugging mode and automatic welding mode simultaneously.

技术参数

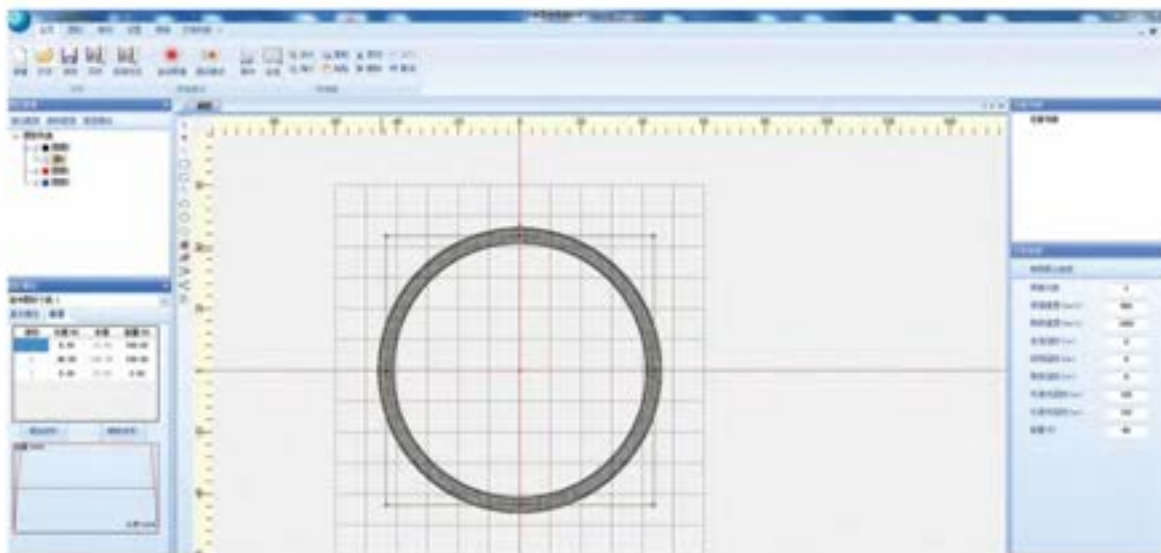
TECHNICAL PARAMETERS

		雷霆 Thunder 6000	雷霆 Thunder 3000
最大激光功率	Maximum Laser Power (w)	6000	3000
激光波长	Laser Wavelength (nm)	1070±10	
场镜有效焦距	F-theta Lens Effective Focal Length (mm)	460	
焊接范围	Welding Range (mm)	220×220	
工作高度	Operating Height (mm)	565	
准直镜有效焦距	Collimator Effective Focal Length (mm) ^①	150	
光纤连接方式	Fiber Connection Method	QBH	
透光孔径	Clear Aperture (mm)	30	
最大焊接速度	Maximum Welding Speed (mm/s)	3000	
工作温度	Operating Temperature (°C)	25±10	
重量	Weight (kg)	20	

注：① 可选配其它焦距准直镜
② 使用焦距F=460mm的场镜测试

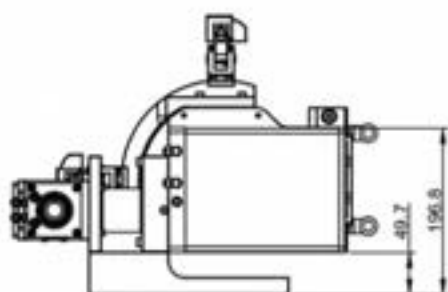
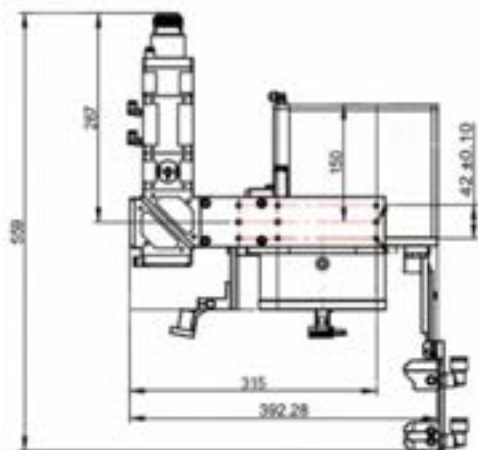
Note: ① Different focus length collimator available
② Test with F=460mm F-theta lens

□ 上位机软件界面
SOFTWARE INTERFACE



□ 外形尺寸图
TECHNICAL DRAWING

高功率焊接透镜外形安装尺寸
Installation dimension of high power welding galvanometer



机柜外形尺寸图
Technical drawing of cabinet



MEDIUM POWER GALVANOMETER WELDING SYSTEM

中功率振镜焊接系统



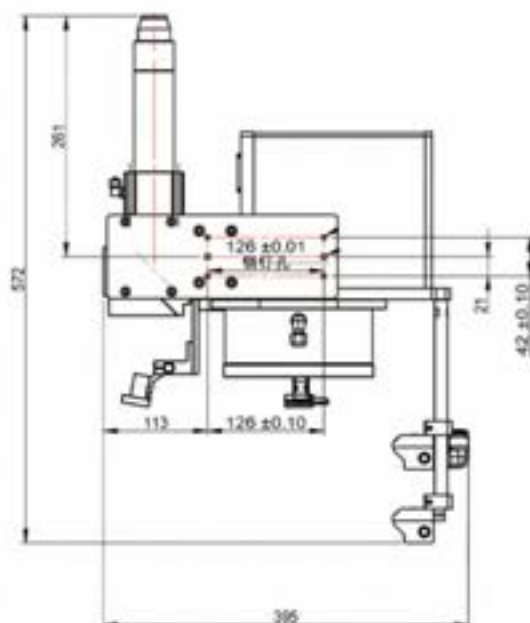
□ 技术参数

TECHNICAL PARAMETERS

系统名称 SYSTEMATIC NAME		
最大激光功率	Maximum Laser Power (w)	2000
激光波长	Laser Wavelength (nm)	1070±10
场镜有效焦距	F-theta Lens Effective Focal Length (mm)	254、330、460 (可选)
焊接范围	Welding Range (mm)	160×160、180×180、270×270
工作高度	Operating Height (mm)	303.5、389.4、529.5
准直镜有效焦距	Collimator Effective Focal Length (mm)	100、125、150、200
光纤连接方式	Fiber Connection Method	QBH
通光孔径	Clear Aperture (mm)	30
最大焊接速度	Maximum Welding Speed (mm/s)	3000
工作温度	Operating Temperature (°C)	25±10
重量	Weight (kg)	16

□ 外形尺寸图

TECHNICAL DRAWING



14MM 3D&2.5D SCANNING SYSTEM

14mm快速3D&2.5D系统



□ 技术参数

TECHNICAL PARAMETERS

光学参数 Specifications For Optics

激光介质	Laser	UV Laser	IR	Green
波长	Wavelength (nm)	355	1064	532
镜片镀膜	Mirror Coating	介质膜 Dielectric Coating		
振镜透光直径	Aperture Size (mm)	φ14		
系统入射光斑	System Input Laser Beam (mm)	9	7	3.5

振镜参数 Galvanometer Parameters

工作偏转角	Scan Angle (°)	±11.5
重复标刻精度	Repeatability (urad)	5
最大增益漂移	Max.Gain Drift (ppm/K)	12
8小时长期漂移	Long-term Drift Over 8h (mrad)	0.3
最大位置漂移	Max.Offset Drift (urad/K)	30
最大加工速度	Maximal Processing Speed (字符/s)	650
小步长阶跃响应时间	Small Step Response (ms)	≤0.18

