



手持式光纤激光打标机使用手册

Manual for hand-held fiber laser marking machine

DP-20CM-SC

DP-30CM-SC

DP-50CM-SC

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深圳市大鵬激光科技股份有限公司

Shenzhen dapeng laser Technology CO., LTD.

一：安全注意事项 Safety Precautions

1.1 激光安全知识 Laser Safety knowledge

辐射强度等级为第四类(CLASS-IV)激光产品的激光操作安全须知：Safety Notes for laser operation of CLASS IV laser products:

- 1.遵守一切安全操作规程,要严格按激光器的启动程序启动激光器; Comply with all safety operating procedures, to strictly start the laser according to the starting procedure;
- 2.操作者需要经过培训,熟悉设备的结构、性能,掌握操作系统有关知识。The operator needs to be trained, familiar with the structure and performance of the equipment, and master the knowledge related to the operating system.
- 3.避免直视激光器的输出光束,反射光与散射光也同样有害。Avoid looking directly at the output beam of the laser. The reflected light and scattered light are also harmful.
4. 使用激光的过程中禁止佩戴珠宝首饰。Do not wear jewelry when using laser.
5. 使用激光过程中必须佩戴防护性眼罩。Wear a protective eye mask when using the laser.
- 6.操作台面禁止放置易燃易挥发性物质,严禁在工作台前边镭射产品边用有机溶剂擦拭产品。 It is forbidden to place inflammable and volatile substances on the operating table, and it is forbidden to wipe the products with organic solvent while laser products are in front of the table.
- 7.使用过程中必须遵循一条原则：光路不能与人的眼睛处于相同高度 !!!One principle must be followed in the process of use: the light path should not be at the same height as

human eyes!!

8.在没有弄清楚其某一材料特性的时候，是否能使用激光照射或者加热前，不要对其加工，以免产生烟雾和蒸气的潜在危险。 Do not process it before you can use laser irradiation or heating before you do not know the characteristics of a certain material, so as to avoid the potential danger of smoke and steam.

9.激光设备在进行开动的时候，操作人员不得擅自离开岗位或者托人待管，如的确需要离开时应停机或切断电源开关。 When the laser equipment is started, the operator shall not leave the post or ask someone to take care of it. If it is necessary to leave, the machine shall be shut down or the power switch shall be cut off.

10.在进行加工的时候，如果发现有异常的情况的时候，应立即停机，及时排除故障或上报。 When processing, if there is an abnormal situation, it should be stopped immediately, troubleshooting or reporting in time.



1.2 安全指示标识

为避免激光对眼睛的伤害,请误

直视激光头,严禁将激光头对对准人或动物，或易燃易爆物品。 To avoid eye damage, look directly at the laser head. Do not aim the laser head at people, animals, or flammable



or explosive objects.

为了以防万一,工作场所放置灭火器。 Keep fire



extinguishers in the workplace just in case.

1.3 现场使用注意事项 Precautions for site use

配置专人负责:要求配备人员必须要有激光和打标相关知识和经验的人员。并在移交其他人员操作时必须对其进行安全操作相关培训。做到安全第一!

Assign a person to be responsible for: the personnel must have laser and marking related knowledge and experience. And when handing over other personnel to operate, it must carry out safety operation related training. Do safety first!

二：机器规格 Machine specifications

2.1 设备原理概述:光纤激光打标机是利用激光束在各种不同的物质表面打上永久的标记。打标的效应是通过表层物质的蒸发露出深层物质, 或者通过光能导致表层物质的化学物理变化而"刻"出痕迹, 或者通过光能烧掉部分物质, 显出所需刻蚀的图案、文字、条形码等各类图形, 所谓光纤激光打标机是指该款打标机使用的是光纤激光器, 光纤激光器具有体积小 (无水冷装置, 使用风冷)、光束质量好 (基模)、免维护。

Equipment principle Overview:Fiber laser marking machine is the use of laser beam in a variety of different substances on the surface of permanent marks. Play the effect of mark is through material surface evaporation show deep material, either light energy caused by surface physical chemistry and "carve out" traces of a physical change or light energy to burn, by part of the material, show the etching patterns, text, bar code and other kinds of graphics, fiber laser marking machine refers to the marking machine is using a fiber laser, Fiber laser has small volume (no water cooling device, using air cooling), good beam quality (basic mode), maintenance free.

