



Intelligent
Laser

激光视觉焊缝跟踪系统

LASER VISION SEAM TRACKING SYSTEM



让机器人更加精准、高效、可靠的奔跑

MAKE THE ROBOT MORE ACCURATE, EFFICIENT AND RELIABLE

唐山英莱科技有限公司

TANGSHAN YINGLAI TECHNOLOGY CO., LTD



自动化焊接，您是否存在以下痛点？

FOR AUTOMATIC WELDING, DO YOU HAVE THE FOLLOWING PAIN POINTS?

来料、组对、工装精度差，焊偏焊漏频发

Low placement accuracy and poor consistency?

工件受热形变，机器人无法适应

Thermal deformation?

焊缝复杂，无法实时调整焊接参数，成型质量差

Unable to adjust welding parameters in real time according to the seam information?

批量生产，重复示教量大

Teach repeatedly in batch production?

焊缝间隙小，工件反光强，识别难度大

Hard to identify for micro-gap and high reflection.

我们懂您

因为客户认识我们之前

这些也曾困扰他们

We are here to help!

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英莱科技邀您
开启焊接智能化之旅

Now, please join the intelligent journey with us!

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INTELLIGENTLASER

唐山英莱科技有限公司

唐山英莱科技有限公司成立于2013年，位于河北省唐山市高新区，现有员工100余人。公司主要业务以激光视觉系统的研发、生产、销售为核心，同时提供配套工业机器人或自动化专机在焊接、切割、搬运、装配、打磨、喷涂等领域的智能化解决方案的设计开发、工艺试验、系统集成、技术咨询等综合服务。英莱科技将始终以“自强 厚德 笃实 日新”为理念；以提供自主研发、高效可靠产品为核心；以为用户创造价值为目标——致力于为智能装备业发展创造核心价值！

TANGSHAN YINGLAI TECHNOLOGY CO., LTD was founded in 2013, and our headquarters is located in Tangshan high-tech zone, Hebei province. The company's main business is the research and development, production and sales of laser vision system. At the same time, it provides intelligent solutions for industrial robots or special automatic machines in the fields of welding, cutting, handling, assembling, grinding, spraying, etc. We also provide corresponding design, development, process test, system integration, technical consultation and other comprehensive services. Intelligentlaser will always adhere to the concept of Self-reliance, Honesty, Solidity, and Innovation. Also, we not only provide independent research and development, but also efficient and reliable products. Our vision is to create value for users and dedicate ourselves to the development of intelligent equipment for industry.



员工本科及以上学历
Undergraduate ratio



员工研发人员占比
R&D staff ratio



年研发费用投入占比
Annual expense ratio for R&D



发明专利年增长率
Annual growth rate for patent

创新是企业发展的驱动力，目前，英莱科技已经与国内多所知名院校展开合作，并致力于不断加大研发投入，持续创新，满足与超越用户期望！

Innovation is the driving force of enterprise development. At present, Yinglai has cooperated with many well-known universities in China, and is committed to continuously increasing investment in research and development, continuous innovation, and meeting and exceeding user expectations!



INNOVATION



荣誉资质

- 专利及软著70余项
- 国家级高新技术企业
- 河北省科技型中小企业
- 河北省“专精特新”中小企业
- 国家火炬唐山机器人特色产业基地
- 中国机器人产业联盟成员单位
- 中国焊接协会会员单位
-

07
项

发明专利

40+
项

其他专利

30+
项

计算机软著

Yinglai has so far obtained more than 70 national invention patents, utility model patents, appearance design patents, computer software copyright registration certificates, etc., and has obtained "National High-tech Enterprises", "Hebei Science And Technology Small And Medium-sized Enterprises" and "Chinese Robots Industry Alliance Member Unit", "Unit of China Welding Association", "China Machine Vision Industry Alliance Member Unit", "National Torch Tangshan Robot Featured Industrial Base".

HONOR & QUALIFICATION



PRODUCTS INTRODUCTION

激光视觉焊缝跟踪系统

产品介绍

产品丰富 / 满足多种视距、视野、安装方式需求

核心优势 / 强大硬件、光学设计、算法研发

兼容性强 / 满足多种接头、焊接工艺需求

软件友好 / 模块化界面设计, 体系化管理

支持定制 / 机器人(专机)二次开发、工艺包定制

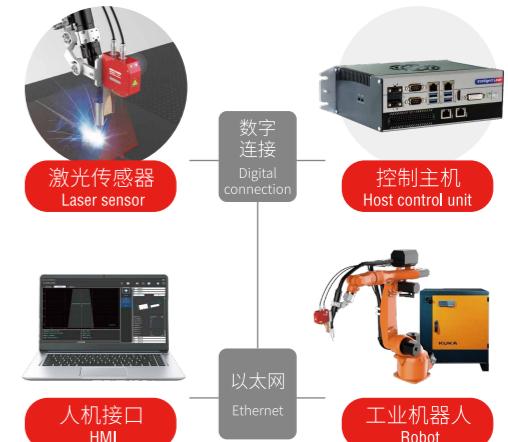


激光视觉焊缝跟踪系统

LASER VISION SEAM TRACKING SYSTEM

激光视觉焊缝跟踪系统主要由激光传感器和控制主机组成, 激光传感器用于焊缝信息的主动采集, 控制主机负责焊缝信息的实时处理, 并与工业机器人或焊接专机保持实时通信, 在焊接过程中修正机器人或专机的编程路径, 确保焊缝精确地熔敷在接头上, 满足智能化焊接的需求。

Laser vision seam tracking system is mainly composed of a laser sensor and a host control unit. The laser sensor is used for activating the collection of the seam information. The host control unit is responsible for real-time processing of seam information, and keep real-time communication with industrial robots or special welding machines. Correct the programmed path of the robot or special machine during welding to ensure that the weld is accurately deposited on the joint.



支持多样化通讯协议

产品可与世界主流机器人及多种PLC和运动控制器无缝对接, 即插即用, 无需二次开发, 更无需复杂配置, 轻松应对客户现场的设备。

Laser vision seam tracking system can be seamlessly connected with the world's mainstream robots, PLCs or motion controllers, plug and play, without secondary development, and without complex configuration.

