

## 系列激光切割机 LASER CUTTING MACHINES

HLF HLE HLH

**Yawei** 亚威

股票代码 002559

Stock Code 002559

# 不断进化 日臻完美

Non-stop Evolution towards Perfection

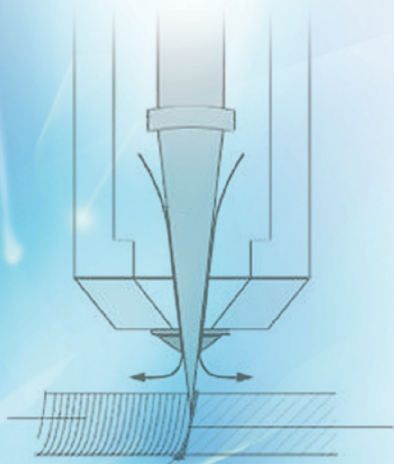
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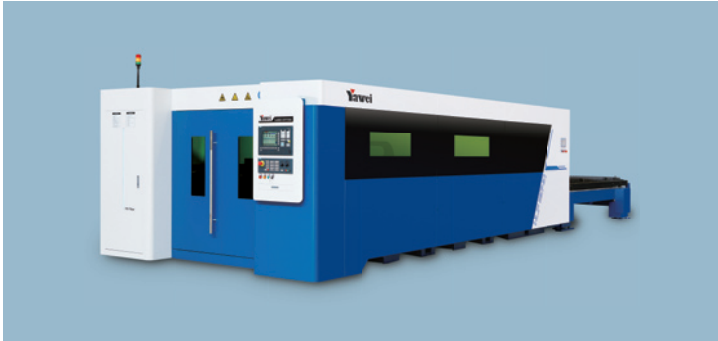
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亚威始终坚持以客户需求为导向的技术创新，紧跟国际先进同行的发展方向，2009年成功研制出第一台激光切割机并投放市场，获得业界广泛好评。近几年通过产品换代和服务升级，亚威激光切割机市场占有率和客户满意度持续上升。未来，亚威一定能以先进的激光应用技术，媲美国际水平的产品品质、全面贴心的服务赢得更多客户青睐和市场认可，成为中国激光机床行业的领跑者。

While focusing on the technological innovations driven by the customer's demands, and following the international trends in sheet metal industry, Yawei has successfully launched its first laser cutting machine in 2009, and its market share in laser cutting business keeps growing during the recent years.

- 历经多年研发和创新，融合国际最前沿激光技术，性价比最高的二维激光切割机
- 龙门双驱床身，速度更快、效率更高，搭载光纤或二氧化碳激光器，满足不同行业和客户需求
- 60年制造经验沉淀，现代化精益生产管理，国际一流的供货商战略合作，确保机器长期运行可靠，精度持久不变
- 崭新外观、模块化设计、通用型备件、全生命周期服务、尽解后顾之忧
- As a result of many years of research and innovation, Yawei's new 2D laser cutting machines, integrated with the latest laser technologies in the world
- Dual-drive gantry structure basement brings faster speed and better efficiency
- Our 60-years' experience in machine manufacturing, modernized and standardized manufacturing process, and the best supplier selections
- All-new outlook design, modularized design, universal spare parts, and an all-embracing service to deliver a worry-free operation





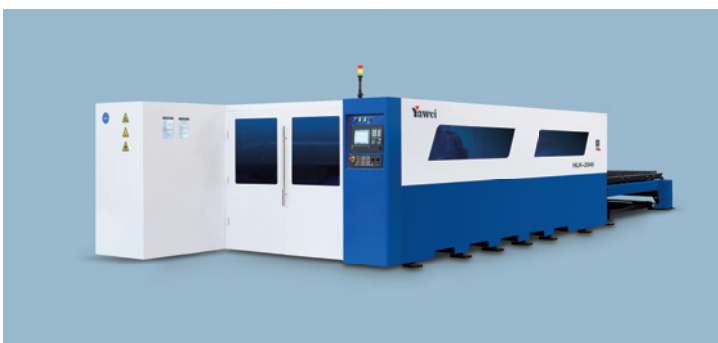
HLF 系列高速光纤激光切割机  
HLF high speed fiber laser cutting machine



