

陆友科技 产品手册

PRODUCT
HANDBOOK



专注激光工业设备智能制造
Focus on laser industry
equipment intelligent intelligence



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光纤激光打标机系列 Fiber laser marking machine series



- 光纤激光打标机采用一体化结构光纤激光器输出激光，再经高速扫描振镜系统实现完美打标功能，光纤激光打标机电光转换率高达70%以上，与半导体激光打标机相比有更高的光束质量，电光转换率高，采用风冷方式冷却，耗电少、体积小，光纤激光器理论寿命达10万小时，超长的运行寿命，是一款新型环保节能的激光打标设备。

Fiber laser marking machine adopts integrated structure fiber laser output laser, and then the high-speed scanning galvanometer marking system to achieve perfect function. Electrical and optical fiber laser marking conversion rates as high as 70 percent, compared to the semiconductor laser marking machine has a higher beam quality, electro-optical conversion efficiency, the use of air cooling, low power consumption, small size, fiber lasers theoretical life up to 100,000 hours, long operating life, is a new type of environmentally friendly energy laser marking equipment.

- 外观样式以实物为准，图片以供参考。
Appearance style to prevail in kind, the picture is for reference only.

技术参数 • Specification

设备型号/PN	FMF10W	FMF20W	FMF30W	FMF50W	FMF100W
激光器功率/Power	10W	20W	30W	50W	100W
激光波长/Wavelength	1064nm				
光束质量/Beam quality	<2				
标刻范围/Working area	110X110mm (标配/Standard) 150X150mm 175X175mm 200X200mm 300X300mm				
标刻线速/Marking speed	≤7000mm/s				
冷却方式/Cooling	风冷/Air-cooled				
重复精度/Repeatability	±0.001mm				
整机功耗/Total consumption	≤800W				
指示光/Indicate light	红光指示/Red				
供电需求/Power Requirements	AC/220V/50Hz可定制 (Customizable)				
旋转工作台/Rotary table	可选配/Optional				

性能特点 • Performance

- 耗电少,体积小, 整机功率小于800W, 采用风冷式冷却结构,使设备体积更小, 方便携带及运输, 运输成本大大降低。
Low power consumption, small size, the whole consumption is less than 800W, air cooling, making the equipment smaller, easy to carry and transport, the transport cost is greatly reduced.
- 光纤激光器电光转换率高, 免维护,稳定性高,操作简便, 设备可即开即用,激光器采用密封结构及风冷却方式, 省去专业人士维护的繁琐。
The electro-optical conversion efficiency of fiber laser is higher, maintenance-free, high stability, easy to operate, which means the equipment can be used, laser sealed structure and air-cooled, no need of professionals maintain.
- 可进行条形码、二维码、文字图形、规则和不规则流水号等打标。
Bar codes, two-dimensional code, text graphics, serial number and other regular and irregular marking.
- 可进行深雕标刻、打黑色标记和旋转标刻等。
Deep carving, playing black marker and rotation marking and so on.
- 可支持PLT、AI、DXF、BMP、JPG等多种文件格式。
Support PLT, AI, DXF, BMP, JPG and other file formats.
- 可根据客户需求定制。
Can be customized according to customer demand.

二氧化碳激光打标机系列

Carbon dioxide laser marking machine series



- 二氧化碳激光器是一种气体激光器，以CO₂气体为工作介质，采用红外光波段10.64μm的波长，将CO₂气体充入高压放电管中产生辉光放电，使气体分子释放出激光，将激光能量放大后就形成对材料加工的激光束，激光束使被加工体表面气化达到雕刻的目的。
Carbon dioxide laser is a gas laser, with CO₂ gas as the working medium, using infrared light the wavelength of 10.64μm, the CO₂ gas into the high-pressure glow discharge in the discharge tube, the gas molecules release of the laser, the laser energy amplification after the formation of the material processing laser beam, a laser beam is processed to achieve the purpose of engraving the surface of the gasifier.
- 外观样式以实物为准，图片以供参考。
Appearance style to prevail in kind, the picture is for reference only.

技术参数 • Specification

设备型号/PN	FMC10W	FMC30W	FMC40W	FMC50W	FMC100W	FMC120W
激光器功率/Power	10W	30W	40W	50W	100W	120W
激光波长/Wavelength	10.64μm					
重复精度/Repeatability	±0.001mm					
标刻范围/Working area	100X100mm(标配/Standard) 150X150mm 200X200mm					
标刻线速/Marking speed	≤7000mm/s					
冷却系统/Cooling System	根据激光器功率选配/According optional laser power					
供电电压/Voltage	AC/220V/50Hz可定制/Customizable					
整机功耗/Tota consumption	800W~5KW根据激光器选型而定/Depending on the laser selection					
指示光/Indicate light	红光 (可选配) /Red(optional)					
旋转工作台/Rotary table	可选配/Optional					