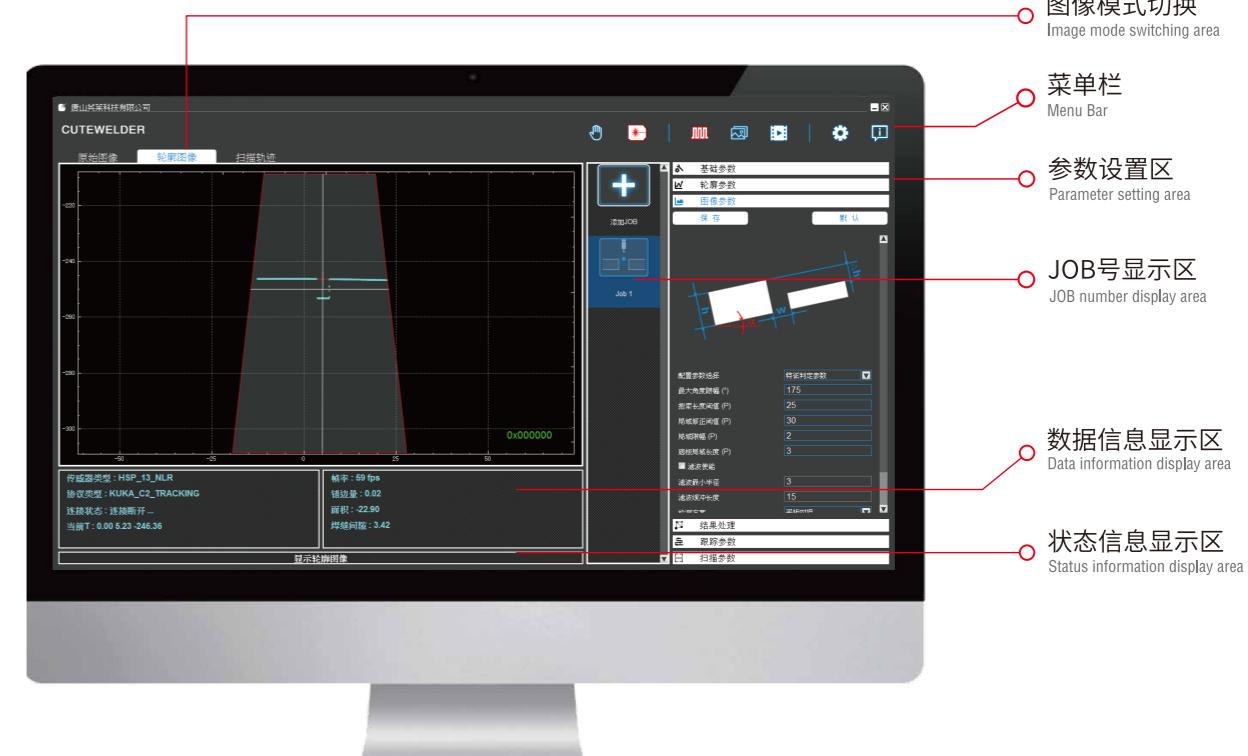
KUKA	FANUC	ABB	YASKAWA	Panasonic
Kawasaki Robotics	Stäubli	OTC	HYUNDAI	TOYODA
Siasun 新松	遨博智能 AUBO	EE	CROBOTP	STEP®
ESTUN Automation	CHAI FU 柴孚®	GSK 广州数控	BAYKAL 伯肯机器人	ROBOTMATE
TURIN	EFORT	MOKA 莫卡	JHY	QUAR 钦江机器人
JAKA 节卡	HAN'S ROBOT	Honyen	QINGHONG CHI 昆泓机器人	REIS ROBOTICS
LNC	inexbot	SYNTEC	固高科技 GOOGOLTECH	SIEMENS 数控系统
SIEMENS 西门子	MITSUBISHI ELECTRIC	台达 DELTA	OMRON 欧姆龙	KEYENCE 基恩士

*2014年, 英莱科技率先与工业机器人四大家族建立通信, 填补国内空白。

2018年, 英莱成为德国KUKA技术研发中心测试认证的全球第四家, 中国第一家激光视觉传感器品牌。

用户友好的CUTEWELDER™ 软件系统

USER-FRIENDLY SOFTWARE CUTEWELDER



简单易学

CUTEWELDER软件由英莱科技自主开发,采用模块化设计,界面友好,功能完善。支持中英双语,帮助菜单详细,非专业人员也能快速上手。

CUTEWELDER is independently developed by Intelligentlaser technology. It adopts modular design, friendly interface and perfect functions. Supports both Chinese and English, with detailed help menus, even non-professionals can quickly get started.

兼容性强

控制主机可与多种显示终端连接,操作方便。同时采用用户友好的界面设计,方便现场操作设定参数和图像切换,可配备市售显示器、笔记本电脑、Pad等。

The host control unit can be connected with a variety of display terminals. At the same time, it adopts a user-friendly interface design, which is convenient for on-site operation to set parameters and image switching. It can be equipped with commercially available monitors, notebook computers, pads, etc.