HLE 系列光纤激光切割机  
HLE fiber laser cutting machine



HLF 系列大幅面光纤激光切割机  
HLF large fiber laser cutting machine



HLH 系列 CO<sub>2</sub> 激光切割机  
HLH CO<sub>2</sub> laser cutting machine

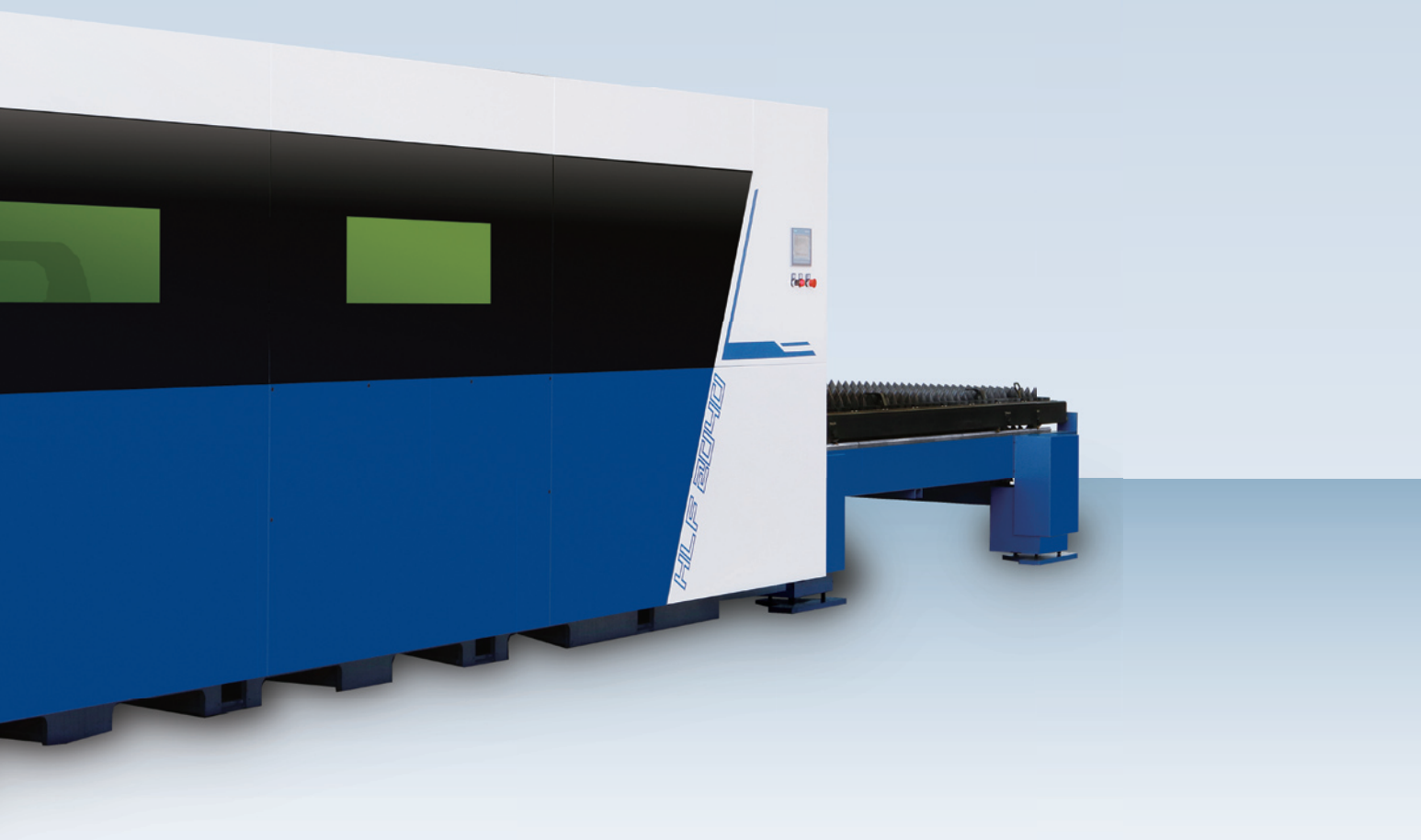
# 匠心之作



- 全新外观设计，性能大幅提升，比肩国际水平的新一代高速光纤激光切割机
- 龙门双驱床身结构，高强度铝合金横梁，高效率自动交换工作台，生产能力倍增
- 薄板超高速切割，中厚板高效率加工，金属材料加工广泛性更胜一筹
- 尖端的激光技术和先进的数字控制技术深度融合，人性化操作界面与切割专家参数库全面升级
- The new generation high performance fiber laser cutting machine, all-new outlook design with significant improvement in cutting performance
- Dual-drive gantry structure basement, reinforced aluminum alloy beam with less weight, automatic exchangeable worktable enables a doubled productivity
- Super-fast cutting speed for thin plates, and stabilized cutting performance in moderate and thick plates. Better coverage in sheet metal processing
- A deep combination of cutting-edge laser technology and advanced numerical controls, together with a humanized HMI interface and a fully upgraded cutting expert database

# HLF系列 高速光纤激光切割机

## HLF High Speed Fiber Laser Cutting Machine



主要技术参数 Key parameters

名称	Item	单位 Unit	HLF-1530	HLF-2040
加工范围	Cutting range	mm	3000 × 1500	4000 × 2000
X 轴行程	X axis stroke	mm	3050	4040
Y 轴行程	Y axis stroke	mm	1550	2050
Z 轴行程	Z axis stroke	mm	120	120
X 轴定位速度	X axis positioning speed	m/min	120	120
Y 轴定位速度	Y axis positioning speed	m/min	120	120
X/Y 轴最大合成速度	X/Y maximum trajectory speed	m/min	170	170
X/Y 轴加速度	X/Y acceleration	m/s <sup>2</sup>	2.0G	1.5G
定位精度	Positioning accuracy	mm	± 0.03	± 0.03
重复定位精度	Repositioning accuracy	mm	± 0.02	± 0.02
工作台最大载重	Maximum load of worktable	Kg	900	1500
机床外形尺寸 (L × W × H)	Machine layout dimension	mm	10000 × 4800 × 2100	12000 × 5000 × 2100
整机重量	Machine weight	Kg	10000	14500
激光发生器功率	Laser generator power	Kw	2 / 3 / 4 / 6	
整机功率 (约)	Machine power (Approximately)	Kw	37 / 43 / 49 / 60	

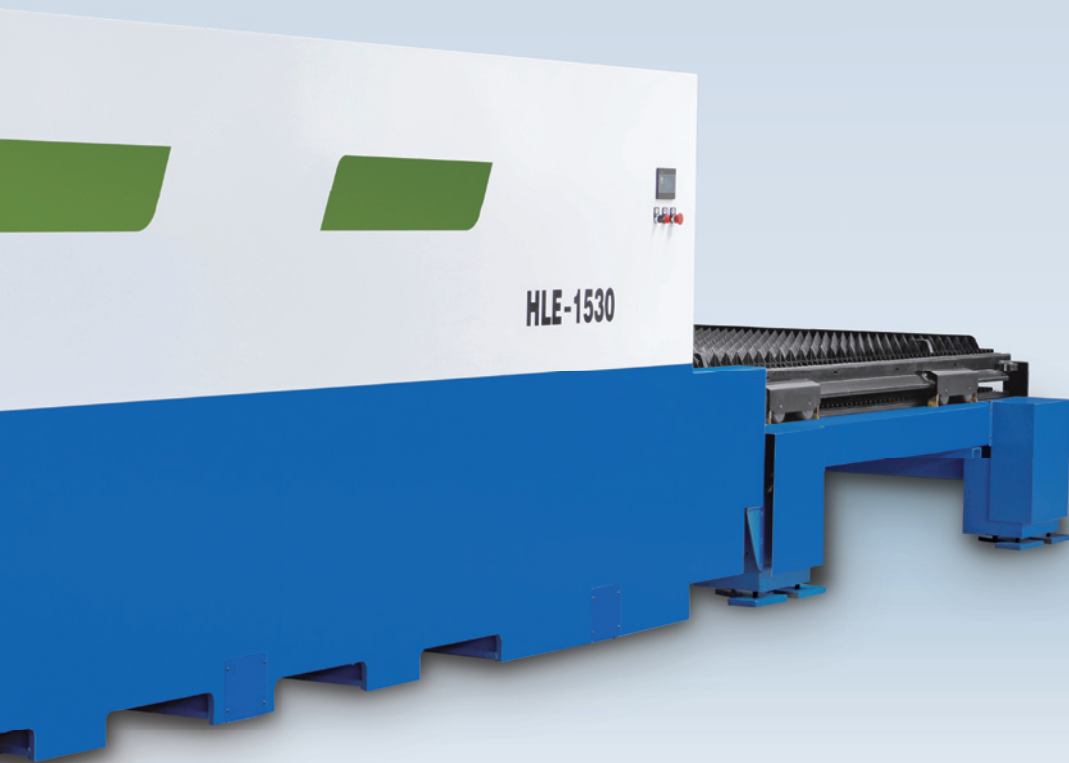
# 简约之美



- 历经多年市场验证的经典机型，性能与成本的最佳结合
- 龙门双驱床身结构，直接交换工作台，运行快速可靠
- 光电转换效率高，光路免维护，极低的运行和维护成本
- 立体防护罩设计，有效阻挡激光辐射，安全性好，操作无忧
- Classic machine with best cost performance
- Dual-drive frame, Exchange pallet change, moving reliably and fast
- High wall-plug efficiency, maintenance-free optics, very low cost in operation and maintenance
- Protection cover in a stereoscopic design to resist laser radiation and bring high safety to operations