动态变焦系统参数 Dynamic Focus System Parameters

小步长阶跃响应时间	Small Step Response (ms)	≤1.6
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环境要求 Environmental Requirement

工作温度	Ambient Temperature (°C)	0 ~ +40
存储温度	Storage Temperature (°C)	-10 ~ +60
湿度	Humidity	≤75%无凝结 Non-Condensing

电源参数 Power Supply Parameter

电源要求	Power Requirements	±(15 + 1.5)VDC, max. 10A
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结构参数 Specifications For Structure

重量	Weight (Kg)	8
尺寸	Dimension (mm)	324x140x181.5

绿光2.5D系统 Green 2.5D System

波 长	Wavelength (nm)	532
振镜通光直径	Aperture Size (mm)	φ14
系统入射光斑	System Input Laser Beam (mm)	φ3.5
工 作 范 围	Field Size (mm)	70x70
Z 轴 聚 焦 范 围	Focus Range In Z-Direction (mm)	±5
场镜离工作面距离	Distance From F-Theta To Working Face(mm)	93.03
最小光斑直径((基于光束质量M ² =1))	Ideal Spot Diameter1/e ² (mm)	0.01

红外2.5D系统 IR 2.5D System

波 长	Wavelength (nm)	1064
振镜通光直径	Aperture Size (mm)	φ14
系统入射光斑	System Input Laser Beam (mm)	7
工 作 范 围	Field Size (mm)	210*210
Z 轴 聚 焦 范 围	Focus Range In Z-Direction (mm)	±20
场镜离工作面距离	Distance From F-Theta To Working Face(mm)	330
最小光斑直径((基于光束质量M ² =1))	Ideal Spot Diameter1/e ² (um)	45

紫外3D系统 UV 3D System

工作范围	Field Size (mm)	100x100x40	200x200x80	300x300x150	400x400x150	500x500x150	600x600x150
最小光斑直径	Ideal Spot Diameter1/e ² (mm)	0.009	0.015	0.022	0.026	0.033	0.039

绿光3D系统 Green 3D System

工作范围	Field Size (mm)	100x100x40	200x200x80	300x300x150	400x400x150	500x500x150	600x600x150
最小光斑直径	Ideal Spot Diameter1/e ² (mm)	0.013	0.023	0.031	0.04	0.0496	0.059

红外3D系统 IR 3D System

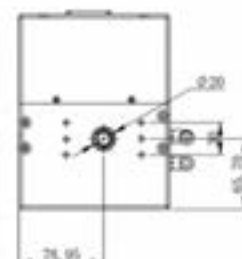
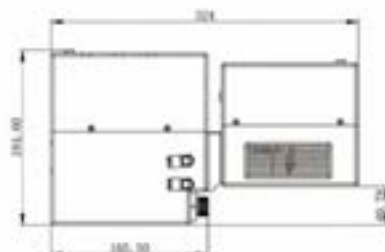
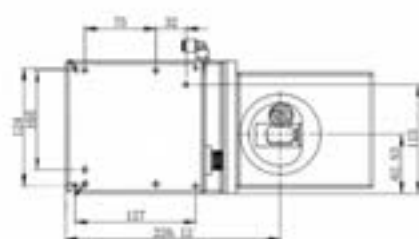
工作范围	Field Size (mm)	60x60x60	100x100x90	100x100x40	200x200x80
最小光斑直径	Ideal Spot Diameter1/e ² (mm)	0.021	0.027	0.025	0.0415

注：以上角度均为光学角度

Note: All angles are in optical degrees

□ 外形尺寸图

TECHNICAL DRAWING



3D LARGE FIELD DYNAMICS FOCUSING SYSTEM

三维大幅面动态调焦系统

产品特点

FEATURES

- 

利用振镜电机和音圈电机的组合，实现三维曲面及大幅面的快速扫描。
 The combination of galvanometer and voice coil motor realizes the fast scanning of 3D curved surface and large field.
- 

系统集成度高，安装及使用简便。
 Highly integration system and easy to integrate and operate.
- 

与电脑通信采用TCP/IP通信协议，可实现1台电脑对多台系统的控制。
 Connected with computer through TCP/IP communication protocol, multiple scanner systems can be controlled by single one controller computer simultaneously.
- 

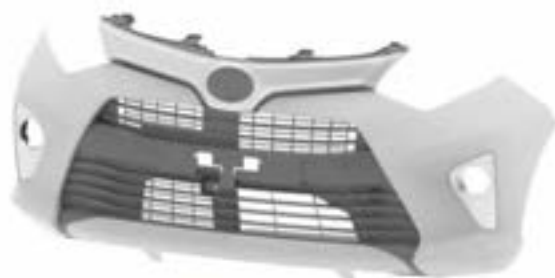
光路设计中考虑了不同幅面的激光聚焦效果，在工作范围内实现最小激光聚焦光斑，能量更为集中。
 The optical path design considers the focusing effect under different formats to get the minimum laser spot within the working range with the energy more focused.

行业应用

INDUSTRY APPLICATIONS

利用振镜电机和音圈电机的组合，实现三维曲面及大幅面的快速扫描，广泛用于较大幅面的激光精密标刻、激光浮雕、激光深雕、激光切割、激光焊接等高端加工领域。

The combination of galvanometer and voice coil motor is used to realize the fast scanning of 3D curved surface and large field. It is widely used in large field laser precision marking, laser relief, laser deep engraving, laser cutting, laser welding and other high-end processing application.



汽车零部件打标
Auto parts marking



激光模切
Laser die cutting



大幅面激光加工
Large format laser processing

以上图片来源于网络
The above pictures are from the internet

CO2 & UV & IR 3D System

二氧化碳&紫外&红外



□ 技术参数

TECHNICAL PARAMETERS

		CO2	紫外 Ultraviolet	红外 IR
电机摆动角度	Scan Angle (°)	±11	±11	±11
系统校正精度	System Calibration Accuracy ^①		≤0.1mm	
重复标刻精度	Repeatability (urad)	2	5	2
最大增益漂移	Max. Gain Drift (ppm/k)	80	8	80
最大零位漂移	Max. Offset Drift (uRad/k)	15	15	15
8小时以上漂移	Long-term Drift Over 8 Hours (mrad)	≤0.3	≤0.1	≤0.3
跟随误差	Tracking Error (ms)	≤0.70	≤0.45	≤0.30/≤0.45/≤0.7
波长	Wavelength (nm)	10600	355	1064
入射光斑直径	Incident Spot Diameter (mm)	15	6	7/10
通光直径	Aperture Size (mm)	30	20	14/20/30
最大激光功率	Maximum Laser Power Cw(W/cm²)	1000	300	1500

注：① 当工作范围≤800x800mm 时的校正精度

② 以上角度均为光学角度

Note: ① Calibration accuracy at processing field ≤800x800mm

② All angles are in optical degrees

CO2激光器配置实例		CONFIGURATION INSTANCE OF CO2 LASER			
工作范围	Field Size (mm*mm*mm)	最小光斑直径1/e²	Ideal Spot Diameter 1/e²(um)	工作距离	Working Distance (mm)
	100*100*0		181		96.5
	250*250*10		304		241.5
	500*500*150		568.2		550.5
	750*750*300		832		860.5
	1000*1000*500		1096		1169.5
	1250*1250*700		1360		1478.5
	1500*1500*900		1625		1788.5
	2000*2000*1400		2145		2407.5