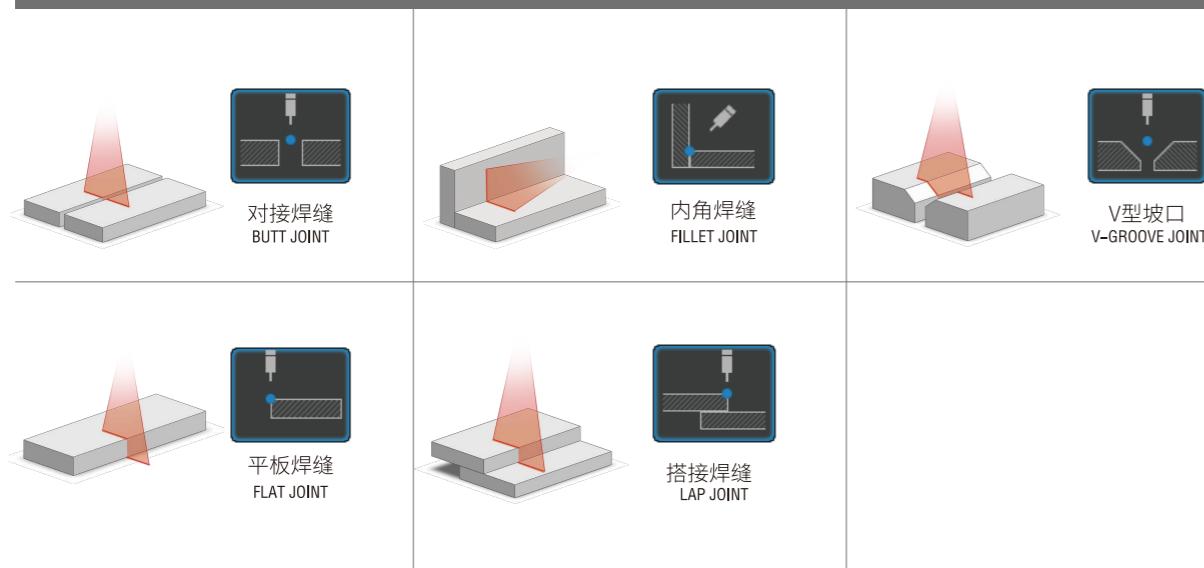
预置丰富

软件可预置近30种标准/非标焊缝类型,可根据不同工况(焊缝特征、工件材质、焊接工艺等),进行快速配置,操作方便。

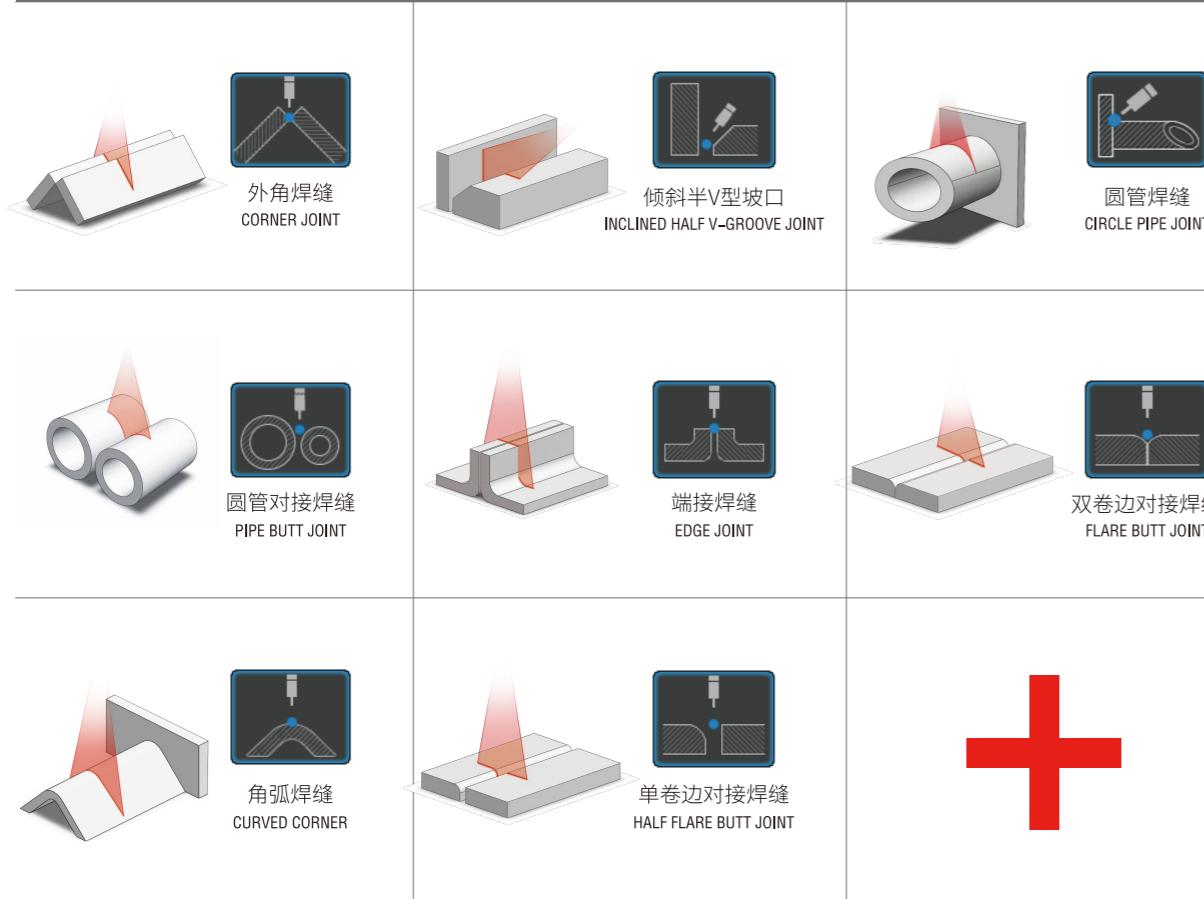
The software can preset nearly 30 standard/non-standard joint types, which can be quickly configured according to different working conditions (joint characteristics, workpiece material, welding process, etc.), and the operation is convenient.



支持标准焊缝类型 / Standard seam types



非标准焊缝类型 / Non Standard seam types



*英莱科技技术团队拥有超过8年的焊缝识别算法开发经验，并建立了完善的算法库，已基本实现焊缝全覆盖，亦可针对复杂工况快速实现定制化算法开发。

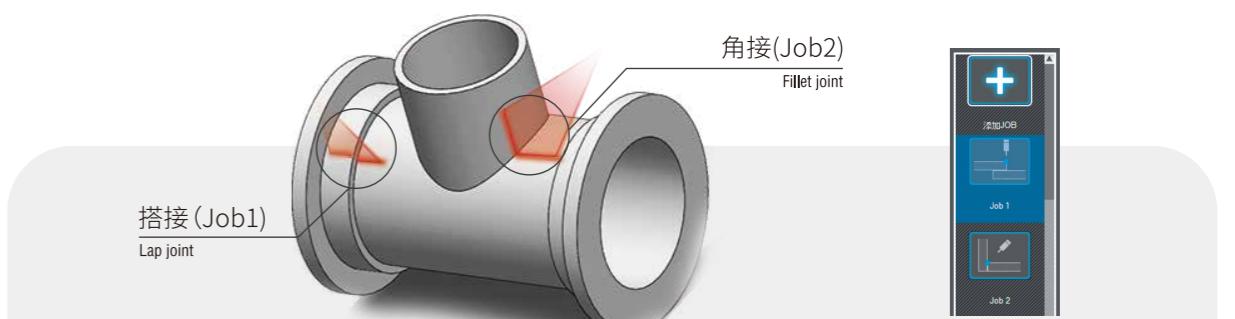
The technical team of Intelligentlaser Technology has more than 8 years of experience in the development of joints identification algorithms, and has established a complete algorithm library, which basically realizes full coverage of welding joints. At the same time, we can provide customers with customized algorithm development services.