# HLE系列 光纤激光切割机

## HLE Fiber Laser Cutting Machine



### 主要技术参数 Key parameters

名称	Item	单位 Unit	HLE-1530	HLE-2040
加工范围	Cutting range	mm	3000 × 1500	4000 × 2000
X 轴行程	X axis stroke	mm	3040	4040
Y 轴行程	Y axis stroke	mm	1520	2020
Z 轴行程	Z axis stroke	mm	240	240
X 轴定位速度	X axis positioning speed	m/min	100	100
Y 轴定位速度	Y axis positioning speed	m/min	100	100
X/Y 轴最大合成速度	X/Y maximum trajectory speed	m/min	140	140
X/Y 轴加速度	X/Y acceleration	m/s <sup>2</sup>	1.0G	1.0G
定位精度	Positioning accuracy	mm	± 0.03	± 0.03
重复定位精度	Repositioning accuracy	mm	± 0.02	± 0.02
工作台最大载重	Maximum load of worktable	Kg	750	1200
机床外形尺寸 (L × W × H)	Machine layout dimension	mm	9000 × 4600 × 1900	11000 × 5000 × 1900
整机重量	Machine weight	Kg	9000	11000
激光发生器功率	Laser generator power	Kw	1 / 2	
整机功率 (约)	Machine power (Approximately)	Kw	30 / 35	

# 应有尽有

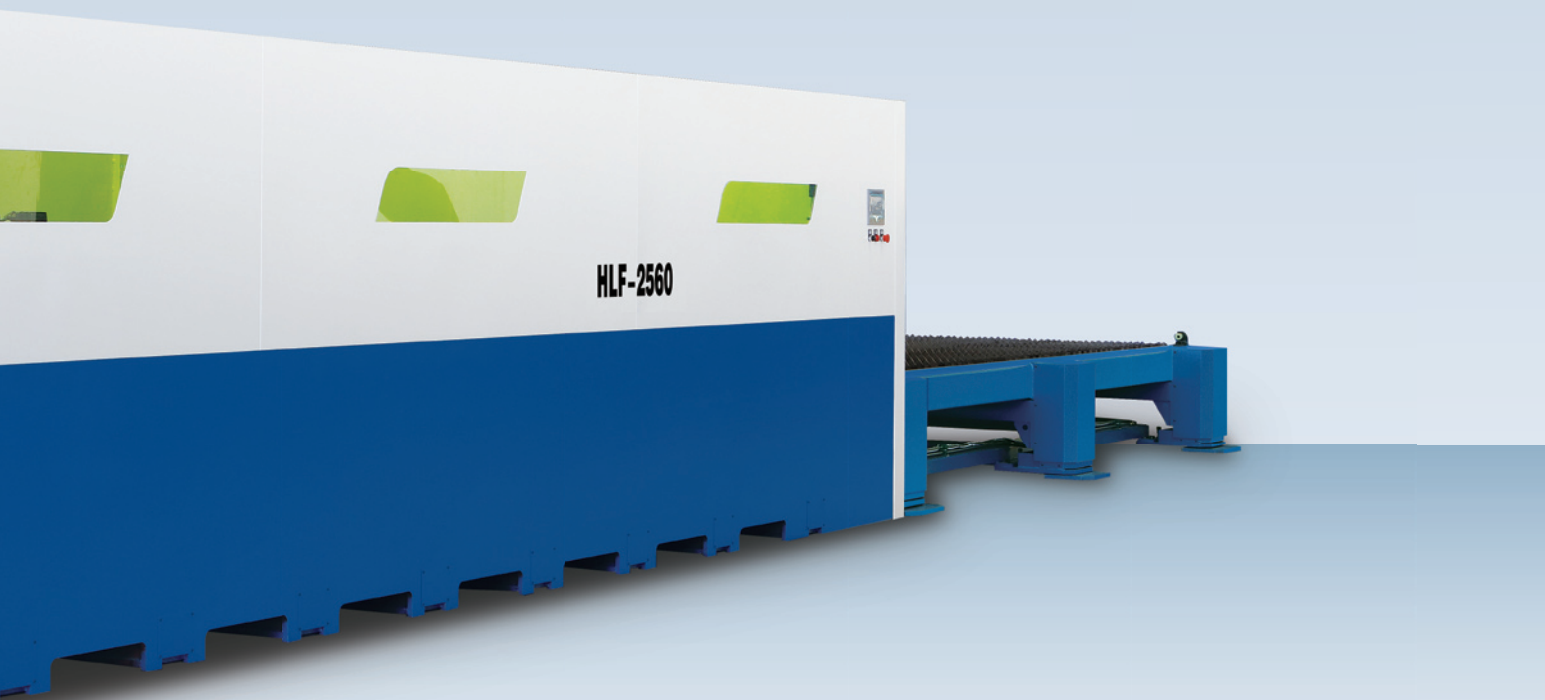


- 大幅面板材切割得心应手，超长超宽，应付自如
- 龙门钢结构焊接床身，高强度轻量化横梁，自动交换工作台
- 薄板高速加工，中厚板独特切割工艺，品质与效率兼顾
- 操作便捷，运行与维护成本低，经济效益显著
- Cutting large format workpiece with great facility
- Dual-drive basement design, high strength beam, exchangeable worktable
- Cutting thin, moderate, and thick plates with excellent quality and efficiency
- Easy to operate, very low cost in operation and maintenance, and superb economic benefits



# HLF系列 大幅面光纤激光切割机

## HLF Large Fiber Laser Cutting Machine



主要技术参数 Key parameters

名称	Item	单位 Unit	HLF-2060	HLF-2560	HLF-2580
加工范围	Cutting range	mm	6000 × 2000	6000 × 2500	8000 × 2500
X 轴行程	X axis stroke	mm	6040	6050	8040
Y 轴行程	Y axis stroke	mm	2050	2550	2550
Z 轴行程	Z axis stroke	mm	120	100	100
X 轴定位速度	X axis positioning speed	m/min	120	90	90
Y 轴定位速度	Y axis positioning speed	m/min	120	90	90
X/Y 轴最大合成速度	X/Y maximum trajectory speed	m/min	170	127	127
X/Y 轴加速度	X/Y acceleration	m/s <sup>2</sup>	1.5G	1.0G	1.0G
定位精度	Positioning accuracy	mm	± 0.03	± 0.03	± 0.03
重复定位精度	Repositioning accuracy	mm	± 0.02	± 0.02	± 0.02
工作台最大载重	Maximum load of worktable	Kg	2500	3000	4000
机床外形尺寸 (L × W × H)	Machine layout dimension	mm	16000 × 5000 × 1900	16500 × 5500 × 1900	21000 × 5500 × 1900
整机重量	Machine weight	Kg	20000	22000	27000
激光发生器功率	Laser generator power	Kw	2 / 3 / 4 / 6		
整机功率 (约)	Machine power (Approximately)	Kw	39 / 44 / 51 / 62		41 / 46 / 53 / 64