性能特点 • Performance

- 金属射频管激光器，光斑质量好，激光功率大，可反复充气使用，免维护，激光器采用密封结构，省去专业人士维护的繁琐。
RF metal laser tube, good beam quality, laser power, can be used repeatedly inflatable use, maintenance-free, sealed laser structure, eliminating the need for cumbersome maintenance professional.
- 打标范围大，可配旋转工作台。
Marking range, can be equipped with a rotary table.
- 可进行条形码、二维码、文字图形、规则和不规则流水码标刻。
Can be bar codes, two-dimensional code, text graphics, regular and irregular water code marking.
- 标记清晰，不易磨损，无耗材、加工成本低廉。
Marking a clear, easy to wear, no supplies, low processing costs.
- 可支持PLT, AI, DXF, BMP, JPG等多种文件格式。
Support PLT, AI, DXF, BMP, JPG and other file formats.
- 小功率激光器可以做成便携式机柜。
Low-power lasers can be made portable cabinet.
- CO₂激光打标机可标刻多种非金属材料和部分金属制品。
CO₂ laser marking machine marking a variety of non-metallic materials and some metal products.
- 可根据客户需求定制。
Can be customized according to customer demand.

紫外激光打标机系列 UV laser marking machine series



- 紫外激光打标机属于激光打标机的系列产品，但其采用355nm的紫外激光器研发而成，该机采用三阶腔内倍频技术，同红外激光比较，355紫外光聚焦光斑极小，能在很大程度上降低材料的机械变形且加工热影响小，因为主要用于超精细打标、雕刻，特别适合用于食品、医药包装材料打标、打微孔、玻璃材料的高速划分及对硅片晶圆进行复杂的图形切割等应用领域。

UV laser marking machine laser marking machine belongs to a series of products, but its use of 355nm UV laser research and development, the machine uses the third-order cavity frequency doubling technology compared with the infrared laser, UV 355 small focused spot, can greatly reduce the mechanical deformation of materials and processing small heat affected because mainly used for ultra-fine marking, engraving, particularly suitable for food, pharmaceutical packaging material marking, porous, high-speed divided silicon and glass materials wafer cutting and other complex graphics applications.

- 外观样式以实物为准，图片以供参考。
Appearance style to prevail in kind, the picture is for reference only.

技术参数 • Specification

设备型号/PN	FMUV3W	FMUV5W	FMUV8W	FMUV10W
激光器功率/Power	3W	5W	8W	10W
激光波长/Wavelength	355nm			
重复精度/Repeatability	0.003mm			
标刻范围/Working area	50X50mm 100X100mm			
标刻线速/Marking speed	≤7000mm/s			
调Q频率/Q-Switch frequency	8KHz~15KHz			
供电电压/Voltage	AC/220V/50Hz可定制/Customizable			
整机功率/Total Consumption	根据激光器选型而定/Depending on the laser selection			
冷却系统/Cooling System	根据激光器功率选配/According optional laser power			
指示光/Indicate light	红光 (可选配) /Red(optional)			

性能特点 • Performance

- 光束质量好，聚焦光斑小，加工热影响小，能实现超细标记。
Good beam quality, small focused spot, small heat-affected processing, to achieve ultra-fine markers.
- 可以进行超精细打标加工及特殊材料打标，是对打标效果有更高要求客户的首选产品。
Can be ultra-fine processing and special material marking is the marking effect and have higher expectations of customers choice.
- 紫外激光除铜材质外，适合加工的材质更加广泛。
In addition to copper UV laser material suitable for processing the material more widely.
- 属于冷激光打标加工，热效应相对较低，不会产生材料烧焦问题。
Are cold laser marking processing, thermal effects are relatively low, no material burning issue.
- 标记速度快、效率高。
Marking speed, high efficiency.
- 整机性能稳定，体积小，功耗低。
Stable performance, small size and low power consumption.
- 紫外激光以小功率为主，其功率主要根据加工材料的要求来定制，加工效果和功率有很大的关联。
Small power UV laser-based, mainly based on the requirements of its power to customize the processing of materials, processing and power have a great effect association.

在线飞行激光打标机系列

Online flight laser marking machine series



- 在线飞行激光打标系统、流水线喷码是指在流动生产线上，激光打标机替代了喷墨喷码机在流水线上工作，产品在生产线上流动的过程中，经过激光打标机的感应区域时，触发激光打标机进行喷码标刻工作，根据产品材质可以选择二氧化碳激光器或光纤激光器。
视觉系统是指在激光标刻系统上根据需求加入可视系统来实现所需要的功能。
Online flight laser marking systems, pipeline Coding refers to the flow of the production line, laser marking machine to replace the ink jet inkjet printer to work on the pipeline products in the process flow of the production line, after laser marking machine induction when the region, triggering laser marking machine marking Coding work product materials can be selected according to the carbon dioxide laser or fiber laser.
The visual system is the laser marking system accroding to the visual system needs to impliment added functionality required.
- 外观样式以实物为准，图片以供参考。
Appearance style to prevail in kind, the picture is for reference only.