JOB管理体系, 让生产更高效

PERFECT JOB MANAGEMENT SYSTEM

同一工件包含不同焊缝类型，需要不同的检测参数有针对性的检测。JOB系统最高可支持99套(可支持定制)焊缝检测参数同时存在，依据机器人焊接进程实时更新焊缝检测参数，操作灵活方便。

A workpiece contains different types of joints, so different inspection parameters are required for targeted inspection. The JOB system supports 99 sets of welding seam detection parameters (support customization). The welding seam detection parameters are updated in real-time according to the robot welding process, and the operation is flexible and convenient.



多样的JOB参数，根据现场工作环境要求可调节相应的参数，有效管理不同的焊缝设定，保留每一种工况下的检测参数。焊缝轮廓和焊缝尺寸参数可选择性实时显示，软件可记录现场焊缝数据，通过离线方式进行焊缝检测仿真。

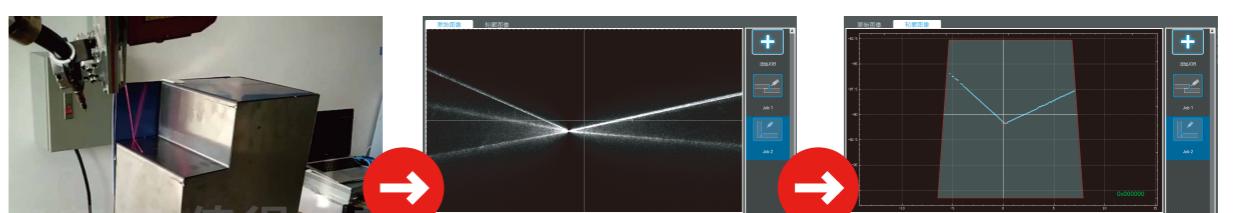
The abundant job parameters can adjust relevant parameters according to the requirements of the on-site working environment. Also, they can manage different seam settings and retain the inspection parameters under each working condition. The profile and seam parameters can be displayed in real-time. Our CUTEWELDER can record the joint image data, and then simulate it in offline mode.

强大的抗干扰性能

STRONG ANTI-INTERFERENCE PERFORMANCE

针对高反光材质的工件(如不锈钢、铝合金、打磨金属等)，通过产品的光学设计和抗反光算法，可稳定的提取母材的图像轮廓，准确定位焊缝特征点位置，消除多重反射光对精准测量的影响，从而实现高反光情况下的稳定测量。

For high reflective workpieces (such as stainless steel, aluminum alloy, polished metal, etc.), our optical design and anti-reflective algorithm can stably extract their the profile, and accurately locate the feature points of the seam. Moreover, with the help of our parameters, we can eliminate the effect of multiple reflections of light on accurate measurement to measure more stably.



工件扫描
Workpiece

原始图像
Raw Image

经过处理后的轮廓图像
Processed profile



灵敏且强大的激光传感器

HIGH PERFORMANCE LASER SENSOR



产品特点

PRODUCT ADVANTAGES

外形紧凑小巧

COMPACT

- 产品集成度高、体积小、拆装方便

The product has high integration, compact design and easy disassembly and assembly.

防护设计完善

RELIABLE INTERNAL STRUCTURE DESIGN

- 内部结构设计可靠，保障产品适用于各种复杂、恶劣的工业生产环境，高效的运行

Reliable internal structure design makes it work efficiently in various complex and harsh industrial production environments.

- 专业电气防护设计可适应各种高频电磁、静电工业生产环境

Professional electrical protection design makes it suitable for various high-frequency electromagnetic and electrostatic industrial production environments.

- 通过设置软件中的操作模式，能够有效防止机器人工作过程中对传感器的误操作

The misoperation to the sensor can be avoided by setting the operation mode from the software.

抗干扰性强

STRONG ANTI-INTERFERENCE

- 通过算法有效抑制弧光和飞溅带来的干扰

The algorithm applied in the product can effectively suppress the interference caused by arc and splash.

- 可靠的光学结构及反光算法，可有效抑制多种类型的反光干扰

Reliable optical structure and anti-reflective algorithm can effectively suppress various types of reflective interference.

灵活多样

FLEXIBLE AND DIVERSE

- 多种产品系列，适应不同材料和焊接工艺

Various series of the products for different materials and welding processes.

- 同时支持背面安装/侧面安装，快速实现成像配置

Both sides installation from back and side makes it quick for the image configuration.

- 支持非标准传感器结构定制

Customization for non-standard structure is available.