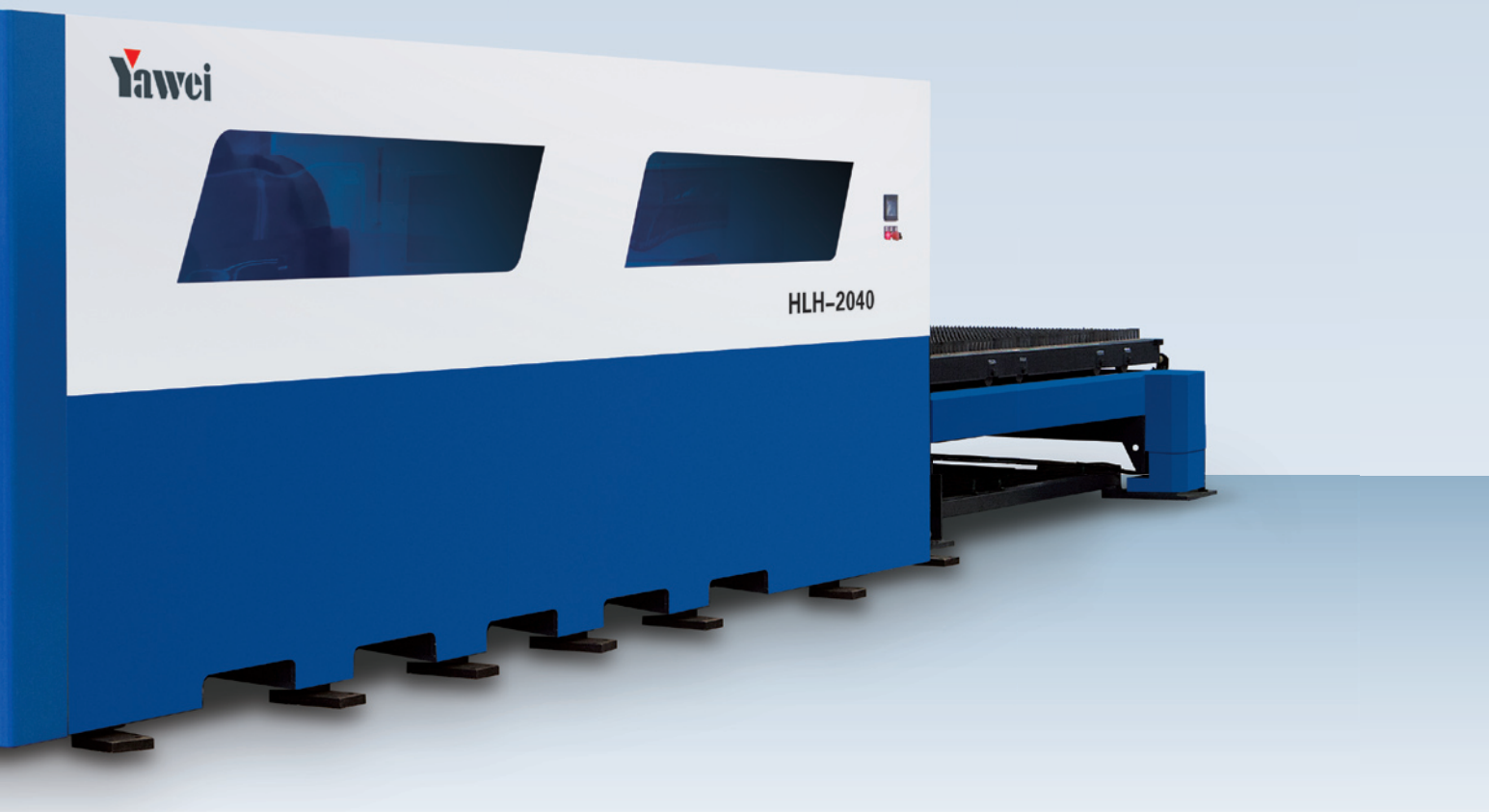
# 传承经典



- 不断进化、成熟可靠、性能突出的 CO<sub>2</sub> 激光切割机
- 龙门双驱床身结构，高强度轻量化横梁，切割板材从薄到厚、金属到非金属，游刃有余
- 先进的双轴等长光路技术，可以在整个工作区域内获得最优的激光束，实现稳定的加工和优质切割断面
- 进口最新型激光发生器，国际品牌数字控制及驱动系统与最新优化的切割参数库完美结合，加工效率明显提升
- 液压自动交换工作台，人性化操作界面，安全防护，一应俱全
- The new generation CO<sub>2</sub> laser cutting machine, reliable and outstanding in performance
- Dual-drive gantry structure basement, reinforced beam with less weight, easy cutting from thin to thick plates
- Advanced dual-axis constant optical path technology, laser beam with the best quality can be achieved in all working areas
- Imported laser generator Panasonic, Japan, Siemens controller, Germany, with newly optimized cutting expert database
- Automatic exchangeable worktable, humanized HMI interface, safety protection

# HLH系列 CO<sub>2</sub>激光切割机

## HLH CO<sub>2</sub> Laser Cutting Machine

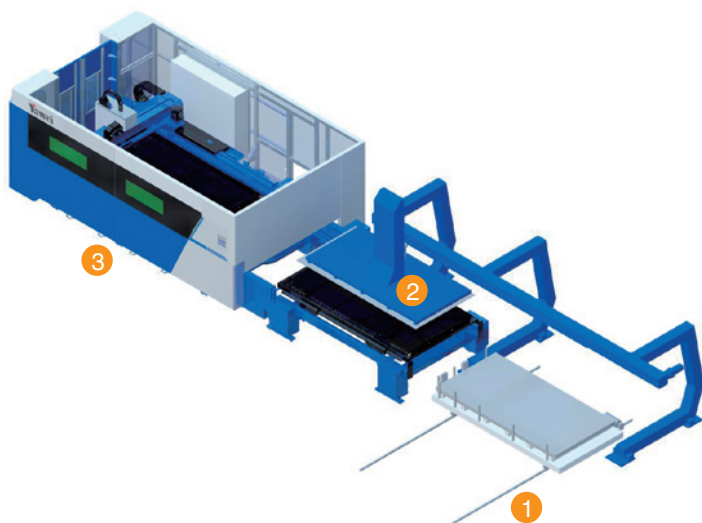


### 主要技术参数 Key parameters

名称	Item	单位 Unit	HLH-1530	HLH-2040	HLH-2060	HLH-2560
加工范围	Cutting range	mm	3000 × 1500	4000 × 2000	6000 × 2000	6000 × 2500
X 轴行程	X axis stroke	mm	3050	4040	6040	6040
Y 轴行程	Y axis stroke	mm	1560	2050	2050	2550
Z 轴行程	Z axis stroke	mm	120	120	120	120
X 轴定位速度	X axis positioning speed	m/min	120	90	90	90
Y 轴定位速度	Y axis positioning speed	m/min	120	90	90	90
X/Y 轴最大合成速度	X/Y maximum trajectory speed	m/min	170	127	127	127
X/Y 轴加速度	X/Y acceleration	m/s <sup>2</sup>	1.5G	1.2G	1.0G	1.0G
定位精度	Positioning accuracy	mm	± 0.03	± 0.03	± 0.03	± 0.03
重复定位精度	Repositioning accuracy	mm	± 0.02	± 0.02	± 0.02	± 0.02
工作台最大载重	Maximum load of worktable	Kg	900	1500	2500	3000
机床外形尺寸 (L × W × H)	Machine layout dimension	mm	9200 × 6000 × 1900	12800 × 6500 × 1900	18000 × 6500 × 1900	18700 × 7000 × 1900
整机重量	Machine weight	Kg	11000	16500	21000	26000
激光发生器功率	Laser generator power	Kw	2.5 / 4			
整机功率 (约)	Machine power (Approximately)	Kw	60 / 77	62 / 79	64 / 81	66 / 83