2.2 设备适用范围和用途: 广泛应用于集成电路芯片、模具、微电子、电脑配件、工业轴承、钟表、卫浴洁具、电子及通讯产品、航天航空器件、各种汽车零件、家电、五金工具、模具、电线电缆、食品包装、首饰珠宝、医疗器材、烟草以及军用等众多领域图形和文字的标记、批量生产线作业。Scope of application and use: Widely used in integrated circuit chips,



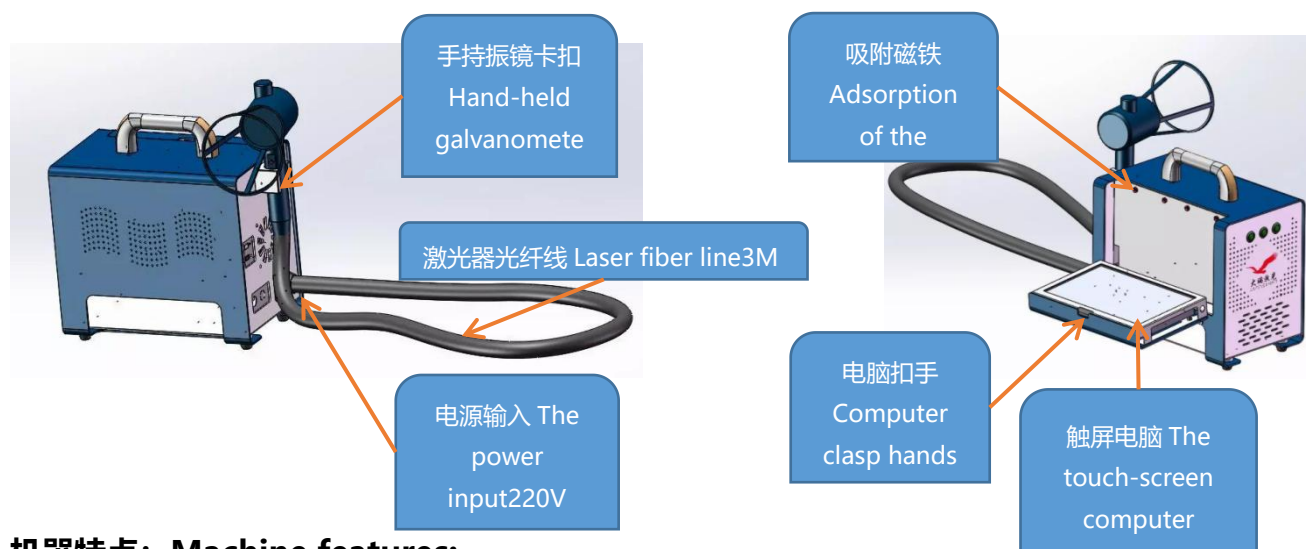
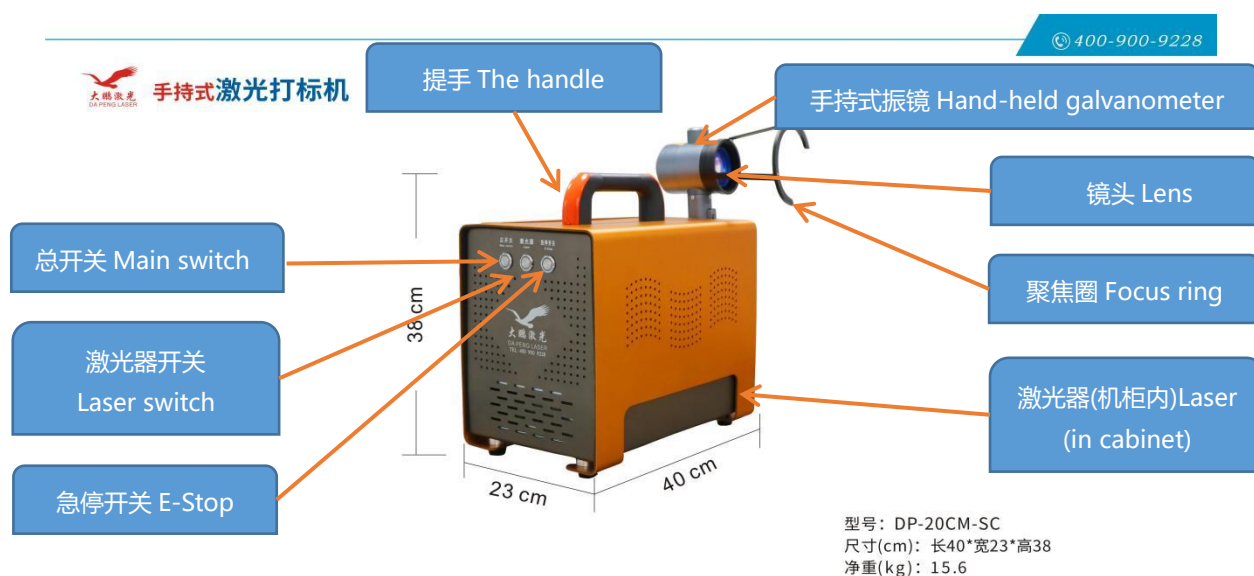
mold, microelectronics, computer accessories, industrial bearings, clocks and watches, sanitary ware, electronics and communication products, aerospace components, all kinds of auto parts, household appliances, hardware tools, dies, wire and cable, food packaging, jewelry, medical equipment, tobacco, military, and many other areas of graphics and text markup, batch production line operations.