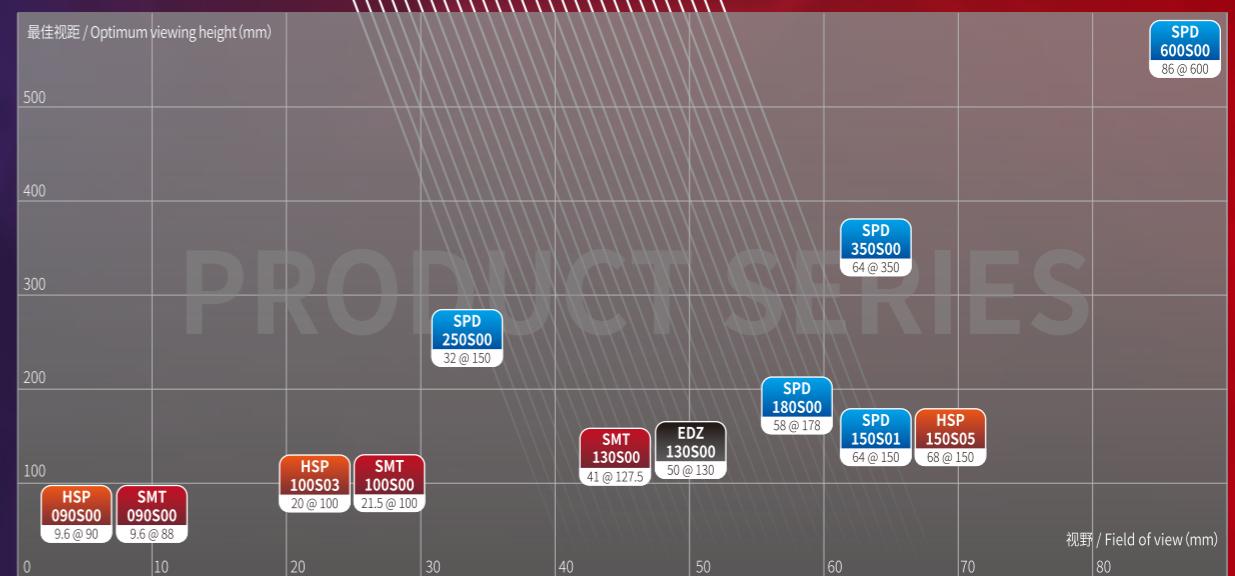
LASER SENSOR PARAMETERS

激光传感器参数

四个主营系列, 十余款产品, 应对不同工况

HSP | SMT | SPD | EDZ

产品覆盖广泛



IL-SMT系列產品参数

系统型号 System model	IL-SMT-090S00	IL-SMT-100S00	IL-SMT-130S00
激光光源等级 Laser level	IIIB	IIIB	IIIB
Z1最佳视距 (mm) Optimum viewing height	90	97	128
Z2景深 (mm) Depth of field	12	57	117
视距范围 (mm) Working distance	84 ~ 96	81 ~ 138	91 ~ 208
V1视野 (mm) Field of view	9.6 @ 90	21.5 @ 97	41 @ 127.5
可检测最小焊缝间隙 (mm) Minimum gap	0.08	0.2	0.2
尺寸W/H/D (mm) Dimensions	112 X 118 X 41	91 X 87.3 X 42.5	75 X 97 X 41
帧率 Frame rate	75 @ FullView, Up to 450fps	75 @ FullView, Up to 450fps	75 @ FullView, Up to 450fps
重量 (Kg) Weight	0.72	0.6	0.57
工作温度 (°C) Operating temperature	5 ~ 40	5 ~ 40	5 ~ 40
防护等级 Protection level	IP65 (可定制IP67) customizable IP67	IP65 (可定制IP67) customizable IP67	IP65 (可定制IP67) customizable IP67
可支持安装位置 Supportable installation locations	背装 / 侧装 back / side	背装 / 侧装 back / side	背装 / 侧装 back / side
参数标注 Parameter annotation	 		

*安装孔位请查阅硬件手册

IL-HSP系列产品参数

系统型号 System model	IL-HSP-090S00	IL-HSP-100S03	IL-HSP-150S05
激光光源等级 Laser level	IIIB	IIIB	IIIB
Z1最佳视距 (mm) Optimum viewing height	88	100	150
Z2景深 (mm) Depth of field	11.5	36	275
视距范围 (mm) Working distance	82.5 ~ 94	84 ~ 120	86 ~ 361
V1视野 (mm) Field of view	9.6 @ 88	20 @ 100	68 @ 150
可检测最小焊缝间隙 (mm) Minimum gap	0.08	0.2	0.5
尺寸W/H/D (mm) Dimensions	135 X 165.5 X 41	110 X 104 X 41	94 X 99 X 41
帧率 Frame rate	60 @ FullView, Up to 240fps	60 @ FullView, Up to 240fps	60 @ FullView, Up to 240fps
重量 (Kg) Weight	1.3	0.73	0.65
工作温度 (°C) Operating temperature	5 ~ 40	5 ~ 40	5 ~ 40
防护等级 Protection level	IP65 (可定制IP67) customizable IP67	IP65 (可定制IP67) customizable IP67	IP65 (可定制IP67) customizable IP67
可支持安装位置 Supportable installation locations	背装 / 侧装 back / side	背装 back	正装 / 背装 / 侧装 front / back / side
参数标注 Parameter annotation	 		

*安装孔位请查阅硬件手册

IL-SPD 系列产品参数

系统型号 System model	IL-SPD-150S01	IL-SPD-180S00	IL-SPD-250S00
激光光源等级 Laser level	IIIB	IIIB	IIIB
Z1最佳视距 (mm) Optimum viewing height	150	178	250
Z2景深 (mm) Depth of field	200	130	87
视距范围 (mm) Working distance	100 ~ 300	133~ 263	213 ~ 300
V1视野 (mm) Field of view	64 @ 150	58 @ 178	32 @ 250
可检测最小焊缝间隙 (mm) Minimum gap	0.6	0.6	0.6
尺寸W/H/D (mm) Dimensions	99 X 101 X 41	110 X 88 X 43	115 X 104 X 41
帧率 Frame rate	60 @ FullView, Up to 120fps	60 @ FullView, Up to 120fps	60 @ FullView, Up to 120fps
重量 (Kg) Weight	0.66	0.68	0.73
工作温度 (°C) Operating temperature	5 ~ 40	5 ~ 40	5 ~ 40
防护等级 Protection level	IP65 (可定制IP67) customizable IP67	IP65 (可定制IP67) customizable IP67	IP65 (可定制IP67) customizable IP67
可支持安装位置 Supportable installation locations	背装 / 侧装 back / side	背装 / 侧装 back / side	背装 / 侧装 back / side
参数标注 Parameter annotation			

*安装孔位请查阅硬件手册

系统型号 System model	IL-SPD-350S00	IL-SPD-600S00	IL-EDZ-130S00
激光光源等级 Laser level	IIIB	IIIB	IIIB
Z1最佳视距 (mm) Optimum viewing height	350	600	130
Z2景深 (mm) Depth of field	308	256	94
视距范围 (mm) Working distance	249 ~ 557	498 ~ 754	88 ~ 182
V1视野 (mm) Field of view	64 @ 350	86 @ 600	50 @ 130
可检测最小焊缝间隙 (mm) Minimum gap	0.8	0.8	0.5
尺寸W/H/D (mm) Dimensions	115 X 107 X 41	133.5 X 97 X 44	73 X 108 X 40
帧率 Frame rate	60 @ FullView, Up to 120fps	60 @ FullView, Up to 120fps	30 @ FullView, Up to 120fps
重量 (Kg) Weight	0.66	0.65	0.43
工作温度 (°C) Operating temperature	5 ~ 40	5 ~ 40	5 ~ 40
防护等级 Protection level	IP65 (可定制IP67) customizable IP67	IP65 (可定制IP67) customizable IP67	IP65 (可定制IP67) customizable IP67
可支持安装位置 Supportable installation locations	背装 / 侧装 back / side	侧装 side	侧装 side
参数标注 Parameter annotation			

*安装孔位请查阅硬件手册

控制主机参数

HOST CONTROL UNIT PARAMETERS

03
HOST

型号 Model	IL-HOST03
尺寸 Dimensions	207mm X 155mm X 58mm
重量 Model	2.0Kg
工作温度 Operating temperature	-10~50°C
防护等级 Protection level	IP31
供电要求 Power supply	12VDC ± 10% 80W

03A
HOST

型号 Model	IL-HOST03A
尺寸 Dimensions	207mm X 155mm X 75mm
重量 Model	2.3Kg
工作温度 Operating temperature	-10~50°C
防护等级 Protection level	IP31
供电要求 Power supply	12VDC ± 10% 80W