# 自动化装置 + Automation Devices

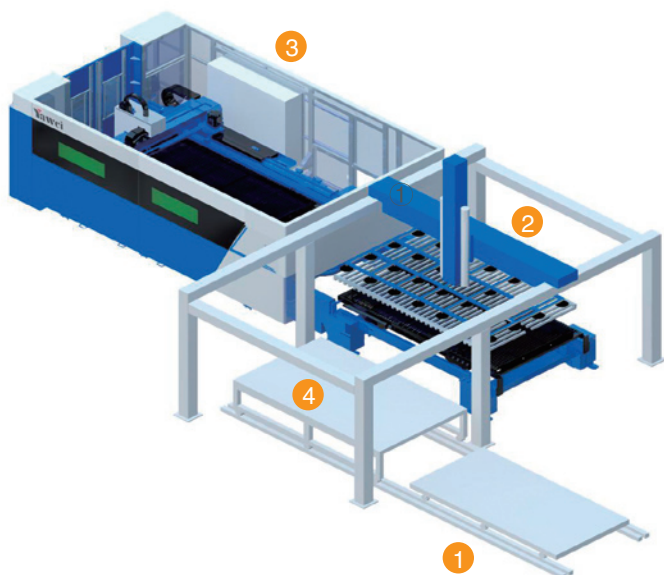
亚威提供的自动化解决方案，可以给您带来更安全的工作环境、更高的生产效率和更好的经济效益  
Our automation solutions can provide you with better productivity and economic benefits



## 自动上料 + 激光切割机

- 减轻了操作人员劳动强度
- 提高了加工的安全性
- Reduce the operator's labor intensity
- Increase the safety of the operation

- |          |                            |
|----------|----------------------------|
| ① 原料台车   | ① Raw material cart        |
| ② 自动上料装置 | ② Automatic loading device |
| ③ 激光切割机  | ③ Laser cutting machine    |



## 金属板材激光切割加工单元 ( FMC )

- 本单元可自动完成板材的上料、切割和下料，实现不间断生产，显著提升了加工效率，降低了综合生产成本
- Realize an non-stop production from automatic loading, automatic laser cutting to automatic unloading, which largely improves the work efficiency and reduces the overall production cost

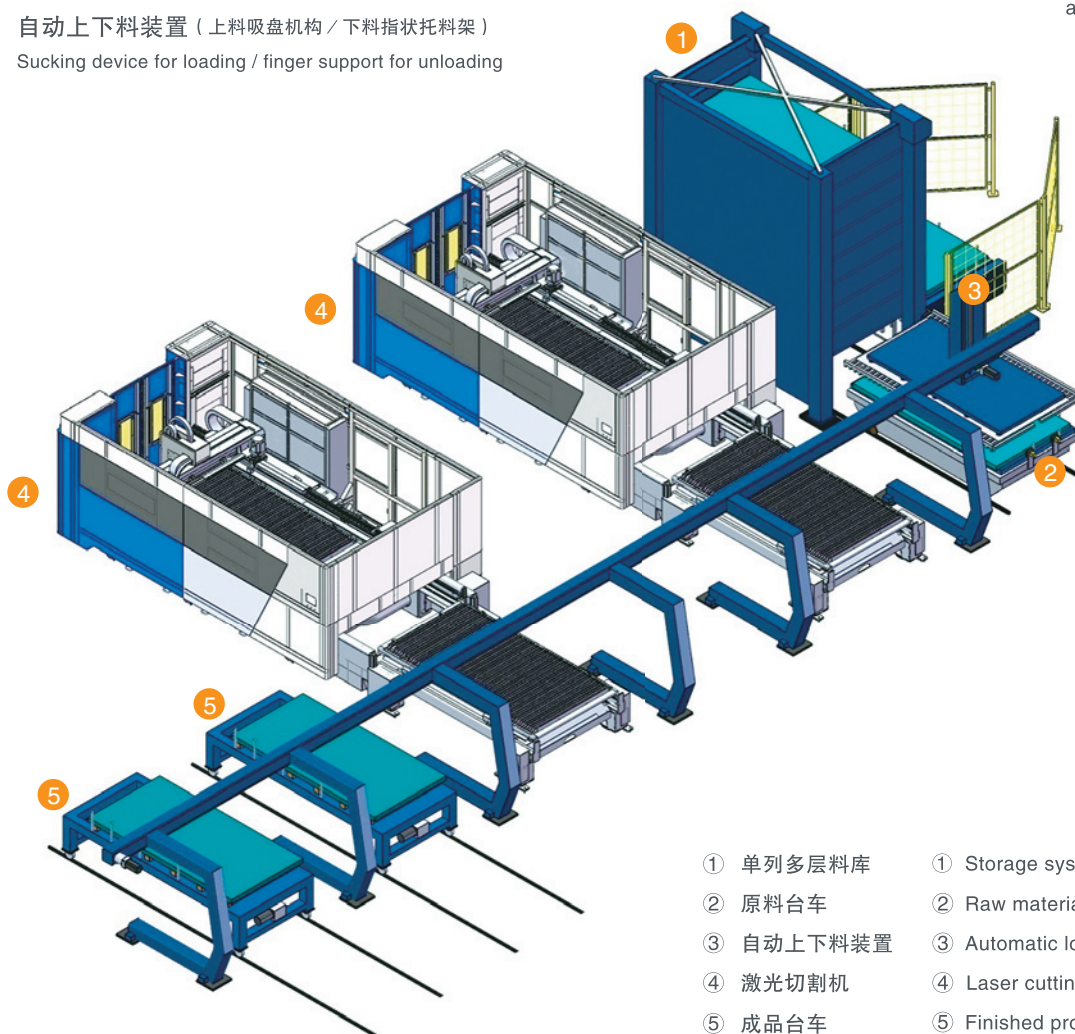
- |           |  |
|-----------|--|
| ① 原料台车    | ① Raw material cart                      |
| ② 自动上下料装置 | ② Automatic loading and unloading device |
| ③ 激光切割机   | ③ Laser cutting machine                  |
| ④ 成品台车    | ④ Finished product cart                  |



自动上下料装置（上料吸盘机构 / 下料指状托料架）  
Sucking device for loading / finger support for unloading