紫外激光器配置实例		CONFIGURATION INSTANCE OF UV LASER			
工作范围	Field Size (mm*mm*mm)	最小光斑直径1/e²	Ideal Spot Diameter 1/e²(um)	工作距离	Working Distance (mm)
	200*200*30		11		212
	300*300*50		15		309
	500*500*100		26		556
	700*700*150		34		804
	1000*1000*240		46		1175
	1200*1200*320		55		1423

14mm红外激光器配置实例 CONFIGURATION INSTANCE OF IR LASER (14mm)

工作范围 Field Size (mm*mm*mm)	最小光斑直径1/e ² Ideal Spot Diameter1/e ² (um)	工作距离 Working Distance (mm)
200*200*40	45.2	177.4
250*250*60	52.1	239.3
300*300*80	60.7	301.2
350*350*100	70	363.0
400*400*120	79.3	425.0

20mm红外激光器配置实例 CONFIGURATION INSTANCE OF IR LASER (20mm)

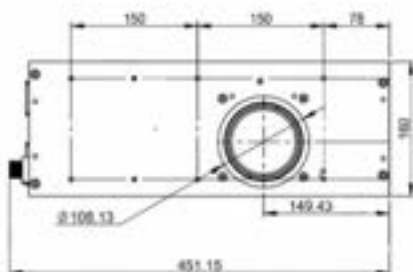
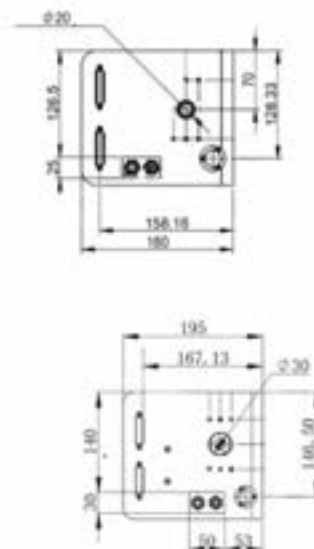
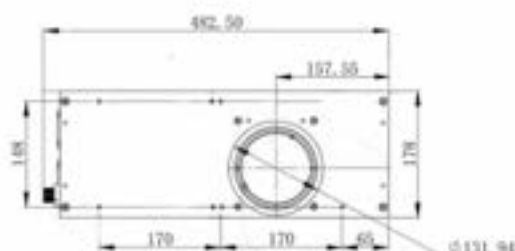
工作范围 Field Size (mm*mm*mm)	最小光斑直径1/e ² Ideal Spot Diameter1/e ² (um)	工作距离 Working Distance (mm)
200*200*30	25.75	184.7
400*400*70	49	432.2
500*500*100	65	618.8
600*600*120	77	679.7
700*700*150	89	866.3
800*800*180	101	927.2
900*900*220	113	1113.8
1000*1000*240	125	1174.7
1200*1200*320	148.5	1422.2

30mm红外激光器配置实例 CONFIGURATION INSTANCE OF IR LASER (30mm)

工作范围 Field Size (mm*mm*mm)	最小光斑直径1/e ² Ideal Spot Diameter1/e ² (um)	工作距离 Working Distance (mm)
800*800*50	70	921.6
1000*1000*200	84	1169.1
1200*1200*450	100	1416.6
1300*1300*550	108	1540.3
1400*1400*700	116	1664.1
1500*1500*850	124	1787.9

外形尺寸图

TECHNICAL DRAWING

 紫外/20mm 红外
 Ultraviolet/20mm IR

 CO₂/30mm 红外
 CO₂/30mm IR


3D LARGE FORMAT METAL PRINTING SYSTEM

3D大幅面金属打印系统



□ 技术参数

TECHNICAL PARAMETERS

振镜参数 GALVANOMETER PARAMETERS		红外 IR
电机摆动角度	Scan Angle (°)	±10
位置分辨率	Position Resolution	2 ²³
重复标刻精度	Repeatability (urad)	1
最大增益漂移	Max.Gain Drift (ppm/k)	8
最大零位漂移	Max.Offset Drift(urad/k)	15
8小时以上漂移	Long-term Drift Over 8 Hours (mrad)	≤0.08
跟踪误差	Tracking Error (ms)	≤0.70
增益误差	Gain Error (mrad)	< 5
零位误差	Zero Offset (mrad)	< 5
波长	Wavelength(nm)	1064
通光直径	Aperture Size (mm)	30
最大激光功率	Maximum Laser Power CW(W/cm ²)	3000

光学参数 OPTICAL PARAMETERS						
单振镜工作范围 Working range of single galvanometer(mm*mm)	300*300	350*350	400*400	450*450	500*500	600*600
双振镜工作重合区域 Overlap area of two galvanometers (mm*mm)	250*250	300*300	350*350	400*400	450*450	550*550
工作高度 (Y镜片距底面) Working height (Y mirror from bottom) (mm)	412.1	480.8	549.5	618.2	686.9	824.2
工作面最小光斑直径 ^① Minimum spot diameter of working face (1/e ²) μm	51.4-57.2	59.2-70	66.9-74.7	74.7-83.5	82.5-92.2	98-109.6
工作面最小光斑直径 ^② Minimum spot diameter of working face (1/e ²) μm	30	34.4	39.2	43.6	48	57.6
工作面最小光斑直径 ^③ Minimum spot diameter of working face (1/e ²) μm	40.4	46.4	52.8	58.4	64.8	76.8

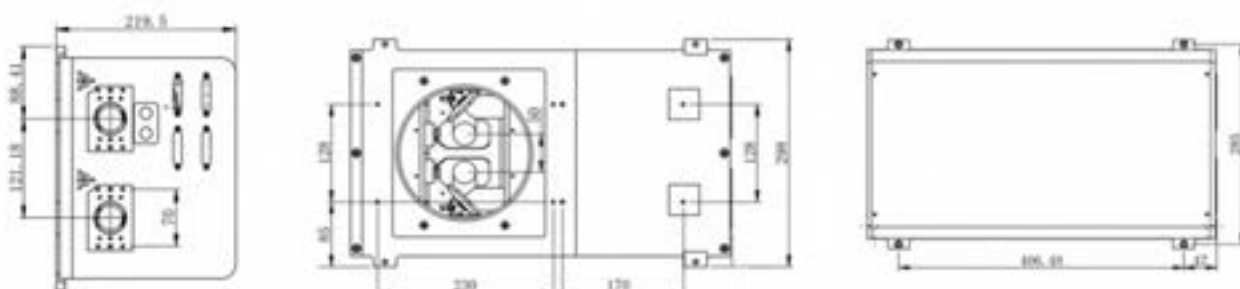
注：① 光斑按照芯径20um换算 Spot calculated with 20um core diameter of fiber

② 按照平行光10mm入射计算 Calculated with 10mm diameter laser beam

③ 按照平行光7.5mm入射计算 Calculated with 7.5mm diameter laser beam

□ 外形尺寸图

TECHNICAL DRAWING



FOUR-AXIS LINKAGE SYSTEM

四轴联动系统

□ 工作原理

WORKING PRINCIPLE



四轴联动系统主要由XY振镜、XY运动平台、平台驱动器、GMC控制卡以及通用打标软件组成，拥有无限视野范围功能，可同步线性伺服轴与激光扫描振镜。当扫描振镜的高动态性能与伺服平台的大行程范围结合后，可连续处理比传统振镜更大的工作范围，无需进行工作区域的拼接。四轴联动系统不仅扩大了扫描振镜系统的工作范围及单个光学器件的应用范围，还避免了激光束范围与可用工作范围之间的相互影响，而且提高了加工质量和大型零件的生产。

The four-axis linkage system is mainly composed of XY galvanometers, XY motion platform, platform driver, GMC control card and general marking software. It has the function of infinite field of vision, synchronize the linear servo and laser scanning galvanometer. When the high dynamic performance of the scanning galvanometer is combined with the large stroke range of the servo platform, a larger working range can be continuously processed than that of the traditional galvanometer, without the need for stitching the working area. The four-axis linkage system not only expands the working range of the scanning galvanometer system and the application range of a single optical device, but also avoids the interaction between the laser beam range and the available working range, and improves the processing quality and the production of large parts.