2.3 机器组成部份:Machine components:

类别 category	器件名称 Device Name	规格 Specifications	单位 Unit	单套数量 quantity	总数量 Quantity Total
光学系统 Optical system	激光器 laser	20W/30W /50W MAXPHOTONICS	台 table	1	1
	扫描振镜 Scanning galvanometer	ScanQuick3-SC-110S $\lambda=1064\text{nm}$	台 table	1	1
	镜头 Lens	70mmX70mm/100mmX 100mm focusing lens	个 PCS	1	1
控制系统 Control system	控制软件 Control software	DP EzCAD	套 set	1	1
	触屏电脑 The touch-screen computer	11.6MINI PC 4+64G	套 set	1	1
	充电电池 The rechargeable battery	48V 锂电(非标配)48V lithium battery (optional)	套 set	1	1
机械系统 Mechanic	控制机柜 The control cabinet	Dp-SC portable(400mm*230m m*380mm)	台 table	1	1

al systems	手持机构	手持式光路长 280mmHand-held optical path length 280mm	套 set	1	1
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注：图片尺寸外观会根据公司设备更新会有所差异，具体以实物为主 Note: The size and appearance of the picture will vary according to the update of the company's equipment



机器特点： Machine features:



◎手持轻便,可选配 48V 锂电服务电池,可更广泛用于户外作业,持续工作 6 小时.

Portable, optional 48V lithium service battery, can be more widely used in outdoor work, lasting 6 hours.

◎激光功率输出稳定、光斑质量好；◎标刻速度快，是传统机型 YAG 的 2-3 倍；

Stable laser power output, good spot quality; ◎ High marking speed, 2-3 times that of traditional YAG;

◎无任何操作系统限制，操作方便，光路 全封闭，稳定可靠、免维护；

No operating system restrictions, easy to operate, fully closed optical path, stable and reliable, maintenance-free;

◎超长寿命，达 10 万小时以上；

Long life, more than 100,000 hours;

◎无污染、无噪音、无耗材。耗电量为传统机型的 5% - 10%；

No pollution, no noise, no consumables. Power consumption is 5%-10% of that of traditional models;

◎克服了高反材料损伤激光器的弱点，对所有金属都能标刻，还能雕刻大部分非金属材料；

Overcome the weakness of high anti material damage laser, can mark all metals, but also can carve most non-metallic materials;

◎超高精细度，分辨率达到 2540dpi

ultra high precision, resolution up to 2540dpi

软件功能：Software features:

◎操作过程人性化，设备运行稳定性好;专用控制软件可兼容 Auto CAD、CorelDRAW、Photoshop 等多种软件输出

Humanized operation process, good stability of equipment operation; Special control software can be compatible with Auto CAD, CorelDRAW, Photoshop and other software output

◎能接收各种 BMP、JPG、DXF、PLT、AI 等格式文件

Can receive various BMP, JPG, DXF, PLT, AI files and other formats

◎自动生成各种序列号，生产日期，一维码，二维码

Automatic generation of a variety of serial numbers, production date, one-dimensional code, two-dimensional code