### 金属板材激光切割加工系统（FMS）

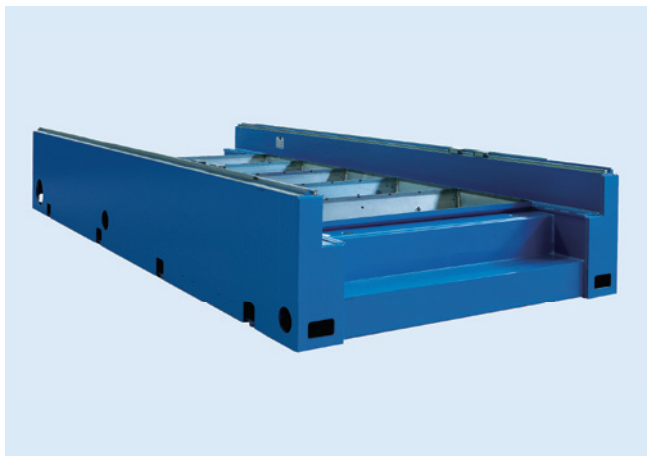
- 本系统由单列多层料库、自动上下料装置及二台激光切割机组成。可自动完成从板材入库、出库到自动上料、切割加工、自动下料等一系列不间断生产流程。大幅降低了人力资源成本，提高了劳动生产效率，促进产业转型升级
- Integrated storage system, automatic loading and unloading device with 2 (or more) laser cutting machines, the sheets can be automatically deposited to and withdrew from the storage system, followed by a series of non-stop processes: automatic loading, laser cutting, and automatic unloading



- |           |  |
|-----------|--|
| ① 单列多层料库  | ① Storage system                         |
| ② 原料台车    | ② Raw material cart                      |
| ③ 自动上下料装置 | ③ Automatic loading and unloading device |
| ④ 激光切割机   | ④ Laser cutting machine                  |
| ⑤ 成品台车    | ⑤ Finished product cart                  |

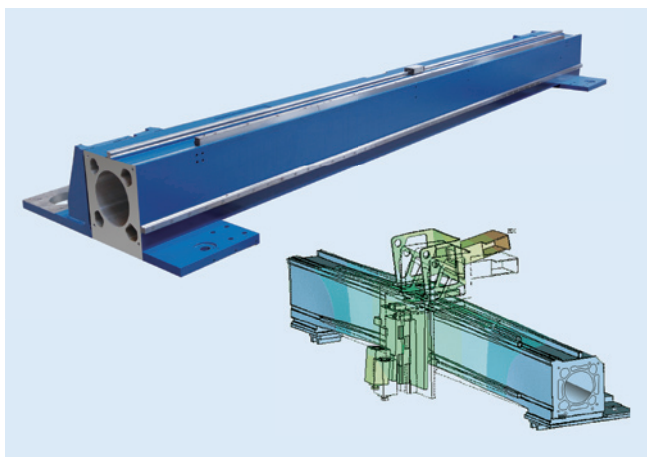
# 优质部件

High Quality Parts



## 床身 / Basement

- 钢结构焊接床身，整体退火消除内应力，刚性好，稳定不变形
- 进口大型数控设备加工，实现超越设计标准的精度
- 双通道分区除尘系统设计，吸排效果更佳
- Steel structure basement, full body annealing to relieve stress, good rigidity and zero deformation
- Machined by imported large-scale CNC equipment to achieve an outstanding precision beyond design standards
- Dual-channel dust collection system in a zoning design to achieve better performance



## 横梁 / Beam

- 航空级铝合金高强度横梁，极低变形
- 经有限元分析优化的高刚性、轻量化设计
- 高速动态特性好，加速度快
- Z轴切割头碰撞安全设计
- Aviation-class aluminum casting beam
- High rigidity and lightweight design
- Outstanding precision and stability in high-speed movement, and fast acceleration
- Protect Z axis cutting head from collision



## 传动部件 / Transmission Parts

- 德国 / 日本国际一流品牌
- 高强度、低噪音、寿命长
- 定位精度高，同步性能好
- International first-class brand from Germany / Japan
- High strength, low noise, long lifetime
- High positioning accuracy, good synchronization performance



### 激光切割头 / PRECITEC cutting head (HLF/HLH)

- 德国品牌，稳定、高效、安全
- 在获得最佳切割质量的同时，达到理想的切割速度
- Lasermatic 距离传感器，随动高效、精密
- Germany brand, stable, efficient, safe
- The best cutting quality, and ideal cutting speed
- Lasermatic distance sensor with high efficiency and precision



### 光纤激光器 / IPG Fiber Laser Generator

- 全功率区段恒定BPP，光束质量好，光斑小
- 超过 30% 的电光转换效率
- 模块化的“即插即用”设计
- 结构紧凑、牢固，安装便捷
- Constant BPP over entire power range, small focus over large working distance
- Over 30% wall-plug efficiency
- Modular 'plug & play' design
- Compact, rugged, easy to install

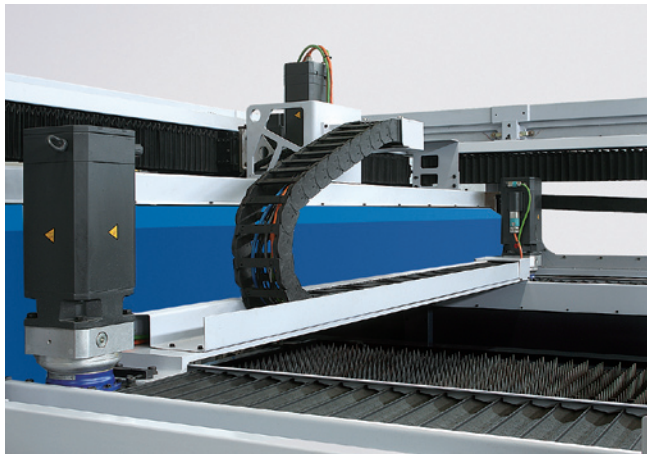


### 数控系统及驱动 / CNC System (HLF/HLH)

- 德国 SIMENS 840DSL，搭载网络架构新一代驱动系统
- 以太网、USB、RS232、Profibus等通讯接口，可实现工厂组网，机床信息监控和远程诊断等功能
- 功能强大，支持激光功率控制、飞行切割及蛙跳、断点返回、自动寻边、小孔加工、切割头随动控制等
- Communication interfaces for Ethernet, USB, RS232, and Profibus, functions such as factory networking, machine information monitoring, and remote diagnosis can be realized
- Supportable: laser power modulation, grid cutting, jumping, breakpoint returning, automatic edge finding, etc