□ 产品特点

FEATURES



使用自主研发的GMC控制卡，系统可实现高速度、高精度、大幅面的激光加工。

Using GMC control card independently developed by Han's Scanner, the system can achieve high speed, high precision laser processing.



可导入标准格式的矢量图，也可进行二次开发，开发语言支持C++、C#。

Import standard of vector format, can support secondary development based on C++, C#.



适用于大族思特系列扫描振镜，兼容XY2-100驱动的第三方振镜。

Suitable for Han's Scanner series scanning galvanometers, compatible with the other galvanometers with XY2-100 Communication protocol.



只需要一张控制卡就可实现振镜与平台的实时同步联动控制。

Only one control card is enough to realize real-time synchronous linkage control between the galvanometer and the platform.

应用场景

APPLICATION SCENARIOS



UV钻孔
UV drilling



OLED屏加工
OLED processing



FPC切割
FPC cutting

以上图片来源于网络
The above pictures are from the Internet

四轴联动方案组成

FOUR AXIS LINKAGE SYSTEM SCHEME



加工精度为5um@130mm行程

The machining accuracy is 5um@130mm stroke

5 AXIS MICROMACHINING SYSTEM

五轴微加工系统



产品特点

FEATURES

普通激光钻孔系统只能加工锥孔，无法做到标准直孔和倒锥孔的加工。而5轴激光微加工系统，除了标准直孔，锥孔的加工以外，还能加工倒锥孔，极大的扩展了激光钻孔的应用。搭配不同波长及超快激光器，能做到钻孔热效应小，表面处理光滑等特点。才使加工材质无限制，真正应用到了各行各业的钻孔加工。

The ordinary laser drilling system can only process the taper hole, and can not achieve the standard straight hole and inverted cone hole processing. Besides the standard straight hole and the taper hole processing, the 5-axis laser micro machining system can also process the inverted cone hole, which greatly expands the application of laser drilling. With different wavelengths and super fast lasers, it features small thermal effect of drilling and smooth surface treatment, and realizes the unlimited processing materials, which can be applied to drilling and processing in all walks of life.

技术参数

TECHNICAL PARAMETERS

五轴微加工系统 5 axis Micromachining System

工作范围	Working Field Size (mm)	φ0.025 to φ1
Z方向最大变焦范围	Maximum Focus Range In Z Direction (mm)	±1
系统入射光斑大小	Entrance Beam Diameter (1/e ²) (mm)	10
聚焦光斑大小(1/e ²)M ² =1	Focus Diameter In Image Field (1/e ²) for M ² = 1 (μm)	25
最大进给角度	Maximum Angle Of Incidence (°)	±9
旋进频率	Precession Frequency (HZ)	200-600 (12000-36000rpm)
物镜焦距	Objective Focal Length (mm)	50
重复精度	Repeatability (μm)	≤0.5
入射角的理论分辨率	Theoretical Resolution Of Incidence Angle (urad)	2
尺寸	Dimension (L*W*H) (mm)	601×280×274
重量	Weight (Kg)	23.5

应用场景

INDUSTRY APPLICATION

五轴微加工系统广泛应用于汽车工业（喷油嘴孔钻削），航空航天工业（涡轮叶片的冷却气膜孔），电子和电信行业，钟表行业，过滤行业，医疗技术行业（冠状动脉支架切割）。

Five axis micromachining system is widely used in automobile industry (drilling of nozzle hole), aerospace industry (cooling air film hole of turbine blade), electronics and telecommunication industry, clock industry, filtration industry, medical technology industry (coronary stent cutting).

POLYGON SCAN HEAD

棱镜面扫描头



产品简介

PRODUCT INTRODUCTION

大族思特棱镜面扫描头采用一维棱镜加一维振镜设计方案，无需外加运动轴即可实现二维面扫描。自主设计的高精度棱镜和高速直流无刷电机，匹配高性能数字驱动板，实现超高速度的同时保证高速度稳定性。扫描起始点检测模块可检测棱镜面的起始点，配合大族思特GMC控制卡和专用打标软件，简化客户系统集成的难度。

大族思特棱镜面扫描头适用于各种高重频的皮秒、飞秒激光器以及高功率连续激光器等应用场景，可达到260米/秒的扫描速度，实现振镜无法比拟的加工效率。

Han's Scanner Polygon scanning head adopts a one-dimensional polygon mirror and one-dimensional galvanometer design scheme, which can realize two-dimensional surface scanning without an additional axis of movement. Self-designed high-precision polygon and high-speed DC brushless motor, matched with a high-performance digital driver, Achieves high speed while ensuring high-speed stability. The scanning starting point detection module can detect the starting point of the polygon surface, and work with Han's Scanner GMC control card and special marking software to simplify the difficulty of customer system integration.

Han's Scanner Polygon scan head is suitable for various high repetition frequency picosecond, femtosecond lasers and high-power continuous lasers and other application scenarios. It can reach the scanning speed of 260 m/s and realize the processing efficiency that the galvanometer can not match.

产品特点

FEATURES



高速、高速度稳定性。
High speed, stability of high speed.



高激光功率。
High laser power.



低漂移、高精度。
Low drift and high precision.



模块化设计，易于集成。
Modular design, easy to integrate.

应用场景

INDUSTRY APPLICATION



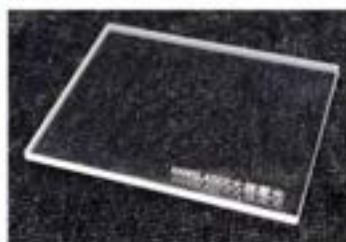
高速划线、飞行打标
High-speed marking
On-the-fly marking