04
HOST

型号 Model	IL-HOST04
尺寸 Dimensions	203mm X 156mm X 80mm
重量 Model	3.3Kg
工作温度 Operating temperature	-10~50°C
防护等级 Protection level	IP31
供电要求 Power supply	12VDC ± 10% 80W

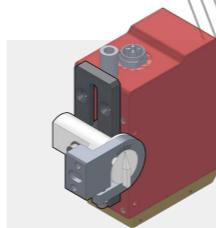
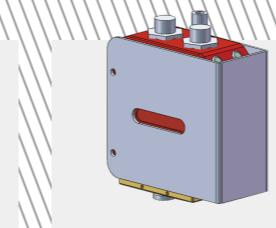
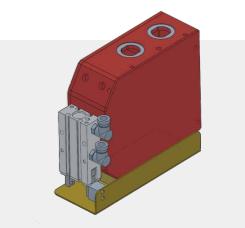
04A
HOST

型号 Model	IL-HOST04A
尺寸 Dimensions	203mm X 156mm X 80mm
重量 Model	3.4Kg
工作温度 Operating temperature	-10~50°C
防护等级 Protection level	IP31
供电要求 Power supply	12VDC ± 10% 80W

产品包含丰富配件

PARTS INTRODUCTION

可选配件 / OPTIONAL ACCESSORIES

安装夹具
Fixture加强防护罩
Protection cover精密十字滑台
Linear module水冷模块
Water cooling module寻位防护罩
Finding shield

丰富的研发测试, 保障产品在应用现场的可靠性

Rich R&D tests to ensure the reliability of products in the application site



高频测试

Frequent test



耐压测试

High-voltage insulation test



封闭测试

Protection test



震动测试

Shake test



高低温测试

High-low temperature test



线缆疲劳测试

Cable fatigue test



静电测试

ESD test



尺寸精密测量

Dimension testing



精度测试

Precision testing



机械性能测试

Mechanic performance testing



老化测试

Anti-aging test

标准体系认证

ISO 9001

国际体系认证

CE

TYPICAL CASES

解决方案&经典案例

过去的9年里,我们一直潜心研究关于工业机器人与机器视觉工程应用技术,今天,我们的产品已经销售至国内外1000余家制造企业,得到业界的高度认可,这得益于英莱科技强大的多学科技术团队、公司研发平台与创新精神。我们致力于帮助客户在焊接生产环节上超越竞争对手,从而让我们的客户脱颖而出!

With the rise of intelligent manufacturing, Intelligentlaser's laser vision seam tracking system has been applied in more than 1000 manufacturing companies and has been widely recognized by the industry. In the future, Yinglai will continue to provide efficient and reliable products which is independently developed as core. Aim to create value for the users. Committed to the development of China's intelligent equipment industry!