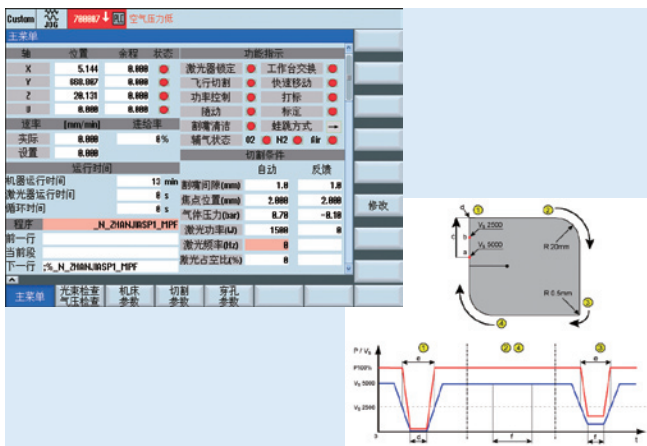
# 先进技术

Advanced Technologies



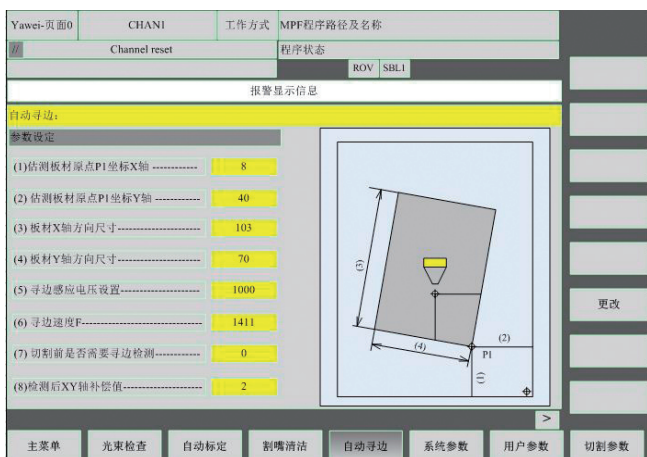
## X 轴双边同步驱动 / Synchronous Dual-drive

- 德国西门子双边同步控制技术，驱动力均衡稳定
- 双侧支撑的龙门式结构，刚性更好，变形更小
- 同步无误差，定位精度更高，定位速度更快
- Synchronous dual-drive control technology from Siemens, driving force equalized and stable
- Dual-support gantry structure, advantageous over cantilever structure for smaller deformation and better rigidity
- Error-free synchronization, higher precision and speed



## 激光功率控制 / Laser Power Modulation

- 在切割过程中，根据路径、速度的变化，实时控制激光器输出功率
- 在切割尖角或小轮廓图形时能够避免过烧，达到最佳切割效果
- During the cutting process the laser output power will be modulated in real-time according to the change of path velocity
- Can avoid over-burns when cutting sharp corners or very small profiles to achieve the best cutting performance



## 自动寻边功能 / Automatic Edge Finding

- 通过激光切割头传感器，自动快速寻找到板材的边缘，检测其顶点位置和角度
- 根据板材的实际位置自动调整和校正切割程序，大大节约了操作时间，减轻了工人劳动强度
- The sensor on the cutting head can quickly and automatically find the edge of the sheet to detect the vertex position and angle
- Automatically adjust and calibrate the cutting program according to the real position of the sheet, manual operation time has been greatly saved

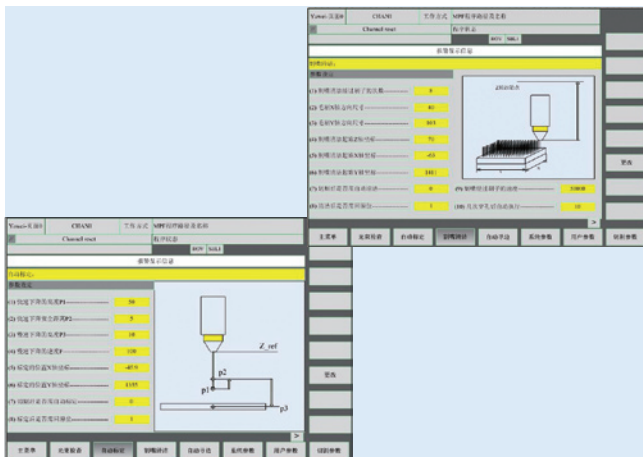




### 切割辅助气体压力控制

#### Pressure Control of Assisting Gases

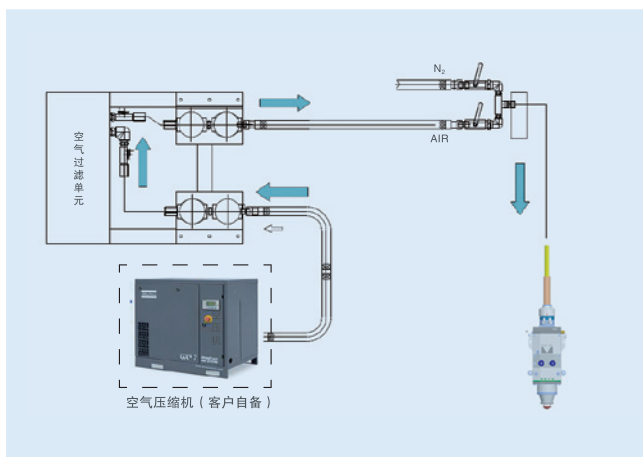
- 实时检测和自动补偿切割辅助气体压力
- 当实际压力超出设定值范围时，控制系统自动发出报警，提醒检查气体压力，大大降低了废次品率
- 具有辅助气体 Air、O<sub>2</sub>、N<sub>2</sub> 自动切换功能
- Real-time detection and automatic compensation to the pressure value of assisting gases
- Once the actual pressure goes beyond the set value, the control system automatically activates an alarm
- Automatic switchover of assisting gases: air, O<sub>2</sub>, and N<sub>2</sub>



### 割嘴间隙自动标定与清洗

#### Automatic Calibration and Cleaning of Standoff

- 一键启动，自动进行16点标定，保证切割随动间隙精确稳定，即使板材表面不够平整，也能实现很好的切割效果
- 切割完成后自动进行割嘴清洁，延长割嘴使用寿命，提高加工质量
- One-key start to implement 16-point calibration, making sure the follow-up stand off is precise and stable, The cutting quality will be well even if the sheet surface is not flat
- Clean nozzle automatically after cutting to extend the life span of nozzles and improve the cutting quality



### 空气切割功能 / Air cutting function (HLF)

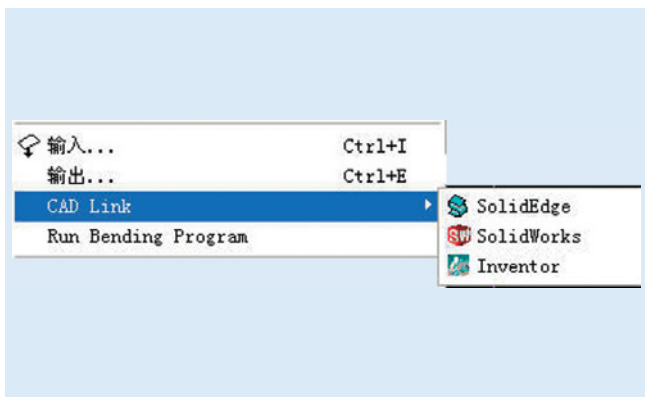
- 更换或购买空压机使空气压力达到切割要求（空气压力由 0.8Mpa 增至 1.3MPa 左右）
- 较采用 O<sub>2</sub> 或 N<sub>2</sub> 辅助气体切割，零件断面质量有所降低，但切割成本减少
- Change or purchase the air compressor to make sure the air pressure reach to the cutting requirements (The air presure rises from 0.8 Mpa to 1.3 Mpa around)
- Low down the cutting cost, but the cutting kerf quality is not as good as O<sub>2</sub> gas or N<sub>2</sub> gas cutting