PCB高速表面处理
PCB high-speed surface treatment



高功率激光清洗
High power laser cleaning



玻璃、塑料钻微孔
Glass and plastic micro-drilling

以上图片来自网络
The above pictures are from the internet

技术参数

TECHNICAL PARAMETERS

棱镜面扫描头 Polygon Scan Head

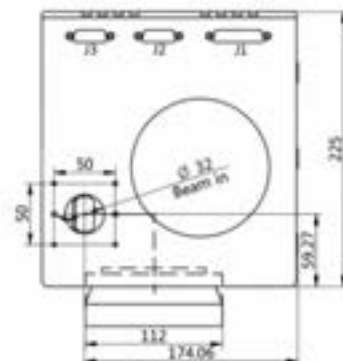
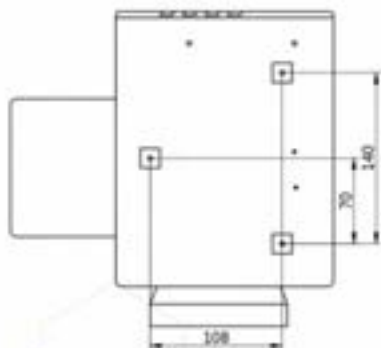
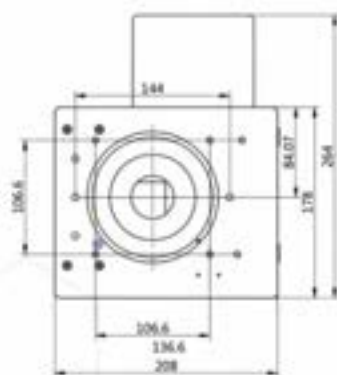
入口光斑	Input Beam Aperture (mm)	≤15
波长	Standard Wavelength (nm)	355/532/1064
扫描速度(线/秒) ^①	Scan Speed (lines per second)	150-1600
扫描线速度 ^①	Moving Spot Speed (m/s)	50-260
线重复定位-Y轴	LINE Placement Repeatability-Y axis (urad)	±50
打标重复定位-X轴	Optimal Laser Pixel Placement Repeatability-X axis (urad)	±50
电源要求	Power Requirements	±15VDC@7Amax
扫描角度 ^②	Scan Angle (°)	±16 (X轴axis), ±12.5 (Y轴axis)
工作温度	Operation Temperature (°C)	25±10

注: ① 使用焦距F=255mm的场镜测试 Test with F=255mm F-theta lens

② 以上角度均为光学角度 All angles are in optical degrees

外形尺寸图

TECHNICAL DRAWING



OPTICAL COHERENCE TOMOGRAPHY SCAN IMAGING SYSTEM

光学相干断层扫描成像系统

产品描述

PRODUCT DESCRIPTION

光学相干断层扫描成像系统 (Optical Coherence Tomography Scan Imaging System,简称OCT) 技术是近年来新兴的一种测量技术,其通过检测发射光线与返回光线的光程差,得出探测头到被测表面的相对距离,再经过一系列数学变换,即可形成一张包含实际物理距离信息的三维图像或二维图像。

Optical Coherence Tomography Scan Imaging System is a new technology in distance measurement area for recent years. The path length difference between the reference and measuring light paths is measured. Followed by a series of complex calculation, the 2D or 3D image can be produced by the device.



产品特点

FEATURES



具备深度信息测量能力,高度信息不受烟尘及颜色干扰。

Depth measurement for distance, Free from dust and color interference.



同时支持镜面与非镜面物体测量,且精度不因镜面损失。

Support mirror surface and non-specular measurement without precision loss.



支持透明物体透视测量。

Support transparent surface measurement.



无需辅助光源,不受环境光干扰。

Modular design, easy to install and maintain.

□ 技术参数

TECHNICAL PARAMETERS

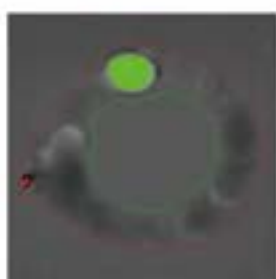
OCT		
测量范围	Measuring Range (mm x mm)	40*40
测量深度	Measuring Depth (mm)	3
分辨率	Resolution (um)	X/Y方向 direction: 10 Z方向 direction: 6
测量速度	Measuring Speed (mm/s Max)	1600

□ 行业应用

INDUSTRY APPLICATIONS



普通相机拍摄铜板焊接轨迹图
Copper plate welding path photo taken by the normal industrial camera.



OCT检测，无惧激光干扰
Copper plate welding path photo taken by OCT. Free from laser interference.



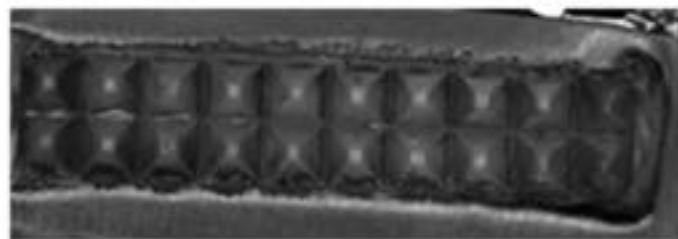
普通相机拍摄铝板焊接轨迹图
Aluminum plate welding path photo taken by the normal industrial camera.



OCT设备自动扫描并计算
Automatic scanning and calculation of OCT equipment.

OCT设备不仅自动完成焊缝识别，同时对焊缝的长度，宽度，缺陷点高度和深度都进行了测算并显示。

Optical Coherence Tomography is a new technology in distance measurement area for recent years. The path length difference between the reference and measuring light paths is measured. Followed by a series of complex calculation, the 2D or 3D image can be produced by the device.



超声波焊缝图
Ultrasonic welding joint photo taken by normal industrial camera.



OCT检测3D模型侧视图
Ultrasonic welding joint photo taken by OCT with 3D image.

LASER PROJECTION SYSTEM

激光投影系统



产品简介

PRODUCT INTRODUCTION

大族思特激光投影系统使用定制化的控制软件控制高速扫描振镜，将激光光束按1:1的比例准确的投射到物体表面，描绘出工件/物品的外形轮廓和定位点，辅助操作人员对大型工件/物品高效、准确的定位，减少了布局、设置和装配时间，显著提高生产效率。同时，最大限度的减少装配过程中操作人员变量的影响，减小制造失误、返工和不合格品。经过专门优化的投影系统定制化软件，支持各种常见格式的3D图形文件，支持超大范围的校正，操作简单，容易上手。

Han's Scanner laser projection system uses customized control software to control the high speed scanning mirror and project the laser beam to the surface accurately in a 1:1 ratio, display the contour and anchor point of the workpiece/item, assisting the operator to locate the large workpiece/item efficiently and accurately, reducing the layout, setup and assembly time, significantly improving the production efficiency. At the same time, it minimizes the impact of operator variables in the assembly process, reduces manufacturing errors, rework and nonconforming products. After specially optimized projection system customization software, support a variety of common formats of 3D graphics files, support large range of correction, simple operation, easy to use.

产品特点

FEATURES



自主设计扫描振镜，速度快，精度高，稳定性好。

Self-designed scanning galvanometer, high speed, high precision and good stability.



高功率绿光激光器，传输距离远。

High power green laser, long transmission distance.



以太网通讯，抗干扰能力强，多机协同工作方便。

Ethernet communication, strong anti-interference ability, multi-machine collaboration is convenient.



校正操作简单，上位机软件界面友好、上手快。

Calibration operation is simple, the upper computer software interface is friendly and fast.