2.2 激光手持式振镜 Laser hand-held galvanometer



SC 系列振镜 SC series galvanomete

产品特性：Product features:

电机速度快，精度高，标刻品质高 The motor is fast, high precision, high marking quality

重量 Weight(kg)	1.25kg
长度/高度 Length/Height (cm)	28cm*22cm(F=100 聚焦圈 Focus ring) 28cm*30cm(F=163 聚焦圈 Focus ring)
重复精度 Repeatability	< 22urad
指示红光 Indicating red light	有√
电源要求 Power Requirements	±15VDC,max2A

行业样品图示:Industry sample illustration:



LOGO



二维码 Qr code



图片 Picture



首饰 Jewelry



模具 Mould



订制礼品 Custom-made gift



铭牌 Nameplate



流水号 Serial number

整机技术参数:Machine technical parameters:

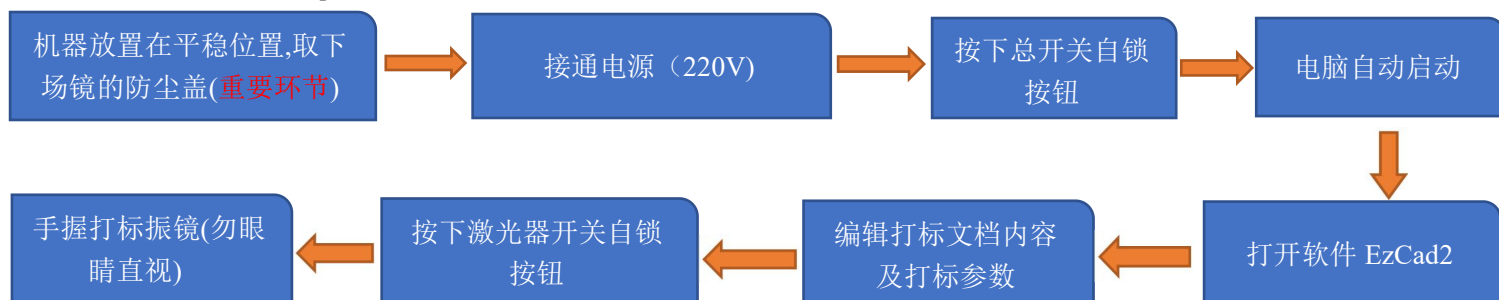
类别 Category	型号规格 Model Specifications	DP-20CM-SC DP-30CM-SC DP-50CM-SC
激光特性 The laser characteristics	中心波长 Center wavelength	1064nm
	激光功率 Laser power	20W/30W/50W
	重复频率 Repetition rate	20-80KHz
	光束质量 Beam mass	M2<1.5
	脉冲宽度 Pulse width	80~120ns
	光斑直径 Spot diameter	7±1mm
	安全等级 Safety Class	Class IV
标记参数 Marking Parameters	标记速度 Marking speed	≤12000mm 实际使用打标速度视材料而定 The actual marking speed depends on materials
	重复精度 Repetition accuracy	±0.001mm
	最小字符 The minimum	0.15mm