# 编程软件

## Programming Software

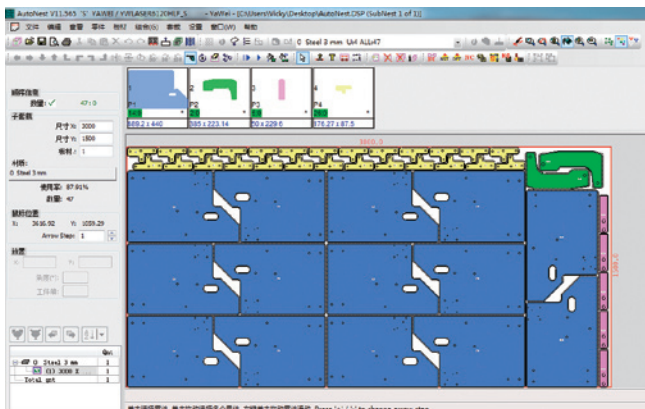
以色列CNCKAD是一套专业用于数控切割类机床的编程软件，拥有功能强大的专业钣金绘图功能，灵活的引入、引出线功能，智能的共边切割，配合高效的自动套裁模块和模拟加工显示，使您的切割工作得心应手，事半功倍

CNCKAD from Israel is a professional sheet metal graphics function, can flexible lead-in and lead-out, and smart common-cutting, in conjunction with an automatic nesting module and a display of cutting simulation, you will do your cutting jobs with great facility and efficiency



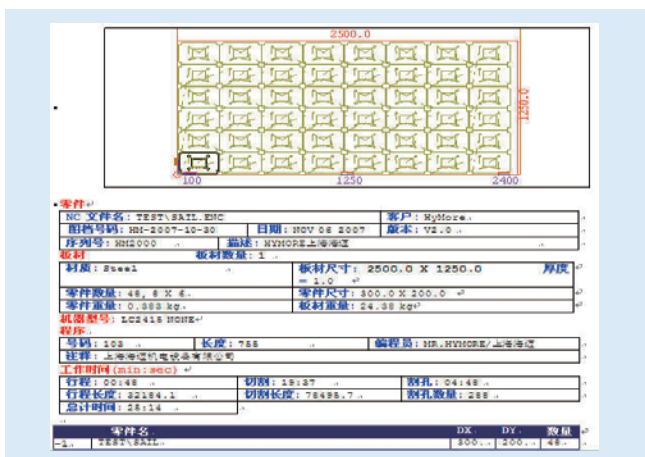
### 三维设计展开 / 3D Design Unfold

- 可使用原配METALIX 3D-UNFOLD专业三维设计展开
- 也可使用已有的三维软件，如：Pro/E, Solid Edge, Solid works等三维软件，CNCKAD可从上述三维软件中自动读取三维数据，并以二维展开图形式保存，等待下一步加工
- Can use professional METALIX 3D-UNFOLD to unfold
- Other 3D softwares also available: Pro/E, Solid Edge, and Solidworks, CNCKAD can automatically read 3D data from the above softwares, and save the data in 2D expanded views to wait for the next processing



### 自动套裁 / Automatic Nesting

- 多个不同数量的批量加工，可利用CNCKAD标配的AutoNEST模块实现自动套裁，最大限度地优化排版，节约材料，提高加工效率
- 自动优化切割路径
- Can use the AutoNEST module from CNCKAD to implement automatic nesting, optimizing the overall composition to the greatest extent to save materials and improve work efficiency
- Automatically optimize the cutting path



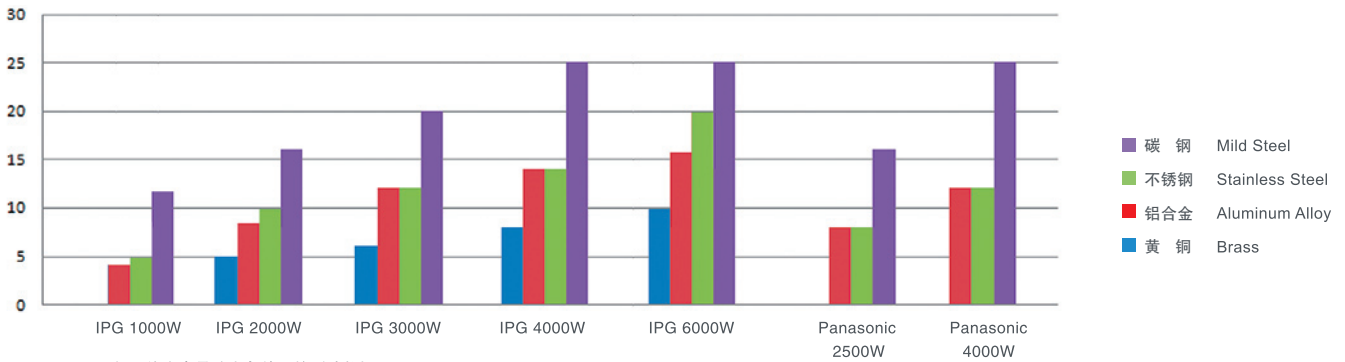
### 工艺报告文件 / Technical Report Documentation

- CNCKAD在生成加工程序的同时生成报告文件，包括：材料、板厚、零件数量、零件重量、切割长度、机床空行程时间、加工时间等
- 操作人员凭加工报告文件能获得所加工程序的详细信息，编程与操作人员之间的交流实现文件化管理
- CNCKAD can simultaneously generate a report document which includes the material, thickness, part quantity, part weight, cutting length, idle running time, and processing time
- From report, the operator can receive all detailed information relating to the processing program, thus the communication can be realized as documented management

# 应用广泛

Wide Applications

## 加工能力 / Cutting Capacity



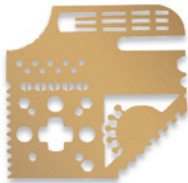
- 加工能力表是特定条件下的测试数据
- 即使被加工物是同一规格的材料，也会因化学成份含量不同、加工形状不同等因素导致加工品质出现差异
- This cutting capacity chart shows the testing data under specific conditions
- Even if the part is of the same material, the cutting quality may have differences due to the different chemical composition contents, and shapes, etc



- 板材表面打标
- Marking function



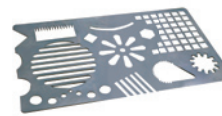
- 不锈钢薄板 (电梯、厨具、医疗器械等)
- Thin Plate of Stainless Steel



- 黄铜 (电子、化工等)
- Brass



- 铝合金板 (航空、专用车辆、幕墙等)
- Aluminum Plate



- 碳钢薄板 (金属柜体、家用电器、农业机械等)
- Thin Plate of Mild Steel



- 碳钢中厚板 (汽车改装、轨道交通、矿山机械等)
- Moderate Thickness Plate of Mild Steel



- 碳钢厚板 (工程机械、造船、桥梁等)
- Thick Plate of Mild Steel



- 不锈钢中厚板 (电力、锅炉、食品机械等)
- Moderate Thickness Plate of Stainless Steel

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