应用场

APPLICATION SCENARIOS



水泥预制件
Positioning in Construction Industry



大型工件铺装定位
Large Workpiece Positioning



木材家具加工
Wood Furniture Production



飞机、轮船喷漆定位
Painting Positioning of Large Parts

以上图片来源于网络
The above pictures are from the Internet

技术参数

TECHNICAL PARAMETERS

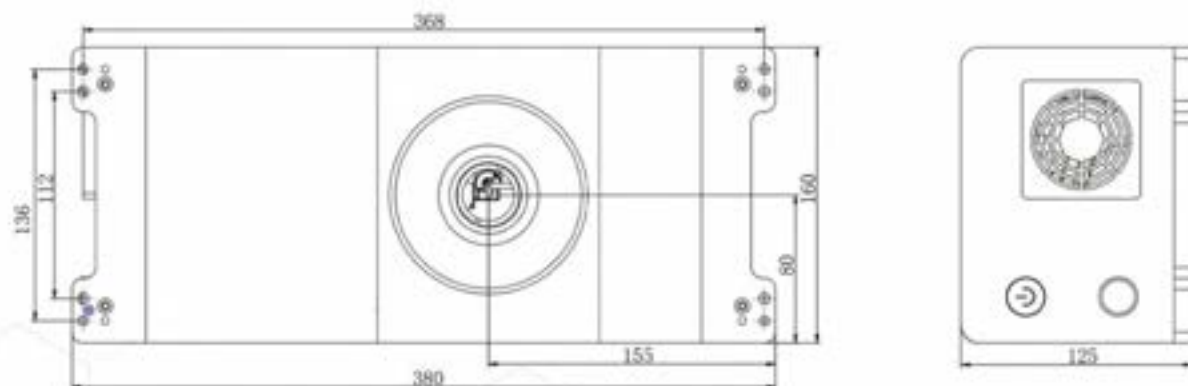
激光投影系统 Laser Projection System

激光光斑直径	Laser Beam Diameter(mm)	≤2.5
激光波长	Laser Wavelength(nm)	532nm Green Laser
定位精度	Positioning Accuracy(mm/m)	±0.1
重复定位精度	Repeatability(mm/m)	±0.025
投影角 ^①	Projection Angle(°)	80x80
通讯方式	Communication Mode	Ethernet
电源要求	Power requirement	±15V 5A max.
激光器功率	Laser Power(mW)	100
工作温度	Operating temperature(°C)	0-40
尺寸	Dimension (L*W*H) (mm)	380*160*125
重量	Weight (Kg)	4.5

注：① 以上角度均为光学角度 All angles are in optical degrees.

外形尺寸图

TECHNICAL DRAWING



LASER-ASSISTED MEDICAL TREATMENT SYSTEM

医疗美容点阵系统

产品特点

FEATURES

- 

操作界面友好，主要以图形选择和参数设置相结合的方式。
User-friendly operation interface, mainly through the combination of graphic selection and parameter setting.
- 

多样化的治疗方案，包括美容点阵模式、妇科模式和手术切割模式。
Diversified treatment options, including aesthetic fractional model, gynecological model and surgical excision model.
- 

采用数字/模拟系统，有多种报警功能和安全管理机制，确保设备的正常运行和安全使用。
It adopts digital / analog system, and has multiple alarm functions and security processing mechanism to ensure the normal operation and safe use of the equipment.
- 

非顺序扫描模式，大幅度降低对周边组织的热损伤。
Non-sequential scanning mode greatly reduces the thermal damage to surrounding tissues.
- 

手柄电缆采用双层屏蔽机制，传输可靠，抗干扰能力强。
Double-layer shield mechanism is adopted for handpiece cable, which is characterized by reliable transmission and strong anti-interference ability.
- 

操作界面友好，主要以图形选择和参数设置相结合的方式。
User-friendly operation interface, mainly through the combination of graphic selection and parameter setting.

系统简介

SYSTEM INTRODUCTION

	控制系统 Control System	驱动器 Driver	人机交互界面 Interface	手柄 Handpiece	备注 Remarks
数字系统 1 Digital system 1			 电容屏 10寸 Capacitive Screen 10 Inch	 HS1606	支持多种美容点阵模式 Support a variety of beauty dot matrix mode
数字系统 2 Digital system 2			 电阻屏 8/10.4寸 Resistive Screen 8/10.4 Inch	 HS1608	支持多种美容点阵模式 Support a variety of beauty dot matrix mode
模拟系统 Analog system			 电阻屏 8/10.4寸 Resistive Screen 8/10.4 Inch	 HS1608	只支持美容深层模式 Only support beauty deep mode

□ 技术参数

TECHNICAL PARAMETERS

		数字系统 DIGITAL SYSTEM	模拟系统 DIGITAL SYSTEM
工作温度	Working Temperature (°C)		0 ~ 45
非线性度	Nonlinearity (%)		<0.4
小步阶响应时间	Setting Time (ms)	≤0.25	≤0.30
增益漂移	Gain Drift (PPM/°C)		<80
零位漂移	Offset Drift (μRad /°C)		<15
8小时以上漂移	Long-term drift over 8 hours (mrad)		<0.3
平均工作电流	RMS Current (A)		0.65
峰值电流	Peak Current (A (Max))		1.7
最大扫描角度	Maximum Scan Angle (°)		±15
存储温度	Storage Temperature (°C)		-10 ~ +50
分辨率	Resolution (μrad)		8
重复精度	Repeatability (μrad)		<5
输入孔径	Input Aperture (mm)		5.0 ~ 7.0
光束位移	Beam Displacement (mm)		10.7
重量	Weight (g)		13
频率	Frequency (Hz)		≤500 ^①

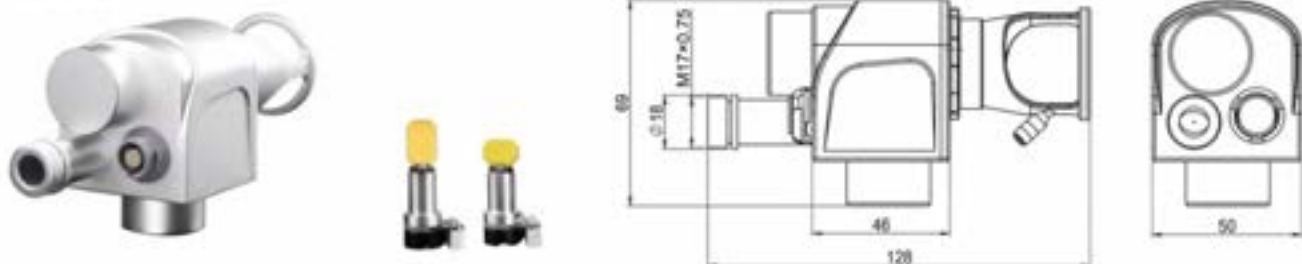
注: ①输入指令为正弦波, 电机光学摆角±10°

Note: ① Sine wave command input at ±10° optical scan angle

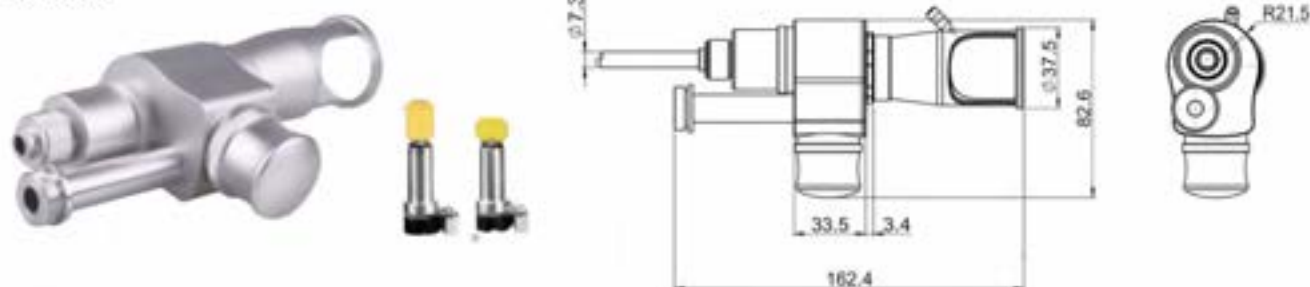
□ 外形尺寸图

TECHNICAL DRAWING

HS1606



HS1608



GMC CONTROLLER

GMC控制卡

产品简介

PRODUCT INTRODUCTION



经过多年的技术积累，大族思特开发的GMC控制卡兼具高精度，高分辨率，功能强大和易于集成等特点，各种强大的功能可以协助客户完成各种富有挑战的工作，如振镜和激光同步控制功能，振镜和外置精密运动平台（四轴联动）的联动功能。高精度校正算法保证大幅面加工时的定位精度；提供C#/C++二次开发接口，兼容32位/64位的各种windows操作系统，方便客户灵活开发上位机软件。