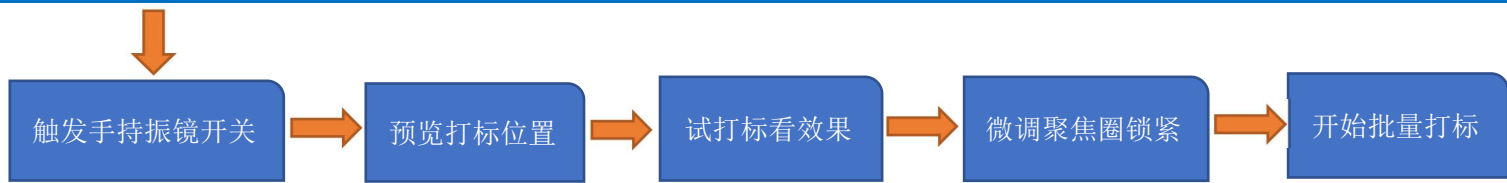


其它参数 Other parameters	character	
	最小标记线宽 Minimum mark line width	32um
	标记范围 Mark range	70mmx70mm/100mm*100mm
	冷却方式 cooling mode	风冷 air cooling
	系统防护等级 System protection level	IP54
	运行环境要求 Operating environment Requirements	环境温度 5-40°C, 相对湿度 30%≤RH≤85%, 无油雾, 无凝结 Ambient temperature 5-40 ° C, relative humidity 30%≤RH 85%, no oil mist, and no condensation
	电力要求 Power requirements	AC220V±5%, 50HZ/60HZ, 5Amp
	整机功耗 Total power consumption	<0.3KW
	整机重量 Machine weight	手持光路 1.25kg 手持机箱 13kg (不含包装) handheld optical path 1.25kg handheld chassis 13kg (excluding packaging)
	整机外形尺寸 Machine dimensions (length X width X height) mm	400mmx230mmx380mm (尺寸供参考) (size for reference)

三：设备简单操作 Simple operation of equipment

3.1 设备开机 powered

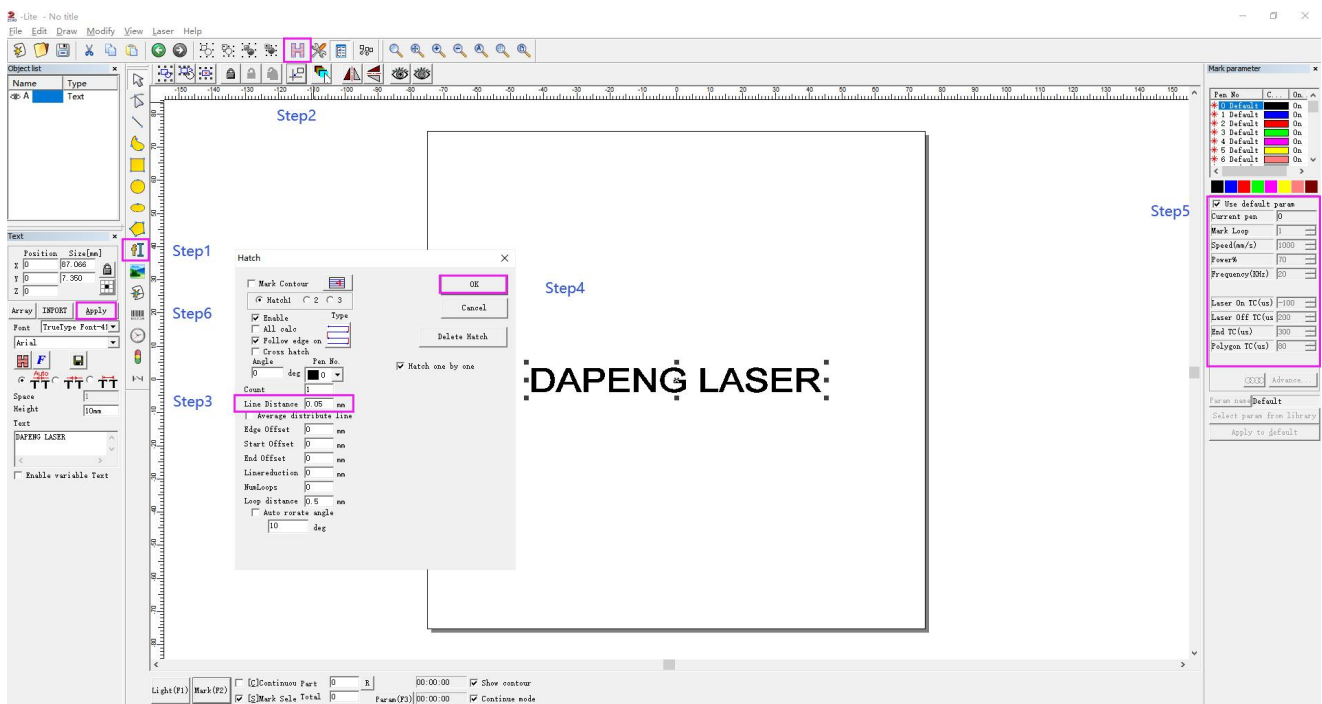




1) 接通电源: Put through power supply

将机器放置在平稳位置,取下场镜的防尘盖(重要环节),电源线接入 220V 电源。Put the machine in a stable position, take the dust cover of the exit mirror (important link), and connect the power cord to 220V power supply

2) 按下机身前面板上的总开关自锁按钮,亮灯显示通电正常。打开机身左侧面电脑面板,打标机通电后电脑开始运行,进入到操作界面, 打开软件 EzCad2,编辑打标文档内容及打标参数。Press the main switch self-lock button on the front panel of the machine body, and the light shows that the power is normal. Open the computer panel on the left side of the body, the computer starts to run after the marking machine is powered on, enter the operation interface, open the software EzCad2, edit the content of the marking document and marking parameters.