Co₂ 技术参数 • Specification

设备型号/PN	FMOC30W	FMOC40W	FMOC50W	FMOC100W	FMOC120W
激光器功率/Power	30W	40W	50W	100W	120W
激光波长/Wavelength	10.64μm				
重复精度/Repeatability	±0.001mm				
标刻范围/Working area	100X100mm(标配/Standard) 150X150mm				
标刻线速/Marking speed	≤7000mm/s				
冷却系统/Cooling system	根据激光器功率选配/According optional laser power				
供电电压/Voltage	AC/220V/50Hz可定制/Customizable				
整机功耗/Total consumption	800W~5KW视激光器功率/Depending on the laser power				
指示光/Indicate light	红光 (选配) /Red(optional)				
旋转工作台/Rotary table	可选配/Optional				

Co₂ 性能特点 • Performance

- 使用激光打标机作为喷码系统，维护方便，效率更高、更稳定。
As the use of laser marking machine Coding System, easy to maintain, more efficient, more stable.
- 根据实际需求定制，使激光打标机更好的适应工业生产的需求，大大提高效率，节约生产成本。
According to the actual needs of customized laser marking machine to better adapt to the needs of industrial production, greatly improve efficiency, reduce production costs.
- 由于其具有视觉及触觉的独特效果和永不可擦除的特点，因此还具有了较强的防伪、防窜货特性。
Because of its unique visual and tactile effects and will never be erased features, it also has a strong anti-counterfeiting, Cuanhuo characteristics.
- 根据客户需要定制，使设备更好的发挥其性能。
Customized according to customer needs, make the device better play its performance.
- 可控制标刻深度，售命长，可长期使用。
Marking depth can be controlled, sold long life, long-term use.
- 广泛应用于：烟草行业、生物制药、酒业、食品饮料、保健品、电子行业、国防工业、汽车零件、制卡、工艺、服饰配件、建筑材料等及特殊领域。
Widely used: the tobacco industry and special areas, bio-pharmaceutical, liquor, food and beverage, health products, electronic industry, defense industry, automotive parts, card, crafts, clothing accessories, building materials and so on.

光纤技术参数 • Specification

设备型号/PN	FMOF20W	FMOF30W	FMOF50W	FMOF100W
激光器功率/Power	20W	30W	50W	100W
激光波长/Wavelength	1064nm			
光束质量/Beam quality	<2			
标刻范围/Working area	110X110mm 150X150mm			
标刻线速/Marking speed	≤7000mm/s			
冷却方式/Cooling	风冷/Air-cooled			
重复精度/Repeatability	±0.001mm			
整机功耗/Total consumption	≤800W			
指示光/Indicate light	红光指示/Red			
供电需求/Power Requirements	AC/220V/50Hz可定制 (Customizable)			
旋转工作台/Rotary table	可选配/Optional			

光纤性能特点 • Performance

- 耗电少,体积小,整机功率小于800W,采用风冷式冷却结构,使设备体积更小,方便携带及运输,运输成本大大降低。
Low power consumption, small size, the whole consumption is less than 800W, air cooling, making the equipment smaller, easy to carry and transport, the transport cost is greatly reduced.
- 光纤激光器电光转换率高,免维护,稳定性高,操作简便,设备可即开即用,激光器采用密封结构及风冷方式,省去专业人士维护的繁琐。
The electro-optical conversion efficiency of fiber laser is higher, maintenance-free, high stability, easy to operate, which means the equipment can be used, laser sealed structure and air-cooled, no need of professionals maintain.
- 可进行条形码、二维码、文字图形、规则和不规则流水号等打标。
Bar codes, two-dimensional code, text graphics, serial number and other regular and irregular marking.
- 可进行深雕标刻、打黑色标记和旋转标刻等。
Deep carving, playing black marker and rotation marking and so on.
- 可支持PLT、AI、DXF、BMP、JPG等多种文件格式。
Support PLT, AI, DXF, BMP, JPG and other file formats.
- 可根据客户需求定制。
Can be customized according to customer demand.

适用范围：

- ◆可雕刻金属材料和部分非金属材料，特别适合一些要求更精细、精度更高和对光滑度要求较高的领域，广泛应用于电子学分离元器件、集成电路（IC）、电工电路、手机通讯、精密器械、眼镜钟表、计算机键盘、首饰饰品、五金制品、刀具厨具、工具配件、汽车配件、塑胶按钮、水暖配件、PVC管材、医疗器械、包装瓶罐、卫生洁具等
- ◆可加工各种金属(不锈钢, 铁、铜、铝、镁、锌, 稀有金属, 合金等)、工程塑料、电镀材料、镀膜材料、喷涂材料、油墨、ABS、塑料橡胶、环氧树脂等

性能特点：**共享·创新 智领·未来**

- ◆光纤激光器，可靠性高，超长的运行寿命，节能，可雕刻金属材料和部分非金属材料
- ◆全封闭激光腔体设计，防尘不结霜。寿命长，故障率低；控制精度高，激光稳定性好
- ◆整机耗电量极低，无易损件，风冷系统设计，无需水冷，可在室温下24小时连续运转
- ◆脉冲重复频率高，输出功率稳定，单脉冲能量波动小于1%，从而可实现高速激光标刻，还可精确控制光斑的大小、深度、形状
- ◆能量传输都是在光纤波导中进行，无需分立的元器件
- ◆光纤激光器由于其卓越的光束质量，高功率密度，加工速度是传统激光器的2-3倍

样品展示：



邮编：450001



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