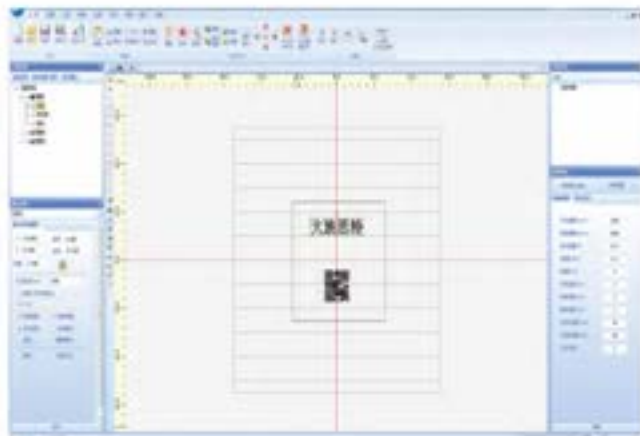
ScanWorld激光加工软件界面人性化，操作方便，易于上手；支持STEP, IGES, STL等多种3D图形格式解析；支持3D图形的创建，编辑和分层；支持3D曲面打标和3D浮雕功能。

After many years of technology accumulation, Han's Scanner developed the GMC controller with high precision, high resolution, powerful functions, ease of integration etc. A variety of powerful features can help customers to complete a variety of challenging work, such as galvanometer and laser synchronous control function, galvanometer and external precision motion platform (4-axis) linkage function. High precision correction algorithm ensures positioning accuracy in large area machining. It provides C#/C++ secondary development interface, compatible with 32-bit / 64-bit Windows operating system, convenient for customers to flexibly develop PC software.

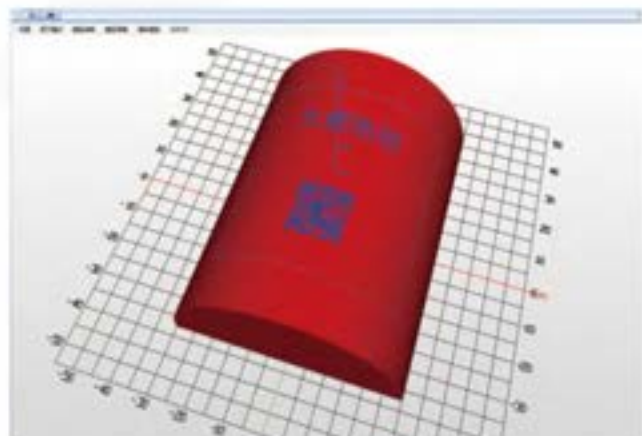
ScanWorld laser processing software user-friendly interface, easy to operate, easy to use. It supports STEP, IGES, STL and other 3D graphics format parsing. It supports 3D graphics creation, editing and layering. It supports 3D surface marking and 3D embossing.

软件界面

TECHNICAL DRAWING



二维界面
2D Interface



三维界面
3D Interface

□ 产品规格

PRODUCT SPECIFICATIONS

振镜控制 THE GALVANOMETER CONTROL

单台电脑最多可支持255张GMC控制卡	Support Max. 255 GMC for one computer
支持同时控制两套振镜	Supports synchronization control of two scan heads
XY2-100, SPI, ST2-100协议	XY2-100, SPI, ST2-100 protocol

激光控制 THE LASER CONTROL

DB25接口	DB25 interface
10ns分辨率, 20mA激光控制信号	10ns resolution, 20mA laser control signal
支持振镜和激光同步补偿功能	Support scan head and laser synchronization compensation function
可配置的激光控制模式, 兼容不同类型激光器的控制方式	Configurable laser control mode compatible with different types of laser control mode

外设设备控制 PERIPHERAL DEVICE CONTROL

7个数字输出信号	7 digital output signals
6个数字输入信号	6 digital input signals
两路0-10V模拟信号输出	Two 0-10V analog signal outputs
步进电机控制	Stepper motor control

命令控制 COMMAND AND CONTROL

圆, 椭圆, 矢量打标	Circle, ellipse, vector marking
日期, 时间, 条形码, 二维码打标	Date, time, bar code, two-dimension code marking
Skywriting	Skywriting
飞行打标	Marking on the fly
3D曲面打标和3D浮雕功能	3D surface marking and 3D engrave function
转镜控制功能	Polygon scan head control function
高功率焊接功能	High power welding function
四轴联动功能	Four axis linkage function

系统要求 SYSTEM REQUIREMENTS

16G SD卡	16G SD card
脱机工作	Support offline Working mode
±15VDC, 1A工作电源	±15V/1A DC power supply
100M/1000M Ethernet	
Windows 10/8/7(32bit&64bit)	

F-THETA LENS

F-theta 镜头



产品简介

PRODUCT INTRODUCTION

大族思特拥有经验丰富的光学设计团队，专长于不同应用领域的光学场镜设计和定制化的光学设计。设计的F-theta镜头经过不断优化改进，产品性能和质量不断提升，已达到国际先进水平。目前，我们的产品除了应用于普通打标之外，还应用到消费电子，微加工，锂电，光伏和3D打印能高端制造行业。

Han's scanner has an experienced optical design team specialized in optical lens design and customized optical design for different applications. With constant optimization over time, the performance and quality of our lens have been continuously improved, and have reached the international advanced level. Besides general marking, our products are also applied to many high-end manufacturing industries, such as consumer electronics, micromachining, lithium battery industry, photovoltaic industry and LAM industry.

应用场景

APPLICATION SCENARIOS



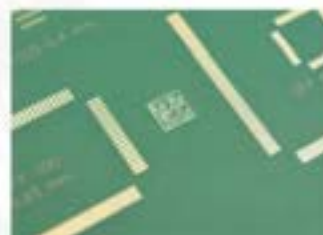
精密切割、焊接、清洗
Precision cutting, Welding, Cleaning