工程机械
ENGINEERING MACHINERY



钢结构
STEEL WORK



罐体管道
PIPS & VESSELS



压力容器
PRESSURE VESSEL



汽车行业
VEHICLE



钣金箱体
SHEET METAL



电力工程
POWER EQUIPMENT



军工
DEFENSE

工程机械

ENGINEERING MACHINERY



起重机组件 · MAG



工程机械覆盖件 · MAG



工程机械铲斗 · MAG



压路机滚筒 · MAG



列车墙板 · MAG



发动机外壳 · MAG



工程车驾驶室 · MAG



工程车架 · MAG



车墙板 · MAG



水泥泵车臂 · MAG



工程机械铲斗 · MAG



工程车油箱 · MAG



搅拌料斗 · MAG



工程机械铲斗 · MAG



吊塔底座 · MAG

钢结构

STEEL WORK



船板 · MAG



人防门 · MAG



钢结构立柱 · MAG



机架钢结构 · MAG



机架钢结构 · MAG



立体车库 · MAG



设备托盘 · MAG



加强筋底座 · MAG



桥梁模具 · MAG



医疗设备部件 · MAG



钢结构支架 · MAG



H型钢 · SAW



机架钢结构 · MAG



设备底座 · MAG



车墙板 · MAG

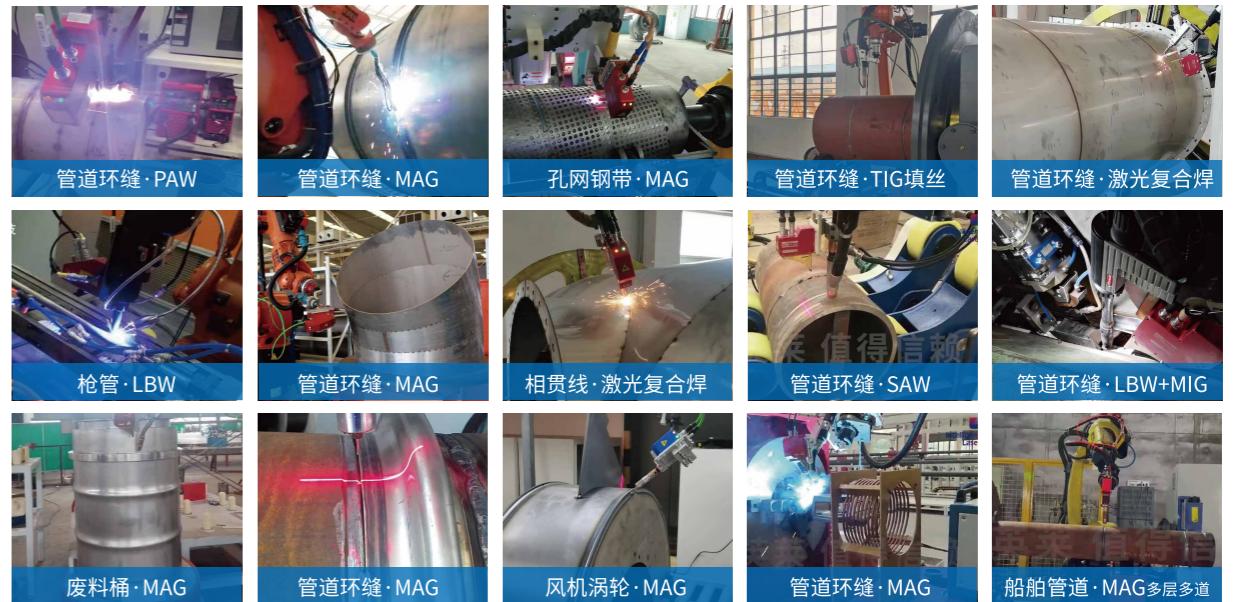
汽车行业

VEHICLE



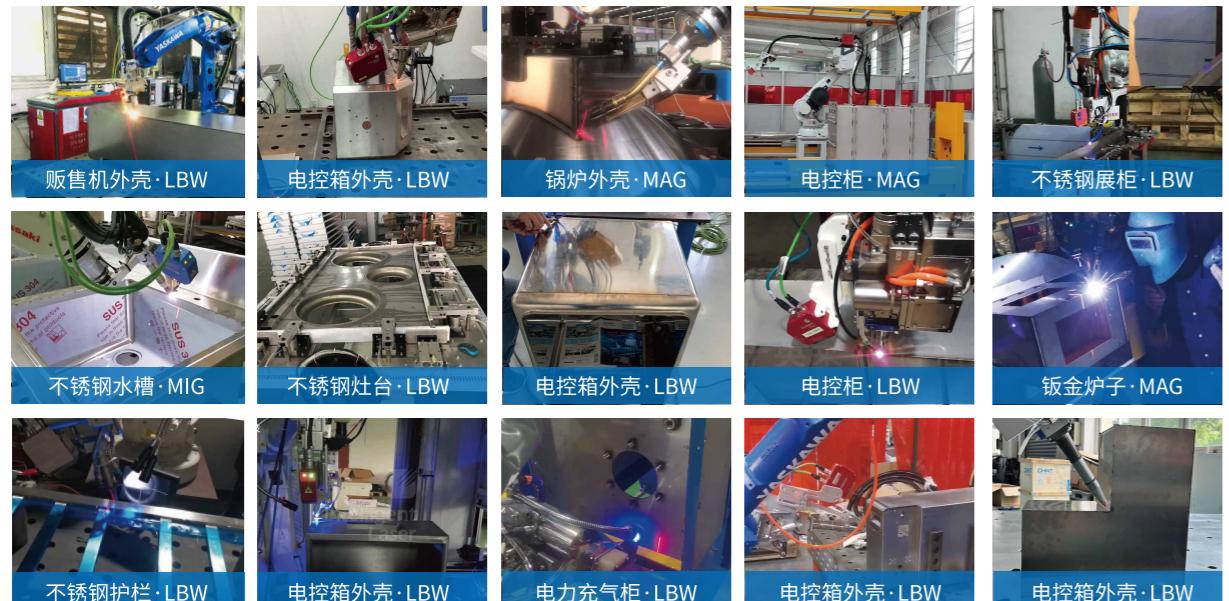
管道

PIPES



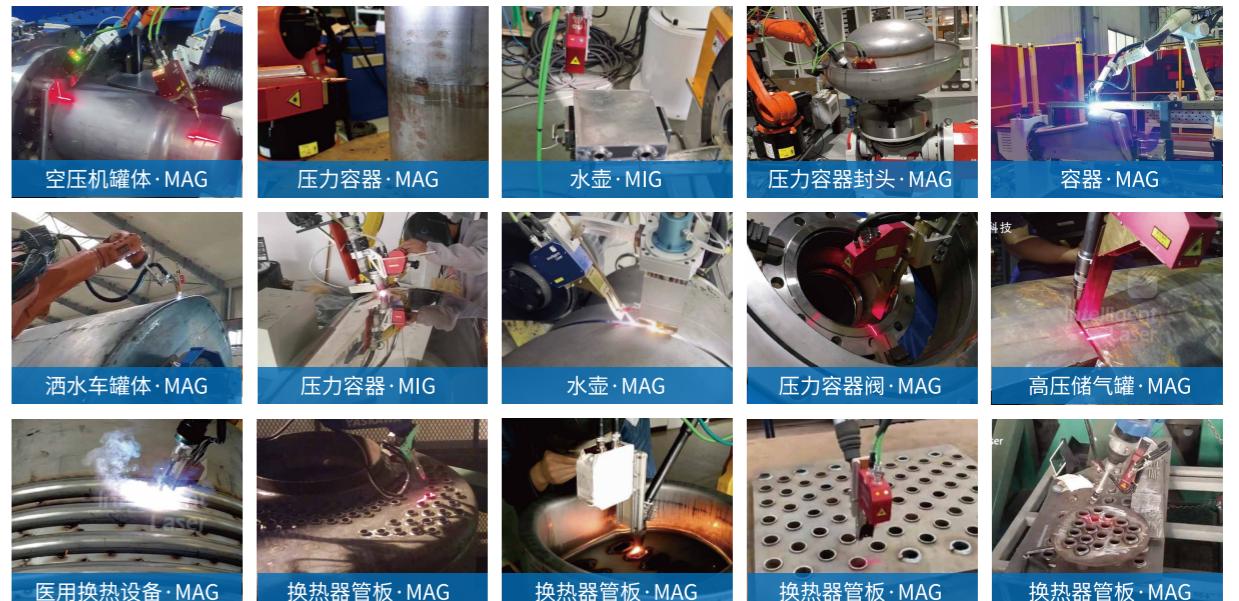
钣金箱体

SHEET METAL



压力容器

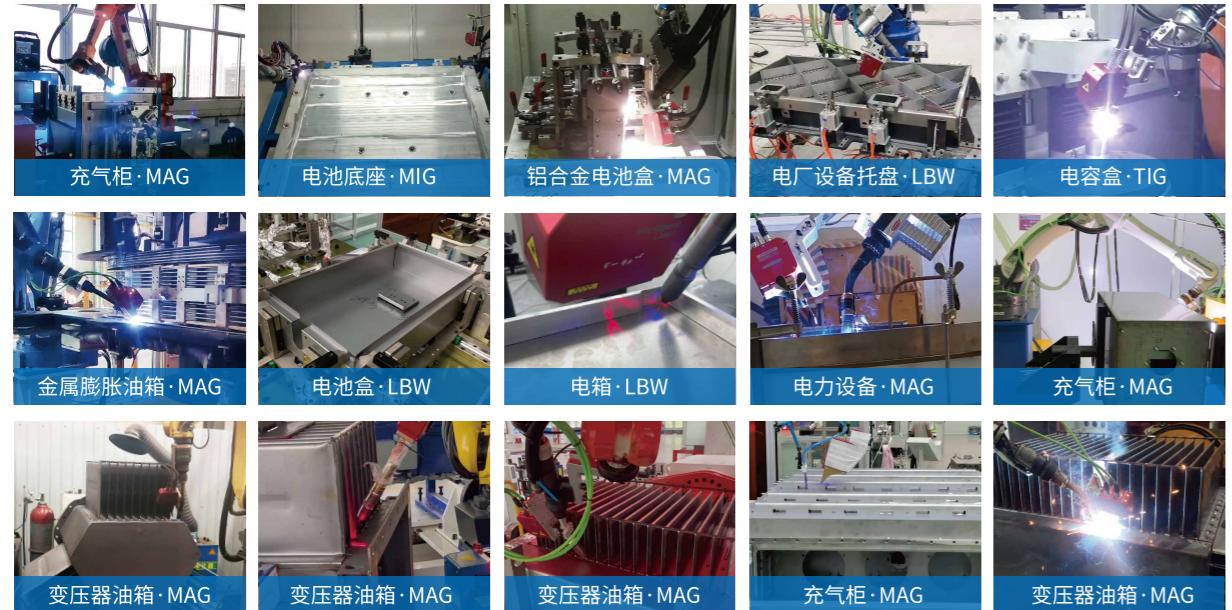
PRESSURE VESSEL





电力工程

POWER EQUIPMENT



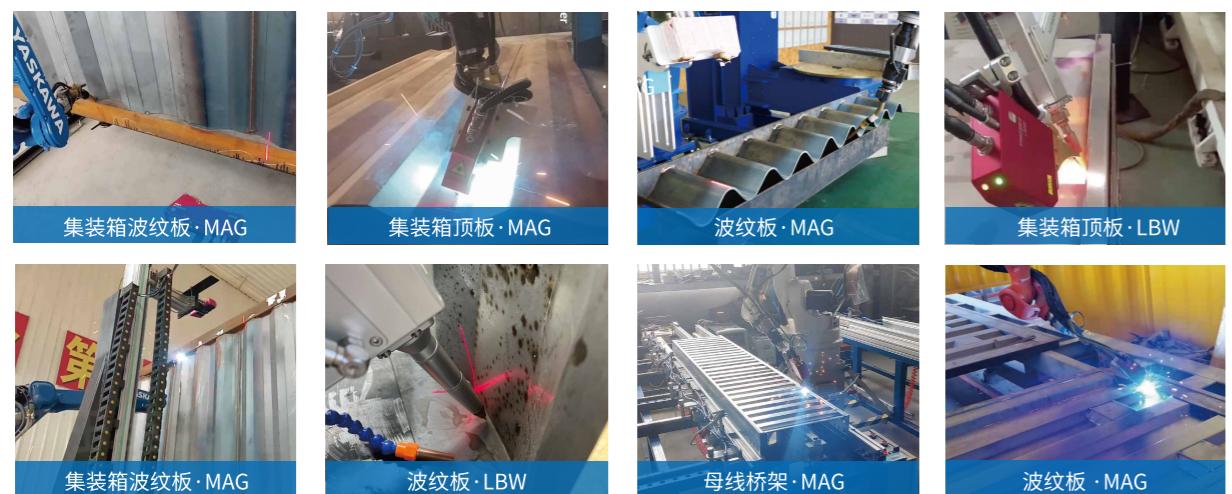
专机

SPECIAL WELD MACHINE



波纹板

CORRUGATED PLATE



其他行业

OTHER INDUSTRY





项目服务流程

市场及服务

SALES MARKET AND SERVICE