3) 按下机器的激光器开关按钮,亮灯显示通电正常。Press the laser switch button of the machine, and the light shows that the power is normal.

4) 取出手持式振镜,从机箱后方手握打标振镜头部向上提起,从卡扣中取出振镜。Take out the hand-held vibroscope, lift it from the marking vibroscope at the rear of the chassis, and take out the vibroscope from the buckle.

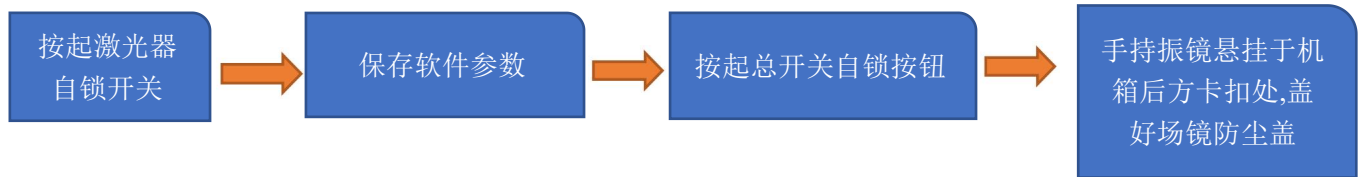
将聚焦圈置于调试铝片表面,触发手持振镜开关按钮,通过激光器发出的红光,预览打标位置,触发开关试打标,观测效果,微调焦距,锁紧聚焦圈。Put the focusing ring on the surface of the debugging aluminum sheet, trigger the switch button of the handheld galvanometer, preview the marking position through the red light emitted by the laser, trigger the switch to try marking, observe the effect, fine-tune the focal length, and lock the focusing ring.

5) 完成以上操作后,手持打标机便可正常使用。After completing the above operations, the hand-held marking machine can be used normally.

6) 紧急情况时按下急停开关,整机关闭。Press the emergency stop switch to shut down the machine in case of emergency.

3.2 设备关机 Equipment shutdown

与开机顺序相反,先关激光器、在软件上保存打标参数,再关总开关,将手持振镜的尾部由上面下穿插进入机箱后方的卡扣,盖上场镜防尘盖。Contrary to the starting sequence, first turn off the laser, save the marking parameters in the software, then turn off the main switch, insert the tail of the handheld galvanometer from top to bottom into the buckle at the rear of the chassis, and cover the dust cover of the galvanometer.



四：维护及保养 Maintenance and maintenance

4.1 机器使用温度要求 Indoor temperature requirement of the machine

机器所在的环境温度要求为：5℃以上,40℃以下

The indoor temperature of the machine is as follows:Above 5℃-Below 40℃

4.2 机器清洁、保养 Machine cleaning and maintenance

1)定期（一个月）给机器内部清理灰尘，保证机器内部清洁。也可根据机器所在环境更改清理频率

Clean the dust inside the machine regularly(one time per month),ensure the internal cleaning of the machine,Also you could change the frequency of cleaning the machine according to the environment.

2)机器加工最大功率需控制在 90%以下，长时间超 90%功率工作会导致激光器功率过快衰减，降低使用寿命

The maximum power of the machine should be controlled under 90%, the laser power could lead to decay too fast if it processes over 90% power for a long time,also it will reduce the service life.

3)潮湿环境下使用机器有可能引起机器内部电路短路及损坏部件。

The use of machines in a humid environment is likely to cause short circuit and damage to the internal circuit of the machine.