激光微加工
Laser Micromachining



锂电行业加工
Lithium battery industry processing

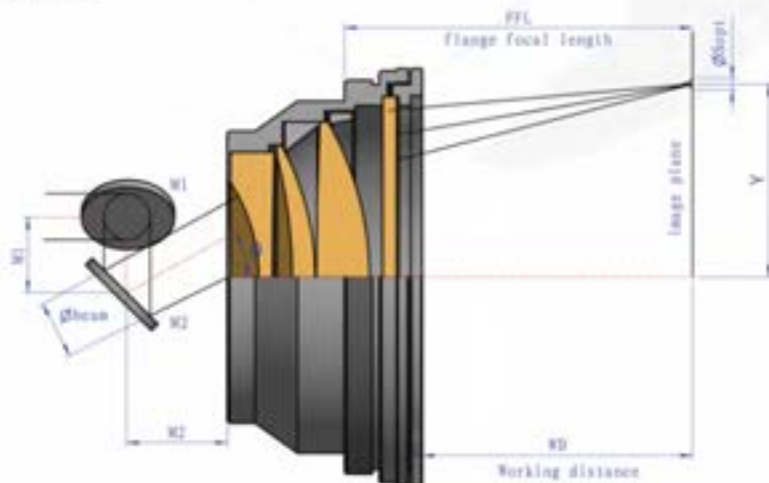


PCB、FPC激光打标
For PCB, FPC laser marking

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外形尺寸图

TECHNICAL DRAWING



□ 技术参数

TECHNICAL PARAMETERS

绿激光F-Theta场镜 Green Laser F-Theta Lens

规格型号 Part Number	焦距 Focal Length (mm)	透光孔径 Clear Aperture (mm)	扫描角度 Scan Angle	扫描范围 Scan Field (mm)	适用波长 Wavelength (nm)	聚焦光斑 Focus spot (μm)	外形尺寸 Dimension (mm*mm)	M1距离 M1 Distance (mm)	M2距离 M2 Distance (mm)	工作距离 Working Distance (mm)	连接方式 Thread Spec.	备注 Remark
MF061004GY	64	Φ10	±25°	40*40	532	7	Φ90*62	12.6	16.75	74.1	M85*1.0	
GF071004GY	74	Φ10	±21.5°	40*40	532	8	Φ90*70	12.6	15.5	91.2	M85*1.0	
MF101005GY	100	Φ10	±25°	50*50	532	10	Φ115*73	12.6	15.2	110	M85*1.0	
GF121206GY	115	Φ14	±21°	65*65	532	8.5	Φ112*93	14.7	23.5	147.2	M85*1.0	
MF161610GOO	164	Φ16	±25°	100*100	532	10	Φ96*50	14.7	22.5	188.5	M85*1.0	
MF252016GOO	258	Φ20	±25°	160*160	532	13	Φ90*46	26.5	18.5	287.5	M85*1.0	
HF481630GOO	480	Φ16	±25°	315*315	532	30	Φ95*53	14.7	20.5	482	M85*1.0	

紫外激光F-Theta场镜 UV Laser F-Theta Lens

规格型号 Part Number	焦距 Focal Length (mm)	透光孔径 Clear Aperture (mm)	扫描角度 Scan Angle	扫描范围 Scan Field (mm)	适用波长 Wavelength (nm)	聚焦光斑 Focus spot (μm)	外形尺寸 Dimension (mm*mm)	M1距离 M1 Distance (mm)	M2距离 M2 Distance (mm)	工作距离 Working Distance (mm)	连接方式 Thread Spec.	备注 Remark
GF101205UVOY	100	Φ12	±22°	55*55	355	7	Φ90*65	14.7	15	123	M85*1.0	
HF161010UVO	161	Φ10	±25°	100*100	355	10	Φ90*53	12.6	15.8	196	M85*1.0	
GF251016UV	254	Φ10	±25°	165*165	355	17	Φ95*54	12.6	21.35	309.5	M85*1.0	

红外F-Theta场镜 IR Laser F-Theta Lens

规格型号 Part Number	焦距 Focal Length (mm)	透光孔径 Clear Aperture (mm)	扫描角度 Scan Angle	扫描范围 Scan Field (mm)	适用波长 Wavelength (nm)	聚焦光斑 Focus spot (μm)	外形尺寸 Dimension (mm*mm)	M1距离 M1 Distance (mm)	M2距离 M2 Distance (mm)	工作距离 Working Distance (mm)	连接方式 Thread Spec.	备注 Remark
GF101005RY	100	Φ12	±25°	55*55	1030-1080	16	Φ90*70.5	12.6	16.5	122.5	M85*1.0	
MF161210IR	164	Φ12	±25°	100*100	1030-1080	28	Φ90*42	12.6	22.25	185.5	M85*1.0	
GF161010IR	164	Φ10	±25°	100*100	1030-1080	30	Φ90*53	12.6	15.35	203.5	M85*1.0	
GF161410IR	164	Φ14	±25°	100*100	1030-1080	25	Φ95*63	14.7	15.4	208.2	M85*1.0	
GF251416SIR	254	Φ14	±25°	165*165	1064	35	Φ105*63.5	17	22	313	M85*1.0	
F251618IR	258	Φ16	±27°	180*180	1030-1080	32	Φ112*56	16.5	29.8	299	M85*1.0	
GF271417IR	275	Φ14	±25°	170*170	1064	40	Φ120*71	17	22.85	335.7	M85*1.0	
F351625IR	354	Φ18	±29°	250*250	1030-1080	37	Φ140*64	16.5	24.2	407	M85*1.0	
F392425R	390	Φ24	±25°	250*250	1030-1080	32	Φ95*46	35	25.7	420.8	M85*1.0	

红外高(中)功率F-Theta场镜 IR Laser High (Medium) Power F-Theta Lens

规格型号 Part Number	焦距 Focal Length (mm)	透光孔径 Clear Aperture (mm)	扫描角度 Scan Angle	扫描范围 Scan Field (mm)	适用波长 Wavelength (nm)	聚焦光斑 Focus spot (μm)	外形尺寸 Dimension (mm*mm)	M1距离 M1 Distance (mm)	M2距离 M2 Distance (mm)	工作距离 Working Distance (mm)	连接方式 Thread Spec.	备注 Remark
XSF173010RY	170	Φ30	±25°	105*105	650/1064	10	Φ147*111	35.6	29	194	M112*1.0	
DGF253013IRWAT	254	Φ30	±20°	135*135	1030-1080	20	Φ150*90	36	28.5	316.5	Flange	
DGF333016IRWAT	330	Φ30	±21°	175*175	1030-1080	23	Φ162*92	36	30	417	Flange	
DGF423021IRWAT	420	Φ30	±21°	225*225	1064	30	Φ162*91	37	29	514.5	Flange	
DGF463023IRWAT	460	Φ30	±21°	245*245	1030-1080	30	Φ162*91	37	29	565	Flange	
MDF253016IR	254	Φ30	±23.5°	160*160	1064	17	Φ150*L80	37	30	303.5	M112*1.0	
MDF333020IR	330	Φ30	±23.5°	200*200	1064	22	Φ150*L80	37	29.6	461.3	M112*1.0	
MDF463028IR	460	Φ30	±23.5°	280*280	1064	30	Φ150*L82	37	30	529.5	M112*1.0	



-  总部及研发中心 Headquarters and R&D Center
-  国内销售和服务点 Domestic sales and service outlets
-  海外销售渠道 Overseas sales channels



深圳市大族思特科技有限公司
Shenzhen Han's Scanner S&T Co., Ltd.

总部地址: 广东省深圳市宝安区福永镇重庆路128号大族激光4栋4楼
Headquarters add: 4F Building4, Han's Laser Industry Park, 128 Chongqing Road, Fuyong Street, Bao'an District, Shenzhen City, Guang Dong, P.R. China.

华东办事处地址: 苏州市相城区高铁新城万汇大厦1929-1932室
East China office add: Room 1929~1932, Wanhui Business Plaza, No. 66, South Tiancheng Road, High-speed railway New Town, Xiangcheng District, Suzhou city.

华中办事处地址: 武汉市洪山区未来之光5栋202室
Central China office add: Room 202, Building 5, Future Light, Hongshan District, Wuhan city.

电话TELL: 0755-2304 1055 网址Web: www.hansscanner.cn / www.hansscanner.com

邮箱Mail: hansscanner@hanslaser.com