目前，英莱科技已在广东、江苏设立分支机构，并设立海外事业部，专注于提升核心产品“激光视觉焊缝跟踪系统”的研发能力与市场对应能力，不断提升我们“源于英莱，值得信赖”的服务承诺！

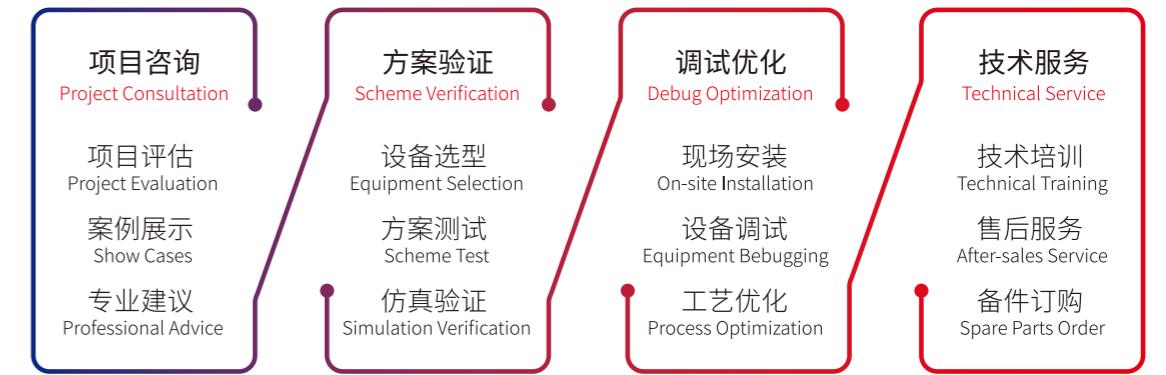
At present, Yinglai has branches in GuangDong, JiangSu. Our company not only focus on promoting R&D capabilities, but also delicate ourselves to our core product—Laser Vision Seam Tracking System. We will always stick to our slogan From Yinglai, Trustworthy!



客户企业(部分)

CUSTOMERS (PARTIAL DISPLAY)

中国航天	中国航空	中国汽车工业工程有限公司	中建钢构	中国石油	中广核 CGN
徐工集团	SANY	CAT	ZOOMLION	东方重工	CSIC
中国中车 CRRC	中国重汽 SINOTRUK	吉利汽车	YUTONG	长安汽车 CHANGAN	五菱汽车
安川首钢 YASAKAWA SHOUGANG	Manitowoc	Morimatsu 株式会社	焊研威达	广起 LIFTING SYSTEM	人民电器集团
DHI	BBMG 金隅集团	HERKULES 海克力斯	ZE 中南智能	天一焊接	江苏北人 BR Robot
瑞松科技 RISONG TECHNOLOGY	HAN'S LASER 大族激光	AGR 澳冠智能	SIERT 思尔特	AOTAI	HUAHENG 华恒焊接



高标准品控

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可靠的产品性能

Independent product performance

强大的交付能力

Strong production capacity

完善的安调售后保障

Reliable after-sale service

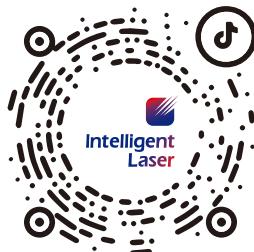
期待与集成商和终端用户携手,
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英莱科技

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