五：电气安全与保修事项 Electrical safety and warranty matters

5.1 电气安全 Electrical safety

只有经过正式训练以及具有专业知识之人员才可以进行电气维修和故障排除 Only formally trained and knowledgeable personnel can perform electrical maintenance and troubleshooting

1)启动之前，请详细阅看说明书并熟知安全操作规程 Before starting, please read the instructions carefully and be familiar with the safety operation procedures

2)排除故障前，必须切断电源 Before troubleshooting, the power must be cut off

3)注意地面是否有水或潮湿，防止触电 Pay attention to whether there is water or moisture on the ground to prevent electric shock

4)检查地线是否安全接地 Check whether the ground cable is securely grounded

5)不得修改电路或拆自拆开电器部件，除非经我司专业人员授权 Do not modify the circuit or disassemble the electrical parts, unless authorized by our professional staff

6)请勿将手持枪对准人或动物，或易燃易爆物品。 Do not point your gun at people or animals, or flammable or explosive objects

5.2 保修事项 The warranty issues

1)未经我司允许私自更改外观、结构、电气线路或拆装核心部件如激光器光学部件等不在公司保修范围，如因此造成间接方面损失，我司将不承担任何相关责任 It is not within the warranty scope of the company to change the appearance, structure, electrical circuit or disassemble core components such as laser optical components without the permission of our company. In case of indirect losses caused by this, our company will not bear any relevant liabilities



2) 违规操作而造成的人为损坏将不在保修范围内 Man-made damage caused by illegal operation will not be covered by the warranty

3) 本打标头内的光学场镜镜片与平板电脑屏属于易碎产品, 请避免与尖锐钝物撞击, 如有损坏恕不保修, 本公司承诺易损件的产品维修请寄回 The optical field mirror lens and tablet computer screen in this marking head are fragile products, please avoid collision with sharp blunt objects, if there is damage, the warranty is not guaranteed, the company promises to wear parts of the product repair, please send back

4) 本打标机的平板电脑屏属于易碎产品, 移动设备或不使用时请轻合上平板电脑盖板, 请避免与尖锐钝物撞击, 如有损坏恕不保修, 本公司承诺易损件的产品维修请寄回 The tablet computer screen of this marking machine belongs to fragile products. Please close the cover plate of the tablet gently when mobile devices or not in use. Please avoid collision with sharp blunt objects

5) 手持振镜头有内置可供使用的零件, 所有维修应由本公司专业人员进行维修, 请不要损坏标签和揭开手持头盖子, 不使用时请将手持振镜头悬挂于机身后部的卡扣中, 请勿随意置放工作场所, 避免碰接, 否则产品的任何损坏本公司不予保修 portable vibration lens has a built-in parts that can be used, all maintenance shall be conducted by the company professional maintenance, please don't damage the label and uncovered the handheld head cap, when not in use, please hang the handheld vibration lens in the back of card buckle, please do not arbitrarily placed the workplace, to avoid collision, or any damage to the product the company shall not be warranty

5.3 售前、售中、售后服务 Pre-sale, in-sale and after-sales services

1) 售前服务 Pre-sales service

签订合同前, 公司可免费为客户产品试样及技术和价格咨询解答。Before signing the contract, the company can provide free product samples and technical and price consultation for customers.

2) 售中服务 In-sale services



产品在安装过程中有出现任何技术难题可随时联系当地区域经理或售后技术人员，如需要进行现场技术支持可与当地的销售经理沟通由本公司协调安排。If there is any technical problem during the product installation, please contact the local regional manager or after-sale technical personnel at any time. If you need on-site technical support, please contact the local sales manager for coordination and arrangement by the company.

3)售后服务 After-sales service

在合同期限的保修范围内，客户服务的响应时间在 24 小时内，Customer service response time is within 24 hours within the warranty period of the contract,

保修期内免费为客户提供高效的技术服务支持，保修期满后仍然提供软硬件的支持，终身享受软件系统的免费升级服务。During the warranty period, we will provide customers with efficient technical service support. After the warranty expires, we will still provide software and hardware support and enjoy free upgrade service of software system for life.

5.4 附件为重要配件说明书（供参考） Attached is the manual of important accessories (for your reference)

1) [软件说明书](#) Software specification

声明：Statement:

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在使用我司设备前必须仔细阅读安全使用注意事项并经我司人员培训后方可上岗操作。Before using our equipment, you must read the safety precautions carefully and be trained by our staff before operating.本说明手册如有变更，不另行通知。This instruction manual is subject to change without prior notice.

版本：A0

编制：周海清

审核：

日期：2022-5-30

Version: A0

Compiled by: Zhou Haiqing

Review:

Date: 2022-5-30

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